From:	Vannorman, Tim
To:	Gloria Bell
Cc:	Craig Hoover
Subject:	Documents requested by Greg Sheehan at this morning"s briefing
Date:	Tuesday, October 10, 2017 4:12:36 PM
Attachments:	African Leopard Petition (7.25.16) FINAL.pdf 2017 - 2019 sa wild lion finding.pdf IUCN Guide on Trophy hunting as tool.pdf

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Gloria,

Greg asked for several documents related to the IUCN Species Survival Commission trophy program guidelines, how we incorporated these guidelines into our enhancement consideration, and the current petition for uplisting African leopards.

I have attached the petition and IUCN guidelines. I have also attached a copy of the South African wild/wild-managed lion finding for 2017, 2018, and 2019 which has a discussion of these guidelines and how our permit issuance criteria under 50 CFR 17.32 would be applied.

Tim

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In Reply Refer To:
FWS/AIA/DMA

AUG 30 2017

Memorandum

To: The File

From: Chief, Branch of Permits

Subject: Enhancement Finding for Wild and Wild-managed Lions Taken as Sport-hunted Trophies in South Africa for 2017 - 2019

After evaluating the available information from the Government of South Africa, other information available to the Service, and comments received from interested parties, the U.S. Fish & Wildlife Service (Service) has determined that permits for the importation of sport-hunted trophies of wild and wild-managed lions (*P. l. melanochaita*) from South Africa taken during the 2017, 2018, and2019 calendar years **meet** the enhancement criteria under 50 CFR 17.32. Therefore, applications received for import of such specimens will be considered to have met this requirement. In accordance with the 4(d) rule for *P. l. melanochaita*, 50 CFR 17.40(r), the Service will review each application for import of such specimens on a case-by-case basis and each application will also need to meet all other applicable permitting requirements before it may be authorized. If the basis for this finding changes or the situation in South Africa in regards to wild and wild-managed lions changes before the end of 2019, the Service will re-evaluate this finding and may alter the finding to reflected new information available on wild and wild-managed lions in South Africa.

Governance of the Lion in the United States:

On October 29, 2014, the Service published in the Federal Register a finding that listing the African lion subspecies (*Panthera leo leo*) as a threatened species under the Endangered Species Act (Act) was warranted and proposed a rule under section 4(d) of the Act to provide conservation measures for the African lion. 79 Fed. Reg. 64472. On December 23, 2015, after fully considering the comments from the public and the peer reviewers on the proposed rule, the Service published in the Federal Register the final rule in which the taxonomic classification of the Asiatic lion (previously classified as *P. l. persica* and listed as an endangered species under the Act) was changed to *P. l. leo* (Asia and western, central and northern Africa) and listed as an endangered species, and the *P. l. melanochaita* (southern and eastern Africa) subspecies was listed as a threatened species with a rule under section 4(d) of the Act, which is set forth at 50 CFR 17.40(r) (USFWS 2015; 80 Fed. Reg. 79999). The effective date of this listing is January 22, 2016. Therefore, as of January 22, 2016,

the lion subspecies *Panthera leo melanochaita*, whose range includes South Africa, is listed as threatened under the ESA and is regulated under an ESA section 4(d) special rule [50 CFR 17.40(r)].

Section 9 of the Act and our implementing regulations at 50 CFR 17.21 and 50 CFR 17.31 set forth a series of general prohibitions that apply to all endangered and threatened wildlife, respectively, except where a 4(d) rule applies to threatened wildlife, in which case the 4(d) rule contains all the applicable prohibitions and exceptions. Under the 4(d) rule for *P. l. melanochaita*, all of the prohibitions under 50 CFR 17.31 apply to *P. l. melanochaita* specimens. These prohibitions, at 50 CFR 17.21 and 17.31, in part, make it illegal for any person subject to the jurisdiction of the United States to "take" (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt any of these) within the United States or upon the high seas; import or export; deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever, in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any lion specimens. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken in violation of the Act. Permits may be issued to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain circumstances. Regulations governing permits for endangered species, such as *P. l. leo*, are codified at 50 CFR 17.22. Regulations governing permits for threatened species, such as *P. l. melanochaita*, are codified at 50 CFR 17.32.

In sum, under paragraph 50 CFR 17.40(r)(1), all the prohibitions and exceptions under 50 CFR 17.31 and 50 CFR 17.32 apply to *P. l. melanochaita*. Accordingly, the Service may authorize the import of a sport-hunted lion trophy from South Africa, but only if it first makes a finding that permitting the import of a trophy would enhance the survival of the species in the wild.

As we explained when finalizing the 4(d) rule for *P. l. melanochaita*, any person wishing to conduct an otherwise prohibited activity, including all imports of *P. l. melanochaita* specimens, must first obtain a permit under 50 CFR 17.32. As with all permit applications submitted under 50 CFR 17.32, the individual requesting authorization to import a sport-hunted trophy of *P. l. melanochaita* bears the burden of providing information in their application showing that the activity meets the requirements for issuance criteria under 50 CFR 17.32. In some cases, such as for import of sport-hunted trophies, it is not always possible for the applicant to provide all of the necessary information needed by the Service to make a positive determination under the Act to authorize the activity. In such cases, the Service may consult with the range country and other interested parties to the extent practicable to obtain necessary information. The Service has the discretion to make the required findings on sport-hunted trophy imports of *P. l. melanochaita* on a countrywide basis, although individual import permits will be evaluated and issued or denied for each application. While the Service may make enhancement findings for sport-hunted trophy imports of *P. l. melanochaita* on a countrywide basis, the Service encourages the submission of information from individual applicants. We rely on the information available to the Service and may rely on information from sources other than the applicant when making a permitting decision.

In evaluating the available data on lion hunting in South Africa, the Service is treating wild and wild-managed lions separately from lions that are not identified/confirmed as wild or wild-managed or are identified as captive-bred animals raised for hunting purposes since the management and oversight of these specimens is different within South Africa and, therefore, information relevant to the Service's consideration of whether permitting the import of sport-hunted trophies of lions may

enhance the survival of the species in the wild is different between wild and wild-managed lions, and captive-bred lions in South Africa. A separate determination will be made for lions that are not identified as wild or wild-managed.

General considerations:

As we also explained when finalizing the 4(d) rule, our threatened species permitting regulations at 50 CFR 17.32 provide issuance criteria for threatened species permits (50 CFR 17.32(a)(2)), but do not specify what would constitute the enhancement of propagation or survival with regard to authorizing the import of parts or products of *P. l. melanochaita,* including sport-hunted trophies. Therefore, when making a determination of whether an otherwise prohibited activity enhances the propagation or survival of *P. l. melanochaita,* the Service examines the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (*i.e.,* that it is based on sound scientific principles and that the management program is actively addressing the current and longer term threats to the subspecies). In that review, we evaluate whether the import contributes to the overall conservation of the species by considering whether the biological, social, and economic aspects of a program from which the specimen was obtained provide a net benefit to the subspecies and its ecosystem.

The Service will evaluate any application received that involves *P. l. melanochaita* in the context of enhancement of propagation or survival permitting in accordance with our threatened species permitting regulations at 50 CFR 17.32 and issuance criteria for threatened species permits (50 CFR 17.32(a)(2)). These include, in addition to the general permitting criteria in 50 CFR 13.21(b):

(i) Whether the purpose for which the permit is required is adequate to justify removing from the wild or otherwise changing the status of the wildlife sought to be covered by the permit;

(ii) The probable direct and indirect effect that issuing the permit would have on the wild populations of the wildlife sought to be covered by the permit;

(iii) Whether the permit, if issued, would in any way, directly or indirectly, conflict with any known program intended to enhance the survival probabilities of the population from which the wildlife sought to be covered by the permit was or would be removed;

(iv) Whether the purpose for which the permit is required would be likely to reduce the threat of extinction facing the species of wildlife sought to be covered by the permit;

(v) The opinions or views of scientists or other persons or organizations having expertise concerning the wildlife or other matters germane to the application; and

(vi) Whether the expertise, facilities, or other resources available to the applicant appear adequate to successfully accomplish the objectives stated in the application.

In addition to these factors, particularly in relation to sport hunting, we find the *IUCN Species Survival Commission (SSC) Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives, Ver. 1.0* (IUCN SSC 2012), to provide useful principles, which, considered in conjunction with our threatened species issuance criteria, will aid the Service when

making an enhancement finding for importation of sport-hunted trophies of *P. l. melanochaita.* This document sets out guidance from experts in the field on the use of trophy hunting as a tool for "creating incentives for the conservation of species and their habitats and for the equitable sharing of the benefits of use of natural resources" (IUCN SSC 2012, p. 2) and recognizes that recreational hunting, particularly trophy hunting, can contribute to biodiversity conservation and more specifically, the conservation of the hunted species.

The SSC document lays out five guiding principles that, considered in conjunction with our threatened species issuance criteria, will aid the Service when making an enhancement finding for importation of sport-hunted trophies of *P. l. melanochaita:*

(a) *Biological sustainability:* The hunting program cannot contribute to the long-term decline of the hunted species. It should not alter natural selection and ecological function of the hunted species or any other species that share the habitat. The program should not inadvertently facilitate poaching or illegal trade in wildlife by acting as a cover for such illegal activities. The hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity.

(b) *Net Conservation Benefit:* The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed. The program should produce income, employment, and other benefits to create incentives for reducing the pressure on the target species. The program should create benefits for local residents to co-exist with the target species and other species. It is also imperative that the program is part of a legally recognized governance system that supports conservation.

(c) *Socio-Economic-Cultural Benefit:* A well-managed hunting program can serve as a conservation tool when it respects the local cultural values and practices. It should be accepted by most members of the community, involving and benefiting local residents in an equitable manner. The program should also adopt business practices that promote long-term economic sustainability.

(d) *Adaptive Management: Planning, Monitoring, and Reporting:* Hunting can enhance the species when it is based on appropriate resource assessments and monitoring (*e.g.,* population counts, trend data), upon which specific science-based quotas and hunting programs can be established. Resource assessments should be objective, well documented, and use the best science available. Adaptive management of quotas and programs based on the results of resource assessments and monitoring is essential. The program should monitor hunting activities to ensure that quotas and sex/age restrictions of harvested animals are met. The program should also generate reliable documentation of its biological sustainability and conservation benefits.

(e) *Accountable and Effective Governance:* A biologically sustainable trophy-hunting program should be subject to a governance structure that clearly allocates management responsibilities. The program should account for revenues in a transparent manner and distribute net revenues to conservation and community beneficiaries according to properly agreed decisions. All necessary steps to eliminate corruption should be taken and to ensure compliance with all

relevant national and international requirements and regulations by relevant bodies such as administrators, regulators and hunters.

This approach to enhancement findings for the importation of sport-hunted trophies of *P. l. melanochaita* is consistent with the purpose and intent of the Endangered Species Act. As such, before the Service will authorize the importation of a sport-hunted trophy, we must determine that the trophy-hunting program is managed to ensure the long-term survival of the species. As part of this evaluation, we recognize that in many parts of the world, wildlife exists outside of protected areas and must share the same habitat and compete with humans living in these areas for space and resources. As identified in the *IUCN SSC Guiding Principle on Trophy Hunting as a Tool for Creating Conservation Incentives*, if communities that share these resources with wildlife do not perceive any benefits from the presence of wildlife, they may be less willing to tolerate the wildlife. However, under certain circumstances, trophy hunting can address this problem by making wildlife more valuable to the local communities and encourage community support for managing and conserving the hunted species, as well as other species.

When evaluating whether the importation of a trophy of *P. l. melanochaita* would be authorized pursuant to 50 CFR 17.32, in accordance with our threatened species issuance criteria, we will examine how a country's management program for lions addresses the three main threats that have led to the decline of the subspecies: habitat loss, loss of prey base, and human-lion conflict. When examining a management program and whether trophies taken as part of that program meet the issuance criteria, we study a number of factors. Some of the factors we consider include whether the program is based on sound scientific information and identifies mechanisms that would arrest the loss of habitat or increase available habitat (*i.e.,* by establishing protected areas and ensuring adequate protection from human encroachment). We consider whether the management program actively address the loss of the lion's prey base by addressing poaching or unsustainable offtake within the country. A component of a management plan from which trophy imports would meet the issuance criteria would be whether there are government incentives in place that encourage habitat protection by private landowners and communities and incentives to local communities to reduce the incursion of livestock into protected areas or to actively manage livestock to reduce conflicts with lions. We examine if the hunting component of the management program supports all of these efforts by looking at whether hunting concessions/tracts are managed to ensure the long-term survival of the lion, its prey base, and habitat. Hunting, if properly conducted and well managed, can generate significant economic benefits that may contribute to the conservation of lions. In looking at whether we are able to authorize the import of a trophy under the issuance criteria of 50 CFR 17.32, we will examine if the trophy hunting provides financial assistance to the wildlife department to carry out elements of the management program and if there is a compensation scheme or other incentives to benefit local communities that may be impacted by lion predation. We will also consider how a U.S. hunter's participation in the hunting program contributes to the overall management of lions within a country.

Management programs for *P. l. melanochaita* are expected to address, but are not limited to, evaluating population levels and trends; the biological needs of the species; quotas; management practices; legal protection; local community involvement; and use of hunting fees for conservation. In evaluating these factors, we will work closely with the range countries and interested parties to obtain the information. By allowing entry into the United States of *P. l. melanochaita* trophies from range countries that have science-based management programs, we anticipate that other range

countries would be encouraged to adopt and financially support the sustainable management of lions that benefits both the species and local communities. In addition to addressing the biological needs of the subspecies, a scientifically based management program would provide economic incentives for local communities to protect and expand *P. l. melanochaita* habitat.

Basis for Finding for Wild and Wild-managed lions in South Africa:

On January 12, 2016, the Service sent a letter to South Africa's Department of Environmental Affairs (DEA) with a list of questions that would aid the Service in evaluating the overall conservation and management of the subspecies, *P. l. melanochaita*, in South Africa and whether that management addresses the three main threats that have been identified as to the decline of the species: habitat loss, loss of prey base, and human-lion conflict. Additionally, in the letter the Service referenced the IUCN Species Survival Commission (SSC) Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives, Ver. 1.0 (IUCN SSC 2012), as it provides useful principles, which when considered in conjunction with the Service's permit issuance criteria, would aid when making the required enhancement finding for permitting importation of sport-hunted lion trophies.

In response to our January 12, 2016, letter, the South African Department of Environmental Affairs (DEA) provided four documents. In addition, the Service has met with representatives of DEA during the 17th Meeting of the Parties to the Convention in Johannesburg in late September 2016. Further, since those meetings, there have been several written exchanges with DEA discussing the DEA's evaluation of reserves with lions and how these animals confirm to DEA's lion management plan. The four documents provided to the Service in January 2016, along with the Service's own final rule on the lion listing under the Act, relevant information obtained separately through open sources such as IUCN documents, and relevant information from DEA and received through comments from interested parties, were the basis of this finding.

South Africa has defined three populations of lions that exist within the country through their Biodiversity Management Plan for the Lion (*Panthera leo*) in South Africa for 2015 to 2019 (BMP; December 2015): *Wild lions,* who completely fulfill their role in biodiversity processes and are largely unmanaged, and exist only in formally proclaimed national parks and game reserves. This population's vital rates and demographics are not actively manipulated. *Wild-managed lions,* which include all lions that have been re-introduced into smaller fenced reserves (<1000km^2), and are managed to limit population growth and maintain genetic diversity. Some of the vital rates and demographics of these lions are actively manipulated. *Captive lions*, bred for financial gain, where all vital rates and demographics of these populations are actively manipulated.

***Governance of Lions in South Africa*:** The lion is listed as vulnerable in the South African list of Threatened and Protected Species (ToPS) under Section 56(1) of the National Environmental Management Biodiversity Act, 2004 (South Africa 2004; NEMBA; BMP pg. 1). NEMBA further regulates a permit system regarding restricted activities involving specimens of listed threatened or protected species (NEMBA; Chapter 7). Regulated activities in need of registration include, among others, captive breeding facilities, sanctuaries, scientific institutions, game farms, wildlife traders, wildlife product traders, taxidermists, wildlife translocators, and freight agents (NEMBA, pg. 25).

NEMBA gives effect to the Convention on Biological Diversity (CBD), of which South Africa is a party, and Section 24 in the Bill of Rights of the Constitution of the Republic of South Africa (1996). Under Section 24(b): "everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development" (BMP pg. 15).

In addition to South Africa's domestic laws, it is also a Party to CITES. The lion is listed in Appendix II of the Convention. As an Appendix-II species, certain criteria must be met before such species can be exported, including a finding from the exporting country's CITES Scientific Authority that the proposed activity will not be detrimental to the survival of the species in the wild. In their reply to our inquiry, South Africa provided a copy of their CITES non-detriment finding for lions. Their finding, while focusing only on wild and wild-managed lions, applied to all lion exports from South Africa, including the captive lion population. In personal communication with the SA Management Authority, the Service was informed that the finding might be amended to better clarify that the finding applies to all lions within South Africa.

South Africa is also a member of the Southern African Development Community (SADC). Under the SADC Treaty, Article 5(g) establishes objectives to, among other aspects, promote the sustainable use of wildlife, harmonization of legal instruments governing wildlife use and conservation, promote the conservation of shared wildlife resources through the establishment of transfrontier conservation areas, and facilitate community-based natural resources management practices. To implement the SADC Treaty, member states are required to establish management programs for the conservation and sustainable use of wildlife.

In 1991, South Africa legalized private ownership of wildlife, leading to a significant rise on game ranches and farms. In 2010, private lands with wildlife covered approximately 16.8% of South Africa, compared to national and provincial protected areas accounting for only 6% (Cousins *et al.* 2010). It has been stated that this expansion of private lands and the wildlife industry resulting from the private ownership of wildlife is responsible for significantly increasing South Africa's large mammal populations (Crowley and Mokhema 2014). According to Crowley and Mokhema (2014), South Africa's game ranching industry is worth $1.1 billion a year and is growing at 10 percent annually. Under the ToPS regulation, permits can be obtained to carry out activities that may negatively affect the survival of a listed species, such as possession or hunting, provided the applicant meets specific criteria, such as having a biodiversity management plan for the species protected by ToPS. This permitting regime generates funds for national conservation efforts, while allowing landowners to profit from maintaining wildlife on their property. The landowners can then reinvest in the property by funding conservation efforts, managing wildlife, and carrying out anti-poaching efforts (Cousins *et al.* 2010).

Current Lion Status in South Africa: The lion was almost extirpated in South Africa by the early 1900s, remaining only in small numbers in what is now Kruger National Park (NP) and the Kgalagadi Transfrontier Park (TP). With the formation of Kruger NP in the 1920s, wild lion numbers slowly recovered, growing to the current population of approximately 1,700 lions (BMP, pg. 40). Kgalagadi TP has a stable, albeit smaller, population of approximately 400 lions, but is considered a lion stronghold in southern Africa. Lions recolonized Hluhluwe-iMfolozi Park (HiP) in the 1950/1960s and that population is currently stable at approximately 120 lions. Along with

small groups of lions in Addo Elephant National Park, Karoo National Park, Marakele National Park, there are approximately 2,200 wild lions in South Africa. In addition, there are approximately 800 wild-managed lions separated among 45 fenced reserves of less than 1,000 square kilometers each (BMP pg. 40) It should be noted, however, that DEA is evaluating each of these fenced reserves to confirm that the lions maintained on the reserve can be classified as wild-managed. As such, the Service will evaluate applications for imports based on DEA's evaluation of the reserve where the lion was taken.

When the Service listed the lion in southern and eastern Africa as threatened under the ESA, three primary threats to the species throughout its range were identified: loss of habitat, loss of prey base, and human-lion conflict. These three threats led to the shrinking of lion populations and their range from pre-Colonial South Africa, to the current situation of lions being found predominantly on a limited number of national parks and fenced reserves. However, given the current focus of wildlife management practices of South Africa on fencing protected areas, additional habitat loss has been minimized. Further, due to more intensive management of the fenced reserves to maintain biodiversity, more stable prey bases and limited human-lion conflict are observed.

According South Africa's Scientific Authority's non-determent finding (NDF) published in September 2015, there are no specific official figures on the illegal trade in lions and lion products in South Africa besides what are reported in the media or by annual reports on seizures and prosecutions. Most of the reports refer to illegal translocations of animals or trade in lions and their body parts for which offenders were not in possession of a permit to breed, keep, hunt, catch, sell, convey, or export a live animal or parts thereof. According to the NDF, and supported by information in the Service's final listing rule, the illegal local and international trade in lions poses a moderate, but non-detrimental risk to the species in South Africa (BMP pg. 14; USFWS 2015, 80 Fed Reg. 79999).

To manage any population to ensure an appropriate population level and determine whether sport hunting is having a positive effect, it is vital to have sufficient data on population numbers and population trends of which to base management decisions. According to Riggio et al. 2013 (pg.32), and Bjorklund in Riggio et al 2013 (p.32), the minimum number estimated to constitute a viable population is 500 individuals. Kruger National Park, with approximately 1,200 lions, has a stable population of wild lion and is considered a stronghold for lions in South Africa. Kgalagadi Transfrontier Park, with a stable population of approximately 400 lions, is considered a potential stronghold and conserves the genetic diversity within the Kalahari ecosystem [Bauer et al. 2008; Bjorkland 2003 (pg. 515, 518)]. Wild lions in HiP, Addo Elephant National Park, Karoo National Park, and Marakele National Park, albeit smaller in size, appear to be stable, but would need to grow to be considered potential strongholds or maintain genetic diversity. All of these populations receive very little direct management and hunting is not allowed within the National Parks (BMP).

Lion Management in South Africa: In 2015, in response to the requirements under NEMBA and the SADC Treaty, and after stakeholder workshops in 2013 and 2014, South Africa published the Biodiversity Management Plan for the Lion (*Panthera leo*) in South Africa for 2015 to 2019 (BMP) and stated that the "BMP for African lion will be regarded as the national strategy for African lions in South Africa" (pg. 2). The BMP was created in response to the Regional Strategy for Lions in East and Southern Africa in 2005 (IUCN SSC Cat Specialist Group 2006), which encouraged the development of national strategies aligned with national strategies of neighboring countries. The BMP was developed jointly by South Africa's Department of Environmental Affairs, Council for

Scientific and Industrial Research (CSIR), and Dr. Paul Funston (Panthera). The current BMP is the first in a series of five-year iterations, as required under NEMBA, where the success of the preceding five years will be measured, and adaptations made to ensure that the plan for the following five–year period is appropriate for the circumstances at the time.

The BMP has identified the vision that "…lions will provide key opportunities for biodiversity conservation, economic development, social benefits, and improved management capacity." The BMP lays out five specific objectives for the conservation of wild and wild-managed lions within South Africa:

- Improve the conservation status of lions within the broader conservation context
- Develop and implement effective communication tools that are informed by scientific research (communication, education, and public awareness).
- Ensure that existing legal instruments are compatible and complementary at national and provincial levels, and improve the capacity to implement these laws.
- Establish a lion forum or working group.
- Collaborate the alignment of this BMP with lion conservation plans in neighboring countries and link with international working groups

All five of these objectives are stepped down to specific action items with intended 5-year outcomes, indicators on how the action plan is succeeding, and the party responsible for implementation. The BMP will be re-evaluated in 2019 to assess the success of the plan and to modify the BMP for 2020-2025 accordingly. As such, unless substantive information becomes available in the interim, the Service will re-evaluate whether the import of sport-hunted trophies of lions from South Africa continues to enhance the propagation or survival of the species after the management actions taken during the previous five years under the BMP are evaluated for the following iteration of the management plan.

While these five objectives appear to serve a valuable role in lion management in South Africa, two are most relevant to determining if the implementation of the BMP enhances the propagation or survival of the species, as required by the ESA for the issuance of import permits. The first objective, "Improve the conservation status of lions," has been broken down into three sub-objectives for wild and wild-managed lions: maintain current protection status of lions; reassess the conservation status of lions; and enhance the conservation status of wild lions. The intended 5-year outcomes of these sub-objectives are to have stable wild lion populations in all protected areas with no illegal trade in wild lions, have more than 80% of all reserves with wild-managed lions integrated into a managed meta-population approach for genetic management, publish norms and standards for the management of wild-managed lions, and obtain a stronger understanding of wild-managed lion population size and trends. To achieve these sub-objects, South Africa has already begun population surveys of wild lions in 2015 and will census every 3 years. They have also started implementing the managed meta-population plan with the goal of over 80% of reserves included by 2019. The norms and standards for the management of wild-managed lions was to be completed by the end of 2016 and the first audits to obtain a stronger understanding of wild-managed lion population trends were completed in 2015 and will be continue annually thereafter. One of the first outcomes of these evaluations was the apparent tightening of how DEA assessed whether a reserve held "wild-managed" lions or if the lions on a reserve will be considered "captive-bred." As such, the Service will consult with DEA on whether the reserve identified in an application where the trophy was taken is considered to maintain wild-managed lions.

The second objective, "Ensure that existing legal instruments are compatible and complementary at national and provincial levels, and improve the capacity to implement these laws," identifies two actions: ensure alignment on permitting decisions at the national and provincial legislation; and address and implement training needs for all aspects of legislations regarding lions. The intended 5-year outcomes of these two actions is to have well-trained managers that make better management decisions and effective legislation to support lion conservation and sustainable utilization of lions.

The BMP has two additional objectives focusing specifically on wild-managed lions. As with the objectives discussed above, these objectives are stepped down to specific action items with intended 5-year outcomes, indicators on how the action plan is succeeding, and the party responsible for implementation. The first is to maintain the wild-managed lion as a key population that contributes to socio-economic-ecological opportunities through mimicking "natural" ecological functions (e.g., wild lion survival rates, fecundity, litter sizes, and mortality rates). This objective is broken down to a number of action items ranging from mimicking survival changes through legal and non-lethal removals, mimicking required immigration/emigration into an area, and measuring demographic responses by determining age- and sex-structure through ranger observations, to informing stakeholders on progress of management efforts. These action items predominately have target dates that are on-going, annual, or bi-annual, with outcomes that can be used in adaptive management efforts.

The second wild-managed lion objective is "To maintain lion genetic integrity by inducing social limitations through management-assisted dispersal and changes in dominance hierarchies," which focuses primarily on ensuring that lions within smaller fenced areas (<1,000 sq. km.) mimic natural biological processes such as natural dominance hierarchies and female dispersal to ensure genetic diversity. The action items for this objective include modeling genetic diversity within reserves, mimicking male dispersal from and into a social unit through removal (e.g., culling/hunting or translocation) and introduction (translocation) of males at appropriate ages, and mimicking occasional female dispersal into social units through removal and introductions.

The BMP has information on the lion's biology, habitat requirements, threats, and relevant legislation, as well as an extensive chapter on wild-managed lions. This chapter explores the history of wild-managed lions, particularly how lions had been managed in the past and what actions are needed to move forward in establishing a meta-population through connecting the reserves and allowing for genetically viable populations that can contribute to the overall wild lion population. According to the BMP, the wild lion populations are complemented by a fragmented population of wild-managed lions in South Africa found on fenced areas or reserves typically less than 1,000 square kilometers in size. This largely results from private property as well as wildlife ownership rights enforced by fencing as required by South African law. According to the BMP, even though opinions vary on the pros (Packer et al. 2013) and cons (Creel et al. 2013) of fencing as an essential component of range-wide lion conservation in the future, the use of fences is likely to increase as human land use continues to expand into lion ranges. The expanded use of fencing, particularly in areas where fencing is currently not widely utilized, could lead to continued fragmentation of lion habitats (Riggio et al. 2013, Dolrenry et al. 2014). Therefore, wild- managed lions of South Africa provides a key example in how to achieve integrated lion conservation goals in a changing African context that would enhance the survival of the species.

In the 1990s, the number of public and private game reserves started to increase in South Africa and many of them reintroduced lions, mostly as a tourist draw. Lions from these populations were then used for yet more reintroductions leading to a current number of about 800 lions on over 45 fenced reserves (Miller et al 2013). Many of these reserves only have one or two prides of lions, with the largest (Pilanesberg National Park and Madikwe Game Reserve) having four or five prides. Historically, most managers of the reserves had the tendency to manage their lion populations in isolation, although there was some movement of 'excess' lions.

Because of fragmented and isolated management of these populations, the conservation value of these lions has been questioned in the past (Hunter et al 2007, Slotow & Hunter 2009). Because of this, the BMP sets out management criteria within the reserves that maintains ecological processes and creates a meta-population (BMP pg. 41 and 42). Researchers noted indicators of inbreeding in two reserves (Trinkel et al. 2008, 2010), while several reserves experienced increased lion population growth rates with subsequent high lion densities (Miller & Funston 2014). The combination of high lion densities and restricted size of the reserves disrupts predator-prey relationships – often with prey dramatically declining (Tambling & du Toit 2005, Slotow & Hunter 2009). In addition, managers increasingly find it hard to locate new areas for 'excess' lions (Kettles & Slotow 2009). The Lion Management Forum (LiMF), founded in 2010, provides a platform for concerned managers to discuss the unique issues surrounding small, fenced lion populations. LiMF members recognize that many of the natural processes characteristic of large naturally functioning lion populations have been disrupted on these small reserves. Given the small sizes of these reserves, limited opportunities exist for restoration of these natural processes. Therefore, LiMF, and the BMP, has put forward management interventions that would mimic the outcomes of natural processes that are showing great success (Miller et al. 2013; Ferreira & Hofmeyr 2014).

The BMP recognizes that the managed lion meta-population is slightly contradictory to the theory of meta-population dynamics, as meta-populations are those with spatio-temporally variable subpopulation dynamics, variable dispersal, and availability of empty habitats that are largely connected (Oliveier et al. 2009). That is not the case with most wild-managed lion populations on small reserves in South Africa. Thus, in essence, the managed meta-population is a unique product of the South Africa response to manage and conserve large carnivores on isolated small reserves. The approach essentially recognizes a single population with social groups spatially isolated over vast areas. Some of these challenges can be reconciled through identifying regional nodes.

The lions for the reintroductions into South Africa's small reserves were initially sourced from Etosha National Park, as well as Sabi Sand Game Reserve, adjacent to the Kruger National Park. Recently, SANParks relocated some animals from the South African park of Kgalagadi Transfrontier Park (Slotow & Hunter 2009). Managers applied minimal genetic management throughout the history of lion reintroductions (Slotow & Hunter 2009, Trinkle et al. 2010). As a result, geographic genetic structure in the wild-managed lion meta-population reflect mixed origins, with few reserves having lions of only one origin. The South African wild-managed lions thus represent a novel lion genetic diversity not associated with a single origin. Maintaining the origin of the base genetic stock is thus, according to the BMP, a low priority (BMP pg. 45).

Hunting and Utilization:

Hunting: According to the 2015 NDF (the last assessment available to the Service), hunting of wild lions is not allowed within national parks and only limited hunting is allowed in some provincial reserves, effectively ensuring protection of the majority of wild lions. There is some harvest of wild

lions for the control of problem animals (e.g., stock raiding) and, in very limited cases, population management within the national parks. In addition, a small number of wild lions from Kruger NP have dispersed out of the park into some of the reserves surrounding the park and may be harvested. According to the BMP, fewer than 2 wild lions and only approximately 10 wild-managed lions are taken off of private reserves annually.

South Africa has not set a specific annual quota for wild-managed lions. Instead, according to information provided to the Service, authorizations for hunting wild-managed lions are addressed on a case-by-case basis. Reserves maintaining wild-managed lions must submit an application to the provincial authorities requesting a permit. Professional Hunters are obliged to record all completed hunts in a professional hunting register and this register is used to compile provincial reports on the number of lions taken annually. The level of off-take is also evaluated in the management of the meta-population to ensure that only those animals that no longer meet management goals are removed from the population. These animals therefore are typically older lions that have successfully bred and raised several litters of kittens. Most experts consider the recommendation by Packer *et al.* (2011, p. 151) to limit offtake to no more than one lion per 2,000 km^2 to be a sustainable offtake of lions. The BMP (pg. 29) has established more restrictive limits for areas of less than 1000 km^2 to not exceed 0.5 lions/1000 km^2.

Utilization: An active lion bone trade from South Africa to several Asian countries for traditional medicinals is primarily supplied from captive-bred lions taken as hunting trophies, as well as captive-bred lionesses and juvenile lions (BMP pg. 30). Lion bones are being used as a substitute for tiger bones, which is highly valued in Asia, primarily in China and Vietnam (Williams et al. 2015, pg. 1; Gratwicke et al. 2008, pg. 2–5; Graham-Rowe 2011, pg. s101–s102). In 2008, South Africa began issuing CITES permits for the export of skeletons of captive-bred lions to Asia. The number of lion skeletons for which South Africa issued permits for export to Asia (China, Viet Nam, Thailand and Lao PDR) increased tenfold from 2008 to 2011, from about 50 to about 573 skeletons, respectively, representing a total of 1,160 skeletons or about 10.8 metric tons (11.9 US tons) of lion bone in 4 years (Williams 2015, pp. ix–x, 46). With respect to meeting demand for lion bone, Lindsey et al. (2012, p. 20) state that there are likely to be large numbers of lion bones available for export from game farms, from lionesses and non-trophy males, and as byproducts from animals shot as trophies. In addition, Williams et al. (2015, p. 41) report that there may be between 1,400 and 6,200 lion skeletons from past trophy hunts on South African game farms that could potentially be used to supply demand for lion bone. Further, at the 17th Meeting of the Conference of Parties, the Appendix II listing for P. leo was amended to include an annotation establishing an export quota for lion bones. The annotation states that "[A] zero annual export quota is established for specimens of bones, bone pieces, bone products, claws, skeletons, skulls and teeth removed from the wild and traded for commercial purposes. Annual export quotas for trade in bones, bone pieces, bone products, claws, skeletons, skulls and teeth for commercial purposes, derived from captive breeding operations in South Africa will be established and communicated annually to the CITES Secretariat." Although the Service is aware of a press release from the Endangered Wildlife Trust in which they state the DEA has established a quota of 800 skeletons (with or without skulls) of captive bred lions for international trade, as of this finding, the Service is not aware of South Africa communicating an export quota for 2017 to the CITES Secretariat.

The BMP suggests that the value of bones, whether wild or captive-bred, is not high enough to stimulate the illegal harvest of lions solely to sell the bones into the bone trade. However, there is the potential that if the value of bones increases due to increasing demand from Asian markets, that

captive-bred lions could be a legal source of bones that masks the illegal harvest of wild lions. According to Williams et al. (2015, p. x), the 2013 price paid to South African game farmers and landowners for lion bones was $1,260–2,100 USD per skeleton. In many lion range states, this exceeds per capita GDP (gross domestic product) (World Bank 2015, unpaginated). Thus, the current price paid for lion bone may provide incentive in some countries to poach wild lions. While the lion bone trade appears to currently be based primarily in South Africa's captive-bred lion hunting industry, the trade appears to be having little or no impact on wild lion populations in South Africa at this time—lion populations in South Africa are stable or increasing and there is little poaching of wild lions in the country (BMP 2015, pp. 1, 26; Williams et al. 2015, pp. 79–80).

Evaluation:

As stated earlier, the Service will evaluate any application in accordance with our threatened species permitting regulations at 50 CFR 17.32 and issuance criteria for threatened species permits (50 CFR 17.32(a)(2)). In evaluating each of these criteria on the basis of information available to the Service, and seeing that the BMP is based on a five year review process, we have been able to determine that the import of wild and wild-managed lions would qualify for the issuance of the required import permit for wild and wild-managed lions taken in 2017, 2018, and 2019.

17.32(a)(2)(i): Whether the purpose for which the permit is required is adequate to justify removing from the wild or otherwise changing the status of the wildlife sought to be covered by the permit:

While there is habitat available to lions on the national parks and within the smaller, fenced reserves, much of South Africa has been converted into agricultural uses, managed plantation forests, human developments, or extractive industries. With the legalization of private ownership of wildlife in the early 1990s, there has been a significant increase in private land set aside for wildlife. This has led to a boost in South Africa's wildlife, particularly large mammals. South Africa laws, such as ToPS, were put into place to ensure that utilization of this wildlife is sustainable and provides for long-term incentives to maintain these areas for wildlife protection. The national parks and fenced reserves are natural areas surrounded by development. It is only through the on-going management of these remaining natural areas that lions survive in South Africa. South Africa's management of wild and wild-managed lion population as a meta-population, and using human intervention (e.g., translocation) as a substitute for natural occurrences (e.g., dispersal), is ensuring that lion populations are genetically healthy and viable.

While it has been stated that South Africa's hunting industry generates $1.1 billion annually, not all of this is connected to lion hunting or to U.S. hunters. However, lions are a key component of the hunting industry since they are part of the "Big 5" trophies and draw U.S. hunters to South Africa. Based on the information available to the Service, the presence of private reserves has increased the number and diversity of wildlife in South Africa, thus fueling the hunting industry, which funds the on-going success of private reserves. It appears that without the hunting industry, these reserves, which have become islands of wilderness in a sea of civilization in much of South Africa, would not be economically viable, and therefore would not exist. With an annual harvest of approximately 10 wild-managed lions and 2 wild lions annually, U.S. hunter participation in lion hunts, in and of its own, is not enough to make or break the industry and lead to the decline of reserves. However, U.S. hunters do play a significant role in the industry and the removal of their participation could have a long-term impact.

Further, ToPS and the BMP have put into place mechanisms to adequate oversee the harvest of wild and wild-managed lions in South Africa. With an annual harvest of approximately 10 wild-managed lions, South Africa is not exceeding the limits identified in the BMP of 0.5 lions/1,000 sq. km. The objectives of the BMP and the actions and monitoring activities that have been put into place to achieve these objectives should support the adaptive management approach that South Africa has established for managing lions. The Service will, of course, need to and will continue to monitor the effectiveness of the BMP in accordance with the BMP's five-year iterations and corresponding evaluations, and modify the determination of whether the issuance of import permits remains appropriate in response to these evaluations. Acknowledging, however, that if substantive information is made available to the Service, we will re-evaluate our finding at that time.

Therefore, based on the information available to the Service and provided that the reserve where the lion was taken was properly permitted and in compliance with national and provincial regulations, the purpose for which a permit being requested is adequate to justify removing lions from the wild or otherwise changing their status.

17.32(a)(2)(ii): <u>The probable direct and indirect effect that issuing the permit would have on the wild populations of the wildlife sought to be covered by the permit</u>:

As the national management plan, the BMP for lions is extensive and addresses many aspects of lion conservation and management. As reviewed above, the BMP provides a history of the relevant legislation in regards to lion conservation and puts the current efforts into context. The BMP also reviews the species' biology, population status, habitat requirements, and threats to lion populations. Objectives for conservation of the species as well as a plan to develop a meta-population for wild-managed lions are also included. Additionally, the monitoring plans have scientifically sound methodologies. Lastly, but equally importantly, are the monitoring and evaluation of efforts laid out in the BMP.

Evaluating the information provided by the South African government and other sources, it appears that the hunting program in South Africa is addressing the three main threats that were identified by the Service when making the determination that the species was threatened with the possibility of extinction. The fenced reserves and national parks are maintaining habitat for lions and ensuring that there is no further loss, provided that the reserves can remain economically viable. In order to maintain a viable population of wild and wild-managed lions, the parks and reserves must maintain biodiversity and a sustainable prey base. Finally, while there is still controversy over the extensive utilization of fencing in South Africa, it does reduce human-lion conflicts and the number of lions killed in retaliation for killing livestock. Therefore, the management of lions on these reserves and, as part of this management, the limited hunting of lions, contributes to the on-going survival of the species in South Africa.

Provided that the off-take of wild and wild-managed lions continues to be monitored and the actions identified in the BMP continue to be implemented, the participation of U.S. hunters in lion hunts would provide an indirect benefit to wild populations by helping to support the reserves where lions are found. Therefore, based on the information available to the Service, the probable direct and indirect effect that issuing an import permit for a legally hunted lion would have on the species would be positive.

17.32(a)(2)(iii): Whether the permit, if issued, would in any way, directly or indirectly, conflict with any known program intended to enhance the survival probabilities of the population from which the wildlife sought to be covered by the permit was or would be removed:

As stated above, South Africa is closely monitoring and controlling the harvest of wild and wild-managed lions through permitting under ToPS and through the BMP. The issuance of import permits for lions legally hunted under these authorities would not conflict with any programs intended to enhance the survival probability of the species in South Africa. As with all aspects of an adaptive management approach to managing a species, the Service will need to continue to monitor the effectiveness of the hunting program in coordination with the BMP iterations to ensure that it continues to provide the stated benefits to lions.

Therefore, based on the information available to the Service, the issuance of import permits for legally hunted lions would not conflict with any known conservation programs.

17.32(a)(2)(iv): Whether the purpose for which the permit is required would be likely to reduce the threat of extinction facing the species of wildlife sought to be covered by the permit:

As stated, wild lions only occur in a limited number of national parks in South Africa and wild-managed lions are currently found on 45 reserves of less than 1,000 sq. km. While the wild lions on the national parks receive only limited direct management activities, the reserves require management that is more intensive in order to mimic natural biological and ecological roles of lions. All indication show, that given the threats that were identified by the Service when listing the species as threatened under the ESA, the presence of these reserves, as well as the parks, is actively addressing the three causes of lion decline: loss of habitat, loss of prey base, and lion-human conflicts. While the concept of lions behind fences has both benefits and drawbacks, it appears to be a major contributor to the on-going survival of lions in the wild in South Africa. Without a doubt, while having open, unmanaged habitat that is not actively impacted by human intervention would be the ideal condition for lions in South Africa and throughout its range, this is not a viable option within South Africa.

With limited, controlled off-take of lions in a manner that would mimic natural processes, the legal hunting activities that U.S. hunters would be involved in would contribute to reducing the threat of extinction of lions. This off-take must be monitored to ensure that it is sustainable and that, to the extent possible, normal lion behavior and ecology is not negatively impacted. It appears that the permitting activities under ToPS and CITES, as well as the implementation of the BMP will ensure the long-term survival of lions. The utilization of hunters to manage the populations on the reserves is an important element of the success of lion management in South Africa.

Therefore, based on the information available to the Service, the purposes for which import permits would be issued would likely reduce the threat of extinction facing lions in South Africa.

17.32(a)(2)(v): The opinions or views of scientists or other persons or organizations having expertise concerning the wildlife or other matters germane to the application:

As with any discussion of hunting, there are numerous opinions on the impact it would have on a species. From reviewing comments made during the listing process for lions, as well as

information obtained through personal conversations and literature, there is a general agreement that hunting, done properly and well managed, would not have an adverse effect on lion populations. Mimicking natural process within the management program, such as maintaining pride hierarchy for as long as possible by leaving the alpha male in place, will better ensure the long-term survival of the species. Numerous researchers have stated that, while they may not support hunting in general, see that benefits that can be received through a scientifically based hunting program for lions. There have been a large number of comments from some NGOs and the public opposing hunting any lions, but particularly captive-bred lions. This opposition, however, is primarily based on the perceived ethics of hunting. While these comments are an indication of concerns from some members of the public over hunting, they are not germane to our review process.

Therefore, based on the information available to the Service, there is general support by scientists and other persons or organizations having expertise concerning lions that the legal harvest of lions, and the subsequent import of these trophies, would not have an adverse effect on the species, but would further efforts to conserve the species in the wild into the future.

17.32(a)(2)(vi): Whether the expertise, facilities, or other resources available to the applicant appear adequate to successfully accomplish the objectives stated in the application:

Based on our understanding of the permitting process under ToPS, reserves that maintain wild-managed lions must establish biodiversity plans for managing the reserve that take into consideration the long-term survival of all species on the reserve, including large predators. This oversight by DEA and the implementation of the BMP establishes a framework in which reserves manage their wildlife. The long-term survival of lions in South Africa, is tied directly to the success, both ecologically and economically, of the reserves. The reserves that have been permitted to maintain wild-managed lions and, as part of the management program, carry out limited hunting, have the expertise and facilities to maintain lions successfully.

Therefore, based on the information available to the Service, that applicants that are hunting on properly permitted reserves that carry out their management practices in accordance with national and provincial regulations, have the expertise, facilities, or other resources available to them to successfully accomplish the objective stated in their application; i.e., the long-term survival of lions in South Africa.

Conclusion

Given the current status of wild and wild-managed lions within South Africa and the level of management and oversight provided to them, it appears that the harvest and import of sport-hunted trophies of these lions meet the purposes of the ESA. As stated earlier, each application received by the Service for the import of a sport-hunted trophy lion from South Africa will be evaluated on a case-by-case basis. The applicant must have hunted on a properly licensed reserve that is actively managing lions in a manner that will maintain the species on the reserve in a manner that mimics natural processes. The Government of South Africa must continue to implement the BMP in the manner identified in the document. The on-going adaptive management and limited off-take of lions is important to the survival of lions in South Africa and the Service will reassess lion management within South Africa and whether the importation of sport-hunted trophies enhance the

survival of the species either during the next iteration of the 2015-2019 BMP or at which time substantive information becomes available to the Service in the interim.

Therefore, with the information currently available that would enable the Service to make such a finding in accordance with the general considerations laid out above, the Service is able to make a determination that the import of wild and wild-managed lions would meet the issuance criteria under 50 CFR 17.32. Therefore, in accordance with the time scale of the 2015-2019 BMP, , the Service **is able to authorize the import of wild and wild-managed lion trophies from South Africa taken during the 2017, 2018, and 2019 hunting seasons**. In accordance with the 4(d) rule for *P. l. melanochaita*, 50 CFR 17.40(r), the Service will review each application received for import of such specimens on a case-by-case basis and each application will also need to meet all other applicable permitting requirements before it may be authorized.

REFERENCES:

Bauer, H., Nowell, K., & Packer, C. (2008). *Panthera leo*, IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4.

Biodiversity Management Plan for the Lion (*Panthera leo*) in South Africa (BMP; December 2015): Funston, P. J. & Lavendal, M. (2015). Biodiversity Management Plan for the Lion (*Panthera leo*) in South Africa. Department of Environmental Affairs, Republic of South Africa. 63 pp

Björklund, M. (2003). The risk of inbreeding due to habitat loss in the lion (*Panthera leo*) *Conservation Genetics, 4*, 515-523

Cousins, J. A., Sadler, J. P., and Evans, J. (2010). The challenge of regulating private wildlife ranches for conservation in South Africa. Ecology and Society XX(YY): ZZ. [online] URL: https://www.researchgate.net/profile/Jonathan_Sadler/publication/44854322_The_Challenge_of_Regulating_Private_Wildlife_Ranches_for_Conservation_in_South_Africa/links/0c960514ca0b84f295000000.pdf

Creel, S., Becker, M. S., Durant, S. M., M'soka, J., Matandiko, W., Dickman, A. J., & Stanley Price, M. (2013). Conserving large populations of lions–the argument for fences has holes. Ecology letters.

Crowley, K., and Mokhema, T. (2014). Lions Hunted to Save Rhinos in South African Circle of Life. Bloomberg [online] URL: http://www.bloomberg.com/news/articles/2014-08-19/lions-hunted-to-preserve-rhinos-in-south-african-circle-of-life

Dolrenry, S., Stenglein, J., Hazzah, L, Lutz, R.S. and Frank, L. 2014. A Metapopulation approach to African lion (*Panthera leo*) conservation. PLoS ONE 9(2): e88081. Doi: 10-1371/ journal.pone.0088081.

Ferreira, S.M. and Hofmeyr, M. 2014. Managing charismatic carnivores in small areas: large felids in South Africa. South African Journal of Wildlife Research 44(1):32-42.

Graham-Rowe, D. (2011). Endangered and in demand. Nature 480 (22 December 2011): s101-s103.

Gratwicke, B., Mills, J., Dutton, A., Gabriel, G., Long, B., Seidensticker, J., Wright, B., You, W. & Zhang, L. (2008). Attitudes toward consumption and conservation of tigers in China. PLoS ONE 3 (7): e2544.

Hunter, L.T.B., Pretorius, K., Carlisle, L.C., Rickelton, M., Walker, C., Slotow, R. and Skinner, J.D. (2007). Restoring lions Panthera leo to northern KwaZulu-Natal, South Africa: short-term biological and technical success but equivocal long-term conservation. Oryx 41:196-200.

IUCN Species Survival Commission (2012). Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives, Ver. 1.0. IUCN SSC 2012.

IUCN Species Survival Commission (SSC) Cat Specialist Group. (2006a). Regional Conservation Strategy For The Lion *Panthera leo* In Eastern and Southern Africa. 60 pp.

Kettles, R. and Slotow, R. (2009). Management of free-ranging lions on an enclosed game reserve. South African Journal of Wildlife Research 39:23-33.

Lindsey, P., Alexander, R., Balme, G.A., Midlane, N. & Craig, J. (2012b). Possible relationships between the South African captive-bred hunting industry and the hunting and conservation of lions elsewhere in Africa. South African Journal of Wildlife Research 42 (1), 11-22.

Miller, S.M., Bissett, C., Burger, A., Courtney, B. and Dickerson, T. (2013). Management of reintroduced lions in small, fenced reserves in South Africa: an assessment and best practice guidelines. South African Journal of Wildlife Research 43(3):138-154.

Miller, S.M and Funston, P.J. (2014) Population growth rates of lions (Panthera leo) on small fenced reserves in South Africa: a management dilemma. South Africa Journal of Wildlife Research 44:43-55.

Oliveier, P.J., Van Aarde, R.J., and Ferreira, S.M. (2009) Support for a metapopulation structure among mammals. Mammal Review 39:178-192.

Packer, C., Brink, H., Kissui, B.M., Maliti, H., Kushnir, H., and Caro, T. (2011) Effects of trophy hunting on lions and leopards in Tanzania. Conservation Biology. 25:142-153.

Packer, C., Swanson, A., Canney, S., Loveridge, A., Garnett, S., Pfeifer, M., … MacNulty, D. (2013). The case for fencing remains intact. Ecology Letters 16: 1414-e4.

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Becker, M., Dickman, A., ... Pimm, S. (2013). The size of savannah Africa: a lion's (*Panthera leo*) view. *Biodiversity and Conservation, 22(1)*, 17-35.

Slotow, R. and Hunter, L.T.B. (2009) Reintroduction decisions taken at the incorrect social scale devalue their conservation contribution: the African lion in South Africa. in: M.W. Hayward and M.J. Somer (eds). Reintroduction of Top-Order Predators. pp. 41-73. Wiley-Blackwell, Oxford.

South Africa (2004). National Environmental Management Biodiversity Act 10 of 2004. www.gpwonline.co.za

Tambling, C.J. and du Toit, S.T. (2005) Modelling wildebeest population dynamics: Implications of predation and harvesting in a closed system. Journal of Applied Ecology 42:431-441.

Trinkel, M., Ferguson, N, Reid, A., Reid, C., Somers, M. et al. (2008) Translocating lions into an inbred lion population in the Hluhluwe iMfolozi Park, South Africa. Animal Conservation 11:138-143.

Tinkel, M., Funston, P., Hofmeyr, M., Hofmeyr, D., Dell, S., Parker, C., and Slotow, R. (2010) Inbreeding and density-dependent population growth in a small, isolated lion population. Animal Conservation 13:374-382.

USFWS (2015) Final ESA listing rule for *Panthera leo leo* and *P. l. melanochaita.* 80 Fed. Reg. 79999.

Williams, V.L., Newton, D.J., Loveridge, A.J., & Macdonald, D.W. (2015). Bones of Contention: An Assessment of the South African Trade in African Lion *Panthera leo* Bones and Other Body Parts. TRAFFIC, Cambridge, UK & WildCRU, Oxford, UK.

World Bank. 2015. The World Bank Annual Report 2015. Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/22550 License: CC BY 3.0 IGO.

BEFORE THE UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

THE HUMANE SOCIETY OF THE UNITED STATES,

HUMANE SOCIETY INTERNATIONAL,

CENTER FOR BIOLOGICAL DIVERSITY,

INTERNATIONAL FUND FOR ANIMAL WELFARE, AND

THE FUND FOR ANIMALS

– PETITIONERS –

PETITION TO LIST ALL *PANTHERA PARDUS* AS ENDANGERED AND TO IMMEDIATELY RESTRICT LEOPARD TROPHY IMPORTS

July 25, 2016

Drafted by:

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NOTICE OF PETITION

Honorable Sally Jewell, Secretary
U.S. Department of the Interior
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Daniel M. Ashe, Director
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Dear Secretary Jewell, Director Ashe, Assistant Director Arroyo, and Assistant Director Frazer:

Pursuant to Section 4(b) of the Endangered Species Act ("ESA"), 16 U.S.C. § 1533(b), Section 553(e) of the Administrative Procedure Act ("APA"), 5 U.S.C. § 553(e), and 50 C.F.R. § 424.14, Petitioners (The Humane Society of the United States, Humane Society International, Center for Biological Diversity, International Fund for Animal Welfare, and The Fund for Animals), hereby petition the Secretary of the Interior and the Director of the Fish and Wildlife Service ("FWS" or "the Service") to list all leopards (*Panthera pardus*) as Endangered.

Additionally, pursuant to the First Amendment of the United States Constitution[1] and the APA (5 U.S.C. § 553(e)), Petitioners hereby petition the Service to take immediate action to restrict imports of African leopards, by (1) suspending the issuance of CITES import permits for *Panthera pardus* trophies until the FWS non-detriment advice memorandum is reevaluated for each range country where trophy hunting occurs; and (2) rescinding the special rule pertaining to leopards from "southern Africa" (50 C.F.R. § 17.40(f)) to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a).

[1] "Congress shall make no law ... abridging ... the right of the people ... to petition Government for a redress of grievances." U.S. CONST., amend. I. The Supreme Court has recognized that the right to petition is logically implicit in, and fundamental to, the very idea of a republican form of government. *United States v. Cruikshank*, 92 U.S. 542, 552 (1875); *United Mine Workers of America, Dist. 12 v. Illinois State Bar Ass'n*, 389 U.S. 217, 222 (1967); *Thomas v. Collins*, 323 U.S. 516, 530 (1945).

This petition presents substantial scientific and commercial information that leopards in Africa "south of and including…Gabon, Congo, Zaire, Uganda, Kenya" should be included in an Endangered listing for all *Panthera pardus*. 50 C.F.R. § 17.11 (listing leopards as Endangered in Asia and North and West Africa, but listing as Threatened leopards in Central, East, and Southern Africa).[2] *See also* 50 C.F.R. § 424.14(b)(1) ("substantial information" is "that amount of information that would lead a reasonable person to believe that the measure proposed in the Petition may be warranted"); 16 U.S.C. §1533(b)(3)(A) (The Secretary must make an initial finding on the petition "[t]o the maximum extent practicable, within 90 days after receiving the Petition"); *HSUS v. Pritzker*, 2014 WL 6946022 (D.D.C. 2014) (holding that conclusive evidence is not required to make a positive 90-day finding). Petitioners are confident that a status review of the species, as required by 16 U.S.C. § 1533(b)-(c), will support a finding that listing all *Panthera pardus* as Endangered is in fact warranted.

Further, as demonstrated herein, the Service must take immediate action to restrict the import of leopard hunting trophies to ensure that its regulations and practice comply with the ESA's statutory mandate to provide for the conservation of Endangered and Threatened species. *See* 16 U.S.C. § 1531(b), (c) (providing that federal agencies "shall utilize their authorities in furtherance of" the conservation purpose of the ESA); *Sierra Club v. Clark*, 755 F.2d 608 (8th Cir. 1985) (special rules must be designed and implemented to actually promote the conservation of the Threatened species).

This Petition is supported by expert declarations from renowned wildlife experts Dr. Jane Goodall and Dereck Joubert, and enclosed is a disc of the scientific references cited.

Respectfully submitted by:

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[2] This listing does not account for the fact that Zaire became the Democratic Republic of the Congo in 1997.

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EXECUTIVE SUMMARY

This Petition – submitted by The Humane Society of the United States, Humane Society International, Center for Biological Diversity, International Fund for Animal Welfare, and The Fund for Animals and supported by expert declarations from Dr. Jane Goodall and Dereck Joubert – demonstrates that the leopard (*Panthera pardus*) meets the statutory criteria for an Endangered listing under the ESA across its geographic range and requests reclassification for leopard populations listed as Threatened in 1982.

The ESA considers a species (including subspecies or distinct population segment) to be "Endangered" when it "is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6). The ESA requires the Service to list a species as either "Endangered" or "Threatened" based on the following five factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) "other natural or manmade factors affecting its continued existence." *Id.* § 1533(a)(1)(A-E). The ESA requires the Secretary to determine within 90 days of receiving the Petition whether the Petition "presents substantial scientific or commercial information indicating that the petitioned action may be warranted." *Id.* § 1533(b)(3)(A). Such determination must be made solely on the basis of the "best scientific and commercial data available." *Id.* § 1533(b)(1)(A).

When a foreign species is listed as Endangered, protection under the ESA occurs by, *inter alia*, prohibiting imports unless they enhance the propagation or survival of the species or are for scientific purposes. *Id.* § 1533(b)(1)(A). Furthermore, Section 8 of the ESA provides for "International Cooperation" in the conservation of foreign, listed species, and listing a foreign species heightens global awareness about the importance of conserving the species.

This Petition seeks to increase protection for leopards in southern Africa, while maintaining the Endangered listing for leopards in all other areas of the species' range. Thus, this Petition describes the natural history and biology of the African leopard (*Panthera pardus pardus*) and the current status and distribution of this subspecies; it clearly shows that its range is in alarming and precipitous decline, including in southern Africa where leopards are currently listed as Threatened. The Petition reviews the threats to the continued existence of the African leopard, including loss of habitat and prey, excessive and unsustainable offtake for recreational purposes, high levels of poaching for commercial purposes, indiscriminant killing such as through snaring, and retaliatory killing by poison or firearms due to a perceived or actual treat to livestock and people. The Petition also demonstrates how Americans engaging in unsustainable trophy hunting and international trade of African leopards and their parts for hunting purposes are significantly and negatively impacting the conservation status of the African leopard. It then explains how existing laws and regulations are inadequate to address the numerous and interacting threats to the African leopard today.

The Petition requests that as FWS considers an uplisting of Threatened leopards to Endangered, the agency immediately take action to strictly scrutinize the import of leopard trophies by (1) suspending the issuance of CITES import permits for *Panthera pardus* trophies until the FWS non-detriment advice memorandum is reevaluated for each range country where trophy hunting occurs; and (2) rescinding the

special rule pertaining to leopards from southern Africa (50 C.F.R. § 17.40(f)) to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a).

Status and Distribution

The IUCN Red List status of the leopard demonstrates the precipitous deterioration of the status of the leopard over the past 15 years: in 2002, the species was considered Least Concern; in 2008, Near Threatened; and in 2016, Vulnerable (Stein et al. 2016). The most recent IUCN Red List assessment lists persecution, habitat fragmentation, an increase in illegal wildlife trade, excessive take for ceremonial use of skins, prey base declines, and poorly managed trophy hunting as major threats to the survival of the species (Stein et al. 2016). Regarding African leopard populations specifically, the subpopulation of North Africa (which is currently listed as Endangered under the ESA) potentially qualifies as Critically Endangered due to very small and declining number of mature individuals; since the previous IUCN assessment in 2008, leopards likely have become extinct in Morocco and Algeria (Stein et al. 2016). In sub-Saharan Africa, the leopard population has declined by >30% in the past three generations, potentially qualifying the sub-Saharan population of the subspecies as Vulnerable (Stein et al. 2016); this decline was caused by a 21% loss of leopard habitat in sub-Saharan Africa over the past 25 years, and 59% decline in prey loss in protected areas. At the regional level within sub-Saharan Africa, Stein et al. (2016) infer a >50% loss of leopard populations in East and West Africa, due to leopard prey reduction by 52% and 85% in those regions, respectively. In southern Africa, populations in Angola, Zambia, Mozambique, Zimbabwe and South Africa appear to be decreasing (Stein et al. 2016). In addition to habitat loss and loss of prey base, Stein et al. (2016) recognize two other major threats to leopards in sub-Saharan Africa: conflict with farmers over actual or potential killing of domesticated livestock or farmed wild animals (game farming or game ranching); and poorly managed trophy hunting, especially when it is concentrated geographically and when it targets individuals in their prime, who are territorial and reproductively active.

Regarding the total population size for the African leopard subspecies across its range, according to the 2008 IUCN assessment (Henschel et al.), "there are no reliable continent-wide estimates of population size in Africa, and the most commonly cited estimate of over 700,000 leopards in Africa (Martin and de Meulenaer 1988) *is flawed*" (emphasis added). The most recent publication on leopard status and distribution (Jacobson et al. 2016) stated, "Earlier Africa-wide assessments of population size (Myers, 1976; Eaton, 1977; Martin & De Meulenaer, 1988; Shoemaker, 1993) employed questionable population models based on scant field data and were widely criticized as being unrealistic (Hamilton, 1981; Jackson, 1989; Norton,1990; Bailey, 1993)" (p. 2). The current ESA Threatened listing – which dates to 1982 – is based on outdated information and must be reviewed in light of the substantial evidence indicating a significant decline in populations over the last three decades.

Present and Threatened Destruction, Modification, Curtailment of Habitat or Range

African populations of the leopard have experienced significant and ongoing loss of habitat. The most recently published scientific assessment of the status and distribution of the species (Jacobson et al. 2016a) found that *P. pardus pardus*, the African leopard, has lost 48-67% of its historical range. In North Africa, *P. pardus pardus* has lost 93.9-99% of its historic range; in West Africa, the range loss is 86-95%;

in Central Africa, the range loss is 45-66%; in East Africa, the range loss is 40-60%; and in Southern Africa, the range loss is 28-51% (Jacobson et al. 2016a). Jacobson et al. (2016a) state, "even for this relatively widespread subspecies, there is still substantial cause for concern across large portions of its range." The subspecies existed historically in 47 range States, but exists in only 38 today, and thus has been extirpated from nine countries: Mauritania, Togo, and Tunisia; Gambia, Lesotho, and Morocco (possibly extinct); and Algeria, Burundi, and Mali (possibly present) (Jacobson et al. 2016a).

The most recent IUCN assessment of the leopard (Stein et al. 2016) agrees largely with the findings of Jacobson et al. (2016a) with regard to range loss over the past three leopard generations (22.3 years); they estimated a 61% range loss for the species across its range (from 21,953,435 km^2 in the 2008 IUCN assessment to 8,515,935 km^2 in the 2016 assessment); a 21% range loss in sub-Saharan Africa; a 97% range loss in North Africa; a "dramatically reduced" range in West Africa; "substantial range declines" in West, Central, and East Africa; and a 21% range loss in southern Africa. Stein et al. (2016) attributes the range declines in West, Central, and East Africa to habitat loss and fragmentation which threaten the survival of leopards because they "require large, contiguous habitats with low human impacts to reproduce successfully" (Stein et al. 2016). Other factors contributing to range loss in Africa are prey reductions due to the illegal and unsustainable bushmeat trade, illegal harvest of skins, and human-leopard conflict and retaliation for livestock depredation.

Overutilization for Commercial, Recreational, or Scientific Purposes

The original analysis presented in this petition shows that between 2005 and 2014 (the most recent years for which complete data are available), 35,421 leopard specimens (leopards, dead or alive, and their parts and derivatives, the equivalent of at least 12,791 leopards), were traded internationally. Of these 12,791 leopards traded internationally, 10,191 of these specimens were hunting trophies.

The U.S. is the top importer of leopard specimens sourced from the wild (accounting for 45% of the total trade), and the vast majority of leopard specimens imported to the U.S. are hunting trophies. From 2005-2014, Americans imported African leopards and their products equivalent to 5,575 individuals, including bodies (14), live specimens (26), skins (741), and trophies (4,794). This amount is equivalent to approximately 44% of the global imports in leopards during this period.

Most leopards imported into the U.S. were exported from Zimbabwe (1,745 total: 1,489 trophies and 256 skins, 31% of total imports) and the United Republic of Tanzania (1,270 total: 1,118 trophies and 152 skins, 23% of total imports), with South Africa (900 total: 729 trophies, 163 skins and 8 bodies, 16% of total imports), Namibia (654 total: 646 trophies, 5 skins, 3 bodies, 12% of total imports), Zambia (468 total: 466 trophies and two skins, 8% of total imports), Mozambique (238 total: 133 trophies and 105 skins, 4% of total imports), and Botswana (196 total: 191 trophies and 5 skins, 4% of total imports) also playing major roles in exports.

Since the 1982 Threatened listing was put in place relaxing requirements for leopard trophy imports from southern Africa, there has been a dramatic increase in the number of leopard trophies imported, with numbers steadily rising throughout the 1990's and peaking in 2009, when 657 trophies were imported. The number of leopard trophy imports has remained over 300 per year since 1999, despite prior commitments from FWS to only allow "very few" leopard trophies into the country.

Poorly managed trophy hunting is considered a major threat to the survival of leopards in sub-Saharan Africa, especially when it is geographically concentrated and targets individuals in their prime, who are territorial and reproductively active (Stein et al. 2016). Recent studies have demonstrated that trophy hunting caused leopard population declines in South Africa (Balme et al. 2009, Pitman et al. 2015), Mozambique (Jorge 2012), Tanzania (Packer et al. 2009), and Zambia (Packer et al. 2010). Concern about unsustainable leopard trophy hunting has resulted in South Africa banning the export of leopard trophies in 2016; Botswana banning all trophy hunting, including of leopard, beginning in 2014; and Zambia banning leopard hunting in 2013 (Stein et al. 2016).

Leopards also continue to be poached for commercial trade, and a trend can be seen in China exporting for commercial purposes an average of 413 leopard "derivatives" to the U.S. each year during 2006-2010, which abruptly ceased in 2011, and then the trend reappeared under a different but similar wildlife term: "medicine"; an average of 110 "medicine" products derived from leopards being exported for commercial purposes from China (2012-2013) and then Hong Kong (2014).

There is a large-scale illegal trade in leopard skins for "cultural regalia" in southern Africa, with an estimated 4,500-7,000 leopards killed annually to fulfill demand for skins by followers of one church alone (the Nazareth Baptist (Shembe) Church) (Stein et al. 2016, citing to Balme unpublished data).

Inadequacy of Existing Regulatory Mechanisms

Pursuant to Fish and Wildlife Service regulations, *Panthera pardus* is currently listed as Endangered across its range, with the exception of 18 countries in southern Africa where the species is listed as Threatened. 50 C.F.R. § 17.11. This differential geographic listing does not comport with FWS policy or statutory mandate, and the best available science – presented in this Petition – demonstrates that leopards in southern Africa, like leopards in Asia and northern Africa, are "in danger of extinction" in this significant portion of the species' range. 16 U.S.C. § 1532(6).

All leopards were originally listed as Endangered, initially to restrict the leopard fur trade (with over 17,000 leopard hides imported into the United States from 1968-1969). 45 Fed. Reg. 19007 (March 24, 1980). But in 1980, at the urging of trophy hunters, FWS proposed to reduce protections for leopards in most of Africa (even though the agency did not explain whether or why it thought that leopards in southern Africa were both "distinct" and "significant" such that the region constitutes a listable distinct population segment). *See* 61 Fed. Reg. 4722 (Feb. 7, 1996); 16 U.S.C. § 1532(16). And today, FWS still has not conducted an analysis of whether leopards in southern Africa can lawfully be listed as a distinct population segment. Similarly, since 1982 when it finalized the Threatened listing for African leopards, FWS has not conducted the mandatory five-year review for such listing, resulting in an antiquated listing that is not based on the best available science.

In addition to the lack of scientific support for the original listing, the implementation of this listing is woefully inadequate to promote leopard conservation, endangering the survival of leopards in southern Africa. Currently, leopard trophies can be imported into the U.S. without an ESA permit, provided that the requirements of the Convention on International Trade in Endangered Species (CITES) are met.

Currently, CITES has established export quotas for twelve African countries for leopard skins traded for personal and hunting trophy purposes, totalling 2,648 leopards per year. These quotas have dramatically

increased over time, with the number of leopards rising five-fold – from 460 in 1983 to 2,648 in 2016 – and the number of countries with export quotas rose from seven in 1983 to twelve in 2016.

These quotas have no scientific basis and are not routinely reviewed to ensure that are not detrimental to the survival of the species. Indeed, the basis for the original and subsequent CITES export quotas for leopards is a model by Martin and de Meulenar (1988) that has been dismissed by modern leopard scientists as over-simplified as it was based on a correlation between rainfall and leopard numbers in savannah habitats of East Africa and used to predict leopard numbers across their entire sub-Saharan Africa range (Braczkowski et al. 2015b).

Other Natural or Manmade Factors Affecting the Survival of the African Leopard in the Wild

African leopards are also in danger of extinction due to other manmade factors. Leopard population densities are directly related to biomass of medium and large-sized wild herbivores, the main leopard prey (Stein et al. 2016). However, populations of such herbivores have been severely depleted by the unsustainable bushmeat trade which is considered to be a major threat to the survival of the African leopard (Stein et al. 2016). According to Stein et al. (2016), Craigie et al. (2010) found an estimated 59% average decline in leopard prey populations in 78 protected areas in West, East, and Southern Africa between 1970 and 2005 due to commercialized bushmeat trade. Bushmeat hunting in the Congo Basin for local and commercial use has reduced the wild prey base, resulting in lower leopard densities and even the disappearance of leopards from some places (Henschel 2008, 2009). Leopard range is largely reduced in human-populated areas in the Democratic Republic of the Congo due illegal hunting and bushmeat trade (Stein et al. 2016). Bushmeat poaching in Mozambique and Zambia has severely reduced leopard prey inside and outside of protected areas (Stein et al. 2016).

Conflict with farmers who own domestic or wild game (game ranching) is a major threat to the survival of the African leopard (Ray et al. 2005, Henschel 2008, Stein et al. 2016). About 60-70% of Africa's human population relies on agriculture and livestock for their livelihoods, and the human population of Africa is expected to more than double by 2050 (Stein et al. 2016); thus, the future will likely see increasing numbers of people using increasing amounts of land in conflict with decreasing numbers of leopards. Currently, many sub-Saharan African countries allow farmers to kill predators considered to be a threat to life or property without first obtaining a permit; it is likely that a large number of leopards are killed but not reported; and the total number of leopards killed due to conflict is unknown (Stein et al. 2016). And indiscriminate killing, such as the poisoning of carcasses aimed at attracting and killing carnivores of any and all types, and the use of snares to kill other species, is also a threat to the survival of leopards (Henschel 2008, Jorge 2012).

Conclusion

This Petition demonstrates that leopards in southern Africa are in danger of extinction and must be listed as Endangered along with leopards across the remainder of the species' range. Given the precarious plight of the African leopard, and due to the legal deficiencies in existing law, the Petition also asks FWS to take immediate action to restrict the import of African leopard hunting trophies to the U.S.

I. Introduction

Pursuant to Fish and Wildlife Service ("FWS" or "the Service") regulations, *Panthera pardus* is currently listed as Endangered across its range, with the exception of 18 countries in southern Africa where the species is listed as Threatened. 50 C.F.R. § 17.11. This differential geographic listing does not comport with FWS policy or the Endangered Species Act's (ESA) statutory mandate, and the best available science – presented in this Petition – demonstrates that leopards in southern Africa are "in danger of extinction" in this significant portion of the species' range. 16 U.S.C. § 1532(6).

Leopards in Asia and northern Africa are in danger of extinction and clearly meet the statutory definition of Endangered, as acknowledged by FWS; however, the Service's decades old regulation listing leopards in southern Africa as a Threatened species is not supported by science – indeed, such listing and the management decisions flowing therefrom are based almost entirely on unpublished reports from biased sources that have been discredited by the scientific community (as detailed in Section IV(D), *infra*). *See* 50 C.F.R. § 17.11.

This Petition describes the natural history and biology of the African leopard (*Panthera pardus pardus*) and the current status and distribution of this subspecies (with a particular focus on the sub-Saharan African countries where leopards are currently listed as Threatened).[3] The evidence clearly shows that leopards in this part of the species' range are in alarming and precipitous decline. The Petition evaluates the threats to the continued existence of the African leopard, including loss of habitat and prey, excessive and unsustainable offtake for recreational purposes, high levels of poaching and illegal trade for commercial and ceremonial purposes, indiscriminant killing such as through snaring, and retaliatory killing by poison or firearms due to a perceived or actual treat to livestock and people. The Petition also demonstrates how Americans engaging in unsustainable trophy hunting and international trade of African leopards and their parts for hunting trophies are significantly and negatively impacting the conservation status of the African leopard. It then explains how existing laws and regulations are inadequate to address the numerous and interacting threats to the African leopard today, all of which requires FWS to expand the Endangered listing of *Panthera pardus* to include all animals throughout the entirety of the species' range.

The Petition also requests that as the Service evaluates an uplisting of Threatened leopards, the Service immediately take action to restrict the import of leopard specimens by (1) suspending the issuance of CITES import permits for *Panthera pardus* trophies until the FWS non-detriment advice memorandum is reevaluated for each range country where trophy hunting occurs; and (2) rescinding the special rule pertaining to leopards from southern Africa (50 C.F.R. § 17.40(f)) to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a).

[3] Notably, because the boundary line that FWS drew "south of and including…Gabon, Congo, Zaire, Uganda, Kenya" does not have any biological basis, much of the published literature refers to the African leopard subspecies as a whole or to specific countries within the subspecies' continental range. To the extent possible, this Petition focuses on the science pertaining to leopards in the range countries where the Threatened listing applies (which encompass the vast majority of the species' range on the African continent).

II. Status and Distribution

The leopard is the most wide-ranging species of wild cats. The species' historic range extended from the Cape of Good Hope in South Africa through the Middle East and Southeast Asia to the Amur Peninsula in Russia (Nowell and Jackson 1996). According to the International Union for Conservation of Nature (IUCN), there are nine extant leopard subspecies, though the species' taxonomy is currently under review by the IUCN SSC Cat Specialist Group: *Panthera pardus pardus* (Africa), *Panthera pardus nimr* (Arabia), *Panthera pardus saxicolor* (Central Asia), *Panthera pardus melas* (Java), *Panthera pardus kotiya* (Sri Lanka), *Panthera pardus fusca* (Indian sub-continent), *Panthera pardus delacourii* (southeast Asia into southern China), *Panthera pardus japonensis* (northern China), and *Panthera pardus orientalis* (Russian Far East, Korean peninsula and north-eastern China).

A new IUCN status review of *Panthera pardus* was just released (Stein et al. 2016) and classifies the species as Vulnerable (demonstrating that the species is more imperilled than it was in 2008, when the last IUCN assessment classified the species as Near Threatened, Henschel et al. 2008). The 2016 status review also continues to recognize that three Asian subspecies of leopards are Critically Endangered (*P. p. orientalis*, *P. p. nimr*, and *P. p. melas*), and two subspecies are Endangered (*P. p. kotiya* and *P. p. saxicolor*).

The IUCN Red List status of the leopard demonstrates the precipitous deterioration of the status of the leopard over the past 15 years: in 2002, the species was considered Least Concern; in 2008, Near Threatened; and in 2016, Vulnerable (Stein et al. 2016). The most recent IUCN Red List assessment lists persecution, habitat fragmentation, an increase in illegal wildlife trade, excessive take for ceremonial use of skins, prey base declines, and poorly managed trophy hunting as major threats to the survival of the species (Stein et al. 2016).

Regarding African leopard populations specifically, the subpopulation of North Africa potentially qualifies as Critically Endangered due to very small and declining number of mature individuals; since the previous IUCN assessment in 2008, leopards likely have become extinct in Morocco and Algeria (Stein et al. 2016). In sub-Saharan Africa, the leopard population has declined by >30% in the past three generations, potentially qualifying the sub-Saharan population of the subspecies as Vulnerable (Stein et al. 2016); this decline was caused by a 21% loss of leopard habitat in sub-Saharan Africa over the past 25 years, and 59% decline in prey loss in protected areas. At the regional level within sub-Saharan Africa, Stein et al. (2016) infer a >50% loss of leopard populations in East and West Africa, due to leopard prey reduction by 52% and 85% in those regions, respectively. In southern Africa, populations in Angola, Zambia, Mozambique, Zimbabwe, and South Africa appear to be decreasing (Stein et al. 2016). In addition to habitat loss and loss of prey base, Stein et al. (2016) recognize two other major threats to leopards in sub-Saharan Africa: conflict with farmers over real or potential killing of domesticated livestock or farmed wild animals (game farming or game ranching); and poorly managed trophy hunting especially when it is concentrated geographically and when it targets individuals in their prime, who are territorial and reproductively active.

Regarding the total population size for the African leopard subspecies, according to the 2008 IUCN assessment (Henschel et al. 2008), "there are no reliable continent-wide estimates of population size in

Africa, and the most commonly cited estimate of over 700,000 leopards in Africa (Martin and de Meulenaer 1988) *is flawed*" (emphasis added). Similarly, the 2016 IUCN assessment states that "reliable data on Leopard population trends are missing from large portions of their range" but that "Leopards are declining throughout most of their range" and "populations have become reduced and isolated, and they are now extirpated from large portions of their historic range." (Stein et al. 2016).

The most recent scientific publication on leopard status and distribution (Jacobson et al. 2016a) stated, "Earlier Africa-wide assessments of population size (Myers, 1976; Eaton, 1977; Martin & De Meulenaer, 1988; Shoemaker, 1993) employed questionable population models based on scant field data and were widely criticized as being unrealistic (Hamilton, 1981; Jackson, 1989; Norton,1990; Bailey, 1993)" (p. 2). Jacobson et al. (2016a) did not provide an African leopard population size estimate saying, "Lack of empirical field data on distribution status and population size has prevented a range-wide population estimate" (p. 2).

However, recent estimates and trends are available (**Table 1**) for some of the 18 range countries where leopards are currently listed as Threatened, an area that encompasses the vast majority of the species' current range on the African continent (**Figure 1**).

Table 1. Recent estimates of leopard population sizes and trends in countries where the population is listed as ESA Threatened.

Country	Recent Estimated Leopard Population Size, Status and/or Trend
Angola	Stein et al. (2016) state that Angola has declining but healthy leopard populations outside of areas with increased human development and intensive conflict with humans. However, Jacobson et al. (2016b) state that there are no recent publications regarding the presence of leopards in Angola and, while there are likely many leopards, there are no scientific data.
Botswana	Botswana's 2003 Predator Strategy estimated between 4,404 and 6,830 leopards existed in the country (Jacobson et al. 2016b) where there is a continuous leopard population in the North and West" (Stein et al. 2016).
Burundi	Jacobson et al. (2016b) consider the leopard to be "possibly present" in Burundi but much of the country is converted to agriculture with high human population densities and low wild prey densities.
Republic of the Congo	Leopards are present in many protected areas but they are threatened by the illegal leopard skin trade which is supplied by specialized leopard hunters, particularly in northeast Congo (Jacobson et al. 2016b).
Democratic Republic of the Congo	The leopard is "likely still widespread" in the Democratic Republic of the Congo but there is little recent information on leopards and densities are unknown (Jacobson et al. 2016b). A large and growing human population has diminished leopard prey populations through excessive and unsustainable bushmeat harvesting practices (Jacobson et al. 2016b). Stein et al. (2016) state that leopard range has already been reduced due to bushmeat hunting.
Gabon	Henschel (2010) estimated Gabon's leopard population to be 5,910 animals. Leopards are "found throughout the country with small absent pockets in the southeast and southwest" (Stein et al. 2016). Jacobson et al. (2016b) said that the country likely still supports significant leopard populations, with populations in virtually all protected areas; however, intensive bushmeat hunting has caused leopards to disappear from some areas (Jacobson et al. 2016b).

Country	Recent Estimated Leopard Population Size, Status and/or Trend
Kenya	Jacobson et al. (2016b) consider the leopard to be widely distributed in Kenya, but threats include poisoning by local herders near Amboseli, human-wildlife conflict near Hell's Gate and Ruma, and some isolated cases of "trophy poaching." Stein et al. (2016) considers the distribution of leopards in East Africa, including Kenya, to have been reduced; however, leopards are found throughout the west, central and southern portions of Kenya (Stein et al. 2016).
Lesotho	Jacobson et al. (2016b) and Stein et al. (2016) consider the leopard in Lesotho to be "possibly extinct."
Malawi	Jacobson et al. (2016b) consider the leopard in Malawi to be present in some areas; however, no recent scientific publications on the size and trend of the population are available.
Mozambique	Stein et al. (2016) state that Mozambique has a declining but healthy leopard populations outside of areas with increased human development and intensive human-leopard conflict. Jacobson et al. (2016b) note that the Mozambican Civil War (1977 to 1992) depleted wildlife around the country; however, while leopards are found in many places, their populations are poorly monitored and largely unknown. Jorge (2012) studied the leopard population of Niassa National Reserve and found leopard densities there were comparable with those in Central and Southern Africa; however, trophy hunting offtake combined with illegal offtake was unsustainable.
Namibia	Stein et al. (2016) stated that leopards inhabit most of the country with the exception of the highly populated northern region, the arid southeast farmlands and the desert coast. According to Jacobson et al. (2016b), the Ministry of Environment and Tourism updated their Large Carnivore Atlas in 2010 with the results indicating that leopards are the most widely distributed large carnivore in Namibia, although absent from 30% of their historic range in the country, with a population size of 14,154 (range of 13,356 - 22,706) (according to Stein et al. 2011), which is an increase of 110% from 2004 when the previous Atlas was conducted. Leopard-human conflict and poorly managed trophy hunting are threats to the species in Namibia (Jacobson et al. 2016b).
Rwanda	Jacobson et al. (2016b) state that there are no recent publications regarding the status or presence of leopards in Rwanda and that a lot of the country has been converted to agriculture and has high human population densities.
South Africa	Leopards are found on borders with Namibia, Botswana, Zimbabwe and Mozambique, with dense populations in the Limpopo region, and they are also found in the Cape provinces (Stein et al. 2016). The population is decreasing from previous estimates especially in areas with human development and intensive human-leopard conflict (Stein et al. 2016). Swanepoel et al. (2014) estimated that there were 4,476 leopards in South Africa. According to Jacobson et al. (2016b), there is no national monitoring program for leopards and current trade and trophy hunting quotas may lead to population decline and possible extinction in certain areas. Indeed, recently Pitman et al. (2015) studied leopard offtake in Limpopo Province and found it to exceed that which is considered sustainable. South Africa banned export of leopards for 2016 as they did not have enough information to make a finding of non-detriment required under CITES for leopard exports.
Swaziland	There are no recent publications on the size or trend of the leopard population in Swaziland (Jacobson et al. 2016b).
Tanzania	Leopards remain widely distributed in Tanzania although only a few studies have established scientifically-based leopard densities or population trends (Jacobson et al. 2016b). The leopard population is declining and has been reduced in Tanzania

Country	Recent Estimated Leopard Population Size, Status and/or Trend
	(Jacobson et al. 2016b, Stein et al. 2016) driven, in part, by excessive offtake for trophy hunting (Packer et al. 2009, Jacobson et al. 2016b).
Uganda	Although apparently present in many areas (Jacobson et al. 2016b, Stein et al. 2016), the Uganda Wildlife Authority reported in 2010 that leopards are 'likely to have declined even more drastically [relative to other species of concern] because of their widespread presence outside protected areas' and estimated that the population may be lower than 150-200 individuals (Jacobson et al. 2016b).
Zambia	Zambia's leopard population has declined with leopards disappearing from areas with increased human development and in areas with high human-leopard conflict (Stein et al. 2016). Leopards are present in some National Parks and game management areas, but absent in others (Jacobson et al. 2016b). Zambia banned leopard hunting in 2013 and 2014, but reinstated it in 2015 and 2016 (Jacobson et al. 2016, supplemental document 1, country profiles).
Zimbabwe	Leopards exist in many conservation areas but no assessment of the national population exists (Jacobson et al. 2016b). Populations are declining and leopards are disappearing in areas with high human impact and human-leopard conflict (Stein et al. 2016). Williams et al. (2016b) extrapolated the results of a study of the impact of government land reform policies on the leopard population of Save Valley Conservancy to the remainder of the country, estimating Zimbabwe's leopard population size to be 626 at minimum and 6,716 at maximum in 2008, a decrease of 69% and 58%, respectively, compared to minimum and maximum population estimates from 2000.

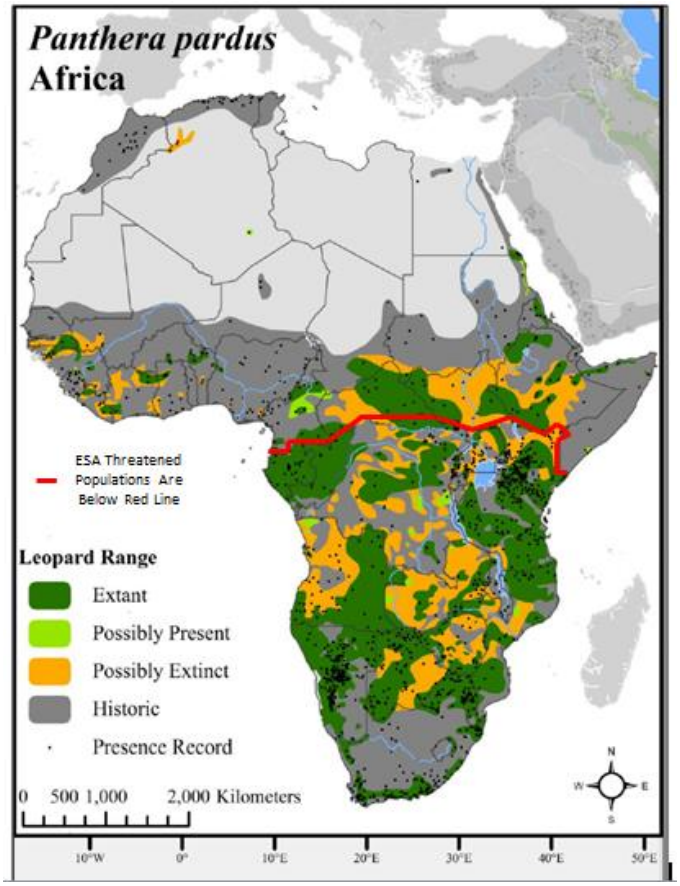
The most recently published scientific paper containing an assessment of the status and distribution of the species (Jacobson et al. 2016a) found that *P. pardus pardus*, the African leopard, has lost 48-67% of its range, from a historical range of 19,751,400 km^2 to between 6,613,000-10,219,200 km^2 today (Jacobson et al. 2016b) (**Figure 1**). Jacobson et al. (2016a) state, "even for this relatively widespread subspecies, there is still substantial cause for concern across large portions of its range." The African leopard subspecies existed historically in 47 range States, but exists in only 38 today, and thus has been extirpated from nine countries (Jacobson et al. 2016c): Mauritania, Togo, and Tunisia; Gambia, Lesotho, and Morocco (possibly extinct); and Algeria, Burundi, and Mali (possibly present) (Jacobson et al. 2016c). Regarding *Panthera pardus* as a whole, Jacobson et al. (2016a) state, "Contrary to the pervasive impression of the leopard as being one of the most widespread, adaptable and resilient carnivores, our calculated range loss of 63–75% exceeds the average range loss documented for the world's largest carnivores (53% for 17 species; Ripple et al., 2014)."

See also Declaration of Dr. Jane Goodall, ¶ 8 ("It is absolutely clear that leopards – like most wildlife in Africa – are at greater risk of extinction today than they were in 1982 when the U.S. Fish and Wildlife Service listed southern African leopards as Threatened. In the nearly six decades during which I have learned a great deal about wildlife in Tanzania and other African countries, the human population has more than doubled, resulting in rapidly vanishing wildlife habitat, wiping out forests and grasslands essential to sustain leopards and their prey. Large mammals – like leopards and chimpanzees – play essential roles in their ecosystems, and in order to preserve these magnificent animals in perpetuity it will require all nations to exercise their full power to promote the conservation of imperiled species."); Declaration of Dereck Joubert, ¶ 9 ("There is no reason to believe that the population trend for leopards is significantly different to those of other big cats in Africa, all of which indicate a 95% decline over the

past 50 years. Our own findings coincide with that hypothesis and in many areas I have surveyed, in particular where there is hunting, leopard have declined significantly. Territories have been disrupted and breeding has been suppressed. It is unlikely that there are more than 50,000 leopards in Africa today. Indeed, based on my experience over the last 30 years working with leopards, the population has significantly decreased in that time.”).

The most recent IUCN assessment of the leopard (Stein et al. 2016) agrees largely with the findings of Jacobson et al. (2016a) with regard to range loss over the past three leopard generations (22.3 years); they estimated a 61% range loss for the species across its range (from 21,953,435 km^2 in the 2008 IUCN assessment to 8,515,935 km^2 in the 2016 assessment); a 21% range loss in sub-Saharan Africa; a 97% range loss in North Africa; a “dramatically reduced” range in West Africa; “substantial range declines” in West, Central, and East Africa; and a 21% range loss in southern Africa. Stein et al. (2016) attributes the range declines in West, Central, and East Africa to habitat loss and fragmentation which threaten the survival of leopards because they “require large, contiguous habitats with low human impacts to reproduce successfully” (Stein et al. 2016). Other factors contributing to range loss in Africa are prey reductions due to the illegal and unsustainable bushmeat trade, illegal harvest of skins, and human-leopard conflict and retaliation for livestock depredation.

Figure 1. Historic and present distribution of the leopard in Africa with red line demarcation between ESA Endangered and ESA Threatened populations.



Source Jacobson et al. 2016d (ESA demarcation added).

III. Natural History and Biology

A. Species Description

The following account of the species is sourced from Stein and Hayssen (2013). The leopard is the smallest of the large cats in the genus *Panthera*, though there are variations in sizes of leopards across their range. Males are generally larger than females – for example, mean length of head and body for males in Namibia is 132 cm, and females 106.5 cm (based on two samples of each sex); weight of 47 males from India, Ivory Coast, Namibia and South Africa was 30.9-62.6 kg, and for 34 females 21.2-54.0 kg. Fur color varies from yellow to black and is soft and thick and leopards living in colder climates have longer hair. Spots occur on the muzzle and forehead and the whisker spots can be used to identify individuals. The spots become a rosette pattern from the neck and shoulders to the rump and tail. Irregular spots are found from the elbow and knee to the feet and along the ventral side of the torso. Eye color varies from yellow to blue. Leopards have well-developed musculature on the neck, forelimbs and chest and can drag a carcass more than double the leopard's body weight up a tree. They have five toes on the front feet and four on the back, with the first toe on the inside of the front used only for bringing down prey. Leopards can reach a maximum speed of 60 km per hour, make horizontal leaps of 6 m, and vertical leaps of 3 m.

B. Reproduction and Mortality

Leopards have a polygynous mating system; both sexes are territorial; males have a territory that includes territories of several females; both sexes defend their territories against individuals of the same sex although there is some overlap (Balme and Hunter 2013).

According to Stein and Hayssen (2013)'s description of *Panthera pardus* across its entire range, some populations have a distinctive mating season (e.g. November-December in Nepal) but leopards mate year-round in South Africa. Females attract males through scent marks and vocalizations. When mating, males associate with females for 1-4 days. Mean length of estrus is 5-13 days, gestation is 88-112 days, lactation occurs for 114-130 days, den emergence happens in 42 days, independence occurs at 13 months. The interbirth interval is 3.5-45 months, with most intervals 8-12 months. Females have four mammae and litter size is 1-6 with a mode of 2. Females first mate at 23-32 months, first births occur at 27-52 months, and males can first sire young at 1.5 years. Infanticide can occur when territorial males that likely sired the young are removed before cubs reach independence. Juveniles remain with their mothers for 12-18 months. Female young take over a portion of their mother's range, while young males disperse.

Lindsey and Chikerema-Mandisodza (2012) describes the reproduction of African leopard specifically (*Panthera pardus pardus*). The African leopard has a low reproductive rate and is long-lived. They reach sexual maturity at 3-4 years, have on average two cubs per litter, have a mean lifetime reproduction of 4.1 cubs/female, have an inter-birth interval of 25 months for successful litters, have a lifespan of 19 years for females and 14 years for males, have a generation time of 7 years, and have an adult sex ratio of 1.6 females/males. There is a 63% mortality of cubs prior to independence.

As described Braczkowski et al. (2015a), the African leopard subspecies (*Panthera pardus pardus*) is considered to be a solitary species (except for mothers and their cubs and males and females when

mating), but they live in a social system that is highly dependent on long-term relationships. When individuals are removed from a population and new immigrants enter the population this destabilizes the social system and leads to fighting and infanticide by new males. In populations where fathers remain present, cub survival and reproductive output of the population are higher than in populations where this is not the case. In addition, in stable populations female leopards give birth at a younger age, spend more time with dependent young, and produce more litters.

Longevity is 10-15 years in the wild; annual adult mortality averaged 19% in Kruger National Park of which 30% were old males, 17% old females, 17% prime males, 10% prime females; 64% died of starvation (Nowell and Jackson 1996).

C. Hunting and Feeding

According to Stein and Hayssen (2013), *Panthera pardus* consume a wide variety of animals of all types and sizes, from beetles to large antelopes. Preferred prey are 10-40 kg but they can feed on larger prey (>150 kg). In Africa, leopards prey on impala, springbok, duiker, nyala, and warthogs, and rodents. Females and cubs tend to prey on smaller animals. Leopards attack prey by stalking and pouncing – smaller prey are killed by a bite on the head or nape of the neck; larger prey by a bite on the throat. Once prey animals are killed, they are eaten on the spot, or dragged to trees, bushes or caves where they are cached. Leopards can be active at night or during the day (*i.e.*, in Kenya and South Africa, 66% of activity is nocturnal). Generally, leopard home range size varies according to prey availability with larger home ranges where prey availability is low. Females have smaller home range sizes than males (*e.g.*, in Tai National Park, Ivory Coast, males had a home range size of 32-46 km^2 and females 14-26 km^2).

IV. *Panthera pardus* is Endangered Across its Range Pursuant to the ESA Listing Criteria

The main threats to the survival of leopards across their range are habitat loss and fragmentation, conflict with humans, loss of prey, killing for the illegal trade in skins and parts and, for *P. pardus pardus*, unsustainable trophy hunting (Jacobson et al. 2016a). *See also* Stein et al. 2016 ("Evidence suggests that Leopard populations have been dramatically reduced due to continued persecution with increased human populations (Thorn et al. 2013, Selvan et al. 2014), habitat fragmentation (UN 2014), increased illegal wildlife trade (Datta et al. 2008), excessive harvesting for ceremonial use of skins (G. Balme pers. comm. 2015), prey base declines (Hatton et al. 2001, du Toit 2004, Fusari and Carpaneto 2006, Datta et al. 2008, Lindsey et al. 2014, Selvan et al. 2014) and poorly managed trophy hunting (Balme et al. 2009)"). Based on these threats, leopards in southern Africa must be included in the Endangered listing for *Panthera pardus*.

Notably, the IUCN concludes that "[m]ost of the factors driving Lion population declines (e.g., habitat loss and fragmentation, retaliatory killing due to conflict, poorly managed trophy hunting) also affect Leopards." (Stein et al. 2016). Just as the Service has recently taken action to prohibit the import of African lion trophies unless the ESA's enhancement standard is met (50 C.F.R. § 17.40(r)), the Service must take action to address the impact that Americans are having on the decline of the leopard.

A. Present or Threatened Destruction, Modification, or Curtailment of Habitat

African populations of the leopard have experienced significant and ongoing curtailment of range. As noted above, the most recently published assessment of the status and distribution of the species (Jacobson et al. 2016a) found that *P. pardus pardus*, the African leopard, has lost 48-67% of its range, from a historical range of 19,751,400 km^2 to between 6,613,000-10,219,200 km^2 today (Jacobson et al. 2016b) (**Figure 1**). In North Africa, *P. pardus pardus* has lost 93.9-99% of its historic range (from 605,300 km^2 historically to 5,800-37,000 km^2 today); in West Africa, the range loss is 86-95% (3,505,000 km^2 to 196,000-483,100 km^2); in Central Africa, the range loss is 45-66% (6,101,100 km^2 to 2,081,900-3,379,700 km^2); in East Africa, the range loss is 40-60% (3,626,300 km^2 to 1,457,200-2,003,300 km^2); and in Southern Africa, the range loss is 28-51% (5,913,800 km^2 to 2,872,200-4,270,800 km^2) (Jacobson et al. 2016b). Jacobson et al. (2016a) state, "even for this relatively widespread subspecies, there is still substantial cause for concern across large portions of its range." The subspecies existed historically in 47 range States, but exists in only 38 today, and thus has been extirpated from nine countries (Jacobson et al. 2016c): Mauritania, Togo, and Tunisia; Gambia, Lesotho, and Morocco (possibly extinct); and Algeria, Burundi, and Mali (possibly present) (Jacobson et al. 2016c).

The most recent IUCN assessment of the leopard (Stein et al. 2016) agrees largely with the findings of Jacobson et al. (2016) with regard to range loss over the past three leopard generations (22.3 years); they estimated a 61% range loss for the species across its range (from 21,953,435 km^2 in the 2008 IUCN assessment to 8,515,935 km^2 in the 2016 assessment); a 21% range loss in sub-Saharan Africa; a 97% range loss in North Africa; a "dramatically reduced" range in West Africa; "substantial range declines" in West, Central, and East Africa; and a 21% range loss in southern Africa. Stein et al. (2016) attributes the range declines in West, Central, and East Africa to habitat loss and fragmentation which threaten the survival of leopards because they "require large, contiguous habitats with low human impacts to reproduce successfully" (Stein et al. 2016). Other factors contributing to range loss in Africa are prey reductions due to the illegal and unsustainable bushmeat trade, illegal harvest of skins, and human-leopard conflict and retaliation for livestock depredation.

Contributing to this immense and ongoing loss of range is the collapse in prey species' populations due to commercial bushmeat harvest of herbivores which, in addition to outright habitat destruction, destroys the suitability of habitats for leopards whose density is dependent on the availability of prey (Stein et al. 2016). Thus, the African leopard is in danger of extinction due to habitat loss.

B. Overutilization for Commercial, Recreational, or Scientific Purposes

A valuable source of information on the utilization of leopards for commercial, recreational or scientific purposes is the Convention on International Trade in Endangered Species (CITES) Trade Database. The 182 CITES Parties are required to file annual reports with the CITES Secretariat on the import, export, re-export, and introduction from the sea of CITES-listed species. These reports are compiled into an electronic, searchable trade database, known as the CITES Trade Database, which is available to the public on the CITES website (www.cites.org).

This database can be used to determine the level of currently-legal international trade as well as the types and sources of leopards and their parts that are involved. In the context of CITES, international trade includes commercial trade as well as trade associated with breeding, circus or travelling exhibition, education, enforcement, trophy hunting, medicinal, personal use, reintroduction, scientific research, and for zoological exhibition. By examining the documented purposes of trade, the CITES trade database can be used to evaluate the reasons behind the movement of leopards and their parts across international borders by humans. The database also includes the source of African leopards and their parts in international trade, whether captive-bred, captive-born, illegal, pre-Convention, ranch-raised, or wild. While the CITES trade database is the principal source of information on international trade in leopards and their parts, it does not contain information on domestic use of leopards or their parts for commercial, recreational, or scientific purposes; nor does it account for poaching and illegal trade, except where illicit international trade has resulted in a seizure.

The leopard is clearly over-utilized for commercial and recreational purposes and must be listed as Endangered based on this criterion. The original analysis presented in this petition shows that between 2005 and 2014 (the most recent years for which complete data are available), 35,421 leopard specimens (leopards, dead or alive, and their parts and derivatives, the equivalent of at least 12,791 leopards), were traded internationally for all purposes (Annex 4, Table 1). This figure was derived by adding the figures for four types of specimens that likely represent one leopard each: bodies, skins, live, and trophies. Skulls and bones were not included in this calculation because after leopards are hunted, their skin is usually removed, leaving the skull and other bones and body parts; in this analysis, the skin or trophy is used to represent a leopard, not the skull or bones. The most commonly-traded items were derivatives (13,968), trophies (10,211), specimens (4,352), skulls (2,045) and skins (1,928) (Annex 4, Table 1). Other leopard specimens in trade include live animals (550), medicine (538), bones (405), claws (381), small leather products (287), and hair (238), as well as smaller numbers of bodies, bone pieces, carvings, cloth, feet, garments, hair products, large leather products, plates, skeletons, skin pieces, tails, and teeth (Annex 4, Table 1).

Global gross imports of African leopards reported as bodies, trophies, skins and live for the period of 2005 to 2014 total 12,791, including imports of 134 bodies, 549 live leopards, 1,916 skins, and 10,191 trophies (see **Table 2**).

Table 2. Gross Imports of *Panthera pardus* Bodies, Live, Skins, And Trophies, All Purposes, All Sources, 2005-2014.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
Bodies	7	0	9	10	22	19	24	24	9	11	**135**
Live	37	44	45	42	48	75	79	68	67	44	**549**
Skins	73	162	61	75	234	236	353	467	226	29	**1,916**
Trophies	1235	1134	1064	1291	1405	993	769	984	718	598	**10,191**
Totals	**1,352**	**1,340**	**1,179**	**1,418**	**1,709**	**1,323**	**1,225**	**1,543**	**1,020**	**682**	**12,791**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus*, all countries, all sources, all purposes, on 03/23/2016.

Of this trade from all sources, 19,909 leopard specimens, reported as being from a wild source – the equivalent of at least 11,959 leopards (adding bodies, live, skins, trophies) – were traded internationally for all purposes (Annex 4, Table 2). Wild sourced specimens accounted for 56.2% of specimens in trade (19,909 of 35,421) and 93.5% of leopards in trade (11,959 of 12,791). Of this trade, the U.S. imported 8,553 wild leopard specimens, the equivalent of at least 5,382 leopards (Annex 4, Table 3), which is 45% of wild leopards traded during the period. Indeed, the U.S. is the top importer of wild leopard specimens with other leading importers being France (1188 specimens representing at least 1,055 leopards), South Africa (1,224 specimens representing at least 839 leopards), Spain (823 specimens representing at least 614 leopards) and Germany (3,411 specimens representing at least 527 leopards) (Annex 4, Table 3). The top countries export of wild leopards and their parts were Zimbabwe (3,568 specimens representing at least 2,898 leopards), Tanzania (3,355 specimens representing at least 2,877 leopards), Namibia (4,308 specimens representing at least 1,796 leopards), and South Africa (2,805 specimens representing at least 1,601 leopards) (Annex 4, Table 5).

From 2005 through 2014, leopards and their parts from the following additional sources were traded internationally:

- 1,064 captive-bred[4] leopards and their parts, the equivalent of at least 510 leopards, including 8 bodies, 473 live, 18 skins, 554 specimens, and 11 trophies (Annex 4, Tables 6 and 7).
- 32 captive-born[5] leopards and their parts, the equivalent of at least 31 leopards, including 25 live, 1 skull, and 6 trophies (Annex 4, Table 8).
- 217 pre-convention[6] leopards and their parts, the equivalent of at least 127 leopards, including 101 skins, 13 skin pieces, 5 bodies, and 21 trophies (Annex 4, Table 9).
- 16 ranched[7] leopards and their parts, the equivalent of at least 10 leopards, including 8 live, 1 skin and 1 trophy (Annex 4, Table 10).
- 14,169.5 confiscated/seized[8] leopards and their parts, the equivalent of at least 219 leopards, including 180 trophies, 38 skins, 74 skin pieces, 28 teeth, 538 medicines, 12,906.5 derivatives, 269 small leather products, 14 claws, and 50 bones (Annex 4, Table 11).
- 91 unknown source[9] leopards and their parts, the equivalent of at least 15 leopards, including 25 derivatives, 35 specimens, 1 body, 6 live, and 18 skins (Annex 4, Table 12).

1. Trade for Commercial Purposes

Panthera pardus is listed on CITES Appendix I and international trade for primarily commercial purposes is not allowed under the treaty. Nonetheless, from 2005 to 2014, 3,522 African leopard specimens, the equivalent of at least 135 individual leopards, were traded internationally for commercial purposes (Annex 4, Table 13); this equates to 9.9% of the leopard specimens traded over this period (3,522 of 35,421) and 1% of leopards (135 of 12,791). The vast majority of these specimens were derivatives (2,683); others included medicine (331), and small leather products (266); but bodies (11),

[4] CITES source code C; none were traded under source code D. Information on the CITES Source Codes is in CoP16 Conf. 12.3 § I(i) (2002), *available at* https://cites.org/eng/res/12/12-03R16.php.
[5] CITES source code F.
[6] CITES source code O.
[7] CITES source code R.
[8] CITES source code I.
[9] CITES source code U.

skins (72), live specimens (39), trophies (13) and also skin pieces (69), feet (29), garments (14), teeth (14), skulls (8), carvings (7), claws (7), specimens (2), large leather products (1), and cloth (1) were also reported in trade (Annex 4, Table 13).

Of the leopard specimens internationally traded for commercial purposes, 3,358 (95%) were imported by the U.S (Annex 4, Table 14). However, upon closer inspection of FWS records, many of these were seized by the U.S. and reported in their annual report to the CITES Secretariat which is why they appear in the CITES Trade Database (Annex 4, Table 15). For example, from 2005-2014, a total of 2,482 leopard derivatives (2,151 or 80% of the total exported to the U.S. for commercial purposes) and medicine (331 or 100% of the total exported to the U.S. for commercial purposes) products were seized upon import into the U.S. These data further show that China exported, on average, 413 leopard "derivatives" to the U.S. each year during 2006-2010 for commercial purposes. This trade abruptly ceased in 2011, and then the trend reappeared under a different but similar wildlife term: "medicine"; an average of 110 "medicine" products derived from leopards being exported for commercial purposes from China (2012-2013) and then Hong Kong (2014) (Annex 4, Table 16).

However, substantial trade in leopard specimens for commercial purposes did not result in confiscations or seizures. For example, while 72 skins were internationally traded 2005-2014 (Annex 4, Table 13), only 9 were confiscated or seized as illegal imports during this period (Annex 4, Table 15). Similarly, of 8 bodies and 7 carvings so traded, none were seized; of 14 garments, 5 were seized; of 8 skulls, 1 was seized; of 14 teeth, 4 were seized; and of 13 trophies, none were seized.

Most leopard specimens traded internationally for commercial purposes and confiscated or seized globally, originated in China (Annex 4, Table 17). China is, by far, the country that exported the most leopard specimens for commercial purposes 2005-2014 (Annex 4, Table 18); as noted previously, most of these were derivatives and medicines that were imported by the U.S. and confiscated or seized.

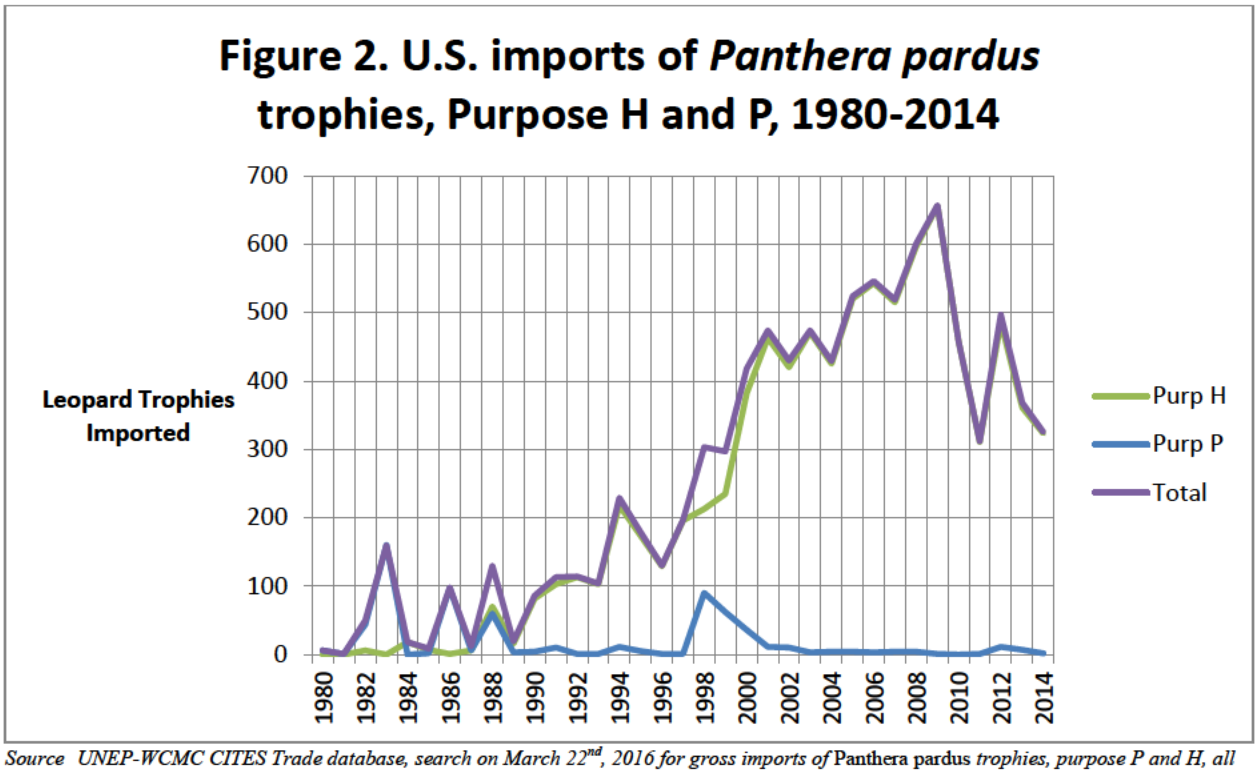
Leopards continue to be poached for commercial trade. Both skins and canine teeth are widely traded domestically in some Central and West African countries, and these are sold openly in villages and cities (Henschel 2008). Chapman and Balme (2010) found that leopard poaching occurs in the Zululand Rhino Reserve in northern KwaZulu-Natal province of South Africa and is increasing. They said, "There is evidence that targeted poaching for leopards is increasing in the region; the skins of 58 individuals were seized in the nearby Mkhuze district in 2004 and a further 91 skins were seized in the same area in 2009 (Hunter et al., in press)." (p. 119). According to Stein et al. (2016, citing to Balme unpublished data), "preliminary data suggest that the illegal trade in Leopard skins for cultural regalia is rampant in southern Africa. It is suggested that 4,500-7,000 Leopards area harvested annually to fuel the demand for Leopards skins by followers of the Nazareth Babtist (Shembe) Church only." Jorge (2012) found that the illegal off-take of leopards in Niassa National Reserve, Mozambique, was unsustainable and, when combined with off-take for trophy hunting, was negatively affecting leopard populations; skins are illegally traded locally for USD 83, an amount equivalent to one month's salary; poaching is driven by economic value of skins rather than human-leopard conflict which is low in the area; poachers killed an estimated 6-22% of the adult female population which may also have resulted in the death of cubs; poaching is a serious threat to conservation of leopards in the Reserve.

2. Trade for Recreational Purposes

Most leopards in trade are traded for hunting trophy purposes and leopards are clearly over-utilized for this purpose. From 2005 to 2014, 13,721 leopard specimens, representing at least 11,145 individual leopards, were traded for hunting trophy purposes (Annex 4, Table 19); this equates to 38.7% of the leopard specimens traded over this period (13,721 of 35,421) and 87.1% of individual leopards (11,145 of 12,791). The most common type of specimen traded for hunting trophy purposes was "trophies" (9,495) followed by "skulls" (1,974) and "skins" (1,564) (Annex 4, Table 19). Most leopard specimens traded internationally for hunting trophy purposes were imported by the U.S. (6,695 or 48.8%); no other country comes near to being as large an importer as the U.S.; the next nearest country is South Africa (1,113 or 8.1%) (Annex 4, Table 20). The top countries of export of leopard specimens for hunting trophy purposes were Zimbabwe (3,535 or 25.8%), Tanzania (3,088 or 22.5%), South Africa (2,291 or 16.7%), Namibia (1,917 or 14%) and Mozambique (1,009 or 7.4%) (Annex 4, Table 21); together these five countries export 60.5% of leopard specimens for hunting trophy purposes.

Leopard trophies are also traded internationally for personal purposes with 773 so traded from 2005 through 2014 (Annex 4, Table 22). France is, by far, the largest importer of leopard trophies for personal purposes, having imported 458 or 59.2%. Tanzania is, by far, the largest exporter of leopard trophies for personal purposes, having exported 303 or 39.1% (Annex 4, Table 23).

Regarding leopard trophy imports to the U.S., since 1982 there has been a dramatic increase in the number of leopard trophies imported, with numbers steadily rising throughout the 1990's and peaking in 2009, when 657 trophies were imported according to data from CITES trade database (see **Figure 2** below). The number of leopard trophy imports has remained over 300 per year since 1999, indicating the continuing trend of the U.S. being a major importer of leopard hunting trophies in this decade.



Source UNEP-WCMC CITES Trade database, search on March 22nd, 2016 for gross imports of Panthera pardus *trophies, purpose P and H, all sources, between 1980 and 2014.*

Leopard trophy hunting has increased exponentially over the past thirty years (Palazy et al. 2011). African leopards are highly sought after by trophy hunters (Braczkowski et al 2015b). Trophy hunting organizations, such as Safari Club International, offer awards to members who kill leopards, such as the Africa Big Five Grand Slam award, the Dangerous Game of Africa Grand Slam award, or the Cats of the World Grand Slam award (Shield Political Research et al. 2015). Trophy hunters routinely target the biggest and strongest males, but removing these animals from the breeding pool unnaturally selects for smaller and weaker animals (Allendorf and Hard 2009). Further, a new study demonstrates that when trophy hunting is sanctioned, poaching activity increases, likely due to the perception that species authorized for hunting are of diminished value and the perception that legal killing increases the acceptability of poaching (Chapron and Treves 2016).

Generally, trophy hunting poses a threat to carnivores because their populations are difficult to monitor and for some species, like the African leopard, infanticide is exacerbated by removing males (Packer et al. 2009). Simulation models predict population declines from moderate levels of trophy hunting of infanticidal species (Packer et al. 2009), such as leopards. Balme et al. (2010) demonstrated the impact of trophy hunting on infanticide in a population of leopards in South Africa; high trophy hunting offtake resulted in particularly high male leopard mortality and high levels of male turnover; females cannot successfully raise cubs because of immigration into the population of new males; the consequences were low cub survival rates, delayed age at first parturition, reduced conception rates, and low annual litter production; the combined impact of high mortality and low reproductive output led to a negative population growth rate.

Trophy hunting of leopards contributes to substantial declines in populations across southern African range states, and therefore puts the African leopard in danger of extinction. Indeed, the 2016 IUCN

assessment specifically notes that "concern about unsustainable trophy hunting has lately increased" and cites studies concretely demonstrating that "trophy hunting was a key driver of Leopard population decline" (Stein et al. 2016).

a. Biological factors render leopards sensitive to over-harvesting

High male leopard turnover causes high rates of infanticide which are already naturally high in leopard populations (Braczkowski et al. 2015b). This, in turn, can cause rapid population declines (Balme et al. 2009, Braczkowski et al. 2015a). A review of eighteen studies of leopards in southern Africa found that adult and subadult leopards outside of protected areas experienced significantly lower survival rates (55% on average) than those in protected areas (88% on average) (Swanepoel et al. 2015). In protected areas, adult males had a 94% survival rate, compared to 59% outside of protected areas; for adult females, 86% versus 57%; for subadult males, 80% vs 48%; and subadult females 93% vs 18% (Swanepoel et al. 2015). The main causes of mortality outside of protected areas were trophy hunting, problem animal control and poaching for leopard skins (Swanepoel et al. 2015). Even in protected areas, juveniles 12 months old and younger had a significantly lower survival rate (39%) than adults and 52% of mortalities were due to infanticide (Swanepoel et al. 2015). Swanepoel et al. (2015) stated that sustainability of leopard populations in southern Africa is of concern because mortality rates exceeding 30% for solitary carnivores, like leopards, could lead to population declines. Furthermore, the high female mortality rates outside of protected areas, where a large proportion of suitable leopard habitat exists, may have severe demographic effects (Swanepoel et al. 2015).

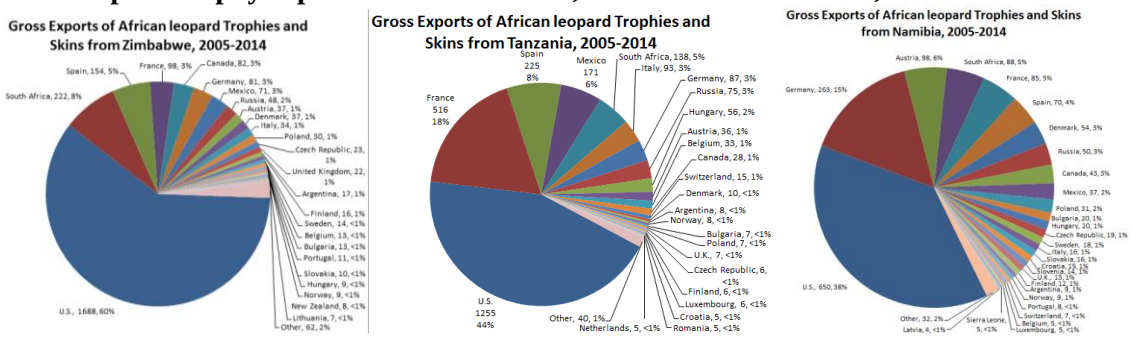
b. Lack of a scientific basis for export and hunting quotas

Leopard trophy hunting quotas have never been based on rigorous quantitative analysis in any African range country (Packer et al. 2010). Management of leopard hunting is hampered by lack of reliable population data and leopard hunting quotas are set arbitrarily and not based on science, which has led to population declines (Braczkowski et al. 2015b). Poorly managed trophy hunting is a significant cause of mortality in leopard populations (Braczkowski et al. 2015a).

While South Africa took action to protect leopards from export by trophy hunters in 2016, it is the only country with a CITES-established export quota that has issued a negative non-detriment finding assessment for the African leopard to date. Moreover, South Africa is not the main exporter of leopard trophies; Zimbabwe, Tanzania and Namibia are the top exporters. During 2005-2014, the U.S. imported 60% of gross leopard trophy exports from Zimbabwe, 44% of Tanzania's exports, and 38% of Namibia's exports (**Figure 3**).[10] Therefore, the U.S. has an important role to play in ensuring that international trade is not detrimental to the survival of *Panthera pardus*, in accordance with CITES.

[10] CITES, Trade Database,, *available at* http://trade.cites.org/ (gross export of leopard trophies for hunting trophy and personal purposes, and trophies for personal purpose).

Figure 3. Leopard trophy exports from Zimbabwe, Tanzania and Namibia, 2005-2014.



Given the fact that leopard trophy hunting quotas have never been based on rigorous quantitative analysis in any country (Packer et al. 2010), these and other leopard exporting countries cannot be said to be enhancing the survival of leopards through trophy hunting – indeed, in Tanzania (Packer et al. 2009), Mozambique (Jorge 2012) Zambia (Packer et al. 2010) and South Africa (Balme et al. 2009, Pitman et al. 2015), there are clear indications that leopard trophy hunting is unsustainable.

c. Female leopards are hunted

One of the most egregious practices associated with leopard trophy hunting – perhaps due to a relative lack in sexual dimorphism in the species – is the killing of female leopards. Killing of females is highly problematic as they are the key reproductive unit; also, killing of females with cubs means that those cubs will not reach adulthood. Trophy hunters may prefer male leopards because they are up to 60% larger than female leopards (Braczkowski et al. 2015b). Nonetheless, one study found that 87% of trophy hunters surveyed said they were willing to shoot females in order to get a trophy even though hunting females is illegal in most countries (Braczkowski et al. 2015b). For example, until this year, South Africa had no restrictions on leopard hunting by sex, age or size and was the only country allocated a CITES export quota that allows hunting of females; this is particularly concerning as a population viability analysis conducted for the South African leopard population demonstrated that the risk of extinction almost doubled when females were hunted (South Africa Department of Environmental Affairs 2015). Another study found that 28.6% of leopard trophies taken in the United Republic of Tanzania were females, even though only males could be legally hunted there and quotas are based on the assumption that only males are hunted (Spong et al. 2000). Since females most commonly die from starvation or due to old age or injuries, and when females are killed their cubs will die, offtake of females by trophy hunters is additive and more likely to adversely affect the population (Spong et al. 2000). Researchers have recommended that trophy hunting should be allowed only for males and that this should be strictly enforced (Braczkowski et al. 2015b). But even where such practice is prohibited, the prevalence of trophy hunting has led to illegal trophy hunting of females, such as in Mozambique (Jorge 2012).

d. Young males are removed from the population

Researchers have further recommended that trophy hunting should only be allowed for males over the age of seven as to allow them to reproduce successfully at least once and contribute their genes to the population (Braczkowski et al. 2015b). However, a study of photos on trophy hunting outfitters websites revealed a high frequency of animals killed between two and six years of age, who have territorial tenure and thus whose removal is likely to have cascading impacts (Braczkowski et al. 2015a). This is below the

recommended age minimum of seven years (Packer et al 2009), and it is likely that many younger animals or even females are killed each year (Braczkowski et al. 2015a). Jorge (2012) found that a high percentage of leopards killed for trophies in Niassa National Reserve, Mozambique, were under the recommended age of seven. Given that trophy hunters are highly motivated to obtain a kill, it is unreasonable to expect that an age limit will routinely be honored in the field.

e. Other factors making leopard hunting unsustainable

A study in Mozambique found that trophy hunting takes place in areas where leopard poaching also occurs and that the offtake from both combined were unsustainable and caused a decrease in leopard population density (Jorge 2012). Furthermore, in some areas of South Africa, especially in areas where leopard density is low, more leopards are killed by illegal retaliatory killing than by trophy hunting and offtake for this purpose should therefore be included in setting trophy hunting quotas (Swanepoel et al. 2015). Pitman et al. (2015) found that legal offtake for trophy hunting and legal offtake for problem animal control added together exceeded a sustainable level of offtake of the leopard population in Limpopo Province, South Africa, the most important habitat for leopard conservation in the country; although offtake for problem animal control exceed offtake for trophy hunting, the authorities do not take the former into account when issuing trophy hunting permits; in addition, illegal offtake is considered to be higher than these forms of legal offtake.

The use of dogs to hunt leopards in Zimbabwe, and a declining number of leopards killed by trophy hunters in Zimbabwe and Zambia (suggesting less availability in spite of insatiable demand), also raise concerns about management of trophy hunting (Packer et al. 2010). Hunting leopards with dogs masks continued population declines because the dogs increase the ability of the hunter to locate and kill leopards (Packer et al. 2009).

Therefore, leopard trophy hunting is a serious threat to the existence of the species in Africa, necessitating an uplisting to Endangered status of leopards in southern Africa (where the vast majority of leopard trophy hunting occurs). *See also* Declaration of Dr. Jane Goodall, ¶ 9-11 ("Given the precipitous decline of African leopards in recent decades, and because the threats to the continued existence of *Panthera pardus* and its habitat are significant, the United States must ensure that it is not contributing to the imperilment of this species and do all it can to promote the conservation of leopards in Africa. Trophy hunters sometimes defend this malicious slaughter by claiming that the money they pay for the pleasure of killing is what enables impoverished countries to pay for conservation of wildlife, but this argument has many flaws. The money paid to hunt a leopard or other trophy animal is often counted as profit by a hunting outfitter and does not usually end up in a conservation program. And as the founder of an organization that has worked for decades on community-based conservation in Africa, I can say confidently that putting a bounty on the heads of individual animals is counter-productive to promoting their protection."); Declaration of Dereck Joubert, ¶ 12-20 ("In my expert opinion, trophy hunting is a dire threat to the continued survival of the African leopard…. the activity undermines conservation, fuels corruption at the local levels in particular and often higher up, and causes the loss of the healthiest animals in the populations, animals that are key for reproduction and social cohesion of those species…. Each leopard that is shot as a trophy cannot be considered in isolation but as just the tip of the iceberg in a trickle down effect of destruction to the family and society of leopards he influences….[L]eopards across their African range are in danger of extinction and the U.S. Fish and Wildlife Service should strictly

regulate the import of hunting trophies and other leopard parts in order to not continue to contribute to the decline of this endangered species.”).

3. Trade for Scientific Purposes

From 2005 through 2014, 4,813 leopard specimens (including bones, derivatives, hair, specimens and teeth), the equivalent of at least 12 leopards (bodies, live and skins), were traded internationally for scientific purposes (Annex 4, Table 24). In addition, several types of leopard specimens were traded for scientific purposes in units including weight, fluid volume and “flasks” (Annex 4, Table 24). Germany, U.K., U.S., and South Africa were major importers (Annex 4, Table 25) and Namibia and Russia were major exporters (Annex 4, Table 26) of leopard specimens for scientific purposes.

4. Trade for Other Purposes

From 2005 through 2014, leopards and their parts and products were traded internationally for other purposes including:

- 43 live leopards for “breeding in captivity”[11] (Annex 4, Table 26); South Africa (8), United Arab Emirates (7), Belgium (6), and Yemen (6) were the main exporters. The main importing countries were United Arab Emirates (16), Armenia (6), and Saudi Arabia (4) (Annex 4, Table 27).
- 712 leopards and their parts for “educational”[12] purposes (Annex 4, Table 27).
- 12 leopard parts for “law enforcement/judicial/forensic”[13] purposes (Annex 4, Table 28).
- 29 specimens for “medical”[14] purposes (Annex 4, Table 29).
- 14 live leopards for “reintroduction or introduction into the wild”[15] purposes (Annex 4, Table 30).
- 9,920.5 leopards and their parts, totaling at least 997 leopards, plus 2,435 g and 28.4082 kg of leopards and their parts, for “personal”[16] purposes including 773 trophies, 191 skins, 207 medicines, 26 bodies, 50 bones, and 8476 derivatives (Annex 4, Table 31). Export of trophies for personal purposes was discussed in Subsection 2) above. Most skins were exported by South Africa, Namibia and Zimbabwe; medicines were exported from China and Hong Kong; most derivatives were exported by China, Hong Kong, Cambodia, Malaysia, Singapore and Viet Nam; most bones were exported by China (Annex 4, Table 32). Most skins were imported by Austria, the U.S., and Australia; most medicines were imported by U.S. (and seized as noted earlier); most derivatives were imported to the U.S. (and seized as noted earlier) and New Zealand (Annex 4, Table 33).
- 168 leopards and their parts, totaling at least 129 leopards, for “circus and travelling exhibition” purposes including six bodies, 113 live, nine skins and one trophy; Russia (28) and Mexico (23) exported the largest number of live leopards for this purpose (Annex 4, Table 34).

[11] CITES Purpose Code B.
[12] CITES Purpose Code E.
[13] CITES Purpose Code L.
[14] CITES Purpose Code M.
[15] CITES Purpose Code N.
[16] CITES Purpose Code P.

- 181 live leopards and one trophy for "zoo" purposes; South Africa (18), France (15), Czech Republic (12) and Namibia (12) exported the largest numbers of live leopards for this purpose (Annex 4, Table 35).

5. International Trade from Sub-Saharan Africa Leopard Range States

This section provides details about the export of leopards and their parts and products by sub-Saharan Africa range States from 2005 through 2014 (including the 18 range states where leopards are listed as Threatened). The following sub-Saharan Africa leopard range States did not export leopards or their parts or products during this period:[17] **Angola**, Burkina Faso, Benin, Chad, Gambia, Guinea, Guinea-Bissau, Niger, **Rwanda**, and Somalia. Between 2005 and 2014, 25 sub-Saharan African countries exported leopards and their parts and products; the top ten countries of export are in **Table 3** – notably, only two countries where leopards are listed as Endangered are on this list (Central African Republic (CAR) and Ethiopia). Thus, given the major role that the U.S. plays as an importer of leopard parts, it is clear that the Threatened listing is facilitating trade in leopards from southern Africa, without appropriate scrutiny.

Table 3. Top Ten Countries of Export of *Panthera pardus*, 2005-2014.

Country of Export	Individual Leopards Exported (bodies, live, skins, trophies)	% of Global Exports (rounded to nearest whole percent)
Zimbabwe	2,947	23
Tanzania	2,923	23
Namibia	1,785	14
South Africa	1,579	12
Zambia	866	7
Mozambique	770	6
Botswana	394	3
CAR	330	3
Ethiopia	24	<1
DRC and Swaziland (tied)	12	<1

a. Botswana

Botswana exported African leopards and their products equivalent to 394 individuals between 2005 and 2014, including bodies (1), live (4), skins (16), and trophies (373) (Annex 4, Table 36). This amount is equivalent to 3% of the global exports in leopards during this period (394 of 12,791). All of these skins and the vast majority of the trophies (334 of 373) were wild-sourced and exported for hunting trophy purposes, 5 of the hunting trophy purpose trophies were reported as having been seized by the U.S. upon import, one of which originated in Mozambique. More than half (191 of 373) of the trophies and 5 of the skins were exported to the U.S. One trophy was reported as having been exported to South Africa for trophy hunting purposes but the source was reported as ranched. The remainder of the hunting trophies (33) were reported as wild-sourced and exported for personal purposes. Botswana also exported 4 live

[17] CITES Trade Database searched on 23 March 2016. As indicated in bold in the text, only two countries where leopards are listed as Threatened – Angola and Rwanda – did not export leopards or their parts from 2005-2014.

leopards that were reported as having been captive-bred to South Africa in 2010 for "circus and travelling exhibitions" purposes.

b. Cameroon

Cameroon exported one African leopard skin between 2005 and 2014, the equivalent of one individual (Annex 4, Table 37). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skin was wild-sourced and exported to Germany for personal purposes.

c. Central African Republic

Central African Republic exported African leopards and their products equivalent to 330 individuals between 2005 and 2014, including skins (4), and trophies (326) (Annex 4, Table 38). This amount is equivalent to approximately 3% of the global exports in leopards during this period (330 of 12,791). All of these skins and the vast majority of the trophies (284 of 326) were wild-sourced and exported for hunting trophy purposes, with the remainder of the trophies (42) being wild-sourced but imported for personal purposes. 60% of the trophy exports (196) went to France, while two of the trophies were exported to the U.S.

d. Congo

Congo exported two African leopard skins between 2005 and 2014, the equivalent of two individuals (Annex 4, Table 39). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skins were seized upon import to the U.K. and there was no purpose recorded.

e. Côte d'Ivoire

Côte d'Ivoire exported two African leopard skins between 2005 and 2014, the equivalent of two individuals (Annex 4, Table 40). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skins were marked as being pre-convention and imported into France for personal purposes.

f. Democratic Republic of the Congo

The Democratic Republic of the Congo exported twelve leopard skins between 2005 and 2014, the equivalent of twelve individuals (Annex 4, Table 41). This amount is equivalent to less than 1% of the global exports in leopards during this period. Ten of the skins were reported as having been exported for personal purposes, with all except one of those wild-sourced. The remaining skin exported for personal purposes was seized upon import to the U.S. Another skin exported for commercial purposes to the U.S. was seized upon import to the U.S., while another skin was exported to an unknown country and no purpose or source was recorded.

g. Ethiopia

Ethiopia exported African leopards and their products equivalent to 24 individuals between 2005 and 2014, including skins (6), trophies (18), as well as skulls (4) (Annex 4, Table 42). This amount is equivalent to less than 1% of the global exports in leopards during this period. Five of the skins and 12 of the trophies were wild-sourced and exported for hunting trophy purposes, while another two trophies

were wild-sourced but one was exported for personal purposes and the other for commercial purposes. The remaining skin was seized upon import to Norway in 2014, and no purpose was recorded. The four remaining trophies were exported for personal purposes but were seized upon import into the United Arab Emirates (2) and Bahrain (2) in 2006. The four skulls were all wild-sourced and exported to Canada (3) and South Africa (1) for hunting trophy purposes.

h. Gabon

Gabon exported African leopards and their products equivalent to 10 individuals between 2005 and 2014, including live specimens (8) and skins (2) (Annex 4, Table 43). This amount is equivalent to less than 1% of the global exports in leopards during this period. The two skins were seized upon import to Hungary and had no purpose data, while the 8 live specimens were reported as having been captive-bred and imported into Tunisia for zoo purposes.

i. Ghana

Ghana exported one African leopard skin between 2005 and 2014, the equivalent of one individual (Annex 4, Table 44). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skin was exported for personal purposes in 2005 but seized upon import to the U.S., with the origin of the specimen marked as unknown.

j. Kenya

Kenya exported African leopards and their products equivalent to 6 individuals between 2005 and 2014, including skins (4) and trophies (2) (Annex 4, Table 45). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skins and trophies were all wild-sourced and exported for personal purposes, with one skin and two trophies exported to Australia, one skin exported to the U.K., and two skins exported to an unknown country.

k. Liberia

Liberia exported African leopards and their products equivalent to one individual between 2005 and 2014, as one skin (Annex 4, Table 46). This amount is equivalent to less than 1% of the global exports in leopards during this period.

l. Malawi

Malawi exported three African leopard skins between 2005 and 2014, the equivalent of three individuals (Annex 4, Table 47). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skins were all wild-sourced and exported for personal purposes, with two skins exported to Sri Lanka, and one to the Netherlands.

m. Mali

Mali exported two live leopards and one skin between 2005 and 2014, the equivalent of three individuals (Annex 4, Table 48). This amount is equivalent to less than 1% of the global exports in leopards during this period.

n. Mozambique

Mozambique exported African leopards and their products equivalent to 770 individuals between 2005 and 2014, including bodies (1), skins (257), and trophies (512) (Annex 4, Table 49). This amount is equivalent to approximately 6% (770 of 12,791) of the global exports in leopards during this period. The one body as well as the vast majority of the skins (245) and trophies (461) were wild-sourced and exported for hunting trophy purposes. Major export destinations for trophies included the U.S. (133), South Africa (119), Spain (59), Portugal (43), and France (41). Major export destination countries for skins included the U.S. (105), South Africa (62), Spain (13), France (12), and Zimbabwe (11). Eight of the trophies exported for hunting trophy purposes were seized upon import into the U.S. between 2007 and 2012. Further, one skin with no purpose reported was seized upon import to Portugal. Six skins and 38 trophies, all wild-sourced, were exported for personal purposes, while two skins were marked as captive-bred and were exported for personal purposes. One skin and two trophies, all wild-sourced, were exported for commercial purposes; the skin was imported into the U.S. in 2013 and the trophies into South Africa and Zimbabwe.

o. Namibia

Namibia exported African leopards and their products equivalent to 1,785 individuals between 2005 and 2014, including bodies (25), live specimens (12), skins (83), and trophies (1,810) (Annex 4, Table 50). This amount is equivalent to approximately 14% of the global exports in leopards during this period (1,810 of 12,791). Major trophy export destination countries included the U.S. (645), Germany (259), Austria (92), France (84), South Africa (79), Spain (68), Russia (47), and Mexico (41). Twenty-three of the bodies, 58 of the skins, and 1,600 of the trophies exported were wild-sourced for hunting trophy purposes. One trophy exported for hunting trophy purposes to the U.S. was captive-bred, while another trophy exported for personal purposes to Germany was marked as pre-convention. Two of the bodies, 24 of the skins, and 94 of the trophies exported were wild-sourced for personal purposes. 645 (~39%) of the total number of trophies were exported to the U.S., 622 for hunting trophy purposes and wild-sourced and 23 that were seized upon import. In addition, one wild-sourced trophy was exported for commercial purposes to the U.S., while one skin exported for commercial purposes was seized upon import to the U.S. and another with no purpose recorded was seized upon import to the U.K. The 12 live specimens were wild-sourced leopards exported to Cuba for zoo purposes.

p. Nigeria

Nigeria exported 6 leopard skins between 2005 and 2014, the equivalent of six individuals (Annex 4, Table 51). This amount is equivalent to less than 1% of the global exports in leopards during this period. All of the skins exported were for personal purposes, and all of the exports were seized upon import to the U.S. (5) and Hungary (1).

q. Senegal

Senegal exported 18 specimens between 2005 and 2014 (Annex 4, Table 52).

r. Sierra Leone

Sierra Leone exported five derivatives between 2005 and 2014 (Annex 4, Table 53).

s. South Africa

South Africa exported African leopards and their products equivalent to 1,579 individuals between 2005 and 2014, including bodies (44), live specimens (56), skins (290), and trophies (1,189) (Annex 4, Table 54). This amount is equivalent to approximately 12% of the global exports in leopards during this period (1,579 of 12,791). Major trophy export destination countries included the U.S. (729), Spain (63), Mexico (53), Philippines (46), Russia (45), and France (35). Major skin export destination countries included the U.S. (163), Spain (29), and Canada (19). Major bodies export destination countries included Canada (11) and the U.S. (8), while major live specimen export destination countries included Egypt (12), Malawi (12), Gabon (10), and the United Arab Emirates (8). In total, the U.S. imported more than half (900) of the total African leopards and their products that are equivalent to individual animals exported from South Africa during the period examined.

South Africa exported 5 live leopards for breeding in captivity purposes that were captive-bred sourced during this period, as well as one live leopard, one skin and one trophy for educational purposes that were captive-bred. 17 wild-sourced leopards (8 trophies and 9 bodies) were exported from South Africa for educational purposes. For hunting trophy purposes, 1,532 leopards were exported (two captive-bred leopard trophies; two F1 (born in captivity F1 and subsequent) leopard trophies; 36 leopard trophies were seized upon import; two trophies marked as pre-convention specimens; one marked as having been sourced from a ranching operation; and of wild-source specimens, 30 bodies, 260 skins, and 1,199 trophies) from South Africa between 2005 and 2014. For purposes of reintroduction to the wild, 12 leopards were exported (4 live leopards sourced from a ranching operation and 8 live wild-sourced leopards) during the period examined. For personal purposes, 117 leopards were exported (2 captive-bred trophies, 19 pre-convention skins, 5 pre-convention trophies, 6 wild-source bodies, 15 wild-sourced skins, and 80 wild-sourced trophies) from South Africa during the period examined. For commercial purposes, 7 live leopards were exported for commercial purposes. For zoo purposes, 30 leopards were exported (22 captive-bred live leopards, one captive-bred trophy, 5 live leopards sourced from a ranching operation, and two live wild-sourced leopards) from South Africa during the period examined.

t. Sudan

Sudan exported African leopards and their products equivalent to 8 individuals between 2005 and 2014, including live specimens (7) and skins (1) (Annex 4, Table 55). This amount is equivalent to less than 1% of the global exports in leopards during this period. Six of the live leopards exported were wild-sourced and exported for zoo purposes (4 were exported to Syria and 2 to South Africa), and the remaining live specimen was wild-sourced and exported for personal purposes (to Saudi Arabia). The one skin exported was wild-sourced and exported for personal purposes.

u. Swaziland

Swaziland exported African leopards and their products equivalent to 12 individuals between 2005 and 2014, including live specimens (1) and skins (11) (Annex 4, Table 56). This amount is equivalent to less than 1% of the global exports in leopards during this period.

v. Togo

Togo exported one leopard skin that was seized upon import to Spain, with no purpose recorded, during the period examined, the equivalent of one individual (Annex 4, Table 57). This amount is equivalent to less than 1% of the global exports in leopards during this period.

w. The United Republic of Tanzania

The United Republic of Tanzania exported African leopards and their products equivalent to 2,923 individuals between 2005 and 2014, including bodies (5), live specimens (1), skins (462), and trophies (2,455) (Annex 4, Table 58). This amount is equivalent to approximately 23% of the global exports in leopards during this period (2,923 of 12,791). The leopard bodies were exported to Denmark (3), the U.K. (1) and Russia (1), while the one live specimen was exported to Nicaragua. Major skin export destination countries included the U.S. (152), France (79), South Africa (55), Spain (37), and Canada (27). Major trophy export destination countries included the U.S. (1,118), France (439), Spain (189), Mexico (181), South Africa (96), Italy (79), and Germany (73). In total, the U.S. imported approximately 43% (1,270) of the total African leopards and their products that are equivalent to individual animals exported from the United Republic of Tanzania during the period examined. Exports to France (518) comprised 17% of the total.

The United Republic of Tanzania exported one wild-sourced leopard skin for educational purposes during this period. For hunting trophy purposes, 2,609 leopards were exported (two captive-bred leopard trophies; 43 leopard trophies were seized upon import; 3 trophies marked as pre-convention specimens; and of wild-source specimens, 5 bodies, 447 skins, and 2,109 trophies) from the United Republic of Tanzania between 2005 and 2014. For personal purposes, 309 leopards were exported (6 wild-source skins and 303 wild-sourced trophies) from the United Republic of Tanzania during the period examined. For commercial purposes, 7 leopards were exported (4 skins and 3 leopard trophies) during the period examined.

x. Zambia

Zambia exported African leopards and their products equivalent to 866 individuals between 2005 and 2014, including bodies (1), skins (52), and trophies (813) (Annex 4, Table 59). This amount is equivalent to approximately 7% of the global exports in leopards during this period (866 of 12,791). The leopard body was exported to Denmark (1). Major skin export destination countries included South Africa (18), Canada (12), and the U.K. (9). Major trophy export destination countries included the U.S. (466), South Africa (55), Mexico (40), Spain (38), and France (25). In total, the U.S. imported approximately 54% (468) of the total African leopards and their products that are equivalent to individual animals exported from Zambia during the period examined. Exports to South Africa (73) comprised 8% of the total. For hunting trophy purposes, 823 leopards were exported (18 leopard trophies were seized upon import; of wild-source specimens, 1 body, 45 skins, and 777 trophies) from Zambia between 2005 and 2014. For personal purposes, 36 leopards were exported (11 wild-source skins and 25 wild-sourced trophies) from Zambia during the period examined.

y. Zimbabwe

Zimbabwe exported African leopards and their products equivalent to 2,947 individuals between 2005 and 2014, including bodies (12), live specimens (3), skins (490), and trophies (2,442) (Annex 4, Table 60). This amount is equivalent to approximately 23% of the global exports in leopards during this period (2,947 of 12,791). The leopard bodies were exported to Canada (6), South Korea (3), Hong Kong (1) and Sweden (1), while the three live leopards were exported to South Africa. Major skin export destination countries included the U.S. (256), South Africa (52) and Canada (43). Major trophy export destination countries included the U.S. (1,489), South Africa (170), Spain (138), France (86), Mexico (71) and Germany (67). In total, approximately 60% (1,745) of the total African leopards and their products that are equivalent to individual animals from Zimbabwe during the period examined were exported to the U.S. Exports to South Africa (225) comprised 8% of the total, while exports to Spain (138) comprised approximately 5% of the total.

Zimbabwe exported 5 leopard products equivalent to individual leopards for educational purposes (one wild-sourced leopard skin and 4 wild-sourced trophies) during this period. For hunting trophy purposes, a total of 2,840 leopards were exported (one captive-bred leopard trophy; two F1 (born in captivity F1 and subsequent) leopard trophies; 40 leopard trophies were seized upon import; 2 trophies marked as pre-convention specimens; and 2,795 wild-source specimens (8 bodies, 457 skins, and 2,330 trophies) from Zimbabwe between 2005 and 2014. For personal purposes, 111 leopards were exported (one body, 16 skins and 6 trophies were seized upon import from Zimbabwe; 4 pre-convention skins; 19 wild-source skins and 65 wild-sourced trophies) from Zimbabwe during the period examined. For circus and travelling exhibition purposes, 3 wild-sourced leopard bodies were exported, and for commercial purposes, a total of 8 leopards were exported (7 captive-source live specimens and one wild-source skin) during the period examined.

6. Countries of Import of African Leopards and Their Parts

The U.S., France, South Africa, Spain, Germany, Mexico, Russia, Canada, Austria, and Italy were the top ten importers of leopards and their products from 2005-2014, with the U.S. accounting for nearly half of all leopard imports (see **Table 4**). This underscores the major role the U.S. plays in the international trade in leopards, and the importance of ensuring that U.S. law stringently regulates leopard imports to ensure that such imports only occur if the import enhances the survival of the species.

Table 4. Top Ten Countries of Import of African Leopards and their Products, 2005-2014, all sources, all purposes.

Country of Import	Individual Leopards Exported (bodies, live, skins, trophies)	% of Global Exports (rounded to nearest whole percent)
United States	5,575	44%
France	1,072	8%
South Africa	878	7%
Spain	709	6%
Germany	539	4%
Mexico	510	4%
Russia	386	3%
Canada	318	3%
Austria	230	2%
Italy	192	2%

The following examines gross import data from the top ten leopard importer countries.

a. Austria

Austria imported African leopards and their products equivalent to 230 individuals between 2005 and 2014, including bodies (1), skins (56), and trophies (173) (Annex 4, Table 61). This amount is equivalent to approximately 2% of the global imports in leopards during this period. Most leopards imported into Austria were exported from Namibia (120 total: 93 trophies, 27 skins and one body, 52% of total imports), with Zimbabwe (44 total: 29 trophies and 15 skins, 20% of total imports), the United Republic of Tanzania (40 total: 12 skins and 28 trophies, 17% of total imports) and Zambia (11 trophies, 5% of total imports) also playing major roles in exports. For hunting trophy purposes, a total of 164 leopards were imported, all wild-source specimens (one body, 21 skins, and 142 trophies) into Austria between 2005 and 2014. For personal purposes, 65 leopards were imported (one pre-convention skin; 33 wild-source skins and 31 wild-sourced trophies) into Austria during the period examined. For circus and travelling exhibition purposes, one pre-convention skin was imported during the period examined.

b. Canada

Canada imported African leopards and their products equivalent to 318 individuals between 2005 and 2014, including bodies (33), live specimens (10), skins (134), and trophies (141) (Annex 4, Table 62). This amount is equivalent to approximately 2% of the global imports in leopards during this period. Most leopards imported into Canada were exported from Zimbabwe (97 total: 48 trophies, 43 skins and 6 bodies, 30% of total imports), with South Africa (53 total: 21 trophies, 19 skins, two live specimens and 11 bodies, 17% of total imports), Namibia (44 total: 25 trophies and 19 skins, 14% of total imports), the United Republic of Tanzania (36 total: 9 trophies and 27 skins, 11% of total imports), Zambia (36 total: 23 trophies and 12 skins, 11% of total imports), and the U.S. (25 total: 9 trophies, 3 skins, 6 live specimens and 7 bodies, 8% of total imports) also playing major roles in exports. For educational purposes, 3 leopards were imported (two wild-sourced leopard bodies and one wild-sourced leopard skin) into Canada between 2005 and 2014. For hunting trophy purposes, a total of 279 leopards were imported (two captive-bred leopard trophies; two F1 (born in captivity F1 and subsequent) leopard trophies; and

275 wild-source specimens (27 bodies, 119 skins, and 129 trophies) imported into Canada during this period. For personal purposes, 22 leopards were imported (one trophy was seized upon import; 6 pre-convention skins; 3 wild-source skins and 6 wild-sourced trophies) into Canada during the period examined. For commercial purposes, a total of 3 leopards were imported (one pre-convention body and two wild-source skins) during the period examined. For zoological purposes, 10 live leopards were imported into Canada between 2005 and 2014.

c. France

France imported African leopards and their products equivalent to 1,072 individuals between 2005 and 2014, including bodies (3), live specimens (13), skins (124), and trophies (932) (Annex 4, Table 63). This amount is equivalent to approximately 8% of the global imports in leopards during this period. Most leopards imported into France were exported from the United Republic of Tanzania (518 total: 439 trophies and 79 skins, 48% of total imports) and Central African Republic (198 total: 196 trophies and two skins, 18% of total imports), with Zimbabwe (98 total: 86 trophies and 12 skins, 9% of total imports), Namibia (86 total: 84 trophies and two skins, 8% of total imports), Mozambique (54 total: 41 trophies and 12 skins, 5% of total imports) and South Africa (45 total: 35 trophies, 8 skins, and two bodies, 4% of total imports) also playing major roles in exports to France. For hunting trophy purposes, a total of 584 leopards were imported into France during this period, all of which were wild-sourced (one body, 110 skins, and 473 trophies). For personal purposes, 475 leopards were imported (two pre-convention bodies, 9 wild-sourced skins and 459 wild-sourced trophies) into France during the period examined. For circus and travelling exhibition purposes, 4 wild-sourced leopard bodies were imported, and for zoological purposes, a total of 7 live leopards were imported into France during the period examined.

d. Germany

Germany imported African leopards and their products equivalent to 539 individuals between 2005 and 2014, including bodies (3), live specimens (10), skins (63), and trophies (463) (Annex 4, Table 64). This amount is equivalent to approximately 4% of the global imports in leopards during this period. Most leopards imported into Germany were exported from Namibia (266 total: 259 trophies, 5 skins and two bodies, 49% of total imports), with the United Republic of Tanzania (87 total: 73 trophies and 14 skins, 16% of total imports), Zimbabwe (81 total: 67 trophies and 14 skins, 15% of total imports), and South Africa (33 total: 25 trophies, 8 skins, 6% of total imports) also playing major roles in exports. For captive breeding purposes, Germany imported two live captive-bred leopards between 2005 and 2014. For hunting trophy purposes, a total of 486 leopards were imported, all wild-source specimens (one body, 42 skins, and 443 trophies). For personal purposes, 26 leopards were imported (one pre-convention body, two pre-convention skins and one pre-convention trophy, one wild-source body, 3 wild-source skins and 18 wild-sourced trophies) into Germany during the period examined. For circus and travelling exhibition purposes, one live captive-bred leopard and one pre-convention trophy was imported during the period examined. For commercial purposes, a total of 16 leopards were imported (one pre-convention skin, 8 skins of unknown source and 8 wild-source skins) during the period examined.

e. Italy

Italy imported African leopards and their products equivalent to 192 individuals between 2005 and 2014, including a body (1), a live specimen (1), skins (21), and trophies (169) (Annex 4, Table 65). This amount

is equivalent to approximately 2% of the global imports in leopards during this period. Most leopards imported into Italy were exported from the United Republic of Tanzania (93 total: 79 trophies and 14 skins, 48% of total imports), with Zimbabwe (38 total: 34 trophies and 4 skins, 20% of total imports), South Africa (22 total: 21 trophies, one skin, 11% of total imports) and Namibia (17 total: 16 trophies, one body, 9% of total imports) also playing major roles in exports. For hunting trophy purposes, a total of 186 leopards were imported (one ranched leopard trophy and 185 wild-source specimens: one body, 19 skins, and 165 trophies) into Italy during this period. For personal purposes, 4 leopards were imported (one pre-convention skins and 3 wild-source trophies) into Italy during the period examined. For circus and travelling exhibition purposes, one wild-sourced leopard skin was imported, and for zoological purposes, one live, captive-bred leopard was imported during the period examined.

f. Mexico

Mexico imported African leopards and their products equivalent to 510 individuals between 2005 and 2014, including a body (1), live specimens (8), skins (20), and trophies (481) (Annex 4, Table 66). This amount is equivalent to approximately 4% of the global imports in leopards during this period. Most leopards imported into Mexico were exported from the United Republic of Tanzania (186 total: 181 trophies and 5 skins, 36% of total imports), with Zimbabwe (76 total: 71 trophies and 5 skins, 15% of total imports), South Africa (60 total: 53 trophies, 6 skins and one body, 12% of total imports), Namibia (41 trophies, 8% of total imports), and the U.S. (34 total: 31 trophies and 3 live specimens, 7% of total imports) also playing major roles in exports. For hunting trophy purposes, a total of 487 leopards were imported (two captive-bred leopard trophies; two F1 (born in captivity F1 and subsequent) leopard trophies; two leopard trophies were seized upon import; 6 trophies marked as pre-convention specimens; and 475 wild-source specimens (one body, 19 skins, and 455 trophies) into Mexico between 2005 and 2014. For personal purposes, 5 wild-source leopard trophies were imported into Mexico during the period examined. For circus and travelling exhibition purposes, 3 live, captive-bred leopards were imported; while for commercial purposes, 3 wild-source leopard trophies were imported during the period examined. For zoological purposes, 5 live, captive-bred leopards were imported between 2005 and 2014.

g. Russia

Russia imported African leopards and their products equivalent to 386 individuals between 2005 and 2014, including bodies (9), live specimens (41), skins (36), and trophies (300) (Annex 4, Table 67). This amount is equivalent to approximately 3% of the global imports in leopards during this period. Most leopards imported into Russia were exported from the United Republic of Tanzania (73 total: 58 trophies and 17 skins, 19% of total imports), with Namibia (53 total: 47 trophies, 3 skins and 3 bodies, 14% of total imports), South Africa (50 total: 45 trophies and 5 skins, 13% of total imports), Zimbabwe (48 total: 42 trophies, 6 skins, 12% of total imports), and France (45 total: 35 trophies, 9 live specimens, and one body, 12% of total imports) also playing major roles in exports. For captive breeding purposes, a total of two leopards were imported (two live, captive-bred leopards) into Russia between 2005 and 2014. For hunting trophy purposes, a total of 303 leopards were imported, all wild-source (8 bodies, two live leopards, 30 skins, and 263 trophies) into Russia during this period. For purposes of reintroduction to the wild, 4 live, wild-source leopards were imported in Russia between 2004 and 2015. For personal purposes, 38 leopards were imported (one body and 37 trophies), while for circus and travelling exhibition purposes, 4 live, wild-source leopards and 4 live leopards whose source was unknown were

imported into Russia during this period. For commercial purposes, 4 pre-convention skins were imported, and for zoological purposes, one live, F1 leopard was imported in Russia during the period examined.

h. South Africa

South Africa imported African leopards and their products equivalent to 878 individuals between 2005 and 2014, including live specimens (36), skins (229), and trophies (613) (Annex 4, Table 68). This amount is equivalent to approximately 7% of the global imports in leopards during this period. Most leopards imported into South Africa were exported from Zimbabwe (225 total: 170 trophies, 52 skins, 3 live specimens, 26% of total imports) and Mozambique (181 total: 119 trophies and 62 skins, 21% of total imports), and the United Republic of Tanzania (151 total: 96 trophies and 55 skins, 17% of total imports), with Namibia (89 total: 78 trophies and 11 skins, 10% of total imports), Botswana (82 total: 73 trophies, 5 skins, and 4 live specimens, 9% of total imports), and Zambia (73 total: 55 trophies and 18 skins, 8% of total imports) also playing major roles in exports. For captive breeding purposes, a total of 8 live leopards were imports (5 captive-bred, two F1, and one wild-source). For educational purposes, 3 live, captive-bred leopards were imported into South Africa between 2005 and 2014. For hunting trophy purposes, a total of 798 leopards were imported (one captive-bred leopard trophy; two F1 (born in captivity F1 and subsequent) leopard trophies; one ranched leopard trophy; and 794 wild-source specimens (207 skins and 587 trophies) imported (one wild-sourced leopard skin and 4 wild-sourced trophies)) into South Africa during this period. For law enforcement purposes, two wild-source skins were imported into South Africa between 2005 and 2014. For personal purposes, 40 leopards were imported (7 captive-bred skins, 3 pre-convention skins; 10 wild-source skins and 20 wild-sourced trophies) into South Africa during the period examined. For circus and travelling exhibition purposes, 4 live, wild-sourced leopards were imported, and for commercial purposes, a total of 12 leopards were imported (8 captive-source live specimens, two live specimens, and two wild-source trophies during the period examined. For zoological purposes, 9 live, captive-bred leopards and two wild-source leopards were imported.

i. Spain

Spain imported African leopards and their products equivalent to 709 individuals between 2005 and 2014, including bodies (3), live specimens (3), skins (101), and trophies (602) (Annex 4, Table 69). This amount is equivalent to approximately 6% of the global imports in leopards during this period. Most leopards imported into Spain were exported from the United Republic of Tanzania (226 total: 189 trophies, 37 skins, 32% of total imports) and Zimbabwe (154 total: 138 trophies and 16 skins, 22% of total imports), with South Africa (92 total: 63 trophies and 29 skins, 13% of total imports), Mozambique (77 total: 64 trophies and 13 skins, 11% of total imports), Namibia (70 total: 68 trophies and two skins, 10% of total imports), Zambia (40 total: 38 trophies and two skins, 6% of total imports) and Botswana (39 total: 38 trophies and one skin, 6% of total imports) also playing major roles in exports. For hunting trophy purposes, a total of 690 leopards were imported, all wild-sourced (3 bodies, 99 skins, and 588 trophies) imported (one wild-sourced leopard skin and 4 wild-sourced trophies) into Spain during this period. For personal purposes, 15 wild-source leopard trophies were imported while for circus and travelling exhibition purposes, two captive-bred live leopards were imported between 2005 and 2014. For commercial purposes, a total of two leopards were imported (one captive-source live specimen and one wild-source skin) during the period examined.

j. United States of America

The U.S. imported African leopards and their products equivalent to 5,575 individuals between 2005 and 2014, including bodies (14), live specimens (26), skins (741), and trophies (4,794) (Annex 4, Table 70). This amount is equivalent to approximately 44% of the global imports in leopards during this period. Most leopards imported into the U.S. were exported from Zimbabwe (1,745 total: 1,489 trophies and 256 skins, 31% of total imports) and the United Republic of Tanzania (1,270 total: 1,118 trophies and 152 skins, 23% of total imports), with South Africa (900 total: 729 trophies, 163 skins and 8 bodies, 16% of total imports), Namibia (654 total: 646 trophies, 5 skins, 3 bodies, 12% of total imports), Zambia (468 total: 466 trophies and two skins, 8% of total imports) Mozambique (238 total: 133 trophies and 105 skins, 4% of total imports) and Botswana (196 total: 191 trophies and 5 skins, 4% of total imports) also playing major roles in exports. For educational purposes, two wild-source leopard trophies were imported into the U.S. between 2005 and 2014. For hunting trophy purposes, a total of 5,447 leopards were imported (two captive-bred leopard trophies; 175 leopard trophies were seized upon import; one ranched leopard skin and 5,269 wild-source specimens (12 bodies, 683 skins, and 4,573 trophies) into the U.S. during this period. For law enforcement purposes, 3 wild-source skins were imported into the U.S. between 2005 and 2014. For personal purposes, 67 leopards were imported (one trophy was seized upon import, while 15 pre-convention skins, one pre-convention trophy, two skins of unknown origin, two wild-source bodies, 11 wild-source skins, and 35 wild-sourced trophies) into the U.S. during the period examined. For circus and travelling exhibition purposes, 7 live captive-bred leopards, 3 pre-convention skins, and one wild-sourced leopard skin were imported between 2005 and 2014. For scientific purposes, 7 skins of unknown origin were imported, while for commercial purposes, a total of 19 leopards were imported (5 skins were seized upon import, while 6 pre-convention skins, one skin and one trophy of unknown origin, 3 wild-source skins and 3 wild-source trophies were imported between 2005 and 2014. For zoological purposes, two live F1 leopards were imported during the period examined.

Therefore, as demonstrated in this section, the African leopard is Endangered by overutilization for recreational and commercial purposes, and the U.S. plays a major role in this unsustainable international trade.

C. Disease or Predation

Wild leopards have been found to have at least nine infectious agents including viruses (rabies, feline leukemia, feline immunodeficiency), bacteria (*Anthrax*), and protozoa (*Toxoplasma*, *Sarcocystis*, *Hepatozoon*, *Giardia*, *Isospora*) (Murray et al. 1999). While there is evidence of a negative conservation impact of disease on wild populations of other large carnivores (i.e. *Canis lupis*, *Lycaon pictus*, *Canis latrans*, *Panthera leo*), there is no such evidence with respect to leopards (Murray et al. 1999).

The leopard is an apex predator in Africa and is not typically predated by animals other than humans. Lions do kill and eat leopards (Palomares and Caro 1999) but leopards are not among the typical prey of lions and such killing is not known to have a conservation impact on leopard populations.

The most significant non-human predator of leopards is leopards themselves. In a study of leopards in a reserve in South Africa, Balme and Hunter (2013) found high rates of infanticide by adult males which

accounted for almost half of cub mortality and caused the death of nearly a third of all leopard offspring; most of these adult males were immigrants; cubs are vulnerable to infanticide until at least 15 months of age; sometimes females defending their cubs were killed; males frequently consumed the cubs they killed; females also sometimes ate their dead cubs; females never killed cubs. Balme and Hunter (2013) consider infanticide in leopards to be primarily motivated by sexual selection: as females whose cubs were killed came into heat sooner, infanticide allows males to improve their fitness by accelerating their opportunity to father offspring. Despite such high levels of infanticide in the population studied by Balme and Hunter (2013), the population remained stable over the period studied; the authors warn against activities that would artificially elevate male turnover – such as trophy hunting – as this may increase infanticide levels.

D. Inadequacy of Existing Regulatory Mechanisms

1. U.S. Endangered Species Act and CITES

Statutory Background of the ESA

The U.S. has long recognized the need to protect wildlife, and, toward this end, has enacted multiple laws to prohibit human actions that contribute to species extinction. With the promulgation of the Lacey Act in 1900 (16 U.S.C. §§ 3371 *et seq*.), it became a federal offense to engage in commerce of protected species. In 1940, the U.S. signed the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere "to protect and preserve [species] in their natural habitat…in sufficient numbers and over areas extensive enough to assure them from becoming extinct through any agency within man's control." 56 Stat. 1534, T.S. No. 981, U.N.T.S. No. 193. These laws recognized that extinction knows no political boundaries, and that both national action and international cooperation are essential to effectively protect endangered species.

In 1966, Congress enacted the Endangered Species Preservation Act (Public Law No. 89-669), which created "a program in the United States of conserving, protecting, restoring, and propagating selected species of native fish and wildlife that are threatened with extinction." Because this statute extended protection only to native species, Congress found that it did not adequately protect foreign species that suffered from overexploitation, often because of the demands of the American marketplace. Therefore, in 1969, Congress enacted the Endangered Species Conservation Act (Public Law No. 91-135), which authorized the Secretary of the Interior to promulgate a list of species, native <u>or non-native</u>, that were "threatened with worldwide extinction." This Act also called for an "international ministerial meeting" to create a "binding international convention on the conservation of endangered species," ultimately leading to the passage of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (27 U.S.T. 1087, "CITES"). Thus, five decades ago the U.S. led the way to ensure that all countries act to save species from both local and global threats.

Recognizing that prior laws did not sufficiently protect endangered species, in 1973 Congress passed the Endangered Species Act. The purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions" to which the United States is committed. 16 U.S.C. § 1531(b). "It is further declared to be the policy of Congress that all Federal

departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act." *Id.* § 1531(c). Thus, as the Supreme Court has declared, the goal of the ESA is to "reverse the trend toward extinction, whatever the cost." *TVA v. Hill*, 437 U.S. 153, 184 (1978).

The ESA defines the term "conserve" to mean "to use all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to [the ESA] are no longer necessary." *Id.* § 1532(3). Such measures may even include a "regulated taking" of the species, but only in the "extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved." *Id.*

Pursuant to Section 4 of the Act, the Service must "list" species as either "Endangered" or "Threatened," depending on the extent of the threats to their existence. *Id.* § 1533. The term "species" includes "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." *Id.* § 1532(16). The Service adopted a policy 20 years ago that defines the term "distinct population segment," under which the agency must conclude that a particular population of a species is both "distinct" and "significant" before it can be determined to be a separate listable entity. 61 Fed. Reg. 4722 (Feb. 7, 1996).

An "Endangered" species is one that the Service has determined is already "in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6). A "Threatened" species is one that "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." *Id.* § 1532(20). The Act requires the Service to list a species as either "Endangered" or "Threatened" based on the following five factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) "other natural or manmade factors affecting its continued existence." *Id.* § 1533(a)(1)(A-E). The Service is required to list a species if any one of these criteria is present. *Southwest Center for Biological Diversity v. Babbitt*, 215 F.3d 58, 60 (D.C. Cir. 2000).

The Service is required to base listing decisions "solely" on the "best available scientific and commercial data available." 16 U.S.C. § 1533(b)(1)(A). In imposing this requirement, Congress expressly intended to "ensure that decisions . . . pertaining to listing . . . are based solely upon biological criteria and to prevent nonbiological considerations from affecting such decisions." H.R. Conf. Rep. No. 835, 97th Cong. 2d Sess. 19-20 (1982). Thus, Congress made it clear that "economic considerations have no relevance to determinations regarding the status of species." *Id.*; *see also* S. Rep. No. 418, 97th Cong., 2d Sess. 12 (1982) ("This amendment would preclude the Secretary from considering economic or other non-biological factors in determining whether a species should be listed…Only in this way will the endangered and threatened species lists accurately reflect those species that are or are likely to be in danger of extinction"). Therefore, as the Supreme Court observed in *TVA v. Hill* "the language, history, and structure of the [ESA]…indicates beyond doubt that Congress intended endangered species to be afforded the highest priorities." 437 U.S. at 174. Moreover, in keeping with the overall purposes of the statute, even where the best available scientific evidence leaves some doubt as to the status of a species, the Service is required to "give the benefit of the doubt" to the species. *Conner v. Burford*, 848 F.2d 1441,

1454 (9th Cir. 1988); *see also San Luis & Delta-Mendoza Water Auth.*, 2000 U.S. Dist. LEXIS 1779 at *9 (E.D. Cal. 2000)).

Once a species is listed, it is entitled to various protections under the agency's implementing regulations, depending on whether it is listed as Endangered or Threatened. Per Section 9 of the statute, it is unlawful to "import any [Endangered] species into, or export any such species from the United States;" to "deliver, receive, carry, transport, or ship in interstate or foreign commerce . . . in the course of a commercial activity, any such species;" and to "sell or offer for sale in interstate or foreign commerce any such species." 16 U.S.C. § 1538(a)(1). It is also unlawful to "take" a member of an Endangered species within the United States or on the high seas, *id.* § 1538(a)(1)(B)-(C) – a term that includes "harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect." *Id.* § 1532(19).

Section 10 of the ESA provides the FWS authority to issue permits for otherwise unlawful activities "for scientific purposes or to enhance the propagation or survival of the affected species…" 16 U.S.C. § 1539(a)(1)(A). The statute further provides that the FWS "shall publish notice in the Federal Register of each application for an exemption or permit," that each such notice "shall invite the submission from interested parties…of written data, views, or arguments with respect to the application," and that "[i]nformation received by the [FWS] as a part of any application shall be available to the public as a matter of public record at every stage of the proceeding." *Id.* § 1539(c). FWS may only grant a permit if it finds "and publishes in the Federal Register" that the permit (1) "was applied for in good faith," (2) if granted and exercised "will not operate to the disadvantage of such endangered species," and (3) will be "consistent with the purposes and policy" of the ESA – *i.e.*, to "conserve" Endangered and Threatened species. *Id.* § 1539(d). These procedures are mandatory. *See Gerber v. Norton*, 293 F.3d 173, 179-82 (D.C. Cir. 2002).

Whenever a species is listed as Threatened, FWS "shall issue such regulations as [it] deems necessary and advisable to provide for the conservation of such species." 16 U.S.C. § 1533(d). FWS has issued a regulation providing that all of the prohibitions that apply to Endangered species also apply to Threatened species, unless the agency (a) otherwise permits those activities pursuant to its general regulations governing permits for Threatened species, 50 C.F.R. § 17.32, or (b) has issued a special rule that governs a particular Threatened species. 50 C.F.R. § 17.31. However, pursuant to the plain language of the ESA, any such special rule must also "provide for the conservation" of the species – *i.e.*, positively benefit its recovery in the wild. 16 U.S.C. § 1533(d); *Sierra Club v. Clark*, 577 F. Supp. 783 (D. Minn. 1984), *aff'd*, 755 F.2d 608 (8th Cir. 1985); *Fund for Animals v. Turner*, 1991 WL 206232 (D.D.C. 1991)).

The ESA also requires FWS to "encourage…foreign countries to provide for the conservation" of listed species and implements the United States' international obligations with regard to worldwide Endangered and Threatened species. 16 U.S.C. § 1537. For example, CITES was drafted by representatives of countries participating in the International Union for the Conservation of Nature – including the United States – to ensure that international trade in specimens of wild animals and plants does not threaten their survival. CITES was first implemented on July 1, 1975, and today there are over 180 countries that are party to the agreement.

CITES classifies species in Appendices with varying levels of protection – those included on Appendix I are "species threatened with extinction." International commercial trade in these species is prohibited unless the Scientific Authority for the state of export has advised that the export will "not be detrimental

to the survival of the species," and the Management Authority for that country is satisfied that (a) the wildlife "was not obtained in contravention of the laws of the State for the protection of fauna and flora;" (b) "any living specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment;" and (c) an "import permit has been granted" for the wildlife. *See* CITES Article III. An import permit may only be granted when the Scientific Authority for the state of import has advised that the import of the wildlife "will be for purposes which are not detrimental to the survival of the species," and that the "recipient of a living specimen is suitably equipped to house and care" for the wildlife, and the Management Authority for the state of import is satisfied that the specimen is "not to be used for primarily commercial purposes." *Id.*

FWS' 1982 Listing of African Leopards under the ESA Did Not Comport with the Best Available Science

In 1968 and 1969 alone, over 17,000 leopard hides were imported into the United States to supply a burgeoning and unsustainable leopard fur trade. 45 Fed. Reg. 19007 (March 24, 1980). In 1970, FWS listed three subspecies of leopard under the Endangered Species Conservation Act, requiring a permit for import of specimens of: the Sinai leopard (*Panthera pardus jarvisi*) (found in Sinai and Saudi Arabia), the Barbary leopard (*P. p. panthera*) (found in Morocco, Algeria, and Tunisia), and the Anatolian leopard (*P. p. tulliana*) (found in Lebanon, Israel, Jordan, Turkey, and Syria). 35 Fed. Reg. 8491 (June 2, 1970).

In 1972, FWS amended that Endangered listing to include all *Panthera pardus* (whether found in Africa, Asia Minor, India, Southeast Asia or Korea). 37 Fed. Reg. 2589 (Feb. 3, 1972); 37 Fed. Reg. 6476 (March 30, 1972). As explained in a subsequent Federal Register notice, FWS listed the species in1972 because it "was being drastically overutilized in the commercial fur trade" and "nearly every country contacted, in which the leopard was resident, expressed fears for the leopard's future if the fur trade was not brought under control," leading FWS to determine that the species could not "tolerate this enormous drain from its wild populations." 45 Fed. Reg. at 19008.

The species continued to be recognized as Endangered across its Asian and African range until 1982, when FWS reclassified the leopard in certain African range states to Threatened. 47 Fed. Reg. 4201 (January 28, 1982). In its proposed rule, FWS proposed to downlist African populations of the leopard occurring to the south of a line running along the borders of Senegal/Mauritania; Mali/Mauritania; Mali/Algeria; Niger/Algeria; Niger/Libya; Chad/Libya; Sudan/Libya; and Sudan/Egypt (see map below). (45 Fed. Reg. 19007 (March 24, 1980))

Figure 4. Map of Africa with red line denoting the proposed scope of the Threatened listing

In proposing to decrease protection for leopards in nearly all of their African range, FWS stated that it "has broad discretion in developing a management strategy that will effectively conserve Threatened species." 45 Fed. Reg. 19009. FWS stated that "data from each specific political entity within Sub-Saharan Africa are lacking" yet "enough are available from representative entities within the region to warrant action representing the region as a whole." *Id.* FWS further stated that reclassification on a country-by-country basis would be "biologically unsound." *Id.*

In its 1980 proposed rule, FWS relied on only three sources of information in determining that African leopards in most countries should be listed as Threatened rather than Endangered: "The Status and Conservation of the Leopard in Sub-Saharan Africa" by Randall L. Eaton (Safari Club International, January 1977); "The Leopard *Panthera pardus* in Africa" by Norman Myers (IUCN Monograph No. 5 1976); and "Status of the Leopard in Africa South of the Sahara" by James G. Teer and Wendell G. Swank (unpublished study financed by FWS in 1978). 45 Fed. Reg. at 19008.

Regarding the available data from these sources, FWS stated that it considered the leopard to be Threatened in most of its African range because, "A careful analysis of area/habitat type, maximum estimated density and minimum estimated density of leopard in this region by Eaton (loc. cit.) shows that an absolute minimum of 233,050 leopards may occur over the entire area; a conservative estimate of numbers would be 546,076 leopards, while a realistic estimate would place the number at 1,155,500 animals." *Id.* The following table from Eaton appears in the 1980 proposed rule:

Country	Absolute minimum	Conservative estimate	Realistic estimate
Kenya	6,379	25,640	35,000
Uganda	1,547	3,413	20,000
Tanzania	14,740	36,100	70,000
Senegal	1,435	2,870	6,000
Mali	3,088	6,175	15,000
Upper Volta	1,633	3,265	10,000
Niger	1,527	3,055	5,000
Chad	4,325	8,650	15,000
C.A.R.	5,450	10,900	20,000
Gambia	528	1,055	2,500
Guinea	2,250	4,500	10,000
Sierra Leone	700	1,400	3,000
Libera	2,500	5,000	20,000
Ivory Coast	5,625	11,250	30,000
Ghana	2,975	5,950	20,000
Nigeria	4,653	9,305	20,000
Cameroon	4,583	10,705	30,000
Angola	17,369	42,340	87,000
Zambia	18,500	46,250	70,000
Mozambique	16,190	32,378	67,000
Malawi	1,918	3,835	10,000
Botswana	3,165	8,846	20,000
Rhodesia	2,288	6,876	20,000
South West A.	3,477	6,544	20,000
South Africa	3,800	7,150	15,000
Sudan	6,900	22,900	80,000
Ethiopia	6,907	12,814	30,000
Congo	13,200	27,500	65,000
Gabon	13,400	26,800	50,000
Zaire	70,000	155,000	300,000

Table from USFWS 1980 proposed rule. 45 Fed. Reg. at 19009, from Eaton (1977).

Eaton's analysis – which was commissioned by Safari Club International, a group with a vested interest in inflating leopard numbers to decrease regulation of leopards to facilitate hunting trophy imports – was never published. The methodology Eaton – who is not a felid biologist – used to derive these population estimates is dubious at best, as he appears to have based his population numbers solely on the area of leopard habitat in each country and the rationale behind the leopard density applied to the available habitat is not disclosed. *Id.* at 19009. However, it is well established that availability of leopard habitat does not mean that leopards necessarily reside there, and that leopard density is dependent on available prey, not available habitat (Stein et al. 2016).

The 1980 proposed rule also states that Eaton conducted a study of leopards in 11 Sub-Saharan African countries and combined those results with Myers to determine the status of leopards in countries throughout Africa. 45 Fed. Reg. at 19009. In forming its conclusions about the status of leopards in

Africa, FWS relied on Eaton's views of Myers's study, which (as detailed below) do not accurately reflect the conclusions of Myers's study.

The purpose of Myers's 1976 study was to determine the leopard's distribution in sub-Saharan Africa, and to ascertain if numbers were being depleted by the fur trade or habitat modification. The author noted that the leopard existed in 40 countries and that his study would attempt to make assessments in at least one country in each of five biomes (Sahel, Sudano-Guinean woodland, rainforest, miombo woodland, and East African savannah grasslands). Myers visited 22 countries and corresponded with 10 others. Myers did not make detailed population estimates but rather focused on whether a population exists, and whether the population was expanding, declining, or stable. To draw his conclusions, Myers consulted with over 700 people, including "Wildlife and park officials at national and local level, private wildlife organisations, field scientists, anti-poaching teams, professional hunters, trappers, poachers, wildlife cropping units, fur-trade dealers, indeed anyone with specialist knowledge of wildlife." Myers (1976), at 12. Over 850 additional people were also interviewed, including "ranchers, veterinarians, livestock officials, forestry personnel, road gangs, customs officials, police and army personnel, anti-malarial teams, Peace Corps and other volunteers, and local chiefs and headmen," as well as "representatives of the fur trade in Europe and North America". *Id.* at 13. Myers recognized that these interviewees brought bias in terms of subjectivity to the study. *Id.* at 13.

Myers noted that the international fur trade had depressed leopard populations in several parts of Africa and cited habitat destruction and loss as a key threat to the survival of leopards. *Id.* at 21. Myers considered the use of poison to be a major threat, which leopards are more susceptible to because of their scavenging behavior, as well as killing due to livestock predation. Yet, he concluded that the leopard "shows more capacity to recover from over-exploitation that the other main spotted-fur species of Africa, the cheetah." *Id.* at 9. Myers claimed that there was no "bio-ecological grounds for permanently banning exploitation of the leopard by the fur trade," and recommended a limited offtake with a "rigorous system of controls." *Id.* at 9. Myers noted that "rainforest biotopes are reputed to present optimal habitats for leopard" and suggested that a leopard density of 1/km^2 is appropriate in some cases.[18] *Id.* at 13. Myers states that this leopard density is based on habitat type, prey distributions and predator competition, but more recent scientific evidence rebuts this figure (Jackson et al. 1989, Bailey 1993, Henschel 2008, Henschel 2009).

[18] Illogically, Myers (p. 14) used a figure by Schaller (1972) of "total predator biomass" in three areas in Kenya, none of which were rainforest habitat, which ranged as high as 95.7 kg/km^2 in Ngorongoro, to support the contention that rainforests might hold one 30 kg leopard / km^2. Myers cites to Schaller (1972) who estimated leopard density in Serengeti National Park as 1 / 22-26.5 km^2 (equivalent of a very low leopard density of about 0.05 leopards/km^2). After considering other density estimates, Myers states, "the leopard seems able to maintain a density of 1 to 10 km^2 in moderately suitable habitats, and 1 to 5 km^2 in favourable ones, with perhaps even 1 to 1 km^2 in exceptionally suitable conditions." *Id.* at 18.

The 1980 proposed rule apparently relied on Eaton's inaccurate characterizations of Myers' study – for example:

FWS Quoting Eaton's Interpretation of Myers	Myers's Actual Text
"The leopard in Kenya has a satisfactory status"	"leopard have declined in numbers and distribution in Kenya during the last decade."
"the leopard is satisfactory and probably abundant in Mozambique"	Myers did not comment that the leopard was probably abundant in Mozambique. Myers noted that the leopard was depleted in some areas.
"There may well be over 20,000 (leopards) in Rhodesia. The leopard has a satisfactory status in Rhodesia"	"its numbers have been significantly reduced in the face of recent agricultural expansion."
"Overall in South Africa the present status should be rated between rare and satisfactory with present trends being stable."	"Its stock-raisers have long tried to eliminate wild carnivores"; "the leopard in South Africa is officially classified as vermin"; "Numbers.... are disturbingly low, although the position is fairly stable"; "There are no grounds however for complacency, as the situation could easily become critical if any of the existing adverse factors were enhanced"; "Its numbers have long been thought to be very low."
"Myers says that leopards may have stabilized or increased recently in the Sudano-Guinean zone, including parts or portions of Sierra Leone, Guinea, Liberia, and northern Ivory Coast. In all of Sub-Saharan Africa, the West African region probably has the least satisfactory leopard populations; however, in much of the region it appears that the species' status is relatively satisfactory and probably does not deserve Endangered status except locally. Moreover, the regional trend may even be improving due to the encroachment of bush from overgrazing and burning, end or the drought in the Sahel portion, increased edge effect in forests from patchy agriculture and so on, all of which favor leopards."	Senegal: "Leopards are said to persist in much of Senegal, in fair though reduced numbers." Mali: "The overall trend, as elsewhere in West Africa, points toward a gradual elimination of leopard in all but a very few rugged hill tracts." Upper Volta: "The leopard is still widely found in Upper Volta. The leopard looks likely to decline steadily in distribution and status." Niger: "Until recently, however, leopard stocks in Niger were moderately sound." Chad: "Nothing better can be expected than very low densities." CAR: "The leopard's status is fairly satisfactory." Gambia: No leopard status information given. Guinea: "No recent information could be obtained about the status of leopard in Guinea." Sierra Leone: No leopard status information given. Liberia: "The leopard is believed to be evenly distributed throughout the country, except in farming and mining areas." Ivory coast: "Nothing was learned during the survey of the status of the leopard in Ivory Coast." Ghana: "Asibey (1971) considers the leopard very rare in many areas; by the 1980s it may hardly

FWS Quoting Eaton's Interpretation of Myers	Myers's Actual Text
	survive at all except in the most remote localities." Togo and Dahomey: "No specific information was obtained during the Survey. Nigeria: No leopard status information given. Cameroon: "leopards are reported in fair numbers in the south-east and in scattered relict populations elsewhere."

Based on this alleged abundance, FWS concluded that "the leopard in Sub-Saharan Africa can hardly be in danger of extinction." 45 Fed. Reg. at 19009.

FWS did recognize that the loss of habitat to agricultural land conversion "could present a long-term threat to the leopard" and that poaching for the fur trade (especially in European countries that had not yet become party to CITES) continued to threaten the species, and expressed concern about the increasing use of poison and its impacts on scavengers like leopards. *Id.* at 19010. Thus, FWS proposed to list leopards in sub-Saharan Africa as Threatened, leaving in place ESA and CITES Appendix I permitting requirements for the import of leopard fur and other parts. However, at the apparent urging of the trophy hunting industry, FWS proposed to adopt a special rule eliminating the requirement for ESA permits for the import of leopard trophies from sub-Saharan Africa, asserting that "there may be cases in which permitting the importation of leopard trophies taken under a strictly controlled management program will benefit the species by giving it an economic value which would in turn stimulate conservation measures." *Id.* FWS based this pro-trophy hunting position on an unpublished report from Teer and Swank (1977) containing interviews with wildlife officials in Kenya and Botswana who supported trophy hunting (but notably, Kenya prohibited trophy hunting in 1977 – prior to FWS' reliance on the Teer and Swank report – and Botswana prohibited trophy hunting in 2014 (Stein et al. 2016)).

Although the proposed special rule would not have required an ESA permit for the import of leopard trophies from sub-Saharan Africa, FWS stated that, "<u>sport trophy imports into the United States will only be permitted when it is found to enhance the survival of the species</u>." 45 Fed. Reg. at 19010 (emphasis added).

In 1982, FWS finalized the Threatened listing, but with a different geographic scope. 47 Fed. Reg. 4204 (Jan. 28, 1982). The final rule listed as Threatened "leopard populations occurring to the south of a line running along the borders of" Gabon/Rio Muni, Gabon/Cameroon, Congo/Cameroon, Congo/Central African Republic, Zaire/Central African Republic, Zaire/Sudan, Uganda/Sudan, Kenya/Sudan, Kenya/Ethiopia, and Kenya/Somalia. Despite having acknowledged in 1980 that reclassification on a country-by-country basis would be "biologically unsound," the Service narrowed this listing from the proposed sub-Saharan region to this "southern Africa"[19] region after learning that Senegal, Liberia, and Ghana considered their leopard populations to be endangered and since that there was "less substantial

[19] Notably, the 1982 final rule refers to the range of the listed entity as "southern Africa" – however, today, the phrase "southern Africa" commonly refers only to the southernmost region in sub-Saharan Africa, distinct from West, Central, and East Africa. This Petition will use the phrase "southern Africa" to refer to full range of the listed entity (**Figure 5**), even though that entity is neither scientifically nor geographically justifiable.

evidence" of leopard abundance from West Africa and the northern tier of countries in sub-Saharan Africa. *Id.* at 4207.

Figure 5. Map of Africa with red line denoting the current scope of the final Threatened listing

At the time, FWS had not yet adopted its policy regarding evaluation of distinct population segments ("DPS") and did not explain whether or why it thought that leopards in southern Africa were both "distinct" and "significant" such that the region forms a listable entity (since the area does not coincide with the full range of the subspecies or species). *See* 61 Fed. Reg. 4722 (Feb. 7, 1996); 16 U.S.C. § 1532(16). And today, twenty years since adopting the DPS policy, FWS still has not conducted an analysis of whether leopards in southern Africa can lawfully be listed as a DPS.

In addition to the three sources relied on in the 1980 proposed rule (discussed above), the 1982 final rule relied on "The Leopard *Panthera pardus* and Cheetah *Acinonyx jubatus* in Kenya" by P.H. Hamilton (unpublished study financed by FWS). 46 Fed. Reg. 44960 (Sept. 8, 1981). Relying on information from Safari Club International (gathered from interviews with hunters, game wardens, field biologists, and local people, but not hard data), FWS said there were an "absolute minimum" of 186,034 in southern Africa. 47 Fed. Reg. at 4205. The FWS stated that it "is reasonable to believe that the absolute minimum figures have validity and that there are probably well over 180,000 leopards in the area under consideration" and points to the fact that the minimum figure of Eaton for Kenya corresponds with P.H. Hamilton's minimum figure for that country. *Id.*

The 1981 Hamilton report, also based on questionnaires and personal observations, asserted that despite a decline in Kenya's leopard population since the 1960s, Hamilton believed that "a recovery of the leopard is underway in Kenya" and that "the lessons of Kenya are widely applicable." 47 Fed. Reg. at 4206. Notably missing is any acknowledgment that this asserted recovery took place in the years following Kenya's 1977 decision to prohibit trophy hunting of leopards. Further, as acknowledged – but not heeded

– in the final rule, even "Hamilton reports that leopards have declined generally in Kenya since the 1960s" and Hamilton said that the virtual elimination of leopards from North Africa "should serve as a warning to any who believe that this species can always survive no matter what the impact of man." 47 Fed. Reg. at 4206.

FWS stated that Hamilton "supports reclassification and controlled sport hunting of the species." *Id.* According to FWS, Hamilton supported lifting the ban on the importation of leopard trophies because "it has not served any useful purpose. The number involved has been relatively small and the ban runs counter to the concept of giving the leopard monetary value that will help to justify its continued existence in Africa." *Id*. This is not entirely surprising considering that Hamilton obtained his information by talking to 21 professional hunters. *Id.* at 4206. Unjustifiably, FWS characterized these biased sources (the professional hunters) as "the most valuable single source of information." *Id.* at 4206.

In the 1982 final rule, FWS continued to rely on the "expert opinion" of Eaton on the status of leopards in the relevant countries, even though FWS acknowledged that Hamilton "considers Eaton's estimates and judgements as invalid". *Id.* Further, FWS did <u>not</u> acknowledge that Eaton's conclusions conflict with Myers's conclusions in some cases, as noted above.

Further demonstrating that this 1982 downlisting was not based on the best available science – as required by law – FWS conceded the "primary reason" that it changed the geographic scope of the downlisting was due to opposition from range States in the northern portion of the sub-Saharan region (i.e., Liberia, Senegal, and Sudan opposed the proposal, and Benin, Ethiopia, and Ghana reported that the leopard was endangered in those countries). *Id.* at 4207.

Aside from this change in geographic scope and the addition of one report regarding population status in one country, the final rule does not include any new information regarding the threats to the species that was not included in the proposed rule. FWS acknowledged that "more than 90 percent" of the over 1,000 comments received on the proposed rule <u>opposed</u> the Threatened listing and special rule (*id.* at 4208), yet it finalized the Threatened listing and adopted the proposed special rule to allow the import of leopard trophies without requiring an ESA permit.

In relaxing its oversight of leopard trophy hunting, FWS baldly concluded that "Experts agree that the economic value that would develop for the species through sporthunting will encourage some of the countries [which may consider leopards as vermin] to develop management and conservation programs and will discourage indiscriminate killings by local landowners." *Id.* at 4209. Further, FWS stated that "hunting is already going on in Africa, and any increase caused by the participation of U.S. residents should not have significant adverse impacts." *Id.* Both of these statements are entirely unsupported and baseless, further proving that the current leopard listing is based on a woefully outdated foundation that was not even valid at the time the listing was finalized.

Thus, the 1982 listing for *Panthera pardus* cannot be said to be in compliance with the ESA's mandate that listing decisions be made solely on the basis of the best available science. In finalizing the listing, FWS relied on biased sources, misrepresented material scientific conclusions, and patently conceded that the scope of the listing was based on political – and not biological – considerations. The egregious flaws

in this listing are exacerbated by the decades that have passed without further review of the listing, the basis of which has been firmly rejected by a consensus of current leopard experts. Therefore, the current ESA protections for leopards in southern Africa are inadequate, endangering the entire species across a significant portion of its range.

Leopard Listing Under CITES

Panthera pardus has been listed on CITES Appendix I since the first meeting of the Conference of the Parties,[20] a listing that became effective on 4 February 1977. Trade in specimens of species listed on Appendix I "must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances." CITES Art. II.[21] Specimens of Appendix I species cannot be exported or imported unless authorized by permit by both exporting and importing countries. CITES Art. III.[22] An import permit can be granted only if the specimen is not to be used in the importing country for primarily commercial purposes. CITES, Art. III.

While Appendix I affords the highest level of protection under CITES, *Panthera pardus* does not enjoy the full extent of these protections, due to the unsustainable and not scientifically-based export quotas for hunting trophies and skins for personal purposes that are currently in place. Leopard export quotas have been set by CITES Resolutions since 1983 (CITES Resolution Conf. 4.13,[23] replaced today by Resolution Conf. 10.14 (Rev. CoP16)[24],[25] and FWS has long expressed support for this quota system. *See, e.g.*, Fed. Reg. Vol 59, Doc. No: 94-20050 (August 16, 1994).

As detailed in this section, the Service's implementation of the CITES and ESA listings for *Panthera pardus* is not based on science and fails to provide sufficient oversight of the trophy hunting industry to ensure that Americans are not contributing to unsustainable offtake of leopard populations, and therefore are not adequate regulatory mechanism to protect the species.

FWS Regulations for Leopard Trophy Imports to the U.S. Are Inadequate

In the 1982 rule finalizing the Threatened listing for southern African leopards under the ESA, FWS averred that even though no ESA import permit would be required for trophies, a CITES import permit for leopard trophies will only be issued if "it is determined that the country of origin for the trophy has a management program for the leopard, and can show that its populations can sustain a sport hunting harvest, *and that sport hunting enhances the survival of the species*." 47 Fed. Reg. at 4205 (emphasis added).

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[20] CITES, Appendices I-II, *available at* https://cites.org/sites/default/files/eng/cop/01/E01-Appendices.pdf.
[21] CITES, art. II, *available at* https://cites.org/eng/disc/text.php#II.
[22] CITES, art. III, *available at* https://cites.org/eng/disc/text.php#III.
[23] *See* Annex 1, CITES, CoP5 Doc. 5.23 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[24] CITES, CoP16 Conf. 10.4 (2002), *available at* https://cites.org/eng/res/10/10-14R16.php.
[25] *See also* CITES, CoP10 Doc. 10.42 (1997), *available at* https://cites.org/sites/default/files/eng/cop/10/doc/E10-41to43.pdf.

Further, the final rule provided that FWS will evaluate CITES import permit applications consistent with CITES Conference Report 2.11 [referring to then-valid Resolution Conf. 2.11], which – at that time – "indicate[d] that import permit decisions for sport-hunting trophies should be made on the basis of the following considerations: (1) Whether the importation will serve a purpose not-detrimental to the survival of the species; and (2) whether the killing of animals whose trophies are intended for import will *enhance the survival of the species*." *Id.* (emphasis added).

Moreover, FWS asserted that "very few leopard trophies will be imported into the United States" and that the "number is expected to be considerably less than the high of two hundred leopard trophy imports recorded in 1969." 47 Fed. Reg. at 4211. The final rule stated that FWS had "reviewed the adequacy of the leopard conservation program in a specific case for Botswana and has determined in that case that the country currently meets the criteria." *Id.* at 4205.

However, since finalizing this regulation, FWS has not upheld these commitments, instead allowing well over 300 leopard trophy imports per year since 1999 and not conducting a rigorous analysis of whether the source country manages leopard populations in a way that enhances the survival of the species. Indeed, by its own admission, the Service's practice does not include making enhancement findings for the import of African leopard trophies.

While FWS regulations provide that hunting trophies[26] can only be imported as personal items and cannot be sold after import, and that each hunter is limited to importing two leopards per calendar year, these limits are inadequate to protect leopards from unsustainable take by U.S. hunters seeking to import their body parts as trophies. *See* 65 Fed. Reg. 26664, 26679 (May 8, 2000); 72 Fed. Reg. 48402 (Aug. 23, 2007); 50 C.F.R. §§ 23.55, 23.74. Indeed, on their face these regulations would allow for unlimited numbers of U.S. citizens to kill two leopards per year, a concept that is anathema to providing for the conservation of the species, as required by law. 16 U.S.C. § 1531(c)(1) ("It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of" the conservation purpose of the ESA).

Thus, in addition to the lack of scientific support for the original listing, the implementation of this listing is woefully inadequate to promote leopard conservation, endangering the survival of leopards in southern Africa.

- FWS Is Not Applying the Enhancement Standard to Trophy Imports

Although FWS committed in 1982 to only issue CITES import permits for leopard trophies after making an enhancement finding, 47 Fed. Reg. at 4205, the 1994 CITES Conference Report 2.11 [now known as Resolution Conf. 2.11] that FWS said it would use to evaluate the issuance of import permits was amended (based on a proposal from Namibia) to eliminate scientific scrutiny of trade in leopard parts, as indicated by the redline below:

[26] FWS defines "sport-hunted trophy" as "a whole dead animal or a readily recognizable part or derivative of an animal" that, inter alia, "[w]as legally obtained by the hunter through hunting for his or her personal use." 50 C.F.R. § 23.74(b).

> "CONSIDERING the need of uniform interpretation of the Convention with regard to hunting trophies;
>
> THE CONFERENCE OF THE PARTIES TO THE CONVENTION RECOMMENDS
>
> a) that with the exception of the rare case of exemptions granted under paragraph 3 of Article VII of the Convention, trade in hunting trophies of animals of the species listed in Appendix I be permitted only in accordance with Article III, i.e. accompanied by import and export permits;
>
> ~~b) that the scientific opinions under paragraphs 2 (a) and 3 (a) of Article III of the Convention cover the trade in dead specimens, too;~~
>
> ~~c) that in order to achieve the envisaged double control (also in the scientific field) by the importing and the exporting country of the trade in Appendix- I specimens, the Scientific Authority have the possibility of comprehensive examination concerning the question of whether the importation is serving a purpose which is not detrimental to the survival of the species. This examination should, if possible, also cover the question of whether the killing of the animals whose trophies are intended for import would ***enhance the survival of the species***;~~
>
> b) in order to achieve the envisaged complementary control of trade in Appendix-I species by the importing and exporting countries in the most effective and comprehensive manner, the Scientific Authority of the importing country accept the finding of the Scientific Authority of the exporting country that the exportation of the hunting trophy is not detrimental to the survival of the species, unless there are scientific or management data to indicate otherwise;
>
> …

CITES Resolution Conf. 2.11, on *Trade in Hunting Trophies of Species Listed in Appendix I* (emphasis added).[27]

The impact of these amendments was to eliminate the independent examination of detriment by the importing country, directing that "the importing country accept the finding of the Scientific Authority of the exporting country that the exportation of the hunting trophy is not detrimental to the survival of the species, unless there are scientific or management data to indicate otherwise." *Id.* The amendment also eliminated the CITES requirement to make an enhancement finding. Therefore, the CITES protections that FWS relied on in relaxing ESA protections for southern African leopards have since been amended, necessitating a status review of the species and increased federal protections.

Further, even though CITES Resolution Conf. 2.11 no longer required an enhancement finding after 1994, the Service was nevertheless bound to its commitment from 1982 that it would apply the enhancement standard to leopard trophy imports, a duty that FWS has failed to meet.

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[27] *Compare* CITES, CoP9 Doc. 9.50 (1994), *available at* https://cites.org/sites/default/files/eng/cop/09/doc/E9-Doc-50.pdf, *with* CITES, Com. 9.13 (Rev.), *available at* https://cites.org/sites/default/files/eng/cop/09/E9-in-session.pdf.

- <u>FWS Non-Detriment Advice Is Outdated and Not Scientifically Defensible</u>

The final rule listing certain sub-Saharan national leopard populations as Threatened was published on January 28, 1982 and became effective on March 1, 1982. In the final rule, FWS acknowledged that it had reviewed the adequacy of the leopard conservation program in Botswana and determined that the country meets the criteria for issuance of CITES import permits, but that it had not yet reviewed any other African range state's leopard program. 47 Fed. Reg. at 4205.

Shortly thereafter, on March 25, 1982 the FWS's Office of the Scientific Authority sent a memorandum to wildlife authorities in relevant countries explaining the new Threatened status and how the FWS will determine, on a country-by-country basis, whether imports of leopard trophies will be for purposes that are not detrimental to the survival of the species (FWS 1982a). This memorandum states, "information now available to us is too incomplete for us to say with assurance that leopard trophy imports from any particular country can generally be approved under CITES" and states that the only countries that FWS might allow imports from were Botswana, Namibia, South Africa, Tanzania, Zambia and Zimbabwe (*Id.* at 1). The memorandum lists the factors that the Scientific Authority will consider when advising on leopard trophy imports and states, "We will advise in favor of trophy imports from a particular country only when the best available information shows that sport-hunting of leopards can reasonably be expected to enhance the survival of the species in that country." (*Id.* at 2). This memorandum makes clear that the FWS intended, at the time, to make findings of both non-detriment and enhancement, both of which were required by CITES at the time through the convention language and Resolution Conf. 2.11.

Per this 1982 memorandum, the factors to be considered in evaluating imports were divided into four main issues:

1) legal authority for sport-hunting (Does the country allow sport-hunting of leopards under national law or under laws of any smaller units of government (e.g., provinces or States)? Do any such laws provide sufficient authority to regulate the take of leopards? Is any such authority being exercised to effectively limit take? Is any take allowed by smaller units of government reviewed and coordinated at the national level?);

2) take for other purposes (Does the country allow a commercial trade of leopards or allow the removal of leopards for livestock predator control? Is any such trade effectively regulated and monitored?);

3) basis for limiting take (Does the country limit the quantity and spatial or seasonal distribution of the take of leopards? Are any such limits based on: Reliable information on leopard population trends and mortality estimates (including sport, commercial, predator control or other natural or man-caused mortality)? The relationship of leopard populations to available habitat? The goal of managing leopards to sustain their populations?); and

4) controls on the taking and trading in leopards (Does the country maintain a licensing system for persons who take or process leopards or parts thereof? Is there a standardized, mandatory system under which all lawfully taken leopards are tagged or otherwise made reliably identifiable? Does any such marking system effectively prohibit the transport, in any way, of marked leopards or parts thereof? Does a standardized, mandatory export permit system exist? If so, is the export permit system linked directly to the standardized marking system, and is approval required from the country of import before permits are issued? Is the country of export a Party to CITES?). (*Id.* at 2, 3).

If provided, answers to these questions would allow the FWS to determine if sport-hunting of leopards could reasonably be expected to be both not-detrimental to, and to enhance, the survival of the species in that country.

Only 2.5 months later, on June 10, 1982, the FWS Office of the Scientific Authority issued a memorandum to the FWS Federal Wildlife Permit Office advising that the import of leopard hunting trophies taken from Botswana, Tanzania, Zambia, Zimbabwe, or the Transvaal region in South Africa[28] after July 1, 1975[29] will not be detrimental to the survival of the species (FWS 1982b). FWS found that each of these countries, or in the case of South Africa, a portion of the country, "(a) has laws under which the regulated sport-hunting of leopards is allowed, (b) limits the quantity, or spatial or seasonal distribution of the take of leopards, (c) bases these limits on the goal of managing leopards to sustain their populations, (d) maintains a licensing system for persons who take or process leopards (except in South Africa), and (e) implements a permitting system to regulate trade in accordance with CITES." *Id*. At the same time, FWS noted that (1) leopard hunting was not allowed in Angola, Burundi, Gabon, Kenya, Lesotho, Malawi, Rwanda, Swaziland, and Uganda, (2) FWS did not have enough information to advise on Namibia, and (3) the "available information indicates that it would not be appropriate to allow leopard trophy imports from Congo, Mozambique, or Zaire." *Id*.

It is unclear what information FWS used to draw these conclusions in its non-detriment advice. However, recent events and information call into question whether any of the approved countries had at the time, or even have today, science-based wildlife management in place that uses reliable information on leopard population trends and that takes into account mortality from all sources, including sport, commercial, predator control or other natural or man-caused mortality. For example, South Africa banned the export of leopard trophies during 2016 after the South Africa Department of Environmental Affairs advised that it could not make a non-detriment finding for such exports due to: "no rigorous estimate for the size of the South African leopard population, nor reliable estimates of leopard population trends at national or provincial scales"; "excessive offtakes"; "poorly managed trophy hunting"; "almost no reliable estimates for the extend of illegal off-take of leopards, though data from a few intensive studies in South Africa suggest that levels of illegal off-take exceed levels of legal off-take"; national and provincial trophy hunting quotas are "arbitrary, based on speculative population estimates"; and "harvests of leopards is not managed consistently throughout the country; some provinces implement effective controls, others do not. Legal off-takes are poorly documented in many provinces. There is an urgent need for a coordinated national strategy which provides standardized guidelines to all provinces for the management of leopards" (South Africa Department of Environmental Affairs 2015, p. 16). The Department concludes, "legal local and international trade in live animals and the export of hunting trophies at present poses a high risk to the survival of this species in South Africa." This has most likely been the case since at least 1982 when the FWS approved imports from South Africa.

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[28] Transvaal was a province of South Africa from 1910 until the end of apartheid in 1994, when a new constitution subdivided it and it was succeeded by the provinces of Gauteng, Limpopo, Mpumalanga and the eastern part of North West province. *See* Edgar Sanderson, Great Britain in Africa: The History of Colonial Expansion, 149 (Simon Publications LLC 2001).

[29] Thus, in another example of how this listing was designed to cater to the trophy hunting industry, FWS grandfathered in trophies of leopards killed in the previous seven years when trophy imports were banned due to the Endangered status of the leopard.

Furthermore, according to South Africa, "recent research suggests that trophy hunting may be unsustainable in Limpopo, KwaZulu-Natal and possibly North West [provinces]" – yet the Limpopo and North West provinces were once part of the Transvaal region in South Africa from which FWS approved imports. It is deeply concerning that, although this information has been available publicly for nearly a year (it was published on September 10, 2015), the FWS has not rescinded its 1982 approval of imports from the Transvaal region in South Africa.

While we do not have information provided to FWS by the aforementioned countries approved for imports, in an undated letter to the FWS Office of Scientific Authority from Namibia's (then called South West Africa) Department of Agriculture and Nature Conservation (apparently sent in response to the letter from FWS to leopard range states), Namibia explains that exports of leopard trophies had been prohibited by legislation since July 15, 1977 and trophy hunting of leopards was not allowed (South West Africa undated). Based on a survey of farmers, there were an estimated 3,000 leopards in the country; in 1980, 123 leopards were killed by farmers to protect their livestock; in 1981, 201 were killed for this purpose. The letter also explained that the South West Africa Hunter's and Guides' Association recently petitioned the government to allow leopard hunting, and this is evidence that the Service's decision to downlist African leopards to facilitate trophy hunting by Americans also encouraged foreign countries like Namibia to permit leopard trophy hunting.

Namibia approved the petition and opened leopard hunting under certain conditions for two hunting seasons beginning February 1, 1983. The conditions included: landowners must apply to the Department of Nature Conservation to qualify as potential trophy hunting ranches; smaller farms (< 5,000 ha.) would be allocated one leopard hunt per year, and larger farms two hunts per year; each trophy would be tagged with a metal tag bearing a unique number and the Department's emblem; dogs, horses, and bait may be used for hunting leopard but leopards may not be caged, trapped or confined for the purpose of trophy hunting; if it is found that the number of leopards killed for trophy plus the number killed for protection of livestock exceeds the number killed yearly in the past just for the protection of livestock, then trophy hunting would be stopped immediately; and farms would be inspected for leopard occurrence before hunting permits are issued. The letter said that the Department will keep records of permits issued, successful hunts, and measurements of trophies; no permits will be issued for export of leopard trophies killed before February 1, 1983; and all revenue received from trophy hunting will be deposited with the treasury which allocates money for research.

However, notably absent from these conditions is the establishment of a science-based wildlife management program that uses reliable information on leopard population trends and that takes into account mortality from all sources, including sport, commercial, predator control or other natural or man-caused mortality. The establishment of an annual quota of one leopard for small farms and two for large farms is completely arbitrary and is not based on knowledge of the leopard population in the area. The requirement that the number of leopards hunted legally must not out-number the number of leopards killed in previous years for stock protection is not science-based management: there is no information to allow the conclusion that offtakes for stock protection were biologically sustainable.

Nonetheless, on March 10, 1983, FWS issued an internal memorandum advising that the import of leopard trophies taken in Namibia on or after February 1, 1983 will be for purposes that are not detrimental to the survival of the species, referring back to the rationale included in the 1982 memorandum (FWS 1983). This memorandum provides no rationale for the decision or any comment on the information provided by Namibia.

These 1982 and 1983 non-detriment advice memoranda are completely outdated and scientifically indefensible today and cannot be said to qualify as adequate conservation measures. Pursuant to these internal memoranda – and in direct conflict with the commitments it made in the 1982 listing rule – FWS authorized the import of up to 657 leopard trophies per year from 1980 through 2014 (**Figure 2**). *See* 71 Fed. Reg. 20168, 20208 (April 19, 2006) ("From 2001 to 2003, there were between … 420 and 450 leopard trophies imported into the United States annually."); *see* Section IV(B), *supra*.

Then in September 2015 – in direct conflict with the decision it made in 1982 – FWS issued another internal memorandum, advising that the import of leopard trophies from Mozambique during calendar year 2015 will be for purposes that are not detrimental to the survival of the species. FWS, Non-Detriment Advice (Sept. 28, 2015) ("FWS 2015"). In that memorandum, FWS concedes that "there are no reliable, widely-accepted, continent-wide estimates of leopard population sizes in Africa" (*id*. at ¶ 9) and that "the impact of trophy hunting on leopard populations is unclear, but this activity may have negative impacts at the demographic and population levels, especially when females are shot and any dependent off-spring also perish" (*id*. at ¶ 13). There is no evidence that this advice has been reviewed or renewed for calendar year 2016, but there are critical flaws in this non-detriment advice.

First, the 2015 Mozambique non-detriment advice astoundingly relies on the findings of Martin and de Meulenaer (1988), asserting that the current population size of the leopard in Africa is more than 714,000. As detailed below, this report's methodology has been completely discredited, and the best available science makes clear that there are nowhere near this many African leopards left today. While FWS acknowledged some criticism, it wrongly concluded that the Martin and de Meulenaer (1988) findings "are still largely valid today." FWS, Non-Detriment Advice (Sept. 28, 2015) ("FWS 2015").

The FWS further stated, without identifying the source of the information, that, "Leopard densities vary from 1-30 individuals per 100 km^2 according to habitat, prey availability, and degree of threat. The lowest densities correspond to arid areas (for example, 1.25 adults per 100 km^2 in arid areas in South Africa), while the highest leopard densities correspond to mesic woodland savannas that occur in protected areas in East and South Africa (for example, 30.3 individuals per 100 km^2 in riparian areas with high prey density)." However, this general information is misleading and instead the FWS should have considered readily available information specific to Mozambique – for example, a 2008-2010 study in Niassa National Reserve, Mozambique, using camera traps found that leopard density was 2.18 – 12.65 leopard/100 km^2 (Jorge 2012), much lower than the 30.3 cited by FWS. Furhter, a more recent study using camera traps in Xonghile Game Reserve, a protected area in Mozambique, found leopard density to be only 1.53 leopard/100km^2 (Strampelli 2015); the author also studied leopards in another area, Limpopo National Park, and although he was not able to estimate leopard density there, he thought it would be on par with, or less than, that in Xonghile.

The FWS stated, "The impact of trophy hunting on leopard populations is unclear, but this activity may have negative impacts at the demographic and population levels, especially when females are shot and any dependent off-spring also perish (Barnett and Patterson 2005; Caro et al. 2009; Daly et al. 2005); Lindsey et al. 2007; Packer et al. 2009). An additional matter of potential concern is that female leopards have been taken as trophies despite national regulations that specify male-only harvests (e.g., Tanzania; Spong et al. 2000)." But according to Jorge (2012), females are not allowed to be trophy hunted in Niassa National Reserve, Mozambique; however, offtake for trophy hunting combined with illegal offtake resulted in an unsustainable overall offtake. The Service's failure to take this readily available information into account was arbitrary and capricious.

Further, in 2007, Mozambique successfully proposed to double its leopard CITES export quota from 60 to 120. The U.S. preliminary negotiating position was to oppose this proposal, a fact not mentioned in the 2015 Mozambique non-detriment advice, and the U.S. ultimately supported the proposal.

The 2015 FWS Mozambique memo outlines the claims made in Mozambique's 2007 CITES proposal including: "little research had been conducted into the status, distribution, or ecology of the leopard in Mozambique" but the proposal indicated that, based on Martin and de Meulenaer (1988) the leopard population was 37,542; a harvest rate of 5% is 1,779; three field studies characterized the leopard population as "widely distributed" and "common" (citing to Smithers and Tello 1976; Tello 1986; and Begg and Begg 2004); 82% of Mozambique is suitable leopard habitat that could support 3-10 leopards per 100km^2 (according to Mozambique's 2007 CITES proposal); Mozambique's protected areas comprise 130,537km^2 and 90% of these areas have good or prime leopard habitat (*id*); even if Mozambique's leopard population is 50% of that estimated by Martin and de Meulenaer (1988) or 20,000, this population size could sustain an annual harvest of 1000; therefore, according to Mozambique's proposal, the population estimated suggest that there is scope for increase in annual offtake without any danger of significant threat to the species. But even at the time this memorandum was issued, the Martin and de Meulenaer (2008) report had already been completely discredited and it was arbitrary for the Service to rely on that information in issuing its non-detriment advice.

The DSA acknowledges that Mozambique is a Category 3 country under the CITES national legislation project, meaning that "legislation does not meet the requirements for implementing CITES" and that the country is identified as in need of "priority attention". Indeed, in 2014, the Environmental Investigation Agency and the International Rhino Foundation (EIA and IRF) submitted a petition to the U.S. government to have Mozambique certified under the Pelly Amendment for diminishing the effectiveness of CITES (Environmental Investigation Agency and International Rhino Foundation 2014). This petition, which focusses on poaching and trafficking in elephants and rhinos, states, "Mozambique has failed to adopt adequate CITES implementing legislation, lacks adequate penalties to deter poaching and illegal trade and suffers from rampant corruption." (*Id*. at 1). DSA notes several recent developments such as the passage of a new law designed to reduce poaching and illegal wildlife trade and the development of a "national rhino and ivory plan." However, EIA and IRF state that, while the new law is a step in the right direction, it's not clear to what extent it will systemically improve CITES implementation. (*Id*. at 15). DSA also notes that "government corruption remains a serious problem." The EIA and IRF petition

documents rampant corruption in the wildlife sector. Transparency International gives Mozambique a score of 31 out of 100, with 0 being highly corrupt.[30]

In conclusion, DSA wrongly states that Mozambique has improved its CITES implementation in recent years; that the leopard population of Mozambique is sufficiently large enough to support sport-hunting quotas, despite relying the outdated and discredited figures by Martin and de Meulenaer (1988); and there are potential benefits to leopards deriving from concessionaires' management activities in Mozambique with regard to this species, despite the existence of evidence that offtake for trophy hunting and illegal offtake combined are not sustainable in Niassa Game Reserve, Mozambique. On this last point, the DSA notes that sport hunting in Mozambique is subject to a "Strategic Plan for the Development of Tourism in Mozambique (2004-2013)"[31] which "incorporates economic incentives to communities and the private sector through increased income and employment opportunities via leopard sport hunting"; however, the Plan offers no details on how hunting will be managed and regulated to ensure that it is not detrimental to the survival of the species.

Finally, the Mozambique non-detriment advice fails to take into consideration multiple relevant leopard studies that were available prior to September 2015:

- Braczkowski, A.R., Balme, G.A., Dickman, A., Macdonald, D.W., Johnson, P.J., Lindsey, P.A. and Hunter, L.T.B. 2015a. Rosettes, Remingtons and Reputation: Establishing potential determinants of leopard (*Panthera pardus*) trophy prices across Africa. *African Journal of Wildlife Research* 45(2): 158–168.

- Braczkowski, A.R., Balme, G.A., Dickman, A., Macdonald, D.W., Fattebert, J., Dickerson, T., Johnson, P. and Hunter, L. 2015b. Who bites the bullet first? The susceptibility of leopards *Panthera pardus* to trophy hunting. *PloS one*, 10(4): e0123100.

- Du Preez, B.D., Loveridge, A.J. and Macdonald, D.W. 2014. To bait or not to bait: A comparison of camera-trapping methods for estimating leopard *Panthera pardus* density. *Biological Conservation* 176: 153-161.

- Grey, J.C. 2011. *Leopard population dynamics, trophy hunting and conservation in the Soutpansberg Mountains, South Africa*. Doctoral thesis. Durham University, Old Elvet, Durham, South Africa.

- Henschel, P. 2008. *The conservation biology of the leopard Panthera pardus in Gabon: Status, threats and strategies for conservation*. Dissertation zur Erlangung des Doktorgrades der Mathematisch-Naturwissenschaftlichen Fakultäten der Georg-August-Universität zu Göttingen, *available at* http://d-nb.info/99732676X/34.

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[30] Transparency International, *Corruption by Country: Mozambique*, *available at* https://www.transparency.org/country/#MOZ (last visited Jul. 20, 2016).

[31] Republic of Mozambique Ministry of Tourism, *Strategic Plan for the Development of Tourism in Mozambique (2004 – 2013)*, Volume I (Feb. 2004), *available at* http://www.tartarugabay.com/Mozambique%20Tourism%20Strategic%20Plan.pdf.

- Henschel, P. 2010. *The status of the leopard in Gabon and lessons learned for leopard research and management in W/C Africa*. Powerpoint presentation. Large Carnivore Workshop, 3-4 November 2010, *available at* http://www.largecarnivoresafrica.com/wp-content/uploads/philiph-henschel2.pdf.

- Jackson, P., Bell, R., Borner, M., Bothma, J.du P., Caughley, G., Hestbeck, J.B., Leyhausen, P., Mendelssohn, H., Norton, P.M., Ranjitsinh, M.K., Shoemaker, A.H., Singh, A., Swank, W., Walker, C., Wilson, V.J. and Martin, R.B. 1989. *A review by leopard specialists of The Status of Leopard in Sub-Saharan Africa by Martin and de Meulenaer*. Information document No. 3 submitted to the seventh meeting of the Conference of the Parties to CITES (Lausanne, 1989).

- Jorge, A.A. 2012. *The sustainability of leopard Panthera pardus sport hunting in Niassa National Reserve, Mozambique*. Master's thesis. School of Life Sciences, University of KwaZulu-Natal, Westville, South Africa. March 2012.

- Palazy L., Bonenfant C., Gaillard J-M, and Courchamp F. 2011. Cat Dilemma: Too Protected To Escape Trophy Hunting? *PloS one* 6(7): e22424.

- Pinnock, D. 2016. South Africa bans leopard trophy hunting for 2016. Africa Geographic blog, 25 January 2016.

- South Africa Department of Environmental Affairs. 2015. Non-detriment Findings. Government Gazette No. 39185, 10 September 2015, Department of Environmental Affairs Notice 897 of 2015.

- Swanepoel, L.H., Somers, M.J. and Dalerum, F. 2015. Functional responses of retaliatory killing versus recreational sport hunting of leopards in South Africa. *PloS one* 10(4): e0125539.

Therefore, this non-detriment advice – which relies on thoroughly discredited and outdated science and ignores the non-existence of a leopard management plan in Mozambique – is arbitrary, capricious, and a completely inadequate regulatory mechanism to protect the species from overexploitation.

Given that 2016 has seen the publication of the most comprehensive study on the status of this species (Jacobson et al. 2016a), as well as an updated IUCN assessment of the species (Stein et al. 2016), none of the three non-detriment advice memoranda can be said to be based on the best available science. Thus, current U.S. CITES regulations for leopards are insufficient to ensure that the U.S. impacts on this species are not detrimental, as required by law.

CITES Export Quotas Are Not Based on Science

Currently, CITES has established export quotas for twelve African countries for leopard skins traded for personal and hunting trophy purposes, totalling 2,648 leopard skins per year (CITES Resolution Conf. 10.14 (Rev. CoP16)) (see **Table 5**). Notably, two of these countries – Central African Republic and

Ethiopia – have populations that FWS recognizes are Endangered, highlighting the lack of scientific basis for these quotas.

Table 5: CITES African leopard export quotas 1983-2016.

Countries	Quota 1983	Quota 1985	Quota 1987	Quota 1989	Quota 1992	Quota 1994 - 2001	Quota 2002	Quota 2004	Quota 2007 - 2016
Botswana	80	80	80	100	100	130	130	130	130
Central African Republic	0	0	40	40	40	40	40	40	40
Ethiopia	0	0	500	500	500	500	500	500	500
Kenya	80	80	80	80	80	80	80	80	80
Malawi	20	20	20	20	50	50	50	50	50
Mozambique	60	60	60	60	60	60	60	60	120
Namibia	0	0	0	0	100	100	100	250	250
South Africa	0	0	0	50	75	75	75	150	150
Uganda	0	0	0	0	0	0	0	0	28
United Republic of Tanzania	60	250	250	250	250	250	500	500	500
Zambia	80	300	300	300	300	300	300	300	300
Zimbabwe	80	350	500	500	500	500	500	500	500
Total	**460**	**1140**	**1830**	**1900**	**2055**	**2085**	**2335**	**2560**	**2648**

Sources: CITES CoP5 Doc. 5.23, CITES CoP6 Doc. 6.27, CITES CoP7 Doc. 7.28, CITES Cop8 Doc. 8.20, CITES Resolution Conf. 8.10 and 8.10 (Rev.), CITES CoP9 Doc. 9.26, CITES CoP10 Doc. 10.42, CITES Resolution Conf. 10.4 and 10.4 (Rev. CoP13), CITES CoP12 Doc. 12.23.1, CITES CoP13 Com. 1 Rep. 1 (Rev. 1), CITES CoP13 Plen. 4, CITES CoP14 Com. 1.6, CITES CoP14 Plen. 4, and CITES Resolution Conf. 10.14 (Rev. CoP16).

CITES export quotas have grown substantially since the U.S. downlisted certain populations of sub-Saharan African leopards (**Table 5**). The total number of leopards that can be exported annually rose five-fold from 460 in 1983 to 2,648 in 2016; and the number of countries with export quotas rose from seven in 1983 to twelve in 2016.

However, these quotas have no scientific basis and are not routinely reviewed to ensure that are not detrimental to the survival of the species. Indeed, the basis for the original and subsequent CITES export quotas for leopards is a model by Martin and de Meulenaer (1988) that has been dismissed by modern leopard scientists – as discussed further below – as over-simplified since it was based on a correlation between rainfall and leopard numbers in savannah habitats of East Africa and used to predict leopard numbers across their entire sub-Saharan Africa range (Braczkowski et al. 2015b). Martin and de Meulenar's model was reviewed by specialists from the IUCN SSC Cat Specialist Group and was rejected because the methodology used was highly flawed resulting in exaggerated and inaccurate population figures (Jackson et al. 1989, Balme et al. 2010, Grey 2011). Yet, the model remains as the sole basis for the existing CITES leopard export quotas.

Botswana:

Botswana was one of the first countries to receive a CITES-approved leopard export quota in 1983, of 80 animals;[32] the working documents discussed at the 1983 meeting are not readily available, so it is not possible to evaluate the information used by the Parties when approving this quota. The quota was increased in 1987 to 100,[33] and then increased again in 1994 (effective in 1995) to 130, the latter with the support of the U.S.[34] Demonstrating the lack of an effective system to evaluate proposals to increase CITES leopard export quotas, the two most recent increases occurred without Botswana providing a supporting statement; there was no written proposal submitted for consideration by the Parties; Botswana simply requested the increases and the CITES Parties granted the request. Botswana then banned all trophy hunting, including of leopard, beginning in 2014 (Stein et al. 2016) due to declining wildlife populations, according to the Ministry of Wildlife, Environment and Tourism.[35] It is worth noting that 1987 is when the draft report of Martin and de Meulenaer (1987) was also presented to the Parties and this report was apparently used to establish or increase a number of CITES leopard quotas, including that of Botswana, where the authors estimated the population to be 7,729. (*Id.* at 647). However, in 1992, Botswana (and Malawi, Namibia, Zambia and Zimbabwe) proposed to transfer its population to CITES Appendix II with an export quota of 100; this proposal, which was not approved, estimated Botswana's leopard population to be 5,822 animals.

Central African Republic:

Central African Republic received a CITES leopard export quota in 1987, for 40 animals,[36] and this has remained the same until today. The supporting statement by Central African Republic in which this quota was requested did not provide a population estimate, explain how the figure of 40 was derived, or any provide other information about how they would ensure this offtake would not detrimental to the survival of the leopard.[37] Nonetheless, the CITES Parties approved the quota. It is worth noting that 1987 is when the draft report of Martin and de Meulenaer (1987) was presented to the Parties and this report was apparently used to establish or increase a number of CITES leopard quotas, including that of Central African Republic, where the authors estimated the population to be 41,546. (*Id.* at 647).

Ethiopia:

Ethiopia received a CITES leopard export quota in 1987 of 500.[38] However, there is no record of Ethiopia having submitted a supporting statement to the meeting where this quota was established.[39] No summary record of this meeting is readily available to the public. However, 1987 is when the draft report of Martin and de Meulenaer (1987) was presented to the Parties and this report was apparently used to establish or increase a number of CITES leopard quotas, including that of Ethiopia, where the authors

[32] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[33] CITES, CoP8 Doc. 8.20, p. 1 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/doc/E-20.pdf.
[34] CITES, CoP9 Com. I Summary Report, p. 172 (1994), *available at* https://cites.org/sites/default/files/eng/cop/09/E9-ComI.pdf.
[35] Press Release, Hunting Ban in Botswana, Message from Permanent Secretary (August 20, 2013), *available at* https://www.facebook.com/permalink.php?story_fbid=500849569997706&id=148228411926492.
[36] CITES, CoP7 Doc. 7.28, p. 791 (1989), *available at* https://cites.org/sites/default/files/eng/cop/07/doc/E07-28.pdf.
[37] CITES, CoP6 Doc. 6.28, p. 671 (1987), *available at* https://cites.org/sites/default/files/eng/cop/06/doc/E06-28.pdf.
[38] CITES, CoP7 Doc. 7.28, p. 791 (1989), *available at* https://cites.org/sites/default/files/eng/cop/07/doc/E07-28.pdf.
[39] CITES, CoP6 Doc. 6.1 (1987), *available at* https://cites.org/eng/cop/06/doc/index.php.

estimated the population to be 9,782. (*Id.* at 647). Therefore, the export quota would allow the offtake of 5.1% of the population annually, which is wholly unsustainable.

Kenya:

Kenya was one of the first countries to receive a CITES leopard export quota in 1983, of 80;[40] the working documents discussed at the 1983 meeting are not readily available to facilitate the evaluation of the information used by the Parties when approving this quota. This quota has remained unchanged from 1983 to the present, although Kenya banned trophy hunting in 1977 (further demonstrating that the CITES export quotas are not based on the best available information).

Malawi:

Malawi was one of the first countries to receive a CITES leopard export quota in 1983, of 20 animals;[41] the working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this quota. The quota was increased to 50 in 1992[42] when Malawi (and Botswana, Namibia, Zambia and Zimbabwe) proposed to transfer its population to CITES Appendix II with an export quota of 50; this proposal estimated Malawi's leopard population to be only 541 animals;[43] this means that the offtake for international trade could comprise as much as 9.2% of the population annually which is well beyond the reproductive capacity of the species. Nonetheless, while the Parties did not approve the proposed transfer, they did approve the increased export quota.

Mozambique:

Mozambique was one of the first countries to receive a CITES leopard export quota in 1983, of 60 animals;[44] the working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this quota. In 2007, Mozambique proposed to the CITES Parties to increase their annual leopard export quota from 60 to 120.[45] The proposal cited the Martin and de Meulenaer (2008) estimate of 37,542 leopards in Mozambique in justifying the quota increase. (*Id.* at 2). The FWS stated that their tentative U.S. negotiating position was to oppose this proposal (FWS 2007):

> "In this document, Mozambique proposes to increase its export quota for leopard hunting trophies and skins for personal use from 60 to 120. The United States, as reflected in the document we submitted for CoP12 on establishing scientifically based quotas, and in accordance with Resolution Conf. 9.21 (Rev. CoP13), which calls for establishment of a scientific basis for proposed quotas, is very interested in ensuring that annual export quotas are established on strong

[40] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[41] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[42] CITES, CoP8 Resolutions Adopted, p. 26 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/E-Resolutions.pdf.
[43] CITES, CoP8, Amendments to Appendices (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.
[44] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[45] CITES, CoP14 Doc. 14.37.1 (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/doc/E14-37-1.pdf.

biological data. Mozambique's request does not provide enough biological information about the population of leopards or their prey in Mozambique to determine whether the population can be sustained under the proposed quota figure."

However, the U.S. opposition to this proposal was not noted for the record and the proposal was accepted.[46] Israel opposed the proposal due to lack of scientific rigor and that there was little recent information on population status, distribution and ecology.[47]

Namibia:

In 1992, Namibia (and Botswana, Malawi, Zambia and Zimbabwe) proposed to transfer its leopard population to CITES Appendix II with an export quota of 100.[48] The CITES Parties did not approve the change in status but did approve the quota. This quota was increased in 2004 to 250 based on a population estimated by Martin and de Meulenaer (1988) of 7,745 (which, it was said, could support a "safe harvest" of 332 animals,[49] or 4.2% of the population annually). The U.S. expressed support for this increased quota.[50]

South Africa:

South Africa was first granted a CITES leopard export quota in 1989, of 50 animals;[51] the working documents discussed at this meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this quota. However, according to Grey (2011) the proposal was based on a 1.5% offtake of the 23,472 leopards estimated to be in South Africa according to Martin and de Meulenaer (1988). South Africa's quota was increased to 75 in 1992[52] based on a verbal request from the country during a CITES meeting and with no documentation or reasoning provided. Then South Africa's quota was increased from 75 to 150 in 2004 based on information in a document submitted by the country that did not provide a population estimate but claimed that the leopard population was increasing;[53] the U.S. supported the increased quota despite the poor science.[54]

The increase in the CITES quota for South Africa meant that the number of permits issued in Limpopo Province of South Africa, where most leopard trophy hunting occurs, increased from 35 to 50 in 2006 even though there were no accurate population data for leopards in the province and no assessments

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[46] CITES, CoP14 Com. I Rep. 2 (Rev. 1) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Com-I-Rep-02.pdf ; CITES CoP14 Plen. 4 (Rev. 2) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Plen-4.pdf.
[47] CITES, CoP14 Com. I Rep. 2 (Rev. 1), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Com-I-Rep-02.pdf
[48] CITES, CoP 8 Amendments to Appendices (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.
[49] CITES, CoP13 Doc. 19.1, p. 2 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/doc/E13-19-1.pdf.
[50] CITES, CoP13 Com. 1 Rep. 1 (Rev. 1), p. 1 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/rep/E13-ComIRep1.pdf.
[51] CITES, CoP8 Doc. 8.20, p. 1 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/doc/E-20.pdf.
[52] CITES, CoP8 Doc. 8.45.1, p. 1 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/doc/E-45-45_1.pdf
[53] CITES, CoP 13 Doc. 19.2 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/doc/E13-19-2.pdf.
[54] CITES, CoP13 Com. 1 Rep. 1 (Rev. 1), p. 1 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/rep/E13-ComIRep1.pdf.

were undertaken to determine whether offtake is sustainable (Grey 2011). However, Pitman et al. (2015) found that, in Limpopo Province, legal leopard offtake for trophy hunting and as problem animals combined was not sustainable. In 2015, the South Africa Department of Environmental Affairs similarly concluded that: national and provincial leopard hunting quotas are arbitrary; there is no rigorous estimate of the leopard population size, nor are there reliable estimates of trends at the national or provincial level; poorly managed trophy hunting and excessive offtakes were major threats; trophy hunting is poorly managed and not effectively controlled in many areas, and is not managed consistently throughout the country; and there are indications that trophy hunting is unsustainable in several provinces due to excessive hunting quotas, focused hunting efforts, and the additive impact of leopard poaching and problem animal control (South Africa Department of Environmental Affairs 2015). The Department concluded that export of hunting trophies poses a high risk to the survival of the species in South Africa (South Africa Department of Environmental Affairs 2015), and announced that it would suspend issuance of leopard export permits for 2016 (Pinnock 2016).

Uganda:

In 2007, Uganda proposed to the CITES Parties to transfer its population from CITES Appendix I to II, with an annual export quota of 50 of skins for personal purposes and trophies.[55] The proposal contained no information on the size or trend of the leopard population in Uganda, and provided no scientific basis for the quota of 50, although it did cite the Martin and de Meulenaer (1988) estimate of 700,000 leopards in Africa. (*Id.* at 2). The FWS stated that their tentative U.S. negotiating position was to oppose this proposal to transfer the population to Appendix II and to oppose the export quota of 50 leopards per year (FWS 2007):

> "The proposal is not written in accordance with the format for proposals to amend the Appendices as per Annex 6 to Resolution Conf. 9.24 (Rev. CoP13). As a result, it does not demonstrate that the population in Uganda no longer meets the biological criteria for inclusion in Appendix I or which precautionary measure will be in place. The CITES Secretariat has suggested that Uganda request consideration of this proposal under agenda item 37 (Appendix-I species subject to export quotas) rather than item 68 (Proposals to amend the Appendices).
>
> "Uganda asserts that the proposed export quota of 50 leopards per year is a precautionary figure that will account for both animal control and sport hunting. The United States, as reflected in the document we submitted for CoP12 on establishing scientifically based quotas and in accordance with Resolution Conf. 9.21 (Rev. CoP13), which calls for establishment of a scientific basis for proposed quotas, is keen to ensure that annual export quotas are established on strong biological data. Although a quota of 50 is considered by Uganda as precautionary, the proposal does not provide any supporting biological information for this figure. Therefore, it cannot be determined whether the population can be sustained under the proposed quota figure."

At CITES CoP14, Uganda followed the suggestion of the CITES Secretariat and requested during the CoP14 plenary that the Parties grant a quota under Resolution Conf. 10.14 and it would withdraw its

[55] CITES, CoP14 Prop. 3 (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/prop/E14-P03.pdf.

proposal to transfer its population to Appendix II.[56] This request was agreed and the Parties established a leopard export quota for Uganda of 28.[57] However, the U.S. opposition to this proposal was not noted for the record. Democratic Republic of the Congo (DRC) supported the proposal but expressed concern for the cross-border leopard populations it shared with Uganda, noting that the quota might create tension or foster poaching in the DRC.[58] Israel opposed the proposal on the basis of lack of recent population data.

United Republic of Tanzania:

The United Republic of Tanzania's CITES-established export quota increased from 60 in 1983[59], to 250 in 1985,[60] to 500 in 2002,[61] which remains in effect today. The working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this initial quota. The 1985 quota was approved based on a document submitted by the United Republic of Tanzania that admitted "there are no scientific data to provide a background for evaluation of this proposal;"[62] the document provided no estimate of the size of the leopard population in the country and no information on how the quota would not be detrimental to the survival of the species; the document stated that the reason for the increased quota was the large number of leopards killed each year by the government to protect lives and property, which numbered 406 in 1983. Despite this lack of information, as admitted by the proponent itself, the CITES Parties approved the export quota increase. In 2002, the United Republic of Tanzania requested to double its CITES leopard export quota to 500 on the basis of the Martin and de Meulenaer (1988) estimate of 39,000 leopards in Tanzania which would allow a "safe harvest" of 5% or 1,827 leopard annually.[63] The U.S. negotiating position on the 2002 proposal was undecided;[64] the record of the CITES meeting does not indicate that the U.S. expressed any view on the proposal; this proposal was approved. In Tanzania, rising leopard hunting quotas drove a large-scale declines in leopard abundance particularly in populations outside of Selous; 400 leopards were trophy hunted annually at an average rate of 1.33 leopards/1000km^2 (Packer et al. 2010). A hunting quota of no more than 1 leopard/1000km^2 has been recommended in general and 3 leopards/1000km^2 in the Selous Game Reserve (Packer et al. 2010).

Zambia:

Zambia was one of the first countries to receive a CITES leopard export quota in 1983, of 80;[65] the working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of

[56] CITES CoP14 Plen. 2. https://cites.org/sites/default/files/eng/cop/14/rep/E14-Plen-2.pdf
[57] CITES, CoP14 Com. I Rep. 2 (Rev. 1) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Com-I-Rep-02.pdf ; CITES CoP14 Plen. 4 (Rev. 2) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Plen-4.pdf ; CITES CoP14 Com. I. 6. (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/com/E14-Com-I-06.pdf.
[58] CITES, CoP14 Com. I Rep. 2 (Rev. 1) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Com-I-Rep-02.pdf.
[59] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[60] CITES, CoP6 Doc. 6.27 (1987), *available at* https://cites.org/sites/default/files/eng/cop/06/doc/E06-27.pdf.
[61] CITES, CoP12 Com. I Rep. 1 (Rev.), p. 2 (2002), *available at* https://cites.org/sites/default/files/eng/cop/12/rep/ComI_1.PDF.
[62] CITES, CoP5 Doc. 5.23, p. 421 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[63] CITES, CoP12 Doc. 12.23.1.2 (2002), *available at* https://cites.org/sites/default/files/eng/cop/12/doc/E12-23-1-2.pdf.
[64] 67 Fed. Reg. 66464 (Oct. 31, 2002).
[65] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.

the information used by the Parties when approving this quota. Zambia (and Botswana, Malawi, Namibia, and Zimbabwe) proposed to transfer its population to CITES Appendix II with an export quota of 300; this proposal estimated Zambia's leopard population to be 3,332 animals;[66] therefore, the offtake is approximately 9% of the population annually, which is excessive. The CITES Parties did not approve the transfer of the population to Appendix II, but did approve the quota increase which remains in effect today.

In May 2015, the Tourism and Arts Minister of Zambia announced that hunting of leopards (and lions) would be reinstated in 2016 after a moratorium that started in January 2013 (Zambia DNPW 2015a). The Minister stated that the ban on leopard hunting was based on "lapses in monitoring" that have been rectified and that the leopard population was and still is "healthy". Leopard hunting was to resume in 2015/2016 but with cautionary – though unspecified – quotas. Following the Minister's announcement, in May 2015, the Zambia Wildlife Authority (ZAWA) stated that there were, at minimum, an estimated 4,000 leopards in Zambia and that, according to surveys conducted by ZAWA, big cats are found in three ecosystems in the country: Luangwa Valley, Kafui and Lower Zambezi (Zambia DNPW 2015b).

Additionally, Ray (2011) conducted the first-ever population survey of leopards in Zambia, in Luambe National Park and a portion of an adjacent Game Management Area (GMA), located within the Luangwa Valley, in 2006-2008, when trophy hunting was permitted. Ray noted that it was the opinion of park managers and professional hunters in the area that the leopard was found in "very high abundance". Using camera traps, Ray found that only 12 leopards lived in the National Park in 2008 and 10 in the portion of the GMA studied, with densities of 3.36/100 km^2 in the former and 4.79/100 km^2 in the latter. Ray stated that only one other leopard study, in South Africa, had found a lower density than that she found in the Park and this other study was not in a protected area. The offtake of leopards in the GMA was 8-12 leopards per year, and considered by Ray to be unsustainable. Ray recommended an offtake of 2 leopards / 1000 km^2 in the area (instead of 12 / 2,555 km^2, among other measures. Ray recommended that loss of income from hunting could be addressed by increasing the price of trophies.

Ray explicitly notes, "Until the 1980s, the leopard was one of the most threatened species listed by IUCN. This changed with the study of MARTIN & DE MEULENAR (1988), who suggested a population of leopards of about 700,000 in Africa, which was criticized and largely discredited from the scientific community (MARTIN & DE MEULENAR 1989). Members of the IUCN Cat specialist group mentioned their doubts of the estimates from this habitat model (MARTIN & DE MEULENAR 1989). Nevertheless, the result was that CITES increased the international hunting quotas for the African leopard, despite the lack of reliable continent-wide estimates of its population size."

Zimbabwe:

Zimbabwe received its first CITES-established export quota of 80 leopards in 1983;[67] the working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this quota. This quota was increased to 350 in 1985 based on information provided by Zimbabwe that there were an estimated 38,000 leopards in the

[66] CITES, CoP8 Amendments to Appendices (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.
[67] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.

country.[68] The quota was increased to 500 in 1987; however, there is no record of Zimbabwe having submitted a supporting statement to the meeting where this quota was established.[69] No summary record of this meeting is available on the CITES website. However, 1987 is when the draft report of Martin and de Meulenaer (1987) was also presented to the Parties and this report was apparently used to establish or increase a number of CITES leopard quotas, including that of Zimbabwe, where the authors estimated the population to be 16,064. (*Id.* at 647). (It is of interest to note that, in 1992, Zimbabwe (and Botswana, Malawi, Namibia, and Zambia) proposed to transfer its population to CITES Appendix II with an export quota of 500; this proposal estimated Zimbabwe's leopard population to be only 1,379 animals).[70]

Du Preez et al. (2014) confirmed that the 500 figure was the result of using the flawed Martin and de Meulenaer model as a basis which over-estimated the number of leopards in Zimbabwe at 16,064. Today, as then, there is no reliable estimate of Zimbabwe's national leopard population and leopard numbers are not monitored in most of the areas where they are hunted (Du Preez et al. 2014). Yet, more leopards are hunted in Zimbabwe than any other country with up to 882 leopard hunting permits issued annually (although the average number of successful hunts each year, 261, does not fill the allocation (Du Preez et al. 2014)). Leopard trophy hunting offtakes have repeatedly failed to fill the allocation, possibly indicating that there are not enough leopards remaining and that leopard hunting in Zimbabwe is unsustainable, especially combined with other threats such as habitat loss (Du Preez et al. 2014). The large leopard quota in Zimbabwe is unjustified because there has been no rigorous scientific research undertaken to estimate the national leopard population (Du Preez et al. 2014). Hunting of female leopards is prohibited in Zimbabwe and there is a skull size minimum that must be met for exports to be allowed (Lindsey and Chikerema-Mandisodza 2012). In Zimbabwe, leopard hunting occurs without a national leopard management plan and leopard hunting quotas exceed the CITES export quota (Lindsey and Chikerema-Mandisodza 2012).

CITES Export Quotas Are Not Subject to Review

There has never been a rigorous review of the scientific basis of the CITES-established leopard export quotas, nor are these quotas reviewed on an on-going basis to determine if changes are necessary to protect leopards. Given the increasing imperilment of the species given the recent IUCN Red List assessment, it is high time for a review to be conducted and for a process of routine review to be established, and in the absences of such review the Service must exercise the precautionary principle when evaluating import permit applications for leopard parts.

In its 2015 non-detriment advice for Mozambique, the Service asserts that "CITES Resolution Conf. 10.14 was revised at CoP16. It directed Parties to report on their implementation of this resolution (Decision 16.76; CITES 2013c) and the Secretariat was directed to compile and present to the Standing Committee a summary of those reports (Decision 16.77; CITES 2013d). These decisions will enable Parties to monitor more effectively the implementation of quotas for leopard hunting trophies and skins for personal use. By Notification to the Parties No. 2015/042 (dated 30 July 2015), the Secretariat invited

[68] CITES, CoP5 Doc. 5.23, p. 16 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[69] CITES, CoP6 Doc. 6.1 (1987), *available at* https://cites.org/eng/cop/06/doc/index.php.
[70] CITES, Cop8 Prop. EQ5, p. 11 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.

Parties to submit their leopard report for compilation and submission by the CITES Secretariat to SC66 (CITES 2015c)."

However, Resolution Conf. 10.14, as amended, does not direct Parties to report on implementation of the resolution. And the related Decisions refer only to the tagging and tracking of leopard skins in trade, and not to the scientific basis of export quotas or issues related to the non-detriment finding. Decision 16.76 states, "Parties shall, by the 66th meeting of the Standing Committee, submit a report to the Secretariat on the implementation of the system as set out in paragraphs c) to j) of Resolution Conf. 10.14 (Rev. CoP16), including details of any problems with the processing of CITES documents, the management and tracking system in general, and the system in place to replace lost or damaged tags." Decision 16.77 states, "The Secretariat shall, at the 66th meeting of the Standing Committee, and subject to the availability of funds: a) provide a summary report to the Standing Committee based on the reports supplied by the Parties concerned in the implementation of Resolution Conf. 10.14 (Rev. CoP16); and b) on the basis of experience gained with the operation of the tagging system set out in paragraphs c) to j) of Resolution Conf. 10.14 (Rev. CoP16), make recommendations, as appropriate, to the Standing Committee regarding the feasibility and appropriateness of extending the system for use with other CITES-listed species."

At the 66th meeting of the CITES Standing Committee, the Secretariat reported that only three countries, South Africa, Slovakia, the U.S., had submitted comments in response to the Notification to the Parties, and none reported any problems with implementation.[71] South Africa advised that it would not allow females to be hunted beginning in 2015; that hunting reports containing details relating to the hunt, including information relating to body measurements, have to be submitted to the issuing authority immediately after the hunt; and that they have initiated the development of national guidelines for the allocation, management and monitoring of leopard trophy quotas, in order to promote a more uniform approach across the nine provinces in the country.

The Enduring Problem of the Martin and de Meulenaer Study

It is important to elaborate on the Martin and de Meulenaer (1987, 1988) study and criticisms of it because, from 1987 to the present, the FWS and authorities in other countries have used the results of this study to make non-detriment findings required for issuance of leopard export and import permits in accordance with CITES, as well as to provide the basis for CITES-established leopard export quotas. The following are some of the regulatory decisions based on the results of this study (see also Annex 1 to this petition):

- **2015**: FWS issued a non-detriment finding for the import to the U.S. of sport-hunted leopard trophies from Mozambique (FWS 2015).
- **2007**: CITES CoP14 increased the leopard export quota for Mozambique from 60-120.[72]
- **2004**: CITES CoP13 increased the leopard export quota for Namibia from 100 to 250 and South Africa from 75 to 150.[73]

[71] CITES, SC66 Doc. 40, *available at* https://cites.org/sites/default/files/eng/com/sc/66/E-SC66-40.pdf.
[72] CITES CoP 14 Doc. 37.1 (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/doc/E14-37-1.pdf.

- **2002**: CITES CoP12 increased the leopard export quota for Tanzania from 250 to 500.[74]
- **1994**: CITES CoP9 increased the leopard export quota for Botswana from 100 to130, and that of South Africa from 50 to 75.[75]
- **1992**: At CITES CoP8, Botswana, Malawi, Namibia, Zambia and Zimbabwe proposed to transfer *Panthera pardus* from CITES Appendix I to Appendix II and to establish export quotas for eleven countries.[76] The proposals were rejected by vote, but the quotas in the proposals were approved. CoP8 adopted a new leopard quota of 100 for Namibia and increased the quota for Malawi from 20 to 50.[77]
- **1989**: CITES CoP7 adopted a new leopard export quota of 50 for South Africa and increased the quota for Botswana from 80 to 100.[78] There is no documentation from CoP7 to support the establishment of the quota for South Africa or the increase of the quota for Botswana.
- **1987**: CITES CoP6 adopted a new leopard export quota of 40 for Central African Republic, 500 for Ethiopia, and increased the quota for Zimbabwe from 350 to 500.[79] It should be noted that Ethiopia was not a CITES Party in 1987 when the leopard export quota was adopted and there is no documentation from CoP6 to support the establishment of this quota.

An abbreviated version of Martin and de Meulenaer's study, a *Survey of the Status of the Leopard* (Panthera pardus) *in Sub-Saharan Africa*, appeared first as an Annex to Document 6.26,[80] on *Trade in Leopard Skins*, discussed at the 6th meeting of the Conference of the Parties to CITES (CoP6), in 1987 (Martin and de Meulenaer 1987). The full study was subsequently published in 1988 (Martin and de Meulenaer 1988).

It must be noted at the outset that, as is explained in CITES CoP6 Document 6.26, the study was funded by Safari Club International and the American Fur Institute, which should immediately raise suspicions of potential bias, given the funders' economic interests in the outcome of the study. And, as noted above, in 1992 the document was used to support a proposal to transfer *Panthera pardus* from CITES Appendix I to Appendix II, in order to allow international commercial trade in leopard skins; the proposal was not approved.

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[73] CITES, CoP13 Doc. 19.1 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/doc/E13-19-1.pdf; CITES, CoP13 Doc. 19.2 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/doc/E13-19-2.pdf ; CITES, CoP13 Com. I Rep. 1 (Rev. 1) (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/rep/E13-ComIRep1.pdf.
[74] CITES, CoP12 Com. I. Rep. (Rev.) (2002), *available at* https://cites.org/sites/default/files/eng/cop/12/rep/ComI_1.PDF; CITES, CoP12 Doc. 23.1.2 (2002), *available at* https://cites.org/sites/default/files/eng/cop/12/doc/E12-23-1-2.pdf.
[75] CITES, CoP10 Doc. 10.41 (1997), *available at* https://cites.org/sites/default/files/eng/cop/10/doc/E10-41to43.pdf.
[76] CITES, CoP8 Amendments to Appendices (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.
[77] CITES, CoP8 Com.I 8.1 (Rev.) (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/E-Com-I.pdf.
[78] CITES, CoP8 Doc. 8.20 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/doc/E-20.pdf.
[79] CITES, CoP6 Doc. 6.28 (1987), *available at* https://cites.org/sites/default/files/eng/cop/06/doc/E06-28.pdf; CITES, CoP Doc. 7.27 (1989), *available at* https://cites.org/sites/default/files/eng/cop/07/doc/E07-27.pdf.
[80] CITES, CoP6 Doc. 6.26 (1987), *available at* https://cites.org/sites/default/files/eng/cop/06/doc/E06-26.pdf.

Martin and de Meulenaer used a computer modelling exercise, which correlated leopard density with rainfall, to derive estimates of the leopard population in 41 sub-Saharan African countries and a total African leopard population of 714,000 animals (**Figure 6**).

Figure 6. Martin and de Meulenaer leopard population estimates.

#	COUNTRY	PREDICTED POPULATION	FACTOR	FINAL POPULATION
1	ANGOLA	62,486		62,486
2	BENIN	4,915	0.1	492
3	BOTSWANA	7,729		7,729
4	BURKINA FASO	1,693		1,693
5	BURUNDI	495		495
6	CAMEROUN	41,896		41,896
7	CENTRAL AFRICAN REPUBLIC	41,546		41,546
8	CHAD	3,125		3,125
9	CONGO	32,394		32,394
10	DJIBOUTI	25		25
11	EQUATORIAL GUINEA	5,040		5,040
12	ETHIOPIA	9,782		9,782
13	GABON	38,463		38,463
14	GAMBIA	33		33
15	GHANA	5,990	0.1	599
16	GUINEA	15,689	0.1	1,569
17	GUINEA BISSAU	682	0.5	341
18	IVORY COAST	9,522		9,522
19	KENYA	10,207		10,207
20	LESOTHO	420		420
21	LIBERIA	5,031	0.1	503
22	MALAWI	4,530		4,530
23	MALI	3,365		3,365
24	MAURITANIA	230		230
25	MOZAMBIQUE	37,542		37,542
26	NAMIBIA	7,745		7,745
27	NIGER	454		454
28	NIGERIA	18,963	0.5	9,481
29	RWANDA	388		388
30	SENEGAL	781		781
31	SIERRA LEONE	2,803	0.1	280
32	SOMALIA	2,123		2,123
33	SOUTH AFRICA	23,472		23,472
34	SUDAN	22,035		22,035
35	SWAZILAND	805		805
36	TANZANIA	39,343		39,343
37	TOGO	2,537	0.1	254
38	UGANDA	4,292		4,292
39	ZAIRE	226,192		226,192
40	ZAMBIA	46,369		46,369
41	ZIMBABWE	16,064		16,064
	TOTALS	757,196		714,105

Source Martin and de Muelenaer (1988), p. 8.

Importantly, since 2008, the IUCN has found that "there are no reliable continent-wide estimates of population size in Africa, and the most commonly cited estimate of over 700,000 leopards in Africa (Martin and de Meulenaer 1988) *is flawed*" (Henschel et. al. 2008) (emphasis added). This opinion of the world's foremost leopard experts alone should be reason enough for regulators to avoid using the results of the Martin and de Meulenaer report as the biological basis for decision-making regarding leopards. Leopard scientists continue to point out the shortcomings of Martin and de Meulenaer today: as noted above, the most recent publication on leopard status and distribution (Jacobson et al. 2016a) stated,

"Earlier Africa-wide assessments of population size (Myers, 1976; Eaton, 1977; Martin & De Meulenaer, 1988; Shoemaker, 1993) employed questionable population models based on scant field data and were widely criticized as being unrealistic (Hamilton, 1981; Jackson, 1989; Norton,1990; Bailey, 1993)" (p. 2).

Additionally, soon after the study by Martin and de Meulenaer became available, it was criticized by leopard experts in the IUCN/SSC Cat Specialist Group (Jackson et al. 1989) who rejected the estimates of leopard numbers in Africa given in the study. This paper was included as an information document at CITES CoP7[81] held in 1989 which put regulators on notice that the Martin and de Meulenaer study should not be used as a scientific basis for making regulatory decisions. A summary of this paper states:

> "Leading leopard specialist members of the IUCN/SSC Cat Specialist Group and other experts have reviewed the SURVEY OF THE STATUS OF THE LEOPARD IN SUB-SAHARAN AFRICA by Martin and de Meulenaer. They *reject the computer estimates of leopard numbers in Africa*, although they generally agree that there are still many leopards, especially in certain areas. Most reviewers felt they lacked competence to criticize the computer model as such, but, in common with those who are expert, *they challenged the data input*. The *basic relationship claimed between rainfall and prey and, therefore, leopard populations, was discounted for several specific types of habitat and areas*. Reviewers with extensive field experience in leopard habitat declared that no leopard survive in many areas assumed to be suitable in the model. *Where estimates of leopard numbers in specific places have been made by the reviewers they are generally less than half those predicted by the computer model*" (emphasis added).

Jackson et al. (1989) contains comments of individual co-authors, including:

- Dr. Marcus Borner, Regional Represenative, Frankfurt Zoological Society, Arusha, Tanzania who said, "The computer model has not produced an accurate estimate of the existing or potential leopard population because the data are either guesswork, hearsay or otherwise imprecise…Unscientific data have been fed through very complex scientific methods to make the outcome look serious…A short and superficial survey like this one could not have produced anything more precise than informed guesswork."
- Professor J. du P Bothma, Chair of Wildlife Management, University of Pretoria, South Africa who said, "The database upon which the assumptions are made…is often non-existent. Thus no matter how complicated or good the model the raw data simply do not allow the type of conclusions reached. In South Africa there are many areas suitable as leopard habitat which are simply not occupied by leopards any more."
- Professor Dr. Paul Leyhausen, formerly of the Max Planck Institut fur Verhaltensphysiologie, Germany, who said, "A model, however loosely it seems to fit reality, it is not itself biological reality…The computer model depends on just one variable: prey availability…If prey availability were the sole yardstick, lion numbers in the Serengeti should be much higher in average years than they actually are…The model in question is a theoretically interesting exercise. But it would be hazardous to the extreme to assume that actual leopard numbers conform with it even remotely, let alone to make it the basis of practical policy."

[81] CITES, CoP7 Doc. 3 (1989).

- Dr Peter Norton, Chief Directorate Nature and Environmental Conservation, Kimberley, South Africa, who said, "Much of the report is based on so-called "estimates" of population numbers which I find highly questionable, if not misleading. The model is based on a number of assumptions that are not substantiated by the results of my research work on leopards in the Cape Province of South Africa." Norton specifically criticized four of these assumptions: 1) "If natural habitats are relatively unaltered, leopards will be found there": Norton states that leopards have been "completely eradicated" from certain areas despite the fact that none of the areas have been substantially altered, but leopards had been hunted out. 2) "If leopard are reported they will be at a rainfall-related "carrying capacity": Norton states that adult male leopards make "forays" some distance out of their normal home range but he doubts that their transient presence in these areas indicates that the population in these areas is at "carrying capacity." 3) "Leopard densities are closely correlated with rainfall, irrespective of prey densities": Norton notes that most of the data points used in the Martin and De Meulenaer model are from reserves or hunting areas in savannah habitats where suitable leopard prey may exist; however, he provides examples from his own studies of other types of habitats (fynbos and forests) where suitable leopard prey densities are extremely low. Norton also notes that low biomass of leopard prey animals is likely to occur in high rainfall tropical forests. Critically, Norton notes that the Martin and De Meulenaer study uses a study by Coe et al. (1976) on the relationship between large herbivore biomass and rainfall to support their contention that there is a relationship between leopard density and rainfall; however, Norton notes that this is based on large herbivores, not the small mammals that leopards prey upon. Norton also notes that bushmeat hunting has nearly eliminated small animals preferred as prey by leopards and that although Martin and De Meulenaer recognize this they modified only some of the figures used in their calculations. 4) "Rainfall figures used in the correlation are representative of the study areas": Norton thought that the rainfall figures may be accurate for flatter areas but said, "I seriously question the accuracy of the rainfall figures used in the regression for areas with more varied topography, such as mountains" and provided an example from his study area to demonstrate the fact that the model's predictions do not hold up against field study evidence. Regarding the total number of leopards Martin and De Meulenaer estimated for South Africa (23,472), Norton said it is "totally unrealistic." Norton also stated, "I seriously doubt the regression's validity in mountain or forest habitats, or even in savanna habitats outside of reserves that have a high human population. The regression is just too good to be true. With all the variability in different habitat types, plus the fact that some of the rainfall figures are suspect, I just cannot accept that a wide range of biological systems spread throughout Africa will react so predictably." Regarding the confidence limits in Martin and De Meulenaer, Norton states they "have no biological reality at all. In fact they are dangerous in that they give an aura of scientific respectability that they do not deserve." Norton compared estimates of Martin and De Meulenaer for habitats in South Africa with his best guesses and found that the estimates far exceeded, by ten-fold, the number of leopards he thought existed: 23,470 versus 2,390 (**Figure 7**).

Figure 7. Norton's leopard population estimates.

Table Norton's guesses of the possible numbers of leopards in the different vegetation types (White 1983) in South Africa, compared to Martin & de Meulenaer's (1988) 'estimates'

White's vegetation type number	Description	Norton's guess	M & de M's 'estimate'
16c	Coastal forest transition	200	3 002
19a	Afromontane	50	5 733
20	Highveld grassland transition	20	1 307
24	Scrub forest	50	2 105
28	Mopane woodland	200	771
29d	Woodland	500	3 459
29e	Tongaland bush	200	555
34	Scrub/highveld transition	50	374
35a	Acacia savanna	10	77
39	Evergreen bush & thicket	50	1 417
44	Kalahari Acacia	20	1 335
48	Tongaland bush	20	206
50	Fynbos	600	1 489
51	Karoo/Namib	20	291
52	Succulent karoo	20	67
53	Dwarf karoo	0	161
56	Kalahari/karoo	300	337
57a	Grassy karoo	0	37
57b	Karoo/highveld transition	10	390
58	Highveld	50	331
66	Altimontane	0	17
74	Namib	20	7
77	Mangrove swamp	0	5
	TOTAL	2390	23 470

Source Jackson et al. 1989, p. 7.

- Dr. M.K. Ranjitsinh, Director of Wildlife Conservation, Government of India who said, “To work out a population based on an arithmetical calculation in one place and then extrapolating it elsewhere has posed many a problem, and the figure can be totally wrong because of so many factors. And when you are extrapolating it for a continent as large as Africa with its diverse climatic, geomorphical, demographic and other considerations, I would be extremely wary of the result … if the figures are accepted and a harvest quota based upon them is adopted, it will become an accepted guideline and parameter for future harvest and one will not know the results until the population of the leopard nose-dives, in places perhaps beyond redemption.”
- Vivian Wilson, Director, Chipangali Wildlife Trust, Zimbabwe questioned if the number of leopards can be estimated based on habitat and rainfall stating, “There are vast areas in Africa where there is a lot of suitable habitat, a good food supply and also high rainfall, and yet leopards are either absent or occur in low numbers.” Wilson described her experience in Central African Republic where rainfall is high, and there are large areas of ideal leopard habitat and large numbers of leopard prey, but low numbers of leopards due to them having been killed by people many years previously. Wilson provided two other examples to support her conclusion. Wilson said that there are fewer than 10,000 leopards in Zimbabwe compared to 16,064 estimated by Martin and De Meulenaer. Wilson guessed at population sizes in eight countries, based on her experience, and compared them to the estimates of Martin and De Meulenaer, and found that her total population figure was three times less than theirs (**Figure 8**).

Figure 8. **Wilson’s leopard population estimates.**

Country	Wilson's guess	Martin & de Meulenaer		
		Predicted Pop.	Lower limit	Upper limit
South Africa	± 10 000	23 472	12 910	42 954
Zimbabwe	± 10 000	16 064	8 335	29 236
Botswana	5 000 ?	7 729	4 251	14 144
Malawi	± 2 000	4 530	2 492	8 290
Zambia	15 000 ?	46 369	25 503	84 855
C.A.R.	± 10 000	41 546	22 435	76 445
Ivory Coast	± 7 000	9 522	5 142	17 520
Sierra Leone	± 100	2 805	1 402	5 382
T O T A L :	59 100	152 035	82 470	278 826

Source Jackson et al. (1989), p. 10.

- An anonymous co-author stated, "there seems to be a conceptual flaw in the model" in that there is "abundant wildlife literature" that indicates that even if habitat is suitable one cannot expect to find a species there. This author further states that there are "very many and very extensive areas where they would fully expect, according to their model, to find abundant leopards, in fact there would be zero leopards … I can think of more than a dozen extensive areas in each of many countries…where the model would postulate sizable numbers of leopard, but none has been seen, or surmised to exist, since the late 1960s." Anonymous goes on to state that many other factors besides habitat need to be taken into account including activities and density of human communities, types of livelihoods of such communities, availability of poison, size and scope of the skin market, degree of known poaching, conservation capacity, corruption, official ineptitude, public awareness, and conservation commitment.

In another early review of the study of Martin and de Meulenaer, one of the co-authors of Jackson et al. (1989), Norton (1990), published his full analysis, which stated,

> "Results of ecological studies on leopards in the Cape Province, South Africa, carried out by the Chief Directorate: Nature and Environmental Conservation, suggest that some of the assumptions on which the population estimates are based are highly suspect, and that the population figures may be unrealistically high. The recommendations for leopard conservation and management should therefore be viewed with caution, *especially hunting quotas based on a proportional offtake from the 'estimated total' population*" (p. 218) (*emphasis added*).

Norton further states, similar to his comments in Jackson et al. (1989):

> "As I interpret it, the model is largely based on the following questionable assumptions: 1) that if natural habitats are unaltered, leopards will be found there; 2) that if leopards are reported, they will be at a rainfall-related 'carrying capacity'; 3) that all leopard densities are closely correlated with rainfall, irrespective of prey densities; 4) that the rainfall figures used in the correlation are representative of the study areas."

Norton studied each of these assumptions and found that in South Africa: 1) leopards have been extirpated—"hunted out"—from areas where habitat has not been substantially altered; 2) individual leopards, especially male leopards, may journey over 100 km from the nearest known leopard population but one leopard is not indicative of the presence of a population of leopards at 'carrying capacity'; 3) most of the data points in Martin and de Meulenaer's regression are from savanna habitats, but in other habitats (forests, including rain forests) the density of prey animals available for leopards is low to extremely low. Norton also questions the use by Martin and de Meulenaer of Coe et al. (1976) study of the relationship between large herbivore biomass and rainfall because it is based on large herbivore numbers mostly in savanna habitats, whereas leopard prey consists of small mammals. Norton notes that in some areas bushmeat hunting has eliminated small mammals making it difficult for leopards to survive; and 4) Norton questions the accuracy of the rainfall figures used in the Martin and de Meulenaer for all areas and provides a specific example from one of his study areas.

Norton states that he has been reluctant to provide leopard estimates for the region of South Africa in which he works, or for the country as a whole, because these would be more likely to be "a misleading guess" (p. 219). After closely examining Martin and de Meulenaer's estimates for South Africa, Norton found them to be "far too optimistic!" (p. 219, punctuation as in original). In one area Norton estimated to hold "no more than a hundred or so leopards", Martin and de Meulenaer estimated a population of 4,419. In another area where Norton estimated there to be one or two hundred leopards at the most, Martin and de Meulenaer estimated a population of 9,000. In a final area, Norton thought there were no more than "a handful" of leopards but Martin and de Meulenaer estimated a population of 1,335 leopards. In summation, Norton states, "I should be very surprised if there are more than two or three thousand leopards in South Africa at the most. As far as I am concerned, an estimate of over 20 000 is just plain nonsense!" (p. 219, punctuation as in original). Norton concludes, "I therefore suggest that the 'estimates' of leopard populations in the different countries in Africa be rejected, and all recommendations involving these estimates be viewed with extreme caution."

Thus, by 1990, it should have been explicitly clear to FWS that leopard experts – including one of the original authors (Martin) – found the original Martin and de Meulenaer report to be flawed. Yet, from 1989 through 2015, FWS and the CITES Parties have used the report by Martin and de Meulenaer as the scientific basis for establishing CITES export quotas and issuing CITES export and import permits.

More recently, Henschel (2008, 2009) criticized Martin and de Muelenaer for assuming that the Congo Basin[82] was a leopard stronghold based on unaltered habitat and supposedly prey-rich habitat. Henschel said that although the Congo Basin comprised only 12% of the leopard's range in Africa, Martin and de Meulenar estimated that it contained 40% of the leopard population of Africa. Henschel (2008, 2009) noted that other authors, Jackson et al. (1989) and Bailey (1993), also criticized Martin and de Meulenaer because the biomass of potential prey is actually lower in forests as compared to savannah. Henschel (2008) writes,

> "While it is widely accepted that in savannas ungulate biomass is positively correlated with rainfall (Coe et al., 1976, East, 1984) and that in these open habitats leopard density is linked with prey biomass (Marker and Dickman, 2005, Hayward et al., 2007), it has to be understood that although ungulate biomass increases with rainfall it decreases with forest cover, as a high proportion of the primary productivity is in the canopy and only available to relatively small arboreal mammals (Robinson and Bennett, 2004). Yet it is rainforest habitat that was considered optimal leopard habitat by Martin & de Meulenaer in their 1988 status survey, who considered the forests of the Congo Basin an absolute stronghold for the species that would harbour and estimated 40% of Africa's leopards, and predicted extremely high population densities for this habitat type of up to 40 individuals/100 km^2 (Martin and de Meulenaer, 1988). These population density estimates have since been used to produce population size estimates for central African countries, but the results were widely considered to be exaggerated (e.g. Jackson, 1989, Norton, 1990). Bailey (1993) and Jenny (1996) are among several authorities who have argued that since terrestrial mammalian prey biomass is lower in rainforest than in savannah environments, leopard densities should be correspondingly lower. Perhaps most importantly, Martin and de Meulenaer's

[82] The Congo Basin spans across six countries—Cameroon, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Equatorial Guinea and Gabon.

> model failed to account adequately for reduction of wild prey as a factor lowering leopard density, which could lead to overestimates especially in the Congo Basin, where forest wildlife suffers from a high demand for wild game for both local and commercial use (Wilkie and Carpenter, 1999)."

Henschel (2009) stated, "The figures published by Martin & de Meulenaer (1988) are still quoted today, and remain the chief source of information for African governments proposing to open or raise harvest quotas for trophy hunting of leopards. However, evidence is mounting that leopards have already disappeared from a number of forest sites on the fringes of the Congo Basin." Henschel (2009) notes that these sites are densely populated with people, that people consume medium-sized wild mammals as bushmeat, that such mammals are preferred leopard prey, and that such prey populations are depleted near densely populated areas. Henschel (2009) hypothesizes that this has led to reduced and even extirpated leopard populations in such areas. Henschel's study of leopards in Gabon found a strong correlation between commercial bushmeat hunting near settlements and the local disappearance of leopards (Henschel 2009).

Marker and Dickman (2005) found that, in Namibia, rainfall was not directly related to leopard density. They found leopard densities to be lower outside of reserves despite there being no marked difference in prey biomass between protected and unprotected areas; the authors explained that "the lower leopard density outside reserves was probably a result of local persecution by landowners, as leopards are commonly considered a threat both to people and their stock." (p. 113). Marker and Dickman note,

> "This is one of the main objections raised to the leopard population estimates made by Martin & de Meulenaer (1988), who assumed that where leopards occur, they should be at the carrying capacity determined by rainfall, without considering factors such as local persecution (Norton 1990). Although leopard density appeared to be indirectly linked to rainfall via the relationship with prey biomass, the overall determinants of leopard density and spatial ecology are likely to be a complex set of factors including an artificial 'carrying capacity' determined by the attitudes of local communities."

In a presentation delivered at the Large Carnivore Workshop, 3-4 November 2010, Henschel (2010) estimated the leopard population of Gabon to be 5,910 compared to the Martin and de Meulenaer estimate of 38,463. Regarding Martin and de Meulenaer's estimate of 714,000 leopards in sub-Saharan Africa, Henschel said, "Do not believe it!"

Chapman and Balme (2010) noted that Martin and de Meulenaer estimated the sub-Saharan leopard population to be 714,000 and the South African population to be 23,000 and said that this is "widely considered to be a gross overestimate" and "South Africa's true leopard population size, while still unknown, is thought to be an order of magnitude less" (p. 114). The authors state, "The detrimental consequences of basing management decisions on such unreliable estimates are patently obvious." (*id.*)

Ray (2011) noted that the Martin and de Meulenaer study has been "critically debated among specialists as presenting a high overestimate and has thus been rejected." (p. 1)

Swanepoel et al. (2014) used population modelling to estimate the leopard population size of South Africa which they estimated to be 4,476 leopards, far below the 23,472 leopards Martin and de Meulenaer estimated.

Du Preez et al. (2014) expressed concern about an increase in the CITES leopard export quota for Zimbabwe from 80 leopards per year to 500 being established based on Martin and de Meulenaer's calculations which "were based on the flawed assumption that leopards occurred at the highest possible density in all habitats" and "used rainfall data to estimate abundance; calculating what seems likely to have been an overestimate of Zimbabwe's leopard population at 16,064." (p. 153-154)

Braczkowski et al. (2015b) expressed concern that while leopards are one of the most sought trophies, leopard hunting quotas are based on "expert guesstimates" or "an over-simplified model that correlated leopard density to rainfall [cite to Martin and de Meulenaer] but ignored important factors such as anthropogenic mortality and prey availability."

Strampelli (2015), who studied leopards in Mozambique, stated there are no reliable continent-wide estimates of population size for the species and note that Martin and de Meulenaer was "obtained through a model that correlated leopard numbers with rainfall but omitted information on prey density or human related mortality, has been heavily criticized and is widely considered by specialists to be flawed." (p. 5-6). Strampelli states that the "over-simplified" Martin and de Meulenaer estimate of 37,542 leopards in Mozambique was used as justification for the 2007 increase in the CITES leopard export quota from 60 to 120. Strampelli further states,

> "Martin & de Meulenaer (1988) estimated a country-wide population for Mozambique of 37,542 leopards, based on density of 0.10/km2 (10 leopards per 100 km^2). This estimate was recently successfully quoted as a justification for an export quota increase (CITES 2007). The same report also states that "it is clear that much of Mozambique (perhaps up to 80%) falls within the category capable of supporting leopards at densities of between 0.03 and 0.1 per km^2" – i.e. between 3.00 and 10.00 per km^2. Such estimates have already been universally rejected as exaggerated and inaccurate by experts (Balme et al. 2010b); indeed, that density in XGR, one of the better protected areas of the country, was estimated at 1.53/100 km^2 suggests that it is unlikely that many areas in Mozambique experience leopard densities such as those quoted in the quota revision application. Although some landscapes will have higher primary productivity levels, it seems plausible that the high levels of anthropogenic disturbances common in much of the country (Hatton et al. 2001) likely more than counteract this."

A study by Jacobson et al. (2016a) on leopard status and distribution stated, "Earlier Africa-wide assessments of population size (Myers, 1976; Eaton, 1977; Martin & De Meulenaer, 1988; Shoemaker, 1993) employed questionable population models based on scant field data and were widely criticized as being unrealistic (Hamilton, 1981; Jackson, 1989; Norton,1990; Bailey, 1993)." (p. 2)

Therefore, the existing CITES export quotas and domestic implementing regulations are completely outdated, scientifically indefensible, and inadequate to protect the leopard in southern Africa, and the exploitation facilitated by these regulations endangers the continued existence of the African leopard.

2. African Leopard Range Country Mechanisms

The significant decline in both the range and, in many cases, the size of leopard populations due to habitat destruction, loss of prey, excessive and poorly regulated trophy hunting, poaching for commercial trade, and human-leopard conflict demonstrates that many range States do not have adequate regulatory mechanisms to protect leopards.

There are several African regional agreements that have relevance to African leopards: the African Union's African Convention on the Conservation of Nature and Natural Resources, 1968;[83] the Revised African Convention on the Conservation of Nature and Natural Resources, 2003;[84] and the Protocol on Wildlife Conservation and Law Enforcement of the Southern African Development Community, 1999.[85]

The African Union (AU), formed in 1992, is an intergovernmental organization comprising 54 African States including all sub-Saharan Africa leopard range States.[86] The AU has an Executive Council to coordinate and take decisions on policies in areas of common interest to Member States, including environmental protection (Article 13 (1)(e)).[87]

Two AU Conventions are relevant to African leopard conservation: the African Convention on the Conservation of Nature and Natural Resources (entered into force in 1968), and the Revised African Convention on the Conservation of Nature and Natural Resources (negotiated in 2003, not yet entered into force).[88]

Parties to the African Convention on the Conservation of Nature and Natural Resources, which entered into force in 1969, have agreed to "adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and fauna resources in accordance with scientific principles and with due regard to the best interests of the people." (Article I). The Convention lists the leopard as a Class B protected species (Article VIII); Class B species "shall be totally protected, but may be hunted, killed, captured or collected under special authorization granted by the competent authority." (Article VIII (1)(b)). Notably, some leopard range States that are significant exporters of leopard specimens have not ratified the Convention: Namibia, South Africa, and Zimbabwe. But even in range countries that have ratified the Convention, this law does not provide sufficient protection for leopards.

The Convention does not establish a Secretariat or designate the role and frequency of meetings of the Conference of the Parties; it also does not contain enforcement measures to address non-compliance with the Convention. Article XVI states:

> The Contracting States shall supply the Organization of African Unity with: (a) the text of laws, decrees, regulations and instructions in force in their territories, which are intended to

[83] African Union's African Convention on the Conservation of Nature and Natural Resources (1968), *available at* https://treaties.un.org/doc/Publication/UNTS/Volume%201001/volume-1001-I-14689-English.pdf.
[84] Revised African Convention on the Conservation of Nature and Natural Resources (2003), *available at* http://faolex fao.org/docs/pdf/mul45449.pdf.
[85] Protocol on Wildlife Conservation and Law Enforcement of the Southern African Development Community (1999), *available at* http://www.sadc.int/files/4813/7042/6186/Wildlife_Conservation.pdf.
[86] *See* African Union, *at* http://www.au.int/en/countryprofiles.
[87] *Id. at* http://www.au.int/en/sites/default/files/ConstitutiveAct_EN.pdf.
[88] *Id. at* http://www.au.int/en/sites/default/files/treaties/7782-sl-revised_-_nature_and_natural_resources_1.pdf.

> ensure the implementation of this Convention; (b) reports on the results achieved in applying the provisions of this Convention; and (c) all the information necessary for the complete documentation of matters dealt with by this Convention if requested.

However, it is unclear if any States have complied with these requirements. Article XVIII addresses settlement of disputes, including the interpretation or application of the Convention, and allows submission of concerns by any party to the Commission of Mediation, Conciliation and Arbitration of the Organization of African Unity. However, it is unclear if any Party has done so and to what effect.

Very few African leopard range States to have ratified the Revised African Convention on the Conservation of Nature and Natural Resources.[89] The Revised Convention has not yet entered into force because fifteen Parties must ratify it and only thirteen have done so.

Several leopard range States have signed the Treaty of the Southern African Development Community (SADC):[90] Angola, Botswana, DRC, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.[91] Among SADC's objectives is to "achieve sustainable utilisation of natural resources and effective protection of the environment" (Article 5 (g)). Article 22 of SADC calls for the establishment of Protocols to achieve the Treaty's objectives. The SADC Protocol on Wildlife Conservation and Law Enforcement[92] elaborates on Article 5 (g) of the Treaty. Its objectives are to:

> a) promote the sustainable use of wildlife; b) harmonise legal instruments governing wildlife use and conservation; c) enforce wildlife laws within, between and among States Parties; d) facilitate the exchange of information concerning wildlife management, utilisation and the enforcement of wildlife laws; e) assist in the building of national and regional capacity for wildlife management, conservation and enforcement of wildlife laws; f) promote the conservation of shared wildlife resources through the establishment of transfrontier conservation areas; and g) facilitate community-based natural resources management practices for management of wildlife resources (Article 4).

With regard to wildlife management and conservation programs, Parties shall: "establish management programmes for the conservation and sustainable use of wildlife and integrate such programmes into national development plans" and "assess and control activities which may significantly affect the conservation and sustainable use of wildlife so as to avoid or minimise negative impacts." (Article 7) Parties are also to take measures to ensure the conservation and sustainable use of wildlife including:

> a) the protection of wildlife and wildlife habitats to ensure the maintenance of viable wildlife populations; b) prevention of over-exploitation and extinction of species; c) restrictions on the taking of wildlife, including but not limited to restrictions on the number, sex, size or age of specimens taken and the locality and season during which they

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[89] *Id. at* http://www.au.int/en/sites/default/files/treaties/7782-sl-revised_-_nature_and_natural_resources_1.pdf.
[90] Treaty of the Southern African Development Community, *available at* http://www.sadc.int/files/5314/4559/5701/Consolidated_Text_of_the_SADC_Treaty_-_scanned_21_October_2015.pdf.
[91] *Id. at* http://www.sadc.int/member-states/
[92] *Id. at* http://www.sadc.int/files/4813/7042/6186/Wildlife_Conservation.pdf.

> may be taken; and d) restrictions on trade in wildlife and its products, both nationally and internationally, as required by relevant international agreements.

Article 12 of the Protocol concerning sanctions states:

> 1. Sanctions may be imposed against any State Party which: a) persistently fails, without good reason, to fulfill obligations assumed under this Protocol; or b) implements policies which undermine the objectives and principles of this Protocol. 2. The Council [SADC Council of Ministers] shall determine whether any sanction should be imposed against a State Party and shall make the recommendation to the Summit if it decides that a sanction is called for. The Summit shall decide, on a case-by-case basis, the appropriate sanction to be imposed.

However, it appears that no such sanctions have been considered or approved.

The Lusaka Agreement[93] is also in force in some leopard range countries (e.g. Kenya, Tanzania, Republic of Congo (Brazzaville), Uganda, South Africa, Liberia, Swaziland and Zambia).[94] The Agreement entered into force in 1994 and has the purpose "To support the member states and collaborating partners in reducing and ultimately eliminating illegal trade in wild fauna and flora".

The Lusaka Agreement is focused generally on fighting illegal wildlife trade in and between member States, including through wildlife enforcement officer training. The leopard could benefit in the future from such Lusaka Agreement activities but, to date, there have been no specific programs aimed at illegal leopard trade.

Ineffective conservation policies and inadequate enforcement throughout many leopard range States, as well as lack of efficacy of management and lack of government resources, endanger the survival of the African leopard (**Table 6**).

In addition, while all sub-Saharan African countries that are listed as Threatened under the ESA are CITES Parties, only four of these countries have "legislation that is believed generally to meet the requirements for implementation of CITES" (Category 1 under the CITES National Legislation Project) (Democratic Republic of the Congo, Namibia, South Africa, and Zimbabwe); nine of these countries have "legislation that is believed generally not to meet all of the requirements for the implementation of CITES" (Category 2) (Botswana, Burundi, Republic of the Congo, Gabon, Kenya, Malawi, Mozambique, Tanzania, Zambia); and five have "legislation that is believed generally not to meet the requirements for the implementation of CITES" (Category 3) (Angola, Lesotho, Rwanda, Swaziland, Uganda) (**Table 6**).[95]

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[93] Lusaka Agreement (1994), *available at* http://lusakaagreement.org/?page_id=126.
[94] *Id. at* http://lusakaagreement.org/?page_id=24.
[95] The CITES National Legislation Project categorizes Parties by whether or not they have national legislation to implement the Convention. Category 1: legislation that is believed generally to meet the requirements for implementation of CITES; Category 2: legislation that is believed generally not to meet all of the requirements for the implementation of CITES; and Category 3: legislation that is believed generally not to meet the requirements for the implementation of CITES. *See* https://cites.org/legislation.

Table 6. National policies and laws where leopards are listed as Threatened under the ESA.

Country	National Policies, Laws, Regulations
Angola	Wildlife legislation is out-dated and limited; no evidence of consistent enforcement; became a CITES Party in December 2013; legislation in Category 3 under the CITES National Legislation Project; under law, leopard can be hunted, including by foreigners, with a license (DLA Piper 2015).
Botswana	CITES Party since 1978, National Legislation Project Category 2,[96] CITES legislation for terrestrial wildlife and for plants enacted.
Burundi	Became a CITES Party in 1988; CITES National Legislation Project Category 2;[97] CITES legislation enacted.
Republic of the Congo	Strong wildlife protection laws with serious penalties; enforcement is limited and inadequate; became a CITES Party in 1983 and the country has Category 2 CITES implementing legislation; leopards are a fully protected species (Category A) and hunting is not allowed for such species (DLA Piper 2015).
Democratic Republic of the Congo	CITES Party since 1976; legislation is in Category 1 under the CITES National Legislation Project.[98]
Gabon	There are flaws in the primary wildlife legislation and extremely weak penalties; became a CITES Party in 1989; legislation is in Category 2 under the CITES National Legislation Project; leopards are a completely protected species and cannot be hunted (DLA Piper 2015).
Kenya	Became a CITES Party in 1979; legislation is in Category 2 under the CITES National Legislation Project and Kenya is a country "requiring attention as a priority;"[99] strong wildlife legislation enacted, but implementing legislation is pending consultation process.
Lesotho	CITES Party since 2003; legislation is in Category 3 under the CITES National Legislation Project; enabling legislation (environmental) enacted.[100]
Malawi	Became a CITES Party in 1982; legislation is in Category 2 under the CITES National Legislation Project.[101]
Mozambique	Legislation is flawed and inadequate; there is no list of protected species; the law does not prohibit the hunting of protected species; Mozambique became a CITES Party in 1981; CITES National Legislation Project Category 3; enforcement is lacking (DLA Piper 2015). As of January 2016, Mozambique was listed in Category 2 and identified as a Party requiring attention as a priority, CITES-specific legislation enacted but local legal consultant reviewing existing legislation, preparing new draft legislation to address gaps, assisting with national consultative process and preparing final draft legislation.[102]
Namibia	Namibia has a comprehensive national legal framework; Namibia became a CITES Party in 1990; legislation is in Category 1 under the CITES National Legislation Project; financial penalties are comparatively low considering the potential economic value of wildlife; leopards are "protected game" which can be hunted under a permit issued by the Ministry of Environment and Tourism (DLA Piper 2015).

[96] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP+Table2-20years.pdf.
[97] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP+Table2-20years.pdf.
[98] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Cat1.pdf.
[99] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table1-Priority17.pdf.
[100] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table3-less20.pdf.
[101] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP+Table2-20years.pdf.
[102] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table1-Priority17.pdf.

Country	National Policies, Laws, Regulations
Rwanda	CITES Party since 1981; CITES National Legislation Project Category 3 and identified as a Party requiring attention as a priority.[103]
South Africa	South Africa has an "impressive suite" of wildlife regulations and stringent penalties; South Africa has been a CITES Party since 1975; it is in Category 1 of the CITES National Legislation Project; the leopard is a "protected species" which may be hunted under permit; the provinces implement the national laws and there is great disparity between the provinces in this regard; South Africa lacks the enforcement and prosecutorial capacity to adequately combat wildlife crimes (DLA Piper 2015).
Swaziland	CITES Party since 1997; CITES National Legislation Project Category 3; Comprehensive draft and revised draft legislation prepared.[104]
Tanzania	CITES Party since 1980; CITES National Legislation Project Category 2 and identified as a Party requiring attention as a priority;[105] legislation enacted for Tanzania mainland but lack of legislation for Zanzibar a major concern.
Uganda	CITES Party since 1991; CITES National Legislation Project Category 3;[106] Wildlife Policy adopted; draft legislation aligned with policy and submitted to Cabinet.
Zambia	Zambia's national wildlife laws are inadequate as there are significant omissions and confusion; Zambia has been a CITES Party since 1981 and its legislation is in Category 2 under the CITES National Legislation Project; Zambia's laws do not prohibit the hunting and trade of "protected species" for commercial purposes; the leopard is not a protected species but is classified as a "dangerous" animal and a "game animal"; the laws have strong penalties for some violations (illegal hunting of elephants) but these do not extend to other species, including leopards; fines are inadequate compared to potential profits; Zambia banned big cat hunting in 2013 and 2014, except in Game Management Areas, due to declining numbers and allegations of corruption in the awarding of safari hunting concessions (DLA Piper 2015).
Zimbabwe	Zimbabwe has detailed legislation and comprehensive penalties; nonetheless, enforcement is inadequate and wildlife crime is widespread; CITES Party since 1981; Zimbabwe's legislation is in Category 1 under the CITES National Legislation Project.[107]

E. Other Natural or Manmade Factors Affecting the Species' Existence

1. Prey Depletion

Leopard population densities are directly related to biomass of medium (10-40 kg) and large-sized wild herbivores, the main leopard prey (Stein et al. 2016). However, populations of such herbivores have been severely depleted by the unsustainable bushmeat trade which is considered to be a major threat to the survival of the African leopard (Jacobson et al. 2016a, Stein et al. 2016). As noted in Jackson et al. (1989), the existence of suitable habitat in and of itself does not mean that leopards will be present; there are many places with suitable habitat that contain no leopards because the prey has been depleted. In some places, bushmeat hunting has nearly eliminated the small- to medium-sized animals preferred as

[103] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table1-Priority17.pdf.
[104] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table3-less20.pdf.
[105] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table1-Priority17.pdf.
[106] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP+Table2-20years.pdf.
[107] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Cat1.pdf.

prey by leopards (Jackson et al. 1989). According to Stein et al. (2016), Craigie et al. (2010) found an estimated 59% average decline in leopard prey populations in 78 protected areas in West, East and Southern Africa between 1970 and 2005 due to commercialized bushmeat trade.

In intact rainforests where there is intense competition with humans for wild prey and "wild meat harvests denudes forests of prey" and may drive local leopard extinction (Henschel 2008). Bushmeat hunting in the Congo Basin for local and commercial use has reduced the wild prey base, resulting in lower leopard densities and even the disappearance of leopards from some places (Henschel 2008, 2009). Leopard range is largely reduced in human-populated areas in the Democratic Republic of the Congo due illegal hunting and bushmeat trade (Stein et al. 2016). Bushmeat poaching in Mozambique and Zambia has severely reduced leopard prey inside and outside of protected areas (Stein et al. 2016).

2. Human-Leopard Conflict

Intense persecution, particularly for livestock loss but also for human deaths and injury, is a major threat to the leopard in Africa (Ray et al. 2005, Henschel 2008, Stein et al. 2016). About 60-70% of Africa's people rely on agriculture and livestock for their livelihoods, and the human population of Africa is expected to more than double by 2050 (Stein et al. 2016); thus, the future will likely see increasing numbers of people using increasing amounts of land in conflict with decreasing numbers of leopards. Currently, many sub-Saharan African countries allow farmers to kill predators considered to be a threat to life or property without first obtaining a permit; it is likely that a large number of leopards are killed but not reported; and the total number of leopards killed due to conflict is unknown (Stein et al. 2016). Leopards have been eradicated from some areas in order to protect livestock and humans (Jackson et al. 1989). Marker and Dickman (2005) found leopard densities to be lower outside of reserves despite there being no marked difference in prey biomass between protected and unprotected areas; the authors explained that "the lower leopard density outside reserves was probably a result of local persecution by landowners, as leopards are commonly considered a threat both to people and their stock." (p. 113). And indiscriminate killing, such as the poisoning of carcasses aimed at attracting and killing carnivores of any and all types, and the use of snares to kill other species, is also a threat to the survival of leopards (Henschel 2008, Jorge 2012).

* * *

As demonstrated in this Petition, the current listing of leopards in "southern Africa" is biologically, legally, and geographically unsound, as it relies on biased anecdotal reports that have been discredited for over two decades, and leopards in the 18 countries currently listed as Threatened are in danger of extinction based on the ESA listing factors and should be included along with leopards in Asia and North and West Africa in one species-level Endangered listing. The Service cannot continue to maintain this unlawful split-listing and must immediately initiate a status review of the species. 16 U.S.C. § 1533(b)(3). Indeed, in order to ensure that listings are based on the best available science, the ESA requires FWS to "conduct, at least once every five years, a review of *all* species" listed under the ESA to determine if such species should be reclassified or removed from the list. 16 U.S.C. § 1533(c)(2) (emphasis added). *See also* 50 C.F.R. § 424.21; *Florida Home Builders Ass'n v. Norton*, 496 F.Supp.2d 1330 (M.D. Fl. 2007) (making clear that FWS has a non-discretionary duty to conduct five-year status reviews of each species listed under the ESA). Since finalizing the 1982 listing for leopards in southern Africa, FWS has not conducted a single five year review for *Panthera pardus*, in violation of the ESA. Thus, FWS must

expedite the processing of this petition and immediately issue a positive 90-day finding to begin this long-overdue status review. Petitioners are confident that a status review will reveal that listing the species *Panthera pardus* as Endangered across its entire African and Asian range is warranted.

V. FWS Must Immediately Restrict Leopard Trophy Imports

Additionally, even before FWS completes a status review of the species, we hereby petition the Service take immediate action to restrict leopard imports to address the primary impact that the U.S. has on leopard conservation. First, we urge FWS to suspend the issuance of CITES import permits for *Panthera pardus* trophies until the FWS non-detriment advice memoranda are updated for each range country where trophy hunting occurs. Second, we urge FWS to rescind the special rule pertaining to leopards from southern Africa (50 C.F.R. § 17.40(f)) to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a).

A. FWS Must Suspend Leopard Trophy Imports Pending Scientific Review

It is arbitrary and capricious for the Service to issue CITES import permits for leopard trophies based on the faulty 1982, 1983, or 2015 non-detriment advice memoranda. As detailed above, those memoranda are not supported by the best available science and, therefore, the Service cannot possibly rely on those memoranda to make a reasoned finding that the issuance of leopard trophy import permits "will not be detrimental to the survival of that species." CITES Art. III; 50 C.F.R. § 23.61 ("Detrimental activities, depending on the species, could include, among other things, unsustainable use and any activities that would pose a net harm to the status of the species in the wild. For Appendix I species, it also includes use or removal from the wild that results in habitat loss or destruction, interference with recovery efforts for a species, or stimulation of further trade.").

Under the Administrative Procedure Act, a reviewing court shall "hold unlawful and set aside agency action, findings, and conclusions found to be ... arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law[.]" 5 U.S.C. § 706(2). In evaluating agency actions under this standard, courts must consider "whether the [agency's] decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 378 (1989) (citation and internal quotation marks omitted); *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971). If an agency, however, "failed to provide a reasoned explanation, or where the record belies the agency's conclusion, [the court] must undo its action." *Cnty. of Los Angeles v. Shalala*, 192 F.3d 1005, 1021 (D.C.Cir.1999). At the very least, the agency must have reviewed relevant data and articulated a satisfactory explanation establishing a "rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43 (internal quotation marks omitted); *see also* Pub. Citizen, Inc. v. Fed. Aviation Admin., 988 F.2d 186, 197 (D.C.Cir.1993) ("The requirement that agency action not be arbitrary or capricious includes a requirement that the agency adequately explain its result."). "[A]n agency acts arbitrarily or capriciously if it 'has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Am. Wildlands*, 530 F.3d at 997-98 (*quoting Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43).

In order to comply with the APA, ESA, and CITES, the Service must not issue any leopard trophy import permits unless or until it has strictly scrutinized the trophy hunting programs of leopard range states to determine whether recreational offtake of this imperiled species is sustainable. In order to facilitate that evaluation, the Service should determine whether the range state from which the trophy originated:

- Has an approved and current national leopard management plan, which develops and implements conservation activities for specific leopard conservation units and works in concert with regional leopard management plans. Such national management plans should be developed using the IUCN SSC guidelines for strategic conservation planning, based on scientific information, and implemented in a manner that benefits the species and provides economic incentives for local communities to protect and expand leopard habitat.
- Has up-to-date estimates on leopard distribution range, abundance, and status.
- Observes a precautionary approach to establishing hunting quotas given current leopard population trends.
- Carries a credible capacity to monitor and manage leopard populations in order to maintain healthy numbers and genetic diversity.
- Has appointed an identified national leopard plan coordinator.
- Implements its leopard management in a manner that is informed by the biological needs of the species and is based on the best available science.
- Has sound law enforcement capabilities to deter or punish illegal retaliatory killings.
- Involves local communities in leopard protection and humane conflict mitigation strategies.
- Implements a human-leopard conflict management plan (including rapid response, mitigation approaches, a training component, education).
- Actively promotes wildlife-integrated land-use to ensure land-use planning does not negatively impact leopard conservation.
- Achieves conservation targets within identified time frames.
- Documents the achievement of stated goals and monitor and evaluate the implementation of the plan, and adapt it as necessary.
- Is in compliance with all international, regional and national commitments, agreements and regulations relating to wildlife (and specifically leopard) conservation, including (but not limited to) CITES.
- Has enacted laws and provided ample resources for enforcement against illegal trade in leopards and their parts.
- Cooperates with neighboring countries for transboundary leopard population conservation and monitoring.
- Has a system for measuring good governance when it comes to wildlife conservation/protection policy making and its implementation (for example, transparency International's corruption perception index).
- Has credible policies for managing any hunting offtake, including:
    - A science-based system for establishing hunting quotas which is demonstrably sustainable at a population level;

- Price-setting (taxes and minimum number of safari days) and a system of concession leasing that increase the value of leopards across their range (no competition on price);
- Hunting moratoria for any declining populations;
- A verifiable and enforceable mechanism to ensure no subadults or females are taken;
- An adaptive management policy of monitoring the impacts of the removal of individuals on remaining populations , and adjusting quotas accordingly; and
- A demonstrable commitment to ensure proceeds of trophy hunting are used to benefit wildlife (and specifically leopard) conservation and communities living with wildlife.

The status of *Panthera pardus* has changed dramatically since the 1982 and 1983 memoranda were drafted, and it is entirely arbitrary and capricious for the Service to rely on those memoranda to make non-detriment findings. It is particularly egregious for the Service to turn a blind eye to the last decade of warnings from leopard experts that the Martin and De Meulenaer's report of 700,000 leopards in Africa is completely inaccurate, and to have doubled-down on this bad science in issuing its 2015 non-detriment advice for Mozambique.

Additionally, the existing non-detriment advice memoranda only purport to authorize leopard imports from South Africa if they originate from "Transvaal" – but this now-defunct region does not encompass the whole of the leopard's range in South Africa and it does not appear that the Service has limited leopard trophy imports from South Africa to this part of the country. Thus, it appears that the Service's practice of allowing American trophy hunters to import their leopard kills does not even comply with its own non-detriment advice, which is arbitrary, capricious, and not in accordance with law.

Thus, in order to comply with CITES, the ESA, and the APA, FWS must immediately initiate a review of the leopard hunting programs in African range states, prioritizing the seven countries from which FWS currently allows leopard trophy imports: Mozambique, Botswana, South Africa, Tanzania, Zambia, Zimbabwe, Namibia. Unless or until such review is completed, FWS cannot lawfully issue any CITES import permits for leopard trophies.

B. FWS Should Repeal the ESA Special Rule for Leopards

In addition to taking the above action regarding CITES import permits, FWS must also take immediate action to apply the enhancement standard to leopard trophy imports. As discussed above, FWS committed in 1982 to not issue leopard trophy import permits unless the enhancement standard was met. *See* 47 Fed. Reg. at 4205 (import permit for leopard trophies will only be issued if "it is determined that the country of origin for the trophy has a management program for the leopard, and can show that its populations can sustain a sport hunting harvest, *and that sport hunting enhances the survival of the species*") (emphasis added). The Service has completely abdicated this duty, primarily through the adoption of a special rule that waives the requirement for ESA permits for leopard trophy imports. 50 C.F.R. § 17.40(f). In order to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a), the Service should rescind this special rule.

As an initial matter, the Service only has authority under the ESA to issue special rules that are "necessary and advisable to provide for the conservation of such species." 16 U.S.C. § 1533(d). Special rules must be designed and implemented to actually promote the conservation of the Threatened species. *See Sierra Club v. Clark*, 755 F.2d 608 (8th Cir. 1985); 16 U.S.C. § 1531(b) (the primary purpose of the ESA is to "provide a program for the conservation of such endangered species"); 16 U.S.C. § 1532(3) (the term "conservation" means "to use…all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary"). The current special rule – which allows American trophy hunters to exploit African leopards with little oversight, constituting a recognized threat to the species – is not *necessary* or *advisable* to provide for leopard conservation. Indeed, as demonstrated in this Petition, trophy hunting of leopards is poorly managed, unsustainable, and does not promote the conservation of *Panthera pardus*.

Therefore, the Service must take action to apply the enhancement standard to leopard trophy imports, in addition to requiring compliance with CITES permitting standards. *See, e.g.,* FWS, *Ensuring the Future of the Black Rhino* (Nov. 25, 2014), *at* http://www.fws.gov/news/blog/index.cfm/2014/11/25/Ensuring-the-Future-of-the-Black-Rhino (acknowledging that the ESA enhancement standard is more stringent than the CITES non-detriment standard and that these rhino import permits will only be issued if the Service finds "that the rhino is taken as part of a well-managed conservation program that contributes to the long-term survival of the species").

Rescinding the leopard special rule – the only purpose of which is to waive the ESA permitting requirements for trophy imports – would achieve this goal. Such action would be consistent with the Service's recent action to reign in the unfettered imports of African elephant and lion trophies. *See* 50 C.F.R. § 17.40(e) ("African elephant sport-hunted trophies may be imported into the United States provided: (A) The trophy was legally taken in an African elephant range country that declared an ivory export quota to the CITES Secretariat for the year in which the trophy animal was killed; (B) A determination is made that the killing of the trophy animal will enhance the survival of the species and the trophy is accompanied by a threatened species permit issued under § 17.32; (C) The trophy is legibly marked in accordance with 50 CFR part 23; (D) The requirements in 50 CFR parts 13, 14, and 23 have been met; and (E) No more than two African elephant sport-hunted trophies are imported by any hunter in a calendar year."); 50 C.F.R. § 17.40(r)(2) ("The import exemption found in § 17.8 for threatened wildlife listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) does not apply to this subspecies. A threatened species import permit under § 17.32 is required for the importation of all specimens of *Panthera leo melanochaita*."). *See also Safari Club Int'l v. Jewell*, 76 F.Supp.3d 198 (D.D.C.2014) (upholding the Service's non-detriment advice memorandum and enhancement memorandum finding that elephant trophy imports from Tanzania are unsustainable); 80 Fed. Reg. 79999 (Dec. 23, 2015) (FWS committing to review African lion range state management plans prior to issuing any ESA import permits for lion trophies).

Moreover, because the trophy hunting industry has been on notice since 1982 that the import of leopard trophies must meet the enhancement standard before being authorized, the Service could issue a Director's Order to reiterate that the commitment made in the 1982 rule remains in force. Such order would be consistent with recent action that the Director took to prohibit FWS from issuing ESA or CITES

trophy import permits for any species to individuals who previously violated federal wildlife law, and directing FWS to "consider all relevant facts or information available" when determining whether to issue a permit.[108] It would also be consistent with the Director's order to strengthen enforcement of existing laws pertaining to the trade in ivory (including ivory obtained through trophy hunting), making clear that the burden of proof is on the importer "to definitively show" that the importation of elephant tusks is ESA compliant.[109]

Thus, while the Service considers this Petition to reclassify all *Panthera pardus* as Endangered, it must take swift action to bring its existing regulations and practice into compliance with the ESA by rescinding the special rule for leopards, applying the enhancement standard to any applications for leopard trophy imports, and updating the non-detriment advice memoranda for any country that authorizes leopard trophy hunting. *See* Declaration of Dr. Jane Goodall, ¶ 9-12; Declaration of Dereck Joubert, ¶ 19 ("The effort to protect leopards from extinction is vital – we no longer have the luxury of time to use or abuse these big cats for our own desires. Poaching of leopards – primarily for the fur trade – continues at unsustainable rates, and the African leopard is under immense threats from habitat loss and human conflict. To allow the trophy hunting of leopards for recreational purposes to continue unchecked is scientifically and ethically unjustified.").

VI. Conclusion

This Petition presents substantial scientific and commercial information indicating that the petitioned action – listing all *Panthera pardus* as Endangered – may be warranted. *See* 50 C.F.R. § 424.14(b). Therefore, Petitioners expect that the Service will promptly issue a positive 90-day finding on this Petition. 16 U.S.C. § 1533(b)(3). Further, because the Service has never reviewed the 1982 listing for *Panthera pardus*, the Service must immediately initiate a status review of the African leopard to bring that listing into compliance with the Endangered Species Act. *Id.* at § 1533(c)(2).

Not only must the Service reevaluate this listing to ensure it is based on the best available science, but it must take immediate action to restrict the import of African leopard trophies by requiring Endangered Species Act permits, applying the enhancement standard to each proposed import of leopard parts, and reevaluating its CITES non-detriment advice for African leopard range states. Indeed, a recent Congressional report specifically directs the Service to "rescind regulations that allow trophy imports to meet lesser conservation standards and require enhancement findings and import permits for all trophies of listed species."[110]

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[108] *See* FWS, Director's Order No. 212 § 3 (Dec. 9, 2015), *available at* http://www.fws.gov/policy/do212.pdf.
[109] *See* FWS, Director's Order No. 210 § 2 (Feb. 25, 2014), *available at* http://www fws.gov/policy/do210.pdf.
[110] Representative Raul M. Grijalva, *Missing the Mark: African Trophy Hunting Fails to Show Consistent Conservation Benefits*" (June 13, 2016), *available at* http://democrats-naturalresources.house.gov/imo/media/doc/Missing%20the%20Mark.pdf.

VII. References Cited

Allendorf, F.W. and Hard, J.J., 2009. Human-induced evolution caused by unnatural selection through harvest of wild animals. *Proceedings of the National Academy of Sciences*, *106*(Supplement 1), pp.9987-9994.

Bailey, T.N., 1993. *The African leopard: ecology and behavior of a solitary felid*. Columbia University Press.

Balme, G.A. and Hunter, L.T., 2013. Why leopards commit infanticide. *Animal Behaviour*, *86*(4), pp.791-799.

Balme, G.A., Slotow, R. and Hunter, L.T., 2009. Impact of conservation interventions on the dynamics and persistence of a persecuted leopard (*Panthera pardus*) population. *Biological Conservation*, *142*(11), pp.2681-2690.

Balme, G.A., Hunter, L.T., Goodman, P., Ferguson, H., Craigie, J. and Slotow, R., 2010. An adaptive management approach to trophy hunting of leopards *Panthera pardus*: a case study from KwaZulu-Natal, South Africa. *Biology and conservation of wild felids. Oxford University Press, Oxford*, pp.341-352.

Braczkowski, A.R., Balme, G.A., Dickman, A., Macdonald, D.W., Johnson, P.J., Lindsey, P.A. and Hunter, L.T., 2015a. Rosettes, Remingtons and Reputation: Establishing potential determinants of leopard (*Panthera pardus*) trophy prices across Africa. *African Journal of Wildlife Research*, *45*(2), pp.158-168.

Braczkowski, A.R., Balme, G.A., Dickman, A., Macdonald, D.W., Fattebert, J., Dickerson, T., Johnson, P. and Hunter, L., 2015b. Who Bites the Bullet First? The Susceptibility of Leopards *Panthera pardus* to Trophy Hunting. *PloS one*, *10*(4), p.e0123100.

Chapman, S. and Balme, G., 2010. An estimate of leopard population density in a private reserve in KwaZulu-Natal, South Africa, using camera—traps and capture-recapture models. *South African Journal of Wildlife Research*, *40*(2), pp.114-120.

Chapron, G. and Treves, A., 2016, May. Blood does not buy goodwill: allowing culling increases poaching of a large carnivore. In *Proc. R. Soc. B* (Vol. 283, No. 1830, p. 20152939). The Royal Society.

Coe, M.J., Cumming, D.H. and Phillipson, J., 1976. Biomass and production of large African herbivores in relation to rainfall and primary production. *Oecologia*, *22*(4), pp.341-354.

Craigie, I.D., Baillie, J.E., Balmford, A., Carbone, C., Collen, B., Green, R.E. and Hutton, J.M., 2010. Large mammal population declines in Africa's protected areas. *Biological Conservation*, *143*(9), pp.2221-2228.

DLA Piper, 2015. *Empty Threat 2015 : Does the Law Combat Illegal Wildlife Trade ? A Review of Legislative and Judicial Approaches in Fifteen Juridictions.* DLA Piper, U.K. https://www.dlapiper.com/~/media/Files/News/2015/05/IllegalWildlifeTradeReport2015.pdf

du Preez, B.D., Loveridge, A.J. and Macdonald, D.W., 2014. To bait or not to bait: a comparison of camera-trapping methods for estimating leopard *Panthera pardus* density. *Biological Conservation*, *176*, pp.153-161.

Eaton R.L., 1977. *The Status and Conservation of the Leopard in Sub-Saharan Africa*. Safari Club International. Tucson, USA.
Environmental Investigation Agency and International Rhino Foundation, 2014. *Petition to Certify Mozambique as Diminishing the Effectiveness of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*. http://eia-global.org/images/uploads/FINAL_Mozambique_Pelly_Petition_June_27_2014.pdf

FWS (U.S. Fish and Wildlife Service), 1982a. Memorandum from Acting Associate Director-Research, Office of the Scientific Authority, to Directors of foreign wildlife departments, on the subject of Importation of Leopard Trophies, dated June 10, 1982.

FWS (U.S. Fish and Wildlife Service), 1982b. Memorandum from Chief, Office of the Scientific Authority to Chief, Federal Wildlife Permit Office, on the subject of Importation of Leopard Trophies, dated June 10, 1982.

FWS (U.S. Fish and Wildlife Service), 1983. Memorandum from Chief, Office of the Scientific Authority to Chief, Federal Wildlife Permit Office, on the subject of Importation of leopard trophies from Namibia (South West Africa), dated March 10, 1983.

FWS (U.S. Fish and Wildlife Service), 2007. Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Fourteenth Regular Meeting; Tentative U.S. Negotiating Positions for Agenda Items and Species Proposals Submitted by Foreign Governments and the CITES Secretariat. 72 *FR* 30606: 30606 -30623.
https://www.federalregister.gov/articles/2007/06/01/07-2714/conference-of-the-parties-to-the-convention-on-international-trade-in-endangered-species-of-wild

FWS (U.S. Fish and Wildlife Service), 2015. Memorandum from Chief, Office of the Scientific Authority to Chief, Federal Wildlife Permit Office, on the subject of, General advice on import of sport-hunted trophies of leopards (*Panthera pardus*) from the Republic of Mozambique for the calendar year 2015, dated September 28, 2015.

Grey, J.C., 2011. *Leopard population dynamics, trophy hunting and conservation in the Soutpansberg Mountains, South Africa* (Doctoral thesis, Durham University, South Africa).

Hamilton P.H., 1981. *The Leopard* Panthera pardus *and the Cheetah* Acinonyx jubatus *in Kenya. Ecology, Status, Conservation, Management.* Report for the US. Fish and Wildlife Service, the African Wildlife Leadership Foundation, and the Government of Kenya.

Henschel, P., 2008. *The conservation biology of the leopard* Panthera pardus *in Gabon: status, threats and strategies for conservation* (Doctoral dissertation, Göttingen, Univ., Diss., 2009). http://d-nb.info/99732676X/34

Henschel, P., 2009. The status and conservation of leopards and other large carnivores in the Congo Basin, and the potential role of reintroduction. *Reintroduction of top-order predators. Blackwell Publishing, Oxford*, pp.206-237.

Henschel, P., 2010. *The Status of the Leopard in Gabon and Lessons Learned for Leopard Research and Management in W/C Africa*. Powerpoint presentation. Large Carnivore Workshop, 3-4 November 2010. http://www.largecarnivoresafrica.com/wp-content/uploads/philiph-henschel2.pdf

Henschel, P., Hunter, L., Breitenmoser, U., Purchase, N., Packer, C., Khorozyan, I., Bauer, H., Marker, L., Sogbohossou, E. and Breitenmoser-Wursten, C., 2008. *Panthera pardus*. *The IUCN Red List of Threatened Species 2008:* e.T15954A5329380. Downloaded on 27 February 2016.

Jackson, P., Bell, R., Borner, M., Bothma, J.du P., Caughley, G., Hestbeck, J.B., Leyhausen, P., Mendelssohn, H., Norton, P.M., Ranjitsinh, M.K., Shoemaker, A.H., Singh, A., Swank, W., Walker, C., Wilson, V.J. and Martin, R.B., 1989. *A review by leopard specialists of The Status of Leopard in Sub-Saharan Africa by Martin and de Meulenaer*. Information document No. 3 submitted to the seventh meeting of the Conference of the Parties to CITES (Lausanne, 1989).

Jacobson, A.P., Gerngross, P., Lemeris Jr, J.R., Schoonover, R.F., Anco, C., Breitenmoser-Würsten, C., Durant, S.M., Farhadinia, M.S., Henschel, P., Kamler, J.F. and Laguardia, A., 2016a. Leopard (*Panthera pardus*) status, distribution, and the research efforts across its range. *PeerJ, 4*, p.e1974.

Jacobson, A.P., Gerngross, P., Lemeris Jr, J.R., Schoonover, R.F., Anco, C., Breitenmoser-Würsten, C., Durant, S.M., Farhadinia, M.S., Henschel, P., Kamler, J.F. and Laguardia, A., 2016b. Leopard (*Panthera pardus*) status, distribution, and the research efforts across its range. Supplemental Table 3: Regional leopard range statistics. *PeerJ, 4*, p.e1974.

Jacobson, A.P., Gerngross, P., Lemeris Jr, J.R., Schoonover, R.F., Anco, C., Breitenmoser-Würsten, C., Durant, S.M., Farhadinia, M.S., Henschel, P., Kamler, J.F. and Laguardia, A., 2016c. Leopard (*Panthera pardus*) status, distribution, and the research efforts across its range. Supplemental Table 4: Status of leopard subspecies presence in historic range countries. *PeerJ, 4*, p.e1974.

Jacobson, A.P., Gerngross, P., Lemeris Jr, J.R., Schoonover, R.F., Anco, C., Breitenmoser-Würsten, C., Durant, S.M., Farhadinia, M.S., Henschel, P., Kamler, J.F. and Laguardia, A., 2016d. Leopard (*Panthera pardus*) status, distribution, and the research efforts across its range. Supplementary Document 1: Profiles for Leopard (*Panthera pardus*) Range Countries. *PeerJ, 4*, p.e1974.
Jorge, A.A., 2012. *The sustainability of leopard* Panthera pardus *sport hunting in Niassa National Reserve, Mozambique.* (Master's thesis, University of KwaZulu-Natal, South Africa, March 2012).

Lindsey, P.A. and Chikerema-Mandisodza, R., 2012. *Preliminary Non-Detriment Finding Assessment: Preliminary Report for Leopards in Zimbabwe*. Zimbabwe Parks and Wildlife Management Authority, Zimbabwe. December 2012.

Marker, L.L. and Dickman, A.J., 2005. Factors affecting leopard (*Panthera pardus*) spatial ecology, with particular reference to Namibian farmlands. *South African Journal of Wildlife Research*, *35*(2), pp.105-115.

Martin R.B. and de Meulenaer T., 1987. *Survey of the Status of the Leopard (*Panthera pardus*) in Sub-Saharan Africa.* Doc. 6.26, Trade in Leopard Skins, Annex, pages 641-666. Sixth Meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). https://cites.org/sites/default/files/eng/cop/06/doc/E06-26.pdf

Martin, R.B. and de Meulenaer, T., 1988. *Survey of the Status of the Leopard (Panthera pardus) in Sub-Saharan Africa*. CITES Secretariat, Lausanne.

Murray, D.L., Kapke, C.A., Evermann, J.F. and Fuller, T.K., 1999. Infectious disease and the conservation of free-ranging large carnivores. *Animal Conservation*, *2*(4), pp.241-254.

Myers, N., 1976. The Leopard *Panthera pardus* in Africa. IUCN Monograph No. 5. International Union for Conservation of Nature and Natural Resources. Morges, Switzerland.

Norton, P., 1990. How many leopards? A criticism of Martin and de Meulenaer's population estimates for Africa. *S. AFR J. SCI./S.-AFR. TYDSKR. WET.*, *86*(5), pp.218-219.

Nowell, K. and Jackson, P., 1996. Wild Cats: Status, Survey and Conservation Action Plan. International Union for Conservation of Nature and Natural Resources/Species Survival Commission Cat Specialist Group, Gland, Switzerland.

Packer, C., Brink, H., Kissui, B.M., Maliti, H., Kushnir, H. and Caro, T., 2011. Effects of trophy hunting on lion and leopard populations in Tanzania. *Conservation Biology*, *25*(1), pp.142-153.

Packer, C., Kosmala, M., Cooley, H.S., Brink, H., Pintea, L., Garshelis, D., Purchase, G., Strauss, M., Swanson, A., Balme, G. and Hunter, L., 2009. Sport hunting, predator control and conservation of large carnivores. *Plos One*, *4*(6), p.e5941.

Palazy, L., Bonenfant, C., Gaillard, J.M. and Courchamp, F., 2011. Cat dilemma: too protected to escape trophy hunting?. *PloS one*, *6*(7), p.e22424.

Palomares, F. and Caro, T.M., 1999. Interspecific killing among mammalian carnivores. *The American Naturalist*, *153*(5), pp.492-508.

Pinnock, D., 2016. South Africa bans leopard trophy hunting for 2016. *Africa Geographic* blog, 25 January 2016.

Pitman, R.T., Swanepoel, L.H., Hunter, L., Slotow, R. and Balme, G.A., 2015. The importance of refugia, ecological traps and scale for large carnivore management. *Biodiversity and Conservation*, *24*(8), pp.1975-1987.

Ray, J.C., Hunter, L.T.B. and Zigouris, J., 2005. *Setting Conservation and Research Priorities for Larger African Carnivores*. Wildlife Conservation Society, New York.

Ray, R.R., 2011. *Ecology and population status and the impact of trophy hunting of the leopard* Panthera pardus *(LINNAEUS, 1758) in the Luambe National Park and surrounding Game Management Areas in Zambia* (Doctoral dissertation, Bonn, Univ., Diss., 2011).

Ripple, W.J., Estes, J.A., Beschta, R.L., Wilmers, C.C., Ritchie, E.G., Hebblewhite, M., Berger, J., Elmhagen, B., Letnic, M., Nelson, M.P. and Schmitz, O.J., 2014. Status and ecological effects of the world's largest carnivores. *Science*, *343*(6167), p.1241484.

Schaller, G.B., 1972. *The Serengeti lion: a study of predator-prey relations*. University of Chicago Press, Chicago.

Shoemaker, A.H., 1993. *The status of the leopard, Panthera pardus, in nature: a country by country analysis*. Riverbanks Zoological Park, South Carolina.

Shield Political Research, The Humane Society of the United States, and Humane Society International, 2015. *Trophy madness: elite hunters, animal trophies, and Safari Club International's hunting awards*. The Humane Society of the United States, Washington, DC. http://blog.humanesociety.org/wp-content/uploads/2015/09/TROPHY-MADNESS_FINAL.pdf

South Africa Department of Environmental Affairs, 2015. Non-detriment Findings. *Government Gazette* No. 39185, 10 September 2015, Department of Environmental Affairs Notice 897 of 2015.

South West Africa, Undated. Letter from South West Africa Agriculture and Nature Conservation to the Office of the Scientific Authority, U.S. Fish and Wildlife Service.

Spong, G., Hellborg, L. and Creel, S., 2000. Sex ratio of leopards taken in trophy hunting: genetic data from Tanzania. *Conservation genetics*, *1*(2), pp.169-171.

Stein, A.B. and Hayssen, V., 2013. Panthera pardus (Carnivora: Felidae). *Mammalian Species*, *45*(900), pp.30-48.

Stein, A.B., Andreas, A. and Aschenborn, O., 2011. *Namibian national leopard survey – 2011: final report.* Ministry of Environment and Tourism, Namibia.

Stein, A.B., Athreya, V., Gerngross, P., Balme, G., Henschel, P., Karanth, U., Miquelle, D., Rostro, S., Kamler, J.F. and Laguardia, A. 2016. *Panthera pardus.* The IUCN Red List of Threatened Species 2016: e.T15954A50659089. Downloaded on 11 July 2016. http://www.iucnredlist.org/details/full/15954/0

Strampelli, P., 2015. *Status and habitat use responses of leopard (Panthera pardus) in a human impacted region of rural Mozambique* (Doctoral dissertation, Imperial College London).

Swanepoel, L.H., Lindsey, P., Somers, M.J., Van Hoven, W. and Dalerum, F., 2011. The relative importance of trophy harvest and retaliatory killing of large carnivores: South African leopards as a case study. *South African Journal of Wildlife Research*, *44*(2), pp.115-134.

Swanepoel, L.H., Somers, M.J. and Dalerum, F., 2015. Functional responses of retaliatory killing versus recreational sport hunting of leopards in South Africa. *PloS one*, *10*(4), p.e0125539.

Teer, J. G. and Swank, W. G., 1977. *Status of the leopard in Africa south of the Sahara*. Unpublished report for the U.S. Fish and Wildlife Service.

Williams, S.T., Williams, K.S., Joubert, C.J. and Hill, R.A., 2016a. The impact of land reform on the status of large carnivores in Zimbabwe. *PeerJ*, *4*, p.e1537.

Williams, S.T., Williams, K.S., Joubert, C.J. and Hill, R.A., 2016b. The impact of land reform on the status of large carnivores in Zimbabwe. Supplemental information. *PeerJ*, *4*, p.e1537.

Zambia DNPW (Department of National Parks & Wildlife), 2015a. *Tourism Minister lifts ban on cat hunting*. Department of National Parks & Wildlife, 20 May 2015. https://www.facebook.com/Zambia-Wildlife-Authority-ZAWA-420351424735202/ (downloaded 20 April 2016)

Zambia DNPW (Department of National Parks & Wildlife), 2015b. *Cat hunting explained.* Department of National Parks & Wildlife, 28 May 2015. https://www.facebook.com/permalink.php?story_fbid=585933481510328&id=420351424735202 (downloaded on 20 April 2016).

VIII. Annexes

A. Declaration from Dr. Jane Goodall
B. Declaration from Dereck Joubert
C. CITES Establishment of Leopard Export Quotas 1987-2013
D. Information from the CITES Trade Database

ANNEX A

Declaration of Jane Goodall, Ph.D., DBE
Founder, the Jane Goodall Institute & UN Messenger of Peace

England)
)
County of Dorset)

I, Jane Goodall, hereby declare as follows:

1. I reside in Bournemouth, England.

2. I received my Ph.D. in ethology from Cambridge University in 1965 and I have received over 45 honorary degrees from universities around the world. I have held several academic appointments, including serving as a professor at Stanford University, University of Southern California, Cornell University (Andrew D. White Professor at Large), and the University of Dar Es Salaam, and I routinely lecture on the topics of primatology, ethology, and conservation. I began studying the behavior of wild chimpanzees in what is now known as Gombe National Park, Tanzania, in 1960. I have written 15 books, plus 16 children's books, many of them drawing upon my knowledge of African wildlife and conservation efforts, and have co-authored more than 86 research papers that have been published in peer-reviewed scientific journals. I am a United Nations Messenger of Peace and I currently serve in an advisory capacity in more than 100 organizations, including the Wildlife Conservation Society, the Cougar Fund and other groups that work on big cat conservation. A copy of my curriculum vitae is attached hereto.

3. In 1977, I founded the Jane Goodall Institute (JGI), which supports community-centered conservation in areas of East Africa and the Congo Basin. For example, JGI is working with 54 villages in western Tanzania to promote environmentally friendly agricultural practices, improve education, build efficient stoves to reduce demand for timber, and raise local incomes in order to mitigate deforestation and habitat loss for chimpanzees. JGI has also protected hundreds of thousands of acres of land in Tanzania, Uganda and Democratic Republic of Congo in which local communities have been empowered with technology to report activities that relate to habitat destruction and poaching.

4. The study of the Gombe chimpanzees is one of the two longest running studies of any wild animal species – now 56 years long – and my colleagues and I have made significant discoveries regarding the behavior of chimpanzees in Gombe, including the use and manufacture of tools, hunting and meat sharing, food preferences, ranging patterns, mother-offspring and sibling relationships, communication patterns, reproductive behavior, social dominance, personality differences, intercommunity "war" and the cultural traditions of a chimpanzee community. While conducting field work at Gombe, I have seen leopards on multiple occasions.

5. Based on my personal knowledge of African wildlife and for the following reasons, I support this administrative petition to extend the full protections of the Endangered Species Act to African leopards and to immediately increase scrutiny of leopard trophy imports into the U.S.

6. I have observed a significant decline in the presence of leopards in Gombe and other locations in Africa I have visited for decades. Leopards are extremely elusive and although I did not frequently see them when I first arrived at Gombe, it was apparent through their prints, scat, and sound that leopards were commonly there. Several months after I began tracking the chimpanzees, I experienced my first siting of a leopard, a male who passed only a few yards away from me through the long grass. In the 1960s and 1970s, two leopards routinely ranged through the Kakombe valley in Gombe and Gombe rangers would see leopards on the beach of Lake Tanganyika at night. One actually sometimes visited my camp at night. But today Gombe, Tanzania's smallest national park, is increasingly pressured by human encroachment and it has been some years since there was any verified observation of any leopard.

7. At multiple other field sites where researchers study chimpanzees – such as Tai National Park in Cote d'Ivoire, the Bili-Uele Forest in Democratic Republic of Congo, and Mahale Mountains National Park in Tanzania – there have been documented instances of chimpanzee and leopard interactions. Chimpanzees sometimes appear to demonstrate fear of leopards and even behave more altruistically in the presence of leopards (suggesting that leopards may predate on chimpanzees, a theory supported by a 2012 study that discovered a chimpanzee patella and phalanges in leopard scat), but there have also been documented instances of chimpanzees antagonizing leopards (including evidence of chimpanzees killing leopard cubs and one incident of chimpanzees eating an adult leopard). There are also examples of baboons on the Serengeti forcing leopards to take refuge in a tree, and reports from Ruaha National Park of leopards preying on baboons. This fascinating behavior is increasingly difficult to observe, due to the decline in the leopard's population and range.

8. It is absolutely clear that leopards – like most wildlife in Africa – are at greater risk of extinction today than they were in 1982 when the U.S. Fish and Wildlife Service listed southern African leopards as Threatened. In the nearly six decades during which I have learned a great deal about wildlife in Tanzania and other African countries, the human population has more than doubled, resulting in rapidly vanishing wildlife habitat, wiping out forests and grasslands essential to sustain leopards and their prey. Large mammals – like leopards and chimpanzees – play essential roles in their ecosystems, and in order to preserve these magnificent animals in perpetuity it will require all nations to exercise their full power to promote the conservation of imperiled species.

9. Given the precipitous decline of African leopards in recent decades, and because the threats to the continued existence of *Panthera pardus* and its habitat are significant, the United States must ensure that it is not contributing to the imperilment of this species and do all it can to promote the conservation of leopards in Africa. Thus, it is completely unacceptable that American trophy

hunters continue to import hundreds of leopard trophies per year, apparently for recreational purposes.

10. Trophy hunters target large males in their prime – those who carry the genes likely to result in the perpetuation of strength and magnificence, splendid individuals whose decapitated heads disfigure the walls of countless wealthy homes. Trophy hunters routinely boast about the animals they have killed, posting photographs of their smiling faces hovering over the lifeless bodies of their conquests, even though the prey (which may be drugged or baited) is often shot with a high powered rifle from a safe distance. Trophy hunters sometimes defend this malicious slaughter by claiming that the money they pay for the pleasure of killing is what enables impoverished countries to pay for conservation of wildlife, but this argument has many flaws.

11. The money paid to hunt a leopard or other trophy animal is often counted as profit by a hunting outfitter and does not usually end up in a conservation program. And as the founder of an organization that has worked for decades on community-based conservation in Africa, I can say confidently that putting a bounty on the heads of individual animals is counter-productive to promoting their protection. Indeed, normalizing the recreational killing of a species promotes poaching of the species for commercial purposes. On the whole, trophy hunting is having a negative impact on populations of imperiled species, including leopards, which are subject to unsustainable quotas across their African range. Conservation programs are only as effective as the governmental organizations responsible for managing them, and the countries where the most trophy hunting occurs have high levels of corruption.

12. In my expert opinion, leopards across their African range are in danger of extinction and the U.S. Fish and Wildlife Service should strictly regulate the import of hunting trophies and other leopard parts in order to not continue to contribute to the decline of this endangered species.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is, in my professional opinion, true and correct.

Jane Goodall

Dr. Jane Goodall

Executed on the 20th day of July, 2016

the Jane Goodall Institute

Curriculum Vitae
Jane Goodall, Ph.D., DBE
Founder, the Jane Goodall Institute
UN Messenger of Peace
www.janegoodall.org

Personal

Date of Birth: 3rd April 1934
Nationality: British
Marital Status: Married to Baron Hugo van Lawick, 1964 (divorced);
Married to Hon. Derek Bryceson, M.P., 1975 (widowed)
Children: Hugo Eric Louis van Lawick (1967 -)

Education

1950 School Certificate (London) with Matriculation Exemption

1952 Higher Certificate (London)

1962 Entered Cambridge University, United Kingdom, as Ph.D. candidate in Ethology under Professor Robert Hinde

1966 Ph.D. in Ethology, Cambridge University, United Kingdom

Research

From 1960 Behavior of free-living chimpanzees in Gombe National Park, Tanzania

1968-1969 Social behavior of the spotted hyena, *Crocutta crocutta*, Ngorongoro Conservation Area, Tanzania

1967-2003 Scientific Director of the Gombe Stream Research Centre, Tanzania

1972-2003 Director of research on the behavior of the olive baboon, *Papio anubis*, Gombe National Park, Tanzania

Academic Appointments

1971 – 1975 Visiting Professor, Department of Psychiatry and Program of Human Biology, Stanford University, Calif., USA

From 1973 Honorary Visiting Professor in Zoology, University of Dar es Salaam, Tanzania

1987 – 1988 Adjunct Professor of the Department of Environmental Studies, Tufts University, School of Veterinary Medicine, Boston, Mass., USA

1990 Associate, Cleveland Natural History Museum, Cleveland, OH, USA

1990 Distinguished Adjunct Professor, Departments of Anthropology and Occupational Therapy, University of Southern California, Calif., USA

1996 – 2002 Andrew D. White Professor-at-Large, Cornell University, NY, USA

Professional Affiliations

From 1974 Trustee, L.S.B. Leakey Foundation, USA

From 1976 Trustee, the Jane Goodall Institute for Wildlife Research, Education and Conservation, USA

From 1981 Scientific Governor, Chicago Academy of Sciences, USA

From 1984 International Director, ChimpanZoo (research program involving zoos and sanctuaries worldwide), USA

From 1987 Vice President, the British Veterinary Association's Animal Welfare Institute, UK

From 1988 Trustee, Jane Goodall Institute, UK

From 1989 Director, Humane Society of the United States, USA

From 1990 Member of the Advisory Board, Advocates for Animals, UK

From 1991 Member of the Advisory Board, the Albert Schweitzer Institute for the Humanities, USA

From 1993 Trustee, the Jane Goodall Institute, Canada

From 1994 Member of the Board, the Orangutan Foundation, USA

From 1994 Member of the Advisory Board, Trees for Life, USA

From 1997 Founder, Whole Child Initiative, USA

From 1995 Member of the Advisory Board, International Dolphin Project and Dolphin Project Europe

From 1995 Member of Council of Advisors, Global Green, USA

From 1996 Member of Advisory Board, The Fred Foundation, Netherlands

From 1998 to May 2008 President, Advocates for Animals, UK

From 1999 Member of Advisory Board, The Orion Society, USA

From 2000 to 2007 Member of the Board, Save the Chimps/Center for Captive Chimpanzee Care, USA

From 2000 Co-founder of Ethologists for Ethical Treatment of Animals/Citizens for Responsible Animal Behavior, USA

From 2001 Member of the International Advisory Board, Teachers Without Borders, USA

From 2001 Member of Advisory Committee, RESTORE, USA

From 2001 Honorary Trustee, The Eric Carle Museum of Picture Book Art, USA

From 2001 Member of IPS Ad-Hoc Committee for the World Heritage Status for Great Apes

From 2001 Member of Board of Trustees, NANPA Infinity Foundation, USA

From 2001 Member of Board, North American Bear Center, USA

From 2001 Member of Advisory Board, Laboratory Primate Advocacy Group, USA

From 2001 Member of Advisory Board, Tech Foundation, USA

From 2001 Member of Honorary Committee, Farm Sanctuary, USA

From 2002 Member of Advisory Board, Rachel's Network, USA

From 2002 Member of the Board of Directors, The Cougar Fund, USA

From 2002 Scientific Fellow of the Wildlife Conservation Society, USA

From 2002 Member of Board of Directors, The Many One Foundation, USA

From 2002 Member of Board of Governors and Officers, For Grace, USA

From 2002 Member of Advisory Board, Dignity U Wear, USA

2002-2003 Papadopoulos Fellow, The Kinkaid School USA

From 2003 Member of the Honorary Board, Albert Schweitzer Institute, USA

From 2004 Member of Advisory Board, Initiative for Animals and Ethics, Harvard University, USA

From 2004 Honorary Patron, Ryan's Well Foundation, Canada

From 2004 Member of Advisory Board, MONA-Spain

From 2004 Member of the Advisory Council, The Spiritual Alliance to Stop Intimate Violence, USA

From 2004 Member of Honour Committee of Fundación Altarriba, Spain

From 2005 Member of International Advisory Board, Friends of Africa International, USA

From 2005 Member of Cincinnati Zoo Advisory Council, USA

From 2005 Member of Advisory Board, Chimps Inc., USA

From 2005 Member of Advisory Board, KidsRights, Netherlands

From 2005 Member of Advisory Board, MediSend, USA

From 2005 Member of Honorary Board, Quinnipiac University, USA

From 2006 Member of Advisory Board, Foundation for Natural Leadership

From 2006 Member of Advisory Board, Nuclear Age Peace Foundation, USA

From 2006 Honorary Member, Club of Budapest, Hungary

From 2006 Member of the Mothers Network, ENO, Finland

From 2006 Member of Board of Directors, National Institute for Play, USA

From 2007 Fellow, Wings WorldQuest, USA

From 2007 Member of Advisory Board, Gift of Life in America, Inc., USA

From 2007 Member of Advisory Board, The Heart of America Foundation, USA

From 2007 Member of Advisory Board, Project R&R: Release and Restitution for Chimpanzees in U.S. Laboratories, a campaign of the New England Anti-Vivisection Society, USA

From 2007 Member of Advisory Board, Save the Chimps, USA

From 2007 Member of Advisory Board, Slow Food Nation, USA

From 2007 Distinguished Fellow, Ewha Academy for Advanced Studies, Republic of Korea

From 2007 Member of Advisory Board, Human and KIND, USA

From 2007 Honorary Board Member, The Scholar Ship Research Institute, UK

From 2007 Member of Advisory Board, Climate Clean, USA

From 2008 Member of the Great Chapter, Grace Cathedral, CA, USA

From 2008 Honorary Board Member, Eagle Vision Initiatives, USA

From 2008 Honorary Patron, Comunidad Inti Wara Yassi, UK

From 2008 Honorary Fellow, Institute of Biology, UK

From 2008 Patron, Earth Charter-UK

From 2008 Special Advisor for Biodiversity, Prince Albert II of Monaco Foundation, Monaco

From 2008 Member of Council of Honour, Waldrappteam, Austria

From 2008 Member of the Board, Climate Change Center, Republic of Korea

From 2008 Patron, Julia's House, UK

From 2008 Member of the Honorary Committee, Alpine Peace Crossing, Austria

From 2008 Member of the Advisory Council, Ebola Vaccination Initiative

From 2008 Patron, Society of Theological Zoology, Germany

From 2008 Member of Celebrity Circle Board, Green Chimneys, USA

From 2009 Honorary Keeper of the Museum Tridentino of Natural Science, Italy

From 2009 Member of Advisory Board, EcoReserve, USA

From 2009 Honorary Fellow, Society of Biology, UK

From 2009 Member of Advisory Board, Goodplanet Foundation of Yann Arthus-Bertrand, France

From 2009 Member of Advisory Board as advisor for Biodiversity, Foundation Jacques Chirac, France

From 2010 Honorary Co-Chair of the Build the Peace Committee, USA

From 2010-2013 Patron, Minding Animals International, Australia

From 2010 Member of the International Conference, WE, USA

From 2010 Member of Advisory Board, Living with Wolves, USA

From 2010 Goodwill Ambassador, Equine Sciences Academy, USA

From 2010 Acclaimed Ambassador, Best Friends Animal Society, USA

From 2011 Member of the Advisory Council, Voices for a World Free of Nuclear Weapons, USA

From 2011 Patron, Voiceless, Australia

From 2012 Honorary Councilor, World Future Council, Germany

From 2012 Honorary Board, Center for Great Apes, USA

From 2013 International Patron, School Broadcasting Network Inc., Australia

From 2013 Member of Scientific and Ethics Council, Ecolo-Ethik, France

From 2013 Philosophical Society, Trinity College, Dublin, Ireland

From 2014 Member of Advisory Council, International Women's Earth and Climate Initiative (IWECI), USA

From 2014 Member of Advisory Board, Years of Living Dangerously, USA

From 2014 Advisor to Board, APOPO, USA

From 2014 Advisory Board, Mongabay.org, USA

From 2014 Honorary Board of Directors, IFAW, USA

From 2015 Patron of Nature, IUCN, USA

Memberships

1972 Honorary Foreign Member of the American Academy of Arts and Sciences, USA

1981 Explorer's Club, USA

1984 Foreign Member of the Research Centre for Human Ethology at the Max-Planck Institute for Behavioral Physiology, Germany

1988 American Philosophical Society, USA

1988 Society of Woman Geographers, USA

1990 Deutsche Akademie der Naturforscher Leopoldina, Germany

1991 Academia Scientiarium et Artium Europaea, Austria

1991 Honorary Fellow of the Royal Anthropological Institute of Great Britain and Ireland

2004 Great Ape Subsection of the Primate Specialist Group, USA

2006 Honorary Member, Ewha Academy of Arts and Sciences, Republic of Korea

2006 Member of the International Primatological Society, USA

Honorary Degrees

1975 LaSalle College, Philadelphia, Penn., USA

1979 Stirling University, Stirling, Scotland, UK

1986 Ludwig-Maximilians University, Munich, Germany

1986 Zoologisches Institut der Universitat Munchen, Munchen, Germany

1986 Tufts University, Boston, Mass., USA

1988 University of North Carolina, Greensboro, N.C., USA

1990 University of Pennsylvania, Philadelphia, Penn., USA

1991 Colorado College, Colorado Springs, Colo.,USA

1993 College of William and Mary, Williamsburg, Va., USA

1993 University of Miami, Coral Gables, Fla., USA

1994 Utrecht University, Utrecht, Netherlands

1996 Western Connecticut State University, Danbury, Conn., USA

1996 Salisbury State University, Salisbury, Md., USA

1997 University of Edinburgh Veterinary School, Edinburgh, Scotland, UK

1998 University of Guelph, Guelph, Ontario, Canada

1999 Albright College, Reading, Penn., USA

2000 Wesleyan College, Macon, Ga., USA

2001 University of Minnesota, Minneapolis, Minn., USA

2001 University at Buffalo, Buffalo, N.Y., USA

2001 Ryerson University, Toronto, Ontario, Canada

2001 Providence University, Taiwan, Republic of China

2002 Elon University, Elon, N.C., USA

2002 Sweet Briar College, Sweet Briar, Va., USA

2003 University of Central Lancashire, UK

2004 University of Natal, Pietermaritzburg, South Africa

2004 Haverford College, Haverford, Penn., USA

2005 Pecs University, Pecs, Hungary

2005 Syracuse University, Syracuse, N.Y., USA

2005 Rutgers, The State University of New Jersey, Camden, N.J., USA

2006 The Open University of Tanzania, Dar es Salaam, Tanzania

2007 Doane College, Crete, Neb., USA

2007 Uppsala University, Uppsala, Sweden

2007 Kyoto University, Kyoto, Japan

2007 University of Liverpool, Liverpool, UK

2008 Lehigh University, Bethlehem, Penn., USA

2008 University of Toronto, Toronto, Canada

2008 University of Haifa, Haifa, Israel

2008 National Taiwan University of Science and Technology, Taiwan, Republic of China

2009 University of Liège, Liège, Belgium

2009 University of Pablo de Olavide, Seville, Spain

2009 University of Alicante, Sant Vicent del Raspeig/Alicante, Spain

2011 American University of Paris, Paris, France

2011 Giordano Bruno GlobalShift University, Budapest, Hungary

2011 Maimonides University, Buenos Aires, Argentina

2012 National Tsing Hua University, Taiwan

2012 Goldsmiths, University of London, UK

2013 University of St. Andrews, Scotland, UK

2013 Trinity College, Dublin, Ireland

2013 St. Ignatius of Loyola University, Peru

2014 University of South Australia, Adelaide, Australia

2016 University of Redlands, Redlands, CA

Awards

1963 and 1964 Franklin Burr Award for Contribution to Science, National Geographic Society, USA

1970 Stott Science Award, Cambridge University, UK

1974 Gold Medal for Conservation, San Diego Zoological Society, USA

1974 Conservation Award, Women's Branch of the New York Zoological Society, USA

1974 Bradford Washburn Award, Boston Museum of Science (with Hugo van Lawick), USA

1980 Order of the Golden Ark, World Wildlife Award for Conservation, presented by HRH Prince Bernhard of the Netherlands, Netherlands

1984 J. Paul Getty Wildlife Conservation Prize, Tanzania

1985 Living Legacy Award, the Women's International Center, USA

1987 The Albert Schweitzer Award of the Animal Welfare Institute, USA

1987 National Alliance for Animals Award

1987 E. Mendel Medaille from the Deutsche Akademie der Naturforscher Leopoldina, East Germany

1987 Golden Plate Award, Academy of Achievement, USA

1988 Centennial Award, National Geographic Society, USA

1988 Joseph Wood Krutch Medal, the Humane Society of the United States, USA

1988 Award for Humane Excellence, American Society for the Prevention of Cruelty to Animals, USA

1989 Encyclopedia Britannica Award for Excellence on the Dissemination of Learning for the Benefit of Mankind, USA

1989 Anthropologist of the Year Award

1990 The Anthropology in Media Award, American Anthropological Association, USA

1990 Whooping Crane Conservation Award, Conoco, Inc., USA

1990 Gold Medal of the Society of Women Geographers, USA

1990 Washoe Award

1990 The Kyoto Prize in Basic Science, Japan

1991 The Edinburgh Medal, UK

1993 Rainforest Alliance Lifetime Achievement Award, USA

1994 Chester Zoo Diamond Jubilee Medal, UK

1995 Commander of the British Empire, presented by Her Majesty Queen Elizabeth II, UK

1995 The National Geographic Society Hubbard Medal for Distinction in Exploration, Discovery, and Research, USA

1995 Lifetime Achievement Award, In Defense of Animals, USA

1995 The Moody Gardens Environmental Award, USA

1995 Honorary Wardenship of Uganda National Parks, Uganda

1996 The Zoological Society of London Silver Medal, UK

1996 The Tanzanian Kilimanjaro Medal, Tanzania

1996 The Primate Society of Great Britain Conservation Award, UK

1996 The Caring Institute Award, USA

1996 The Polar Bear Award, National Alliance for Animals

1996 William Proctor Prize for Scientific Achievement, Sigma Xi, USA

1997 Tyler Prize for Environmental Achievement, USA

1997 David S. Ingalls, Jr. Award for Excellence

1997 Common Wealth Award for Public Service, USA

1997 The Field Museum's Award of Merit

1997 Royal Geographical Society / Discovery Channel Europe Award for A Lifetime of Discovery

1997 Global 500 Roll of Honour Award, UNEP, Seoul, Korea

1998 Disney's Animal Kingdom Eco Hero Award, USA

1998 National Science Board Public Service Award, USA

1998 The Orion Society's John Hay Award, USA

1999 International Peace Award, Community of Christ, USA

1999 Botanical Research Institute of Texas International Award of Excellence in Conservation, USA

2000 Reorganized Church of the Latter Day Saints International Peace Award, USA

2001 Graham J. Norton Award for Achievement in Increasing Community Liability

2001 Rungius Award of the National Museum of Wildlife Art, USA

2001 Master Peace Award

2001 Gandhi/King Award for Non-Violence, USA

2002 The Huxley Memorial Medal, Royal Anthropological Institute of Great Britain and Ireland

2002 United Nations Messenger of Peace Appointment, USA

2003 Benjamin Franklin Medal in Life Science, USA

2003 Harvard Medical School's Center for Health and the Global Environmental Citizen Award, USA

2003 Prince of Asturias Award for Technical and Scientific Achievement, Spain

2003 Chicago Academy of Sciences' Honorary Environmental Leader Award, USA

2003 Commonwealth Club Centennial Medallion Award

2004 Dame of the British Empire, presented by HRH Prince Charles, UK

2004 Teachers College Columbia University Medal for Distinguished Service to Education, USA

2004 Nierenberg Prize for Science in the Public Interest, USA

2004 Will Rogers Spirit Award, the Rotary Club of Will Rogers and Will Rogers Memorial Museums

2004 Lifetime Achievement Award, the International Fund for Animal Welfare (IFAW), USA

2004 Polar Star Award, Paris, France

2004 Save Our Species Award, Santa Barbara, Calif., USA

2004 Time Magazine European Heroes Award

2004 Extraordinary Service to Humanity Award, The Bear Search and Rescue Foundation, USA

2004 Medal for Distinguished Service to Education, Teachers College, Columbia University, N.Y., USA

2005 Lifetime Achievement Award, Jackson Hole Wildlife Film Festival, USA

2005 Siemens Academy of Life Award, Austria

2005 Westminster College President's Medal, Salt Lake City, Utah, USA

2005 National Organization for Women's Intrepid Award, USA

2005 Honorary Conservation Award, University of Iowa, USA

2005 Discovery and Imagination Stage Award, USA

2005 Westminster College President's Medal for Exemplary Achievement, Utah, USA

2005 Pax Natura Award, Utah, USA

2005 Two Wings Award, Vienna, Austria

2006 International Patron of the Immortal Chaplains Foundation, USA

2006 UNESCO 60th Anniversary Golden Medal Award, Paris, France

2006 French Legion of Honor, awarded by the President of France, Mr. Jacques Chirac, and presented by Prime Minister Dominique de Villepin

2006 Lifetime Achievement Award, Jules Verne Adventures

2006 Biophilia Award, Jazzpur Society, Windsor, Canada

2006 Genesis Award, Humane Society of the United States, USA

2007 Lifetime Achievement Award, WINGS WorldQuest

2007 Honorary Medal of the City of Paris, presented by Mr. Bertrand Delanoë, mayor of Paris, France

2007 Roger Tory Peterson Memorial Medal, Harvard Museum of Natural History, USA

2008 Presidential Medal for Global and Visionary Leadership, Montana State University, Bozeman, Mont., USA

2008 Prix de la Fondation Prince Albert II de Monaco, presented to David Lefranc by Prince Albert II of Monaco

2008 Prize for Sustainable Community Development, Weidemann Foundation, Calif., USA

2008 State of Rhode Island and Providence Plantations Citation, R.I., USA

2008 Eurogroup Award, Brussels, Belgium

2008 Courage of Conscience Award, The Peace Abbey, Sherborn, Mass., USA

2008 Environmental Education Award of Hebei University of Science and Technology, China

2008 L.S.B Leakey Foundation Prize for Multidisciplinary Research on Ape and Human Evolution (Leakey Prize), USA

2009 United States Department of the Interior, The Secretary's Lifetime Achievement Award, presented by Mr. Ken Salazar, USA

2009 Minerva Award, USA

2010 Association of American Geographers Atlas Award, USA

2010 International Golden Doves for Peace Award, Italy

2010 Peace Hero, Kids for Peace, USA

2010 BAMBI Award, Germany

2010 NEA Award for Outstanding Service to Public Education, NEA Foundation, Washington, D.C., USA

2011 Order of Merit of the Italian Republic, Italy

2011 Mayor's Medallion, Lincoln, Neb., USA

2011 Heart of Green Award for Lifetime Achievement, TheDailyGreen.com, USA

2011 Focus magazine's Greatest Personality of Planete Doc Film Festival, Poland

2011 Honorary International Ranger Award, The Thin Green Line Foundation and International Ranger Federation, Australia

2011 Inspirational International Award, The Inspiration Awards for Women, USA

2011 Grand Officer of the Order of Merit of the Italian Republic, presented by the President of the Republic's Counselor Magistrate Dr. Elio Berarducci

2012 Lifetime Achievement Award, The Observer Ethical Awards, UK

2012 Outstanding Harmony Award in Rio+20, World Harmony Foundation, Australia

2012 Anne Marrow Lindberg Award for Living with Grace and Distinction, Huffington Center for Aging, USA

2012 II Monito del Giardino international award, Italy

2012 AARP Inspire Award, USA

2013 Varner Vitality Lecture, Oakland University, Michigan, USA

2013 WildCare Environmental Award, California, USA

2013, Wyland Icon Award, USA

2014 Better Malaysia Foundation (BMF) Person of the Year Award, Kuala Lumpur, Malaysia

2014 Animal Defence and Anti-Vivisection Society, Person of the Year Award, British Columbia, Canada

2014 Distinguished Lecturer, the University of Iowa Lecture Committee, Iowa, USA

2014 Invercargill Vegan Society Award, Dunedin, New Zealand

2014 BAUM Award, Germany

2014 Look! World Achievement Award

2014 Green Prize Award, Santa Monica Public Library

2014, Recognition of lifelong contributions to wildlife protection from MOTC, Taiwan

2014, World Technology Network (WTN) Award for Use of Technology in Policy, New York, USA

2014, President's Medal from the British Academy, London, UK

2014, Captain Planet Foundation Exemplar Award, Atlanta, GA USA

2015, Asia Pacific Brand Foundation, The BrandLaureate Legendary Award, Malaysia

2015, Premi Internacional Catalunya Prize, Catalonia, Spain

2015, The Perfect World Foundation, Conservationist of the Year 2015, Stockholm, Sweden

2015, the Orang Utan Republik Foundation, Pongo Environmental Award, Beverly Hills, CA USA

Publications

Books

1967 My Friends the Wild Chimpanzees. Washington, D.C.: National Geographic Society

1971 Innocent Killers (with H. van Lawick). Boston: Houghton Mifflin; London: Collins.

1971 In the Shadow of Man. Boston: Houghton Mifflin; London: Collins.
Published in 48 languages.

1986 The Chimpanzees of Gombe: Patterns of Behavior. Boston: Bellknap Press of the Harvard University Press. Published also in Japanese and Russian.

R.R. Hawkins Award for the Outstanding Technical, Scientific or Medical book of 1986, to Bellknap Press of Harvard University Press, Boston.

The Wildlife Society (USA) Award for "Outstanding Publication in Wildlife Ecology and Management."

1990 Through a Window: My Thirty Years with the Chimpanzees of Gombe. London: Weidenfeld & Nicolson; Boston: Houghton Mifflin.
Translated into more than 15 languages.

1991 Penguin edition, UK. American Library Association "Best" list among Nine Notable Books (Nonfiction) for 1991.

1993 Visions of Caliban (co-authored with Dale Peterson, Ph.D.). Boston: Houghton Mifflin.
New York Times "Notable Book" for 1993.
Library Journal "Best Sci-Tech Book" for 1993.

1999 Brutal Kinship (with Michael Nichols). New York: Aperture Foundation.

1999 Reason For Hope: A Spiritual Journey (with Phillip Berman). New York: Warner Books, Inc. Translated into more than 13 languages.

1999 40 Years At Gombe. New York: Stewart, Tabori, and Chang.

2000 Africa In My Blood (edited by Dale Peterson). New York: Houghton Mifflin Company.

2001 Beyond Innocence: An Autobiography in Letters, The Later Years (edited by Dale Peterson). New York: Houghton Mifflin Company.

2002 The Ten Trusts: What We Must Do To Care for the Animals We Love (with Marc Bekoff). San Francisco: Harper San Francisco.

2005 Harvest for Hope: A Guide to Mindful Eating (with Gary McAvoy and Gail Hudson). New York: Warner Books.

2009 Hope for Animals and Their World: How Endangered Species Are Being Rescued from the Brink (with Thane Maynard and Gail Hudson). New York: Grand Central Publishing.

2010 50 Years at Gombe. New York: Stewart, Tabori, and Chang.

2014 Seeds of Hope: Wisdom and Wonder from the World of Plants (with Gail Hudson). New York: Grand Central Publishing.

Children's Books

1972 Grub: The Bush Baby (with H. van Lawick). Boston: Houghton Mifflin.

1988 My Life with the Chimpanzees. New York: Byron Preiss Visual Publications, Inc. Translated into French, Japanese and Chinese.
Parenting's Reading-Magic Award for "Outstanding Book for Children," 1989.

1989 The Chimpanzee Family Book. Saxonville, MA: Picture Book Studio; Munich: Neugebauer Press; London: Picture Book Studio.

Translated into more than 15 languages, including Japanese and Kiswahili.
The UNICEF Award for the best children's book of 1989.
Austrian state prize for best children's book of 1990.

1989 Jane Goodall's Animal World: Chimps. New York: Macmillan.

1989 Animal Family Series: Chimpanzee Family; Lion Family; Elephant Family; Zebra Family; Giraffe Family; Baboon Family; Hyena Family; Wildebeest Family. Toronto: Madison Marketing Ltd.

1994 With Love (illustrated by Alan Marks). New York / London: North-South Books. Translated into German, French, Italian, and Japanese.

1999 Dr. White (illustrated by Julie Litty). New York: North-South Books.

2000 The Eagle & the Wren (illustrated by Alexander Reichstein). New York: North-South Books.

2001 Chimpanzees I Love: Saving Their World and Ours. New York: Scholastic Press.

2004 Rickie and Henri: A True Story (with Alan Marks) New York: Penguin Young Readers Group.

2013 Dr. White (illustrated by Julie Litty) gift book size. Honk Kong: minedition

2014 The Eagle & the Wren (illustrated by Alexander Reichstein) gift book size. Hong Kong: minedition

2014 With Love (illustrated by Alan Marks) gift book size. Hong Kong: minedition

2014 Jane Goodall The Chimpanzee Children of Gombe (with Michael Neugebauer). Hong Kong: minedition

2015 Prayer for World Peace (with Michael Neugebauer). Hong Kong: minedition

Films

1963 Miss Goodall and the Wild Chimpanzees, National Geographic Society.

1984 Among the Wild Chimpanzees, National Geographic Special.

1988 People of the Forest, with Hugo van Lawick.

1990 Chimpanzee Alert, in the Nature Watch Series, Central Television.

1990 Chimps, So Like Us, HBO film nominated for 1990 Academy Award.

1990 The Life and Legend of Jane Goodall, National Geographic Society.

1990 The Gombe Chimpanzees, Bavarian Television.

1995 Fifi's Boys, for the Natural World series for the BBC.

1995 My Life with the Wild Chimpanzees, National Geographic.

Chimpanzee Diary for BBC2 Animal Zone.

Animal Minds for BBC.

1999 Jane Goodall: Reason For Hope, PBS special produced by KTCA.

2001 Chimps R Us PBS special Scientific Frontiers.

2002 Jane Goodall's Wild Chimpanzees, in collaboration with Science North and Science Museum of Minnesota.

2004 Jane Goodall's Return to Gombe, produced by Tigress Productions for Animal Planet/Discovery Communications.

2004 Jane Goodall's State of the Great Ape, produced by Tigress Productions for Animal Planet/Discovery Communications.

2005 Jane Goodall - When Animals Talk, produced by Tigress Productions for Animal Planet/Discovery Communications.

2006 Jane Goodall's Heroes, produced by Creative Differences for Animal Planet/Discovery Communications.

2007 Almost Human, produced by Creative Differences for Animal Planet/ Discovery Communications

2010 Jane's Journey, produced by Animal Planet, CC Medien, NEOS Film and Sphinx Media

2014 Jane and Payne, produced by Boy Olmi and LSD Live (Dylan Williams)

2015 Racing Extinction, produced by Discovery and directed by Louie Psihoyos

2016 Time to Choose, directed by Charles Ferguson

Articles

1962 Nest building in a group of free-ranging chimpanzees. Ann. N.Y. Acad. Sci. 102: 455-467.

1963 Feeding behaviour of wild chimpanzees: a preliminary report. Symp. Zool. Soc. Lond. 10: 39-48.

1963 My life with the wild chimpanzees. National Geographic 124 (2):272-308.

1964 Tool-using and aimed throwing in a community of free-living chimpanzees. Nature. 201: 1264-1266.

1965 Chimpanzees of the Gombe Stream Reserve. In: I. DeVore (Ed). Primate Behaviour. New York: Holt, Rinehart and Winston.

1965 New discoveries among Africa's chimpanzees. National Geographic 128 (6): 802-831.

1965 Infancy, childhood and adolescence in a group of wild chimpanzees. Proc. Roy. Inst. Lond.

1966 (with H. van Lawick). Use of tools by the Egyptian Vulture, Neophron porenoptemus. Nature. 212: 1468-1469.

1967 Mother-offspring relationships in chimpanzees. In: D. Morris (Ed). Primate Ethology. London: Weidenfeld & Nicolson. pp. 287-345.

1967 (with H. van Lawick). Tool-using bird, the Egyptian Vulture. National Geographic 133 (5): 631-651.

1968 Behaviour of free-living chimpanzees of the Gombe Stream Area. In: J.M. Cullen and C.G. Beer (Eds). Anim. Behav. Monog. Vol. 1, Part 3. London: Bailliere, Tindall, and Casell. pp. 165-311.

1968 Expressive movements and communication in free-ranging chimpanzees: a preliminary report. In: P. Jay (Ed). Primates: Studies in Adaptation and Variability. New York: Hold, Rinehart and Winston. pp. 313-374.

1969 Some aspects of reproductive behaviour in free-living chimpanzees. Journ. Reprod. Fert.

1970 Some aspects of mother-infant behaviour in wild chimpanzees. In: R. Schaffer (Ed). Determinants of Infant Behaviour. New York: John Wiley and Sons.

1970 The scratching rocks clan. Animals. 13: 401-407.

1970 Tool-using in Primates and other Vertebrates. In: D.S. Lehrman, R.A. Hinde, and E. Shaw (Eds). Advances in the Study of Behaviour, Vol. 3. New York and London: Academic Press. pp. 195-249.

1971 Some aspects of aggressive behaviour in a group of free-living chimpanzees. Int. Soc. Sci. Journ. 23 (1): 89-97.

1973 Baboons too use tools. Science News 103: 71-72.

1973 The behaviour of chimpanzees in their natural habitat. Am. J. Psychiatry. 130 (1): 1-12.

1973 (with H. van Lawick and C. Packer). Use of objects as tools in free-living baboons in the Gombe National Park, Tanzania. Nature 24: 212-213.

1973 Cultural elements in a chimpanzee community. In: W.W. Menzel (Ed). Precultural Primate Behaviour, Vol I. Karger: Fourth IPV Symposium Proceedings.

1975 Chimpanzees of Gombe National Park: 13 years of research. In: I. Eibesfeldt (Ed). Hominisation und Verhalten. Stuttgart: Gustav Fischer Verlag. pp. 74-136.

1975 The chimpanzee: a model for the behaviour of early man? In: V. Goodall (Ed). Quest for Man. London: Pall Mall Press. pp. 130-169.

1975 On the contribution of chimpanzee studies to understanding human origins. In: S.L. Isaac (Ed). Perspectives on Human Evolution, Vol. 3: Essays on East Africa and Human Origins--a tribute to the life's work of the late Louis Leakey.

1976 (with D.A. Hamburg). New evidence on the origins of human behaviour. In: D. Hamburg and K. Brodie (Eds). American Handbook of Psychiatry, Vol. 6, New Frontiers. New York: Basic Books.

1976 Continuities between chimpanzee and human behaviour. In: G.L Isaac and E.R. McGown, (Eds). Human Origins: Louis Leakey and the East African Evidence California: W.J. Benjamin Inc.

1976 (with D. Riss). Sleeping behaviour and associations in a group of captive chimpanzees. Folia Primatol. 25: 1-11.

1977 Infant-killing and cannibalism in free-living chimpanzees. In: Folia Primatol. 28: 59-282.

1977 (with K. Morris). Competition for meat between chimpanzees and baboons of the Gombe National Park. Folia Primatol. 28: 109-121.

1977 (with D. Riss). The recent rise to the alpha rank in a population of free-living chimpanzees. Folia Primatol. 27: 134-151.

1978 Chimp Killings: Is it the Man in them? Sci News 113: 276.

1979 (with A. Bandora, E. Bergmann, C. Busse, H. Matama, E. Mpongo, A. Pierce, D. Riss). Inter-community interactions in the chimpanzee population of the Gombe National Park. In: D.A. Hamburg and E.R. McGown (Eds). The Great Apes. Menlo Park, California: Benjamin/Cummings. pp. 13-53.

1979 Life and Death at Gombe. National Geographic 155 (5): 592-621.

1980 (with J. Athumani). An observed birth in a free-living chimpanzee in Gombe National Park, Tanzania. Primates. 21 (4): 545-549.

1982 Order without law. Journal of Social and Biological Structures 5: 353-360.

1983 Population dynamics during a 15 year period in one community of free-living chimpanzees in the Gombe National Park, Tanzania. Zeitscherift fur Tierpsychologie 61: 1-60.

1983 (with T. Nishida, R.W. Wrangham, and S. Uehara.) Local differences in plant-feeding habits of chimpanzees between the Mahale Mountains and Gombe National Park, Tanzania. J. Human Evol. 12: 467-480.

1984 (with D.A. Collins, C.D. Busse and J. Goodall. 1984. Infanticide in two populations of Savanna Baboons. In: G. Hausfater and S.B. Hrdy (Eds). Infanticide: Comparative and Evolutionary Perspectives. New York: Aldine Publishing Company. pp. 193-216.

1984 The nature of the mother-child bond and the influence of family on the social development of free-living chimpanzees. In: N. Kobayashi and T.B. Brazelton (Eds). The Growing Child in Family and Society. Tokyo: University of Tokyo Press. pp. 47-66.

1985 Chapter. In: P.L. Berman (Ed). The Courage of Conviction. New York: Ballantine Books.

1985 (with H. Kummer, H). Conditions of innovative behaviour in primates. Phil. Trans. R. Soc. Lond. 308: 205-214.

1986 Mountain Warrior. Omni. May 1986, 132-143.

1986 Social rejection, exclusion, and shunning among the Gombe chimpanzees. Special issue: Ostracism: A social and biological phenomenon. Eth. and Sociobiol. 17 (3-4): 227-236.

1987 A Plea for the Chimps. The New York Sunday Times Magazine. May 17, 1987. pp. 108-110.

1987 A Plea for the Chimpanzees. Am. Sci. 75 (6): 574-577.

1988 Ethical concerns in the use of animals as donors. Xenograft 25: Proceedings of the International Congress, Xenograft 25. Elsevier Science Publishers. pp. 335-349.

1988 (with A. Prince, J. Moor-Jankowski, J. Eichberg, H. Schellekens, R. Mauler, and M. Girard) Chimpanzees and AIDS research. Nature. 333 (9): 513.

1989 The Chimpanzee: Man's closest relative in danger. In: Kakakuona, the magazine of the Tanzania Wildlife Protection Fund. 1 (1): 5-9.

1989 (with A. Prince, B. Brotman, H. Dienske, H. Schellekens, and J. Eichberg). Appropriate conditions for maintenance of chimpanzees in studies with blood-borne viruses: an epidemiologic and psychosocial perspective. J. Med. Primatol. 18: 27-42.

1989 (with R.W. Wrangham). Chimpanzee use of medicinal leaves. In P. Heltne and L. Marquardt (Eds) Understanding Chimpanzees, pp. 22-37. Cambridge: Harvard University Press.

1990 (with A.L. Zihlman, and M.E. Morbeck). Skeletal biology and individual life history of Gombe chimpanzees. J. Zool., London 221: 37-61.

1990 Gombe: Highlights and Current Research. In: In: P.G. Heltne and L.A. Marquard (Eds). Understanding Chimpanzees. Boston: Harvard University Press. pp. 2-21.

1990 ChimpanZoo. In: P.G. Heltne and L.A. Marquard (Eds). Understanding Chimpanzees. Boston: Harvard University Press. pp. 148-150.

1990 Area Status Report: Tanzania. In: P.G. Heltne and L.A. Marquard (Eds). Understanding Chimpanzees. Boston: Harvard University Press. pp. 360-361.

1990 Respect for Life. In: C. Fadiman (Ed). Living Philosophies. New York: Doubleday. pp. 81-88.

1992 Psychosocial needs of laboratory chimpanzees. Proceedings of the Symposium on Biomedical Research on Primates.

1993 Unusual violence surrounding the rise to alpha rank in the Gombe chimpanzee community. In: Proc. XIIIth Cong. IPS.

1993 (with J. Wallis). Anogenetal swelling in pregnant chimpanzees of Gombe National Park. Am. J. Primatol. 31(2): 89-98.

1994 (with P.A. Morin, J.J. Moore, R. Chakraborty, L. Jin, and D.S. Woodruff). Kin selection, social structure, gene flow and the evolution of chimpanzees. Science 265: 1193-1201.

1994 (with C.B. Stanford, Wallis, J., Matama, H.) Patterns of Predation by chimpanzees on red colobus monkeys in Gombe National Park, 1982-1991. American Journal of Physical Anthropology, 94 (2) 213-228.

1994 (with C.B. Stanford, Wallis, J, Mpongo, E) Hunting decisions in wild chimpanzees. Behaviour, 131, 1-18.

1995 (with C. Packer, D.A. Collins, and A. Sindimwo). Reproductive constraints on aggressive competition in female baboons. Nature 373: 60-63.

1995 Why is it unethical to use chimpanzees in the laboratory? ATLA. 23: 615-620.

1995 Chimpanzees and others at play. ReVision 17 (4): 14-20.

1997 (with A. Pusey and J. Williams). The influence of dominance rank on the reproductive success of female chimpanzees. Science. 277: 828-831.

1999 (with A. Whiten, McGew, W.C., Nishida, T., Reynolds, V., Sugiyama, Y. Tutin, C.E.G., Wrangham, R.W., Boesch, C.) Cultures in chimpanzees. Nature 399, 682-5.

2001 (with Marc Bekoff). Primate Origins of Human Cognition and Behavior, edited by Tetsuro Matsuzawa. (Book review). Science. 411: 995-996.

2001 (with Bekoff, M.). The view from Japan. Nature 411, 995-996.

2001 (with Mario L. Santiago, Cynthia M. Rodenburg, Shadrack Kamenya et. al.) Noninvasive Detection and Molecular Identification at Simian Immunodeficiency Virus in Wild-living Chimpanzees. Nature.

2001 (with A. Whiten, McGew, W.C., Nishida, T., Reynolds, V., Sugiyama, Y. Tutin, C.E.G., Wrangham, R.W., Boesch, C.) Charting cultural variation in chimpanzees. Behavior 138, 1489-1525.

2001 (with Constable, J., Ashley, M., & Pusey, A.) Noninvasive paternity assignment in Gombe chimpanzees. Molecular. Ecology, 10:1279-1300.

2001 (with Hill, K., Goodall, J, Pusey, A., Williams, J., Boesch, C., Boesch, H., & Wrangham, R.W.) Chimpanzee mortality in the wild. Journal of Human Evolution. 40:437-450.

2002 (with RW Wrangham and D Pilbeam). Apes as time machines. In BMF Galdikas, N Briggs, LK Sheeran, GL Shapiro, and J Goodall eds, All Apes Great and Small Volume 1: Chimpanzees, Bonobos, and Gorillas. Plenum/Kluwer Publication

2002 (with Anne Pusey, Shadrack Kamenya, Anthony Collins, Richard Wrangham, Beatrice H. Hahn et. al.) SIV cpz in Wild Chimpanzees. Science.

2002 (with Lonsdorf, E. V.) Cultures in chimpanzees. Encyclopedia of Evolution. Oxford UK, Oxford University Press.

2002 (with Santiago, M.L. Rodenburg, C.M., Kamenya, S., Bibollet-Ruche, F., Gao,F., Bailes, E., Meth, S., Soong, S-J., Kilby, J.M., Moldoveanu, Z., Fahey, B., Muller, M.N., Ayouba, A., Nerrienet, E., McClure, H.M., Heeny, J.L., Pusey, A.E., Collins, D.A., Boesch, C., Wrangham, R.W. Goodall, J. Sharp, P.M., Shaw, G.M. & Hahn, B.H.) SIVcpz in wild chimpanzees. Science 295:465.

2002 (with Williams, J.M., Pusey, A.E., Carlis, J.V., & Farm, B.) Female competition and male territorial behaviour influence female chimpanzees' ranging patterns. Animal Behaviour. 63:347-360.

2003 (with Santiago, M.L., Bibollet-Ruche, F., Bailes, E., Kamenya, S., Muller, M.N., Lukasik, M., Pusey, A.E., Collins, D.A., Wrangham, R.W., Shaw, G.M., Sharp, P.M. & Hahn, B.) Amplification of a complete simian immunodeficiency virus genome from fecal RNA of a wild chimpanzee. Journal of Virology, 77:2233-2242.

2003 (with Santiago, M.L. Lukasik, M., Kamenya, S. Yingying, L., Bibollet-Ruche, F., Bailes, E., Muller, M.N., Emery, M., Goldenberg, D.A., Lwanga, J., Ayouba, A., Nerrienet, E., McClure, H.M., Heeney, J.L., Watts, D.P., Pusey, A.E., Collins, D.A., Wrangham, R.W., Brookfield, J.F.Y., Sharp, P.M., Shaw, G.M., & Hahn, B.H.) Endemic foci of simian immunodeficiency virus infection in wild-living eastern chimpanzees (Pan troglodytes schweinfurthii). Journal of Virology. 77: 7545-7562.

2003 Fifi fights back. National Geographic 203 (4): 76-89.

2004 (with Lodwick, J.L., Borries, C., Pusey, A.E., & McGrew, W.C.). From nest to nest -influence of ecology and reproduction on the active period of adult Gombe chimpanzees. American Journal of Primatology 64:249-260.

2005 (with Pusey, A.E., Oehlert, G.W, & Williams, J.M.). The influence of ecological and social factors on body mass of wild chimpanzees. International Journal of Primatology, 26: 3-31.

2006 (with Lonsdorf, E.V., Travis, D., & Pusey, A. E.). Using retrospective health data from the Gombe chimpanzee study to inform future monitoring efforts. American Journal of Primatology, 68: 897-908.

2007 (with M Emery Thompson, JH Jones, AE Pusey, S Brewer-Marsden, D Marsden, T Matsuzawa, T Nishida, V Reynolds, Y Sugiyama, RW Wrangham). Aging and fertility patterns in wild chimpanzees provide insights into the evolution of menopause.. Current biology: CB 17: 2150-6

2007 (with Pusey, A.E., Pintea, L, Wilson, M.W. & Kamenya, S.). The contribution of long-term research at Gombe National Park to chimpanzee conservation. Conservation Biology 21: 623-634.

2008 (with Ross, S.R., Lukas, K.E., Lonsdorf, K.V., Stoinski, T.S., Hare, B., Shumaker, R). Inappropriate Use and Portrayal of Chimpanzees. Science 319: 1487.

2008 (with Williams, J.M., Lonsdorf, E.V., Wilson, M.L., Schumacher-Stankey, J., Pusey, A. E.). Causes of death in the Kasekela chimpanzees of Gombe National Park, Tanzania. American Journal of Primatology. 70: 745-750.

2008 (with AE Pusey, CM Murray, W Wallauer, ML Wilson, & E Wroblewski). Severe Aggression among Female Pan troglodytes schweinfurthii at Gombe National Park, Tanzania. International Journal of Primatology 29: 949-973

2009 (with Keele, B.F, Jones, J.H. , Terio, K.A., Estes, J.D., Rudicell, R.S., Wilson, M.L., Li, Y., Learn, G.H., Beasley, T.M., Schumacher-Stankey, J., Wroblewski, E., Mosser, A., Raphael, J., Kamenya, S.,Lonsdorf, E.V., Travis, D.A., Mlengeya, T., Kinsel, M.J., Else, J.G., Silvestri, G., Sharp, P.M., Shaw, G.M., Pusey, A.E., Hahn, B.H.). Increased Mortality and AIDS-like Immunopathology in Wild Chimpanzees Infected with SIVcpz. Nature 460: 515-519.

2010 (with Rudicell, R. S., Jones, J.H., Wroblewski, E.E, Learn, G. H., Li, Y., Robertson, J., Greengrass, E., Grossmann, F., Kamenya, S., Pintea, L., Mjungu, D.C., Lonsdorf, E.V., Mosser, A., Lehman, C., Collins, D.A., Keele, B.F., Pusey, A.E., Hahn, B., Wilson, M.L.). Impact of Simian Immunodeficiency Virus Infection on chimpanzee population dynamics. PLoS Pathogens. 6(9): e1001116

2011 (with Lonsdorf, E.V., Murray, C.M., Travis, D.A, Gilby, I.C., Chosy, J., Pusey A.E.). A retrospective analysis of factors correlated to chimpanzee (*Pan troglodytes schweinfurthii*) respiratory health at Gombe National Park. Ecohealth. DOI: 10.1007/s10393-011-0683-0.

2012 (with Pintea L, Pusey AE, Wilson ML, Gilby IC, Collins DA, Kamenya S). Long-term changes in the ecological factors surrounding the chimpanzees of Gombe National Park.

2012 (with Degnan, P. H., Pusey, A.E., Lonsdorf, E.V., Wilson, M.L., Wroblewski, E.E., Rudicell, R., Hahn, B.H., & Ochman, H.). Factors responsible for the diversification of the gut microbial communities within chimpanzees from Gombe National Park. Proceedings of the National Academy of Arts and Sciences 109: 13034-13039.

2013 (with Gilby IC, Brent LJN, Wroblewski EE, Rudicell RS, Hahn BH, Pusey AE.). Fitness benefits of coalitionary aggression in male chimpanzees. Behavioral Ecology & Sociobiology 67: 373-381

2014 (with Stanton, M.A, Lonsdorf, E.V., Pusey, A.E.., Murray, C.M.). Maternal behavior by birth order in wild chimpanzees (*Pan troglodytes*): increased investment by first-time mothers. Current Anthropology 55: 483-489.

2014 (with Lonsdorf, E.V., Markham, A.C., Ciuk, D.J., Heintz, M.R., Anderson, K.E., Murrary, C.M.) Sex Differences in Wild Chimpanzee Behavior Emerge during Infancy. PLoS ONE 9(6): e99099.

2014 (with Lonsdorf, E.V., K.E. Anderson, M.A. Stanton, M.Shender, M.R. Heintz, and C.M. Murray. "Boys will be boys: Sex differences in wild infant chimpanzee social interactions," *Animal Behaviour* 88: 79-83.

2014 Murray, C.M., Lonsdorf, E. V., Stanton, M. A., Wellens, K. R., Miller, J. A., Goodall, J., Pusey, A. E. 2014. Early Social Exposure in Wild Chimpanzees: Mothers with Sons are More Gregarious than Mothers with Daughters. *Proceedings of the National Academy of Sciences*, 111 (51) 18106-18107. www.pnas.org/cgi/doi/10.1073/pnas.1409507111

2015 Goodall, J., Pusey, A. E. 2015. The Flo family. In: *The Encyclopedia of Human Sexuality* (Eds. P Whelehan and A Bolin). Wiley-Blackwell Reference.

ANNEX B

Declaration of Dereck Joubert

Botswana)
)
Okavango)

I, Dereck Joubert, hereby declare as follows:

1. I reside at Duba Plains camp, in the Okavango Delta in Botswana.

2. After my studies at University of Witwatersrand in Johannesburg, South Africa, I started work at the Chobe Lion Research Institute in Botswana researching and, later, filming big cats, for the major broadcasters of the world (e.g., BBC, National Geographic).

3. During our 30 years with the National Geographic Society so far, my wife Beverly and I have made over 25 films for National Geographic that have garnered 9 Emmy Awards, a Peabody award, and other international recognition. I have also published 11 books, multiple scientific papers, and dozens of articles for National Geographic Magazine and other publications, focusing on the plight of wildlife in southern Africa.

4. In 2006 Beverly and I were awarded the status of National Geographic Explorers in Residence, two of only 10 people that carry that title around the world.

5. In 2009, we founded the Big Cats Initiative, a National Geographic program dedicated to the preservation of big cats (including leopards, lions, tigers, jaguars, and cheetahs) through education, conservation projects, and a worldwide awareness campaign. To date, the Big Cats Initiative has funded over 90 grants across more than 27 countries. Further, the Big Cats Initiative has supported research, including the most recent and most comprehensive study of leopard populations across their range.

6. In 2011, I received a Presidential Order of Meritorious Service by the President of Botswana for my conservation efforts in Botswana. I am currently a member of the International Union for Conservation of Nature (IUCN) African Lion Working Group.

7. I am also the founder and CEO of Great Plains Conservation, a company that manages approximately 1,800,000 acres of land in Botswana and Kenya for conservation purposes. Through this effort I have converted large tracts of land that were formerly open to hunting to wildlife preserves that benefit surrounding communities and provide opportunities for low-impact eco-tourism. For example, the Selinda Reserve is a 350,000 acre private wildlife sanctuary in the northern part of Botswana that provides habitat for leopards and dozens of other species. Through this effort we increased the economic benefit to the nation of Botswana from that concession by 2,500% by switching from hunting to photographic tourism. I also sit on the board of The Big Life Foundation in Kenya.

7. I have made four films about leopards: “Eye of the Leopard,” “The Unlikely Leopard,” “Living with Big Cats “ and “Big Cat Odyssey” all of which required Beverly and I to follow individual leopards on a daily basis for multiple years to capture natural leopard behavior. For example, for “Eye of the Leopard,” from 2003-2007 Beverly and I following a leopard cub – named Legadema – from eight days of age, a journey that exposed us to the often

mysterious lives of leopards and gave us an insight into just how fragile and complex their societies are. Making these films – which involves hundreds of hours in the field, tracking leopards, highlighted the need to engage in policy decisions to protect the world's remaining big cats.

8. Based on my substantial experience in field biology and wildlife filmmaking, it is my expert opinion that leopards are in danger of extinction across their African and Asian range, and that governments must take all actions within their authority to promote the conservation of this species before it disappears.

9. Because of the secretive and solitary nature of leopards, it is exceedingly difficult get an accurate census of leopards across the species' African range. There were estimates of about 700,000 leopards in Africa in the 1980s, but the most recent science states that such estimates were flawed. There is no reason to believe that the population trend for leopards is significantly different to those of other big cats in Africa, all of which indicate a 95% decline over the past 50 years. Our own findings coincide with that hypothesis and in many areas I have surveyed, in particular where there is hunting, leopard have declined significantly. Territories have been disrupted and breeding has been suppressed. It is unlikely that there are more than 50,000 leopards in Africa today. Indeed, based on my experience over the last 30 years working with leopards, the population has significantly decreased in that time. For example, in the Selinda and Kwando areas of Botswana where we estimated a home range of 12 sq km per leopard and studied 26 females, once trophy hunting increased, we reached a point where we saw no leopards in 5 years and heard none either. Overhunting is a huge threat to this species.

10. Leopards are severely impacted by habitat loss and human encroachment, with the most recent data revealing that the African leopard has lost 48-67% of its historical range. I have actively worked to reduce those threats through protecting leopard habitat, educating surrounding communities on how to peacefully coexist with these predators, and implementing a program to reimburse local people for any loss of livestock caused by leopards, via our foundations and initiative (Great Plains Foundation, Big Cats Initiative and The Big Life Foundation.) However, the habitat loss is often linked to over population of humans and a task best tackled at a different level of policy and leadership discussion. Hunting, however, is something we can actually do something about with rational legislation today.

11. Despite their imperiled status, leopards continue to be targeted by trophy hunters, most of whom are American. I estimated that in the five years I followed Legadema, 10,000 leopards were legally shot by trophy hunters, (according to issued CITES permits) in addition to the immense amount of leopard poaching during the same period. The African leopard simply cannot sustain losses of thousands or even hundreds of individuals per year – at this rate the subspecies could go to the very edge of extinction in 10-15 years.

12. In my expert opinion, trophy hunting is a dire threat to the continued survival of the African leopard. My own observations across six hunting concessions in Botswana are consistent with this observation. Scientific papers (Palazy et al) on the relationship between lions and trophy hunters are also indicative of that basic fact that trophy hunting is the direct cause of cat population declines wherever it is carried out.

13. In addition, the activity undermines conservation, fuels corruption at the local levels in particular and often higher up, and causes the loss of the healthiest animals in the populations, animals that are key for reproduction and social cohesion of those species. Leopards are no exception. A single young male has enormous obstacles to overcome to survive on his own, to learn how to hunt, to fight for territory and to earn the status to breed. But it is exactly these qualities that trophy hunting targets the young male for, and selects the finest breeders, and carriers of the best genetic qualities for the survival of the species. This selection process often condemns them to death before they can breed. In addition, the cubs of prime breeding males that are shot are left unprotected and vulnerable to incoming territorial males, whose first order of business is to kill cubs from other males. Each leopard that is shot as a trophy cannot be considered in isolation but as just the tip of the iceberg in a trickle down effect of destruction to the family and society of leopards he influences.

14. Hunting is often cited as being a deterrent to poaching, but it was clearly demonstrated in Botswana, that the presence and occurrence of gunshots by legal hunters in an area only served to confuse anti poaching forces in their efforts to detect illegal hunters (poachers.) Once trophy hunting was stopped the wildlife authorities and the military (carrying out anti-poaching duties) were significantly more effective in finding and stopping poachers, to the degree where poaching in the border sections of Botswana went from 'rampant' to 'zero' over a six year period.

15. As a revenue resource, not only has hunting been shown to contribute less than 0.27% to the GDP's of African countries that still allow hunting today, it cannot co-exist with tourism for obvious reasons, so it actually erodes the potential for an alternative land use. The replacement of hunting, in particular of big cats, with tourism, however, is a very viable way to use the land more kindly. For example, before I acquired the Selinda concession in Botswana it was used almost exclusively for trophy hunting. On the first day of purchase I stopped all the hunting. Since then I have seen a steady regrowth and benefit to the wildlife, both in terms of population recovery, and of course the attitude of wildlife towards humans (tourists). We have no attacks, no charges, animals don't run in fear that we have been able to create a facility that is wild again but that allows people from around the world to see wildlife and become engaged with the life changing experiences that a safari in Africa can offer. We converted the concession into a Reserve and it now employs 20 times the number of local staff, pays taxes, and delivers a benefit to the nation of over 2,500% more that it was doing under the hunting regime, while providing food on a daily basis to many thousands of dependents of people we employ.

16. Claims that trophy hunting promotes conservation through financial contributions are not supported, nor are the claims that hunting is the only land use that creates value in marginal wildlife areas. The Selinda Reserve is a classic example of what was once considered a marginal piece of land. The value of these animals is a combination of "intangible" and "real." Who can quantify the impact on a young person, of seeing their first leopard in a tree in the wild, or the disappearance of any knowledge of a leopard to the Ingwe people of the Zulu nation, who take the leopard as their spiritual totem? For tourism, however, it is tangible. For example, I did a survey in Savuti in Botswana to calculate the value of one male lion trophy versus the value of that male lion as a living eco-tourism asset. At the time (in1995), the value of the dead lion was US$15,000, whereas its value alive was approximately US$2,000,000. A male leopard that may live 12 years in the wild is

an enduring revenue stream, a single hunt of that leopard ends, not just its genetic lineage, but its earnings potential for conservation, forever. Most trophy hunting operations, are owned by foreign interests and do not share money with local communities. Responsible eco-tourism – like that operated by Great Plains Conservation – shares the benefit with governments and local communities. For example, most hunting concessions can only service 12-15 hunters per year, whereas an eco-tourism operated concessions can service thousands with much less of an ecological impact. In each of our concessions we pay over more than US$30,000 per year in leases and benefits.

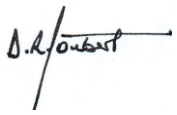
17. Because of our income from tourism and because of our influence on our guests, many of whom come specifically to see leopards, we have been able to solicit support in being able to rescue and move 100 rhinos from the highest poaching areas in South Africa to the protection in Botswana. This is an added and often hidden benefit of protecting the iconic cats of Africa: the extended holistic conservation ethic born from protection rather than selfish eradication.

18. Trophy hunting is little more than a bloodlust and thrill of killing and has no longer any place in sound wildlife management, especially in association with declining and threatened species. Studies also show that we cannot rely on the hunting fraternity to make wise conservation decisions around threatened species and that, in fact, as species decline and become more threatened or even endangered, they become even more valuable and desired by hunters. We have to ask if we want to project to the next generation that the best way for us to interact with nature is via violent actions like this and if that will lead to more or less harmony in an already troubled world.

19. The effort to protect leopards from extinction is vital – we no longer have the luxury of time to use or abuse these big cats for our own desires. Poaching of leopards – primarily for the fur trade – continues at unsustainable rates, and the African leopard is under immense threats from habitat loss and human conflict. To allow the trophy hunting of leopards for recreational purposes to continue unchecked is scientifically and ethically unjustified.

20. In my opinion, leopards across their African range are in danger of extinction and the U.S. Fish and Wildlife Service should strictly regulate the import of hunting trophies and other leopard parts in order to not continue to contribute to the decline of this endangered species.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is, in my professional opinion, true and correct.



Dereck Joubert

Executed on 1st day of July, 2016.

ANNEX C

CITES Establishment of Leopard Export Quotas 1987-2013

Resolution Conf. 5.13 a) recommends that the following states export not more than the indicated number of leopard skins in any one calendar year:

State	Quota
Botswana	80
Kenya	80
Malawi	20
Mozambique	60
United Republic of Tanzania	250
Zambia	300
Zimbabwe	350

Source: https://cites.org/sites/default/files/eng/cop/06/doc/E06-27.pdf, 1987.

Resolution Conf. 6.9, paragraph a), recommends that the following states export not more than the indicated number of leopard skins in any one calendar year:

State	Quota
Botswana	80
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	20
Mozambique	60
United Republic of Tanzania	250
Zambia	300
Zimbabwe	500

Source: https://cites.org/sites/default/files/eng/cop/07/doc/E07-27.pdf, 1989.

Resolution Conf. 7.7, paragraph a), recommends that the following states export not more than the indicated number of leopard skins in any one calendar year:

State	Quota
Botswana	100
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	20
Mozambique	60
South Africa	50
United Republic of Tanzania	250
Zambia	300
Zimbabwe	500

Source: https://cites.org/sites/default/files/eng/cop/08/doc/E-20.pdf, 1992.

STATE	QUOTA
Botswana	100
* Central African Republic	40
* Ethiopia	500
* Kenya	80
Malawi	50
Namibia	100
* Mozambique	60
* South Africa	50
United Republic of Tanzania	250
Zambia	300
Zimbabwe	500

Source: Proposal by Botswana, Malawi, Namibia, Zambia and Zimbabwe to transfer *Panthera pardus* from CITES Appendix I to Appendix II and to establish export quotas for eleven countries https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF, 1992. The proposal was rejected by vote but the quotas approved.[1]

State	Quota
Botswana	100
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	50
Mozambique	60
Namibia	100
South Africa	75
United Republic of Tanzania	250
Zambia	300
Zimbabwe	500

Source: In session document, https://cites.org/sites/default/files/eng/cop/08/E-In-session.pdf, 1992.

The delegation of Botswana stated that in February 1994 they had submitted a special report to the Secretariat requesting an increase in their annual quota from 100 to 130 for the period 1995-1997. The Secretariat acknowledged receipt of the report and agreed that the increase in quota was justified but needed the approval of the Parties.

Source: https://cites.org/sites/default/files/eng/cop/09/E9-ComI.pdf, 1994.

Reported Exports of Leopard (*Panthera pardus*) Hunting Trophies and Skins

Country	1994			1995			1996	
	Quota	Special reports (exports)	Annual reports (exports)	Quota	Special reports (exports)	Annual reports (exports)	Quota	Special reports (exports)
Botswana	100	41	42 (42)	130	68	25 (25)	130	32
Central African Republic	40	19	19 (19)	40	8	7 (13)	40	n.a.
Ethiopia	500	2	1 (1)	500	0	0 (0)	500	2
Kenya	80	0	2 / (2)	80	0	0 (1)	80	0
Malawi	20	6	6 / (6)	50	8	/ (7)	50	1
Mozambique	60	15	4 (4)	60	23	14 (9)	60	18
Namibia	100	49	/ (47)	100	30	/ (36)	100	21
South Africa	50	28	/ (116)	75	55	n.a.	75	31
United Republic of Tanzania	250	185	275 (270)	250	175	223 (231)	250	250
Zambia	300	44	43	300	38	38	300	47
Zimbabwe	500	382	/ (142)	500	311	n.a.	500	n.a.

n.a. means the report in question was not submitted
( ) figures in brackets are from the CITES annual reports database maintained by WCMC

Source: https://cites.org/sites/default/files/eng/cop/10/doc/E10-41to43.pdf, 1997

[1] https://cites.org/sites/default/files/eng/cop/08/E-Com-I.pdf

Reported exports of leopard (*Panthera pardus*) whole skins and nearly whole skins

Party [quota]	1999	2000	2001
Botswana [130]	115	124	54
Central African Republic [40]	11	22	26
Ethiopia [500]	0	0	0
Kenya [80]	1	0	0
Malawi [50]	0	no report	no report
Mozambique [60]	42	51	26
Namibia [100]	45	61	55
South Africa [75]	15	37	35
United Republic of Tanzania [250]	259 *(includes 23 specimens collected in previous years)*	248	260 *(includes 16 specimens collected in previous years)*
Zambia [300]	76	55	10
Zimbabwe [500]	131	185	275

Source: https://cites.org/sites/default/files/eng/cop/12/doc/E12-23-1-1.pdf, 2002.

State	Quota
Botswana	130
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	50
Mozambique	120
Namibia	250
South Africa	150
Uganda	28
United Republic of Tanzania	500
Zambia	300
Zimbabwe	500

Source: https://cites.org/sites/default/files/eng/cop/16/doc/E-CoP16-52.pdf

State	Quota
Botswana	130
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	50
Mozambique	120
Namibia	250
South Africa	150
Uganda	28
United Republic of Tanzania	500
Zambia	300
Zimbabwe	500

Source: Resolution Conf. 10.14 (Rev. CoP16), https://cites.org/eng/res/10/10-14R16.php

ANNEX D

Information from the CITES Trade Database

Table 1: International trade in leopards and their parts for all sources and all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
bodies	7	0	9	10	22	19	24	24	9	11	135
bone pieces	0	0	0	2	0	0	0	0	0	0	2
bones	0	1	2	299	8	12	41	16	13	13	405
carvings	1	1	1	0	4	1	1	3	1	0	13
claws	0	70	20	3	64	18	65	72	68	1	381
cloth	0	0	0	0	0	0	0	1	0	0	1
derivatives	3,470	1,770	3,146	1,722	1,593	821	1,442	2	1	1	13,968
feet	0	2	0	29	0	0	0	4	0	0	35
garments	2	2	2	1	6	6	0	5	5	2	31
hair	0	6	0	10	209	0	2	2	8	1	238
hair products	0	0	0	0	0	0	0	1	0	0	1
leather products (L)	0	8	0	0	2	1	0	1	0	0	12
leather products (S)	3	2	4	2	3	6	2	3	262	0	287
live	37	44	45	42	48	75	79	68	68	44	550
medicine	0	0	0	0	0	0	0	383	56	99	538
plates	2	0	0	2	0	0	0	0	0	0	4
shoes	0	0	4	0	0	0	0	0	0	0	4
skeletons	1	0	0	0	0	0	1	0	0	0	2
skin pieces	9	1	1	65	10	2	2	17	8	4	119
skins	72	162	61	74	233	234	353	466	228	45	1,928
skulls	26	132	17	48	238	277	437	479	277	114	2,045
specimens	132	108	119	262	361	445	324	1,421	143	1,037	4,352
tails	0	0	0	0	0	2	0	0	0	10	12
teeth	31	4	9	2	1	40	31	4	13	11	146
trophies	1,229	1,126	1,060	1,279	1,400	990	769	985	722	651	10,211
unspecified	1	0	0	0	0	0	0	0	0	0	1
Grand Total:	5,023	3,439	4,500	3,852	4,202	2,949	3,573	3,957	1,882	2,044	35,421

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, all purposes, on 04/04/2016.

Table 2: International trade in wild source leopards and their parts for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	6	0	7	10	21	19	19	20	9	10	121
bones	0	1	0	259	6	12	41	16	13	13	361
carvings	0	0	0	0	0	0	0	0	1	0	1
claws	0	66	18	0	62	12	63	72	67	0	360
derivatives	521	246	154	4	20	20	50	0	0	0	1015
feet	0	2	0	0	0	0	0	4	0	0	6
garments	0	0	0	0	0	1	0	1	0	1	3
hair	0	6	0	10	209	0	0	2	7	1	235
leather	0	0	0	0	1	0	0	0	0	0	1

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
products (large)											
leather products (small)	0	0	0	0	1	0	0	0	0	0	1
live	5	5	5	2	7	2	13	11	9	2	61
plates	1	0	0	2	0	0	0	0	0	0	3
shoes	0	0	2	0	0	0	0	0	0	0	2
skeletons	1	0	0	0	0	0	1	0	0	0	2
skin pieces	4	0	0	2	4	1	1	12	1	3	28
skins	46	148	36	46	210	222	345	442	214	34	1743
skulls	25	128	16	47	235	270	437	477	276	112	2023
specimens	132	108	119	257	18	442	291	1419	106	905	3797
tails	0	0	0	0	0	1	0	0	0	10	11
teeth	31	4	8	0	0	18	27	4	4	4	100
trophies	1211	1098	1041	1255	1387	977	748	968	706	643	10034
unspecified	1	0	0	0	0	0	0	0	0	0	1
Grand Total	1984	1812	1406	1894	2181	1997	2036	3448	1413	1738	19909

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, wild sources, all purposes, on 03/23/2016.

Table 3. Imports of wild source leopards and their parts for all purposes, by country.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
leather products (small)		AE	0	0	0	0	0	1	0	0	0	0	
live		AE	0	2	0	0	0	0	0	0	0	0	
skins		AE	0	1	1	0	0	0	1	5	0	0	
skulls		AE	0	0	0	0	0	0	3	0	0	1	
trophies		AE	4	6	6	2	1	4	7	1	3	1	
skins		AR	0	0	0	0	0	1	0	3	1	0	
skulls		AR	0	0	0	0	0	1	0	4	4	1	
trophies		AR	1	4	7	1	8	2	4	10	5	4	
bodies		AT	0	0	0	0	0	1	0	0	0	0	
skins		AT	7	14	15	0	3	4	4	3	4	0	
skulls		AT	6	0	11	0	3	4	3	3	3	0	
teeth		AT	0	0	8	0	0	0	0	0	0	0	
trophies		AT	17	27	15	22	21	11	12	18	15	14	
trophies		AT	0	0	0	0	0	0	1	0	0	0	
hair		AU	0	0	0	0	0	0	0	2	0	0	
leather products (small)		AU	0	1	0	0	0	0	0	0	0	0	
skins		AU	1	9	1	0	1	5	2	1	0	0	
skulls		AU	0	0	0	0	0	4	2	1	0	0	
trophies		AU	0	4	0	2	1	0	1	2	0	1	
skins		BE	0	0	0	0	3	1	0	1	0	0	
skulls		BE	0	0	0	0	2	3	0	1	0	0	
trophies		BE	11	6	11	10	10	11	4	4	2	1	
skins		BG	0	1	0	0	0	1	0	1	0	0	
skulls		BG	0	0	0	0	0	2	0	1	0	0	
trophies		BG	4	6	7	3	1	5	3	6	1	2	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
trophies		BH	0	1	0	0	0	0	0	0	0	0	
feet		BR	0	2	0	0	0	0	0	0	0	0	
skins		BR	0	3	0	0	1	0	0	0	0	0	
skulls		BR	0	0	0	0	1	1	0	0	0	0	
teeth		BR	0	4	0	0	0	0	0	0	0	0	
trophies		BR	1	1	0	1	1	1	0	0	0	4	
skulls		BS	0	0	0	0	2	0	0	0	0	0	
trophies		BS	0	1	0	1	1	0	0	0	0	0	
skins		BW	0	0	0	0	0	0	1	2	1	0	
skulls		BW	0	0	0	0	0	0	1	2	5	0	
trophies		BW	1	0	0	0	0	0	0	0	5	0	
bodies		CA	0	0	0	7	9	0	6	4	1	5	
bones		CA	0	1	0	2	2	0	2	0	0	0	
skin pieces		CA	0	0	0	0	0	0	1	0	0	0	
skins		CA	15	24	0	18	33	10	10	12	3	3	
skulls		CA	8	19	0	30	39	12	15	11	4	5	
skulls		CA	0	0	0	0	1	0	0	0	0	0	
trophies		CA	19	17	3	15	17	22	9	11	10	15	
CA total			42	61	3	72	101	44	43	38	18	28	450
skins		CG	0	0	0	0	0	0	0	0	0	2	
bodies		CH	2	0	0	0	0	0	0	0	0	1	
claws		CH	0	0	0	0	0	0	18	0	0	0	
hair		CH	0	6	0	0	0	0	0	0	0	0	
skins		CH	1	0	2	1	2	1	4	4	1	0	
skulls		CH	1	0	0	1	3	1	4	4	1	0	
specimens	ml	CH	0	5	0	0	0	0	0	0	0	0	
specimens		CH	0	100	46	25	0	0	0	27	6	3	
teeth		CH	0	0	0	0	0	0	0	4	4	0	
trophies		CH	10	2	10	4	6	0	21	3	7	5	
skulls		CL	0	0	0	0	0	1	0	0	0	0	
trophies		CL	4	0	1	1	0	1	0	0	3	0	
bodies		CN	1	0	1	0	0	1	2	2	1	0	
skins		CN	0	0	0	1	0	0	0	2	0	0	
skulls		CN	1	0	0	0	0	0	0	0	0	0	
specimens	g	CN	0	0	0	0	0	0	0	0	0	36	
specimens		CN	5	0	0	1	1	5	0	0	0	1	
trophies		CN	3	1	1	2	1	6	0	2	2	0	
skulls		CO	0	0	0	0	1	1	0	1	0	0	
trophies		CO	0	1	0	0	1	5	0	1	0	1	
skins		CR	1	0	0	0	0	0	0	0	0	0	
trophies		CR	1	3	0	2	0	0	1	1	0	0	
trophies		CS	1	0	0	1	0	0	0	0	0	0	
live		CU	0	0	0	0	0	0	0	6	6	0	
bodies		CZ	0	0	0	0	0	0	1	1	0	0	
skins		CZ	0	0	0	0	0	1	4	3	4	0	
skulls		CZ	0	0	0	0	0	1	4	3	4	0	
trophies		CZ	9	7	2	5	4	4	7	7	7	3	
bodies		DE	0	0	0	1	0	1	0	0	0	0	2
bones		DE	0	0	0	257	2	0	0	2	0	3	
claws		DE	0	0	0	0	18	0	0	0	0	0	
skin pieces		DE	0	0	0	0	2	0	0	0	0	0	
skins		DE	1	0	7	0	5	3	14	15	8	0	53

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skulls		DE	0	0	0	0	5	1	13	19	8	0	
specimens	ml	DE	0	0	0	0	0	0	0	60	0	0	
specimens		DE	126	0	53	44	1	100	5	1233	0	901	
teeth		DE	31	0	0	0	0	0	0	0	0	0	
trophies		DE	66	65	42	38	67	37	32	51	38	36	472
DE Total			224	65	102	340	100	142	64	1380	54	940	3411
bodies		DK	0	0	0	0	0	1	2	1	2	0	
bones		DK	0	0	0	0	0	2	4	0	0	0	
derivatives		DK	10	0	0	0	0	0	0	0	0	0	
skins		DK	0	0	0	2	0	2	5	1	2	1	
skulls		DK	0	1	0	1	2	4	8	1	2	2	
teeth		DK	0	0	0	0	0	0	27	0	0	0	
trophies		DK	7	10	11	11	24	23	45	6	3	6	
trophies		EC	0	0	2	0	0	0	1	0	0	0	
skins		EE	0	1	0	0	0	0	0	0	0	0	
skulls		EE	0	1	0	0	0	0	0	0	0	0	
trophies		EE	1	1	0	1	0	0	0	0	1	1	
trophies		EG	0	1	0	0	0	0	0	0	0	0	
bodies		ES	0	0	0	0	0	2	0	1	0	0	3
skeletons		ES	0	0	0	0	0	0	1	0	0	0	3
skins		ES	0	3	0	0	19	27	32	12	7	1	6
skulls		ES	0	4	1	0	20	28	38	14	8	3	
trophies		ES	90	91	100	76	72	54	40	29	28	22	602
ES Total			90	98	101	76	111	111	111	56	43	26	823
skins		FI	0	0	0	0	0	0	2	1	0	0	
skulls		FI	0	0	0	0	0	1	3	1	1	0	
trophies		FI	6	5	3	3	24	6	5	5	2	5	
bodies		FR	0	0	0	0	3	0	0	0	0	0	3
carvings		FR	0	0	0	0	0	0	0	0	0.33	0	0
hair	kg	FR	0.486	0	0	0	0	0	0	0	0	0	0
skeletons		FR	1	0	0	0	0	0	0	0	0	0	1
skins		FR	4	1	1	0	29	26	19	23	11	3	117
skulls		FR	1	1	0	0	30	29	18	26	17	9	131
tails		FR	0	0	0	0	0	1	0	0	0	0	1
teeth	g	FR	65	0	0	0	0	0	0	0	0	0	0
trophies	kg	FR	0	0	4	0	0	0	0	0	0	0	0
trophies		FR	191	73	64	186	110	97	43	91	45	35	935
FR Total													1188
bodies		GB	0	0	0	0	4	3	1	2	4	0	
claws		GB	0	0	0	0	0	0	0	0	5	0	
derivatives		GB	0	0	0	0	0	0	50	0	0	0	
garments		GB	0	0	0	0	0	0	0	1	0	0	
hair		GB	0	0	0	0	209	0	0	0	0	0	
skin pieces		GB	0	0	0	0	0	0	0	5	0	0	
skins		GB	0	3	0	8	9	4	9	5	5	0	
skulls		GB	0	2	0	3	8	7	9	9	4	1	
specimens		GB	0	8	0	0	0	0	0	4	1	0	
trophies		GB	6	6	7	12	6	6	4	7	3	7	
live		GM	0	0	0	2	0	0	0	0	0	0	
bodies		HK	0	0	1	0	0	0	0	0	0	0	
leather products (small)		HK	0	0	0	0	1	0	0	0	0	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skins		HK	0	0	0	0	1	0	0	0	0	0	
skulls		HK	0	0	0	0	1	0	0	0	0	0	
skins		HN	0	0	0	0	0	0	0	0	1	0	
skulls		HN	0	0	0	0	0	0	0	0	1	0	
trophies		HR	6	3	3	3	4	1	1	0	0	1	
skins		HU	0	0	0	0	8	0	3	2	5	0	
skulls		HU	0	0	0	0	8	0	3	2	5	1	
trophies		HU	0	0	6	11	21	11	12	16	13	11	
trophies		ID	0	0	0	0	0	0	0	0	0	1	
trophies		IE	1	0	3	0	0	0	0	0	0	0	
specimens	ml	IL	0	0	0	0	0	0	0	0	1.5	0	
specimens		IL	0	0	0	0	0	0	0	1	0	0	
bodies		IS	0	0	1	0	0	0	0	0	0	0	
skins		IS	0	0	0	0	0	0	0	0	3	1	
skulls		IS	0	0	0	0	0	0	0	0	3	1	
trophies		IS	0	0	0	1	2	0	1	1	1	0	
bodies		IT	0	0	0	0	0	1	0	0	0	0	
bones		IT	0	0	0	0	0	2	0	0	0	0	
skins	kg	IT	0	0	0	0	0	0	1	0	0	0	
skins		IT	0	0	0	0	5	5	4	3	2	0	
skulls	kg	IT	0	0	0	0	0	0	1	0	0	0	
skulls		IT	0	0	0	0	6	6	10	5	7	1	
trophies		IT	20	12	15	18	23	18	22	19	15	7	
skins		JM	0	0	0	0	0	0	2	0	0	0	
skulls		JM	0	0	0	0	0	0	2	0	0	0	
trophies		JM	1	0	1	0	0	0	0	0	0	0	
live		JO	0	0	0	0	1	0	0	0	0	0	
skins		JO	0	0	0	0	1	0	0	0	0	0	
hair	kg	JP	0	0	0	0.2	0	0	0	0	0	0	
specimens	g	JP	0	300	0	0	0	0	0	0	0	0	
specimens	kg	JP	0	0.3	0	0	0	15	0	0	0	0	
specimens		JP	0	0	20	0	0	0	0	0	0	0	
skins		KE	0	0	0	0	0	0	1	0	0	0	
specimens		KE	0	0	0	0	0	0	0	1	0	0	
bodies		KR	3	0	0	0	0	0	1	0	0	0	
live		KR	0	0	0	0	2	0	0	0	0	0	
bodies		KW	0	0	0	0	1	0	0	0	0	0	
specimens		KW	1	0	0	0	0	0	0	0	0	0	
trophies		KW	0	0	2	1	0	0	0	0	0	0	
live		KZ	0	0	0	0	0	0	1	1	0	0	
bodies		LB	0	0	1	0	0	0	0	1	0	0	
skins		LB	0	0	0	0	1	0	0	0	0	0	
skulls		LB	0	0	0	0	0	2	0	1	0	0	
trophies		LB	1	0	1	2	1	2	4	0	1	0	
trophies		LI	1	0	0	0	0	0	0	0	0	0	
skins		LK	0	0	0	0	2	0	0	0	0	0	
skins		LT	0	0	0	0	0	0	0	1	1	0	
skulls		LT	0	0	0	0	0	0	0	1	1	0	
trophies		LT	1	1	2	2	5	3	0	2	2	4	
skins		LU	0	0	0	0	0	0	1	0	0	0	
skulls		LU	0	0	0	0	0	0	2	0	0	0	
trophies		LU	2	1	6	4	0	4	4	0	1	3	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
derivatives		LV	0	0	0	0	0	2	0	0	0	0	
trophies		LV	2	4	3	4	2	1	0	1	3	3	
leather products (small)		LY	0	0	1	0	1	1	0	0	0	0	
skins		LY	0	0	1	0	1	0	0	0	0	0	
bodies		MA	0	0	0	0	0	0	1	0	0	0	
skins		MA	0	0	0	0	0	0	3	0	0	0	
skulls		MA	0	0	0	0	0	0	2	0	0	0	
trophies		MA	0	2	0	1	1	1	2	0	0	1	
trophies		MC	0	0	0	0	0	0	0	0	0	1	
skins		MG	0	0	0	0	0	0	0	1	0	0	
skulls		MG	0	0	0	0	0	0	1	1	0	0	
trophies		MG	0	0	0	0	0	0	1	0	0	0	
skulls		MU	0	0	0	0	0	0	0	1	0	0	
trophies		MU	0	0	0	0	0	0	0	1	0	0	
live		MW	0	0	0	0	0	0	6	2	0	0	
bodies		MX	0	0	0	0	1	0	0	0	0	0	
bones		MX	0	0	0	0	0	2	2	1	0	0	
claws		MX	0	0	0	0	0	0	0	18	18	0	
derivatives		MX	0	0	0	0	0	2	0	0	0	0	
skins		MX	0	0	0	0	3	4	3	4	5	1	
skulls		MX	0	2	0	0	3	5	11	4	4	2	
trophies		MX	40	68	54	64	50	47	38	49	33	31	
trophies		MX	0	0	0	0	0	0	1	0	0	0	
MX Total			40	70	54	64	57	60	55	76	60	34	570
skins		MZ	0	0	1	0	1	0	1	0	0	0	
skulls		MZ	0	0	0	0	0	0	1	0	0	2	
trophies		MZ	0	0	0	0	0	2	0	1	0	0	
bodies		NA	0	0	0	1	0	0	0	0	0	0	
skins		NA	0	0	0	0	0	0	2	2	0	0	
skulls		NA	0	1	0	0	0	0	2	2	0	0	
trophies		NA	3	5	0	2	1	1	1	1	1	0	
skins		NC	1	0	0	0	0	0	0	0	0	0	
trophies		NC	0	0	0	0	0	1	0	0	0	1	
bodies		NG	0	0	0	0	0	0	2	0	0	0	
skins		NG	0	0	0	0	0	0	0	6	0	0	
skulls		NG	0	0	0	0	0	0	2	0	0	0	
trophies		NG	0	0	0	0	0	0	0	4	0	0	
live		NI	0	0	0	0	0	0	1	0	0	0	
trophies		NI	0	0	0	0	0	0	0	1	0	0	
bodies		NL	0	0	0	0	0	1	0	0	0	0	
hair		NL	0	0	0	10	0	0	0	0	0	0	
skins		NL	3	0	0	0	1	0	2	1	0	0	
skulls		NL	0	0	0	1	2	0	2	0	0	0	
trophies		NL	2	1	0	0	3	2	0	0	0	2	
bodies		NO	0	0	0	0	0	0	0	0	0	3	
skins		NO	0	0	0	0	1	2	2	1	0	1	
skulls		NO	0	0	0	1	2	3	4	1	0	3	
specimens		NO	0	0	0	0	0	0	0	1	0	0	
trophies		NO	2	5	2	7	5	6	6	3	3	3	
trophies		NP	0	0	1	0	0	0	0	0	0	0	
bodies		NZ	0	0	0	0	2	0	0	1	0	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
hair		NZ	0	0	0	0	0	0	0	0	0	1	
skin pieces		NZ	0	0	0	0	0	0	0	1	0	0	
skins		NZ	1	2	0	0	1	1	0	0	1	0	
skulls		NZ	0	0	0	0	2	1	1	2	1	0	
trophies		NZ	2	1	0	1	4	6	3	3	1	2	
skins		PA	0	0	0	0	0	0	0	0	2	0	
skulls		PA	0	0	0	0	0	0	0	1	3	0	
trophies		PA	0	0	0	0	0	1	0	1	1	0	
leather products (large)		PH	0	0	0	0	1	0	0	0	0	0	
skulls		PH	0	0	0	0	1	2	2	0	0	0	
trophies		PH	1	0	0	3	41	5	2	0	0	0	
live		PK	0	0	0	0	0	0	0	0	0	2	
skulls		PK	0	0	0	0	1	0	1	2	0	0	
trophies		PK	3	1	1	0	1	0	5	3	0	0	
trophies		PK	0	0	0	0	0	0	1	0	0	0	
bodies		PL	0	0	0	0	0	0	0	0	1	0	
skins		PL	0	0	0	0	2	0	1	2	0	0	
skulls		PL	0	0	0	0	2	0	1	1	0	0	
trophies		PL	5	10	8	8	8	6	8	6	6	6	
leather products (small)		PT	0	1	0	0	0	0	0	0	0	0	
skins		PT	0	0	0	0	0	1	5	5	2	0	
skulls		PT	0	0	0	0	3	6	10	7	2	0	
trophies		PT	18	12	12	7	16	6	9	5	2	1	
trophies		PY	0	0	0	0	0	0	0	0	0	3	
skulls		QA	0	0	0	0	0	0	0	2	2	4	
trophies		QA	2	0	0	0	0	2	3	4	3	0	
skins		RO	0	0	0	0	0	0	0	1	0	0	
skulls		RO	0	0	0	0	0	0	0	1	0	0	
trophies		RO	1	0	4	2	1	1	0	0	2	1	
trophies		RS	0	1	1	2	1	1	1	0	2	0	
bodies		RU	0	0	3	0	1	2	1	1	0	1	
live		RU	0	0	0	0	4	2	4	0	0	0	
skins		RU	0	0	0	0	7	6	8	7	2	1	
skulls		RU	0	0	0	0	6	5	11	6	2	7	
trophies		RU	15	8	18	36	40	35	29	43	21	36	
live		SA	1	0	0	0	0	0	0	0	3	0	
trophies		SA	0	0	4	0	1	0	0	0	0	0	
skins		SB	0	0	0	0	0	0	1	0	0	0	
skulls		SB	0	0	0	0	0	0	1	0	0	0	
skins		SD	0	0	0	0	0	0	0	0	1	0	
skulls		SD	0	0	0	0	0	0	0	0	1	0	
trophies		SD	0	0	0	0	0	0	0	0	0	2	
bodies		SE	0	0	0	0	0	0	0	1	0	0	
claws		SE	0	0	0	0	0	0	0	16	0	0	
skins		SE	0	0	0	0	0	4	1	6	2	0	
skulls		SE	0	0	0	0	0	2	3	6	4	1	
teeth		SE	0	0	0	0	0	18	0	0	0	0	
trophies		SE	2	7	9	5	29	7	3	8	12	3	
bones		SG	0	0	0	0	0	0	0	0	2	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skulls		SG	0	0	0	0	0	0	0	0	1	0	
trophies		SG	0	1	0	0	0	0	0	0	1	0	
trophies		SI	1	4	5	2	4	1	0	2	0	0	
bones		SK	0	0	0	0	0	0	0	0	0	1	
skins		SK	0	0	0	0	0	0	0	0	0	4	
skulls		SK	0	0	0	0	0	0	0	0	0	4	
trophies		SK	3	3	2	8	5	2	5	5	5	2	
trophies		SL	0	1	0	0	1	2	1	2	0	0	
live		SV	0	0	0	0	0	0	0	1	0	0	
trophies		SV	0	0	1	0	0	0	0	0	0	0	
live		SY	1	3	3	0	0	0	0	0	0	0	
skins		SY	0	1	0	0	0	0	0	0	0	0	
skins		SZ	0	2	4	4	0	0	0	0	0	0	
trophies		SZ	6	0	0	2	1	0	0	0	0	2	
live		TJ	2	0	0	0	0	0	0	0	0	0	
specimens		TN	0	0	0	1	0	0	0	0	0	0	
skins		TR	1	0	0	0	0	0	0	0	0	0	
trophies		TR	0	0	0	1	1	0	1	0	0	0	
skins		TW	0	0	0	0	0	0	1	0	0	0	
skins		TZ	0	0	0	0	0	1	1	0	0	0	
skulls		TZ	0	0	0	0	0	5	0	0	0	0	
trophies		TZ	1	1	1	1	1	5	0	0	0	0	
bodies		UA	0	0	0	1	0	0	0	0	0	0	
skulls		UA	0	0	0	0	0	1	0	0	0	0	
trophies		UA	0	1	2	1	1	1	0	0	2	3	
bodies		US	0	0	0	0	0	6	2	5	0	0	13
bones		US	0	0	0	0	2	4	31	9	11	9	66
claws		US	0	66	18	0	44	12	27	38	44	0	249
derivatives		US	511	246	154	4	20	16	0	0	0	0	951
garments		US	0	0	0	0	0	1	0	0	0	1	2
hair		US	0	0	0	0	0	0	0	0	7	0	7
leather products (small)		US	0	0	1	0	0	0	0	0	0	0	1
plates		US	1	0	0	2	0	0	0	0	0	0	3
shoes		US	0	0	2	0	0	0	0	0	0	0	2
skin pieces		US	4	0	0	2	0	1	0	2	1	3	13
skins		US	4	29	3	12	47	83	153	262	108	11	712
skulls		US	2	46	4	9	70	96	186	275	129	47	864
specimens	g	US	0	0	0	0	0	0	0	0	16	0	0
specimens	ml	US	0	0	0	0	0	6	0	0	0	0	0
specimens		US	0	0	0	186	0	286	286	150	39	0	947
specimens		US	0	0	0	0	0	51	0	0	0	0	51
tails		US	0	0	0	0	0	0	0	0	0	10	10
teeth		US	0	0	0	0	0	0	0	0	0	4	4
trophies		US	507	524	506	581	648	447	298	474	352	319	4656
trophies		US	0	0	0	0	0	1	0	0	0	0	1
unspecified		US	1	0	0	0	0	0	0	0	0	0	1
US Total													8553
trophies		VG	0	1	0	0	0	0	0	0	0	0	
skins		XX	0	0	0	0	1	1	0	1	0	2	
skulls		XX	0	0	0	0	0	1	0	0	0	0	
trophies		XX	15	2	0	0	0	3	0	1	0	2	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skins		YE	0	1	0	0	0	0	0	0	0	0	
skins		YU	0	0	0	0	0	0	0	0	1	0	
skulls		YU	0	0	0	0	0	0	0	0	1	0	
bones		ZA	0	0	0	0	0	2	2	4	0	0	8
claws		ZA	0	0	0	0	0	0	18	0	0	0	18
feet		ZA	0	0	0	0	0	0	0	4	0	0	4
live		ZA	1	0	2	0	0	0	1	1	0	0	5
skin pieces		ZA	0	0	0	0	2	0	0	4	0	0	6
skins		ZA	6	52	0	0	22	28	41	40	27	3	219
skulls		ZA	6	51	0	1	11	34	56	51	44	17	271
specimens	ml	ZA	0	0.5	0	0	0	0	0	0	0	0	0
specimens		ZA	0	0	0	0	16	0	0	2	60	0	78
trophies		ZA	89	74	73	74	85	48	44	55	43	30	615
ZA Total													1224
skulls		ZM	0	0	0	0	0	0	0	1	0	0	
trophies		ZM	0	0	0	0	0	0	2	2	0	1	
skins		ZW	0	1	0	0	0	0	2	3	6	0	
skulls		ZW	0	0	0	0	0	0	2	3	6	0	
trophies		ZW	5	5	3	2	4	2	0	0	0	1	

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" to U.S. of *Panthera pardus*, wild sources, all purposes, on 06/06/2016.

Table 5. Exports of wild source leopards and their parts for all purposes, by country.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
leather products (small)		AE	0	0	1	0	1	1	0	0	0	0	
live		AE	0	0	0	0	1	0	0	0	3	0	
skins		AE	6	2	1	0	3	0	0	0	0	0	
skulls		AE	6	0	0	0	0	0	0	0	0	0	
specimens		AE	0	0	35	1	0	0	0	2	0	0	
trophies		AE	2	0	0	0	0	0	1	0	0	0	
trophies		AR	0	0	0	0	0	0	2	0	3	0	
skulls		AT	0	0	0	1	0	0	0	0	0	0	
trophies		AT	4	0	0	3	1	0	2	1	1	1	
skins		AU	0	1	0	0	0	0	1	1	0	0	
trophies		AU	0	0	1	0	0	0	0	0	0	0	
bodies		BE	0	0	0	0	0	0	1	0	0	1	
trophies		BE	0	0	0	0	0	0	0	0	1	0	
trophies		BH	0	0	2	0	0	0	0	0	1	0	
trophies		BR	0	0	0	0	1	0	0	0	0	0	
bodies		BW	0	0	1	0	0	0	0	0	0	0	
claws		BW	0	0	0	0	0	0	0	16	0	0	
hair		BW	0	6	0	0	0	0	0	0	0	0	
skins		BW	0	2	2	0	3	0	3	6	0	0	
skulls		BW	0	0	0	0	2	0	21	22	13	1	
specimens	ml	BW	0	5	0	0	0	0	0	0	0	0	
specimens		BW	0	4	11	25	16	0	0	27	60	0	
trophies	kg	BW	0	0	4	0	0	0	0	0	0	0	
trophies		BW	54	47	50	58	39	34	19	30	33	3	
bodies		CA	0	0	0	0	0	0	1	1	0	0	
garments		CA	0	0	0	0	0	1	0	0	0	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
plates		CA	0	0	0	2	0	0	0	0	0	0	
skins		CA	0	0	0	5	0	0	0	1	0	0	
skulls		CA	0	0	0	2	0	0	0	1	0	0	
trophies		CA	0	0	0	1	0	0	0	2	0	0	
skins		CD	0	0	0	3	2	0	0	5	0	0	
bones		CF	0	0	0	0	2	0	2	0	0	0	
claws		CF	0	0	0	0	18	0	18	0	0	0	
skins		CF	1	0	1	0	0	1	1	0	0	0	
skulls		CF	0	0	0	0	0	3	1	0	0	0	
specimens		CF	0	0	0	0	0	0	0	0	6	3	
trophies		CF	37	28	28	33	90	66	17	23	4	0	
bodies		CH	0	0	0	0	0	0	0	0	3	0	
skin pieces		CH	0	0	0	0	0	0	0	0	0	1	
skins		CH	0	0	7	0	0	0	0	0	0	0	
specimens		CH	125	0	0	0	0	0	0	2	1	0	
trophies		CH	4	0	0	0	0	0	0	0	0	0	
trophies		CL	0	0	0	0	0	4	0	0	0	0	
skins		CM	1	0	0	0	0	0	0	0	0	0	
derivatives		CN	18	202	85	4	0	14	0	0	0	0	
live		CZ	0	0	0	0	0	0	1	1	0	0	
bodies		DE	0	0	3	0	0	0	0	0	0	0	
derivatives		DE	0	0	3	0	0	0	0	0	0	0	
live		DE	1	0	0	0	0	0	0	0	0	0	
skins		DE	0	2	0	0	0	0	0	0	0	0	
skulls		DE	0	0	0	0	0	0	0	0	4	0	
trophies		DE	2	1	0	6	1	0	5	1	8	1	
hair	kg	DJ	0.486	0	0	0	0	0	0	0	0	0	
teeth	g	DJ	65	0	0	0	0	0	0	0	0	0	
trophies		DK	0	0	0	0	0	0	0	0	0	1	
skins		ES	0	0	0	0	0	0	0	0	0	1	
trophies		ES	0	0	1	0	0	0	0	0	0	1	
skins		ET	0	0	0	0	3	0	1	1	0	0	
skulls		ET	0	0	0	0	3	0	0	1	0	0	
trophies		ET	3	2	0	2	1	2	1	0	1	2	
bodies		FI	0	0	0	0	0	0	0	0	0	1	
trophies		FI	1	1	0	0	0	0	0	0	0	0	
bodies		FR	2	0	1	0	2	0	3	2	0	1	
claws		FR	0	0	0	0	0	0	18	0	0	0	
leather products (small)		FR	0	0	0	0	1	0	0	0	0	0	
skins		FR	1	0	0	0	0	0	3	0	0	0	
skulls		FR	0	0	0	0	3	2	5	1	0	0	
trophies		FR	6	6	9	6	9	9	24	11	16	7	
skin pieces		GA	0	0	0	0	0	0	0	5	0	0	
specimens		GA	0	0	0	0	0	0	0	0	20	0	
bodies		GB	0	0	0	0	1	0	0	0	0	0	
leather products (small)		GB	0	0	1	0	0	0	0	0	0	0	
skin pieces		GB	0	0	0	0	0	0	0	2	0	0	
skins		GB	3	2	0	0	0	1	0	0	0	0	
skulls		GB	0	0	0	0	1	1	0	0	0	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
trophies		GB	2	1	1	0	0	0	0	0	0	0	
skin pieces		GH	0	0	0	2	0	0	0	0	0	0	
specimens		GQ	0	0	0	0	0	0	5	0	0	0	
live		GT	0	0	0	0	0	0	0	1	0	0	
specimens		IL	0	0	0	0	0	0	0	1	0	0	
live		IN	2	0	0	0	0	0	0	0	0	0	
plates		IN	1	0	0	0	0	0	0	0	0	0	
live		IR	0	0	0	0	0	2	0	0	0	0	
skins		IR	1	0	0	0	0	0	0	0	0	0	
skins		IT	0	0	0	0	0	0	0	0	1	0	
trophies		IT	1	1	0	0	1	0	0	1	0	0	
live		JO	0	0	3	0	0	0	0	0	0	0	
derivatives		JP	477	0	0	0	0	0	0	0	0	0	
skins		KE	0	0	0	0	1	0	1	0	0	2	
specimens	ml	KE	0	0.5	0	0	0	0	0	0	1.5	0	
specimens		KE	0	0	0	0	0	0	0	1	0	0	
specimens		KE	0	0	0	0	0	51	0	0	0	0	
trophies		KE	0	0	0	0	1	0	1	0	0	0	
live		KG	0	0	0	0	0	0	5	1	0	0	
specimens	kg	KH	0	0	0	0	0	15	0	0	0	0	
derivatives		KW	10	0	0	0	0	0	0	0	0	0	
skin pieces		LA	1	0	0	0	0	0	0	0	0	0	
unspecified		LA	1	0	0	0	0	0	0	0	0	0	
specimens		LR	0	0	0	0	0	0	0	0	0	1	
skins		LT	0	1	0	0	0	0	0	0	0	0	
leather products (small)		LY	0	0	0	0	0	1	0	0	0	0	
skins		LY	0	0	1	0	0	0	0	0	0	0	
live		ML	0	0	0	2	0	0	0	0	0	0	
skins		MW	0	0	0	0	2	0	0	1	0	0	
trophies		MX	0	1	0	0	0	0	0	3	0	0	
bodies		MZ	0	0	0	0	0	0	0	0	0	1	
skeletons		MZ	0	0	0	0	0	0	1	0	0	0	
skin pieces		MZ	0	0	0	0	4	0	0	4	0	0	
skins		MZ	1	6	1	0	11	7	70	92	62	4	
skulls		MZ	1	5	0	0	4	7	76	92	70	13	
trophies		MZ	76	58	59	52	56	49	21	56	31	49	
bodies		NA	0	0	1	2	1	13	3	1	0	4	25
bones		NA	0	0	0	0	4	0	2	0	2	6	14
claws		NA	0	22	0	0	0	4	0	0	18	0	44
hair		NA	0	0	0	0	0	0	0	0	0	1	1
live		NA	0	0	0	0	0	0	0	6	6	0	12
skin pieces		NA	0	0	0	0	0	0	1	0	0	0	1
skins		NA	7	18	12	1	14	8	14	5	2	1	82
skulls		NA	6	12	8	2	12	5	8	6	4	4	67
specimens	ml	NA	0	0	0	0	0	6	0	60	0	0	66
specimens		NA	0	0	0	0	0	100	0	1233	1	900	2234
teeth		NA	31	0	8	0	0	18	27	0	0	0	84
trophies		NA	168	197	176	226	343	150	100	111	100	105	1676
trophies		NA	0	0	0	0	0	1	1	0	0	0	2
NA Total													4308
claws		NL	0	0	0	0	0	0	0	0	8	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skins		NL	0	0	3	7	0	0	0	0	0	0	
skins		NO	0	0	0	0	0	0	0	0	2	0	
skulls		NO	0	0	0	0	0	0	0	0	2	0	
trophies		NO	0	0	0	1	1	0	0	2	0	0	
skins		NZ	1	6	1	4	0	1	0	0	0	0	
trophies		NZ	0	0	0	0	0	0	0	0	0	1	
derivatives		PH	0	13	6	0	0	0	0	0	0	0	
trophies		PT	1	0	0	0	0	0	0	0	0	0	
trophies		QA	0	0	0	0	0	0	2	0	0	0	
hair	kg	RU	0	0	0	0.2	0	0	0	0	0	0	
live		RU	0	0	0	0	2	0	0	0	0	0	
skins		RU	0	0	0	0	0	1	0	0	0	0	
specimens	g	RU	0	0	0	0	0	0	0	0	0	36	
specimens		RU	0	0	20	186	0	286	286	0	0	0	
live		SA	0	2	0	0	0	0	0	0	0	0	
skin pieces		SA	2	0	0	0	0	0	0	0	0	0	
live		SD	2	3	2	0	0	0	0	0	0	0	
shoes		SD	0	0	2	0	0	0	0	0	0	0	
skins		SD	0	0	0	0	0	0	1	0	0	0	
specimens		SN	0	0	0	0	0	0	0	0	18	0	
skins		SY	0	1	0	0	0	0	0	0	0	0	
skins		SZ	0	0	0	0	0	0	0	4	0	0	
specimens		SZ	0	0	0	0	0	0	0	2	0	0	
live		TH	0	0	0	0	2	0	0	0	0	0	
live		TM	0	0	0	0	2	0	0	0	0	0	
skins		TN	0	0	0	1	0	0	0	0	0	0	
skulls		TN	0	0	0	1	0	0	0	0	0	0	
derivatives		TW	0	13	0	0	0	0	0	0	0	0	
skin pieces		TW	1	0	0	0	0	0	0	0	0	0	
skins		TW	0	0	0	0	0	0	0	1	0	0	
trophies		TW	0	0	0	0	3	0	0	0	0	0	
bodies		TZ	0	0	0	0	0	0	0	2	3	0	5
bones		TZ	0	0	0	0	0	3	2	0	8	0	13
feet		TZ	0	2	0	0	0	0	0	0	0	0	2
hair		TZ	0	0	0	10	0	0	0	0	0	0	10
live		TZ	0	0	0	0	0	0	1	0	0	0	1
skins		TZ	11	25	1	1	135	108	56	79	39	7	462
skulls		TZ	6	19	2	1	134	114	54	73	41	6	450
skulls		TZ	0	0	0	0	1	0	0	0	0	0	1
specimens		TZ	1	0	0	0	0	0	0	0	0	0	1
tails		TZ	0	0	0	0	0	1	0	0	0	0	1
trophies		TZ	340	301	260	371	275	200	138	201	145	178	2409
TZ Total													3355
skins		UG	0	0	0	0	0	1	0	1	1	0	
skulls		UG	0	0	0	0	0	0	0	1	1	0	
specimens		UG	1	0	0	0	0	0	0	0	0	0	
trophies		UG	0	0	0	0	5	0	1	0	0	2	
bodies		US	0	0	0	4	2	0	1	0	0	0	
carvings		US	0	0	0	0	0	0	0	0	0.33	0	
hair		US	0	0	0	0	0	0	0	2	0	0	
skins		US	2	0	0	0	1	0	2	0	1	0	
skulls		US	0	0	0	4	0	0	1	1	0	1	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
specimens	g	US	0	300	0	0	0	0	0	0	0	0	
specimens	kg	US	0	0.3	0	0	0	0	0	0	0	0	
specimens		US	0	0	0	0	1	1	0	0	0	0	
trophies		US	3	5	3	6	8	8	2	14	6	1	
bodies		UY	0	0	0	0	1	0	0	0	0	0	
skins		UY	0	0	0	0	1	0	0	0	0	0	
derivatives		VN	16	18	60	0	0	0	0	0	0	0	
skins		XX	0	0	0	0	0	1	0	0	1	0	
skulls		XX	0	0	0	0	0	0	0	0	1	0	
trophies		XX	0	0	0	0	0	0	1	0	0	5	
bodies		ZA	1	0	0	2	9	6	9	13	3	2	45
bones		ZA	0	1	0	2	0	8	35	8	2	5	61
claws		ZA	0	44	18	0	36	8	26	18	18	0	168
derivatives		ZA	0	0	0	0	20	6	50	0	0	0	76
garments		ZA	0	0	0	0	0	0	0	1	0	1	2
hair		ZA	0	0	0	0	209	0	0	0	0	0	209
leather products (large)		ZA	0	0	0	0	1	0	0	0	0	0	1
leather products (small)		ZA	0	2	0	0	0	0	0	0	0	0	2
live		ZA	0	0	0	0	0	0	6	2	0	2	10
skins		ZA	5	40	1	7	9	67	84	53	4	5	275
skulls		ZA	3	53	3	6	37	101	145	75	26	68	517
specimens		ZA	4	0	0	1	1	2	0	151	0	1	160
teeth		ZA	0	4	0	0	0	0	0	0	0	4	8
trophies		ZA	113	103	111	147	184	143	125	128	108	109	1271
ZA Total													2805
bodies		ZM	0	0	0	0	0	0	1	0	0	0	
bones		ZM	0	0	0	257	0	1	0	0	0	0	
hair		ZM	0	0	0	0	0	0	0	0	7	0	
skins		ZM	4	8	3	6	7	5	13	4	2	0	
skulls		ZM	1	7	0	2	5	7	25	5	4	1	
specimens	g	ZM	0	0	0	0	0	0	0	0	16	0	
specimens		ZM	0	104	53	44	0	0	0	0	0	0	
trophies		ZM	74	62	69	92	88	94	88	165	60	5	
trophies		ZM	0	0	0	0	0	0	2	0	0	0	
bodies		ZW	3	0	1	2	5	0	0	1	0	0	12
bones		ZW	0	0	0	0	0	0	0	8	1	2	11
claws		ZW	0	0	0	0	8	0	1	38	23	0	70
feet		ZW	0	0	0	0	0	0	0	4	0	0	4
skeletons		ZW	1	0	0	0	0	0	0	0	0	0	1
skin pieces		ZW	0	0	0	0	0	1	0	1	1	2	5
skins	kg	ZW	0	0	0	0	0	0	1	0	0	0	0
skins		ZW	2	34	2	11	18	21	95	188	101	14	486
skulls	kg	ZW	0	0	0	0	0	0	1	0	0	0	0
skulls		ZW	2	32	3	28	33	30	101	199	112	18	558
specimens		ZW	1	0	0	0	0	2	0	0	0	0	3
tails		ZW	0	0	0	0	0	0	0	0	0	10	10
teeth		ZW	0	0	0	0	0	0	0	4	4	0	8
trophies		ZW	320	284	271	251	280	217	195	219	188	175	2400
ZW Total													3568

Source: UNEP-WCMC CITES Trade Database searched by "gross exports" to U.S. of *Panthera pardus*, wild sources, all purposes, on 06/06/2016.

Table 6: International trade in "captive-bred" leopards and their parts for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	0	0	0	0	0	0	5	2	0	1	8
live	32	38	34	39	41	70	67	53	56	43	473
skins	0	1	0	0	14	0	0	0	2	1	18
specimens	0	3	0	5	343	0	32	2	37	132	554
trophies	0	0	2	2	1	0	2	1	3	0	11
Grand Total	32	42	36	46	399	70	106	58	98	177	1064

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, captive sources, all purposes, on 03/23/2016.

Table 7: International trade in "captive-bred" leopards and their parts for all purposes: Exporting countries.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
bodies		BE	0	0	0	0	0	0	2	1	0	1
bodies		DE	0	0	0	0	0	0	3	0	0	0
bodies		NL	0	0	0	0	0	0	0	1	0	0
live		BE	4	1	1	0	1	0	2	2	6	0
live		BW	0	0	0	0	0	4	0	0	0	0
live		BY	0	0	0	0	0	1	0	0	0	0
live		CH	0	1	0	3	2	0	0	0	1	0
live		CN	3	0	0	0	0	0	0	0	0	0
live		CY	0	0	0	0	3	0	0	0	0	0
live		CZ	1	0	2	3	1	1	1	2	4	0
live		DE	1	0	1	0	1	3	5	4	0	0
live		DK	0	3	0	0	0	0	1	0	2	3
live		EE	0	0	0	0	1	0	0	1	2	0
live		ES	0	0	0	0	0	0	0	0	0	4
live		FR	1	0	2	6	0	1	1	2	2	0
live		GA	0	0	0	0	0	0	0	0	2	4
live		GB	0	2	0	2	0	0	1	1	0	0
live		GE	0	0	0	0	0	0	0	0	0	1
live		GT	0	0	0	0	0	0	0	1	1	0
live		HU	2	3	1	1	0	2	0	0	0	0
live		ID	2	0	0	0	2	1	2	0	0	0
live		IR	0	0	0	0	0	2	0	0	0	0
live		IT	0	0	0	0	0	0	0	0	0	1
live		JO	0	0	0	0	1	0	0	0	0	0
live		KG	0	0	0	0	0	0	0	0	1	0
live		KR	0	0	0	0	0	1	0	0	0	0
live		KZ	0	2	3	0	0	0	0	0	0	0
live		LB	0	0	0	0	0	0	0	1	0	0
live		LV	0	0	0	0	0	0	2	0	0	0
live		MC	1	1	2	0	0	0	0	0	0	0
live		MX	0	0	0	6	0	11	1	0	0	7
live		NL	0	0	0	0	0	0	1	0	0	0
live		PL	0	0	0	0	0	0	0	0	1	0
live		PT	0	0	0	0	3	0	0	2	0	0
live		RO	2	0	0	0	0	0	0	0	9	0
live		RS	0	0	0	0	0	3	0	0	0	2

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
live		RU	1	0	0	1	3	4	19	0	0	1
live		SE	0	0	0	0	0	0	2	0	0	0
live		SG	1	1	0	0	0	0	0	0	0	0
live		SI	0	2	0	0	0	0	0	0	0	0
live		SK	1	0	0	0	0	0	0	0	0	0
live		SZ	0	0	0	0	1	0	0	0	0	0
live		TH	0	2	0	0	0	0	0	0	0	0
live		TN	0	0	0	0	2	0	0	0	0	0
live		TR	0	0	0	1	0	0	0	5	1	0
live		UA	0	2	1	0	3	0	0	0	0	0
live		US	0	1	4	0	0	0	0	0	0	0
live		UZ	0	0	0	0	0	0	0	0	2	0
live		XX	0	0	1	3	1	0	0	1	0	0
live		ZA	0	1	0	5	0	7	0	2	0	3
live		ZW	0	0	0	0	0	0	0	0	0	3
skins		CH	0	1	0	0	1	0	0	0	0	0
skins		MZ	0	0	0	0	2	0	0	0	0	0
skins		NL	0	0	0	0	0	0	0	0	0	1
skins		SZ	0	0	0	0	1	0	0	0	0	0
skins		ZA	0	0	0	0	0	0	0	0	2	0
specimens	flasks	SG	0	3	0	0	0	0	0	0	0	0
specimens		AE	0	0	0	5	0	0	20	0	2	2
specimens		DK	0	0	0	0	0	0	0	2	0	0
specimens		NA	0	0	0	0	0	0	0	0	33	128
specimens		RU	0	0	0	0	343	0	0	0	0	0
specimens		US	0	0	0	0	0	0	5	0	0	0
trophies		NA	0	0	1	0	0	0	0	0	0	0
trophies		NL	0	0	0	0	0	0	0	1	0	0
trophies		TZ	0	0	0	1	0	0	0	0	1	0
trophies		ZA	0	0	1	1	1	0	0	0	2	0
trophies		ZW	0	0	0	0	0	0	1	0	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, captive sources, all purposes, on 06/06/2016.

Table 8: International trade in "captive-born" leopards and their parts for all purposes.

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	3	1	9	1	1	5	0	2	2	1	25
skulls	0	0	0	0	1	0	0	0	0	0	1
trophies	0	0	1	1	0	0	0	0	4	0	6
Grand Total	3	1	10	2	2	5	0	2	6	1	32

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, F1 sources, all purposes, on 03/23/2016.

Table 9: International trade in "pre-Convention" leopards and their parts from "pre-Convention" for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	0	0	1	0	1	0	1	2	0	0	5
carvings	0	1	1	0	4	1	1	2	1	0	11
claws	0	0	2	0	0	4	0	0	1	0	7
derivatives	0	0	5	2	0	2	0	2	1	1	13
garments	1	2	1	1	0	3	0	1	2	0	11

leather products (large)	0	0	0	0	1	1	0	1	0	0	3
leather products (small)	3	0	2	0	0	0	0	2	1	0	8
skin pieces	3	0	0	2	2	0	1	2	2	1	13
skins	10	6	14	14	7	8	4	21	10	7	101
skulls	1	0	0	0	0	3	0	1	1	1	7
specimens	0	0	0	0	0	1	1	0	0	0	2
tails	0	0	0	0	0	1	0	0	0	0	1
teeth	0	0	0	0	0	1	2	0	6	5	14
trophies	2	0	1	1	3	1	6	3	2	2	21
Grand Total	20	9	27	20	18	26	16	37	27	17	217

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, pre-Convention sources, all purposes, on 03/23/2016.

Table 10: International trade in "ranched" leopards and their parts for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	0	0	0	0	0	0	0	8	4	0	8
skins	0	1	0	0	0	0	0	0	0	0	1
skulls	0	1	0	0	0	0	0	0	0	0	1
trophies	0	1	0	1	0	0	0	0	0	0	1
Grand Total	0	3	0	1	0	0	0	8	4	0	16

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, ranched sources, all purposes, on 03/23/2016.

Table 11: International trade in leopards and their parts from "confiscations/seizures" and for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	1	0	0	0	0	0	0	0	0	0	1
bone pieces	0	0	0	2	0	0	0	0	0	0	2
bones	0	0	2	40	4	0	0	0	4	0	50
carvings	1	0	0	0	0	0	0	0	0	0	1
claws	0	4	0	3	2	2	2	0	0	1	14
cloth	0	0	0	0	0	0	0	1	0	0	1
derivatives	2939	1504	2987.5	1712	1573	799	1392	0	0	0	12906.5
feet	0	0	0	29	0	0	0	0	0	0	29
garments	1	0	2	0	2	2	0	1	2	1	11
hair	0	0	0	0	0	0	2	0	1	0	3
hair products	0	0	0	0	0	0	0	1	0	0	1
leather products (large)	0	8	0	0	0	0	0	0	0	0	8
leather products (small)	0	0	0	2	1	4	2	0	260	0	269
medicine	0	0	0	0	0	0	0	383	56	99	538
plates	1	0	0	0	0	0	0	0	0	0	1
shoes	0	0	2	0	0	0	0	0	0	0	2
skin pieces	2	1	1	61	1	1	0	3	4	0	74

skins	10	4	4	8	2	5	1	1	2	1	38
skulls	0	2	1	1	2	3	0	1	0	1	11
specimens	0	0	0	0	0	0	0	1	0	0	1
teeth	0	0	1	2	1	21	2	0	1	0	28
trophies	22	35	19	31	15	11	14	18	10	5	180
Grand Total	2977	1558	3019.5	1891	1603	848	1415	410	340	108	14169.5

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, seized/confiscated sources, all purposes, on 03/23/2016.

Table 12: International trade in leopards and their parts from "source unknown" and for all purposes.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	BE	0	0	0	0	0	0	1	0	0	0	1
derivatives	CN	0	0	7	4	0	14	0	0	0	0	25
leather products (small)	GB	0	0	1	0	0	0	0	0	0	0	1
live	KG	0	0	0	0	0	0	5	1	0	0	6
plates	IN	1	0	0	0	0	0	0	0	0	0	1
skin pieces	GB	0	0	0	0	0	0	0	2	0	0	2
skins	CH	0	0	7	0	0	0	0	0	0	0	7
skins	GB	2	0	0	0	0	0	0	0	0	0	2
skins	LT	0	1	0	0	0	0	0	0	0	0	1
skins	NL	0	0	0	7	0	0	0	0	0	0	7
skins	RU	0	0	0	0	0	1	0	0	0	0	1
skulls	GB	0	0	0	0	0	1	0	0	0	0	1
specimens	AE	0	0	35	0	0	0	0	0	0	0	35
trophies	GB	0	0	1	0	0	0	0	0	0	0	1
Grand Total												91

Source: UNEP-WCMC CITES Trade Database searched by "gross exports" of *Panthera pardus*, unknown sources, all purposes, on 03/23/2016.

Table 13: International trade in leopards and their parts for "commercial" purposes and from all sources.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	0	0	1	0	1	0	5	3	0	1	11
carvings	0	1	1	0	1	0	1	3	0	0	7
claws	0	4	0	2	0	0	0	0	1	0	7
cloth	0	0	0	0	0	0	0	1	0	0	1
derivatives	512	244	847	568	317	147	0	2	1	0	2638
feet	0	0	0	29	0	0	0	0	0	0	29
garments	1	2	1	0	1	2	0	4	3	0	14
leather products (large)	0	0	0	0	1	0	0	0	0	0	1
leather products (small)	0	0	2	1	1	1	1	0	260	0	266
live	6	4	4	5	2	5	1	1	7	4	39
medicine	0	0	0	0	0	0	0	260	26	45	331
skin pieces	4	0	0	55	2	0	0	3	4	1	69
skins	7	5	24	5	4	4	3	10	6	4	72
skulls	3	0	0	0	2	1	1	1	0	0	8

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
specimens	0	0	0	0	0	0	2	0	0	0	2
teeth	0	0	0	2	0	1	1	0	8	2	14
trophies	1	1	2	3	2	1	0	1	1	1	13
Grand Total	534	261	882	670	334	162	15	289	317	58	3522

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, hunting trophy purpose, on 03/23/2016.

Table 14: International trade in leopards and their parts for "commercial" purposes and from all sources: Importing countries (range States in bold).

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AE	2	2	1	0	2	1	0	0	4	1	13
AL	0	0	1	0	0	0	0	0	0	0	1
AU	0	0	0	2	0	0	2	1	5	0	10
CA	4	0	0	0	0	1	0	1	0	0	6
CH	2	0	7	1	0	1	2	5	1	0	19
CN	0	0	2	1	2	0	4	3	4	1	17
DE	0	1	7	0	1	1	0	0	1	1	12
EG	0	0	0	0	0	3	0	0	0	0	3
ES	0	0	0	0	2	1	0	0	0	0	3
FR	0	0	0	0	0	0	0	4	5	0	9
GB	0	1	0	1	0	1	0	0	0	0	3
HK	0	0	0	0	2	0	0	2	0	0	4
HU	0	0	0	0	0	0	0	0	1	0	1
ID	0	0	0	0	1	0	0	0	2	0	3
IN	0	1	0	0	0	1	0	0	0	0	2
IS	0	0	1	0	0	0	0	0	0	0	1
JP	3	0	0	0	0	0	0	0	0	0	3
KR	0	0	0	0	0	0	1	1	0	2	4
LY	0	0	1	0	1	0	0	0	0	0	2
MO	0	0	0	0	1	0	0	0	0	0	1
MX	0	0	1	1	1	0	0	0	0	0	3
NZ	0	0	0	3	0	0	0	0	0	0	3
PK	0	0	0	1	0	0	0	0	0	0	1
QA	0	0	0	0	0	0	0	1	3	3	7
RU	0	0	0	0	0	0	0	4	0	0	4
SA	0	0	0	2	0	0	0	0	0	0	2
SG	0	0	0	0	0	0	0	0	0	1	1
SY	0	0	3	0	0	0	0	0	0	0	3
TR	0	0	7	0	0	0	0	0	0	0	7
TW	0	0	1	0	0	0	0	0	0	0	1
UA	0	1	0	0	0	0	0	0	0	0	1
UG	0	0	0	0	0	1	0	0	0	0	1
US	522	253	850	657	320	151	5	265	289	46	3358
ZA	0	2	0	1	1	0	1	2	2	3	12
ZW	1	0	0	0	0	0	0	0	0	0	1
Grand Total	534	261	882	670	334	162	15	289	317	58	3522

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, commercial purposes, on 03/23/2016.

Table 15. International trade in leopards and their parts for commercial purposes, where specimens were confiscated or seized, by importing country.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
claws		US	0	4	0	2	0	0	0	0	0	0	
cloth		US	0	0	0	0	0	0	0	1	0	0	
derivatives	g	US	0	562	0	0	0	435	0	0	0	0	997
derivatives		US	35	238	847	568	317	146	0	0	0	0	2151
feet		US	0	0	0	29	0	0	0	0	0	0	
garments		AU	0	0	0	0	0	0	0	0	1	0	
garments		DE	0	0	0	0	0	0	0	0	1	0	
garments		US	1	0	0	0	1	0	0	1	0	0	
leather products (small)		US	0	0	0	1	0	0	1	0	260	0	
medicine		US	0	0	0	0	0	0	0	260	26	45	331
skin pieces		AU	0	0	0	0	0	0	0	0	1	0	
skin pieces		US	1	0	0	55	0	0	0	1	1	0	
skins		IS	0	0	1	0	0	0	0	0	0	0	
skins		NZ	0	0	0	3	0	0	0	0	0	0	
skins		US	2	0	0	0	0	2	0	1	0	0	
skulls		US	0	0	0	0	0	1	0	0	0	0	
teeth		US	0	0	0	2	0	1	0	0	1	0	

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus*, commercial purposes, purpose is confiscated or seized, on 06/06/2016.

Table 16. Gross exports of *Panthera pardus* derivatives and medicines to the U.S., commercial purposes, where the source is confiscated or seized.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
derivatives	CH	0	0	0	0	10	0	0	0	0	0	10
derivatives	CN	0	201	847	568	307	146	0	0	0	0	2069
derivatives	KR	0	7	0	0	0	0	0	0	0	0	7
derivatives	VN	29	0	0	0	0	0	0	0	0	0	29
derivatives	XX	6	30	0	0	0	0	0	0	0	0	36
medicine	CN	0	0	0	0	0	0	0	260	26	0	286
medicine	HK	0	0	0	0	0	0	0	0	0	45	45
Totals		35	238	847	568	317	146	0	260	26	45	2482

Source: UNEP-WCMC CITES Trade Database searched by "gross exports" of *Panthera pardus* to the U.S. for commercial purposes, where the specimens were confiscated or seized, on 03/23/2016.

Table 17. International trade in leopards and their parts for commercial purposes, where specimens were confiscated or seized, by exporting country.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
cloth		AE	0	0	0	0	0	0	0	1	0	0	
garments		CA	0	0	0	0	1	0	0	0	0	0	
skins		CD	0	0	0	0	0	1	0	0	0	0	
derivatives		CH	0	0	0	0	10	0	0	0	0	0	
skins		CH	0	0	1	0	0	0	0	0	0	0	
skin pieces		CI	0	0	0	0	0	0	0	0	1	0	
teeth		CI	0	0	0	0	0	1	0	0	1	0	
derivatives	g	CN	0	0	0	0	0	435	0	0	0	0	435
derivatives		CN	0	201	847	568	307	146	0	0	0	0	2069

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
leather products (small)		CN	0	0	0	0	0	0	0	0	260	0	260
medicine		CN	0	0	0	0	0	0	0	260	26	0	286
skins		CN	0	0	0	3	0	0	0	0	0	0	3
garments		FR	1	0	0	0	0	0	0	0	0	0	
skins		FR	2	0	0	0	0	0	0	0	0	0	
garments		GB	0	0	0	0	0	0	0	1	0	0	
skin pieces		GB	0	0	0	1	0	0	0	0	0	0	
skins		GB	0	0	0	0	0	0	0	1	0	0	
medicine		HK	0	0	0	0	0	0	0	0	0	45	
leather products (small)		IR	0	0	0	0	0	0	1	0	0	0	
derivatives		KR	0	7	0	0	0	0	0	0	0	0	
claws		NA	0	4	0	0	0	0	0	0	0	0	
skins		NA	0	0	0	0	0	1	0	0	0	0	
skulls		NA	0	0	0	0	0	1	0	0	0	0	
skin pieces		NG	0	0	0	0	0	0	0	1	0	0	
derivatives	g	TW	0	562	0	0	0	0	0	0	0	0	
skin pieces		UG	1	0	0	0	0	0	0	0	0	0	
teeth		UG	0	0	0	2	0	0	0	0	0	0	
garments		US	0	0	0	0	0	0	0	0	2	0	
skin pieces		US	0	0	0	0	0	0	0	0	1	0	
derivatives		VN	29	0	0	0	0	0	0	0	0	0	
derivatives		XX	6	30	0	0	0	0	0	0	0	0	
claws		ZA	0	0	0	2	0	0	0	0	0	0	
feet		ZA	0	0	0	29	0	0	0	0	0	0	
leather products (small)		ZA	0	0	0	1	0	0	0	0	0	0	
skin pieces		ZA	0	0	0	54	0	0	0	0	0	0	

Source: UNEP-WCMC CITES Trade Database searched by "gross exports" of *Panthera pardus*, commercial purposes, purpose is confiscated or seized, on 06/06/2016.

Table 18: International trade in leopards and their parts for "commercial" purposes and from all sources: Exporting countries (range States in bold).

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AE	0	0	1	0	2	0	0	1	0	0	4
AR	0	2	0	0	0	0	0	0	0	0	2
AT	0	0	1	0	0	0	0	0	0	0	1
AU	0	1	0	1	0	0	0	1	1	0	4
BE	2	1	1	0	1	0	2	1	6	1	15
CA	0	0	0	0	1	0	0	0	0	0	1
CD	0	0	0	0	0	1	0	0	0	0	1
CH	0	0	15	0	11	1	0	0	2	0	29
CI	0	0	0	0	0	1	0	0	2	0	3

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
CN	0	207	847	571	307	146	0	260	286	0	2624
CZ	0	0	0	1	0	0	1	1	0	0	3
DE	7	4	8	1	1	1	5	2	1	1	31
ES	0	0	0	0	0	0	0	0	0	1	1
ET	0	0	0	1	0	0	0	0	0	0	1
FR	3	0	0	1	3	2	2	5	0	3	19
GB	1	0	4	1	2	0	2	13	7	0	30
HK	0	0	0	0	0	0	0	0	0	45	45
ID	3	0	0	0	0	0	0	0	0	0	3
IN	0	1	0	0	0	0	0	0	0	0	1
IR	0	0	0	0	0	0	1	0	0	0	1
JO	0	0	3	0	1	0	0	0	0	0	4
JP	477	0	0	0	0	0	0	0	0	0	477
KR	0	7	0	0	0	0	0	0	0	0	7
KZ	0	1	0	0	0	0	0	0	0	0	1
LT	0	1	0	0	0	0	0	0	0	0	1
LY	0	0	1	0	0	1	0	0	0	0	2
MZ	1	0	0	1	0	0	0	0	1	0	3
NA	0	5	0	0	0	2	0	0	0	0	7
NG	0	0	0	0	0	0	0	1	0	0	1
NL	0	0	0	0	0	0	0	0	3	1	4
TZ	4	0	1	0	3	0	2	1	0	0	11
UA	0	1	0	0	0	0	0	0	0	0	1
UG	1	0	0	2	0	1	0	0	0	0	4
US	0	0	0	2	0	0	0	3	8	2	15
VN	29	0	0	0	0	0	0	0	0	0	29
XX	6	30	0	0	0	0	0	0	0	0	36
ZA	0	0	0	88	0	5	0	0	0	0	93
ZM	0	0	0	0	0	1	0	0	0	1	2
ZW	0	0	0	0	2	0	0	0	0	3	5
Grand Total	534	261	882	670	334	162	15	289	317	58	3522

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, commercial purposes, on 03/23/2016.

Table 19: International trade in leopards and their parts for "hunting trophy" purposes from all sources.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	2	0	3	8	15	18	12	14	4	8	84
bones	0	1	0	2	6	12	41	16	13	13	104
claws	0	66	18	0	62	12	45	72	59	0	334
derivatives	0	0	0	0	20	6	0	0	0	0	26
feet	0	2	0	0	0	0	0	4	0	0	6
garments	0	0	0	0	0	0	0	0	0	1	1
hair	0	0	0	0	0	0	0	0	0	1	1
leather products (large)	0	8	0	0	0	0	0	0	0	0	8
leather products (small)	0	1	0	0	0	0	0	0	0	0	1
live	0	0	0	0	0	2	0	0	0	0	2
plates	0	0	0	2	0	0	0	0	0	0	2

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skeletons	1	0	0	0	0	0	1	0	0	0	2
skin pieces	0	0	0	0	4	1	1	5	1	2	14
skins	22	112	6	23	191	215	336	423	209	27	1564
skulls	11	131	6	42	229	267	431	473	273	111	1974
tails	0	0	0	0	0	1	0	0	0	10	11
teeth	31	4	0	0	0	18	27	4	4	4	92
trophies	1202	1099	1010	1115	1277	929	696	888	645	634	9495
Grand Total	1269	1424	1043	1192	1804	1481	1590	1899	1208	811	13721

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, hunting trophy purpose, on 03/23/2016.

Table 20: International trade in leopards and their parts for "hunting trophy" purposes and from all sources: Importing countries (range States in bold).

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AE	0	1	1	2	1	0	10	0	3	2	20
AR	1	4	7	1	8	4	4	17	10	5	61
AT	23	26	9	21	23	19	19	24	20	13	197
AU	0	4	0	2	0	6	4	3	0	1	20
BE	11	6	11	10	14	15	4	6	2	1	80
BG	4	6	7	3	1	8	3	8	1	2	43
BH	0	1	0	0	0	0	0	0	0	0	1
BR	1	10	0	1	3	2	0	0	0	4	21
BW	1	0	0	0	0	0	2	4	5	0	12
BY	0	0	0	1	0	0	0	0	0	0	1
CA	33	59	3	70	97	44	43	31	20	24	424
CH	14	2	12	2	11	2	9	15	12	5	84
CL	4	0	0	0	0	2	0	0	3	0	9
CN	1	1	0	1	0	3	0	1	1	0	8
CO	0	1	0	0	2	6	0	2	0	1	12
CR	2	1	0	2	0	0	1	1	0	0	7
CS	1	0	0	0	0	0	0	0	0	0	1
CZ	9	7	2	5	4	6	16	14	15	3	81
DE	96	64	39	38	95	38	55	86	54	39	604
DK	7	11	11	14	26	32	91	9	7	9	217
EC	0	0	2	0	0	0	0	0	0	0	2
EE	1	3	0	1	0	0	0	0	1	1	7
EG	0	1	0	0	0	0	0	0	0	0	1
ES	90	98	101	76	109	111	110	56	33	26	810
FI	6	4	3	3	24	5	10	7	3	5	70
FR	191	73	42	47	114	114	47	72	38	39	777
GB	6	11	7	16	27	18	22	23	18	8	156
HN	0	0	0	0	0	0	0	0	2	0	2
HR	6	3	3	3	4	1	1	0	0	1	22
HU	0	0	6	11	37	11	18	20	23	12	138
ID	0	0	0	0	0	0	0	0	0	1	1
IE	1	0	3	0	0	0	0	0	0	0	4
IS	0	0	0	1	2	0	1	1	7	2	14
IT	20	12	15	18	34	32	38	27	21	8	225
JM	1	0	1	0	0	0	4	0	0	0	6
KW	0	0	2	1	1	0	0	0	0	0	4
LB	1	0	0	0	0	0	2	0	1	0	4
LT	1	1	2	2	5	3	0	4	4	4	26

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
LU	2	1	6	4	0	4	7	0	1	3	28
LV	2	4	3	4	2	3	0	1	3	3	25
MA	0	2	0	1	0	0	0	0	0	0	3
MC	0	0	0	0	0	0	0	0	0	1	1
MG	0	0	0	0	0	0	2	2	0	0	4
MU	0	0	0	0	0	0	0	2	0	0	2
MX	39	70	53	63	56	61	61	76	60	34	573
MZ	0	0	0	0	0	2	2	1	0	2	7
NA	3	2	0	2	0	1	4	5	0	0	17
NC	0	0	0	0	0	1	0	0	0	1	2
NI	0	0	0	0	0	0	0	1	0	0	1
NL	5	1	0	1	4	3	4	0	0	2	20
NO	2	5	2	8	8	11	12	5	3	10	66
NP	0	0	1	0	0	0	0	0	0	0	1
NZ	2	0	0	1	4	6	4	7	3	3	30
PA	0	0	0	0	0	1	0	2	6	0	9
PH	1	0	0	3	2	4	4	0	0	0	14
PK	3	1	1	0	2	0	6	5	0	0	18
PL	5	10	8	8	12	6	10	8	6	6	79
PT	18	13	12	7	19	13	24	17	6	1	130
QA	2	0	0	0	0	2	1	6	5	4	20
RO	1	0	4	2	1	1	0	2	2	1	14
RS	0	1	1	2	1	1	1	0	2	0	9
RU	15	8	21	31	48	48	46	53	11	40	321
SA	0	0	4	0	1	0	0	0	0	0	5
SB	0	0	0	0	0	0	2	0	0	0	2
SD	0	0	0	0	0	0	0	0	0	2	2
SE	2	6	9	5	29	31	7	34	14	4	141
SG	0	1	0	0	0	0	0	0	3	0	4
SI	1	4	5	1	2	1	0	2	0	0	16
SK	3	3	2	8	5	2	5	5	5	11	49
SL	0	1	0	0	1	2	1	2	0	0	7
SV	0	0	1	0	0	0	0	0	0	0	1
SZ	2	0	3	2	1	0	0	0	0	2	10
TR	0	0	0	1	1	0	1	0	0	0	3
TZ	1	1	1	1	1	11	1	0	0	0	17
UA	0	1	2	2	1	2	0	0	2	3	13
US	522	693	538	606	840	663	707	1074	644	408	6695
VG	0	1	0	0	0	0	0	0	0	0	1
XX	15	2	0	0	0	5	0	1	0	2	25
YU	0	0	0	0	0	0	0	0	2	0	2
ZA	87	178	74	75	117	112	158	148	114	50	1113
ZM	0	0	0	0	0	0	2	3	0	1	6
ZW	4	5	3	2	4	2	4	6	12	1	43
Grand Total	1269	1424	1043	1192	1804	1481	1590	1899	1208	811	13,721

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, hunting trophy purpose, on 03/23/2016.

Table 21: International trade in leopards and their parts for "hunting trophy" purposes from all sources: Exporting countries (range States in bold).

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AE	2	0	0	0	0	0	0	0	0	0	2
AR	0	0	0	0	0	0	2	0	3	0	5
AT	3	0	0	1	1	0	2	1	1	1	10
AU	0	0	1	0	0	0	0	0	0	0	1
BE	0	0	0	0	0	0	0	0	1	0	1
BH	0	0	2	0	0	0	0	0	0	0	2
BR	0	0	0	0	1	0	0	0	0	0	1
BW	54	51	59	58	40	34	42	66	28	4	436
CA	0	0	0	4	0	0	0	4	0	0	8
CF	38	28	29	17	110	70	29	23	3	0	347
CH	4	0	0	0	0	0	0	0	0	0	4
CL	0	0	0	0	0	4	0	0	0	0	4
DE	2	0	3	1	0	0	0	1	8	1	16
DK	0	0	0	0	0	0	0	0	0	1	1
ES	0	0	1	0	0	0	0	0	0	2	3
ET	3	2	0	1	6	2	2	2	1	2	21
FI	1	1	0	0	0	0	0	0	0	1	3
FR	4	1	2	1	3	0	0	3	0	0	14
GB	2	0	0	0	2	0	0	0	0	0	4
IR	0	0	0	0	0	2	0	0	0	0	2
IT	1	1	0	0	1	0	0	1	0	0	4
MX	0	0	0	0	0	2	0	3	0	0	5
MZ	73	68	58	42	71	60	168	241	161	67	1009
NA	208	236	174	216	362	202	154	122	122	121	1917
NZ	0	0	0	0	0	0	0	0	0	1	1
PT	1	0	0	0	0	0	0	0	0	0	1
QA	0	0	0	0	0	0	2	0	0	0	2
TN	0	0	0	2	0	0	0	0	0	0	2
TW	0	0	0	0	3	0	0	0	0	0	3
TZ	351	344	239	294	511	394	235	310	222	188	3088
UG	0	0	0	0	5	0	1	2	0	2	10
US	2	5	3	12	10	8	5	15	6	2	68
UY	0	0	0	0	1	0	0	0	0	0	1
XX	0	0	0	0	0	1	1	0	0	2	4
ZA	114	254	131	160	242	331	422	286	159	192	2291
ZM	77	77	72	96	101	105	128	170	65	4	895
ZW	329	356	269	287	334	266	397	649	428	220	3535
Grand Total	1269	1424	1043	1192	1804	1481	1590	1899	1208	811	13721

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, hunting trophy purpose, on 03/23/2016.

Table 22: International trade in leopards trophies for "personal" purposes from all sources: Importing countries (range States in bold).

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	AE	4	7	5	0	0	4	0	1	2	0	
trophies	AT	3	2	6	12	4	1	2	0	2	2	34
trophies	AU	2	0	0	0	1	0	1	0	0	1	
trophies	BG	0	1	0	0	1	0	0	0	0	0	
trophies	BH	0	2	0	0	0	0	0	0	0	0	
trophies	BS	0	1	0	1	1	0	0	0	0	0	
trophies	CA	3	0	0	0	1	0	0	1	0	2	

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	CH	0	0	0	2	0	0	20	0	1	0	23
trophies	CL	0	0	1	1	0	0	0	0	0	0	
trophies	CN	0	0	0	0	0	0	0	2	0	0	
trophies	CR	0	2	0	0	0	0	0	0	0	0	
trophies	CS	0	0	0	1	0	0	0	0	0	0	
trophies	DE	4	0	3	0	3	3	0	1	0	0	
trophies	EC	0	0	0	0	0	0	1	0	0	0	
trophies	EE	0	0	0	1	0	0	0	0	0	0	
trophies	ES	0	0	0	0	0	0	3	1	11	0	15
trophies	FI	0	1	0	0	0	1	0	0	0	0	
trophies	FR	0	0	34	141	75	62	16	75	28	27	458
trophies	GB	0	0	0	1	0	0	0	0	0	0	
trophies	IM	0	0	0	0	0	0	0	0	0	1	
trophies	IS	0	0	0	0	1	0	0	0	0	0	
trophies	IT	0	0	0	0	0	0	0	0	2	0	
trophies	LB	0	0	1	3	2	2	2	0	0	0	
trophies	LI	1	0	0	0	0	0	0	0	0	0	
trophies	MA	0	0	0	1	1	1	2	0	0	1	
trophies	MX	1	0	1	2	0	0	0	1	0	0	
trophies	NG	0	0	0	0	0	0	0	4	0	0	
trophies	NL	0	0	1	0	1	0	0	0	0	0	
trophies	NZ	0	1	0	0	0	1	0	0	0	0	
trophies	PH	0	0	0	0	41	5	0	0	0	0	46
trophies	PK	0	0	0	0	0	0	1	0	0	0	
trophies	PL	0	0	0	0	0	0	0	1	0	0	
trophies	QA	0	0	0	0	0	0	1	0	0	0	
trophies	RU	0	0	0	5	5	2	2	4	14	5	37
trophies	SE	0	1	0	0	0	0	0	3	0	0	
trophies	SG	0	0	0	0	1	0	0	0	1	0	
trophies	SI	0	0	0	1	2	0	0	0	0	0	
trophies	SZ	4	0	0	0	0	0	0	0	0	0	
trophies	US	3	3	3	2	1	0	0	11	7	1	31
trophies	**ZA**	0	0	0	0	0	0	2	9	0	0	
Total		25	21	55	174	141	82	53	114	68	40	773

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus* trophies, all sources, hunting trophy purpose, on 06/06/2016.

Table 23: International trade in leopards trophies for "personal" purposes from all sources: Exporting countries (range States in bold).

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	AE	0	0	0	0	0	0	1	0	0	0	
trophies	AR	0	0	0	0	0	0	2	0	0	0	
trophies	AU	0	0	0	0	0	0	0	1	0	0	
trophies	BH	0	0	0	0	0	0	0	0	1	0	
trophies	**BW**	0	0	0	2	4	0	3	22	21	1	53
trophies	**CF**	0	0	13	16	19	18	10	8	1	0	85
trophies	DE	0	0	0	5	0	0	3	0	5	1	
trophies	**ET**	0	4	0	0	1	0	0	0	0	1	
trophies	FR	0	3	0	0	0	0	0	0	0	0	
trophies	GB	0	1	0	0	0	0	0	1	0	0	
trophies	**KE**	0	0	0	0	1	0	1	0	0	0	
trophies	MX	0	1	0	0	0	0	0	0	0	0	

trophies	**MZ**	4	0	1	12	2	4	2	6	1	6	38
trophies	**NA**	3	2	8	27	19	7	6	4	7	3	86
trophies	NL	0	0	0	0	0	0	0	1	0	0	
trophies	NO	0	0	0	1	1	0	0	2	0	0	
trophies	NZ	0	0	0	0	0	0	0	0	0	1	
trophies	**TZ**	6	4	22	94	36	35	16	54	17	19	303
trophies	**UG**	0	0	0	0	1	0	0	0	0	0	
trophies	US	0	0	0	0	0	1	0	0	0	0	
trophies	**ZA**	3	4	2	7	44	11	0	0	4	2	77
trophies	**ZM**	2	0	2	2	5	2	3	4	4	1	
trophies	**ZW**	7	2	7	8	8	4	6	11	7	5	65

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus* trophies, all sources, hunting trophy purpose, on 06/06/2016.

Table 24: International trade in leopards and their parts for "scientific" purposes from all sources

Term	Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		0	0	0	0	0	0	1	0	0	0	1
bones		0	0	0	257	0	0	0	0	0	0	257
derivatives		0	0	0	0	0	0	50	0	0	0	50
hair	kg	0.486	0	0	0.2	0	0	0	0	0	0	0.686
hair		0	6	0	10	209	0	0	2	7	0	234
live		2	0	0	0	1	1	0	0	0	0	4
skin pieces		0	0	0	1	0	0	0	0	0	0	1
skins		0	0	0	7	0	0	0	0	0	0	7
specimens	flasks	0	3	0	0	0	0	0	0	0	0	3
specimens	g	0	300	0	0	0	0	0	0	16	36	352
specimens	kg	0	0.3	0	0	0	15	0	0	0	0	15.3
specimens	ml	0	5.5	0	0	0	6	0	60	1.5	0	73
specimens		126	108	99	260	360	437	311	1384	140	1034	4259
teeth	g	65	0	0	0	0	0	0	0	0	0	65

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, scientific purpose, on 06/06/2016.

Table 25: International trade in leopards and their parts for "scientific" purposes from all sources: Importing countries (range States in bold).

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
hair		AU	0	0	0	0	0	0	0	2	0	0
hair		CH	0	6	0	0	0	0	0	0	0	0
specimens	ml	CH	0	5	0	0	0	0	0	0	0	0
specimens		CH	0	100	46	30	0	0	0	0	6	3
specimens	g	CN	0	0	0	0	0	0	0	0	0	36
bones		DE	0	0	0	257	0	0	0	0	0	0
specimens	ml	DE	0	0	0	0	0	0	0	60	0	0
specimens		DE	126	0	53	44	1	100	30	1233	0	901
hair	kg	FR	0.486	0	0	0	0	0	0	0	0	0
teeth	g	FR	65	0	0	0	0	0	0	0	0	0
derivatives		GB	0	0	0	0	0	0	50	0	0	0
hair		GB	0	0	0	0	209	0	0	0	0	0
specimens	flasks	GB	0	3	0	0	0	0	0	0	0	0
specimens		GB	0	8	0	0	343	0	0	0	0	0
live		GT	0	0	0	0	0	1	0	0	0	0
specimens	ml	IL	0	0	0	0	0	0	0	0	1.5	0

live		JO	0	0	0	0	1	0	0	0	0	0
hair	kg	JP	0	0	0	0.2	0	0	0	0	0	0
live		JP	2	0	0	0	0	0	0	0	0	0
specimens	g	JP	0	300	0	0	0	0	0	0	0	0
specimens	kg	JP	0	0.3	0	0	0	15	0	0	0	0
bodies		KR	0	0	0	0	0	0	1	0	0	0
hair		NL	0	0	0	10	0	0	0	0	0	0
specimens		NO	0	0	0	0	0	0	0	1	0	0
hair		US	0	0	0	0	0	0	0	0	7	0
skin pieces		US	0	0	0	1	0	0	0	0	0	0
skins		US	0	0	0	7	0	0	0	0	0	0
specimens	g	US	0	0	0	0	0	0	0	0	16	0
specimens	ml	US	0	0	0	0	0	6	0	0	0	0
specimens		US	0	0	0	186	0	286	281	150	39	0
specimens		US	0	0	0	0	0	51	0	0	0	0
specimens	ml	**ZA**	0	0.5	0	0	0	0	0	0	0	0
specimens		**ZA**	0	0	0	0	16	0	0	0	95	130

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, scientific purpose, on 06/06/2016.

Table 26: International trade in leopards and their parts for "scientific" purposes from all sources: Exporting countries (range States in bold).

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
live		AE	0	0	0	0	1	0	0	0	0	0
specimens		AE	0	0	35	5	0	0	20	0	2	0
bodies		BE	0	0	0	0	0	0	1	0	0	0
hair		**BW**	0	6	0	0	0	0	0	0	0	0
specimens	ml	**BW**	0	5	0	0	0	0	0	0	0	0
specimens		**BW**	0	4	11	25	16	0	0	0	60	0
specimens		**CF**	0	0	0	0	0	0	0	0	6	3
specimens		CH	125	0	0	0	0	0	0	0	0	0
hair	kg	DJ	0.486	0	0	0	0	0	0	0	0	0
teeth	g	DJ	65	0	0	0	0	0	0	0	0	0
specimens		DK	0	0	0	0	0	0	0	2	0	0
specimens		GA	0	0	0	0	0	0	0	0	20	0
specimens		GQ	0	0	0	0	0	0	5	0	0	0
live		ID	2	0	0	0	0	0	0	0	0	0
specimens	ml	**KE**	0	0.5	0	0	0	0	0	0	1.5	0
specimens		**KE**	0	0	0	0	0	51	0	0	0	0
specimens	kg	KH	0	0	0	0	0	15	0	0	0	0
specimens		LR	0	0	0	0	0	0	0	0	0	1
live		MX	0	0	0	0	0	1	0	0	0	0
specimens	ml	**NA**	0	0	0	0	0	6	0	60	0	0
specimens		**NA**	0	0	0	0	0	100	0	1233	34	1030
skin pieces		NL	0	0	0	1	0	0	0	0	0	0
skins		NL	0	0	0	7	0	0	0	0	0	0
hair	kg	RU	0	0	0	0.2	0	0	0	0	0	0
specimens	g	RU	0	0	0	0	0	0	0	0	0	36
specimens		RU	0	0	0	186	343	286	286	0	0	0
specimens	flasks	SG	0	3	0	0	0	0	0	0	0	0
specimens		SN	0	0	0	0	0	0	0	0	18	0
hair		**TZ**	0	0	0	10	0	0	0	0	0	0
specimens		**UG**	1	0	0	0	0	0	0	0	0	0
hair		US	0	0	0	0	0	0	0	2	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
specimens	g	US	0	300	0	0	0	0	0	0	0	0
specimens	kg	US	0	0.3	0	0	0	0	0	0	0	0
specimens		US	0	0	0	0	1	0	0	0	0	0
derivatives		**ZA**	0	0	0	0	0	0	50	0	0	0
hair		**ZA**	0	0	0	0	209	0	0	0	0	0
specimens		**ZA**	0	0	0	0	0	0	0	149	0	0
bones		**ZM**	0	0	0	257	0	0	0	0	0	0
hair		**ZM**	0	0	0	0	0	0	0	0	7	0
specimens	g	**ZM**	0	0	0	0	0	0	0	0	16	0
specimens		**ZM**	0	104	53	44	0	0	0	0	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, scientific purpose, on 06/06/2016.

Table 26: International trade in leopards and their parts for "breeding in captivity" purposes from all sources: Exporting countries (range States in bold).

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	AE	0	0	0	1	0	5	0	1	0	0	7
live	BE	0	1	0	0	1	0	0	0	4	0	6
live	CA	0	0	0	1	0	0	0	0	0	0	1
live	CZ	0	0	0	0	0	0	0	1	3	0	4
live	DE	1	0	0	0	1	0	1	0	0	0	3
live	FR	0	0	0	0	0	0	0	1	0	0	1
live	GB	0	0	0	0	0	0	1	0	0	0	1
live	ID	0	0	0	0	0	0	2	0	0	0	2
live	ML	0	0	0	2	0	0	0	0	0	0	2
live	**SZ**	0	0	0	0	1	0	0	0	0	0	1
live	UA	0	0	0	0	1	0	0	0	0	0	1
live	YE	0	0	6	0	0	0	0	0	0	0	6
live	**ZA**	1	2	2	1	0	0	1	1	0	0	8
Total												43

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, breeding in captivity purpose, on 06/06/2016.

Table 27: International trade in leopards and their parts for "breeding in captivity" purposes from all sources: Importing countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	AE	2	3	8	0	0	0	0	0	3	0	16
live	AM	0	0	0	0	1	5	0	0	0	0	6
live	BH	0	0	0	0	0	0	1	0	0	0	1
live	EG	0	0	0	0	0	0	0	1	0	0	1
live	GA	0	0	0	0	0	0	3	1	0	0	4
live	GM	0	0	0	2	0	0	0	0	0	0	2
live	JP	0	0	0	0	0	0	1	0	0	0	1
live	PK	0	0	0	1	0	0	0	0	0	0	1
live	RU	0	0	0	0	0	0	0	2	0	0	2
live	SA	0	0	0	0	0	0	0	0	4	0	4
live	SY	0	0	0	0	1	0	0	0	0	0	1
live	TH	0	0	0	2	1	0	0	0	0	0	3
live	ZA	0	0	0	0	1	0	0	0	0	0	1

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, breeding in captivity purpose, on 06/06/2016.

Table 28: International trade in leopards and their parts for "educational" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	BW	0	0	1	0	0	0	0	0	0	0	1
bodies	ZA	1	0	0	0	0	1	2	4	1	0	9
bodies	ZW	0	0	1	0	0	0	0	0	0	0	1
derivatives	DK	0	0	635	0	0	0	0	0	0	0	635
derivatives	SL	0	0	5	0	0	0	0	0	0	0	5
leather products (small)	AE	0	0	0	0	0	1	0	0	0	0	1
live	CY	0	0	0	0	3	0	0	0	0	0	3
live	GT	0	0	0	0	0	0	0	1	0	0	1
skins	AE	0	1	1	1	3	1	0	0	0	0	7
skins	CH	0	1	1	0	0	0	0	0	0	0	2
skins	TZ	0	0	0	0	0	0	0	1	0	0	1
skins	US	0	0	0	0	0	0	1	0	1	0	2
skulls	GB	0	0	0	0	0	1	0	0	0	0	1
skulls	TN	0	0	0	1	0	0	0	0	0	0	1
skulls	TZ	0	0	0	0	0	0	0	1	0	0	1
skulls	ZA	1	0	0	0	0	0	0	2	0	0	3
specimens	AE	0	0	0	1	0	0	0	0	0	0	1
specimens	TH	0	0	0	0	0	0	1	0	0	0	1
specimens	ZA	4	0	0	1	1	2	0	0	0	1	9
specimens	ZW	0	0	0	0	0	2	0	0	0	0	2
teeth	SY	0	0	0	0	0	12	0	0	0	0	12
trophies	ZA	2	0	1	1	1	1	0	1	2	0	9
trophies	ZW	0	0	2	0	0	2	0	0	0	0	4
Total												712

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, breeding in educational purpose, on 06/06/2016.

Table 29: International trade in leopards and their parts for "law enforcement/judicial/forensic" purposes from all sources: Exporting countries.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
skin pieces		GA	0	0	0	0	0	0	0	5	0	0
skins	kg	GA	0	0	0	0	0	0	0	0.19	0	0
skins		GB	1	0	0	0	0	0	0	0	0	0
skins		NL	0	0	3	0	0	0	0	0	0	0
skins		SZ	0	0	0	0	0	0	0	2	0	0
specimens		SZ	0	0	0	0	0	0	0	2	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, law enforcement/judicial/forensic purpose, on 06/06/2016.

Table 29: International trade in leopards and their parts for "medical" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
specimens	AE	0	0	0	0	0	0	0	0	0	2
specimens	BW	0	0	0	0	0	0	0	27	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, medical purpose, on 06/06/2016.

Table 30: International trade in leopards and their parts for "reintroduction or introduction into the wild" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
live	TM	0	0	0	0	2	0	0	0	0	0
live	ZA	0	0	0	0	0	0	6	6	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, reintroduction or introduction into the wild purpose, on 06/06/2016.

Table 31: International trade in leopards and their parts for "personal" purposes from all sources.

Term	Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		3	0	3	2	5	0	4	3	4	2	26
bone pieces		0	0	0	2	0	0	0	0	0	0	2
bones		0	0	2	40	2	0	0	0	6	0	50
carvings		1	0	0	0	3	1	0	0	0	0	5
claws		0	0	2	1	2	6	20	0	0	1	32
derivatives	kg	0	0	0.04	0.062	2.9562	11.35	0	0	0	0	14.4082
derivatives	g	0	0	0	0	120	2315	0	0	0	0	2435
derivatives		1091	1386	1588.5	1096	1256	666	1392	0	0	1	8476.5
garments		1	0	2	0	1	4	0	1	2	1	12
hair		0	0	0	0	0	0	2	0	1	0	3
hair products		0	0	0	0	0	0	0	1	0	0	1
leather products (large)		0	0	0	0	1	1	0	1	0	0	3
leather products (small)		3	1	2	1	0	4	1	2	1	0	15
live		3	0	0	0	4	0	0	0	0	0	7
medicine	kg	0	0	0	0	0	0	0	0	0	1.45	1.45
medicine		0	0	0	0	0	0	0	123	30	54	207
plates		2	0	0	0	0	0	0	0	0	0	2
shoes		0	0	4	0	0	0	0	0	0	0	4
skin pieces	kg	0	0	0	0	10	0	0	0	0	0	10
skin pieces		5	0	1	8	1	1	1	4	3	1	25
skins	kg	0	0	0	0	0	0	0	0	0	1.9	1.9
skins		24	34	27	22	16	12	10	25	11	10	191
skulls	kg	0	0	0	0	0	0	0	0	0	0.65	0.65
skulls		10	1	11	3	6	6	7	2	3	3	52
specimens		2	0	0	0	0	1	0	5	1	0	9
tails		0	0	0	0	0	1	0	0	0	0	1
teeth		0	0	9	0	1	9	3	0	0	1	23
trophies		25	21	55	174	141	82	53	114	68	40	773
unspecified		1	0	0	0	0	0	0	0	0	0	1
Total #		1171	1443	1706.5	1349	1439	794	1493	281	130	114	9920.5
Total g		0	0	0	0	120	2315	0	0	0	0	2435
Total kg		0	0	0.04	0.062	12.9562	11.35	0	0	0	4	28.4082

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, personal purpose, on 06/06/2016.

Table 32: International trade in leopards and their parts for "personal" purposes from all sources: Exporting countries.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
bodies		BE	0	0	0	0	0	0	0	0	0	1
bodies		CA	0	0	0	0	0	0	1	1	0	0
bodies		CH	0	0	1	0	0	0	0	0	3	0
bodies		FR	3	0	1	0	0	0	3	1	0	1
bodies		NA	0	0	1	1	0	0	0	0	0	0
bodies		NL	0	0	0	0	0	0	0	1	0	0
bodies		US	0	0	0	1	0	0	0	0	0	0
bodies		ZA	0	0	0	0	5	0	0	0	1	0
bone pieces		ZA	0	0	0	2	0	0	0	0	0	0
bones		CN	0	0	2	40	0	0	0	0	0	0
bones		NA	0	0	0	0	0	0	0	0	2	0
bones		TZ	0	0	0	0	0	0	0	0	4	0
bones		ZA	0	0	0	0	2	0	0	0	0	0
carvings		JE	0	0	0	0	0	1	0	0	0	0
carvings		NZ	0	0	0	0	3	0	0	0	0	0
carvings		ZA	1	0	0	0	0	0	0	0	0	0
claws		CR	0	0	0	0	0	0	1	0	0	0
claws		FR	0	0	0	0	0	0	18	0	0	0
claws		KH	0	0	0	0	0	0	1	0	0	0
claws		NP	0	0	0	0	0	0	0	0	0	1
claws		US	0	0	2	0	0	0	0	0	0	0
claws		VN	0	0	0	1	1	2	0	0	0	0
claws		ZA	0	0	0	0	1	4	0	0	0	0
derivatives		AU	0	0	0	4	0	0	0	0	0	0
derivatives		CA	0	61	0	0	0	1	0	0	0	0
derivatives		CI	0	5	0	0	0	0	0	0	0	0
derivatives	g	CN	0	0	0	0	120	2200	0	0	0	0
derivatives	kg	CN	0	0	0.04	0.026	2.9562	11.35	0	0	0	0
derivatives		CN	1019	1166	1344.5	858	1241	632	1392	0	0	0
derivatives		DE	0	1	3	0	0	0	0	0	0	0
derivatives		GB	0	0	0	6	0	0	0	0	0	0
derivatives		HK	0	30	5	65	6	25	0	0	0	0
derivatives	kg	ID	0	0	0	0.036	0	0	0	0	0	0
derivatives		ID	0	0	0	2	0	0	0	0	0	0
derivatives		JP	0	0	1	0	0	0	0	0	0	0
derivatives		KH	0	0	49	24	0	7	0	0	0	0
derivatives		KR	15	0	0	0	2	0	0	0	0	0
derivatives		LA	0	10	0	0	0	0	0	0	0	0
derivatives	g	MY	0	0	0	0	0	115	0	0	0	0
derivatives		MY	0	0	0	13	2	0	0	0	0	0
derivatives		NG	0	0	3	0	0	0	0	0	0	0
derivatives		PH	0	13	6	0	0	0	0	0	0	0
derivatives		PT	0	0	3	0	0	0	0	0	0	0
derivatives		SG	0	0	0	62	2	0	0	0	0	0
derivatives		TH	0	0	0	16	0	0	0	0	0	0
derivatives		TW	0	13	0	0	0	0	0	0	0	0
derivatives		US	0	0	0	0	0	0	0	0	0	1
derivatives		VN	16	37	60	20	3	0	0	0	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
derivatives		XX	41	50	114	26	0	1	0	0	0	0
garments		AT	0	0	1	0	0	0	0	0	0	0
garments		CA	0	0	0	0	1	3	0	0	0	0
garments		DK	0	0	0	0	0	0	0	0	1	0
garments		GB	0	0	0	0	0	0	0	0	1	1
garments		MX	0	0	1	0	0	0	0	0	0	0
garments		ZA	1	0	0	0	0	1	0	1	0	0
hair		GB	0	0	0	0	0	0	0	0	1	0
hair		KH	0	0	0	0	0	0	2	0	0	0
hair products		NG	0	0	0	0	0	0	0	1	0	0
leather products (large)		CA	0	0	0	0	0	1	0	0	0	0
leather products (large)		GB	0	0	0	0	0	0	0	1	0	0
leather products (large)		ZA	0	0	0	0	1	0	0	0	0	0
leather products (small)		AU	0	0	1	0	0	0	0	0	0	0
leather products (small)		GB	3	0	1	0	0	0	0	1	0	0
leather products (small)		GH	0	0	0	1	0	0	0	0	0	0
leather products (small)		LR	0	0	0	0	0	0	1	0	0	0
leather products (small)		NZ	0	0	0	0	0	0	0	1	0	0
leather products (small)		SD	0	0	0	0	0	4	0	0	0	0
leather products (small)		ZA	0	1	0	0	0	0	0	0	1	0
live		BE	2	0	0	0	0	0	0	0	0	0
live		SD	1	0	0	0	0	0	0	0	0	0
live		UA	0	0	0	0	2	0	0	0	0	0
live		ZA	0	0	0	0	2	0	0	0	0	0
medicine	kg	CN	0	0	0	0	0	0	0	0	0	1.45
medicine		CN	0	0	0	0	0	0	0	123	29	6
medicine		HK	0	0	0	0	0	0	0	0	1	48
plates		CH	1	0	0	0	0	0	0	0	0	0
plates		IN	1	0	0	0	0	0	0	0	0	0
shoes		SD	0	0	4	0	0	0	0	0	0	0
skin pieces		CH	0	0	0	0	0	0	0	0	0	1
skin pieces		CN	0	0	1	0	0	0	0	0	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
skin pieces	kg	FR	0	0	0	0	10	0	0	0	0	0
skin pieces		GB	0	0	0	0	0	0	0	2	0	0
skin pieces		GH	0	0	0	2	0	0	0	0	0	0
skin pieces		LA	1	0	0	0	0	0	0	0	0	0
skin pieces		NG	0	0	0	0	1	1	0	0	0	0
skin pieces		NI	1	0	0	0	0	0	0	0	0	0
skin pieces		NZ	0	0	0	0	0	0	1	0	0	0
skin pieces		PH	0	0	0	0	0	0	0	0	1	0
skin pieces		SA	2	0	0	0	0	0	0	0	0	0
skin pieces		TH	0	0	0	0	0	0	0	1	0	0
skin pieces		TW	1	0	0	0	0	0	0	0	0	0
skin pieces		ZA	0	0	0	6	0	0	0	1	2	0
skins		AE	6	0	0	0	0	0	0	0	0	0
skins		AU	0	0	0	0	0	0	2	0	0	0
skins	kg	BE	0	0	0	0	0	0	0	0	0	1.9
skins		CA	0	0	0	2	0	2	0	1	2	0
skins		CD	1	0	0	3	1	0	0	5	0	0
skins		CH	0	0	0	0	0	0	1	0	0	0
skins		CI	2	0	0	0	0	0	0	0	0	0
skins		CM	1	0	0	0	0	0	0	0	0	0
skins		CY	0	0	1	0	0	0	0	0	0	0
skins		DE	0	2	0	0	0	0	0	0	0	0
skins		FR	0	0	0	1	0	0	2	0	0	0
skins		GB	3	4	4	0	0	0	0	2	1	1
skins		GH	1	0	0	0	0	0	0	0	0	0
skins		HK	0	0	0	1	0	0	0	0	0	0
skins		IE	0	0	1	0	0	0	0	0	0	0
skins		IR	1	0	0	0	0	0	0	0	0	0
skins		KE	0	0	0	0	1	0	0	0	0	0
skins		LR	0	0	0	1	0	0	0	0	0	0
skins		ML	0	1	0	0	0	0	0	0	0	0
skins		MW	0	0	0	0	2	0	0	1	0	0
skins		MZ	0	1	0	0	5	0	0	0	0	0
skins		NA	2	8	12	0	0	1	1	0	0	0
skins		NG	1	2	0	0	0	1	0	0	1	0
skins		NL	0	0	0	0	0	0	0	0	0	2
skins		NO	0	0	0	0	1	0	0	0	1	0
skins		NP	2	0	0	0	0	0	0	0	0	0
skins		NZ	0	4	0	6	1	2	0	4	0	0
skins		PT	0	0	0	0	0	0	1	0	0	0
skins		SA	0	0	1	0	0	0	0	0	0	0
skins		SD	0	0	0	0	0	0	1	0	0	0
skins		SG	0	0	0	0	0	1	0	0	0	0
skins		SZ	0	0	0	0	1	0	0	2	0	0
skins		TZ	0	3	1	0	0	0	0	0	0	2
skins		UY	0	0	0	0	1	0	0	0	0	0
skins		XX	0	0	0	0	1	0	0	0	0	0
skins		ZA	0	5	2	3	0	5	2	0	4	4
skins		ZM	2	2	3	4	0	0	0	0	0	0
skins		ZW	2	2	2	1	2	0	0	10	2	1
skulls		AE	6	0	0	0	0	0	0	0	0	0
skulls		AT	0	0	0	1	0	0	0	0	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
skulls		CA	0	0	0	1	0	0	0	0	0	0
skulls		CG	0	0	0	0	1	0	0	0	0	0
skulls		CH	0	0	0	0	0	1	0	0	0	0
skulls		FR	0	0	0	0	1	2	5	1	0	0
skulls		MX	0	0	0	0	0	1	0	0	0	0
skulls		NA	1	0	8	0	0	0	0	1	0	0
skulls		NO	0	0	0	0	0	0	0	0	2	0
skulls		TZ	0	0	1	0	0	0	0	0	0	1
skulls	kg	ZA	0	0	0	0	0	0	0	0	0	0.65
skulls		ZA	0	1	0	0	3	1	2	0	1	1
skulls		ZM	1	0	0	0	0	0	0	0	0	0
skulls		ZW	2	0	2	1	1	1	0	0	0	1
specimens		AE	0	0	0	0	0	0	0	2	0	0
specimens		CH	0	0	0	0	0	0	0	2	1	0
specimens		TZ	1	0	0	0	0	0	0	0	0	0
specimens		US	0	0	0	0	0	1	0	0	0	0
specimens		ZA	0	0	0	0	0	0	0	1	0	0
specimens		ZW	1	0	0	0	0	0	0	0	0	0
tails		ZA	0	0	0	0	0	1	0	0	0	0
teeth		FR	0	0	0	0	0	1	1	0	0	0
teeth		KE	0	0	0	0	0	0	1	0	0	0
teeth		NA	0	0	8	0	0	0	0	0	0	0
teeth		NG	0	0	0	0	0	8	0	0	0	0
teeth		US	0	0	0	0	0	0	0	0	0	1
teeth		VN	0	0	0	0	1	0	1	0	0	0
teeth		ZW	0	0	1	0	0	0	0	0	0	0
trophies		AE	0	0	0	0	0	0	1	0	0	0
trophies		AR	0	0	0	0	0	0	2	0	0	0
trophies		AU	0	0	0	0	0	0	0	1	0	0
trophies		BH	0	0	0	0	0	0	0	0	1	0
trophies		BW	0	0	0	2	4	0	3	22	21	1
trophies		CF	0	0	13	16	19	18	10	8	1	0
trophies		DE	0	0	0	5	0	0	3	0	5	1
trophies		ET	0	4	0	0	1	0	0	0	0	1
trophies		FR	0	3	0	0	0	0	0	0	0	0
trophies		GB	0	1	0	0	0	0	0	1	0	0
trophies		KE	0	0	0	0	1	0	1	0	0	0
trophies		MX	0	1	0	0	0	0	0	0	0	0
trophies		MZ	4	0	1	12	2	4	2	6	1	6
trophies		NA	3	2	8	27	19	7	6	4	7	3
trophies		NL	0	0	0	0	0	0	0	1	0	0
trophies		NO	0	0	0	1	1	0	0	2	0	0
trophies		NZ	0	0	0	0	0	0	0	0	0	1
trophies		TZ	6	4	22	94	36	35	16	54	17	19
trophies		UG	0	0	0	0	1	0	0	0	0	0
trophies		US	0	0	0	0	0	1	0	0	0	0
trophies		ZA	3	4	2	7	44	11	0	0	4	2
trophies		ZM	2	0	2	2	5	2	3	4	4	1
trophies		ZW	7	2	7	8	8	4	6	11	7	5
unspecified		LA	1	0	0	0	0	0	0	0	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, personal purpose, on 06/06/2016.

Table 33: International trade in leopards and their parts for "personal" purposes from all sources: Importing countries.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
bodies		CA	0	0	0	1	1	0	0	0	0	1
bodies		CH	2	0	0	0	0	0	0	0	0	1
bodies		CN	0	0	0	0	0	0	0	1	0	0
bodies		DE	0	0	1	1	0	0	0	0	0	0
bodies		FR	0	0	0	0	1	0	0	0	0	0
bodies		GB	0	0	0	0	0	0	0	0	3	0
bodies		IS	0	0	1	0	0	0	0	0	0	0
bodies		LB	0	0	1	0	0	0	0	1	0	0
bodies		MA	0	0	0	0	0	0	1	0	0	0
bodies		NG	0	0	0	0	0	0	2	0	0	0
bodies		NZ	0	0	0	0	2	0	0	0	0	0
bodies		PL	0	0	0	0	0	0	0	0	1	0
bodies		RU	0	0	0	0	1	0	0	0	0	0
bodies		US	1	0	0	0	0	0	1	1	0	0
bone pieces		US	0	0	0	2	0	0	0	0	0	0
bones		NZ	0	0	2	40	0	0	0	0	0	0
bones		SG	0	0	0	0	0	0	0	0	2	0
bones		US	0	0	0	0	2	0	0	0	4	0
carvings		GB	0	0	0	0	3	0	0	0	0	0
carvings		US	1	0	0	0	0	0	0	0	0	0
carvings		XX	0	0	0	0	0	1	0	0	0	0
claws		CA	0	0	2	0	0	0	0	0	0	0
claws		CH	0	0	0	0	0	0	18	0	0	0
claws		GB	0	0	0	0	0	4	0	0	0	0
claws		NZ	0	0	0	0	1	0	0	0	0	0
claws		US	0	0	0	1	1	2	2	0	0	1
derivatives	g	NZ	0	0	0	0	120	1815	0	0	0	0
derivatives	g	US	0	0	0	0	0	500	0	0	0	0
derivatives	kg	NZ	0	0	0.04	0.062	0.6262	11.35	0	0	0	0
derivatives	kg	US	0	0	0	0	2.33	0	0	0	0	0
derivatives		CA	0	0	0	2	0	0	0	0	0	0
derivatives		DE	0	0	0	0	0	0	0	0	0	1
derivatives		NZ	0	0	454.5	745	817	427	0	0	0	0
derivatives		US	1091	1386	1134	349	439	239	1392	0	0	0
garments		GB	0	0	0	0	0	0	0	1	0	0
garments		IT	0	0	0	0	0	1	0	0	0	0
garments		NO	0	0	0	0	0	0	0	0	1	0
garments		NZ	1	0	0	0	0	0	0	0	0	0
garments		US	0	0	2	0	1	3	0	0	1	1
hair		US	0	0	0	0	0	0	2	0	1	0
hair products		US	0	0	0	0	0	0	0	1	0	0
leather products (large)		NZ	0	0	0	0	0	0	0	1	0	0
leather products (large)		PH	0	0	0	0	1	0	0	0	0	0
leather products (large)		US	0	0	0	0	0	1	0	0	0	0
leather products		AU	0	1	0	0	0	0	0	0	1	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
(small)												
leather products (small)		NZ	3	0	1	0	0	0	0	0	0	0
leather products (small)		RU	0	0	1	0	0	0	0	0	0	0
leather products (small)		US	0	0	0	1	0	4	1	2	0	0
live		AE	2	0	0	0	4	0	0	0	0	0
live		SA	1	0	0	0	0	0	0	0	0	0
medicine	kg	US	0	0	0	0	0	0	0	0	0	1.45
medicine		US	0	0	0	0	0	0	0	123	30	54
plates		US	2	0	0	0	0	0	0	0	0	0
shoes		US	0	0	4	0	0	0	0	0	0	0
skin pieces	kg	US	0	0	0	0	10	0	0	0	0	0
skin pieces		GR	0	0	0	0	0	0	1	0	0	0
skin pieces		NZ	0	0	0	6	1	0	0	0	0	0
skin pieces		US	5	0	1	2	0	1	0	4	3	1
skins	kg	AU	0	0	0	0	0	0	0	0	0	1.9
skins		AE	0	0	0	0	0	0	1	5	0	0
skins		AR	0	2	0	0	0	0	0	0	0	0
skins		AT	4	14	15	0	0	0	0	0	1	0
skins		AU	3	10	2	5	1	6	0	1	0	0
skins		BE	0	0	0	0	1	0	0	0	0	0
skins		CA	2	1	0	0	1	0	0	0	0	1
skins		CG	0	0	0	0	0	0	0	0	0	2
skins		CH	0	0	0	2	0	0	0	3	1	0
skins		CN	0	0	0	1	0	0	1	2	0	2
skins		DE	1	0	0	0	0	1	2	0	1	0
skins		DK	0	0	0	0	1	0	0	0	0	0
skins		FR	2	0	0	0	1	1	0	1	2	2
skins		GB	0	0	0	2	4	1	1	0	0	0
skins		IN	2	0	0	0	0	0	0	0	0	0
skins		IT	0	0	0	1	0	0	0	0	0	0
skins		LK	0	0	0	0	2	0	0	0	0	0
skins		MA	0	0	0	0	0	0	3	0	0	0
skins		NC	1	0	0	0	0	0	0	0	0	0
skins		NG	0	0	0	0	0	0	0	6	0	0
skins		NL	0	0	0	0	1	0	0	1	0	0
skins		NZ	2	0	3	0	0	0	0	0	0	0
skins		PF	0	0	0	1	0	0	0	0	0	0
skins		PT	0	0	1	0	0	0	0	0	0	0
skins		RU	0	0	0	0	0	0	0	0	2	0
skins		SE	0	0	0	0	0	0	0	0	1	0
skins		SZ	0	2	4	4	0	0	0	0	0	0
skins		TR	1	0	0	0	0	0	0	0	0	0
skins		US	4	5	2	6	2	3	2	6	3	1
skins		XX	0	0	0	0	0	0	0	0	0	2
skins		ZA	2	0	0	0	2	0	0	0	0	0
skulls	kg	BE	0	0	0	0	0	0	0	0	0	0.65
skulls		AE	0	0	0	0	0	0	1	0	0	0
skulls		AT	3	0	11	0	0	0	0	0	0	0
skulls		AU	0	0	0	0	0	1	0	0	0	0
skulls		BE	0	0	0	0	0	0	0	0	0	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
skulls		BS	0	0	0	0	2	0	0	0	0	0
skulls		CA	0	0	0	0	2	0	0	0	0	1
skulls		CH	0	0	0	1	0	0	0	0	0	0
skulls		DE	0	0	0	0	0	0	1	0	0	0
skulls		FI	0	0	0	0	0	1	0	0	0	0
skulls		FR	1	0	0	0	0	0	0	0	0	1
skulls		LB	0	0	0	0	0	2	0	1	0	0
skulls		MA	0	0	0	0	0	0	2	0	0	0
skulls		NA	0	1	0	0	0	0	0	0	0	0
skulls		NG	0	0	0	0	0	0	2	0	0	0
skulls		NZ	0	0	0	0	1	0	0	0	0	0
skulls		RU	0	0	0	0	0	0	1	0	0	0
skulls		SE	0	0	0	0	0	0	0	0	2	0
skulls		SG	0	0	0	0	0	0	0	0	1	0
skulls		US	1	0	0	1	1	2	0	1	0	0
skulls		ZA	5	0	0	1	0	0	0	0	0	0
specimens		CN	1	0	0	0	0	1	0	0	0	0
specimens		GB	0	0	0	0	0	0	0	4	1	0
specimens		KW	1	0	0	0	0	0	0	0	0	0
specimens		US	0	0	0	0	0	0	0	1	0	0
tails		GB	0	0	0	0	0	1	0	0	0	0
teeth		AT	0	0	8	0	0	0	0	0	0	0
teeth		NZ	0	0	1	0	0	0	0	0	0	0
teeth		SG	0	0	0	0	0	0	0	0	0	1
teeth		US	0	0	0	0	1	9	3	0	0	0
trophies		AE	4	7	5	0	0	4	0	1	2	0
trophies		AT	3	2	6	12	4	1	2	0	2	2
trophies		AU	2	0	0	0	1	0	1	0	0	1
trophies		BG	0	1	0	0	1	0	0	0	0	0
trophies		BH	0	2	0	0	0	0	0	0	0	0
trophies		BS	0	1	0	1	1	0	0	0	0	0
trophies		CA	3	0	0	0	1	0	0	1	0	2
trophies		CH	0	0	0	2	0	0	20	0	1	0
trophies		CL	0	0	1	1	0	0	0	0	0	0
trophies		CN	0	0	0	0	0	0	0	2	0	0
trophies		CR	0	2	0	0	0	0	0	0	0	0
trophies		CS	0	0	0	1	0	0	0	0	0	0
trophies		DE	4	0	3	0	3	3	0	1	0	0
trophies		EC	0	0	0	0	0	0	1	0	0	0
trophies		EE	0	0	0	1	0	0	0	0	0	0
trophies		ES	0	0	0	0	0	0	3	1	11	0
trophies		FI	0	1	0	0	0	1	0	0	0	0
trophies		FR	0	0	34	141	75	62	16	75	28	27
trophies		GB	0	0	0	1	0	0	0	0	0	0
trophies		IM	0	0	0	0	0	0	0	0	0	1
trophies		IS	0	0	0	0	1	0	0	0	0	0
trophies		IT	0	0	0	0	0	0	0	0	2	0
trophies		LB	0	0	1	3	2	2	2	0	0	0
trophies		LI	1	0	0	0	0	0	0	0	0	0
trophies		MA	0	0	0	1	1	1	2	0	0	1
trophies		MX	1	0	1	2	0	0	0	1	0	0
trophies		NG	0	0	0	0	0	0	0	4	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
trophies		NL	0	0	1	0	1	0	0	0	0	0
trophies		NZ	0	1	0	0	0	1	0	0	0	0
trophies		PH	0	0	0	0	41	5	0	0	0	0
trophies		PK	0	0	0	0	0	0	1	0	0	0
trophies		PL	0	0	0	0	0	0	0	1	0	0
trophies		QA	0	0	0	0	0	0	1	0	0	0
trophies		RU	0	0	0	5	5	2	2	4	14	5
trophies		SE	0	1	0	0	0	0	0	3	0	0
trophies		SG	0	0	0	0	1	0	0	0	1	0
trophies		SI	0	0	0	1	2	0	0	0	0	0
trophies		SZ	4	0	0	0	0	0	0	0	0	0
trophies		US	3	3	3	2	1	0	0	11	7	1
trophies		ZA	0	0	0	0	0	0	2	9	0	0
unspecified		US	1	0	0	0	0	0	0	0	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, personal purpose, on 06/06/2016.

Table 34: International trade in leopards and their parts for "circus and travelling exhibition" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
bodies	BE	0	0	0	0	0	0	1	1	0	1	3
bodies	ZW	3	0	0	0	0	0	0	0	0	0	3
claws	NL	0	0	0	0	0	0	0	0	8	0	8
garments	US	0	0	0	1	0	0	0	0	0	0	1
leather products (small)	AU	0	0	0	0	0	0	0	0	1	0	1
live	BW	0	0	0	0	0	4	0	0	0	0	4
live	BY	0	0	0	0	0	2	0	0	0	0	2
live	CH	0	1	0	0	0	0	0	0	0	0	1
live	DE	0	0	1	0	0	0	3	0	0	0	4
live	FR	2	0	0	0	0	0	0	0	0	0	2
live	GE	0	0	0	0	0	0	0	0	0	1	1
live	GT	0	0	0	0	0	0	0	1	0	0	1
live	HU	0	0	0	0	0	2	0	0	0	0	2
live	JP	1	0	1	0	0	0	0	0	0	0	2
live	KG	0	0	0	0	0	0	5	1	1	0	7
live	LB	0	0	0	0	0	0	0	1	0	0	1
live	LV	0	0	0	0	0	0	2	0	0	0	2
live	MX	0	0	0	6	0	9	1	0	0	7	23
live	NL	0	0	0	0	0	0	1	0	0	0	1
live	RO	2	0	0	0	0	0	0	0	9	0	11
live	RU	1	0	2	0	3	6	15	0	0	1	28
live	TH	0	2	0	0	0	0	0	0	0	0	2
live	TR	0	0	0	1	0	0	0	5	1	0	7
live	UA	0	2	1	1	0	0	0	1	0	0	5
live	US	0	0	2	0	0	0	0	0	0	0	2
live	UZ	0	0	0	0	0	0	0	0	2	0	2
live	XX	0	0	0	2	1	0	0	0	0	0	3
skin pieces	BR	0	0	0	0	2	0	0	0	0	0	2
skin pieces	DE	0	0	0	1	0	0	0	0	0	0	1
skins	AT	0	0	0	2	0	0	0	0	0	0	2
skins	AU	0	0	0	0	0	0	0	1	0	0	1

skins	CH	0	0	0	0	1	0	0	0	0	0	1
skins	DE	0	0	0	1	0	0	0	0	0	0	1
skins	GB	0	0	0	0	0	0	0	1	0	0	1
skins	IT	0	0	0	0	0	0	0	0	1	0	1
skins	RU	0	0	0	0	0	1	0	0	0	0	1
skins	TW	0	0	0	0	0	0	0	1	0	0	1
specimens	NA	0	0	0	0	0	1	0	0	0	0	1
specimens	RU	0	0	20	0	0	0	0	0	0	0	20
teeth	FR	0	0	0	0	0	0	0	0	0	5	5
trophies	CH	0	0	0	1	0	0	0	0	0	0	1
Total												168

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, circus and travelling exhibition purpose, on 06/06/2016.

Table 35: International trade in leopards and their parts for "zoo" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	BE	2	0	0	0	0	0	2	2	0	0	6
live	CH	0	0	0	3	2	0	0	0	0	0	5
live	CN	3	0	0	0	0	0	0	0	0	0	3
live	CZ	1	0	2	2	1	1	0	1	4	0	12
live	DE	0	0	0	0	1	3	0	4	0	0	8
live	DK	0	1	0	0	0	0	1	0	2	3	7
live	EE	0	0	0	0	1	0	1	1	2	0	5
live	ES	0	0	0	0	0	0	0	0	0	4	4
live	FR	0	0	2	6	0	1	1	2	2	1	15
live	GA	0	0	0	0	0	0	0	0	0	4	4
live	GB	0	2	1	2	0	0	0	1	0	0	6
live	GT	0	0	0	0	0	0	0	0	1	0	1
live	HU	2	3	1	1	0	0	1	0	0	0	8
live	ID	1	0	0	0	2	1	2	0	0	0	6
live	IN	2	0	0	0	0	0	0	0	0	0	2
live	IR	0	0	0	0	0	2	0	0	0	0	2
live	IT	0	0	0	0	0	0	0	0	0	1	1
live	JO	0	0	3	0	0	0	0	0	0	0	3
live	KR	0	0	0	0	0	1	0	0	0	0	1
live	KZ	0	2	3	0	1	0	0	1	0	0	7
live	MC	1	1	2	0	0	0	0	0	0	0	4
live	MX	0	0	0	0	0	2	0	0	0	0	2
live	NA	0	0	0	0	0	0	0	6	6	0	12
live	PL	0	0	0	0	0	0	0	0	1	0	1
live	PT	0	0	0	0	3	0	0	2	0	0	5
live	RS	0	0	0	0	0	3	0	0	0	2	5
live	RU	0	0	0	1	0	0	0	0	0	0	1
live	SD	1	3	2	0	0	0	0	0	0	0	6
live	SE	0	0	0	0	0	0	2	0	0	0	2
live	SG	1	1	0	0	0	0	0	0	0	0	2
live	SI	0	2	0	0	0	0	0	0	0	0	2
live	SK	1	0	0	0	0	0	0	0	0	0	1
live	TH	0	0	0	0	2	0	0	0	0	0	2
live	TN	0	0	0	0	2	0	0	0	0	0	2
live	UA	0	0	0	0	2	1	0	0	0	0	3
live	US	0	2	2	0	0	0	0	0	0	0	4

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	XX	0	0	1	1	0	0	0	1	0	0	3
live	ZA	0	0	0	3	2	3	0	1	3	6	18
trophies	ZA	0	0	1	0	0	0	0	0	0	0	1
Total												182

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, zoo purpose, on 06/06/2016.

Table 36. Gross Imports of *Panthera pardus* from Botswana, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		CN	0	0	1	0	0	0	0	0	0	0	1
claws		SE	0	0	0	0	0	0	0	16	0	0	16
hair		CH	0	6	0	0	0	0	0	0	0	0	6
live		ZA	0	0	0	0	0	4	0	0	0	0	4
skins		CH	0	0	2	0	0	0	0	0	0	0	2
skins		DK	0	0	0	0	0	0	1	0	0	0	1
skins		ES	0	0	0	0	0	0	1	0	0	0	1
skins		GB	0	0	0	0	1	0	0	0	0	0	1
skins		SE	0	0	0	0	0	0	0	1	0	0	1
skins		US	0	0	0	0	0	0	0	5	0	0	5
skins		ZA	0	2	0	0	2	0	1	0	0	0	5
skulls		DK	0	0	0	0	0	0	1	0	0	0	1
skulls		ES	0	0	0	0	0	0	4	1	0	0	5
skulls		FR	0	0	0	0	0	0	0	0	4	1	5
skulls		GB	0	0	0	0	1	0	0	0	0	0	1
skulls		IT	0	0	0	0	0	0	0	0	2	0	2
skulls		SE	0	0	0	0	0	0	0	1	0	0	1
skulls		US	0	0	0	0	0	0	1	11	6	0	18
skulls		ZA	0	1	0	0	1	0	15	9	1	0	27
specimens	ml	CH	0	5	0	0	0	0	0	0	0	0	5
specimens		CH	0	4	11	25	0	0	0	27	0	0	67
specimens		ZA	0	0	0	0	16	0	0	0	60	0	76
trophies	kg	FR	0	0	4	0	0	0	0	0	0	0	4
trophies		AE	0	0	0	2	0	0	0	0	0	0	2
trophies		DE	4	1	0	0	0	1	0	0	1	0	7
trophies		DK	0	0	0	0	0	0	1	0	0	0	1
trophies		ES	6	3	3	6	1	4	3	1	11	0	38
trophies		FR	3	1	1	2	4	0	0	0	5	1	17
trophies		GB	1	0	0	0	0	0	0	0	0	0	1
trophies		HU	0	0	0	1	1	0	0	0	4	0	6
trophies		IT	1	0	0	0	0	0	0	1	3	0	5
trophies		MX	3	4	6	2	1	0	0	0	0	0	16
trophies		RO	1	0	0	0	0	0	0	0	0	0	1
trophies		RU	1	0	0	3	1	1	2	2	0	0	10
trophies		SA	0	0	0	0	1	0	0	0	0	0	1
trophies		SE	0	0	3	0	0	0	0	1	0	0	4
trophies		US	21	35	35	33	28	15	1	13	8	2	191
trophies		ZA	13	4	5	11	2	13	12	12	1	0	73
bodies total			0	0	1	0	0	0	0	0	0	0	1
claws total			0	0	0	0	0	0	0	16	0	0	16
hair total			0	6	0	0	0	0	0	0	0	0	6

live total			0	0	0	0	0	4	0	0	0	0	4
skins total			0	2	2	0	3	0	3	6	0	0	16
skulls total			0	1	0	0	2	0	21	22	13	1	60
specimens total			0	4	11	25	16	0	0	27	60	0	143
specimens total	ml		0	5	0	0	0	0	0	0	0	0	5
trophies total			54	48	53	60	39	34	19	30	33	3	373
trophies total	kg		0	0	4	0	0	0	0	0	0	0	4
Grand Total	no		108	146	168	220	162	76	134	312	358	10	1084

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Botswana, all sources, all purposes, on 03/23/2016.

Table 37. Gross Imports of *Panthera pardus* from Cameroon, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		DE	1	0	0	0	0	0	0	0	0	0	1

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Cameroon, all sources, all purposes, on 03/23/2016.

Table 38. Gross Imports of *Panthera pardus* from Central African Republic, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bones		DE	0	0	0	0	2	0	0	0	0	0	2
bones		ZA	0	0	0	0	0	0	2	0	0	0	2
claws		DE	0	0	0	0	18	0	0	0	0	0	18
claws		ZA	0	0	0	0	0	0	18	0	0	0	18
skins		FR	1	0	1	0	0	0	0	0	0	0	2
skins		ZA	0	0	0	0	0	1	1	0	0	0	2
skulls		FR	0	0	0	0	0	2	0	0	0	0	2
skulls		ZA	0	0	0	0	0	1	1	0	0	0	2
specimens		CH	0	0	0	0	0	0	0	0	6	3	9
trophies		AT	0	0	0	0	0	4	1	0	1	0	6
trophies		AU	0	0	0	0	0	0	0	1	0	0	1
trophies		BE	2	1	0	1	0	2	0	1	0	0	7
trophies		CH	2	0	2	0	0	0	0	0	0	0	4
trophies		CO	0	1	0	0	0	0	0	0	0	0	1
trophies		DE	0	0	0	0	2	0	0	1	1	0	4
trophies		DK	0	0	1	1	0	4	0	0	0	0	6
trophies		ES	0	1	0	1	0	0	1	0	0	0	3
trophies		FI	0	0	0	0	22	0	0	0	0	0	22
trophies		FR	31	19	22	27	34	44	10	12	1	0	200
trophies		HU	0	0	0	0	0	0	0	1	0	0	1
trophies		IT	0	1	0	0	2	0	0	0	0	0	3
trophies		LU	0	0	0	0	0	4	3	0	0	0	7
trophies		MA	0	2	0	0	0	0	0	0	0	0	2
trophies		MX	1	2	1	2	0	0	0	5	0	0	11
trophies		NZ	0	0	0	0	0	0	1	1	0	0	2
trophies		RU	0	1	2	1	0	2	1	0	0	0	7

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		SE	1	0	0	0	22	4	0	0	0	0	27
trophies		US	0	0	0	0	2	0	0	0	0	0	2
trophies		ZA	0	0	0	0	6	2	0	1	1	0	10
Bones total			0	0	0	0	2	0	2	0	0	0	4
Claws total			0	0	0	0	18	0	18	0	0	0	36
Skins total			1	0	1	0	0	1	1	0	0	0	4
Skulls total			0	0	0	0	0	3	1	0	0	0	4
Specimens total			0	0	0	0	0	0	0	0	6	3	9
Trophies total			37	28	28	33	90	66	17	23	4	0	326
Grand Total			38	28	29	33	110	70	39	23	10	3	383

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Central African Republic, all sources, all purposes, on 03/23/2016.

Table 39. Gross Imports of *Panthera pardus* from Congo, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		GB	0	0	0	2	0	0	0	0	0	0	2
skulls		US	0	0	0	0	1	0	0	0	0	0	1
Grand Total			0	0	0	2	1	0	0	0	0	0	3

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Congo, all sources, all purposes, on 03/23/2016.

Table 40. Gross Imports of *Panthera pardus* from Côte d'Ivoire, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
derivatives		US	0	5	0	0	0	0	0	0	0	0	5
skin pieces		US	0	0	0	0	0	0	0	0	1	0	1
skins		FR	2	0	0	0	0	0	0	0	0	0	2
teeth		US	0	0	0	0	0	1	0	0	1	0	2
Grand Total			2	5	0	0	0	1	0	0	2	0	10

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Côte d'Ivoire, all sources, all purposes, on 03/23/2016.

Table 41. Gross Imports of *Panthera pardus* from the Democratic Republic of the Congo, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		AE	0	0	0	0	0	0	0	5	0	0	5
skins		BE	0	0	0	0	1	0	0	0	0	0	1
skins		CH	0	0	0	1	0	0	0	0	0	0	1
skins		GB	0	0	0	2	0	0	0	0	0	0	2
skins		US	1	0	0	0	0	1	0	0	0	0	2
skins		XX	0	0	0	0	1	0	0	0	0	0	1
Grand Total			1	0	0	3	2	1	0	5	0	0	12

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from the Democratic Republic of the Congo, all sources, all purposes, on 03/23/2016.

Table 42. Gross Imports of *Panthera pardus* from Ethiopia, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		CA	0	0	0	0	3	0	0	0	0	0	3
skins		NO	0	0	0	0	0	0	0	0	0	1	1
skins		TZ	0	0	0	0	0	0	1	0	0	0	1
skins		ZA	0	0	0	0	0	0	0	1	0	0	1
skulls		CA	0	0	0	0	3	0	0	0	0	0	3
skulls		ZA	0	0	0	0	0	0	0	1	0	0	1
trophies		AE	0	2	0	0	0	0	0	0	0	0	2
trophies		BH	0	2	0	0	0	0	0	0	0	0	2
trophies		DE	2	0	0	0	0	0	0	0	1	0	3
trophies		DK	0	1	0	0	0	0	0	0	0	0	1
trophies		FR	1	1	0	0	1	0	0	0	0	1	4
trophies		IT	0	0	0	0	0	1	0	0	0	0	1
trophies		MX	0	0	0	1	0	0	1	0	0	1	3
trophies		TZ	0	0	0	0	0	1	0	0	0	0	1
trophies		ZA	0	0	0	1	0	0	0	0	0	0	1
Skins Total			0	0	0	0	3	0	1	1	0	1	6
Skulls Total			0	0	0	0	3	0	0	1	0	0	4
Trophies Total			3	6	0	2	1	2	1	0	1	2	18
Grand Total			3	6	0	2	7	2	2	2	1	3	28

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Ethiopia, all sources, all purposes, on 03/23/2016.

Table 43. Gross Imports of *Panthera pardus* from Gabon, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live		TN	0	0	0	0	0	0	0	0	4	4	8
skin pieces		GB	0	0	0	0	0	0	0	5	0	0	5
skins		HU	2	0	0	0	0	0	0	0	0	0	2
specimens		US	0	0	0	0	0	0	0	0	20	0	20
Grand Total			2	0	0	0	0	0	0	5	24	4	35

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Gabon, all sources, all purposes, on 03/23/2016.

Table 44. Gross Imports of *Panthera pardus* from Ghana, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
leather products (small)		US	0	0	0	1	0	0	0	0	0	0	1
skin pieces		US	0	0	0	2	0	0	0	0	0	0	2
skins		US	1	0	0	0	0	0	0	0	0	0	1
Grand Total			1	0	0	3	0	0	0	0	0	0	4

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Ghana, all sources, all purposes, on 03/23/2016.

Table 45. Gross Imports of *Panthera pardus* from Kenya, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		AU	0	0	0	0	1	0	0	0	0	0	1
skins		GB	0	0	0	0	0	0	1	0	0	0	1
skins		XX	0	0	0	0	0	0	0	0	0	2	2
specimens	ml	IL	0	0	0	0	0	0	0	0	1.5	0	1.5
specimens	ml	ZA	0	0.5	0	0	0	0	0	0	0	0	0.5
specimens		IL	0	0	0	0	0	0	0	1	0	0	1
specimens		US	0	0	0	0	0	51	0	0	0	0	51
teeth		US	0	0	0	0	0	0	1	0	0	0	1
trophies		AU	0	0	0	0	1	0	1	0	0	0	2
Skins Total			0	0	0	0	1	0	1	0	0	2	4
Specimens Total			0	0	0	0	0	51	0	1	0	0	52
Specimens Total	ml		0	0.5	0	0	0	0	0	0	1.5	0	2
Teeth Total			0	0	0	0	0	0	1	0	0	0	1
Trophies Total			0	0	0	0	1	0	1	0	0	0	2
Grand Total	no		0	0	0	0	2	51	3	1	0	2	59

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Kenya, all sources, all purposes, on 03/23/2016.

Table 46. Gross Imports of *Panthera pardus* from Liberia, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
leather products (small)		US	0	0	0	0	0	0	1	0	0	0	1
skins		US	0	0	0	1	0	0	0	0	0	0	1
specimens		DE	0	0	0	0	0	0	0	0	0	1	1
Grand Total			0	0	0	1	0	0	1	0	0	1	3

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Liberia, all sources, all purposes, on 03/23/2016.

Table 47. Gross Imports of *Panthera pardus* from Malawi, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		LK	0	0	0	0	2	0	0	0	0	0	2
skins		NL	0	0	0	0	0	0	0	1	0	0	1
Grand Total			0	0	0	0	2	0	0	1	0	0	3

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Malawi, all sources, all purposes, on 03/23/2016.

Table 48. Gross Imports of *Panthera pardus* from Mali, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live		GM	0	0	0	2	0	0	0	0	0	0	2
skins		US	0	1	0	0	0	0	0	0	0	0	1
Grand Total			0	1	0	2	0	0	0	0	0	0	3

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Mali, all sources, all purposes, on 03/23/2016.

Table 49. Gross Imports of *Panthera pardus* from Mozambique, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		NO	0	0	0	0	0	0	0	0	0	1	1
skeletons		ES	0	0	0	0	0	0	1	0	0	0	1
skin pieces		DE	0	0	0	0	2	0	0	0	0	0	2
skin pieces		ZA	0	0	0	0	2	0	0	4	0	0	6
skins		AR	0	0	0	0	0	0	0	0	1	0	1
skins		CA	0	0	0	0	0	0	0	0	0	1	1
skins		CH	1	0	0	0	0	0	3	2	0	0	6
skins		DE	0	0	0	0	0	0	3	2	0	0	5
skins		ES	0	0	0	0	0	0	7	1	5	1	14
skins		FR	0	0	0	0	0	1	2	8	1	1	13
skins		GB	0	0	0	0	0	0	4	2	0	0	6
skins		HU	0	0	0	0	0	0	1	0	0	0	1
skins		IS	0	0	0	0	0	0	0	0	3	1	4
skins		IT	0	0	0	0	0	0	0	1	0	0	1
skins		MX	0	0	0	0	0	0	0	1	1	0	2
skins		MZ	0	0	0	0	1	0	0	0	0	0	1
skins		NA	0	0	0	0	0	0	2	2	0	0	4
skins		NL	0	0	0	0	0	0	2	0	0	0	2
skins		NO	0	0	0	0	1	1	0	0	0	0	2
skins		PT	1	0	0	0	0	0	3	4	2	0	10
skins		RU	0	0	0	0	0	0	1	0	0	0	1
skins		SE	0	0	0	0	0	0	0	1	0	0	1
skins		SZ	0	0	1	0	2	0	0	0	0	0	3
skins		US	0	0	0	0	0	1	34	48	22	0	105
skins		XX	0	0	0	0	0	1	0	0	0	0	1
skins		ZA	0	5	0	0	9	3	6	17	22	0	62
skins		ZW	0	1	0	0	0	0	2	3	5	0	11
skulls		AR	0	0	0	0	0	0	0	1	1	0	2
skulls		CA	0	0	0	0	0	0	0	0	0	1	1
skulls		CH	1	0	0	0	0	0	3	2	0	0	6
skulls		DE	0	0	0	0	0	0	3	2	0	0	5
skulls		ES	0	0	0	0	0	0	8	2	5	1	16
skulls		FR	0	0	0	0	0	1	2	8	1	1	13
skulls		GB	0	0	0	0	0	0	4	4	0	0	8
skulls		HU	0	0	0	0	0	0	1	0	0	0	1
skulls		IS	0	0	0	0	0	0	0	0	3	1	4
skulls		IT	0	0	0	0	0	0	0	1	1	0	2
skulls		MX	0	0	0	0	0	0	0	1	1	0	2
skulls		NA	0	0	0	0	0	0	2	2	0	0	4
skulls		NL	0	0	0	0	0	0	2	0	0	0	2
skulls		NO	0	0	0	0	1	1	0	0	0	1	3
skulls		PT	0	0	0	0	0	0	3	5	2	0	10
skulls		RU	0	0	0	0	0	0	1	0	0	0	1
skulls		SE	0	0	0	0	0	0	0	1	0	0	1
skulls		US	0	0	0	0	3	1	37	41	23	0	105

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skulls		XX	0	0	0	0	0	1	0	0	0	0	1
skulls		ZA	0	5	0	0	0	3	8	19	28	8	71
skulls		ZW	0	0	0	0	0	0	2	3	5	0	10
trophies		AR	0	0	0	0	0	0	0	1	0	0	1
trophies		BG	0	0	0	0	0	0	0	1	0	0	1
trophies		CA	0	0	0	0	0	0	0	0	0	1	1
trophies		DE	0	0	1	0	0	1	0	2	1	3	8
trophies		DK	1	1	0	0	0	0	0	0	0	0	2
trophies		ES	15	11	8	4	10	5	2	7	0	3	65
trophies		FR	0	3	2	14	4	4	2	6	2	5	42
trophies		GB	0	0	0	1	1	0	0	0	0	1	3
trophies		HU	0	0	0	0	1	1	0	0	0	0	2
trophies		IS	0	0	0	0	0	0	0	0	1	0	1
trophies		LT	0	0	0	0	0	0	0	0	0	1	1
trophies		LU	0	0	0	0	0	0	0	0	0	2	2
trophies		MX	2	8	12	6	1	0	0	1	1	1	32
trophies		NA	1	1	0	0	0	0	0	1	0	0	3
trophies		NO	0	0	0	0	1	1	0	0	0	1	3
trophies		PL	0	0	0	0	0	1	0	0	1	0	2
trophies		PT	6	7	6	4	8	4	2	3	2	1	43
trophies		RU	0	0	0	0	0	2	1	0	0	0	3
trophies		SZ	4	0	0	0	0	0	0	0	0	0	4
trophies		US	6	4	14	15	21	16	7	18	12	20	133
trophies		XX	15	0	0	0	0	3	0	0	0	2	20
trophies		ZA	21	19	13	6	9	9	9	19	11	8	124
trophies		ZW	5	4	3	2	0	2	0	0	0	0	16
Bodies Total			0	0	0	0	0	0	0	0	0	1	1
Skeletons Total			0	0	0	0	0	0	1	0	0	0	1
Skin Pieces Total			0	0	0	0	4	0	0	4	0	0	8
Skins Total			2	6	1	0	13	7	70	92	62	4	257
Skulls Total			1	5	0	0	4	7	76	92	70	13	268
Trophies Total			76	58	59	52	56	49	23	59	31	49	512
Grand Total			79	69	60	52	77	63	170	247	163	67	1047

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Mozambique, all sources, all purposes, on 03/23/2016.

Table 50. Gross Imports of *Panthera pardus* from Namibia, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		AT	0	0	0	0	0	1	0	0	0	0	1
bodies		CA	0	0	0	0	1	0	1	1	0	2	5
bodies		DE	0	0	0	1	0	1	0	0	0	0	2
bodies		ES	0	0	0	0	0	1	0	0	0	0	1
bodies		GB	0	0	0	0	0	3	1	0	0	0	4
bodies		IS	0	0	1	0	0	0	0	0	0	0	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		IT	0	0	0	0	0	1	0	0	0	0	1
bodies		NL	0	0	0	0	0	1	0	0	0	0	1
bodies		NO	0	0	0	0	0	0	0	0	0	2	2
bodies		RU	0	0	0	0	0	2	1	0	0	0	3
bodies		UA	0	0	0	1	0	0	0	0	0	0	1
bodies		US	0	0	0	0	0	3	0	0	0	0	3
bones		CA	0	0	0	0	2	0	2	0	0	0	4
bones		DE	0	0	0	0	0	0	0	0	0	3	3
bones		SG	0	0	0	0	0	0	0	0	2	0	2
bones		US	0	0	0	0	2	0	0	0	0	3	5
claws		US	0	26	0	0	0	4	0	0	18	0	48
hair		NZ	0	0	0	0	0	0	0	0	0	1	1
live		CU	0	0	0	0	0	0	0	6	6	0	12
skin pieces		CA	0	0	0	0	0	0	1	0	0	0	1
skins		AT	5	8	12	0	0	0	1	0	1	0	27
skins		CA	2	4	0	1	6	1	3	2	0	0	19
skins		CH	0	0	0	0	2	0	0	0	0	0	2
skins		DE	0	0	0	0	1	1	2	0	1	0	5
skins		ES	0	0	0	0	1	1	0	0	0	0	2
skins		FR	0	0	0	0	0	1	1	0	0	0	2
skins		GB	0	0	1	0	1	0	1	0	0	0	3
skins		RU	0	0	0	0	1	1	0	1	0	0	3
skins		SE	0	0	0	0	0	1	0	2	0	0	3
skins		SK	0	0	0	0	0	0	0	0	0	1	1
skins		US	0	1	0	0	1	1	2	0	0	0	5
skins		ZA	0	5	0	0	1	1	4	0	0	0	11
skulls		AT	4	0	8	0	0	0	0	0	0	0	12
skulls		CA	2	4	0	1	7	1	4	2	0	1	22
skulls		CH	0	0	0	0	2	0	0	0	0	0	2
skulls		DE	0	0	0	0	0	0	0	2	0	0	2
skulls		DK	0	1	0	0	0	0	0	0	0	0	1
skulls		GB	0	0	0	0	0	2	0	0	0	0	2
skulls		NL	0	0	0	1	2	0	0	0	0	0	3
skulls		PA	0	0	0	0	0	0	0	0	1	0	1
skulls		SE	0	0	0	0	0	0	0	2	0	0	2
skulls		SG	0	0	0	0	0	0	0	0	1	0	1
skulls		SK	0	0	0	0	0	0	0	0	0	1	1
skulls		US	0	2	1	0	3	2	0	1	0	1	10
skulls		ZA	0	5	0	0	0	1	4	0	2	1	13
specimens	ml	DE	0	0	0	0	0	0	0	60	0	0	60
specimens	ml	US	0	0	0	0	0	6	0	0	0	0	6
specimens		DE	0	0	0	0	0	100	0	1233	0	900	2233
specimens		TH	0	0	0	0	0	1	0	0	0	0	1
specimens		US	0	0	0	0	0	0	0	0	1	0	1
specimens		ZA	0	0	0	0	0	0	0	0	35	130	165
teeth		AT	0	0	8	0	0	0	0	0	0	0	8
teeth		DE	31	0	0	0	0	0	0	0	0	0	31
teeth		DK	0	0	0	0	0	0	27	0	0	0	27
teeth		SE	0	0	0	0	0	18	0	0	0	0	18
trophies		AR	0	0	0	1	4	1	1	1	1	3	12
trophies		AT	12	19	8	15	14	2	3	4	11	6	94
trophies		BE	2	0	2	0	0	0	1	0	0	0	5

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		BG	4	3	3	2	1	3	1	3	0	0	20
trophies		BR	0	0	0	1	0	0	0	0	0	0	1
trophies		CA	1	3	0	1	5	3	3	3	1	6	26
trophies		CH	2	1	0	0	1	0	0	0	1	2	7
trophies		CR	1	2	0	0	0	0	0	0	0	0	3
trophies		CS	1	0	0	1	0	0	0	0	0	0	2
trophies		CZ	4	3	2	3	1	0	1	1	2	3	20
trophies		DE	38	43	29	28	43	17	3	23	16	19	259
trophies		DK	3	4	3	3	7	4	29	0	1	1	55
trophies		EE	0	0	0	1	0	0	0	0	0	0	1
trophies		EG	0	1	0	0	0	0	0	0	0	0	1
trophies		ES	5	8	14	12	15	4	3	4	0	4	69
trophies		FI	1	1	1	1	0	1	0	3	1	3	12
trophies		FR	18	2	2	18	18	7	6	4	7	2	84
trophies		GB	1	2	2	2	0	2	0	1	1	0	11
trophies		HR	1	2	3	3	4	1	1	0	0	0	15
trophies		HU	0	0	5	4	6	2	0	1	2	1	21
trophies		IT	0	1	1	2	5	4	0	2	1	0	16
trophies		LT	0	0	1	1	2	0	0	0	0	0	4
trophies		LU	1	1	0	2	0	0	1	0	0	0	5
trophies		LV	0	0	0	0	0	0	0	0	2	2	4
trophies		MX	1	6	6	4	7	0	2	2	9	4	41
trophies		NA	1	0	0	0	0	0	0	0	0	0	1
trophies		NL	0	0	0	0	2	2	0	0	0	0	4
trophies		NO	0	1	0	2	3	1	1	0	1	0	9
trophies		NZ	0	0	0	1	0	0	0	0	0	2	3
trophies		PA	0	0	0	0	0	0	0	0	1	0	1
trophies		PL	5	4	4	5	5	2	1	1	2	2	31
trophies		PT	4	1	1	0	2	0	0	0	0	0	8
trophies		RO	0	0	0	0	1	0	0	0	0	0	1
trophies		RS	0	1	0	1	0	0	0	0	0	0	2
trophies		RU	0	1	2	8	11	10	6	6	3	8	55
trophies		SE	0	2	5	3	3	0	0	2	0	1	16
trophies		SG	0	0	0	0	0	0	0	0	1	0	1
trophies		SI	1	2	2	2	4	1	0	2	0	0	14
trophies		SK	1	2	1	2	3	1	2	1	2	1	16
trophies		SL	0	0	0	0	0	2	1	2	0	0	5
trophies		SZ	2	0	0	0	0	0	0	0	0	0	2
trophies		UA	0	1	1	1	0	0	0	0	0	1	4
trophies		US	51	71	71	87	157	76	30	40	29	33	645
trophies		VG	0	1	0	0	0	0	0	0	0	0	1
trophies		XX	0	0	0	0	0	0	0	1	0	0	1
trophies		ZA	7	8	12	9	18	8	6	4	5	1	78
trophies		ZW	0	0	0	0	2	0	0	0	0	0	2
trophies		AT	0	0	0	0	0	0	1	0	0	0	1
trophies		US	0	0	0	0	0	1	0	0	0	0	1
Bodies Total			0	0	1	2	1	13	3	1	0	4	25
Bones Total			0	0	0	0	4	0	2	0	2	6	14
Claws Total			0	26	0	0	0	4	0	0	18	0	48
Hair Total			0	0	0	0	0	0	0	0	0	1	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Live Total			0	0	0	0	0	0	0	6	6	0	12
Skin Pieces Total			0	0	0	0	0	0	1	0	0	0	1
Skins Total			7	18	13	1	14	8	14	5	2	1	83
Skulls Total			6	12	9	2	14	6	8	7	4	4	72
Specimens Total			0	0	0	0	0	101	0	1233	36	1030	2400
Specimens Total	ml		0	0	0	0	0	6	0	60	0	0	66
Teeth Total			31	0	8	0	0	18	27	0	0	0	84
Trophies Total			168	197	181	226	344	155	103	111	100	105	1690
Grand Total	no		212	253	212	231	377	305	158	1363	168	1151	4430

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Namibia, all sources, all purposes, on 03/23/2016.

Table 51. Gross Imports of *Panthera pardus* from Nigeria, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
derivatives		US	0	0	3	0	0	0	0	0	0	0	3
hair products		US	0	0	0	0	0	0	0	1	0	0	1
skin pieces		US	0	0	0	0	1	1	0	1	0	0	3
skins		HU	0	1	0	0	0	0	0	0	0	0	1
skins		US	1	2	0	0	0	1	0	0	1	0	5
teeth		US	0	0	0	0	0	8	0	0	0	0	8
Skins Total			1	3	0	0	0	1	0	0	1	0	6
Grand Total			1	3	3	0	1	10	0	2	1	0	21

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Nigeria, all sources, all purposes, on 03/23/2016.

Table 52. Gross Imports of *Panthera pardus* from Senegal, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
specimens		US	0	0	0	0	0	0	0	0	18	0	18

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Senegal, all sources, all purposes, on 03/23/2016.

Table 53. Gross Imports of *Panthera pardus* from Sierra Leone, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
derivatives		DK	0	0	5	0	0	0	0	0	0	0	5

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Sierra Leone, all sources, all purposes, on 03/23/2016.

Table 54. Gross Imports of *Panthera pardus* from South Africa, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		CA	0	0	0	1	1	0	4	2	1	2	11
bodies		CN	1	0	0	0	0	1	2	2	1	0	7
bodies		CZ	0	0	0	0	0	0	1	1	0	0	2
bodies		DK	0	0	0	0	0	1	1	0	0	0	2
bodies		ES	0	0	0	0	0	1	0	1	0	0	2
bodies		FR	0	0	0	0	2	0	0	0	0	0	2
bodies		GB	0	0	0	0	2	0	0	2	0	0	4
bodies		KW	0	0	0	0	1	0	0	0	0	0	1
bodies		MX	0	0	0	0	1	0	0	0	0	0	1
bodies		NA	0	0	0	1	0	0	0	0	0	0	1
bodies		NZ	0	0	0	0	2	0	0	1	0	0	3
bodies		PL	0	0	0	0	0	0	0	0	1	0	1
bodies		US	0	0	0	0	0	3	1	4	0	0	8
bone pieces		US	0	0	0	2	0	0	0	0	0	0	2
bones		CA	0	1	0	2	0	0	0	0	0	0	3
bones		DE	0	0	0	0	0	0	0	2	0	0	2
bones		DK	0	0	0	0	0	2	4	0	0	0	6
bones		MX	0	0	0	0	0	2	2	1	0	0	5
bones		SK	0	0	0	0	0	0	0	0	0	1	1
bones		US	0	0	0	0	2	4	29	5	2	4	46
carvings		US	1	0	0	0	0	0	0	0	0	0	1
claws		GB	0	0	0	0	0	4	0	0	0	0	4
claws		NZ	0	0	0	0	1	0	0	0	0	0	1
claws		US	0	44	18	2	36	8	26	18	18	0	170
derivatives		GB	0	0	0	0	0	0	50	0	0	0	50
derivatives		LV	0	0	0	0	0	2	0	0	0	0	2
derivatives		MX	0	0	0	0	0	2	0	0	0	0	2
derivatives		US	0	0	0	0	20	2	0	0	0	0	22
feet		US	0	0	0	29	0	0	0	0	0	0	29
garments		GB	0	0	0	0	0	0	0	1	0	0	1
garments		IT	0	0	0	0	0	1	0	0	0	0	1
garments		NZ	1	0	0	0	0	0	0	0	0	0	1
garments		US	0	0	0	0	0	0	0	0	0	1	1
hair		GB	0	0	0	0	209	0	0	0	0	0	209
leather products (large)		PH	0	0	0	0	1	0	0	0	0	0	1
leather products (small)		AU	0	1	0	0	0	0	0	0	1	0	2
leather products (small)		PT	0	1	0	0	0	0	0	0	0	0	1
leather products (small)		US	0	0	0	1	0	0	0	0	0	0	1
live		AE	2	2	2	0	2	0	0	0	0	0	8
live		BE	0	0	0	1	0	0	0	0	0	0	1
live		CA	0	0	0	0	0	0	0	0	0	2	2

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live		EG	0	0	0	0	0	7	0	2	1	2	12
live		ES	0	0	0	0	0	1	0	0	0	0	1
live		GA	0	0	0	0	0	0	3	3	4	0	10
live		JP	0	0	0	0	0	2	2	0	0	0	4
live		MW	0	0	0	0	0	0	6	6	0	0	12
live		PK	0	0	0	0	0	0	0	0	0	2	2
live		SA	0	0	0	2	0	0	0	0	0	0	2
live		TH	0	0	0	2	1	0	0	0	0	0	3
live		UG	0	0	0	0	0	1	0	0	0	0	1
skin pieces		NZ	0	0	0	6	0	0	0	0	0	0	6
skin pieces		US	0	0	0	54	0	0	0	1	2	0	57
skins		AT	0	0	0	0	0	0	0	0	1	0	1
skins		AU	2	3	0	1	0	3	1	0	0	0	10
skins		BE	0	0	0	0	0	0	0	1	0	0	1
skins		BR	0	1	0	0	0	0	0	0	0	0	1
skins		BW	0	0	0	0	0	0	0	1	0	0	1
skins		CA	1	5	0	6	4	0	0	2	0	1	19
skins		CG	0	0	0	0	0	0	0	0	0	2	2
skins		CH	0	0	0	1	0	0	0	0	0	0	1
skins		CR	1	0	0	0	0	0	0	0	0	0	1
skins		CZ	0	0	0	0	0	1	3	1	0	0	5
skins		DE	0	0	0	0	0	1	1	5	1	0	8
skins		DK	0	0	0	1	0	2	1	0	0	0	4
skins		EE	0	1	0	0	0	0	0	0	0	0	1
skins		ES	0	3	0	0	0	11	12	3	0	0	29
skins		FI	0	0	0	0	0	0	1	1	0	0	2
skins		FR	2	0	0	0	0	3	3	0	0	0	8
skins		GB	2	0	0	0	2	1	1	0	0	1	7
skins		IT	0	0	0	1	0	0	0	0	0	0	1
skins		MX	0	0	0	0	0	3	3	0	0	0	6
skins		MZ	0	0	1	0	0	0	1	0	0	0	2
skins		NL	1	0	0	0	1	0	0	0	0	0	2
skins		NO	0	0	0	0	0	1	2	1	0	0	4
skins		PA	0	0	0	0	0	0	0	0	1	0	1
skins		PL	0	0	0	0	0	0	0	1	0	0	1
skins		PT	0	0	1	0	0	1	2	0	0	0	4
skins		RU	0	0	0	0	0	1	2	0	2	0	5
skins		SE	0	0	0	0	0	1	0	0	0	0	1
skins		SK	0	0	0	0	0	0	0	0	0	1	1
skins		SZ	0	2	0	0	4	0	0	0	0	0	6
skins		TZ	0	0	0	0	0	1	0	0	0	0	1
skins		US	0	27	0	0	2	40	52	37	3	2	163
skulls	kg	BE	0	0	0	0	0	0	0	0	0	0.65	0.65
skulls		AE	0	0	0	0	0	0	3	0	0	1	4
skulls		AR	0	0	0	0	0	0	0	0	3	1	4
skulls		AU	0	0	0	0	0	1	1	1	0	0	3
skulls		BE	0	0	0	0	0	0	0	1	0	1	2
skulls		BR	0	0	0	0	0	1	0	0	0	0	1
skulls		BW	0	0	0	0	0	0	0	1	0	0	1
skulls		CA	1	2	0	4	5	0	4	4	1	2	23
skulls		CN	1	0	0	0	0	0	0	0	0	0	1
skulls		CO	0	0	0	0	1	1	0	1	0	0	3

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skulls		CZ	0	0	0	0	0	1	3	1	0	0	5
skulls		DE	0	0	0	0	0	0	1	6	1	0	8
skulls		DK	0	0	0	1	1	4	3	0	0	2	11
skulls		EE	0	1	0	0	0	0	0	0	0	0	1
skulls		ES	0	4	1	0	1	13	15	3	0	2	39
skulls		FI	0	0	0	0	0	0	2	1	1	0	4
skulls		FR	1	0	0	0	2	4	3	0	2	6	18
skulls		GB	0	1	0	1	2	3	2	2	0	0	11
skulls		HU	0	0	0	0	0	0	0	0	0	1	1
skulls		IT	0	0	0	0	1	1	4	3	2	1	12
skulls		MG	0	0	0	0	0	0	1	0	0	0	1
skulls		MX	0	2	0	0	1	4	7	0	0	0	14
skulls		MZ	0	0	0	0	0	0	1	0	0	2	3
skulls		NA	0	1	0	0	0	0	0	0	1	0	2
skulls		NO	0	0	0	0	1	2	4	0	0	1	8
skulls		NZ	0	0	0	0	1	1	1	1	0	0	4
skulls		PA	0	0	0	0	0	0	0	0	1	0	1
skulls		PH	0	0	0	0	1	2	2	0	0	0	5
skulls		PK	0	0	0	0	1	0	1	2	0	0	4
skulls		PT	0	0	0	0	3	6	7	0	0	0	16
skulls		QA	0	0	0	0	0	0	0	2	2	4	8
skulls		RU	0	0	0	0	0	1	4	0	0	6	11
skulls		SE	0	0	0	0	0	2	2	0	2	1	7
skulls		SK	0	0	0	0	0	0	0	0	0	1	1
skulls		TZ	0	0	0	0	0	5	0	0	0	0	5
skulls		UA	0	0	0	0	0	1	0	0	0	0	1
skulls		US	0	43	2	0	16	50	74	45	11	37	278
skulls		ZM	0	0	0	0	0	0	0	1	0	0	1
specimens		CN	4	0	0	1	1	2	0	0	0	1	9
specimens		NO	0	0	0	0	0	0	0	1	0	0	1
specimens		US	0	0	0	0	0	0	0	150	0	0	150
tails		GB	0	0	0	0	0	1	0	0	0	0	1
teeth		BR	0	4	0	0	0	0	0	0	0	0	4
teeth		US	0	0	0	0	0	0	0	0	0	4	4
trophies		AE	0	1	1	0	1	0	7	0	0	1	11
trophies		AR	0	0	3	0	1	0	2	1	4	1	12
trophies		AT	1	0	1	1	0	0	0	0	0	1	4
trophies		AU	2	0	0	0	0	0	0	1	0	0	3
trophies		BE	3	0	0	0	0	2	1	1	0	1	8
trophies		BR	1	1	0	0	0	1	0	0	0	2	5
trophies		BW	1	0	0	0	0	0	0	0	0	0	1
trophies		CA	1	0	1	4	1	0	2	2	6	4	21
trophies		CH	0	0	0	0	2	0	0	0	1	0	3
trophies		CL	2	0	0	0	0	0	0	0	0	0	2
trophies		CN	2	0	1	1	1	1	0	1	2	0	9
trophies		CO	0	0	0	0	1	1	0	1	0	1	4
trophies		CR	0	0	0	0	0	0	1	1	0	0	2
trophies		CZ	1	0	0	2	1	1	3	2	0	0	10
trophies		DE	2	1	1	0	2	0	4	7	5	3	25
trophies		DK	0	0	3	2	5	7	3	1	1	1	23
trophies		EE	0	1	0	0	0	0	0	0	1	0	2
trophies		ES	9	6	5	8	11	11	4	2	2	5	63

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		FI	1	0	0	0	1	2	2	0	1	1	8
trophies		FR	3	6	1	7	1	6	3	2	4	2	35
trophies		GB	1	1	2	4	3	2	2	2	0	2	19
trophies		GT	0	0	1	0	0	0	0	0	0	0	1
trophies		HU	0	0	0	0	0	0	0	1	0	2	3
trophies		ID	0	0	0	0	0	0	0	0	0	1	1
trophies		IE	1	0	0	0	0	0	0	0	0	0	1
trophies		IS	0	0	0	1	1	0	1	1	0	0	4
trophies		IT	1	0	1	1	4	2	6	3	2	1	21
trophies		KW	0	0	2	1	0	0	0	0	0	0	3
trophies		LB	1	0	0	1	1	0	2	0	0	0	5
trophies		LT	0	0	0	0	1	2	0	0	1	1	5
trophies		LV	0	0	0	0	0	1	0	0	0	0	1
trophies		MG	0	0	0	0	0	0	1	0	0	0	1
trophies		MX	2	4	3	11	3	9	7	6	2	6	53
trophies		MZ	0	0	0	0	0	2	0	1	0	0	3
trophies		NA	1	4	0	0	1	0	1	0	1	0	8
trophies		NC	0	0	0	0	0	1	0	0	0	0	1
trophies		NL	2	0	1	0	1	0	0	0	0	0	4
trophies		NO	0	1	0	1	0	0	4	2	2	1	11
trophies		NP	0	0	1	0	0	0	0	0	0	0	1
trophies		NZ	1	0	0	0	2	4	1	2	0	0	10
trophies		PH	1	0	0	1	38	4	2	0	0	0	46
trophies		PK	2	1	1	0	1	0	1	3	0	0	9
trophies		PL	0	0	0	0	0	0	0	3	2	0	5
trophies		PT	0	1	2	1	6	2	7	0	0	0	19
trophies		QA	0	0	0	0	0	0	1	3	2	0	6
trophies		RO	0	0	1	1	0	0	0	0	0	0	2
trophies		RS	0	0	0	1	1	0	0	0	1	0	3
trophies		RU	4	0	1	0	2	2	5	9	4	18	45
trophies		SA	0	0	1	0	0	0	0	0	0	0	1
trophies		SE	0	3	1	0	0	3	2	0	2	0	11
trophies		SI	0	1	0	0	0	0	0	0	0	0	1
trophies		SK	0	1	0	0	0	0	0	1	2	0	4
trophies		SV	0	0	1	0	0	0	0	0	0	0	1
trophies		SZ	0	0	0	0	1	0	0	0	0	0	1
trophies		TZ	1	1	1	1	1	4	0	0	0	0	9
trophies		UA	0	0	0	0	0	1	0	0	0	0	1
trophies		US	68	85	76	98	89	74	53	69	64	53	729
trophies		ZM	0	0	0	0	0	0	1	1	0	0	2
trophies		ZW	0	0	0	0	1	0	0	0	0	1	2
Bodies Total			1	0	0	2	9	6	9	13	3	2	44
Bone Pieces Total			0	0	0	2	0	0	0	0	0	0	2
Bones Total			0	1	0	2	2	8	35	8	2	5	63
Carvings Total			1	0	0	0	0	0	0	0	0	0	0
Claws Total			0	44	18	2	37	12	26	18	18	0	175
Derivatives			0	0	0	0	20	6	50	0	0	0	76

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Total													
Feet Total			0	0	0	29	0	0	0	0	0	0	29
Garments Total			1	0	0	0	0	1	0	1	0	1	3
Hair Total			0	0	0	0	209	0	0	0	0	0	209
Leather Products (large) Total			0	0	0	0	1	0	0	0	0	0	1
Leather Products (small) Total			0	2	0	1	0	0	0	0	1	0	4
Live Total			2	2	2	5	3	11	11	11	5	6	56
Skin Pieces Total			0	0	0	60	0	0	0	1	2	0	63
Skins Total			9	42	2	10	13	70	85	53	8	7	290
Skulls Total			3	54	3	6	37	103	145	75	27	69	519
Skulls Total	kg		0	0	0	0	0	0	0	0	0	0.65	0.65
Specimens Total			4	0	0	1	1	2	0	151	0	1	156
Tails Total			0	0	0	0	0	1	0	0	0	0	1
Teeth Total			0	4	0	0	0	0	0	0	0	4	8
Trophies Total			115	119	113	148	185	145	129	129	112	109	1189
Grand Total	no		136	268	138	268	517	365	490	460	178	204	3024

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from South Africa, all sources, all purposes, on 03/23/2016.

Table 55. Gross Imports of *Panthera pardus* from Sudan, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
leather products (small)		US	0	0	0	0	0	4	0	0	0	0	4
live		SA	1	0	0	0	0	0	0	0	0	0	1
live		SY	1	3	0	0	0	0	0	0	0	0	4
live		ZA	0	0	2	0	0	0	0	0	0	0	2
shoes		US	0	0	4	0	0	0	0	0	0	0	4
skins		AE	0	0	0	0	0	0	1	0	0	0	1
Live Total			2	3	2	0	0	0	0	0	0	0	7
Grand Total			2	3	6	0	0	4	1	0	0	0	16

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Sudan, all sources, all purposes, on 03/23/2016.

Table 56. Gross Imports of *Panthera pardus* from Swaziland, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live		ZA	0	0	0	0	1	0	0	0	0	0	1
skins		CN	0	0	0	0	0	0	0	2	0	0	2
skins		ZA	0	0	0	0	7	0	0	2	0	0	9
specimens		ZA	0	0	0	0	0	0	0	2	0	0	2
Skins Total			0	0	0	0	7	0	0	4	0	0	11
Grand Total			0	0	0	0	8	0	0	6	0	0	14

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Swaziland, all sources, all purposes, on 03/23/2016.

Table 57. Gross Imports of *Panthera pardus* from Togo, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		ES	1	0	0	0	0	0	0	0	0	0	1

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Togo, all sources, all purposes, on 03/23/2016.

Table 58. Gross Imports of *Panthera pardus* from the United Republic of Tanzania, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		DK	0	0	0	0	0	0	0	1	2	0	3
bodies		GB	0	0	0	0	0	0	0	0	1	0	1
bodies		RU	0	0	0	0	0	0	0	1	0	0	1
bones		IT	0	0	0	0	0	2	0	0	0	0	2
bones		US	0	0	0	0	0	0	2	0	8	0	10
bones		ZA	0	0	0	0	0	1	0	0	0	0	1
feet		BR	0	2	0	0	0	0	0	0	0	0	2
hair		NL	0	0	0	10	0	0	0	0	0	0	10
live		NI	0	0	0	0	0	0	1	0	0	0	1
skin pieces		AT	0	1	0	0	0	0	0	0	0	0	1
skins		AR	0	0	0	0	0	1	0	0	0	0	1
skins		AT	0	3	1	0	3	4	0	0	1	0	12
skins		AU	0	0	0	0	0	2	1	0	0	0	3
skins		BE	0	0	0	0	2	1	0	0	0	0	3
skins		BG	0	1	0	0	0	1	0	0	0	0	2
skins		BR	0	0	0	0	1	0	0	0	0	0	1
skins		CA	8	3	0	1	8	1	1	5	0	0	27
skins		CH	0	0	0	0	0	1	1	1	1	0	4
skins		CZ	0	0	0	0	0	0	0	1	0	0	1
skins		DE	0	0	0	0	4	1	3	3	3	0	14
skins		DK	0	0	0	0	0	0	1	0	0	1	2
skins		ES	0	0	0	0	16	14	3	3	1	0	37
skins		FR	1	1	0	0	28	20	11	10	6	2	79
skins		GB	0	2	0	0	0	1	1	0	1	0	5
skins		HU	0	0	0	0	8	0	2	0	3	0	13
skins		IT	0	0	0	0	5	5	2	2	0	0	14
skins		JM	0	0	0	0	0	0	2	0	0	0	2
skins		MG	0	0	0	0	0	0	0	1	0	0	1
skins		MX	0	0	0	0	2	1	0	0	2	0	5
skins		NL	2	0	0	0	0	0	0	0	0	0	2
skins		NO	0	0	0	0	0	0	0	0	0	1	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		PA	0	0	0	0	0	0	0	0	1	0	1
skins		PL	0	0	0	0	2	0	0	0	0	0	2
skins		RU	0	0	0	0	6	4	4	1	2	0	17
skins		SB	0	0	0	0	0	0	1	0	0	0	1
skins		SE	0	0	0	0	0	0	1	0	0	0	1
skins		US	0	0	0	0	41	40	10	47	14	3	155
skins		ZA	0	15	0	0	9	11	12	5	3	0	55
skins		ZW	0	0	0	0	0	0	0	0	1	0	1
skulls		AR	0	0	0	0	0	1	0	0	0	0	1
skulls		AT	0	0	1	0	3	4	0	0	1	0	9
skulls		AU	0	0	0	0	0	2	1	0	0	0	3
skulls		BE	0	0	0	0	2	1	0	0	0	0	3
skulls		BG	0	0	0	0	0	1	0	0	0	0	1
skulls		BR	0	0	0	0	1	0	0	0	0	0	1
skulls		CA	5	3	0	1	7	1	1	3	0	0	21
skulls		CH	0	0	0	0	0	1	1	1	1	0	4
skulls		CZ	0	0	0	0	0	0	0	1	0	0	1
skulls		DE	0	0	0	0	4	1	3	3	3	0	14
skulls		DK	0	0	0	0	0	0	1	0	0	0	1
skulls		ES	0	0	0	0	16	14	3	3	1	0	37
skulls		FR	0	1	0	0	28	22	11	10	5	1	78
skulls		GB	0	0	0	0	0	1	1	0	1	0	3
skulls		HU	0	0	0	0	8	0	2	0	3	0	13
skulls		IT	0	0	0	0	5	5	2	1	0	0	13
skulls		JM	0	0	0	0	0	0	2	0	0	0	2
skulls		MG	0	0	0	0	0	0	0	1	0	0	1
skulls		MX	0	0	0	0	2	1	0	0	2	0	5
skulls		NO	0	0	0	0	0	0	0	0	0	1	1
skulls		PA	0	0	0	0	0	0	0	0	1	0	1
skulls		PL	0	0	0	0	2	0	0	0	0	0	2
skulls		RU	0	0	0	0	6	4	4	1	2	0	17
skulls		SB	0	0	0	0	0	0	1	0	0	0	1
skulls		US	1	0	1	0	41	40	10	43	14	1	151
skulls		ZA	0	15	0	0	9	15	11	6	6	4	66
skulls		ZW	0	0	0	0	0	0	0	0	1	0	1
skulls		CA	0	0	0	0	1	0	0	0	0	0	1
specimens		KW	1	0	0	0	0	0	0	0	0	0	1
tails		FR	0	0	0	0	0	1	0	0	0	0	1
trophies		AE	0	1	0	0	0	0	0	1	1	0	3
trophies		AR	0	2	2	0	2	1	0	0	0	0	7
trophies		AT	0	2	4	1	3	3	4	6	1	4	28
trophies		BE	3	3	5	7	9	3	0	0	0	0	30
trophies		BG	0	1	0	0	1	1	0	1	1	0	5
trophies		BR	0	0	0	0	1	0	0	0	0	0	1
trophies		BY	0	0	0	1	0	0	0	0	0	0	1
trophies		CA	4	2	0	1	1	0	0	0	1	0	9
trophies		CH	2	0	8	1	0	0	0	0	0	0	11
trophies		CN	1	1	0	0	0	2	0	0	0	0	4
trophies		CZ	1	1	0	0	0	0	0	3	0	0	5
trophies		DE	11	8	7	5	11	7	8	6	3	7	73
trophies		DK	0	1	1	1	2	2	2	0	0	1	10
trophies		ES	27	40	40	19	16	20	11	4	6	6	189

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		FI	2	2	0	0	0	1	0	1	0	0	6
trophies		FR	102	30	28	106	37	32	16	53	16	19	439
trophies		GB	0	0	0	0	0	0	0	0	0	2	2
trophies		HR	4	1	0	0	0	0	0	0	0	1	6
trophies		HU	0	0	0	4	9	4	8	6	5	7	43
trophies		IE	0	0	3	0	0	0	0	0	0	0	3
trophies		IT	14	8	8	7	7	7	8	9	6	5	79
trophies		JM	1	0	0	0	0	0	0	0	0	0	1
trophies		LT	0	0	0	0	2	1	0	0	0	0	3
trophies		LU	1	0	2	1	0	0	0	0	1	1	6
trophies		LV	2	0	0	1	0	0	0	1	0	0	4
trophies		MX	20	26	22	27	21	16	15	7	14	13	181
trophies		NL	0	1	0	0	0	0	0	0	0	2	3
trophies		NO	1	3	1	2	0	0	0	0	0	0	7
trophies		PL	0	1	0	1	2	0	1	0	0	0	5
trophies		PT	1	0	0	0	0	0	0	0	0	0	1
trophies		RO	0	0	2	1	0	0	0	0	1	1	5
trophies		RS	0	0	1	0	0	1	1	0	0	0	3
trophies		RU	1	3	7	8	12	10	8	9	0	4	62
trophies		SE	0	0	0	1	1	0	0	0	0	0	2
trophies		SK	0	0	0	0	0	0	0	1	0	0	1
trophies		TR	0	0	0	1	1	0	0	0	0	0	2
trophies		US	137	149	107	173	134	84	59	98	80	97	1118
trophies		ZA	7	19	13	17	8	6	0	4	12	10	96
trophies		ZM	0	0	0	0	0	0	0	0	0	1	1
Bodies Total			0	0	0	0	0	0	0	2	3	0	5
Bones Total			0	0	0	0	0	3	2	0	8	0	13
Feet Total			0	2	0	0	0	0	0	0	0	0	2
Hair Total			0	0	0	10	0	0	0	0	0	0	10
Live Total			0	0	0	0	0	0	1	0	0	0	1
Skin Pieces Total			0	1	0	0	0	0	0	0	0	0	1
Skins Total			11	25	1	1	135	108	56	79	39	7	462
Skulls Total			6	19	2	1	135	114	54	73	41	7	452
Specimens Total			1	0	0	0	0	0	0	0	0	0	1
Tails Total			0	0	0	0	0	1	0	0	0	0	1
Trophies Total			342	305	261	386	280	201	141	210	148	181	2455
Grand Total			360	352	264	398	550	427	254	364	239	195	3403

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from the United Republic of Tanzania, all sources, all purposes, on 03/23/2016.

Table 59. Gross Imports of *Panthera pardus* from Zambia, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		DK	0	0	0	0	0	0	1	0	0	0	1
bones		DE	0	0	0	257	0	0	0	0	0	0	257
bones		ZA	0	0	0	0	0	1	0	0	0	0	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
hair		US	0	0	0	0	0	0	0	0	7	0	7
skins		CA	2	3	0	0	4	1	2	0	0	0	12
skins		ES	0	0	0	0	0	0	2	0	0	0	2
skins		GB	0	1	0	2	3	1	0	1	1	0	9
skins		LU	0	0	0	0	0	0	1	0	0	0	1
skins		MX	0	0	0	0	0	0	0	0	1	0	1
skins		SZ	0	0	3	4	0	0	0	0	0	0	7
skins		US	2	0	0	0	0	0	0	0	0	0	2
skins		ZA	0	4	0	0	0	3	8	3	0	0	18
skulls		BW	0	0	0	0	0	0	0	0	1	0	1
skulls		CA	0	1	0	0	4	1	2	0	0	0	8
skulls		DK	0	0	0	0	0	0	1	0	0	0	1
skulls		GB	0	1	0	2	1	1	0	1	1	0	7
skulls		IT	0	0	0	0	0	0	2	0	0	0	2
skulls		LU	0	0	0	0	0	0	2	0	0	0	2
skulls		MX	0	0	0	0	0	0	4	0	0	0	4
skulls		US	1	1	0	0	0	0	6	0	1	0	9
skulls		ZA	0	4	0	0	0	5	8	4	1	1	23
specimens	g	US	0	0	0	0	0	0	0	0	16	0	16
specimens		CH	0	96	0	0	0	0	0	0	0	0	96
specimens		DE	0	0	53	44	0	0	0	0	0	0	97
specimens		GB	0	8	0	0	0	0	0	0	0	0	8
trophies		AT	0	0	0	1	1	1	0	6	1	1	11
trophies		AU	0	0	0	1	0	0	0	0	0	1	2
trophies		BE	0	0	2	0	0	1	1	2	1	0	7
trophies		BW	0	0	0	0	0	0	0	0	1	0	1
trophies		CA	2	1	0	0	3	14	2	0	1	0	23
trophies		CZ	0	0	0	0	0	2	0	0	1	0	3
trophies		DE	0	0	0	1	4	6	6	4	2	0	23
trophies		DK	0	0	1	1	0	0	6	2	1	0	11
trophies		ES	4	2	4	8	6	2	6	3	3	0	38
trophies		FI	0	0	1	0	0	0	0	0	0	0	1
trophies		FR	3	2	0	4	5	2	2	4	3	0	25
trophies		GB	2	2	2	3	2	1	1	2	0	0	15
trophies		HU	0	0	1	2	3	4	3	6	0	0	19
trophies		IT	0	0	1	1	1	1	2	1	2	1	10
trophies		JM	0	0	1	0	0	0	0	0	0	0	1
trophies		LT	0	0	1	1	0	0	0	0	0	0	2
trophies		LV	0	4	3	3	2	0	0	0	0	0	12
trophies		MX	1	0	0	3	7	6	11	11	1	0	40
trophies		NO	0	0	0	0	0	1	1	0	0	0	2
trophies		PK	0	0	0	0	0	0	3	0	0	0	3
trophies		PT	1	0	2	0	0	0	0	0	0	0	3
trophies		RU	1	0	3	5	1	0	0	3	0	0	13
trophies		SE	0	0	0	0	1	1	0	0	4	0	6
trophies		SI	0	0	3	0	0	0	0	0	0	0	3
trophies		SK	0	0	0	3	2	0	3	2	0	0	10
trophies		SL	0	0	0	0	1	0	0	0	0	0	1
trophies		SZ	0	0	0	2	0	0	0	0	0	0	2
trophies		UA	0	0	1	0	1	0	0	0	0	0	2
trophies		US	54	46	39	48	42	48	36	112	39	2	466
trophies		ZA	7	6	6	7	9	4	6	7	3	0	55

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		ZW	0	1	0	0	0	0	0	0	0	0	1
trophies		MX	0	0	0	0	0	0	1	0	0	0	1
trophies		PK	0	0	0	0	0	0	1	0	0	0	1
Bodies Total			0	0	0	0	0	0	1	0	0	0	1
Bones Total			0	0	0	257	0	1	0	0	0	0	258
Hair Total			0	0	0	0	0	0	0	0	7	0	7
Skins Total			4	8	3	6	7	5	13	4	2	0	52
Skulls Total			1	7	0	2	5	7	25	5	4	1	57
Specimens Total			0	104	53	44	0	0	0	0	0	0	201
Specimens Total	g		0	0	0	0	0	0	0	0	16	0	16
Trophies Total			75	64	71	94	91	94	91	165	63	5	813
Grand Total			80	183	127	403	103	107	130	174	76	6	1389

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Zambia, all sources, all purposes, on 03/23/2016.

Table 60. Gross Imports of *Panthera pardus* from Zimbabwe, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		CA	0	0	0	2	4	0	0	0	0	0	6
bodies		GB	0	0	0	0	1	0	0	0	0	0	1
bodies		HK	0	0	1	0	0	0	0	0	0	0	1
bodies		KR	3	0	0	0	0	0	0	0	0	0	3
bodies		SE	0	0	0	0	0	0	0	1	0	0	1
bones		US	0	0	0	0	0	0	0	4	1	2	7
bones		ZA	0	0	0	0	0	0	0	4	0	0	4
claws		GB	0	0	0	0	0	0	0	0	5	0	5
claws		MX	0	0	0	0	0	0	0	18	18	0	36
claws		US	0	0	0	0	8	0	1	20	0	0	29
derivatives		AT	0	0	1	0	0	0	0	0	0	0	1
feet		ZA	0	0	0	0	0	0	0	4	0	0	4
leather products (large)		US	0	8	0	0	0	0	0	0	0	0	8
live		ZA	0	0	0	0	0	0	0	0	0	3	3
skeletons		FR	1	0	0	0	0	0	0	0	0	0	1
skin pieces		NZ	0	0	0	0	0	0	0	1	0	0	1
skin pieces		US	0	0	0	0	0	1	0	0	1	2	4
skins	kg	IT	0	0	0	0	0	0	1	0	0	0	1
skins		AR	0	0	0	0	0	0	0	3	0	0	3
skins		AT	2	3	2	0	0	0	3	3	2	0	15
skins		BG	0	0	0	0	0	0	0	1	0	0	1
skins		BR	0	2	0	0	0	0	0	0	0	0	2
skins		BW	0	0	0	0	0	0	1	1	0	0	2
skins		CA	0	9	0	9	7	7	4	3	3	1	43
skins		CH	0	0	0	0	0	0	0	1	0	0	1
skins		CN	0	0	0	1	0	0	0	0	0	0	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		CZ	0	0	0	0	0	0	1	1	4	0	6
skins		DE	0	0	0	0	0	0	5	5	4	0	14
skins		DK	0	0	0	1	0	0	2	0	1	0	4
skins		ES	0	0	0	0	2	1	7	5	1	0	16
skins		FI	0	0	0	0	0	0	1	0	0	0	1
skins		FR	0	0	0	0	0	1	2	5	4	0	12
skins		GB	0	0	0	0	2	1	2	2	3	0	10
skins		HK	0	0	0	0	1	0	0	0	0	0	1
skins		HN	0	0	0	0	0	0	0	0	1	0	1
skins		HU	0	0	0	0	0	0	0	2	2	0	4
skins		IT	0	0	0	0	0	0	2	0	2	0	4
skins		LT	0	0	0	0	0	0	0	1	1	0	2
skins		MX	0	0	0	0	1	0	0	3	1	1	6
skins		NG	0	0	0	0	0	0	0	6	0	0	6
skins		NZ	0	0	0	0	1	0	0	0	1	0	2
skins		PL	0	0	0	0	0	0	1	1	0	0	2
skins		PT	0	0	0	0	0	0	0	1	0	0	1
skins		RO	0	0	0	0	0	0	0	1	0	0	1
skins		RU	0	0	0	0	0	0	1	5	0	1	7
skins		SE	0	0	0	0	0	0	0	2	0	0	2
skins		SK	0	0	0	0	0	0	0	0	0	2	2
skins		US	0	0	0	0	3	2	55	128	68	6	262
skins		YU	0	0	0	0	0	0	0	0	1	0	1
skins		ZA	0	20	0	0	1	9	8	12	2	3	55
skulls	kg	IT	0	0	0	0	0	0	1	0	0	0	1
skulls		AR	0	0	0	0	0	0	0	3	0	0	3
skulls		AT	2	0	2	0	0	0	3	3	2	0	12
skulls		BE	0	0	0	0	0	2	0	0	0	0	2
skulls		BG	0	0	0	0	0	1	0	1	0	0	2
skulls		BW	0	0	0	0	0	0	1	1	0	0	2
skulls		CA	0	9	0	19	12	9	4	2	3	1	59
skulls		CH	0	0	0	0	1	0	0	1	0	0	2
skulls		CL	0	0	0	0	0	1	0	0	0	0	1
skulls		CZ	0	0	0	0	0	0	1	1	4	0	6
skulls		DE	0	0	0	0	1	0	6	6	4	0	17
skulls		DK	0	0	0	0	1	0	2	0	1	0	4
skulls		ES	0	0	0	0	3	1	8	5	2	0	19
skulls		FI	0	0	0	0	0	1	1	0	0	0	2
skulls		FR	0	0	0	0	0	0	2	8	5	0	15
skulls		GB	0	0	0	0	3	1	2	2	2	1	11
skulls		HK	0	0	0	0	1	0	0	0	0	0	1
skulls		HN	0	0	0	0	0	0	0	0	1	0	1
skulls		HU	0	0	0	0	0	0	0	2	2	0	4
skulls		IT	0	0	0	0	0	0	2	0	2	0	4
skulls		LT	0	0	0	0	0	0	0	1	1	0	2
skulls		MU	0	0	0	0	0	0	0	1	0	0	1
skulls		MX	0	0	0	0	0	0	0	3	1	1	5
skulls		NO	0	0	0	1	0	0	0	1	0	0	2
skulls		NZ	0	0	0	0	1	0	0	1	1	0	3
skulls		PA	0	0	0	0	0	0	0	1	0	0	1
skulls		PL	0	0	0	0	0	0	1	1	0	0	2
skulls		PT	0	0	0	0	0	0	0	2	0	0	2

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skulls		RO	0	0	0	0	0	0	0	1	0	0	1
skulls		RU	0	0	0	0	0	0	1	5	0	1	7
skulls		SE	0	0	0	0	0	0	1	2	0	0	3
skulls		SK	0	0	0	0	0	0	0	0	0	2	2
skulls		US	0	3	1	7	9	5	58	134	74	9	300
skulls		YU	0	0	0	0	0	0	0	0	1	0	1
skulls		ZA	0	22	0	1	1	9	8	11	6	3	61
specimens		CN	1	0	0	0	0	2	0	0	0	0	3
tails		US	0	0	0	0	0	0	0	0	0	10	10
teeth		CH	0	0	0	0	0	0	0	4	4	0	8
teeth		NZ	0	0	1	0	0	0	0	0	0	0	1
trophies		AR	1	2	2	0	1	0	1	7	0	0	14
trophies		AT	4	6	2	4	3	1	4	2	1	2	29
trophies		AU	0	4	0	1	0	0	0	0	0	0	5
trophies		BE	1	2	2	2	1	3	1	0	1	0	13
trophies		BG	0	1	4	1	0	1	2	1	0	2	12
trophies		BR	0	0	0	0	0	0	0	0	0	2	2
trophies		CA	9	10	2	8	4	4	1	5	3	2	48
trophies		CH	0	0	0	1	1	0	0	1	1	2	6
trophies		CL	2	0	0	0	0	1	0	0	0	0	3
trophies		CN	0	0	0	1	0	2	0	1	1	0	5
trophies		CR	0	1	0	1	0	0	0	0	0	0	2
trophies		CZ	3	3	0	0	2	1	3	1	4	0	17
trophies		DE	9	12	4	4	5	5	8	8	8	4	67
trophies		DK	3	3	2	3	10	6	4	3	0	1	35
trophies		EE	1	0	0	0	0	0	0	0	0	1	2
trophies		ES	25	20	26	18	13	8	10	8	6	4	138
trophies		FI	2	2	1	2	1	2	3	1	0	1	15
trophies		FR	30	9	8	8	5	2	2	10	7	5	86
trophies		GB	1	1	1	2	0	1	1	2	2	2	13
trophies		HR	1	0	0	0	0	0	0	0	0	0	1
trophies		HU	0	0	0	0	1	0	1	1	2	1	6
trophies		IT	4	2	4	7	4	3	6	3	1	0	34
trophies		LT	1	1	0	0	0	0	0	2	1	0	5
trophies		LU	0	0	4	1	0	0	0	0	0	0	5
trophies		LV	0	0	0	0	0	0	0	0	1	1	2
trophies		MU	0	0	0	0	0	0	0	1	0	0	1
trophies		MX	8	15	2	4	6	13	8	5	5	5	71
trophies		NO	1	0	1	2	1	3	0	1	0	0	9
trophies		NZ	1	0	0	0	2	2	1	0	1	0	7
trophies		PA	0	0	0	0	0	0	0	1	0	0	1
trophies		PH	0	0	0	2	3	0	0	0	0	0	5
trophies		PK	1	0	0	0	0	0	0	0	0	0	1
trophies		PL	0	5	4	2	1	3	6	2	1	4	28
trophies		PT	2	3	1	2	0	0	0	2	0	0	10
trophies		QA	0	0	0	0	0	2	0	0	0	0	2
trophies		RO	0	0	1	0	0	1	0	0	1	0	3
trophies		RS	0	0	0	0	0	0	0	0	1	0	1
trophies		RU	5	1	3	6	7	6	4	10	0	1	43
trophies		SA	0	0	1	0	0	0	0	0	0	0	1
trophies		SD	0	0	0	0	0	0	0	0	0	2	2
trophies		SE	1	2	0	1	2	0	1	1	2	2	12

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		SG	0	1	0	0	0	0	0	0	0	0	1
trophies		SI	0	1	0	0	0	0	0	0	0	0	1
trophies		SK	2	0	1	3	0	1	0	0	1	1	9
trophies		SL	0	1	0	0	0	0	0	0	0	0	1
trophies		SZ	0	0	0	0	0	0	0	0	0	2	2
trophies		UA	0	0	0	0	0	0	0	0	2	2	4
trophies		US	185	156	178	143	180	143	126	132	129	117	1489
trophies		XX	0	2	0	0	0	0	0	0	0	0	2
trophies		ZA	30	19	23	24	28	6	11	8	10	11	170
trophies		ZM	0	0	0	0	0	0	0	1	0	0	1
Bodies Total			3	0	1	2	5	0	0	1	0	0	12
Bones Total			0	0	0	0	0	0	0	8	1	2	11
Claws Total			0	0	0	0	8	0	1	38	23	0	70
Derivatives Total			0	0	1	0	0	0	0	0	0	0	1
Feet Total			0	0	0	0	0	0	0	4	0	0	4
Leather Products (large) Total			0	8	0	0	0	0	0	0	0	0	8
Live Total			0	0	0	0	0	0	0	0	0	3	3
Skeletons Total			1	0	0	0	0	0	0	0	0	0	1
Skin Pieces Total			0	0	0	0	0	1	0	1	1	2	5
Skins Total			2	34	2	11	18	21	95	192	101	14	490
Skins Total	kg		0	0	0	0	0	0	1	0	0	0	1
Skulls Total			2	34	3	28	33	30	101	199	112	18	560
Skulls Total	kg		0	0	0	0	0	0	1	0	0	0	1
Specimens Total			1	0	0	0	0	2	0	0	0	0	3
Tails Total			0	0	0	0	0	0	0	0	0	10	10
Teeth Total			0	0	1	0	0	0	0	4	4	0	9
Trophies Total			333	285	277	253	281	220	204	220	192	177	2442
Grand Total			342	361	285	294	345	274	401	667	434	226	3629

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Zimbabwe, all sources, all purposes, on 03/23/2016.

Table 61: Imports of *Panthera pardus* into Austria, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	H	W	AT	0	0	0	0	0	1	0	0	0	0	1
skins	H	W	AT	3	0	0	0	3	4	4	3	4	0	21
trophies	H	W	AT	17	26	9	10	17	10	11	18	13	10	141
trophies	H	W	AT	0	0	0	0	0	0	1	0	0	0	1

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins	P	O	AT	0	0	0	0	0	0	0	0	1	0	1
skins	P	W	AT	4	14	15	0	0	0	0	0	0	0	33
trophies	P	W	AT	0	1	6	12	4	1	1	0	2	4	31
skins	Q	O	AT	0	0	0	0	1	0	0	0	0	0	1
bodies total				0	0	0	0	0	1	0	0	0	0	1
skins total				7	14	15	0	4	4	4	3	5	0	56
trophies total				17	27	15	22	21	11	13	18	15	14	173
Grand Total				24	41	30	22	25	16	17	21	20	14	**230**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Austria by individual sources and purposes, on 03/16/2016.

Table 62: Imports of *Panthera pardus* into Canada, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	E	W	CA	0	0	0	0	0	0	0	2	0	0	2
skins	E	W	CA	0	0	0	0	0	0	0	1	0	0	1
trophies	H	C	CA	0	0	0	0	0	0	0	0	2	0	2
bodies	H	W	CA	0	0	0	6	8	0	6	2	1	4	27
skins	H	W	CA	11	22	0	18	32	10	10	11	3	2	119
trophies	H	W	CA	16	17	3	15	16	22	9	10	8	13	129
trophies	H	F	CA	0	0	0	0	0	0	0	0	2	0	2
trophies	P	I	CA	0	0	0	0	0	0	0	0	0	1	1
skins	P	O	CA	0	0	0	2	1	0	1	1	0	1	6
bodies	P	W	CA	0	0	0	1	1	0	0	0	0	1	3
skins	P	W	CA	2	2	0	0	1	0	0	0	0	1	6
trophies	P	W	CA	3	0	0	0	1	0	0	1	0	1	6
bodies	T	O	CA	0	0	0	0	0	0	0	1	0	0	1
skins	T	W	CA	2	0	0	0	0	0	0	0	0	0	2
live	Z	C	CA	0	1	2	1	0	1	0	1	2	2	10
bodies total				0	1	2	7	9	1	6	5	1	5	33
live total				0	1	2	1	0	1	0	1	2	2	10
skins total				15	24	0	20	34	10	11	13	3	4	134
trophies total				34	43	3	51	69	22	32	33	21	34	141
Grand Total				34	42	5	43	60	33	26	30	18	26	**318**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Canada by individual sources and purposes, on 03/17/2016.

Table 63: Imports of *Panthera pardus* into France, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	H	W	FR	0	0	0	0	1	0	0	0	0	0	1
skins	H	W	FR	2	1	1	0	28	25	19	23	11	0	110
trophies	H	W	FR	188	74	33	47	52	44	10	11	10	4	473
skins	P	O	FR	3	0	0	1	0	0	0	1	0	0	5
bodies	P	W	FR	0	0	0	0	2	0	0	0	0	0	2
skins	P	W	FR	2	0	0	0	1	1	1	0	2	2	9
trophies	P	W	FR	4	2	33	138	60	51	32	76	33	30	459
live	Q	C	FR	0	2	0	0	0	0	0	0	0	4	6
live	Z	C	FR	0	1	3	1	0	2	0	0	0	0	7
bodies total				0	0	0	0	3	0	0	0	0	0	3
live total				0	3	3	1	0	2	0	0	0	4	13
skins total				7	1	1	1	29	26	20	24	13	2	124
trophies total				192	76	66	185	112	95	42	87	43	34	932
Grand Total				199	80	70	187	144	123	62	111	56	40	**1,072**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into France by individual sources and purposes, on 03/17/2016.

Table 64: Imports of *Panthera pardus* into Germany, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	B	C	DE	0	0	0	0	0	0	2	0	0	0	2
bodies	H	W	DE	0	0	0	0	0	1	0	0	0	0	1
skins	H	W	DE	0	0	0	0	5	2	12	15	8	0	42
trophies	H	W	DE	62	66	30	41	60	34	30	46	38	36	443
bodies	P	O	DE	0	0	1	0	0	0	0	0	0	0	1
skins	P	O	DE	0	0	0	0	0	1	0	0	1	0	2
trophies	P	O	DE	0	0	0	0	0	0	0	1	0	0	1
bodies	P	W	DE	0	0	0	1	0	0	0	0	0	0	1
skins	P	W	DE	1	0	0	0	0	0	2	0	0	0	3
trophies	P	W	DE	4	1	3	0	4	3	2	1	0	0	18
live	Q	C	DE	0	1	0	0	0	0	0	0	0	0	1
trophies	Q	O	DE	0	0	0	1	0	0	0	0	0	0	1
skins	T	O	DE	0	1	0	0	0	0	0	0	0	0	1
skins	T	U	DE	0	0	7	0	0	0	0	0	0	0	7
skins	T	W	DE	0	0	7	0	0	1	0	0	0	0	8
live	Z	C	DE	0	0	2	0	3	0	0	2	0	0	7
bodies total				0	0	1	1	0	1	0	0	0	0	3
live total				0	1	2	0	3	0	2	2	0	0	10
skins total				1	1	14	0	5	4	14	15	9	0	63
trophies total				66	67	33	42	64	37	32	48	38	36	463
Grand Total				67	69	50	43	72	42	48	65	47	36	**539**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Germany by individual sources and purposes, on 03/17/2016.

Table 65: Imports of *Panthera pardus* into Italy, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	H	R	IT	0	0	0	1	0	0	0	0	0	0	1
bodies	H	W	IT	0	0	0	0	0	1	0	0	0	0	1
skins	H	W	IT	0	0	0	0	5	5	4	3	2	0	19
trophies	H	W	IT	20	12	15	18	23	18	22	18	12	7	165
skins	P	O	IT	0	0	0	1	0	0	0	0	0	0	1
trophies	P	W	IT	0	0	0	0	0	0	0	0	3	0	3
skins	Q	O	IT	0	0	0	0	0	0	0	1	0	0	1
live	Z	C	IT	0	0	0	0	1	0	0	0	0	0	1
bodies total				0	0	0	0	0	1	0	0	0	0	1
live total				0	0	0	0	1	0	0	0	0	0	1
skins total				0	0	0	1	5	5	4	4	2	0	21
trophies total				20	12	15	19	23	18	22	18	15	7	169
Grand Total				20	12	15	20	29	24	26	22	17	7	**192**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Italy by individual sources and purposes, on 03/17/2016.

Table 66: Imports of *Panthera pardus* into Mexico, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	H	C	MX	0	0	0	0	0	0	0	0	2	0	2
trophies	H	F	MX	0	0	0	0	0	0	0	0	2	0	2
trophies	H	I	MX	0	0	0	0	0	2	0	0	0	0	2

trophies	H	O	MX	0	0	0	0	0	0	6	0	0	0	6
bodies	H	W	MX	0	0	0	0	1	0	0	0	0	0	1
skins	H	W	MX	0	0	0	0	3	4	3	4	5	0	19
trophies	H	W	MX	39	68	50	57	49	46	38	48	30	29	454
trophies	H	W	MX	0	0	0	0	0	0	1	0	0	0	1
trophies	P	W	MX	1	0	1	2	0	0	0	1	0	0	5
live	Q	C	MX	0	0	0	0	0	2	0	0	1	0	3
trophies	T	W	MX	0	0	1	1	1	0	0	0	0	0	3
live	Z	C	MX	0	0	0	4	0	0	0	0	0	1	5
bodies total				0	0	0	0	1	0	0	0	0	0	1
live total				0	0	0	4	0	2	0	0	1	1	8
skins total				0	0	0	0	3	4	3	4	6	0	20
trophies total				40	68	52	60	56	48	45	49	34	29	481
Grand Total				40	68	52	64	59	54	48	53	41	30	**510**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Mexico by individual sources and purposes, on 03/17/2016.

Table 67: Imports of *Panthera pardus* into Russia, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	B	C	RU	0	0	0	0	0	0	0	2	0	0	2
bodies	H	W	RU	0	0	3	0	0	2	1	1	0	1	8
live	H	W	RU	0	0	0	0	0	2	0	0	0	0	2
skins	H	W	RU	0	0	0	0	7	6	8	7	2	0	30
trophies	H	W	RU	15	8	20	29	36	35	23	51	15	31	263
live	N	W	RU	0	0	0	0	4	0	0	0	0	0	4
skins	P	C	RU	0	0	0	0	0	0	0	0	2	0	2
bodies	P	W	RU	0	0	0	0	1	0	0	0	0	0	1
trophies	P	W	RU	0	0	0	5	5	2	2	4	14	5	37
live	Q	U	RU	0	0	0	0	0	0	4	0	0	0	4
live	Q	W	RU	0	0	0	0	0	0	4	0	0	0	4
skins	T	O	RU	0	0	0	0	0	0	0	4	0	0	4
live	Z	C	RU	0	5	3	3	0	0	2	2	6	3	24
live	Z	F	RU	0	0	0	0	0	0	0	1	0	0	1
bodies total				0	0	3	0	1	2	1	1	0	1	9
live total				0	5	3	3	4	2	10	5	6	3	41
skins total				0	0	0	0	7	6	8	11	4	0	36
trophies total				15	8	20	34	41	37	25	55	29	36	300
Grand Total				15	13	26	37	53	47	44	72	39	40	**386**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Russia by individual sources and purposes, on 03/17/2016.

Table 68: Imports of *Panthera pardus* into South Africa, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	B	C	ZA	0	0	0	0	2	0	2	1	0	0	5
live	B	F	ZA	0	0	0	1	0	0	0	0	0	0	1
live	B	F	ZA	0	0	0	1	0	0	0	0	0	0	1
live	B	W	ZA	1	0	0	0	0	0	0	0	0	0	1
live	E	C	ZA	0	0	0	0	3	0	0	0	0	0	3
trophies	H	C	ZA	0	0	0	0	0	0	1	0	0	0	1
trophies	H	F	ZA	0	0	1	1	0	0	0	0	0	0	2
trophies	H	R	ZA	0	1	0	0	0	0	0	0	0	0	1
skins	H	W	ZA	0	51	0	0	22	28	41	38	27	0	207
trophies	H	W	ZA	87	74	73	76	80	43	40	46	43	25	587

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins	L	W	ZA	0	0	0	0	0	0	0	2	0	0	2
skins	P	C	ZA	0	0	0	0	7	0	0	0	0	0	7
skins	P	O	ZA	2	0	0	0	0	0	1	0	0	0	3
skins	P	W	ZA	6	1	0	0	3	0	0	0	0	0	10
trophies	P	W	ZA	2	0	0	0	1	0	4	12	1	0	20
live	Q	C	ZA	0	0	0	0	0	4	0	0	0	0	4
live	T	C	ZA	0	1	0	0	1	0	1	0	2	3	8
live	T	W	ZA	0	0	0	0	0	0	1	1	0	0	2
trophies	T	W	ZA	0	0	0	1	0	0	0	1	0	0	2
live	Z	C	ZA	0	1	0	2	0	0	0	2	2	2	9
live	Z	W	ZA	0	0	2	0	0	0	0	0	0	0	2
live total				1	2	2	4	6	4	4	4	4	5	36
skins total				8	52	0	0	32	28	42	40	27	0	229
trophies total				89	75	74	78	81	43	45	59	44	25	613
Grand Total				98	129	76	82	119	75	91	103	75	30	**878**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into South Africa by individual sources and purposes, on 03/17/2016.

Table 69: Imports of *Panthera pardus* into Spain, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	H	W	ES	0	0	0	0	0	2	0	1	0	0	3
skins	H	W	ES	0	3	0	0	18	27	32	12	7	0	99
trophies	H	W	ES	90	91	100	76	72	53	39	29	18	20	588
trophies	P	W	ES	0	0	0	0	0	0	3	1	11	0	15
live	Q	C	ES	0	0	0	0	0	1	1	0	0	0	2
live	T	C	ES	0	0	0	0	0	1	0	0	0	0	1
skins	T	W	ES	0	0	0	0	1	0	0	0	0	0	1
bodies total				0	0	0	0	0	2	0	1	0	0	3
live total				0	0	0	0	0	2	1	0	0	0	3
skins total				0	3	0	0	19	27	32	12	7	0	101
trophies total				90	91	100	76	72	53	42	30	29	20	602
Grand Total				90	94	100	76	91	84	75	43	36	20	**709**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Spain by individual sources and purposes, on 03/17/2016.

Table 70: Imports of *Panthera pardus* into the United States of America, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	E	W	US	0	0	2	0	0	0	0	0	0	0	2
trophies	H	C	US	0	0	1	0	0	0	1	0	0	0	2
trophies	H	I	US	21	31	19	30	14	13	14	18	10	5	175
skins	H	R	US	0	1	0	0	0	0	0	0	0	0	1
bodies	H	W	US	1	0	0	0	0	6	1	4	0	0	12
skins	H	W	US	1	26	4	1	46	83	152	262	106	2	683
trophies	H	W	US	497	512	494	566	642	445	296	460	345	316	4,573
trophies	H	W	US	0	0	0	0	0	1	0	0	0	0	1
skins	L	W	US	0	0	3	0	0	0	0	0	0	0	3
trophies	P	I	US	0	0	0	0	0	0	0	0	1	0	1
skins	P	O	US	1	2	0	1	0	2	1	6	1	1	15
trophies	P	O	US	0	0	0	0	0	0	0	1	0	0	1
skins	P	U	US	2	0	0	0	0	0	0	0	0	0	2
bodies	P	W	US	0	0	0	0	0	0	1	1	0	0	2
skins	P	W	US	4	2	0	4	1	0	0	0	0	0	11

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	P	W	US	4	3	4	4	1	0	1	10	6	2	35
live	Q	C	US	0	0	0	1	1	2	2	0	1	0	7
skins	Q	O	US	0	0	0	2	0	0	0	0	1	0	3
skins	Q	W	US	0	0	0	0	0	0	0	0	1	0	1
skins	S	U	US	0	0	0	7	0	0	0	0	0	0	7
skins	T	I	US	2	0	0	0	0	2	0	1	0	0	5
skins	T	O	US	3	2	0	0	1	0	0	0	0	0	6
skins	T	U	US	0	1	0	0	0	0	0	0	0	0	1
trophies	T	U	US	0	0	1	0	0	0	0	0	0	0	1
skins	T	W	US	0	1	0	0	0	0	1	0	1	0	3
trophies	T	W	US	0	1	1	0	0	0	0	0	0	1	3
live	Z	C	US	0	0	0	6	3	0	1	1	3	3	17
live	Z	F	US	0	0	0	0	0	0	0	1	0	0	1
live	Z	F	US	0	0	0	0	0	0	0	1	0	0	1
bodies total				1	0	0	0	0	6	2	5	0	0	14
live total				0	0	0	7	4	2	3	3	4	3	26
skins total				13	35	7	15	48	87	154	269	110	3	741
trophies total				522	547	522	600	657	459	312	489	362	324	4,794
Grand Total				536	582	529	622	709	554	471	766	476	330	**5,575**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into the United States of America by individual sources and purposes, on 03/17/2016.

IUCN SSC Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives

Ver. 1.0 (09 August 2012)

Citation: IUCN SSC (2012). IUCN SSC Guiding principles on trophy hunting as a tool for creating conservation incentives. Ver. 1.0. IUCN, Gland.

Section I. Introduction

IUCN has long recognized that the wise and sustainable use of wildlife can be consistent with and contribute to conservation, because the social and economic benefits derived from use of species can provide incentives for people to conserve them and their habitats. This document builds on existing IUCN policies by setting forth SSC guiding principles on the use of "trophy hunting", as defined in Section II, as a tool for creating incentives for the conservation of species and their habitats and for the equitable sharing of the benefits of use of natural resources.

Trophy hunting is often a contentious activity, with people supporting or opposing it on a variety of biological, economic, ideological or cultural bases. This document is focused solely on the relevance of trophy hunting for conservation and associated local livelihoods. Nothing in this document is intended to support or condone trophy hunting activities that are unsustainable; adversely affect habitats; increase extinction risks; undermine the rights of local communities to manage, steward, and benefit from their wildlife resources; or foster corruption or poor governance.

Section II. Scope of this guidance

The term "trophy hunting" is here used to refer to hunting that is:

- Managed as part of a programme administered by a government, community-based organization, NGO, or other legitimate body;
- Characterized by hunters paying a high fee to hunt an animal with specific "trophy" characteristics (recognizing that hunters each have individual motivations);
- Characterized by low off-take volume;
- Usually (but not necessarily) undertaken by hunters from outside the local area (often from countries other than where the hunt occurs).

These elements differentiate the hunting at issue here from a broad array of other hunting activities, although it is recognized that what is here defined as trophy hunting may be given a different name in some countries. Thus these guiding principles are not intended to apply to subsistence hunting, to legal hunting of relatively common species, or to management activities undertaken by wildlife management agencies, although some elements of them may be relevant to these activities. Such hunting activities may also generate incentives for conservation, but are beyond the scope of this guidance.

These guiding principles apply specifically to trophy hunting programmes oriented to terrestrial wild animals in their native geographic ranges. Existing IUCN policy does not support moving species outside their native ranges for the primary purpose of trophy hunting[1]. In keeping with existing IUCN policy (IUCN Recommendation 3.093, adopted by the IUCN Congress at its 3rd Session in Bangkok, Thailand, 17-25 November 2004, which condemned "the killing of animals in enclosures or where they do not exist as free-ranging"), the IUCN SSC does not support trophy hunting of animals in enclosures where they cannot be considered "free-ranging" and cannot use their natural abilities to escape.

Section III: The policy context

IUCN's formal recognition that the ethical and sustainable use of wildlife can form an integral

[1] See: IUCN Position Statement on Translocation of Living Organisms (http://www.iucnsscrsg.org/download/IUCNPositionStatement.pdf) and IUCN Guidelines for the Prevention of Biodiversity Loss Caused by Alien Invasive Species (http://intranet.iucn.org/webfiles/doc/SSC/SSCwebsite/Policy_statements/IUCN_Guidelines_for_the_Prevention_of_Biodiversity_Loss_caused_by_Alien_Invasive_Species.pdf)

and legitimate component of conservation programs dates back to the World Conservation Strategy in 1980, and was affirmed in Recommendation 18.24 at the 1990 IUCN General Assembly in Perth. IUCN's "Policy Statement on Sustainable Use of Wild Living Resources", adopted as Resolution 2.29 at the IUCN World Conservation Congress in Amman in October 2000, affirms that use of wildlife, if sustainable, can be consistent with and contribute to biodiversity conservation. IUCN recognizes that where an economic value can be attached to a wild living resource, perverse incentives removed, and costs and benefits internalized, favourable conditions can be created for investment in the conservation and the sustainable use of the resource, thus reducing the risk of resource degradation, depletion, and habitat conversion. In managing such use to enhance sustainability, the Policy Statement draws attention to the following key considerations:

- the need for adaptive management, incorporating monitoring and the ability to modify management to take account of risk and uncertainty;
- the supply of biological products and ecological services available for use is limited by intrinsic biological characteristics of both species and ecosystems, including productivity, resilience, and stability, which themselves are subject to extrinsic environmental change;
- institutional structures of management and control require both positive incentives and negative sanctions, good governance, and implementation at an appropriate scale. Such structures should include participation of relevant stake-holders and take account of land tenure, access rights, regulatory systems, traditional knowledge, and customary law.

More specifically, and with particular reference to southern Africa, IUCN has recognized that recreational hunting can contribute to biodiversity conservation. The IUCN at the 2004 WCC adopted Recommendation 3.093 stating that it "Supports the philosophy and practice that on state, communal and privately-owned land in southern Africa the sustainable and well-managed consumptive use of wildlife makes a contribution to biodiversity conservation" and further, that it "accepts that well-managed recreational hunting has a role in the managed sustainable consumptive use of wildlife populations".

Further, the IUCN SSC Caprinae Specialist Group adopted a formal position statement in December, 2000, recognizing that hunting, and in particular trophy hunting, can form a major component in conservation programmes for wild sheep and goats. This statement noted that "Trophy hunting usually generates substantial funds that could be used for conservation activities such as habitat protection, population monitoring, law enforcement, research, or management programs. Equally importantly, the revenues from trophy hunting can provide a strong incentive for conservation or habitat protection…"

The Convention on Biological Diversity has developed several statements of principles relevant for the management of trophy hunting. Most importantly, the 7th Conference of Parties to the CBD (Kuala Lumpur, February 2004) adopted the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (AAPG), and IUCN members party to the CBD were urged to honour these commitments by Resolution 3.074 of the 3rd IUCN World Conservation Congress (Bangkok, October 2004). The AAPG are based on the assumption that it is possible to use biodiversity in a manner in which ecological processes, species, and genetic variability remain above the thresholds needed for long term viability, and that all resource managers and users have the responsibility to ensure that such use does not exceed these. Some key relevant principles from the Addis Ababa Principles and Guidance include:

- Recognizing the need for a governing framework consistent with international/national laws, local users of biodiversity components should be sufficiently empowered and supported by rights to be responsible and accountable for use of the resources concerned (Principle 2);
- Adaptive management should be practiced, based on:

    - Science and traditional and local knowledge;
    - Iterative, timely and transparent feedback derived from monitoring the use, environmental and socio-economic impacts, and the status of the resource being used; and
    - Adjusting management based on timely feedback from the monitoring procedures (Principle 4)
- Sustainable use management goals and practices should avoid or minimize adverse impacts on ecosystem services, structure, and functions as well as other components of ecosystems (Principle 5);
- An interdisciplinary, participatory approach should be applied at the appropriate levels of management and governance related to the use (Principle 9);
- Users of biodiversity should seek to minimize waste and adverse environmental impact, and optimize benefits from uses (Principle 11);
  The costs of management and conservation of biological diversity should be internalized within the area of management and reflected in the distribution of the benefits from the use (Principle 13).

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) provides for the authorization of trade of trophies in certain specimens of Appendix I-listed taxa for personal use (Res. Conf. 2.11 (rev. CoP 9). CITES has adopted a series of Resolutions for certain Appendix I-listed species subject to trophy hunting (Res. Conf 10.14 (rev. CoP 14) on Leopard *Panthera pardus*; Res. Conf 10.15 (rev. CoP 14) on Markhor *Capra falconeri;* and Res. Conf 13.5 (rev. CoP 14) on Black Rhinoceros *Diceros bicornis*), which set out quotas and conditions for such trade.

The European Charter on Hunting and Biodiversity (ECHB), adopted under the European Bern Convention, provides specific guidance on hunting and conservation. In Resolution 4.026, adopted at the 4th World Conservation Congress Barcelona, October 2008), IUCN requested that its members promote the ECHB in the implementation of IUCN's policies and Programme for 2009-2012. While the ECHB explicitly addresses sustainable hunting in Europe, its principles and guidelines are relevant and pertinent in a wider geographic context. Key principles of the ECHB include:

- ensuring that harvest is ecologically sustainable (Principle 3);
- maintaining wild populations of indigenous species with adaptive gene pools (Principle 4);
- maintaining environments that support healthy and robust populations of harvestable species (Principle 5);
- encouraging use to provide economic incentives for conservation (Principle 6); and
- empowering local stakeholders and holding them accountable (Principle 9).

Section IV. Trophy hunting and conservation

Trophy hunting is a form of wildlife use that, when well managed, may assist in furthering conservation objectives by creating the revenue and economic incentives for the management and conservation of the target species and its habitat, as well as supporting local livelihoods. However, if poorly managed, it can fail to deliver these benefits. Although a wide variety of species (many of which are both common and secure) are hunted for trophies, some species that are rare or threatened may be included in trophy hunting as part of site-specific conservation strategies. Examples include Cheetah *Acinonyx jubatus* and Black Rhinoceros in southern Africa, and Straight-Horned Markhor *Capra falconeri megaceros* in the Torghar Valley of Pakistan, all of which are species listed on Appendix I of CITES.

Trophy hunting takes place in both North America and Europe, and in developing countries where wildlife management infrastructure is often less fully developed. These hunts are usually conducted by persons willing and able to pay substantial amounts of money for the opportunity. They typically involve taking small numbers of individual animals and require limited development infrastructure. They are thus high in value but low in impact. In some cases, trophy hunting forms an important component of Community-Based Conservation/Community-Based Natural Resource Management, which aim to devolve responsibility for the sustainable use and management of wildlife resources from distant bureaucracies to more local levels.

Understanding the context within which trophy hunting occurs is critical to understanding its potential to benefit conservation. In many parts of the world, much wildlife exists outside of protected areas. Wildlife shares landscapes with people, and typically competes for space and environmental resources with other forms of economically productive land uses, such as agriculture and pastoralism, upon which the livelihoods of local people depend. Wildlife can impose serious costs on local people, including physical harm, damaging crops, and competing with livestock for forage. Where wildlife provides few benefits to local people and/or imposes substantial costs, it is often killed (legally or illegally) for food, various commercially valuable wildlife products, or as problem animals, and its habitats are degraded or lost to other forms of land use. In some circumstances trophy hunting can address this problem by effectively making wildlife more valuable than, and/or complementary to, other forms of land use. It can return benefits to local people (preferably through effective co-management), encouraging their support for wildlife, and motivating investment at community, private, and government levels for research, monitoring, habitat protection, and enforcement against illegal use (see Annex 1 for examples). Trophy hunting, if well managed, is often a higher value, lower impact land use than alternatives such as agriculture or tourism.

However, where poorly managed, trophy hunting can have negative ecological impacts including altered age/sex structures, social disruption, deleterious genetic effects, and in extreme cases, population declines. It can also be difficult to ensure that benefits from hunting accrue to those in the best position to help conservation.

Section V: The Guiding Principles

The IUCN SSC considers that trophy hunting, as described in Section II above, is likely to contribute to conservation and to the equitable sharing of the benefits of use of natural resources when programmes incorporate the following five components: Biological Sustainability; Net Conservation Benefit; Socio-Economic-Cultural Benefit; Adaptive Management: Planning, Monitoring, and Reporting; and Accountable and Effective Governance

Biological Sustainability

Trophy hunting as described in Section II, can serve as a conservation tool when it:

1. Does not contribute to long-term population declines of the hunted species or of other species sharing its habitat, noting that a sustainably harvested population may be smaller than an unharvested one;
2. Does not substantially alter processes of natural selection and ecosystem function; that is, it maintains “wild populations of indigenous species with adaptive gene pools.[2]” This generally requires that hunting offtake produces only minor alterations to naturally occurring demographic structure. It also requires avoidance of breeding or culling to deliberately enhance population-genetic characteristics of species subject to hunting that are inconsistent with natural selection;
3. Does not inadvertently facilitate poaching or illegal trade of wildlife;

[2] Direct quote from Principle 4 of the European Charter on Hunting and Biodiversity.

4. Does not artificially and/or substantially manipulate ecosystems or their component elements in ways that are incompatible with the objective of supporting the full range of native biodiversity.

Net Conservation Benefit

Trophy hunting can serve as a conservation tool when it:

1. Is linked to identifiable and specific parcels of land where habitat for wildlife is a priority (albeit not necessarily the sole priority or only legitimate use); and on which the "costs of management and conservation of biological diversity [are] internalized within the area of management and reflected in the distribution of the benefits from the use[3]";
2. Produces income, employment, and/or other benefits that generate incentives for reduction in pressures on populations of target species, and/or help justify retention, enhancement, or rehabilitation of habitats in which native biodiversity is prioritized. Benefits may create incentives for local residents to co-exist with such problematic species as large carnivores, herbivores competing for grazing, or animals considered to be dangerous or a threat to the welfare of humans and their personal property;
3. Is part of a legally recognized governance system that supports conservation adequately and of a system of implementation and enforcement capable of achieving these governance objectives.

Socio-Economic-Cultural Benefit

Trophy hunting can serve as a conservation tool when it:

1. Respects local cultural values and practices (where "local" is defined as sharing living space with the focal wildlife species), and is accepted by (and preferably, co-managed and actively supported by) most members of the local community on whose land it occurs;
2. Involves and benefits local residents in an equitable manner, and in ways that meet their priorities;
3. Adopts business practices that promote long-term economic sustainability.

Adaptive Management: Planning, Monitoring, and Reporting

Trophy hunting can serve as a conservation tool when it:

1. Is premised on appropriate resource assessments and/or monitoring of hunting indices, upon which specific quotas and hunting plans can be established through a collaborative process. Optimally, such a process should (where relevant) include local communities and draw on local/indigenous knowledge. Such resource assessments (examples might include counts or indices of population performance such as sighting frequencies, spoor counts) or hunting indices (examples might include trophy size, animal age, hunting success rates and catch per hunting effort) are objective, well documented, and use the best science and technology feasible and appropriate given the circumstances and available resources;
2. Involves adaptive management of hunting quotas and plans in line with results of resource assessments and/or monitoring of indices, ensuring quotas are adjusted in line with changes in the resource base (caused by ecological changes, weather patterns, or anthropogenic impacts, including hunting offtake);
3. Is based on laws, regulations, and quotas (preferably established with local input) that are transparent and clear, and are periodically reviewed and updated;
4. Monitors hunting activities to verify that quotas and sex/age restrictions of harvested animals are being met;

[3] Direct quote from Practical Principle 13 of the Addis Ababa Principles and Guidelines on Sustainable Use of Biodiversity.

5. Produces reliable and periodic documentation of its biological sustainability and conservation benefits (if this is not already produced by existing reporting mechanisms).

Accountable and Effective Governance

A trophy hunting programme can serve as a conservation tool when it:

1. Is subject to a governance structure that clearly allocates management responsibilities;
2. Accounts for revenues in a transparent manner and distributes net revenues to conservation and community beneficiaries according to properly agreed decisions;
3. Takes all necessary steps to eliminate corruption; and
4. Ensures compliance with all relevant national and international requirements and regulations by relevant bodies such as administrators, regulators and hunters.

Section VI: Appropriate use of these guiding principles

SSC's intention is that these guiding principles may serve to assist authorities responsible for national and subnational policy, law and planning; managers responsible at the site level; and local communities in designing and implementing trophy hunting programs where biodiversity conservation and equitable sharing of natural resources are objectives.

These guiding principles should not be interpreted as in any way dismissing the values – whether they are biological, social, cultural or economic – of hunting programs that may be truly sustainable, but that do not produce incentives for conservation and associated conservation benefits.

Although IUCN and SSC are not currently engaged in endorsing or certifying trophy hunting programmes, they consider that for any such endorsement or certification to be credible, it should be conducted by a recognized independent body. Nothing in this document is intended to be interpreted in any way as a specific endorsement or criticism of a particular trophy hunting programme.

Annex 1. Examples of trophy hunting as part of a conservation strategy

Note: *Due to the varied potential conservation impacts of trophy hunting it is useful to provide a small set of illustrative case studies highlighting both positive and negative conservation impacts. We have here included two illustrations of generally positive conservation impacts. We would welcome suggestions for further examples, both positive and negative, noting that in the case of negative examples we are sensitive to not casting blame or criticizing member groups and member states.*

Case study 1: Trophy hunting in Namibian communal Conservancies

Namibia's communal Conservancy programme is widely viewed as a conservation and rural development success story, and trophy hunting plays a central role in this success. Innovative legislative reforms in the mid-1990s devolved conditional rights to use and manage wildlife on communal lands to communities, if they organized to form a Conservancy. The intent of this approach was to devolve rights and benefits from wildlife to communities – people often viewed by colonial conservationists as "poachers" - to create incentives for communities to live with, value, and benefit from wildlife. Forming a Conservancy requires that the community defines its membership, borders, and management committee; develops a Constitution; agrees a method for equitable distribution of benefits; and develops a sustainable game management and utilization plan. Conservancies can use wildlife consumptively in various ways, including trophy hunting, own-use hunting game cropping, and live sales; and organize nonconsumptive use through tourism. Conservancies retain all the revenue gained from utilization and management.

The spread of the conservancy movement has been rapid, and conservation impacts extensive and widespread. Today there are 71 registered communal Conservancies covering 14.98 million ha (with another 20 conservancies under development) and include around 240 000 members. Current communal Conservancies alone mean that 18.2% of Namibia's land surface is under conservation management. This is a contrast from the previous status of these areas as subject to long-term human-wildlife conflict, uncontrolled poaching, and low levels of wildlife.

Sustainable use of wildlife has been a strong catalyst to the recovery of wildlife in communal areas. Prior to the introduction of conservancies, wildlife in Namibia's communal areas had been decimated and was at historic lows in many instances. Wildlife was perceived by communities mainly as a threat to livelihoods, with its best use being illegal poaching for meat for the pot. The advent of Conservancies drastically altered this attitude. Wildlife is now increasingly seen as a valued asset, with growing wildlife populations meaning more income for conservancies, more jobs for conservancy members, more game meat at the household level, and more funds to support rural development. As a result, poaching has become socially unacceptable and game numbers have staged remarkable recoveries in most areas where Conservancies have operated for a period of time. For instance, on communal lands in northeast Namibia, from 1994 to 2011, elephant have increased from 12,908 to an estimated 16,993; sable from 724 to an estimated 1,474; and common impala from 439 to 9,374. In northwest Namibia[4], from the early 1980s to today, desert elephants have increased from approx. 150 to approx. 750; Hartmann's Mountain Zebra from est. <1,000 to > 27,000; and black rhino have more than tripled, making it the biggest free-roaming population of rhino in the world. From 1995, the population of lion in this area has increased from an est. 20 to an est. 130, with exponential range expansion. Game populations have been re-established in Conservancies that have low densities of specific species or species that have gone locally extinct. This support has allowed for the re-establishment of a large number of species, including giraffe, red hartebeest, black faced impala and black rhino. Further, Conservancies, a large proportion of which are located adjacent or

[4] Game guard programs, precursors of the current model, were introduced in this area in the early 1980s.

close to protected areas, strengthen Namibia's protected area system by ensuring wildlife friendly environments adjacent to protected areas and through the creation of movement corridors between them.

Trophy hunting has been a central driver of this transformation. It is by far the largest generator of benefits from sustainable consumptive wildlife use, with 41 Conservancies hosting 40 trophy hunting concessions during 2011. Since registration of the first four communal conservancies in 1998, a total of 97 948 km^2 have been opened to trophy hunting concessions under community management. Benefits from consumptive use of wildlife (cash, employment, and in-kind [largely meat]) received by Conservancies and their members from 1998-2009 amounted to N$76.5 million (US$10.17 million) (NACSO Database, 2011). As the benefits from consumptive use have driven recovery of wildlife populations through reduction of poaching, these recoveries have in turn paved the way for non-consumptive tourism, more than doubling the returns from wildlife to communities. In 2011 more than 30 joint venture tourism lodges and 24 community campsites were functioning in communal Conservancies, generating Conservancy benefits (including cash, employment and in-kind benefits) of N$102.8 million (US$13.64 million) from 1998-2009. Tourism enterprises have proven to be strong, complementary additions to consumptive use options, with consumptive use (primarily trophy hunting) generating the majority of cash income to Conservancies (which can be put toward wildlife management activities and community development purposes), and tourism operations providing the greater individual employment benefits to Conservancy members. Benefits from consumptive use are critical because these can start to flow when wildlife populations are initially too low to support tourism, stimulating recoveries of wildlife to levels at which photographic tourism can become viable.

Community development activities paid for by benefit streams from sustainable use, among others, include improvements to schools or school facilities and equipment; improvements to rural health clinics; support to pensioners; scholarship funds; transport for the sick or injured; mitigation of human / wildlife conflict; and sponsoring of community sports teams. Finally, the hunting operations provide meat to community members (many very marginalized): meat provided from trophy hunting and own-use harvesting was valued at N$17,413,120 (US$2.29 million) between 1998 and 2009[5] (NACSO, 2010).

A number of cutting edge tools and practices have been developed by the Namibia CBNRM Programme to ensure sustainable hunting is playing a key conservation role, including:

- annual quota setting procedures for sustainable harvest offtake rates: jointly carried out by the MET, NGOs, and the Conservancies, and based upon annual game counts, hunting operator reports, and local knowledge of conservancy/MET/NGO staff;
- trophy hunting tender procedures for Conservancy hunting concessions: these aim to attain market values for game in a transparent manner, and strengthen relationships between the Conservancy committee and the hunting operator;
- trophy hunting contracts: through the Conservancy movement communities have been empowered to become meaningful partners in the development and support of hunting activities, although many remain on a steep learning curve; and
- Conservancy management plans and practices: **f**unds generated from wildlife use are used by conservancies to employ community game guards and implement game management and monitoring systems, allowing communities to proactively counter poaching threats and mitigate increasing incidents of human/wildlife conflict.

Sources:

[5] The value of distributed meat is calculated by using market values and average meat yields of game animals from which the meat was distributed, as recorded by conservancies in the Event Book.

NACSO. 2010. Namibia's communal conservancies: a review of progress 2009. NACSO, Windhoek, Namibia

Naidoo, R., Weaver, L. C., Stuart-Hill, G. & Tagg, J. (2011). Effect of biodiversity on economic benefits from communal lands in Namibia. *Journal of Applied Ecology* 48: 310-316.

Weaver, C., Hamunyela, E., Diggle, R., Matongo, G. & Pietersen T. (2011). The catalytic role and contributions of sustainable wildlife use to the Namibia CBNRM programme. In: Abensperg-Traun, M., Roe, D. & O'Criodain, C. eds. (2011). *CITES and CBNRM*. *Proceedings of an international symposium on "The relevance of CBNRM to the conservation and sustainable use of CITES-listed species in exporting countries"*, Vienna, Austria, 18-20 May 2011. IUCN and London, Gland, Switzerland & IIED, UK. Pp. 59-70

Case study 2: Conservation and trophy hunting in the Torghar Valley, Pakistan

Torghar (black mountains/hills in Pushtoo) is in the province of Balochistan in Pakistan. In the early 1980s, wild Straight-horned Markhor *Capra falconeri megaceros* and Afghan Urial *Ovis orientalis* were close to being extirpated from this region due to uncontrolled hunting and competition for grazing with domestic herds. Enforcement efforts against hunting were poor due to weak institutional capacity and lack of political will. In the mid-1980s, a tribal decree banning hunting was issued by a local leader, but could not be enforced. Local Jazalai (a Pathan tribe) leaders, with support from the United States Fish and Wildlife Service (USFWS), launched a community-based conservation programme in 1986, the Torghar Conservation Project (later managed by STEP, the Society for Torghar Environmental Protection). This project used limited and monitored trophy hunting, initially of Urial only and later also of Markhor, to provide revenue to fund the employment of local people as game guards and to provide community benefits. The hypothesis was that development of local livelihoods based on trophy hunting would change the attitude of local people toward wildlife, demonstrating that conservation could be an economically viable land use, and providing incentives for enforcement. In line with its commitment to conservation, the trophy hunting has been conservative, with 1-2 Markhor and 1-4 Urial taken per year.

After careful consideration, tribesmen accepted a ban on their traditional hunting in return for the economic benefits of the conservation programme. Illegal hunting virtually ceased. While exact population numbers cannot be ascertained in the difficult terrain, use of repeated standardized survey protocols have found that the Torghar populations of Markhor and Urial have steadily increased since the project started. Surveys at Torghar by USFWS-sponsored biologists found the estimated population of Markhor grew from less than 100 in 1990 to 2,541 in 2005, with estimated Urial populations increasing from 1173 in 1994 to 3,146 in 2005.

Over this period, the programme has continually faced a lack of regulatory support, including government reluctance to recognize local involvement in conservation, bans on hunting imposed by the national Conservation Council, and the listing of Markhor on Appendix I of CITES, making export of trophies to major market countries such as the United States problematic. Despite these obstacles the programme has grown, attracting further support from the United Nations Development Programme, WWF-Pakistan, the Global Environment Facility and others. While other means of raising revenue such as ecotourism based on photography have been considered, the region is remote and attracts few visitors.

TCP/STEP has also generated considerable benefits for the approx. 400 families of the local area. Revenues raised by trophy hunting and donor grants pay salaries for ca. 82 game guards, and have been used for community needs such as construction of water tanks, dams and irrigation channels (to provide water during droughts), supply of young fruit trees, a medical camp and emergency drought relief.

Sources:

Frisina, M. & Tareen, S.N. (2009). Exploitation prevents extinction: Case study of endangered Himalayan sheep and goats. In: Recreational Hunting, Conservation and Rural Livelihoods: Science and Practice (eds. B. Dickson, J. Hutton & W.M. Adams). 1st edition, Wiley-Blackwell, Oxford, UK. pp. 141-156.

Rosser, A.M., Tareen, N & Leader-Williams, N. (2005) Trophy hunting and the precautionary principle: a case study of the Torghar Hills population of straight-horned markhor. In: Biodiversity and the Precautionary Principle: risk and uncertainty in conservation and sustainable use (eds. R Cooney and B Dickson). Earthscan, London. pp. 55-72.

Valdez, R. 2008. Capra falconeri. In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <www.iucnredlist.org>. Downloaded on 27 March 2012.

Woodford M.H., Frisina M.R. & Awan G.A. (2004) The Torghar Conservation Project: Management of the Livestock, Suleiman Markhor (*Capra falconeri*) and Afghan Urial (*Ovis orientalis*) in the Torghar Hills, Pakistan. *Game and Wildlife Science* 21: 177-187.

From:	Vannorman, Tim
To:	Craig Hoover
Subject:	draft letter for Conservation Force
Date:	Tuesday, September 05, 2017 3:28:01 PM
Attachments:	Conservation Force letter DTS66293 v2.docx Conservation Force letter DTS066073.docx

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Craig,

I put a draft response to Conservation Force's July 4 letter in DTS (066293) for your review. The letter is also saved on the R drive (R:/DMA/CTRLCORR/17 corr.

I also did a draft response to CF May 5 letter in DTS (066073) for your review.
This letter is also saved on the R drive (R:/DMA/CTRLCORR/17 corr).

Tim

--
Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

Sign up for our e-newsletter to learn how we're working around the globe to protect species and their habitats!

In Reply Refer To:
FWS/IA/DCN066073

John Jackson
Conservation Force
3240 S. I-10 Service Rd. W.
Suite 200
Metairie, LA 70001

Dear Mr. Jackson:

Thank you for your letter of May 5, 2017, regarding pending permit applications for the import of sport-hunted lion and elephant trophies. I recognize your role in promoting conservation efforts through hunting and appreciate your interest in this matter, the conservation of the species involved, and your support for our mission.

In accordance with Service regulations for implementation of the ESA (50 CFR 17.32; 17.40(r)), to issue an import permit for a personally hunted lion trophy, the applicant must demonstrate that the import of the trophy would enhance the propagation or survival of the species in the wild. However, for most sport-hunted trophy imports, the hunter typically does not have access to all of the information the Service needs to make a positive "enhancement finding." To address this issue, the Service has contacted the wildlife authority within the country where the trophies have been or likely will be taken to obtain information on the status of the species within the country, the management program for the species, how sport hunting is integrated into that management plan, how funds generated through hunting contribute to the conservation of the species, how local communities benefit from hunting operations, and other relevant information.

In 2016, the Service made an enhancement finding for sport-hunted wild/wild-managed lions taken in South Africa in 2016. On August 31, 2017, we announced a positive finding for wild/wild-managed lions taken in South Africa in 2017, 2018, and 2019, based on their current management plan that covers this period. We are working to finalize our findings for lions taken in Tanzania, Zimbabwe, and Zambia at this time. We are reviewing material received from the Government of Mozambique and Namibia. As soon as the Service has made a finding on whether the import of a sport-hunted lion trophy meets the enhancement criteria under our regulations, we will authorize the import and notify each applicant of the decision. We anticipate making findings for each of these countries in the next several weeks.

As you are aware, in April 2014, the Service made an interim determination that the information available to us was not sufficient to make an enhancement finding under the ESA for the import of elephant trophies from Zimbabwe, and announced the resulting suspension of imports until such time as we had sufficient information to make a positive finding. In July 2014, after reviewing additional information made available to the Service, we determined that we were unable to make a positive enhancement finding for elephant trophies taken in Zimbabwe after April 4, 2014 (as a result of litigation over this decision, the Court ruled that the effective date of the suspension should be May 12, 2014, since this was the date the Federal Register notice announcing the decision was published). On March 26, 2015, after reviewing additional

information received since the 2014 findings, we announced that we would extend the suspension on elephant trophy imports through 2015 and future hunting seasons until such time as we had sufficient information to make a positive finding.

Since the 2015 finding, the Service has received new information on Zimbabwe's elephant management program, the status of elephants in Zimbabwe, and the contribution by U.S. hunters toward elephant conservation. We are currently reviewing this information to make a determination about requests to import trophies taken since 2015 and if such imports would meet the enhancement criteria. Any decision that we make will be announced in a Federal Register notice prior to taking any action with permit applications currently pending review.

As with Zimbabwe, in April 2014, the Service announced that we were not authorizing the import of sport-hunted elephant trophies taken in Tanzania in 2014 due to the inability to make a positive enhancement finding under the ESA and a non-detriment finding under CITES, both requirements to authorize imports. In 2015, after reviewing the available information, the Service announced that we were still unable to make a positive enhancement or non-detriment finding. We therefore denied all permit applications requesting authorization to import sport-hunted elephant trophies for those years.

Since the 2015 findings, the Service has received some information on Tanzania's elephant management program, the status of elephants in Tanzania, and the contribution by U.S. hunters toward elephant conservation. We are evaluating this information now to make a determination of whether elephant trophies taken during the 2016 and 2017 hunting seasons would meet the issuance criteria under the ESA and CITES regulations. We anticipate making a decision soon and will notify pending applicants of the decision.

The Service is currently reviewing information received from Zambia and other sources to determine if we can authorize imports of sport-hunted elephant trophies taken in 2016 and 2017 in Zambia. Prior to Zambia establishing a moratorium on all elephant hunting activities in 2013 and 2014, the Service had authorized the import of trophies taken in 2011 and 2012. We currently have no applications for trophies taken in 2015, but do have several applications for trophies that were taken in 2016 or 2017. Once we have completed our review of the available information, we will respond to these pending applications.

The Service recognizes that well-managed hunting programs can contribute to the conservation of the hunted species. If done properly, sport-hunting can contribute to local communities through both direct and indirect financial support which provide communities with a better appreciation of wildlife and their interactions with it. It is the Service's responsibility, under the ESA, to ensure that U.S. hunters contribute to the long-term conservation of listed species through participation in scientifically-based management programs that include trophy hunting.

We look forward to being able to communicate with you in the future regarding these issues. If you have any questions, please contact Craig Hoover, Chief, Division of Management Authority, at Craig_Hoover@fws.gov or 703-358-2162.

Sincerely,

Gloria Bell, Acting Assistant Director
International Affairs

In Reply Refer To:
FWS/IA/DCN066293

John Jackson
Conservation Force
3240 S. I-10 Service Rd. W.
Suite 200
Metairie, LA 70001

Dear Mr. Jackson:

Thank you for your letter of July 4, 2017, regarding a number of sport-hunting issues that were raised in the letter jointly submitted by Conservation Force, Dallas Safari Club, Dallas Safari Club Foundation, Houston Safari Club, African Safari Club of Florida, Wild Sheep Foundation, Grand Slam Club/Ovis, and Chancellor International Wildlife Fund, Inc. I appreciate your interest in this matter, the conservation of the species involved, and your support for our mission.

Your letter raised many of the same concerns that other hunting organizations raised with Secretary Zinke at a meeting he hosted on July 11, 2017. Secretary Zinke spoke on issues ranging from pending applications for the import of elephant trophies taken in Zimbabwe, Tanzania, and Zambia; the current petition to uplist leopards; the lion listing and applications for imports of trophy animals; and the seizure and forfeiture procedures.

Given the broad range of issues raised and the number of groups that are interested in these issues, the Service is evaluating the best approach to facilitate an open dialog on these concerns. We are discussing a number of methods for this communication and intend to reach out to all of the effective organizations in the near future. Until we can organize our response, we encourage you to communicate directly with Service staff regarding any specific questions you may have.

We look forward to being able to communicate with you in the future regarding these issues. If you have any questions, please contact Craig Hoover, Chief, Division of Management Authority, at Craig_Hoover@fws.gov or 703-358-2162.

Sincerely,

Gloria Bell, Acting Assistant Director
International Affairs

From: DTS@fws.gov
To: craig_hoover@fws.gov; danielle_kessler@fws.gov; doris_burnette@fws.gov; laura_noguchi@fws.gov; lillian_moore@fws.gov; monique_manning@fws.gov; Tim_Vannorman@fws.gov
Subject: DTS Assignment--If-Asked Statement on Enhancement Findings
Date: Friday, October 13, 2017 11:34:42 AM

Hello and welcome to the DTS automated email alert!

Your office (AIA-DMA) has a task assigned.

Please log in to the Data Tracking System at the following URL Address: https://dts fws.gov/dts/preLogin.do?officeId=479 and review Document Control Number (DCN)** 066778.

To move the document to the next office in the routing process, enter the task completed date for your office's routing in the routing screen and save the record.

Document Subject: If-Asked Statement on Enhancement Findings
Synopsis: If-Asked statement on enhancement findings for Zimbabwe lions and Zambia lions and elephants
Action Required: 15-For Your Information
Assigned By Office: AEA User: Matthew Huggler

Thank you.

From:	Keisha Sedlacek
To:	Vannorman, Tim
Cc:	Anna Frostic
Subject:	Elephant and Lion Imports
Date:	Tuesday, October 24, 2017 12:44:32 PM
Attachments:	Letter to FWS re Zimbabwe Elephant Management (10.6.17).pdf Letter re Tanzania Ele Trophy Imports (10.6.17).pdf Letter to FWS re Tanzania Lion Imports (10.6.17).pdf

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Hi Tim:

On October 6, 2017, we mailed the attached letters regarding (1) Tanzania elephant trophy imports, (2) Zimbabwe elephant trophy imports, and (3) Tanzania lion imports. We just wanted to make sure you had electronic copies of the letters as well (attached). Hopefully, you have had time to review the letters. Would you have time to meet next week to discuss the letters?

Hope all is well.

Best,

Keisha

Keisha Sedlacek
Senior Regulatory Specialist, Federal Affairs
Humane Society Legislative Fund
1255 23rd Street, NW, Suite 455
Washington, DC 20037
T: 202-955-3661

HUMANE SOCIETY
LEGISLATIVE FUND

October 6, 2017

Mr. Timothy Van Norman
Chief, Branch of Permits
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041

Rosemarie Gnam, Ph.D.
Chief, Division of Scientific Authority
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803

Re: Imports of African Elephant Trophies from Tanzania Should Not Be Permitted

Dear Chief Van Norman & Chief Gnam:

The Humane Society of the United States (HSUS), Humane Society International (HSI), and the Center for Biological Diversity (CBD) strongly urge the U.S. Fish and Wildlife Service (FWS or "the Service") to continue prohibiting the import of African elephant trophies from Tanzania. As detailed herein, recent evidence demonstrates that elephants in Tanzania are threatened with extinction from poaching and habitat loss and Tanzania cannot ensure that recreational offtake of elephants is sustainable. Therefore, the Service cannot lawfully make an enhancement finding under the Endangered Species Act (ESA) for imports of elephant trophies from Tanzania.

ESA Requirements for Elephant Trophy Imports

Since the African elephant special rule amendment (50 C.F.R. § 17.40(e)) went into effect in June 2016, every import of an African elephant trophy is required to comply with ESA permitting requirements (and imports from Tanzania must also qualify for an import permit under the non-detriment standard in the Convention on International Trade in Endangered Species of Wild Fauna and Flora, "CITES"). Pursuant to the ESA (16 U.S.C. § 1538) and implementing regulations (50 C.F.R. § 17.40(e)), before the Service can authorize the import of an African elephant trophy it must be able to make a finding that the take of the animal enhances the survival of the species. According to the plain language of this statutory term (16 U.S.C. § 1539(a)(1)), "enhancement" permits may only be issued for activities that *positively benefit* the species in the wild. *See also* FWS, *Ensuring the Future of the Black Rhino* (Nov. 25, 2014), *at*

http://www.fws.gov/news/blog/index.cfm/2014/11/25/Ensuring-the-Future-of-the-Black-Rhino (acknowledging that the ESA enhancement standard is more stringent than the CITES non-detriment standard); U.S. Fish and Wildlife Service Handbook for Endangered and Threatened Species Permits (1996) (making clear that an enhancement activity "must go beyond having a neutral effect and actually have a positive effect").

HSUS, HSI, and CBD agree with FWS that the IUCN provides relevant standards for determining whether elephant trophy hunting meets this conservation goal. *See* 81 Fed. Reg. 36388, 36394 (June 6, 2016). We strongly encourage FWS to conduct this enhancement analysis consistent with how the Service conducts its analysis for determining whether African lion hunting meets the enhancement standard. 80 Fed. Reg. 79999, 80045 (Dec. 23, 2015). Specifically,

> "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival[], the Service will examine the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is based on sound scientific principles and that the management program is actively addressing the current and longer term threats to the subspecies). In that review, we will evaluate whether the import contributes to the overall conservation of the species by considering whether the biological, social, and economic aspects of a program from which the specimen was obtained provide a net benefit to the subspecies and its ecosystem" (emphasis added).

HSUS, HSI, and CBD also agree that FWS must consider the following factors when making an enhancement finding for importation of sport-hunted trophies of African elephants, as it does for African lions:

> "(a) Biological Sustainability: The hunting program cannot contribute to the long-term decline of the hunted species. It should not alter natural selection and ecological function of the hunted species or any other species that share the habitat. The program should not inadvertently facilitate poaching or illegal trade in wildlife by acting as a cover for such illegal activities. The hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity.
>
> (b) Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed. The program should produce income, employment, and other benefits to create incentives for reducing the pressure on the target species. The program should create benefits for local residents to co-exist with the target species and other species. It is also imperative that the program is part of a legally recognized governance system that supports conservation.
>
> (c) Socio-Economic-Cultural Benefit: A well-managed hunting program can serve as a conservation tool when it respects the local cultural values and practices. It should be accepted by most members of the community, involving and benefiting local residents in an equitable manner. The program should also adopt business practices that promote long-term economic sustainability.
>
> (d) Adaptive Management: Planning, Monitoring, and Reporting: Hunting can enhance the species when it is based on appropriate resource assessments and monitoring (e.g., population

counts, trend data), upon which specific science-based quotas and hunting programs can be established. Resource assessments should be objective, well documented, and use the best science available. Adaptive management of quotas and programs based on the results of resource assessments and monitoring is essential. The program should monitor hunting activities to ensure that quotas and sex/age restrictions of harvested animals are met. The program should also generate reliable documentation of its biological sustainability and conservation benefits.

(e) Accountable and Effective Governance: A biologically sustainable trophy-hunting program should be subject to a governance structure that clearly allocates management responsibilities. The program should account for revenues in a transparent manner and distribute net revenues to conservation and community beneficiaries according to properly agreed decisions. All necessary steps to eliminate corruption should be taken and to ensure compliance with all relevant national and international requirements and regulations by relevant bodies such as administrators, regulators and hunters."

Further, FWS regulations provide that "No more than two African elephant sport-hunted trophies [can be] imported by any hunter in a calendar year." 50 C.F.R. § 17.40(e)(6)(E).

Strict scrutiny of elephant trophy imports is especially imperative, given that the Service has found that uplisting the species to endangered may be warranted. 81 Fed. Reg. 14058 (March 16, 2016).

There Is No Evidence that Elephant Trophy Hunting in Tanzania Enhances the Survival of the Subspecies

For calendar years 2014 and 2015, the Service was unable to make the requisite findings that hunting African elephants in Tanzania enhances the survival of the species (or that hunting African elephants in Tanzania is not detrimental to the survival of the species). In announcing those suspensions, the Service committed that "Unless information is received that shows a significantly improved situation for elephants in Tanzania such that the required findings could be made, permit applications for the import of elephant sport-hunted trophies would be denied." *See* https://www.fws.gov/international/permits/by-activity/sport-hunted-trophies.html. Elephant populations in Tanzania have declined by as much as 60 percent since 2009 due to poaching and are still extremely vulnerable to exploitation, such as trophy hunting; thus, the Service cannot lawfully make an enhancement finding (or non-detriment finding) for trophy imports from this population for calendar year 2016 or beyond, as detailed herein.

Tanzania Lacks an Adaptive and Up-to-Date Elephant Management Plan

As noted above, the Service's enhancement analysis for trophy imports must consider whether the range country has adaptive and appropriate resource assessments and monitoring to establish quotas for off-take that ensure that sex/age restrictions of harvested animals are met. Although the most recent survey (Chase MJ *et al.* 2016) indicates that the Tanzanian population of elephants has decreased by more than 60% since 2009 (including through offtake by American trophy hunters), Tanzania has not developed a new elephant management plan since 2010.

Tanzania's Ministry of Natural Resources and Tourism (MNRT) initiated the Tanzania Elephant Management Plan process and conducted a series of stakeholders and consultative meetings. The culminating document, Tanzania's Elephant Management Plan 2010 – 2015, prepared by the Tanzania Wildlife Research Institute (TAWIRI), was endorsed and signed by Hon. Ezekiel M. Maige, Minister for Natural Resources and Tourism, on January 15th 2011. (TAWIRI 2010).

The 2009 national elephant population census estimated approximately 109,501 individuals. (TAWIRI 2010, pp.10) At the time, now eight years ago, some populations were said to be increasing and others were expected to stabilize if poaching (then mostly localized) could be minimized. However, the Management Plan recognized that Tanzania was currently facing challenges from poaching due to a resurgent demand for ivory in Asia. A downward trend in elephant population since 2006 was recorded in the TAWIRI National Elephant Censuses (TAWIRI 2010 pp.10).

Workshops and consultative meetings with stakeholders were held during the collection of information for the Management Plan. The Management Plan summarized discussions from four zonal workshops. Participants in the workshops identified several problems facing the conservation of African Elephants in Tanzania. Among them were: (1) lack of benefits from conservation and protection of elephants; (2) inadequate capacity of district councils to implement policies, and enforce laws and regulations; (3) conflicting policies, laws, and institutions or weak and outdated laws; (4) inadequate stakeholder coordination; (5) inadequate integration of indigenous knowledge in conservation; (6) lack of or inadequate conservation education amongst communities; and (7) corruption. (TAWIRI 2010, Annex II, p.83) The Tanzanian government provided a list of 36 action items – "Annual Operation Plan and Budget for Implementation of the Tanzania Elephant Management Plan for 2015" – in a letter to the Species Review Group of the European Commission in August 2015. However, this document did not cure the defects in the 2010 Plan and there is an urgent need to update the Management Plan to reflect the current population size, demographic structure and trends, address the challenges identified in the 2010 Plan, strengthen existing wildlife laws, and implement feasible and sustainable measures to combat elephant poaching and ivory trafficking.

No country in Africa has experienced worse elephant poaching than Tanzania. A 2014 aerial survey, in collaboration with the Great Elephant Census, documented that a shocking 60% of Tanzania's elephants were killed due to poaching over a five-year period. The elephant population dropped from 109,051 in 2009 to 42,871 in 2014. (Chase MJ et al. pp. 13 Table 2). Survey results released in 2016 by the IUCN African Elephant Specialist Group put the number of the population slightly higher at 50,433. The 2010 Elephant Management Plan, which is the latest elephant management plan of Tanzania, does not reflect this current population status and trend. Without an updated Management Plan, it is not possible to ascertain if Tanzania has sufficiently addressed each identified challenge and action items. Therefore, it is essential that Tanzania update its Elephant Management Plan and develop and implement a vigorous, science-based, and comprehensive conservation program for the species in Tanzania. Unless or until that occurs, it would be arbitrary and capricious for the Service to issue an enhancement finding for the import of elephant trophies from Tanzania.

Beleaguered Elephant Populations in Tanzania Yet to Recover from Poaching, Cannot Sustain Further Exploitation

Due to the insufficient management of the population, Tanzania – once a stronghold of elephant populations in Eastern Africa – has suffered from a poaching epidemic in recent years. In 2009 an aerial census conducted by Tanzania Wildlife Research Institute (TAWIRI) surveyed six ecosystems, Tarangire-Manyara, Serengeti, Selous-Mikumi, Ruaha-Rungwa, Katavi-Rukwa and Moyowosi-Kigosi. The survey estimated 109,051 elephants in Tanzania. (TAWIRI 2010). In 2016, the Great Elephant Census (GEC), the first continent-wide survey of African savannah elephants, covered 93% of savannah elephants in the 18 countries surveyed. The GEC estimated 42,871 elephants in Tanzania, a reduction of 66,180 animals or approximately 60% since 2009. (Chase MJ et al.). A survey in 2006 placed an estimate of 139,915±12,338 elephants across the six ecosystems. (CoP15, Document 68. Annex 6a). Contrasting the 2016 data with the 2006 figure, Tanzania has lost a staggering 70% of its elephants in a decade.

Elephants in Tanzania face a myriad of threats, such as habitat loss, retaliatory killings due to human-elephant conflict, poaching, and trophy hunting. As human populations and development grow, habitats previously occupied by elephants have been converted to farmlands, roads or for other human use. Loss of connectivity between core wildlife habitat areas poses a major threat to the elephant population as existing corridors are becoming blocked by expanding agriculture, human settlements and livestock grazing, and destruction of habitats for logging and charcoal production. (TAWIRI 2010).

A presentation in May 26th 2016 at the Proceedings of the 3rd National CBNRM Forum in Tanzania by Professor Neil Burgess of UNEP-WCMC discussed predictors of elephant poaching in southern Tanzania and northern Mozambique. Professor Burgess found that "in Tanzania, elephant carcasses were mostly associated with human variables. State-managed protected areas were negatively associated with the number of elephant carcasses, whereas the numbers of elephant carcasses were high in community-managed sites." [1] This suggests that the community management of elephant conservation has not been effective in halting elephant poaching. If the communities were benefiting from trophy hunting in the community-managed game reserve sites, the poaching would not be as high as it is.

Declines occurred in most of the Tanzanian elephant populations surveyed by the Great Elephant Census or IUCN AfESG, some more drastic than others. According to the African Elephant Status Report 2016:

- Moyowosi-Kigosi ecosystem: A 2015 estimate of 1,645 ± 2,389, down from a 2006 estimate of 9,541 ± 3,657.

- Sagara-Nyamagoma ecosystem: A 2015 estimate of 503 ± 592 down from a 2007 estimate of 4,635 ± 3,028.

[1] Tanzania Natural Resources Forum, *Proceedings of the 3rd National CBNRM Forum* (2016), https://tnrf.org/files/proceedings_of_the_3rd_cbnrm_forum_final_report31082016.pdf.

- Ugalla Game Reserve: A 2015 estimate of 659 ± 549, down from a 2007 estimate of 1,352 ± 837.

- Katavi National Park and Rukwa Game Reserve: A 2015 estimate of 5,738 ± 2,993, down from a 2006 estimate of 6,261 ± 1344. The IUCN AfESG African Elephant Status Report stated that several surveys carried out in the areas over time did not result in substantially different estimates, suggesting that the population has been relatively stable over the period. However, the carcass ratio of 10% in 2014 is a cause of concern as the AfESG report points out.

- Ruaha-Rungwa ecosystem: A 2015 estimate of 14,283 ± 6,123, down from the 2006 estimate of 35,409 ± 11,507. A 2014 aerial survey done by the Great Elephant Census provided a much lower estimate of 8,272 ± 6,433, and a high carcass ratio of 29%. A 2009 estimate found 34,643 ± 8,199, indicating that rampant elephant poaching took place after 2009.

- Selous-Mikumi ecosystem: A 2014 survey by the Great Elephant Census gave an estimate of 14,040 ± 3,252 with a very high carcass ratio of 40%, a very large reduction from the 2006 estimate of 70,406 ± 24,843. The AfESG census report expressed concerns that the 2006 figure may have been an overestimate. A 2013 survey gave an estimate of 13,084 ± 3,559 with a 30% carcass rate while a 2009 survey estimated 38,975 ± 5,182 with a 2% carcass rate. The various surveys confirmed that the Selous elephant population has experienced a significant decline.

- Serengeti is among the few areas that saw an increase in elephant populations. The 2014 survey by the Great Elephant Census estimated 6,078, up from the 2006 estimate of 1,472. The increase could be due to movement from Kenya's Masai Mara ecosystem as well as higher intensity surveys, additional blocks counted and the possibility of immigration of elephants from unsurveyed adjoining areas.

CITES Monitoring of Illegal Killing of Elephants (MIKE) operates in 58 sites in 30 countries and 27 sites in 13 countries in Asia. MIKE monitors relative poaching levels using the Proportion of Illegally Killed Elephants (PIKE), which is calculated as the number of illegally killed elephants found divided by the total number of elephant carcasses encountered by patrols or other means (e.g. community reports, researchers, etc.), aggregated by year for each site. Coupled with estimates of population size and natural mortality rates, PIKE can be used to estimate numbers of elephants illegally killed, as well as poaching rates (i.e. the proportion of the total elephant population illegally killed). A PIKE level 0.5 or higher (i.e. where half of dead elephants found are deemed to be illegally killed) is considered unsustainable.

MIKE data reported to CITES CoP17 shows a steady increase in levels of illegal killing of elephants starting in 2006, punctuated by a decline in 2009 and peaking in 2011 and remaining virtually unchanged after 2013. Poaching levels in 2015 overall remained stable but high across African MIKE sites.

There are five MIKE sites in Tanzania: Katavi National Park and Rukwa Game Reserve, Mkomazi National Park, Ruaha Rungwa National Park and Game Reserve, Selous-Mikumi Game Reserve and National Park and Tarangire National Park. Among sites that reported 20 or more carcasses for 2015, Katavi-Rukwa, Ruaha-Rungwa and Selous-Mikumi are of particular concern. PIKE increased substantially in Ruaha-Rungwa by 28%, from 0.58 to 0.74 from 2014 to 2015. (CITES CoP17 Doc 57.5. pp.3.) The 2011 PIKE level was alarmingly high with 0.64 at Selous-Mikumi, a shocking 0.94 at Ruaha-Rungwa and 0.86 at Katavi-Rukwa MIKE site. The 2013 PIKE level was 0.74 in Selous-Mikumi and 0.84 at Ruaha-Rungwa. (CITES SC65 Inf.1, pp.2.)

This data demonstrates a high poaching rate in across Tanzania, including areas that were formerly strongholds of elephant populations in Eastern Africa. Among the worst poaching sites are the Selous and Ruaha eco-systems areas. The Selous Game Reserve and ecosystem once had the second highest population of elephants in Africa and the highest population in Tanzania. Covering an area of some 80,000km^2, the Selous Game Reserve and nearby ecosystems (i.e. Mikumi National Park, the Kilombero Game Controlled area, and land to the north, east and south of the Selous Game Reserve), boasted 109,419 elephants in 1976. There approximately 50,000 individuals in 2009. (TAWIRI 2010) As mentioned above, the best estimate of the elephant populations in the area today is 14,040 ± 3,252, according to the Great Elephant Census.

The Ruaha-Rungwa ecosystem covers an area of approximately 43,000 km^2 and includes Tanzania's largest national park, Ruaha National Park, Rungwa, Kizigo and Muhesi Game Reserves. It once had the second largest elephant population in Tanzania, after the Selous ecosystem. Data on poaching within Ruaha NP since 2005 show a consistent, high level of poaching.

Table 1 below are TAWIRI estimates of the elephant populations in the Ruaha-Rungwa ecosystem. It is important to note that the area surveyed has increased, and that elephants were counted in 2015 that were outside of the previously defined census zone.

Table 1. Population estimate in the Ruaha-Rungwa ecosystem

Year	**Population Estimate**	**Standard Error**	**Population Estimate Range**	**Are Surveyed (km^2)**
2006	35,461	±3,653	31,808-39,114	43,601
2009	34,664	±4,178	30,486-38,842	43,641
2013	20,090	±3,282	16,808-23,372	50,889
2014	8,272	±1,652	6,620-9,924	30,368
2015	15,836	±4,759	11,077-20,595	52,462

(Source: http://www.stzelephants.org/census-results-ruaha-rungwa/)

A CITES MIKE report in March 2017 indicated a 55% reduction PIKE levels in Katavi-Rukwa, Ruaha-Rungwa and Selous-Mikumi ecosystems. However, the report noted that "As of now no explanation has been received why there was a significant drop in the number of carcasses reported

from these sites in Tanzania."[2] It would be premature to conclude that poaching has therefore subsided in Tanzania. Moreover, as explained further below, a reduction of PIKE level, albeit a temporary one, does not equate to recovery of elephant populations in Tanzania.

A new study by Robson et al. (April 2017) found that savanna elephant population sizes in protected areas are only a quarter of their expected size, based on a modelling exercise using ecological benchmarks given a scenario of zero poaching. Of the 73 protected areas studied, Tanzania's Selous had the greatest deficit: ~89,000 elephants (p. 9).

For Tanzania, Robson et al. (2017, supporting information) found that the protected areas are "missing" (signified by the minus sign) the following number of elephants (Table 2):

Table 2: Number of elephants missing in the protected area based on the zero poaching model

Game reserve/National Park	**Number of elephants missing based on the zero poaching model**
Katavi-Rukwa Region	-13,851
Kigosi GR	-16,487
Kizigo GR	-4,602
Maswa GR	-2,626
Mikumi NP	-4,491
Mkomzai GR	-1,868
Moyowosi GR	-13,857
Muhesi GR	-5.950
Ruaha NP	-25,786
Rungwa GR	-3,976
Selous GR	-89,344
Serengeti NP	-14,285
Ugalla River GR	-7,318
Total	**-210,167**

Poaching Negatively Affects the Reproductive Output of Breeding Female Elephants

Research (Gobush et al.2008) found that widespread poaching has long-term, negative impacts on adult female elephants because it alters the demographic structure of matrilineal family groups by decreasing the number of old matriarchs (Moss & Poole 1984; Poole 1989; Barnes & Kapela 1991 as cited in Gobush et al. 2008). The researchers examined the fecal glucocorticoid levels of 218 adult female elephants from 109 groups in Mikumi National Park. High physiological stress as reflected by high fecal glucocorticoid measures indicates a negative physiological state for an elephant, which in turns translate into diminished reproductive function, depressed immunity, muscle breakdown, and an increased risk mortality (Singfield & Ramenofsky 1999; Sapolsky et al. 2000 as cited in Gobush et al. 2008).

[2]"Levels and trends of illegal killing of elephants in Africa to 31 December 2016-Preliminary Findings", CITES website (accessed August 14, 2017) https://cites.org/sites/default/files/eng/prog/MIKE/MIKE_report_released_WWD_3Mar2017.pdf

The study found a multi-generational effect of poaching which imposes chronic stress condition for the elephants in a disrupted family group. Because old female elephants hold unique social positions in their families, their removal by poaching impairs group social functions, elevates physiological stress and reduces reproductive output among the females left behind. The study concludes that the consequences of disrupting group composition in this way may persist for upwards of 20 years until sufficient time has elapsed for a new mother-adult daughter pairs to form. (Gobush et al. 2008).

It will be a couple of decades from now that Tanzania's remaining elephants would be able to recover from the recent poaching epidemic, provided that the poaching and other offtake are halted. Any additional pressure on the populations, such as trophy hunting offtake, will impede their recovery.

Poaching has a direct impact on sleep, foraging and movement patterns of the elephants

A 10-year researched (Ihwagi et al. 2018) conducted by Save the Elephants and the University of Twente has discovered that poaching has a direct and profound impact on an elephant's behavior, causing elephants to adapt by developing nocturnal behavior to stay out of danger from poachers active during the day. Using elephant GPS tracing and mortality data collected in Northern Kenya between 2002 and 2012, researchers found that elephants move more at night in areas that suffer high levels of poaching, turning to feeding and traveling instead of sleeping. Other key findings from the study include: the relationship between poaching levels and night-day speed ratios was stronger for females than for males and that this change in elephant behavior has potential long term implications for the survival of elephants which normally rest at night and are more active during the day. One of the authors, world-renowned elephant scientist Iain Douglas-Hamilton, remarked that, "This alteration in movement behavior by elephants has implications for their foraging strategy, reproduction and survival, which are not yet fully understood."

This research presents the latest scientific evidence that poaching poses an ongoing direct and negative impact on the elephants' biological behaviors. Lethal offtake for trophy hunting has an additive impact and further undermines the effort to conserve the species and restore the species' populations.

Tanzania Is a Hub of Ivory Trafficking

Tanzania is a "country of primary concern" in the CITES EITS (Elephant Information Trade System) reports (CoP17 Doc.57.6 (Rev.1), pp. 17). ETIS tracks large-scale ivory seizures (defined as 500 kg or more of raw or worked ivory). Among the African countries of primary concern, Tanzania has been the source of the greatest portion of this ivory. Corruption was identified as a major problem, "with various reports documenting serious governance shortfalls at ports of entry and exit, within government institutions charged with protecting wildlife, and by political and economic elites in these countries, including ivory stock thefts." While the report noted progress, it also recommends that efforts be sustained for the foreseeable future. Indeed, the CITES Secretariat has taken the position that Tanzania's National Ivory Action Plan is not substantially

achieved. (CoP17 Doc.24 (Rev.1) pp.12), suggesting that Tanzania is not out of the woods yet in enforcing ivory related wildlife crime.

A study by Wasser et al. (2015)[3] on DNA analysis of seized ivory confirmed the prominent role of Tanzania in the illegal ivory trade. Wasser examined 28 large ivory seizures (larger than 0.5 tons) made between 1996 to 2014 and genetically assigned origin to all these seizures. The results suggested that major poaching hotpots were concentrated in just a few areas in Africa. Excluding a single seizure assigned to Zambia, all of the 15 savanna elephant seizures during this period were assigned to southern Tanzania and adjacent Mozambique. In particular, "7 out of the first 10 seizures made between 2006 and 2011 were almost entirely concentrated in the cross border ecosystem of the Selous and Nyasa Game Reserves. (pp.3)" Other seizures pointed to Ruaha National Park and the adjacent Rungwa Game Reserve as the source of ivory. The study concluded that "between 86 and 93% of the savanna elephant ivory from that period was predominantly assigned to SE Tanzania and adjacent northern Mozambique."

Multi-year undercover investigations by the Environmental Investigation Agency (EIA) found Chinese-led criminal syndicates operating between East Africa and Shuidong in Southern China. EIA's report documented how the Chinese traffickers led and conspired with their local Tanzanian contacts who were employed as freight agents whose names appeared on shipping documents or were tasked with sourcing the poached tusks and storing ivory until a significant amount had been collected. "The contraband would then be transported to Zanzibar on small vessels…shipments would also be handled by the trusted Tanzanians, as would payments of about $70 per kg of ivory to customs officers and port officials to ensure safe departure."[4]

Tanzania has, commendably, established a National and Transnational Serious Crimes Investigation Unit (NTSCIU) and a Wildlife and Forest Crime Task Force and hosted a wildlife crime conference (in November 2014) with the participation from the East African Community (EAC) and South African Development Community (SADC). The conference's output, the Arusha Declaration, called for "a comprehensive list of activities to strengthen trans-border collaboration on combatting wildlife/environmental crimes and advancing conservation work."[5]

However, EIA's report cautioned that more work must be carried out by the government of Tanzania in order to promote the conservation of elephants. The findings that the Chinese syndicates are shifting their operations to Nigeria and Mozambique are a reminder that the Tanzanian government must remain vigilant and that their effort in combating poaching and trafficking must be persistent, consistent and sustainable.

The tragic murder of conservationist Wayne Lotter, co-founder of the PAMS Foundation, in Dar es Salaam on August 16, 2017 demonstrates that there remains a significant poaching threat to

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[3] Wasser SK, Brown L, Mailand C, Mondol S, Clark W, Laurie C, Weir BS, Genetic assignment of large seizures of elephant ivory reveals Africa's major poaching hotpots, Science, June 2015, http://science.sciencemag.org/content/349/6243/84/tab-pdf

[4] EIA, *Exposing the global hub in illegal ivory trade* (July 2017), at 5, https://eia-international.org/wp-content/uploads/EIA-The-Shuidong-Connection-FINAL.pdf.

[5] Kideghesho, J., *The elephant poaching crisis in Tanzania: a need to reverse the trend and the way forward*, Tropical Conservation Science Vol.9(1): 369-388 (2016), https://tropicalconservationscience.mongabay.com/content/v9/tcs_v9i1_369-388_Kideghesho.pdf.

elephants in Tanzania.[6] The PAMS Foundation was instrumental in bringing elephant poachers and ivory traffickers to justice through their partnership with the National and Transnational Serious Crimes Investigations Unit, NTSCIU. According to news reports, Wayne Lotter received numerous death threats over his work and that his laptop, which may contain critical information on wildlife criminals, was stolen from the crime scene.[7]

Elephant Trophy Hunting Negatively Affects Biological Sustainability

Given the threats posed to Tanzanian elephants from poaching and trafficking to supply global ivory markets, as well as the pressures the population faces from habitat loss and human-elephant conflict, this population cannot withstand recreational offtake by American trophy hunters.

Between 2005 and 2014, the United States – the top importer of wildlife trophies in the world – imported trophies of an estimated 374 African elephants from Tanzania. Between 2010 and 2014, 226 elephants were killed and exported from Tanzania as trophies to the U.S. (60%) and EU countries (over 30%). (TAWIRI 2015 Addendum to the 2014 Non-Detriment Finding for African Elephant in Tanzania). The Service's ESA Enhancement Findings in 2014 and 2015 concluded that there is *no* evidence to support that sport-hunting of elephants in Tanzania enhances the survival of the species – the same continues to be true today.

In Tanzania, the trophy hunting season is restricted to the dry months, beginning on July 1st and ending on December 31st. Trophy hunting occurs in Game Reserves, Game Controlled Areas, and Wildlife Management Areas (WMAs) where designated hunting blocks exist. (TAWIRI 2010, pp.52) According to TAWIRI, WMAs are village lands surrounding protected areas and are used by communities for conservation and benefits sharing in conjunction with the Wildlife Division (50% of the hunting revenue is retained by the Wildlife Division, which also sets quotas and tariffs for any hunting in the WMA. TAWIRI 2010, pp.51) Hunting of elephants is permitted only to trophy hunters on payment of a license fee ranging from $7,500 to $25,000, depending upon the tusk size of the animal shot and the type of weapon used. The minimum tusk size for a trophy animal is 15 kg for both males and females. (USFWS Enhancement Finding 2015). In 2014, the minimum requirement for a legal trophy was raised to a weight of at least 20 kg or a length of at least 1.6 meters. (USFWS Enhancement Finding 2015). However, the national quota for export under CITES is "restricted to adult males only with tusk weighing more 20 kg and/or length of 200 cm." (TAWIRI 2015 Addendum to 2014 Non-Detriment Finding for African Elephants in Tanzania, pp.2). The 2010 Management Plan is outdated and still states that female elephants can also be trophy hunted, despite the clear threat that removal of breeding female poses to this imperiled species. (Page 52, TAWIRI 2010). There is no information publicly available on elephant trophy quality analyses and the enforcement of the size, weight, sex of the hunted species trophies required under the Tanzanian laws.

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[6] *See* https://www.theguardian.com/environment/2017/aug/17/leading-elephant-conservationist-ivory-shot-dead-in-tanzania

[7] *See* https://www.thetimes.co.uk/article/wayne-lotter-the-elephant-conservationist-who-caught-poachers-shot-dead-in-tanzania-8sqdfk7x9

Trophy hunting has been shown to disrupt family groups and social stability, negatively impacting elephant survival.[8] Hunters generally target the biggest and strongest males, meaning that trophy hunting removes these animals from the breeding pool and unnaturally selects for smaller or weaker animals.[9] In addition, as illustrated above, study on the elephant populations in Mikumi National Park shows long-term, negative impacts on the reproductivity of the female elephants. Trophy hunting offtake decreases the likelihood of recovery of the subspecies.

Researchers have found that the selective nature of trophy hunting causes changes in desirable phenotypic traits in harvested species. In particular, trophy sizes for wild herbivores experienced temporal decline in South Africa and Tanzania. "Declines in trophy size over time due to selective harvesting could be attributed to phenotypic plasticity that may result due to a decline in abundance of big tuskers and individuals with big horns or tusks as these are mostly selected by hunters."[10] Further, when trophy hunting is sanctioned, poaching activity increases, likely due to the perception that species authorized for hunting are of diminished value and the perception that legal killing increases the acceptability of poaching.[11]

In Selous Game Reserve, where hunting is permitted, demographic analysis showed a very low calf-to-mother ratio, with only one breeding-age bull to every 20 breeding-age females. (TAWIRI 2010, pp.16). This could have a negative impact on the long term growth rate of the population. The 2010 Elephant Management Plan also showed that the sex ratio of the breeding adults (male-female) were exceptionally low in Selous (0.05%) and Ugalla Game Reserves (0.01%). In addition, it is alarming that the survey found that there were no adult bulls in the hunting blocks of Selous (2.8% in tourism areas), Katavi and Ugalla. (TAWIRI 2010. pp.75, Table 2.)

These findings, combined with the aforementioned research that poaching has negative outputs on the reproductivity of female elephants in Tanzania, show that human-induced factors such as trophy hunting negatively affects the biological sustainability of the hunted species.

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[8] Milner J.M., Nielsen E.B., Andreassen HP, *Demographic side effects of selective hunting in ungulates and carnivores*, Conservation Biology Vol. 21:36-47 (2007), doi: 10.1111/j.1523-1739.2006.00591.x ("Such selective harvesting can destabilize social structures and the dominance hierarchy and may cause loss of social knowledge, sexually selected infanticide, habitat changes among reproductive females, and changes in offspring sex ratio.")

[9] Allendorf, F.W. and Hard, J.J., *Human-Induced Evolution Caused by Unnatural Selection through Harvest of Wild Animals*, 106 Proceedings of the National Academy of Sciences, 9987-94 (2009); Jachmann, H. et al., *Tusklessness in African Elephants: A Future Trend*, 33 African Journal of Ecology, 230-35 (1995); Crosmary, William-Georges et al., *Does trophy hunting matter to long-term population trends in African herbivores of different dietary guilds?*, 18 Animal Conservation, 117-30 (2015); Pigeon, G., Festa-Bianchet, M., Coltman, D. W. and Pelletier, F. (2016), Intense selective hunting leads to artificial evolution in horn size. Evolutionary Applications, 9: 521– 530. doi: 10.1111/eva.12358.

[10] Muposhi VK, Gandiwa E, Bartels P, Makuza SM, Madiri TH, *Trophy Hunting and Sustainability: Temporal Dynamics in Trophy Quality and Harvesting Patterns of Wild Herbivores in a Tropical Semi-Arid Savanna Ecosystem*, PLoS ONE 11(10) (2016), http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0164429.

[11] Chapron, G. and Treves, A., *Blood does not buy goodwill: allowing culling increases poaching of a large carnivore*, Proc. R. Soc. B 283 (2016), http://dx.doi.org/10.1098/rspb.2015.2939.

Tanzania's Elephant Trophy Quota is Not Based on Scientific Data

During the height of the recent poaching epidemic, Tanzania's annual CITES export quota of African elephant trophies remained the same, 200 elephants, from 2010 to 2013. Since 2014 the quota has been reduced to 100 animals. (TAWIRI 2015 Addendum to 2014 Non-Detriment Finding of African Elephants in Tanzania. pp2.). The fact that the quota remained unchanged until 2014 despite the concurrent drastic decline of the elephant populations demonstrates that Tanzania's elephant hunting quota is not based on science and does not adapt based on population assessment, structure or trends.

The Service pointed out in its 2015 Non-Detriment Finding that legal offtake of the animals, such as hunting, should be measured against total offtake which includes illegal offtake such as poaching. In the government of Tanzania's response to the Service on January 21, 2015, the government provided a summary of elephant harvests from 2010-2014 which included elephants killed through problem animal control (PAC). Yet, it doesn't appear that the government of Tanzania included illegal offtake or other legal offtake, such as PAC, in its annual review and determination of its export quota.

A January 2016 letter by Tanzania's Director of Wildlife to the Scientific Review Group of the European Commission requested the Commission to allow importation of sport-hunted elephant trophies from Tanzania. The letter stated that the 100 elephants in the CITES export quota represents "only 0.23% offtake, well within the standing guideline of 0.5% - 0.6%." It ignored the illegal offtake (poaching) and other legal offtake (such as PAC).

In 2015 TAWIRI provided an ecosystem-based elephant hunting quota; however, it is not clear how the quota for each ecosystem is determined.

Table 3. Ecosystem-based elephant hunting quota

S/N	Ecosystem	Quota (No. of elephants)
1	Selous-Mikumi and surroundings	36
2	Ruaha-Rungwa and surroundings	19
3	Katavi-Rukwa and surroundings	13
4	Tarangire-Manyara and surroundings	10
5	Malagarasi-Muyovosi and surroundings	7
6	Serengeti and surroundings	15
Total		**100**

(Source: TAWIRI)

The Service requested the Tanzanian government to provide an analysis on trophies taken in the Selous Game Reserve because the Selous Game Reserve General Management Plan (2005) only includes an analysis of trophies taken from the Selous Game Reserve between 1994 and 2004. However, the government of Tanzania was not able to provide such analysis in its January response to the Service. Instead, the government responded that "Tanzania is a leader in maintaining high trophy quality because our added restrictions are designed to protect younger bulls, before they are taken, unlike a trophy quality analysis, which only looks at after-the-fact data."

EU CITES SRG Report Provides No New Information to Show Trophy Hunting Enhances the Survival of the Elephants

A delegation from the EU CITES Scientific Review Group (SRG) visited Tanzania between August 19 and 27, 2016 to follow up on discussions and exchanges with the Tanzanian Wildlife Authorities regarding the sustainability and management of lion and elephant trophy hunting. Subsequently, the SRG recommended a "Positive Opinion" which allows the import to the EU of trophy animals taken from Serengeti, Tarangire-Manyara, Katavi-Rukwa, and Selous-Mikumi ecosystems among other conditions. As for trophy animals taken from Ruhaha-Rungwa and Malagarasi-Muyovozi (and Burigi-Biharamulo) ecosystems, the SRG maintains the position that a confident non-detriment finding for these ecosystems cannot be established at this stage.[12]

The EU recommendations are based among a host of factors, including the current CITES quota of 100 elephants set by the Tanzanian government. The quota represents 0.24 percent of the total elephant population (Chase MJ et al.) and 0.20 percent on the basis of the updated 2015 total estimates by IUCN African Elephant Specialist Group, and doesn't exceed 0.3 percent of managed population which is the minimum off-take to maintain high level trophy quality, and well below the standing population guidelines of the total population. The quota information in the EU SRG report mostly recycles information from TAWIRI's 2015 submission to the Service.

As discussed above, it does not appear that the elephant trophy quota, that of national and each ecosystem, considers illegal offtake and other legal offtake. As the Service notes in its 2015 Non-Detriment Finding, "sustainability is measured against total offtake, including illegal offtake" and that "in order to evaluable whether offtake from trophy hunting is sustainable, all losses to the African elephant population, including illegal offtake, must be considered."

In addition, while the Tanzanian government provided a trophy quota for each of the six ecosystems, there is no information on the estimated offtake, such as natural mortality or problem animal control for each ecosystem and how that is calculated into the total offtake, both illegal and legal, of each ecosystem.

SRG recommends resumption of hunting at worst elephant poaching site

It is particularly concerning that the EU SRG has recommended a Positive Opinion for trophies taken from the Selous-Mikumi ecosystem. The EU report cited elephant population status and trend from a 2016 TAWIRI presentation. In 2009 there were an estimate of 44,806 elephants and in 2014, the number of elephants dropped to 15,217. Trophy hunting has existed in Selous for decades, yet poaching in the Selous-Mikumi ecosystem was among the worst in Tanzania. The high number of poached elephant in the Selous area does not support the claim that trophy hunting revenues were used effectively to combat poaching. It also suggests that the communities were not

[12] "A Report to the EU CITES Scientific Review Group on the EU Experts Mission to Assess the Sustainability and Management of Lion and Elephant Trophy Hunting in Tanzania". http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=33601&no=49 ("EU SRG Report").

benefiting from the trophy hunting revenues and therefore did not see the incentive to conserve the elephants.

We disagree with the approach of EU SRG who issues recommendations for each ecosystem, rather than making a determination for the country as a whole. This approach fails to take into account that elephants are migratory species and some are part of transboundary populations shared with neighboring countries. It can also reward an otherwise corrupt government or industry or remove incentives to improve inadequate country-wide management scheme with trophy hunting authorizations when reform is actually called for. We agree with the Service's approach that considers the overall conservation and management of the species in the country, rather than breaking it up by specific ecosystem.

SRG report prematurely concludes that poaching is stabilized

The EU SRG report finds that "the wave of poaching that hit Tanzania until 2012/2013 has probably decreased" based on carcass count data and population status. The NTSCIU provided carcass counts on the number of new carcasses, showing a decline from 219 carcasses in 2013 to 16 as of June 2016. TAWIRI caveated the 2014 survey results of the Great Elephant Census and commented that the "follow-up 2015 census conducted in Ruaha-Rungwa ecosystem suggests the population may not have declined to such an extent as reported in 2014". However, the same report pointed out that "further studies are required to understand localized migrations…and some populations remain severely threatened and in decline and continued monitoring and research is essential to verify the trend, as well as the theories around the fluctuations in elephant populations." (Page 18-19, EU SRG Report).

As iterated above, the EU SRG maintains a Negative Position on trophy animals taken from the Ruaha-Rungwa and Malagarasi-Muyovozi (and Burigi-Biharamulo). The SRG remarked that even though quota allocated for these two ecosystems "do not exceed 0.3% of the managed population, "the significant declines and high carcass ratio, together with the lack of information on the extent or impact of anti-poaching measure in these regions on illegal killings means a confident non-detriment finding for these ecosystems cannot be established at this stage." (EU SRG Report, p.6)

Tanzania Wildlife Management Authority (TAWA) Wildlife Division responded in April 27, 2017 urging the EU SRG to reconsider its Negative Positions for trophy animals from these three eco-systems. TAWIRI state that the carcass ratio (1+2) was extremely low in these three eco-systems, habitat loss due to hunting blocks' conversion to agro-pastroal lands was a concern, and the weight and length minimum size of the hunted elephants was reasonable. TAWIRI also argued that safari operators can provide increased protection for elephants. However, there is missing information in the TAWA's response as the response put down "xxx hunting blocks totally xxxxx km^2" when referring to the hunting blocks that will be converted to agro-pastoral land after the EU visit. (EU SRG Report, p.6) This incomplete information is a reminder that information provided by the Tanzania government should be subject to verification by a third-party or independent source.

There are contradictions in the EU SRG's decisions on forming a Positive or Negative Position for trophy animals from each ecosystem. The report cited carcass estimated for the six ecosystems in Tanzania in 2014, provided by TAWIRI in August 2016. Selous-Mikumi ecosystem has the highest carcass ratio (39%), followed by Ruaha-Rungwa ecosystem (15.3%). (EU SRG Report, 2016, p.20. Figure 5 (a-f)). Trophy hunting quota for Selous in 2015 was set at 0.23% of the managed population while the quota for Ruaha was set at 0.12%. Yet, Selous, where the EU

delegation visited, was given a Positive Position while Ruaha was given a Negative Position. (EU SRG Report, 2016, p.25. Table 6).

A 2017 paper published in the African Journal of Ecology (Kyando et al. 2017) identifies areas within the Eastern Selous Game Reserve (ESGR) that are at higher risk of elephant poaching and attributes the lack of economic opportunities as a main reason for the involvement in poaching by local people adjacent to the ESGR. The paper analyzed the data on the distribution of poached elephants and the seasons of poaching from 2008 to 2013. Authors found that almost 60% of poaching incidents occurred within 20km inside the reserve from the boundary of the reserve and that there was much higher poaching frequency during the wet season than the dry season. Trophy hunting proponents consistently complained that the prohibitions of Tanzania's elephant trophy imports by the U.S. and the EU, in 2014 and 2015 respectively, removes the local community's incentives to conserve the elephants. Yet, this paper studying the poaching data from 2008 to 2013 showed that the lack of economic opportunities had long existed before the trophy import bans, indicating that trophy hunting revenues repeatedly fail to motivate the local communities to protect the elephants from poaching.

Until there is substantiated or peer-reviewed research findings on updated poaching statistics in Tanzania, it would be premature to conclude that Tanzania's elephants are no longer threatened with extinction by poaching. In addition, a minor fluctuation of the elephant populations towards a possible increase (yet to be substantiated by independent scholars) from 2014 to 2015 does not alter the devastating fact that Tanzania's elephants have drastically declined since 2009 and need significant time and protections to rebound.

The SRG Report lacks input from independent sources, relies heavily on trophy hunting interests and the government's data.

The EU SRG delegation met with numerous groups and government representatives. They visited and received input from trophy hunting outfitters in the Selous Game Reserve. Missing from the list of people that the EU SRG met are independent sources of data that do not depend on trophy hunting revenues and do not fear retribution for disagreement with claims by the government.

One group that the EU SRG delegation met was communities in the Wild Management Areas (WMAs). They are a key stakeholder group of rural development and whose revenues are primarily driven from trophy hunting. There are currently 38 WMAs established, covering an approximately 50,000km^2. In July 2015, the government raised "the game fee-sharing percentage for rural communities in the WMAs to 65%, and 70% of conservation, observation and permit fees from tourist hunting activities. It is also a legal requirement for Hunting Operators within a WMA to contribute a minimum of five thousand USD to the villages, in addition to the block, permit and conservation fees)." (EU SRG Report, p.25) Out of the 38 WMAs, the EU delegation spoke to community leaders and district councilor's from two WMAs near the Selous Game reserve. Given that these communities have a financial interest in receiving funds from trophy hunting revenues, there is little doubt that their views align with the trophy hunting outfitters.

The EU delegation did not appear to meet with those who are not in search of trophy hunting revenues or who hold alternate views, such as those employed in the photographic tourism sectors. In fact, the socio-economic benefits of trophy hunting revenues to the local communities have routinely been exaggerated by the hunting proponents. A 2017 report revealed that for eight countries surveyed (Botswana, Ethiopia, Mozambique, Namibia, South Africa, Tanzania, Zambia

and Zimbabwe), of the $17 billion in annual tourism spending, trophy hunting adds less than $132 million or just 0.78% of that total (Economists at Large 2017, p. 3). Tourism in these countries accounts for between 2.8% and 5.1% of gross domestic product (GDP) (*Ibid*). Trophy hunters contribute only an estimated 0.03 percent of GDP. Finally, non-trophy hunting tourism employs 132 times more people than trophy hunting (*Ibid*).

In addition, corruption has long plagued Tanzania's wildlife management and conservation. Tanzania ranks in the bottom third of all countries with respect to government corruption, and reports have shown inconsistent and arbitrary application of wildlife laws. (Missing the Mark, pp.16) Freedom House notes that "corruption remains a serious problem, and is pervasive in all aspects of political and commercial life, but especially in the energy and natural resources sectors." (Missing the Mark, pp.17). *See also* Declaration of Craig Packer (attached). As discussed further below, the hunting business is one of the most corrupt sectors in a country with increasing public attention on corruption. (Benjaminsen et al. 2013). Research by the Library of Congress cautioned, "the process of allocating and monitoring hunting concessions is said to be riddled with widespread corruption. The Minister of Natural Resources and Tourism and top Wildlife Department officials were recently fired for taking bribes in exchange for assigning hunting blocks and allowing for over a hundred live animals to be shipped abroad. Poaching is another, grave problem. Difficulties in collecting evidence and flaws in the criminal justice system make it challenging to prosecute offenders."[13]

Tanzania Disregards and Exceeds its CITES Export Quota Amid Rampant Poaching

From 2014 to present, the annual CITES export quota for the African elephant trophies from Tanzania is 200 tusks (hunting trophies from 100 animals).[14] From 2007 to 2013, the annual quota was set at 400 tusks (hunting trophies from 200 animals). From 2003 to 2006, the annual quota was set at 200 tusks (from 100 animals). From 2000 to 2002, the quota was set at 100 tusks (hunting trophies from 50 animals).[15] Despite alarming levels of poaching and decimated elephant populations, trophy hunting of elephants continues to be permitted.

Even with these very high export quotas, data from the CITES Trade Database demonstrate that Tanzania exceeded its export quota for elephant tusks in 2006 (quota = 200; actual export = 285) and 2009 (quota = 400; actual export = 445) (Table 1).

[13] Wildlife Trafficking and Poaching, January 2013, The Law Library of Congress, Global Legal Research Center, https://www.loc.gov/law/help/wildlife-poaching/index.php

[14] https://cites.org/eng/resources/quotas/export_quotas?field_party_quotas_tid=&field_full_name_tid=&field_export_quotas_year_value%5bvalue%5d%5byear%5d=2017&items_per_page=50&page=18

[15] https://cites.org/sites/default/files/common/quotas/2002/latest.pdf

Table 4. CITES Trade Database, exports of tusks and trophies from Tanzania.

App.	Taxon	Term	Unit	Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
***Loxodonta africana* trophies imported from Tanzania, 2006-2015**														
I	Loxodonta africana	trophies		TZ	66	115	138	130	101	90	87	44	43	9
II	Loxodonta africana	trophies		TZ	0	0	0	2	2	0	1	1	0	2
	TOTAL TROPHIES				**66**	**115**	**138**	**132**	**103**	**90**	**88**	**45**	**43**	**11**
	TOTAL TROPHY TUSKS*				**132**	**230**	**276**	**264**	**206**	**180**	**176**	**90**	**86**	**22**
***Loxodonta africana* tusks imported from Tanzania, 2006-2015**														
I	Loxodonta africana	tusks		TZ	153	45	62	181	138	86	42	25	37	9
II	Loxodonta africana	tusks		TZ	0	0	0	0	0	0	3	2	0	0
	TOTAL TUSKS				**153**	**45**	**62**	**181**	**138**	**86**	**45**	**27**	**37**	**9**
Totals:														
	TOTAL TROPHY TUSKS*				132	230	276	264	206	180	176	90	86	22
	TOTAL TUSKS				153	45	62	181	138	86	45	27	37	9
	GRAND TOTAL TUSKS				**285**	**275**	**338**	**445**	**344**	**266**	**221**	**117**	**123**	**31**
	CITES TUSK EXPORT QUOTA				200	400	400	400	400	400	400	400	200	200

* 2 tusks/trophy

Thus, between 2007 and 2013, when Tanzania's elephant populations were the largest source of ivory in illegal trade according to Wasser et al. (2015), Tanzania also permitted the killing of up to 200 elephants for sport and in 2009 even exceeded their own tusk export quota. This history of noncompliance with CITES export quotas is a major concern for the continued survival of elephants in Tanzania.

Questionable Management of Elephant Trophy Hunting

The government of Tanzania maintains the position that "80% of the funds used for anti-poaching in the areas managed by the Wildlife Division/Tanzania Wildlife Authority comes from trophy hunting." (2016 Letter to EU SRG. Pp.5) However, the fact remains that the worst poaching took place in southern Tanzania in Selous and Ruaha ecosystems where trophy hunting was permitted, again undermining the notion that trophy hunting provides a net benefit to elephants.

According to an International Union for Conservation of Nature ("IUCN") analysis from 2009, Africa's eleven primary big-game hunting countries only contributed an average of 0.6 percent to the national GDP.[16] Of this marginal profit, studies suggest that as little as 3-5 percent of trophy hunting revenues are actually shared with local communities.[17] Indeed, one economic report finds that Safari Club International has grossly overstated the contribution of big game hunting to eight African economies, including Tanzania, and that overall tourism in Africa dwarfs trophy hunting as a source of revenue.[18]

A 2017 study (Economists at Large 2017) that surveyed eight Eastern and Southern African countries found that trophy hunting operators and groups overstated the economic benefits and local employment derived from trophy hunting. Trophy hunting proponents claim that trophy hunting contributes $426 million dollars while in reality it is less than $132 million per year, roughly 0.78% or less of the $17 billion in overall tourism in the focused countries. In addition, trophy hunting employs in the range of 7,500 to 15,500 jobs rather than 53,000 jobs as trophy hunting proponents claim, representing roughly 0.76% or less of average direct tourism employment. With regard to the share of tourist spending from trophy hunting, on average, in Tanzania, trophy hunters' spending represent a mere 0.9 percent of the total tourist receipts.

A multitude of problems impeding Tanzania's effective management and conservation of wildlife have existed for decades. The Service' 2015 NDF noted that "as of June 2010, six out of the ten WMAs with user-rights had entered into business agreements with the private sector worth over $3.3 million, however, it appears that only a small proportion of this money has been made available to the local communities. Overall, the WMAs have had a low capacity for generating income for socio-economic development, and as such, have not provided an incentive to local communities to support or even tolerate wildlife as a potential source of renewable revenue." The

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[16] IUCN, *Big Game Hunting in West Africa. What is its Contribution to Conservation?*, Programme Afrique Centrale et Occidentale (2009), https://portals.iucn.org/library/efiles/edocs/2009-074-En.pdf.

[17] Economists at Large, *The $200 Million Question: How Much Does Trophy Hunting Really Contribute to African Communities?* (2013), http://www.ifaw.org/sites/default/files/Ecolarge-2013-200m-question.pdf.

[18] Economists at Large, *The Lion's Share? On the Economic Benefits of Trophy Hunting* (2017), http://www.hsi.org/assets/pdfs/economists-at-large-trophy-hunting.pdf.

Service further noted that the new provisions in the revised Tanzania Wildlife Management Area Regulations 2012 gave WMAs with "approximately 60-65% of the total hunting revenue. Despite the improvements in administering the WMA system, there is information indicating that revenue retention by WMA's is still insufficient to finance and encourage sound management decisions within these areas."

A 2013 Evaluation Report[19] by the USAID found a litany of problems on WMAs, from governance, economic, conservation challenges to challenges in the process of establishing WMAs and challenges to understanding the impacts of WMAs on constituent villages. The report found that problems in wildlife sector governance and structural and economic management have persisted for the past decade. (USAID 2013 Report. Pp.48) For instance, the report pointed out lack of transparency and accountability among WMA stakeholders. "Villagers and even village councils do not know the details of investor contracts or payment terms, let alone when and what income will return to the WMA for distribution." (USAID 2013 Report. Pp 18.) The report found that while "the TAWIRI collects information on changes in wildlife numbers and movement patters, but there has been criticism of how this information is used, especially in relation to issuing hunting quotas. There does not appear to be a clear link between information collected by TAWIRI and decisions on what quotas are issued for different species." (USAID 2013 Report. Pp.26)

Wildlife scientists cautioned many weaknesses in how hunting revenues are distributed. (Nelson, Lindsey and Balme 2013). For instance, revenues from trophy hunting bypassed the communities and landholders. The allocation of hunting blocks give government officials the discretion to assign valuable hunting concessions, "creating conditions conducive to corruption and the use of hunting blocks for political patronage." (Nelson & Agrawal, 2008; Leader-Williams et al., 2009 as cited in Nelson, Lindsey and Balme 2013). There has been a tendency to establish unsustainably high quotas and encouragement of excessive and unselective harvest. Attempts to overhaul the bidding system for hunting concessions in the mid-1990s, which would have reduced corruption and devolved rights over wildlife management and benefits, were blocked by government officials due to lobbying by national and international trophy hunting organizations (Baldus & Cauldwell, 2004 as cited in Nelson, Lindsey and Balme 2013).

Benjaminsen et al. in their 2013 paper, published on behalf the Institute of Social Studies in The Hague, express concerns about the Tanzanian government's increasing control over incomes generating from wildlife utilization in the name of "community-based" conservation. They observe that "This process of reconsolidation of state control over wildlife management is also playing out in contests over control of the two main income-generating activities in the sector: photo safaris and sport hunting…. In addition to control over hunting profits, the management of hunting through the quota system has also been reconsolidated under state control….it seems that the hunting industry is simply too lucrative for decentralization." (Benjaminsen et al. 2013, p.10)

Intimidation of the local non-consumptive proponents by trophy hunting outfitters occurs. For instance, a hunting block in Loliondo area was controlled by Ortello Business Corporation (OBC), a company owned by the royal family of the United Arab Emirates. The local Massai communities did not want to enter or renew the contract with the company because of a series of conservation

[19] United States Agency for International Development, *Tanzania Wildlife Management Areas Evaluation* (2013), http://pdf.usaid.gov/pdf_docs/pdacy083.pdf.

related complaints against the company. For instance, resident were concerned by what they saw as indiscriminate capture and killing of animals. Yet OBC continued to operate with direct connections to and support from the central government, but without the support of villagers. "Massai complained that OBC harassed non-consumptive tour operators working in the area…More serious complaints about OBC included intimidation and threats, harassment and detention, and even torture by the OBC security forces." (Benjaminsen et al. 2013. p.13)

Despite the claim that trophy hunting revenues are used on boosting anti-poaching measures, evidence suggests that these measures did not mitigate the poaching epidemic. Selous Game Reserve is a prime example. Selous Game Reserve is split into 47 operating blocks, of which only four are for photographic tourism while the rest, 43, are assigned for sport hunting. (TAWIRI 2010, pp.14) Prior to 2005 a Revenue Retention Scheme was in operation, whereby 100% of revenue from photographic tourism, and 50% from hunting operations, was retained for management of the Game Reserve. In 1997 the Reserve earned US $2,300,000 annually and retained US $1,703,000, and by 2003 the revenue retained had increased to US $2,800,000. Following National budget reductions in 2004, the amount retained by the Reserve declined dramatically to approximately US $800,000 in 2008. (TAWIRI 2010). The drop in revenue coincides with a period of increased poaching in the Reserve and suggests that anti-poaching operations are severely underfunded. (TAWIRI 2010, pp.15).

According to Chief Warden in Selous Game Reserve during 1994 to 2008 and 2012-2015, Benson Kibonde, import bans on hunting trophies have severe impact on the level of anti-poaching activities because "85% of the Selous retention scheme fund come from hunting. If any amount of the hunting revenue is compromised, the registered success in anti-poaching efforts could be seriously jeopardized." (IUCN Briefing Paper, April 2016. pp15.) However, clearly, given the poaching statistics noted earlier, there is no "registered success" in anti-poaching efforts, driven from trophy hunting revenues, in the Selous Game Reserve.

Habitat loss and fragmentation, in addition to human growth, continue to compound the challenges to preserve the species and their habitat. A study on the Rombo area in North East Tanzania found that 75% of the land in the study area was covered by settlement and seasonal agriculture in the year 2015. The Rombo area had a continued human population increase of 30% over the past 25 years. With this rate of population increase, more agricultural land is likely to be converted to settlement and, thus, reducing elephant dispersal area. (Mmbaga et al. 2017)

A 2017 study examined the implication of upgrading conservation areas from Game Reserves to National Parks on local community livelihoods, drawing on lessons from Saadani National Park in Tanzania. Unlike game reserves where licensed human consumptive uses, such as trophy hunting, are permitted, National Parks allow only controlled non-consumptive uses, such as walking safaris, game driving and photographic tourism. The authors concluded that while there are problems and challenges to be resolved, people's livelihoods after change of status from a Game Reserve to a National Park has been more positive than negative. The study also reported that despite some problems they encounter, villagers were very positive about the national park designation because their life was reported to have improved as a result of the status change. Villagers also reported improved social infrastructure and job opportunities including expanded market for their goods. (Michael E. 2017)

There is no proof that trophy hunting of elephants in Tanzania in 2016 or beyond enhances the survival of the species. On the contrary, given the massive reduction of elephant populations due to poaching, trophy hunting has only added to the staggering loss of the animals in the country. Several reports, including a 2013 report from the U.S. Agency for International Development point out the failure of Tanzanian authorities to manage land and wildlife effectively and show little evidence that trophy hunting is contributing positively to wildlife conservation.[20]

Conclusion

Sixty percent of Tanzania's elephant population has disappeared since 2009. Tanzania is identified as a major ivory trafficking hub, with 86 to 93% of global large ivory seizures coming from concentrated areas in Tanzania in the last few years. Despite the pro-hunting claim the trophy hunting benefits conservation, the worst poaching epidemic took place in Selous Game Reserve where trophy hunting was allowed.

The current Tanzania Elephant Management Plan was drafted during the height of the poaching and ivory trafficking crisis, seven years ago. Tanzania does not have an updated Management Plan in place that reflects its current elephant population status and trends and corresponding management and conservation strategies. In addition, Tanzania's CITES National Ivory Action Plan was deemed not substantially achieved by the CITES Secretariat. The country's national export trophy quota, including quota for each ecosystem, lacks scientific basis and fails to account illegal offtake and other legal in its assessment of quota.

Thus, trophy hunting of elephants in Tanzania cannot be said to enhance the survival of the species, and issuing an import permit for elephant trophies from Tanzania would therefore violate the Endangered Species Act and FWS regulations. We likewise suggest that at this juncture trophy hunting results in a sufficient offtake of elephants that the Service cannot determine that it is not detrimental the survival of the species. If the Service does issue any positive regional findings or any elephant trophy import permits from Tanzania, HSUS, HSI, and CBD will consider seeking judicial review of such decisions. Further, this letter serves as formal opposition to any application for an import permit for a lion trophy from Tanzania and HSUS, HSI, and CBD request that FWS provide ten days advance notification (via email, afrostic@humanesociety.org) prior to the issuance of any such permits. *See* 50 C.F.R. §§ 17.22(e), 17.32.[21]

Sincerely,

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[20] United States Agency for International Development. *Tanzania Wildlife Management Areas Evaluation – Final Evaluation Report*. USAID. July 15, 2013. Web. < http://pdf.usaid.gov/pdf_docs/pdacy083.pdf>.

[21] HSUS has previously called on FWS to publish notice in the Federal Register of threatened species permit applications, and we reassert that such action is essential to create transparency in FWS' enhancement analysis for African lion activities, consistent with the intent of ESA Section 10. Similarly, it is arbitrary for the Service to explicitly apply the notification requirements of 50 C.F.R. § 17.22(e) to certain types of threatened species permits (i.e., those for Safe Harbor Agreements and Candidate Conservation Agreements with Assurances) but not to other threatened species permits (i.e., for incidental take and import).

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REFERENCES ATTACHED:

Allendorf, F.W. and Hard, J.J., *Human-Induced Evolution Caused by Unnatural Selection through Harvest of Wild Animals*, 106 Proceedings of the National Academy of Sciences, 9987-94 (2009)

Benjaminsen TA, Goldman MJ, Minwary MY, Maganga FP. *Wildlife Management in Tanzania: State Control, Rent Seeking and Community Resistance*. Development and Change Volume 44, Issue 5 (2013)

Chapron, G. and Treves, A., *Blood does not buy goodwill: allowing culling increases poaching of a large carnivore*, Proc. R. Soc. B 283 (2016), http://dx.doi.org/10.1098/rspb.2015.2939

Chase MJ, Schlossberg S, Griffin CR, Bouché PJC, Djene SW, Elkan PW, Ferreira S, Grossman F, Kohi EM, Landen K, Omondi P, Peltier A, Selier SAJ, Sutcliffe R., *Continent-wide survey reveals massive decline in African savannah elephants*, PeerJ 4:e2354 (2016), https://peerj.com/articles/2354/

Crosmary, William-Georges et al., *Does trophy hunting matter to long-term population trends in African herbivores of different dietary guilds?*, 18 Animal Conservation, 117-30 (2015)

Economists at Large, *The $200 Million Question: How Much Does Trophy Hunting Really Contribute to African Communities?* (2013), http://www.ifaw.org/sites/default/files/Ecolarge-2013-200m-question.pdf

Economists at Large, *The Lion's Share? On the Economic Benefits of Trophy Hunting* (2017), http://www.hsi.org/assets/pdfs/economists-at-large-trophy-hunting.pdf

Environmental Investigation Agency, *Exposing the global hub in illegal ivory trade* (July 2017), at 5, https://eia-international.org/wp-content/uploads/EIA-The-Shuidong-Connection-FINAL.pdf

Gobush KS, Mutayoba BM, and Wasser SK, *Long-Term Impacts of Poaching on Relatedness, Stress Physiology, and Reproductive Output of Adult Female African Elephants*, Conservation Biology (Sept. 2008)

HSUS, HSI, IFAW, and The Fund for Animals, *Petition to the Secretary of the Interior to List the African Elephant (*Loxodonta africana*) as Endangered Pursuant to the Endangered Species Act* (Feb. 11, 2015)

Ihwagi F.W. et al., *Night-day speed ratio of elephant as indicator of poaching levels. Ecological Indicators*, 84:38-44 (2018), https://doi.org/10.1016/j.ecolind.2017.08.039

IUCN, *Big Game Hunting in West Africa. What is its Contribution to Conservation?*, Programme Afrique Centrale et Occidentale (2009), https://portals.iucn.org/library/efiles/documents/2009-074-En.pdf

IUCN Briefing Paper, Informing Decision on Trophy Hunting (April 2016), https://www.iucn.org/downloads/iucn_informingdecisionsontrophyhuntingv1.pdf

Jachmann, H. et al., *Tusklessness in African Elephants: A Future Trend*, 33 African Journal of Ecology, 230-35 (1995)

Kideghesho, J., *The elephant poaching crisis in Tanzania: a need to reverse the trend and the way forward*, Tropical Conservation Science Vol.9(1): 369-388 (2016), https://tropicalconservationscience.mongabay.com/content/v9/tcs_v9i1_369-388_Kideghesho.pdf

Kyando M., Ikanda D., and Røskaft E., *Hotspot elephant-poaching areas in the Eastern Selous Game Reserve, Tanzania*, African Journal of Ecology Vol. 55, 365-371 (2017)

Michael, E., & Naimani, G. M. *Implication of Upgrading Conservation Areas on Community's Livelihoods: Lessons from Saadani National Park in Tanzania*, Journal of the Geographical Association of Tanzania, 36(1) (2017)

Milner J.M., Nielsen E.B., Andreassen HP, *Demographic side effects of selective hunting in ungulates and carnivores*, Conservation Biology Vol. 21:36-47 (2007)

Mmbaga E.M, Munishi L.K. & Treydte A.C., *How dynamics and drivers of land use/land cover change impact elephant conservation and agricultural livelihood development in Rombo, Tanzania*, Journal of Land Use Science (2017), https://10.1080/1747423X.2017.1313324

Muposhi VK, Gandiwa E, Bartels P, Makuza SM, Madiri TH, *Trophy Hunting and Sustainability: Temporal Dynamics in Trophy Quality and Harvesting Patterns of Wild Herbivores in a Tropical Semi-Arid Savanna Ecosystem*, PLoS ONE 11(10) (2016), http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0164429

Nelson F., Lindsey P., Balme G., *Trophy hunting and lion conservation: a question of governance?*, Oryax Vol. 47, Issue 4 (2013), https://www.researchgate.net/publication/257201788_Trophy_Hunting_and_Lion_Conservation_A_Question_of_Governance

Pigeon, G., Festa-Bianchet, M., Coltman, D. W. and Pelletier, F., *Intense selective hunting leads to artificial evolution in horn size*, J. Evolutionary Applications Vol. 9, 521-530 (2016), http://marco.recherche.usherbrooke.ca/pdffiles/PigeonEvolApplic16.pdf

Representative Raul M. Grijalva, *Missing the Mark: African Trophy Hunting Fails to Show Consistent Conservation Benefits*" (June 13, 2016), *available at* http://democrats-naturalresources.house.gov/imo/media/doc/Missing%20the%20Mark.pdf

Robson AS, Trimble MJ, Purdon A, Young-Overton KD, Pimm SL, van Aarde RJ, *Savanna elephant numbers are only a quarter of their expected values*, PLOS One (April 2017), http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0175942

Tanzania, Letter to the Species Review Group of the European Commission (Aug. 2015)

Tanzania Natural Resources Forum, Proceedings of the 3rd National CBNRM Forum (2016) https://tnrf.org/files/proceedings_of_the_3rd_cbnrm_forum_final_report31082016.pdf

Tanzania Wildlife Research Institute (TAWIRI), *Tanzania Elephant Management Plan 2010-2015* (2010), https://www.stzelephants.org/download/elephant-demography/TEMP%202010-2015.pdf

TAWIRI, Addendum to 2014 Non-Detriment Finding for African Elephants in Tanzania (2015)

United States Agency for International Development, *Tanzania Wildlife Management Areas Evaluation* (2013), http://pdf.usaid.gov/pdf_docs/pdacy083.pdf

USFWS, Enhancement Finding for African Elephants Taken as Sport-hunted Trophies in Tanzania during 2014, https://www.fws.gov/international/pdf/enhancement-finding-2014-elephant-Tanzania.PDF

USFWS, Enhancement Finding for African Elephants Taken as Sport-hunted Trophies in Tanzania during 2015, https://www.fws.gov/international/pdf/enhancement-finding-2015-elephant-Tanzania.PDF

USFWS, *Non-detriment finding for Tanzania elephants* (2014), https://www.fws.gov/international/pdf/non-detriment-finding-2014-elephant-Tanzania.pdf

USFWS, *Non-detriment finding for Tanzania elephants* (2015), https://www.fws.gov/international/pdf/non-detriment-finding-2015-elephant-Tanzania.pdf

Wasser SK, Brown L, Mailand C, Mondol S, Clark W, Laurie C, Weir BS, *Genetic assignment of large seizures of elephant ivory reveals Africa's major poaching hotpots*, Science Vol. 349 (June 2015), http://science.sciencemag.org/content/349/6243/84/tab-pdf

October 5, 2017

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U.S. Fish and Wildlife Service
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Re: Imports of African Lion Trophies from Tanzania Must Not Be Permitted

Dear Chief Van Norman & Chief Gnam:

Since the Endangered Species Act (ESA) listings went into effect for *Panthera leo leo*[1] and *Panthera leo melanochaita* on January 22, 2016 (80 Fed. Reg. 79999 (Dec. 23, 2015)), not a single lion trophy has been permitted to be imported from Tanzania to the U.S., a necessary reprieve after many years when American trophy hunters imported hundreds of lions trophies per year. On behalf of The Humane Society of the United States (HSUS), Humane Society International (HSI), and Center for Biological Diversity (CBD) we write to strongly urge the U.S. Fish and Wildlife Service ("FWS" or "the Service") to issue a negative enhancement finding for Tanzanian lions, as it cannot be demonstrated that trophy hunting of lions in Tanzania affirmatively benefits the conservation of the species.

Pursuant to the new regulation for *Panthera leo melanochaita* (50 C.F.R. § 17.40(r)), the Service can only issue a permit to import a lion trophy from east or southern Africa if the best available science supports a finding that trophy hunting enhances the survival of this subspecies. It is critical that FWS apply the precautionary principle and strictly scrutinize the impacts that trophy hunting

[1] HSUS, HSI, and CBD fully expect that no permits will be issued to import trophies of endangered *Panthera leo leo*, as this subspecies is on the brink of extinction and cannot sustain recreational offtake. As the U.S. Fish and Wildlife Service (FWS) acknowledged in the lion listing rule, in western and central Africa, "[m]anagement programs do not appear to be sufficient to deter unsustainable offtakes" and "experts agree that there is no level of offtake that would be sustainable for *P. l. leo* populations…" 80 Fed. Reg. at 80040.

has on African lions – indeed, as recently published in *Nature*, overutilization, including trophy hunting, is the biggest threat to biodiversity.[2]

ESA Requirements for Lion Trophy Imports

Pursuant to the plain language of this statutory term (16 U.S.C. § 1539(a)(1)), "enhancement" permits may only be issued for activities that *positively benefit* the species in the wild. *See also* FWS, *Ensuring the Future of the Black Rhino* (Nov. 25, 2014), *at* http://www.fws.gov/news/blog/index.cfm/2014/11/25/Ensuring-the-Future-of-the-Black-Rhino (acknowledging that the ESA enhancement standard is more stringent than the CITES non-detriment standard); U.S. Fish and Wildlife Service Handbook for Endangered and Threatened Species Permits (1996) (making clear that an enhancement activity "must go beyond having a neutral effect and actually have a positive effect").

HSUS, HSI, and CBD agree with the standard that FWS established in the 4(d) Rule for *Panthera leo melanochaita*, requiring that,

> "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival of *P. l. melanochaita*, the Service will examine the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is based on sound scientific principles and that the management program is actively addressing the current and longer term threats to the subspecies). In that review, we will evaluate whether the import contributes to the overall conservation of the species by considering whether the biological, social, and economic aspects of a program from which the specimen was obtained provide a net benefit to the subspecies and its ecosystem" (emphasis added).

HSUS, HSI, and CBD also agree that FWS must consider the following factors when making an enhancement finding for importation of sport-hunted trophies of *P. l. melanochaita*:

> "(a) Biological sustainability: The hunting program cannot contribute to the long-term decline of the hunted species. It should not alter natural selection and ecological function of the hunted species or any other species that share the habitat. The program should not inadvertently facilitate poaching or illegal trade in wildlife by acting as a cover for such illegal activities. The hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity.
>
> (b) Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed. The program should produce income, employment, and other benefits to create incentives for reducing the pressure on the target species. The program should create benefits for local residents to co-exist with the target species and other species. It is also imperative that the program is part of a legally recognized governance system that supports conservation.

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[2] Sean L. Maxwell et al., *Biodiversity: The Ravages of Guns, Nets, and Bulldozers*, Nature Vol. 536, 143-145 (Aug. 11, 2016), *at* http://www.nature.com/news/biodiversity-the-ravages-of-guns-nets-and-bulldozers-1.20381.

(c) Socio-Economic-Cultural Benefit: A well-managed hunting program can serve as a conservation tool when it respects the local cultural values and practices. It should be accepted by most members of the community, involving and benefiting local residents in an equitable manner. The program should also adopt business practices that promote long-term economic sustainability.

(d) Adaptive Management: Planning, Monitoring, and Reporting: Hunting can enhance the species when it is based on appropriate resource assessments and monitoring (e.g., population counts, trend data), upon which specific science-based quotas and hunting programs can be established. Resource assessments should be objective, well documented, and use the best science available. Adaptive management of quotas and programs based on the results of resource assessments and monitoring is essential. The program should monitor hunting activities to ensure that quotas and sex/age restrictions of harvested animals are met. The program should also generate reliable documentation of its biological sustainability and conservation benefits.

(e) Accountable and Effective Governance: A biologically sustainable trophy-hunting program should be subject to a governance structure that clearly allocates management responsibilities. The program should account for revenues in a transparent manner and distribute net revenues to conservation and community beneficiaries according to properly agreed decisions. All necessary steps to eliminate corruption should be taken and to ensure compliance with all relevant national and international requirements and regulations by relevant bodies such as administrators, regulators and hunters."

Evidence is Insufficient to Support Claims that Lion Trophy Hunting in Tanzania Enhances the Survival of the Subspecies

The lion population in East Africa is estimated to range between 7,345 and 13,316 (Bauer *et al.* 2016, supplementary material, Table 7). This population accounts for between 39 and 42 percent of the total *Panthera leo* population (Id.), which may be as low as 20,000 remaining lions (Bauer *et al.* 2016). According to the 2016 IUCN assessment, well-studied lion populations in East Africa declined by as much as 59% since 1993 (Bauer *et al.* 2016, supplementary material, Table 2). In Tanzania, the lion population in four well-studied areas (Ngorongoro Crater, Katavi, Matambwe (Selous GR), Serengeti, and Tarangire) is estimated to have decreased by 66%, from 1,787 in 1993 to only 608 in 2014 (Bauer *et al.* 2016, supplementary material, Table 3). Shockingly, in Katavi, the lion population was assessed at 1,118 in 1993 but thought to be closer zero[3] in 2014 (Id.). Only one of these well-studied Tanzania populations, Serengeti, is estimated to have increased during this time, from 232 lions to 314 (*Id.*). According to a December 2015 analysis of lion conservation strategies, "Tanzania is possibly the country with most free-ranging lions in Africa, and several lion populations are contiguous with neighbouring countries. Successful lion conservation in

[3] While there may be some lions in Katavi, as claimed by anecdotal evidence from Tanzanian authorities (Benyr 2017, p. 8), the IUCN assessment reports "the value of published findings which is the value zero" actually "represents non-detection, not absence." (Bauer 2016b). *See also,* Declaration of Dr. Craig Packer (attached), which notes that Tanzania has expelled independent scientists and that sources affiliated with the hunting industry are now dictating alleged survey numbers.

Tanzania can preserve more lions than anywhere else." (Bauer *et al.* 2015). *See also* Mtui et al. 2016.

Therefore, Tanzania's lion population – which is critical to maintaining the species in the wild – has suffered a major decline in recent years and FWS must ensure that American trophy hunters do not contribute to additional decline of the population. Worryingly, a 2015 population modelling assessment led to a 37% probability that lions in East Africa will decline by a further 50% over the next two decades (Bauer *et al.* 2015).

In Tanzania, trophy hunting is prohibited only in the national parks and Ngorongoro Conservation Area (Brink *et al.* 2016, p. 2). An estimated 305,000 km^2, or 85% of protected land, is available to hunters. (Ibid) Hunting blocks are leased to hunting companies, which are then apportioned a quota for specific species for every hunting season (Ibid). As described herein, this management program is insufficient for the Service to rely on to make a finding that trophy hunting enhances the survival of lions in Tanzania.

Tanzania's wildlife management generally operates as follows:

> Management of the wildlife sector is split between management of National Parks by Tanzania National Parks (TANAPA), Forest Reserves by Forest and Beekeeping Division of the Ministry of Natural Resources and Tourism (MNRT), Ngorongoro by the Ngorongoro Conservation Area Authority (NCAA), and the rest of the areas by the Wildlife Division (WD) also of the MNRT. The key legislation allowing for wildlife management are the National Parks Ordinance of 1959, which covers wildlife within National Parks; Ngorongoro Conservation Area Ordinance of 1959; Forest Act of 2002 which covers Forest Reserves; and, the Wildlife Conservation Act of 1974. Overall legislation is now guided by the Wildlife Policy (MNRT, 2007) which confirms the government's overall right of ownership of wildlife . . . (Brink 2010, p. 6).

The following documents published online or submitted by the Tanzanian authorities to other governments (in order of more recent to oldest) represent publicly available information relevant to the Service's enhancement analysis for lion trophy imports from Tanzania:

- A Report to the EU CITES Scientific Review Group on the EU Experts Mission to Assess the Sustainability and Management of Lion Trophy Hunting in Tanzania (2016)
- Comment on ESA Status Review of African Lion. January 27, 2015. Ministry of Natural Resources and Tourism. The United Republic of Tanzania.
- The Tanzania Lion and Leopard Conservation Action Plan. February 20-22nd 2006. Tanzania Wildlife Research Institute (TAWIRI).
- Conservation Strategy for the Lion in Eastern and Southern Africa. 2006. IUCN/SSC Cat Specialist Group.
- 1995 Policy and Management Plan for Tourist Hunting.

As detailed below, these documents do not support a finding that lion trophy hunting in Tanzania enhances the survival of the subspecies.

- **The European Union's Scientific Review Group Assessment of Tanzanian Lion Trophy Hunting is Insufficient to Support an Enhancement Finding by USFWS**

In 2016, an EU-funded expert "study visit" took place in Tanzania and a report (Scientific Review Group or "SRG Report") was completed by three delegates – representing CITES authorities of the United Kingdom, Austria, and Hungary. The SRG Report recommended that the EU Scientific Review Group maintain a "positive opinion" allowing imports of Tanzanian lion trophies "in accordance with their current age-sex based restrictions and a total quota of 207 trophies, allocated in accordance with density recommendations (0.5 lions/1,000 km^2 (with the exception of Selous where 1.0/1,000 km^2))" (Benyr 2016, p. 6). This quota is unsustainable, as discussed further below.

SRG Report's recommendation for a "positive opinion" is unsubstantiated, with major gaps in the findings and proof is absent for the key claims. It would violate the Endangered Species Act and the Administrative Procedure Act for USFWS to rely on this EU position in making an enhancement finding for the import of lion trophies from Tanzania.

The findings are largely based on unpublished data, without the necessary scientific scrutiny

Many of the study's conclusions are based on unpublished reports and data presented by the Tanzanian government to the visiting delegates. Indeed the report itself acknowledges "It has not been possible to personally verify all the unpublished data provided by Tanzanian authorities during the course of the SRG field mission" (Benyr 2017, p. 3). Yet the authors state, "presented facts held up to scrutiny and did not reveal inconsistencies" (Ibid). However, only robust, unbiased, and transparent published research can hold up to scientific scrutiny. In this case, none of these unpublished findings are made available in the SRG Report, meaning it is impossible to establish their veracity or to rely on them with confidence.

The following are just a few examples of statements from the report, which are not supported with actual copies of the cited findings or other forms of evidence to prove the claims:

- "For the Selous Game Reserve, a recent survey revealed that lion densities have remained stable and even increased in some sectors since 2009 (Crosmary et al. 2016)" (Benyr 2017, p. 9).
    - The Crosmary et al. study cited is not available online nor are details of its conclusions cited in the SRG Report. Therefore, it is unclear if its findings have been peer-reviewed and thus verified.
- "A number of recent reforms of the wildlife regulations substantiate the political commitment of Tanzania to adopt best practice models and contribute to their improvement" (Benyr 2017, p. 9).
    - The SRG Report does not further explain what these recent reforms are or offer any details about them, thus not providing any support for this claim.

- "Currently, the international marketing of lion bones seems to be no serious problem in Tanzania" (Benyr 2017, p. 11).
    - The authors offer no evidence to back up this statement in the SRG Report. Therefore, on what grounds is this assumption made? A recent report from the Environmental Investigation Agency titled "The Lion's Share: South Africa's Trade Exacerbates Demand for Tiger Parts and Derivatives" cites to an April 2017 arrest in Vietnam of a suspected criminal network leader, Nguyen Mau Chien, known for trafficking of lion parts with an arrest history in Tanzania (Environmental Investigation Agency 2017, p. 8). The SRG Report too quickly dismisses lion bone trade as a low threat to Tanzania's lions.

The study lacks input from sources independent of the Tanzania authorities, including key lion biologists

The authors of the SRG Report met with numerous Tanzanian government representatives, managers of the Selous Game Reserve, other regional game officers, representatives of Wildlife Management Areas, hunting outfitters, tourism operators, and villagers, among others. The SRG Report states "[e]ssentially everyone we spoke to in Tanzania, which included representatives of all main stakeholders (even those that were critical of the governments past efforts to conserve the species), agreed that trophy hunting has a clear conservation benefit for lions" (Benyr 2017, p. 12). Yet input from additional key stakeholders is altogether missing.

Missing from this list of stakeholders are independent sources of input that do not depend on trophy hunting revenues and do not fear retribution for disagreeing with claims by the government. Indeed, in listing the African lion under the Endangered Species Act, the U.S. Fish and Wildlife Service stated that Tanzania's "transparency (in terms of trophy quality data) and the scientific objectivity of the evaluating body has been questioned." 80 Fed. Reg. at 80042.

For example, input is missing from various members of the African Lion Working Group, affiliated with the Cat Specialist Group, other than Dennis Ikanda who is a government employee (working for the Tanzania Wildlife Research Institute (TAWIRI)) and thus not an impartial voice. Further, the SRG Report questions the findings of lion experts – as in the case of the Hans Bauer et al. 2015 publication titled *Lion (Panthera leo) populations are declining rapidly across Africa, except in intensively managed areas* (Benyr 2017, p. 7) – without an opportunity for Dr. Bauer and the co-authors to explain the conclusions.

Additionally, it is well known that Dr. Craig Packer, who spent decades researching lions in Tanzania was expelled from the country after exposing corruption, especially within the lion trophy hunting industry (Packer 2015;[4] Declaration attached). Jerry Belant of Mississippi State University – who is directly affiliated with Safari Club International (SCI)[5] – is now in charge of

[4] Packer, C. Lions in the Balance: Man-Eaters, Manes and Men with Guns. University of Chicago Press (2015). ISBN 13: 978-0-226-09295-9.

[5] Dr. Belant's "research is a collaborative effort among MSU, SCI Foundation, Tanzania Wildlife Research Institute, and Tanzania National Parks, with primary funding provided by the SCI Foundation" (http://www.cfr.msstate.edu/wildlife/documents/WFA_Newsletter_summer2016.pdf). SCI Foundation is

lion population research in the Serengeti after Dr. Packer's forced removal from the project. Dr. Belant's research on dental characteristics in estimating the age of African lions is cited in the SRG Report, but Dr. Belant's relationship with SCI taints the veracity of his work, since SCI has a clear incentive to continue trophy hunting unfettered in Tanzania.

Population data provided in the SRG Report contradicts findings of top lion scientists and has not been peer-reviewed

In the discussion on "Population Size" (Benyr 2017, p. 6), the SRG document reports on a variety of unpublished surveys and population estimates. None of the drafts or final versions of these surveys are currently discoverable online and therefore presently not transparent. Determinations of trophy hunting sustainability cannot rely on data that has not undergone the process of scientific review. These unpublished and unavailable documents quoted in the SRG Report include:

- Crosmary, W.-G., D. Ikanada, F. A. Ligate, Kasanga Imani, Mkuburo Lameck, Lyamuya Richard, Ngongolo Kelvin, Sandini Pietro, and C. Philippe. 2016. The Selous Game Reserve is still a stronghold for African lions, Tanzania.
- TAWIRI Wildlife Division and TAWA. 2016. Non-detriment findings on African lion (*Panthera leo*) in the United Republic of Tanzania, including Enhancement findings June. Ministry of Natural Resources and Tourism - Wildlife Division.
- Dickman (in prep.) [Macdonald (2016) is cited as referencing Dickman, claiming "Our latest data suggest that Tanzania holds approximately 9,900 free-ranging lions in an estimated lion range of 380,000 km^2 (Dickman in prep.)."]

The recently completed Selous population survey using spoor counts is the first time a survey of this sort has ever been completed there, and therefore lacks a baseline for comparison or trend analysis purposes. Given this apparent lack of standardized methodology, it would be arbitrary and capricious to rely on this new data and such data likely does not offer a clear picture of what the anthropogenic impacts have been on the Selous population. Further, it appears that SCI funded this survey, at least in part, which undermines its impartiality.

Moreover, there is currently no population monitoring activity by independent scientists (Packer Declaration), with all data produced either by scientists employed by the government or funded by trophy hunting organizations. For example, as cited above, Dr. Belant's research in the Serengeti is funded by SCI. Further, Selous-based research by Dr. Henry Brink – an independent scientist – was also terminated and replaced by SCI-funded and government-supported researchers.

In the discussion on "Population Trends" (Benyr 2017, p. 7), the SRG Report offers a rebuttal to the published paper by Bauer et al. 2015, which cites to severe lion population declines throughout Africa and predicts dramatic declines in Tanzania. The SRG Report states "whilst this publication presents a valuable compilation of data several problems with the interpretation of the data exist which affects their assessment of trophy hunting in Tanzania" (Benyr 2017, p. 7). Unfortunately,

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the foundation arm of one of the world's largest pro-trophy hunting advocacy groups, Safari Club International.

the report fails to acknowledge responses to such criticisms offered by the authors (Bauer et al. 2016a; Bauer 2016b).

Bauer et al. 2015 predicted a 37% chance that East African lion populations (including Tanzania) would decline by one-half over two decades. To come to this conclusion, the authors explain, "We compiled all credible repeated lion surveys and present time series data for 47 lion (*Panthera leo*) populations. We used a Bayesian state space model to estimate growth rate-λ for each population and summed these into three regional sets to provide conservation-relevant estimates of trends since 1990." (Bauer et al. 2015)

The SRG Report questions the findings in Bauer et al. 2015 findings claiming "unweighted means to summarize population trends emphasizes changes in small populations" and that "extrapolation of trends beyond the information-content of the available data has led to an exaggeration of the threat for a decline," while further concluding that "these considerations include no positive effects that a previous decline might have on the population growth by increasing availability of preferred habitats and food and reducing intraspecific conflicts" (Benyr 2017, p. 7). The paper further goes on to question the findings from one of the assessment sites in Katavi, Tanzania.

The points highlighted above are similar to that of Riggio et al. 2016, to which Bauer et al. 2016a respond as follows:

- Regarding "unweighted means to summarize population trends": "Our regional population analyses include all reported time series data for both increasing and declining populations; we calculated the projected growth rate λT of T years (7), but these metrics were not intended to provide a Bayesian forecast of population sizes (8). Weighting these metrics by population size would introduce a serious bias because sites that had previously suffered the largest declines would contribute relatively little to aggregated projected growth rates." (Bauer *et al.* 2016a)
- Regarding Katavi, Tanzania: "Our paper acknowledges the imprecision inherent in the Katavi time series of ground surveys, which were recently used to report a significant decline in lion numbers from 1995 to 2010 (5). Our Bayesian analysis fully considers uncertainty resulting from observation and process errors, and our conclusions do not depend on the Katavi time series: Excluding Katavi only reduces the probability of a one-half decline in three lion generations in East Africa from 37% to 32%." (Ibid)
- General comment: "Our assessment is based on the widely accepted criteria of the Red List and is entirely consistent with similar trends described for specific sites and for Africa as a whole (e.g., references 1, 4, 5, 23, 31, 32, and 38 of ref. 9)." (Ibid)

Despite Tanzanian authorities questioning the IUCN's assessment of lions, the IUCN Cat Specialist Group and its Lead Assessor – Dr. Hans Bauer – have stood by their initial assessment, as evidenced in a letter attached to this submission. (Bauer 2016b).

The SRG Report fails to identify serious concerns with the implementation of the lion trophy age verification system in Tanzania

As described by the SRG field visit team, "Since 2011, Tanzania has signed a Memorandum of Understanding with IGF Foundation which is a French based International organization for wildlife Conservation. IFG Foundation assists the Wildlife Division and now TAWA in organizing the collection and surveillance of lion trophies" (Benyr 2017, p. 18). The document offers a lengthy description of how the IGF and its government partners age and document the trophies.

This French organization – led by Director Dr. Philippe Chardonnet[6] - is affiliated with the trophy hunting industry. One of its four key objectives is "to safeguard the world's hunting heritage in order to guarantee its sustainability for future generations."[7] Dr. Chardonnet's findings and publications have repeatedly been criticized by independent lion scientists given the obvious bias to favor continuation of lion hunting in Tanzania.

Further, as discussed in the attached Declaration from Dr. Craig Packer, whose research and findings formed the basis for the aging verification system in place today, there are significant issues with the implementation of the age-verification system in Tanzania. Specifically, Tanzania's "age-assessment efforts are secretive: only members of the Tanzanian hunting fraternity are allowed to participate. This secrecy stands in stark contrast to the more transparent age-assessment practices in Mozambique and Zimbabwe. Further, there is also no evidence of penalties for noncompliance (such as reducing quotas)." (Packer Declaration at ¶ 8). This lack of transparency and objectivity make it impossible to be confident that lion "A" was shot by client "B" on date "C," creating ample opportunity for abuse of this system. Thus, the Service cannot be sure that all of the lions killed by trophy hunters in Tanzania are killed in compliance with minimum age restrictions, especially since there is no evidence that Tanzania has facilitated robust training of hunting guides to ensure that they know how to identify a lion's age in the field.

As discussed in the attached comments submitted by HSUS, HSI, and co-petitioners regarding the USFWS lion ESA listing, removing a male lion from a pride has cascading negative impacts on the other members of that pride. "Each male replacement has profound effects on the reproduction of multiple females. Tanzania currently allows about 500 lions and 400 leopards per year to be killed for sport in an area of 300,000 km^2 (1.67 lions and 1.33 leopards/1000 km^2). The proportion of male lions removed by trophy hunters in the mid- to late 1990s was unsustainable (28% /year in some areas)." (Packer 2011).

The field study inaccurately suggests that positive conservation outcomes are primarily dependent on trophy hunting revenues, and therefore availability of lion trophies.

The SRG Report makes the following claim: ". . . the quality of the protection and all anti-poaching activities for a large part of the lion range directly depend on the income generated by hunting. This income dropped by about 30% following the import bans for lion and elephant trophies enacted by the EU and the USA" (Benyr 2017, p. 13). Further, a chart on pg. 28 continues the line of reasoning that the declining hunting industry profits – allegedly the fault of lion trophy import

[6] Dr. Philippe Chardonnet Biography, IUCN 2003 World Parks Congress. https://www.wcs-ahead.org/bios/bio_chardonnet.html.

[7] Fondation François Sommer, The International Foundation for the Management of Wildlife (IGF Foundation). 18 Apr 2016. http://www.emploi-vert.fr/societe/fondation-igf-abritee-par-la-fondation-francois-sommer.

restrictions – have or will lead to a variety of other devastating outcomes: vacant hunting blocks, reduced responsible management, decreased incentives for community wildlife management, competition from other forms of land use, increase occupation by settlers, shortage of resources, increased poaching, and decreased scientific monitoring, etc. (Benyr 2017, p. 28). The SRG Report logic therefore follows that the lifting of the import restrictions by the US and EU will mitigate these concerns.

These claims do not hold water. The issues flagged by the SRG existed long prior to the implementation of any trophy import restrictions, when hunters shot and exported hundreds of African lions annually.

According to the SRG Report "Currently, 47 out of 157 hunting bock *[sic]* are vacant in Tanzania and therefore the auctions fetch suboptimal results and demands to lower the prices for hunting licenses arise. *Even more detrimental* for the conservation of lions could be the option to hunt unsustainably and move to another plot when the game population is depleted" (Benyr 2017, p. 27) (emphasis added).

The SRG document links the vacant lots, at least in part, to the lion trophy import restrictions and a 30% profit decline (Benyr 2017, p. 28). However, reports from as far back as 2012 indicate that at that time 19% of the hunting areas were *already* financially unviable (Campbell 2012, p. 5). Using the current estimate that 305,000 km^2 of the land is available to hunters (Brink et al. 2016, p. 2), 19% would in the present day represent 57,950 km^2 of unviable land.

The reasons for the unviability must therefore lie with other factors. One such factor is absence of wildlife because the outfitters, and consequently the government, are failing to protect these areas. Another factor is that blocks are allocated at such a low price that the fees fail to cover the costs of effective management, perpetuating corruption in the system. Indeed, the SRG Report itself acknowledges the money trophy hunting generates may never actually trickle down to benefit conservation ("TAWA also has the agenda to develop tourism and under this mandate the income from sustainable wildlife management can still be diverted into projects that do not benefit conservation or even counteract this objective" (Benyr 2017, p. 13)).

With respect to community incentives, such incentives were already extremely low when lion trophy imports were at their peak, because the communities received little of the money generated by trophy hunting (with much of that revenue inuring to the personal benefit of government officials and hunting guides). (Packer Delcaration) One study found that:

> Of the district allocation, officially 60 percent was budgeted for investment in villages near the blocks. In reality, few benefits filtered to local communities (Barrow 1996: 11); probably closer to 3-5 percent of hunting revenues actually reached villages where hunting occurred (Sachedina 2003: 7). Actual expenditure included projects more convenient to the District Council than villages supporting wildlife. Hunting revenue allocations may have been driven by political considerations. For example, infrastructure investments in Ruvu Remiti and Msitu wa Tembo, densely populated villages with large voting blocs . . . (Sachedina 2008, p. 150)

The SRG Report also claims that poaching may increase as a consequences of continued lion trophy import restrictions. Yet, if one examines elephant trophy hunting in Tanzania – which was at its peak when the U.S. made the decision to suspend elephant trophy imports from Tanzania – this argument does not hold. Because of poaching, Tanzania's elephant population is estimated to have fallen by 60% between 2009 and 2014. Clearly, the measures taken by the trophy hunting industry to prevent poaching were wholly insufficient and the industry's allegations that anti-poaching efforts will improve only if lion trophy import restrictions are lifted lack merit.

The SRG Report fails to take into account the detriment trophy hunting causes to photographic tourism and therefore local communities

Tourists who care about wildlife are less likely to visit regions or places with a reputation for not caring for their wildlife. Thus, when shocking trophy hunting news stories gain global attention (e.g. video exposing egregious trophy hunting cruelty by the company Green Mile Safari in Tanzania (Green Mile Press Release, 2016;[8] Fernholz, 2016[9])), photographic tourism also pays the price. Tanzanian tourism companies must spend resources on marketing themselves to stand apart from the negative press (Buckley 2014, p. 321).

Communities also incur costs when trophy hunters kill animals that are already in decline due to habitat destructions, human-wildlife conflict, disease, etc. A study on conservancy management quoted a Tanzanian villager from Emboreet as follows:

> We‘re more closely allied with the photographic operators than the hunters. They are finishing off the wildlife before we've had a chance to realize a profit from it. Hunters don‘t recognize us; they only recognize the government… 25 percent of hunting fees goes into the hole at the district. We‘re supposed to get 5 percent: we don‘t even see that. The WD controls everything. (Sachedina 2008, p. 152)

In fact, a 2017 report revealed that for eight countries surveyed (Botswana, Ethiopia, Mozambique, Namibia, South Africa, Tanzania, Zambia and Zimbabwe), of the $17 billion in annual tourism spending, trophy hunting adds less than $132 million or just 0.78% of that total (Murray 2017, p. 3). Tourism in these countries accounts for between 2.8% and 5.1% of gross domestic product (GDP) (Ibid). Trophy hunters contribute only an estimated 0.03 percent of GDP. Finally, non-trophy hunting tourism employs 132 times more people than trophy hunting (Ibid). Therefore, Tanzania has much more to lose – in terms of funds dedicated to conservation and communities, its economy, and jobs – from the damage trophy hunting can cause to Tanzania's tourism brand.

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[8] Humane Society International. Tanzania urged to rescind hunting concession to Green Mile, a company accused of reckless, atrocious animal abuses. Press release. June 24, 2016. Available at: http://www.humanesociety.org/news/press_releases/2016/06/tanzania-hunting-green-mile-062416.html?referrer=https://www.google.com/.

[9] Fernholz, Tim. Leaked Videos of Wildlife Abuse Spark Corruption Scandal In Tanzania. Huffington Post July 01, 2016. Available at: http://www.huffingtonpost.com/entry/abusive-safari-company-tanzania_us_57769240e4b04164640fbba8.

- **Tanzania's Comments on the USFWS Status Review of the African Lion Is Inadequate to Support and Enhancement Finding by USFWS**

The most recent publicly available information from Tanzania regarding lion management and regulation of trophy hunting is the country's comment letter submitted to FWS during the ESA Status Review of African Lion (dated January 27, 2015, hereinafter ESA Comment). The submission addresses lion biology, range, and populations trends; remarks on the status review of the Africa lion; and management and monitoring of lion trophy hunting in Tanzania. However, the following analysis reveals serious gaps and questionable conclusions in the submission.

Tanzania cites to populations estimates that are now outdated and current numbers are much lower

According to the ESA Comment, the latest population estimates put the lion population in Tanzania at 16,800 individuals (ESA Comment 2015, p. 5; Mesochina *et al.* 2010). However, the latest IUCN analysis of *Panthera leo*, which post-dates these sources, estimates the total lion population in all of Eastern Africa to range between 7,345 and 13,316 lions (Bauer *et al.* 2016 supplementary materials, p. 17). Tanzania's population may therefore be even fewer than 7,345 lions because this East Africa assessment includes other East African countries like Kenya.

Further, the ESA Comment suggests that lion abundance is stable or increasing within protected areas, relying on anecdotal perceptions from "informants." (ESA Comment 2015, p. 5) The IUCN assessment directly contradicts this, stating that the lion population in four well-studied areas (Ngorongoro Crater, Katavi, Matambwe (Selous GR), Serengeti, and Tarangire) decreased by 66%, from 1,787 in 1993 to only 608 in 2014 (Bauer *et al.* 2016, supplementary material, Table 3). The information also notes that abundance outside of protected areas is decreasing.

As far as the continental data on which Tanzania basis its lion management decisions, there are likely discrepancies between Tanzania's estimates and globally accepted lion population numbers. The ESA Comment cites to Riggio *et al.* for the estimate that the global wild African lion population is 32,000 to 35,000 lions (ESA Comment 2015, p. 14). Yet it is now clear that there are probably as few as 20,000 African lions remaining continentally (Bauer *et al.* 2016). Although Tanzanian authorities wrote the ESA Comment prior to the publication of the 2016 IUCN assessment, Tanzania's lion management cannot be said to enhance the survival of the species when it doesn't rely on the best available science and accept the latest IUCN assessment.

The ESA Comment is missing details on methodology for lion hunting quota determination, which is likely unsustainable if the authorities are using outdated population data

In the five years prior to Tanzania's 2015 submission, Tanzania sold approximately 500 lion hunting permits each year. (ESA Comment 2015, p. 7) There is no detailed explanation in the document of how the Tanzanian government determined that this extremely high quota is sustainable. This number of lions is approximately 6.8% of the *entire* estimated lion population in East Africa (500 lions is 6.8% of 7,345).

A recent study proposed that a sustainable offtake level for lions in Tanzania is ≤ .92 lions per 1000 km^2 (Brink *et al.* 2016, p. 7). This is a generous allotment because a 2011 study recommended that the Tanzania lion quota be limited to .5 lions per 1000 km^2 (Packer *et al.* 2011, p. 142) and a 2016 Zambia study confirmed a similar recommendation (Creel *et al.* 2016). With the generous .92 lion limit, the total *potentially* sustainable take of lions for each single hunting block (estimated by the Tanzanian government to span the total of 304,399.95 km^2) would amount to only approximately 280 lions. (ESA Comment 2015, p. 7) If the more precautionary .5 lion limit is used, then the total quota would amount to only approximately 152 lions.

Both suggested limits are by far lower than the 500 permits sold annually. Further, considering that management issues on each hunting block are unique and it is impossible that each 1000 km^2 will contain huntable lions and that other causes of removal such as human-lion conflict and disease must be taken into account, the quota of 500 lions cannot be sustainable.

Of the 500 permits sold annually, in the 2011/2012 hunting season 85 lions were killed, in the 2012/2013 season 51 were killed, and in the 2013/2014 season 54 were killed (ESA Comment 2015, p. 21-22).

The ESA Comment understates the value of photographic tourism to its economy and conservation

The submission from Tanzania suggests, "[t]rophy hunting, including lions, is the main source of revenues for the Wildlife Division. . ." (ESA Comment 2015, p. 7) As one example, the ESA Comment states that for the financial year 2013/2014, the revenue accrued from tourist hunting was 16.7 million and from photographic tourism only 5 million (ESA Comment 2015, p. 8). This raises questions about the way tourism revenues are allocated in Tanzania, whether they are distributed appropriately, and if sufficient tourism dollars are diverted into conservation. Tourism's overall contribution to Tanzania's GDP was a whopping 5.1% of total GDP in 2014. (TanzaniaInvest 2014)[10] The ESA Comment offers no explanation as to why so few photographic tourism dollars are channeled into the Wildlife Division.

Tanzania's comment offers inconsistent information on the distribution of funds from trophy hunting to communities

In one part of the ESA Comment, the Tanzania authorities state that Wildlife Management Authorities (WMAs) get around 60-65% of the revenue from trophy hunting, whereas in another section the claim is that 75% of the block fees are disbursed to WMAs (ESA Comment 2015, p. 7). With inconsistent facts and absence of detailed breakdown of the distribution process followed to ensure that local communities accrue sufficient financial benefits from the trophy hunting operations, it is impossible to determine whether Tanzania's trophy hunting management offers the necessary socio-economic-cultural benefits to meet ESA enhancement criteria.

The ESA Comment claims trophy hunting is critical because it is viable in remote areas, but many blocks are adjacent to protected spaces

[10] TanzaniaInvest, TanzaniaInvest is happy to announce that its Newsletter Database of registered users recently surpassed the 10,000 mark. Sep 23, 2014. http://www.tanzaniainvest.com/economy/tanzaniainvest-10000-registered-newsletter-users

ESA Comment states "[h]unting is able to generate revenues under a wider range of scenarios than ecotourism, including remote areas lacking infrastructure, attractive scenery, or high densities of viewable wildlife." (ESA Comment 2015, p. 8) Yet the 1995 draft management plan said that protected areas, like national parks where photographic tourism thrives, are "core areas providing wildlife that can be hunted in surrounding areas once it voluntarily moves one kilometre outside" (Policy and Management Plan, p. 12). Therefore, many of the hunting blocks are actually in key ecoutourism hotspots, meaning there is potential these areas are attractive to tourists and therefore could remain protected and well-funded even if hunting was not permitted there. Further, unsustainable trophy hunting that occurs in the areas adjacent to protected areas can have a detrimental impact on the viability of these parks as hunting depletes wildlife and diminishes tourism's draw.

In fact, 60% of the lion's range lies in "core protected areas" and 80% of the estimated individuals "range inside National Parks, Game Reserves, Wildlife Management Areas, etc." (ESA Comment 2015, p. 9). Therefore, lions are trophy hunted in areas that would be very attractive for photographic tourism.

Tanzania mistakenly claims that trophy hunting does not contribute to lion overutilization

The ESA Comment concludes, "Trophy hunting is highly conservative and strictly controlled and thus does not constitute [sic] to the overutilization of the population." (ESA Comment 2015, p. 12) This is not accurate, in fact a 2016 study reveals, "trophy hunting of lions is having a negative impact on populations" (Brink *et al.* 2016, p. 9; Packer *et al.* 2011; Packer *et al.* 2009; Kiffner *et al.* 2009; Loveridge *et al.* 2006). The hunting blocks that killed the greatest number of lions, likely incentivized by a system that penalizes outfitters that utilized less than 40% of the quota (see above discussion), eventually showed the steepest drop in lion hunts (Brink *et al.* 2016, p. 10). The drop may be an indicator of falling lion population numbers in those blocks. It appears the penalty system is still in place (Brink *et al.* 2016, p. 10). Further, overhunting on one property can lead to population sinks in neighboring property, as lions from the un-hunted or under-hunted properties cross into the over-hunted blocks (Brink *et al.* 2016, p. 11). See detailed discussion below.

Problematic implementation of age identification requirements

Age-based lion hunting restrictions are in effect in Tanzania since the 2012/2013 hunting season (ESA Comment 2015, p. 15). Although the Tanzanian government has provided training to the hunting industry on identification of age appropriate lions as well as related guidelines, the ESA comments do not indicate that hunters have to pass any type of examination to prove their ability to age the lions. How does the government certify that the professional hunter is prepared to follow the guidelines? Further, the training must be continuous to ensure that improved aging methodology is disseminated to all hunting blocks. The ESA Comment provides insufficient information on this type of training and its effectiveness.

- **USFWS Cannot Rely on Tanzania's 2006 Lion and Leopard Conservation Action Plan to Make an Enhancement Finding**

Following upon the recommendation in the Conservation Strategy that each range state implement the 2006 plan at the national level, Tanzania adopted the 2006 Tanzania Lion and Leopard Conservation Action Plan (hereinafter Action Plan). Adapting the same objectives outlined in Table 1 (see above), the Action Plan further details Tanzania-specific actions as well as responsible entities for each action. The plan revealed significant concerns with lion trophy hunting management in Tanzania, enforcement of age limits on hunted lions, and general governance.

The 2006 action plan did not outline a program that would amount to a net conservation benefit

According to the action plan, "Trophy hunting has traditionally been based on a quota system, but lion quotas have never been set scientifically" (Action Plan, p. 70) and "[l]ions are essentially impossible to count, so lion quotas could never be scientifically based." (Action Plan, p. 73) Further, the plan addressed the challenges of conducting population censuses for lions and presented advantages to using "age-minimum" restrictions as a solution. Therefore, any evaluation of Tanzania's lion management must determine whether or not age limits for trophy hunted lions are appropriately complied with.

In 2004, the Tanzania Hunting Operations Association adopted a six-year age minimum for lion trophy hunting,[11] yet the trophy hunting industry failed to implement this requirement with internet advertisements including "numerous photographs of trophy lions shot in 2004 and 2005 that were clearly less than 4 yrs old." (Action Plan, p. 73) Further, lions on Tanzania's hunting reserves were rarely even reaching six years of age, with many trophy hunted at just two years old. (Packer *et al.* 2009, p. 6; Trophy Hunting and Big Cat Conservation Forum 2016, Dr. Craig Packer Slides[12]) Killing lions that are this young can be disastrous, potentially causing long-term declines.

As highlighted in the Action Plan, some of the major challenges to the implementation of the age restrictions were the lack of transparency and compliance from the hunting industry, as well as absence of training on estimating lion ages for the professional hunters. (Action Plan, p. 72, 73, and 77) The plan also reflected that the hunting industry applied inconsistent trophy measurement methods and record keeping at the time the plan was written. (Action Plan, p. 91) In summary, the Action Plan recommended to counter these problems of compliance by 1) requiring training for professional hunters; 2) requiring inspection for all lion trophies prior to export; and 3) requiring that a neutral third-party auditor perform all inspections.

If Tanzania's government authorities and hunting industry never implemented these recommendations, as it appears from available evidence, then the Service cannot lawfully make an enhancement population for lion trophy imports from Tanzania.

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[11] In 2010, the six-year age limit was mandated through regulations issued by the Wildlife Division of the Ministry of Natural Resources and Tourism. However, these regulations did not enter into force until the 2012/2013 hunting season (ESA Comment 2015, p. 15).

[12] National Geographic. Trophy Hunting and Big Cat Conservation Forum. August 10, 2016. Available at: https://www.nationalgeographic.org/projects/big-cats-initiative/livestream/.

The 2006 Action Plan revealed significant issues precluding effective management and governance

According to the plan, a variety of impediments exited at the time that precluded the necessary governance structure that would effectively ensure that lion trophy hunting was biologically sustainable. As cited in the plan:

> Many of the threats to lions and leopards, including those listed above, can be linked to issues to do with management. For example, indiscriminate retaliatory killing, such as poisoning, might result because the local district office has not responded sufficiently rapidly to a request for problem animal control. Another example is that the lack of a clear legal framework outside protected areas and outdated laws leaves communities with little say in the way wildlife resources are used in their areas, and little clear benefits. Whilst these are being addressed through the Wildlife Management Area (WMA) framework, few WMAs have yet received formal approval. Many aspects of inadequate management often results from a lack of resources and personnel, as well as insufficient information, such as can be gained by monitoring. (Action Plan, p. 96)

Tanzania must present sufficient information to prove that the management and governance issues raised in the 2006 Action Plan have been resolved. Notably, the 2015 Review of Lion Conservation Strategies for CMS broadly criticized implementation of all 2006 commitments, including the Tanzania Action Plan as follows:

> In contrast, our analysis has shown that the Strategies have had mixed success: implementation of the Strategies has been fragmented and partial. The partial implementation may in some instances have slowed down the declines, but the fact is that the goal has not been achieved and that decline in numbers and range of lions continues across most of Africa. Many countries and organizations have implemented lion conservation projects; these surely mitigated declines and possibly contributed to objectives on conflict mitigation and distribution of benefits, but they were not explicitly implemented within the framework of the Strategies and have not resulted in the achievement of their objectives. We note that follow-up of the implementation of the Strategies has been absent, and we consider this to be an inherent weakness of the strategic planning process as practiced a decade ago. (Bauer *et al.* 2015, p. 16)

Therefore, Bauer *et al.* 2015 confirmed that overall implementation has been partial and that while some activities have slowed lion population declines, follow-up on the implantation is absent.

- **Tanzania's 2006 Conservation Strategy for Lions in Eastern and Southern Africa Has Not Even Been Implemented**

At the Eastern and Southern African Lion Conservation Workshop held in Johannesburg in January of 2006, the attending lion range states, specialists, and other attendees developed the Eastern and Southern African Lion Conservation Strategy (hereinafter Conservation Strategy).

The plan outlined a series of critiques of existing lion management strategies that necessitated the collective regional effort, among which were concerns with trophy hunting and general lion management:

- "Improperly managed trophy hunting was also considered to be adversely affecting several lion populations" (Conservation Strategy 2006, p. 20).
- "There is a widespread lack of government resources and professional capacity to undertake lion population monitoring and management" (Conservation Strategy 2006, p. 20).
- "Trophy hunting is an important revenue generator and management tool for governments, but concerns have been raised in some areas about potentially unsustainable offtakes" (Conservation Strategy 2006, p. 20).
- "Wildlife-integrated land use, policies and planning are non-existent in many places" (Conservation Strategy 2006, p. 22).
- "Multi-lateral Environmental Agreements and International Conventions (CBD, CITES, CMS, etc.) are often poorly integrated into regional and/or national policies, and sometimes contravene the sustainable use of lions" (Conservation Strategy 2006, p. 22).
- "Illegal trade is largely due to ineffective law enforcement, which is in turn due to weak capacity and motivation within law enforcement agencies and a lack of knowledge on this trade" (Conservation Strategy 2006, p. 22).

In ranking the threats to lion survival, the Conservation Strategy actually failed to assess the detrimental impact trophy hunting may have had on lion populations throughout Eastern and Southern Africa. The strategy states that when "[t]he technical session [] ranked a set of factors according to expected impact on the viability of all lion populations in the region," it excluded trophy hunting "due to the difficulty of separating potentially negative biological impacts on lion populations from improperly managed offtakes from potentially positive socio-economic impacts on lion conservation" (Conservation Strategy 2006, p. 20). Therefore this issue was not given the attention it deserves in the drafting of the Conservation Strategy.

The following table outlines the vision, goal, and six objectives of the Conservation Strategy:

Table 1: 2006 Conservation Strategy for the Lion in Eastern and Southern Africa Vision, Goal, and Objectives.

Vision: a sustainable environment for the mutual benefit of lion populations and people in perpetuity.	
Goal: To secure, and where possible, restore sustainable lion populations throughout their present and potential range within Eastern and Southern Africa, recognizing their potential to provide substantial social, cultural, ecological and economic benefits.	
Objectives	
Management:	To ensure effective conservation management of lions, their habitats and wild prey.
Mitigation:	To minimize and, where possible, eliminate human-lion related conflicts.
Socio-economics:	To equitably distribute the costs and benefits of long-term lion management.

Policy and land-use:	To develop and implement harmonious, comprehensive legal and institutional frameworks that provide for the expansion of wildlife-integrated land-use, lion conservation and associated socio-economic benefits in current and potential lion range.
Politics:	To ensure that global policies better reflect the will and intent of regional and national sustainable use policies and practices.
Trade:	To prevent illegal trade in lions and lion products while promoting and safeguarding sustainable legal trade.

Source: Conservation Strategy 2006, p. 24-40.

At the request of the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), subsequent to the adoption of a resolution on lions at the 11th Conference of the Parties to CMS in Quito (November 2014), a group of experts evaluated this and the other regional lion conservation strategy for West and Central Africa. The experts concluded that implementation has been disjointed and incomplete (Bauer *et al.* 2015, pg. 16). The analysis also stated, "[w]e cannot evaluate to what degree these activities were implemented within the framework of the IUCN Regional Lion Conservation Strategies, nor whether or to what extent they contribute to the achievement of their objectives." (Bauer *et al.* 2015).

The May 2016 African Lion Range State Meeting (Entebbe, Uganda) further confirmed these conclusions. The range States stated, "in light of limited technical and financial resources, many Range States struggled to implement and institutionalize the Strategies at the national level" and emphasized "that the lack of resources and capacity has impeded the implementation of lion conservation activities on the ground." (Entebbe 2016, pg. 2).

It is evident that there have been significant impediments to effective implementation of the 2006 Conservation Strategy for the Lion in Eastern and Southern Africa, including Tanzania. Noting this puts into question Tanzania's ability to ensure that any type of lion trophy hunting management program meets the enhancement criteria under the U.S. Endangered Species Act.

- **Tanzania's 1995 Policy and Management Plan for Tourists Hunting Remains Unimplemented and Cannot Support an Enhancement Finding by USFWS**

The proposed 1995 Policy and Management Plan for Tourist Hunting (hereinafter Policy and Management Plan) offered recommendations to improve Tanzania's trophy hunting management. Although the 1995 Director of Wildlife approved the plan, Tanzanian authorities never implemented it (Brink *et al.* 2016, p. 12).

Draft 1995 plan did not meet ESA biological sustainability requirements

The draft plan provides that although trophy hunting is not permitted in National Parks and Ngorongoro Conservation Area, these conservation spaces are "core areas providing wildlife that can be hunted in surrounding areas once it voluntarily moves one kilometre outside" (Policy and Management Plan, p. 12). Such utilization of conservation areas is highly problematic because it may lead to long-term population declines within the protected areas, as animals from the park cross over into hunting blocks.

Another section of the proposed 1995 plan outlines the "kill" target for the quota, where it states that every land owner allocated a block must "ensure that no less than 40% of the prescribed animal quota is utilized" and requires that a penalty be paid in the case this target is not reached (Policy and Management Plan, p. 15). This type of system forces hunting block owners to ignore their own management decisions, which may including hunting fewer lions than 40% of the quota, or face a penalty.

Further, the draft plan outlines that "sustainable" quotas will be determined by the Department of Wildlife based on: "a) Available data from aerial and ground censuses; b) Data from standard questionnaires completed by wildlife and village scouts, who accompany hunting clients, on animal abundance and sightings and hunting success; c) Data from outfitters on all animals hunted, including on trophy size using the standard Safari Club measuring system, and on other biological parameters such as hunting success, body weights and measurements, and age; d) Data from village scouts living within hunting areas, where rural communities have begun to manage wildlife" (Policy and Management Plan, p. 16). However, lion populations are notoriously difficult to estimate. According to the Tanzania Lion and Leopard Conservation Action Plan, "[t]he only reliable method for counting lions is through individual recognition and intensive study . . ." (Action Plan, p. 71). It further confirms that that while the Ngorongoro Crater may be "the easiest ecosystem in the world to count lions," it has been "impossible to obtain comparable data on the Tarangire lions." (Ibid.) Therefore, the four-step plan outlined for quota determinations was unlikely to produce biologically sustainable limits.

Draft plan acknowledges that communities saw little benefit from trophy hunting of lions

First, the draft plan recognized that "to date, the rural communities on whose land tourist hunting takes place, or which border hunting blocks, have received few tangible benefits from the industry." (Policy and Management Plan, p. 4) While the plan proposes that "[t]o effect a general policy of community-based conservation throughout Tanzania, Wildlife Management Areas will be established and managed by rural communities which form Authorised Associations," it also proposes that "interim arrangements" be made for management of hunting blocks whereby "the Director will approve all quotas for, and make all arrangements . . . on behalf of the respective rural communities" and "will continue to collect fees deriving from these hunting blocks" (Policy and Management Plan, p. 18). The draft plan offered no indication on how long this interim phase would last and when the community involvement would increase.

Despite changes in the regulatory framework of Wildlife Management Areas (WMA) since 2012 – which endeavored to strengthen links between wildlife management and communities – the desired outcomes have not been achieved. In fact, the Service has already found that "the revenue retention by WMAs is insufficient to "finance and motivate sound management decisions" and WMAs are "not sufficiently effective to lift rural communities out of poverty." (FWS 2015 NDF, p. 3)

Trophy Hunting in Tanzania is Biologically Unsustainable and Contributes to Long-term Decline

The negative effects of trophy hunting on lion populations in Tanzania are well-documented. According to the latest IUCN assessment, trophy hunting ". . . may have at times contributed to population declines in Botswana, Namibia, Tanzania, Zimbabwe (Packer *et al.* 2009, 2011, 2013), Cameroon (Croes *et al.* 2011) and Zambia (Rosenblatt *et al.* 2014)" (Bauer *et al.* 2016).

Between 1996 and 2008, lion offtakes across Tanzania dropped by 50% (a strong signal of a declining population)[13], with the sharpest decrease in areas where the initial harvest was the highest (Packer *et al.* 2011, p 142). The study found that "[a]lthough each part of the country is subject to some form of anthropogenic impact from local people, the intensity of trophy hunting was the *only* significant factor in a statistical analysis of lion harvest trends" (emphasis added) (Packer *et al.* 2011, p.142). The 2014 analysis from Dolrenry *et al.* (2016) confirms that lions are significantly threatened in Tanzania despite the presence of a "strong trophy hunting sector," in part due to "overexploitation due to poor management of trophy hunting" (Dolrenry *et al.* 2016, p. 1).

Following "dramatic declines in lion harvests that resulted from over-hunting," Tanzania "has taken measures to limit lion offtakes to males that are at least 6 years of age." (CITES Periodic Review AC27 2014, p. 14) Given this threat, the CITES Animals Committee recommended in 2014 that "[g]iven the overall rarity of the species and its extreme sensitivity to habitat loss and problem animal conflict, hunting offtakes should be monitored far more closely so as to minimize the impact of international trade." (Ibid)

Most recently, Brink *et al.* (2016) assessed the Tanzanian lion trophy hunting industry, and determined that financial interests and the temptation of short-term returns have led to unsustainable offtakes of lions from hunting blocks. (Brink *et al.* 2016, p. 3) In Tanzania, some hunting blocks are managed long-term and some are subleased and used short-term. Hunting companies with short-term use blocks (including those available in Msolwa, Ilonga and Matambwe) have a lower incentive to manage the lion population with a long-term view and are documented to have the highest offtake (twice the recommended number). (Brink *et al.* 2016, p. 11) While generating the greatest income for the government, the overharvest has led to declines in annual lion offtake (i.e. a scarcity of lions) at a cost to neighboring unhunted areas from which better-managed populations cross over into the hunting areas. (Brink *et al.* 2016, p. 11)

Significant Issues with Hunting Quota Guidelines, both Historically and Under Current Practice

Tanzania lacks accurate and updated lion abundance information

Sustainable hunting quota allocation requires accurate and current estimates of abundance. Lion abundance can be difficult to monitor because "their biological traits (e.g. low density, cryptic

[13] "[P]revious researchers have suggested that hunting offtake data are a proxy for this population data, principally because hunting companies put a large amount of effort into finding lion trophies, and so any changes in the underlying population are reflected in the number of lions hunted." (Brink *et al.* 2016, p. 6)

colouration and behaviour) make them difficult to monitor and hence wildlife managers rarely have access to reliable information on population trends, and long-term information at the community level is almost completely lacking." (Durant *et al.* 2011, p. 1490) Further, because lion populations can decline very quickly and dramatically, it is recommended that estimates are "frequently up-dated." (Action Plan 2006, p. 72) In the absence of reliable data, the government must err on the side of extreme caution when determining a sustainable offtake quota, which is not the current practice.[14]

The latest Tanzania-specific lion abundance estimate is from Mésochina et al. (2010), seven years ago. January 2015 comments from the Ministry of Natural Resources and Tourism submitted to FWS rely, in part, on data from 321 "informants" in Protected Areas and in Districts (ESA Comment 2015, p. 5). This anecdotal data concludes that lion abundance is "stable or increasing within Protected Areas" and "decreasing outside Protected Areas." (Ibid). Yet the Ministry offers no information about the identity of these informants, nor about the potential basis for these conclusions, meaning there is little transparency and no opportunity for scientific review.

The International Union for Conservation of Nature (IUCN) 2016 assessment for *Panthera leo* contradicts these informant conclusions. According to inferred lion population trends based on interpolated census data from 1993 through 2014 in 47 monitored lion subpopulations, the populations of all but one Protected Area have significantly declined.

Table 1: IUCN 2016 *Panthera leo* Assessment: Supplementary Information (Population Trends)

Sample Tanzania Subpopulation	Estd. Lions (1993)	Est. Lions (2014)	Percent Change
Ngorongoro Crater	61	55	-10%
Katavi*	1,118	0	-100%
Matambwe	124	98	-21%
Serengeti	232	314	+35%
Tarangire	252	141	-44%
Total	**1,787**	**608**	**-66%**

*In Katavi National Park, "[l]ions are extant but at a density so low as not to be detected" and its "population decline remains uncontested." (Bauer *et al.* 2016)

As Table 1 demonstrates, the monitored subpopulations of Ngorongoro Crater, Katavi, Matambwe, and Tarangire, are estimated to have fallen by 10%, 100%, 21%, and 44% respectively between 1993 and 2014. Therefore, it is unclear how the informants were able to determine that populations in Protected Areas are "stable or increasing," when that directly opposes the IUCN findings. Many questions remain unanswered about this conclusion. What was the methodology used to estimate the current population? Were the findings initially made for a smaller segment and then

[14] We further note that Tanzania is in category 3 for national legislation implementing CITES and generally believed to not meet the requirements for implementing CITES. (Available at: https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-22-A3-R1.pdf).

extrapolated to the entire subpopulation site? What is the period of time for which the populations were found to be "stable or increasing"?

Populations outside Protected Areas are poorly monitored and therefore it is impossible to assess the accuracy of the informant conclusion that lion populations outside Protected Areas are decreasing. All of this brings into question the ability of the Tanzania government to monitor trends in populations appropriately and to base lion quotas on best available science. As stated previously, the 2006 Action Plan cites that "lion quotas have *never* been set scientifically" (emphasis added) (Action Plan 2006, p. 70).

The Ministry's submission to FWS explains that the Tanzanian government launched a national large carnivore survey in 2014, predominantly focused on spoor count methodology (ESA Comment 2015, p. 25-26). The Wildlife Division and TAWIRI are carrying out the survey. The findings of this survey are not discoverable online. Regardless, experts suggest that "consistent, rigorous large-scale surveys" must be conducted by independent agencies – neither the Wildlife Division or TAWIRI constitute independent agencies and the findings of this survey may be unreliable (Bauer *et al.* 2015).

Hunting quotas exceed estimated sustainable offtake levels

Hunting quotas are determined by "the Quota Allocation Advisory Committee comprised of wildlife conservation experts from TAWIRI, the University of Dar es Salaam, Sokoine University of Agriculture, University of Dodoma, the College of African Wildlife Management and the Wildlife Division (which is the CITES Management Authority)." (ESA Comment 2015, p. 7) However, it is not clear what role anecdotal population details and input from informants plays in the determinations made by this Committee and whether this determination is available for scrutiny by conservation experts.

Historically, a large percentage of the hunting blocks received quotas that far exceeded estimated sustainable offtake. For example, Caro *et al.* (2009) estimated that a sustainable hunting quota for Tanzania lions is 5.1% of a hunting block's population, or 4.6% if one accounts for incidental take of juvenile males. (Caro *et al.* 2009, p. 919) The same study further concluded that 20, or nearly half, of the 43 Selous Game Reserve hunting blocks leased to hunting safari companies between 1988 and 1997 received quotas that *by far* exceeded the 4.6% offtake (at times representing as much as 10% or 20.5% of block's population). (Caro *et al.* 2009, p. 926-928) Although the actual offtake in that period seldom met the full quota, this demonstrated that some hunting blocks received excessively generous quotas that were not scientifically sound. Note that the Tanzanian government has since designated an additional 14 hunting blocks since 2002. (Brink *et al.* 2016, p. 4)

Further, subsequent recommended sustainable offtakes for lion trophy hunting were .5 lions per 1000 km^2 (Packer *et al.* 2011, p. 142) and $\leq$ .92 lions per 1000 km^2 (Brink *et al.* 2016, p. 7). If the more precautionary .5 lion limit is used, then the total quota would amount to only 152 lions annually for the 304,399.95 km^2 of hunting blocks. With the more generous .92 limit, the total would be 280 lions annually. Both estimates are far below the excessively high 500 lion hunting permits sold by Tanzania each year (ESA Comment 2015, p. 7).

Quotas serve as a target, not a limit, thus incentivizing unsustainable offtake

Dr. Craig Packer is one of the world's foremost lion experts who studied the species in Tanzania since 1978 before the government suddenly withdrew his research permit in 2014, in response to his comments raising concerns about the sustainability of lion trophy hunting and Tanzania's corruption (Packer 2015). In August of 2016, Dr. Packer spoke at the World Lion Day event hosted by National Geographic and commented thus on the issue of lion quotas:

> "You and I might think of quotas as a limit of how many you are allowed to shoot – but to them [in Tanzania] it was a production target. You got to maintain your quotas, and if you didn't shoot enough lions, the government would take away your hunting block and give it to somebody else who promised to shoot more lions. So the only way they could maintain those high quotas, those production targets, was to keep shooting and shooting and shooting all the way down to those younger age classes." (Trophy Hunting and Big Cat Conservation Forum 2016)

In fact, as of 2004, outfitters were obligated to "utilise the wildlife on quota to generate revenue not less than 40% of the value of the total quota allocated" and if the outfitter failed he or she was "required to make a top-up payment to the Wildlife Division to meet the 40% minimum." (Baldus and Cauldwell 2004, p. 6). This is still the case (Brink *et al.* 2016, p. 10) Therefore, even if hunting companies make the management decision that meeting 40% of the quota is not the best approach for their property or the property does not have a sufficient number of lions that fit the age requirements, there is a contrary incentive to overhunt and kill below the age limit.

Further, according to Brink *et al.* (2016), because higher lion offtake leads to higher income for the government, this also creates an incentive to grow the quota beyond sustainable levels, which ultimately lead to declines in lion populations (as evidenced by decreasing offtakes). The study explains:

> [T]he trophy fees for lion are higher than for other animals ($4900/lion in 2009) and this creates pressure for setting higher quotas, as increasing the number of lion on quota greatly increases government income. This leads to higher lion hunting offtakes and then declines in offtake. Thus, the blocks with the greatest declines in lion trophy hunting from 1996–2008 were the same blocks that provided the government with the most income per km^2 from 1996–2003. (Brink *et al.* 2016, p. 10)

Tanzania has not Taken All Necessary Steps to Eliminate Corruption in the Implementation of Trophy-hunting

According to the 2016 Corruption Perception Index (CPI) ranking from Transparency International, Tanzania ranks as 116 out of 176, placing it in the lower 32% of all countries assessed.[15] As detailed in Dr. Craig Packer's attached declaration, corruption is rampant in the

[15] https://www.transparency.org/news/feature/corruption_perceptions_index_2016

trophy hunting industry in Tanzania, and the country has suppressed and expelled independent scientists who publish data that contradicts the country's claims that trophy hunting is sustainable.

According to the Ministry of Natural Resources and Tourism "Hunting companies are allocated hunting blocks for tenure of five (5) years subject to annual review of company's performance. The process of allocating hunting blocks for the 2013 to 2018 [sic] was concluded in 2011" (ESA Comment 2015, p. 7) Described as a "closed-tender system" or a "process of selling a product by inviting a specific group of potential buyers to provide a written offer by a specified date" (80 Fed. Reg. at 80022), allocation of Tanzania's hunting blocks is fraught with corruption. At the 2016 World Lion Day event hosted by the National Geographic, Dr. Packer made the following statement about hunting block allocation:

> "Well in Tanzania, they have about 300,000 km^2 of hunting blocks – that's a huge huge estate for hunting – but it only generates about $15 million a year in hunting revenues, which is $50 per kilometer squared per year. And you need to have about $2,000 per square kilometer, so that's how far the shortfall is from sport hunting. So then you can ask, well wait a minute, you got all this land, you're making such a big deal about it, how come the revenues are so incredibly low? Well they're low because who gets the hunting blocks are the result of a patronage system. *So it's current and recent elected officials who get the blocks.* They are getting the money themselves, its not going to the government and hence it's not back into anti-poaching. It's corrupt insiders - and these are really corrupt people who have these hunting blocks - and because they're corrupt, they don't really care about conservation for the most part; there is no re-investment. And this has shown up very dramatically in Tanzania because in the last dozen years or so, one-third of the hunting blocks have been de-gazetted because they didn't raise any money; there is no wildlife left. So there is nothing. So they've failed to conserve a vast portion of the land that is in their domain" (emphasis added) (Trophy Hunting and Big Cat Conservation Forum).

In 2012, then Minister of Natural Resources and Tourism, Ambassador Khamis Kagasheki, issued a warning to trophy hunters against paying off elected officials to side step hunting rules and procedures (Kimati 2012).[16] Ambassador Kagasheki made the following comments before the Tanzania Safari Outfitters Association (TASOA):

> "You have a lot of cash, that much I know. Some of you have become sources of bad influence to government officials. Please stop bribing them and let them perform their duties professionally. As a result, some of you have their requests attended quickly while others have to wait for so long. This is not proper. It is my duty to prove to President Jakaya Kikwete and the people of Tanzania that I deserve the trust they have put on me. How come an individual is found in possession of more than eight hunting blocks under different names? This is unacceptable and the legislation on hunting blocks allocation is bad and must be revisited." (Kimati 2012)

[16] Kimati, B. (2012). Tanzania: Kagasheki Warns Corrupt Hunters. Tanzania Daily News (Dar es Salaam). Available at: http://allafrica.com/stories/201209060195.html.

The distribution of power and decision-making has also come under harsh criticism, as expressed in the following commentary from "Breakthrough Attorneys"[17], a Tanzanian law firm:

> The Law and its regulations have vested a lot of discretional powers on the Minister and the Director of Wildlife. These powers open a *leeway for abuse of power and corrupt practices*. The Minister personally, has wide powers which include; declaring blocks, granting and cancelling allocations, approve transfers and so forth. The Director on the other hand has powers on issuing licenses, permits, hunting block certificate of grant, setting standards of trophies for each hunting company etc. Breakthrough Attorneys' lawyers having been in the forefront during the 2013 – 2018 tenure grants and its aftermath, opines that most of the existing hunting blocks' disputes (which are more than 20) could have been avoided if the discretional powers of these key executives were thinned. A lot of failed bidders claimed foul play and that the allocation decision were uninformed and one sided. A number of cases are still pending in the High Court of Tanzania and most with injunctive writs invoked to completely.

There is no evidence that the issue of corruption in the trophy hunting industry in Tanzania has abated. For example, as recent as June 2016, The Humane Society of the United States and Humane Society International strongly urged the Tanzanian government to rescind its decision to grant a hunting concession to Green Mile Company Limited, an operator expelled from Tanzania in 2014 for appalling and abusive trophy hunting of wildlife. (Green Mile Press Release, 2016; Fernholz, 2016). Green Mile was inexplicably awarded exclusive hunting rights in the Lake Natron Game Control Area even though in 2014 they were clearly in contempt of the norms of proper wildlife management in Tanzania, as well as civil conduct.

Notably, one of the top elephant conservationists in Tanzania - Wayne Lotter - was recently murdered.[18] He was a key figure fighting international ivory-trafficking networks and his death demonstrates that criminal networks and corruption in Tanzania are at odds with species conservation.

Conclusion

As the home to potentially 39-42 percent of the remaining African lions, it is critical that lions thrive in Tanzania (Bauer et al. 2016). The lion population in four well-studied Tanzanian areas (Ngorongoro Crater, Katavi, Matambwe (Selous GR), Serengeti, and Tarangire) decreased by 66%, from 1,787 in 1993 to only 608 in 2014 (Bauer et al. 2016, supplementary material, Table 3), during which time American trophy hunters imported hundreds of lion trophies from Tanzania.

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[17] Breakthrough Attorneys. 28 New Hunting Block in Tanzania Available to Foreign and Domestic Investors, Analysis and Clarifications by Breakthrough Attorneys. July 10, 2015, http://www.tanzaniainvest.com/law/28-new-hunting-block-in-tanzania-available-to-foreign-and-domestic-investors-analysis-and-clarifications

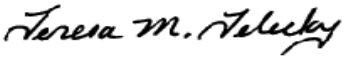
[18] Tremblay, Sophie. Leading elephant conservationist shot dead in Tanzania. The Guardian. Aug. 17, 2017. Available at: https://www.theguardian.com/environment/2017/aug/17/leading-elephant-conservationist-ivory-shot-dead-in-tanzania.

Lions face significant threats including human-lion conflict, habitat destruction, and unsustainable trophy hunting. The presence of one of the strongest trophy hunting sectors in Africa has not prevented and, in fact, is demonstrated to have contributed to the falling lion numbers.

There are significant issues in Tanzania's lion management system, including: a) excessively high and unsustainable lion hunting quotas that are far beyond recommended levels; b) issues with implementation of the six-year lion age-limit requirement; c) lack of recognition that trophy hunting has and continues to contribute to long-term lion population declines; d) reliance on lion population data that does not represent the best available science; e) understating the value of photographic tourism, especially when contrasted with the limited contribution from trophy hunting; f) inconsistent information on distribution of revenue from trophy hunting to local communities; and g) general management and governance issues, including documented corruption in the hunting block allocation process and more.

Therefore, trophy hunting of lions in Tanzania cannot be said to enhance the survival of the species, and issuing an import permit for lion trophies from Tanzania would therefore violate the Endangered Species Act and FWS regulations. Indeed, the Service has already found that Tanzania is not sustainably managing elephant trophy hunting, and we encourage the Service to apply the same level of scrutiny to Tanzania's mismanagement of lion trophy hunting. If FWS issues any lion trophy import permits from Tanzania, HSUS, HSI, and CBD will consider seeking judicial review of that decision. Further, this letter serves as formal opposition to any application for an import permit for a lion trophy from Tanzania and HSUS, HSI, and CBD request that FWS provide ten days advance notification (via email, afrostic@humanesociety.org) prior to the issuance of any such permits. *See* 50 C.F.R. §§ 17.22(e), 17.32.[19]

Sincerely,



Anna Frostic
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The Humane Society of the United States

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[19] HSUS has previously called on FWS to publish notice in the Federal Register of threatened species permit applications, and we reassert that such action is essential to create transparency in FWS' enhancement analysis for African lion activities, consistent with the intent of ESA Section 10. Similarly, it is arbitrary for the Service to explicitly apply the notification requirements of 50 C.F.R. § 17.22(e) to certain types of threatened species permits (i.e., those for Safe Harbor Agreements and Candidate Conservation Agreements with Assurances) but not to other threatened species permits (i.e., for incidental take and import).

Tanya Sanerib
Senior Attorney
Center for Biological Diversity

Primary References Attached:

Baldus, R.D. and Cauldwell, A. E. Tourist Hunting and Its Role in Development of Wildlife Management Areas in Tanzania. July 2004. Available at: http://www.wildlife-baldus.com/download/hunting_wma.pdf.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L. T., Macdonald, D.W. & Packer, C. 2015. Lion (*Panthera leo*) populations are declining rapidly across Africa, except in intensively managed areas. Proceedings of the National Academy of Sciences, 112(48), 14894-14899.

Bauer, H., Chapron G., Nowell K., Henschel P., Funston P., Hunter L., Macdonald D., Dloniak S., Packer C. Reply to Riggio et al.: Ongoing lion declines across most of Africa warrant urgent action. 2016a. PNAS 113 (2) E109; published ahead of print December 30, 2015, doi:10.1073/pnas.1522741113. Available at: http://www.pnas.org/content/113/2/E109.short.

Bauer, H. Response to rebuttal of the 2015 Lion assessment on The IUCN Red List of Threatened Species (Ref No HA. 143/151/01/51). May 10, 2016b. [submitted to Tanzania's then Acting Director of Wildlife, Mr. C.J. Mulokozi]

Bauer, H., Packer, C., Funston, P.F., Henschel, P. & Nowell, K. 2016c. *Panthera leo*. The IUCN Red List of Threatened Species 2016. e.T15951A107265605. http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T15951A107265605.en.

Benyr, G., Czirak, Z., Littlewood, A. A Report to the EU CITES Scientific Review Group on the EU Expert Mission to Assess the Sustainability and Management of Lion and Elephant Trophy Hunting in Tanzania. Part 1 & 2: General Introduction and Elephant Trophy Hunting. August 2016. Available at: http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=33601&no=49.

Benyr, G., Czirak, Z., Littlewood, A. Sustainability of Lion Trophy Hunting in Tanzania. May 2017. Available at: http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=33600&no=48.

Brink, H. 2010. Hunting for Sustainability: Lion Conservation in Selous Game Reserve, Tanzania. (A thesis submitted to the University of Kent for the degree of Doctor of Philosophy in

Biodiversity Management.) Available at: http://www.wildlife-baldus.com/download/Brink_Selous%20Hunting%20and%20LionThesis_2010.pdf

Brink, H., Smith, RJ, Skinner, K., Leader-Williams, N. (2016) Sustainability and Long Term-Tenure: Lion Trophy Hunting in Tanzania. PLoS ONE 11(9): e0162610. https://doi.org/10.1371/journal.pone.0162610

Buckley, R., Frontiers in Ecology and the Environment, Mixed Signals from Hunting Rare Wildlife. Vol. 12, No. 6. August 2014. pp. 321-322.

Campbell, R. 2012. Mane Assumptions: A review of Lindsey et al (2012) – The Significance of African Lions for the Financial Viability of Trophy Hunting and the Maintenance of Wild Land, a report for the African Lion Coalition, prepared by Economists at Large, Melbourne, Australia.

Caro T, Young C, Cauldwell A, Brown D. Animal breeding systems and big game hunting: Models and application. Biol Conserv. 2009; 142: 909–929. www.cryoung.org/www/pdfs/Caro_BiolCon_2009.pdf

CITES, CMS. African Lion Range State Meeting Communiqué. May 30-31, 2016. Entebbe, Uganda. Available at: http://www.cms.int/sites/default/files/african_lions_meeting_outcome_document_e.pdf. [Entebbe 2016]

Dolrenry S, Stenglein J, Hazzah L, Lutz RS, Frank L (2014) A Metapopulation Approach to African Lion (Panthera leo) Conservation. PLoS ONE 9(2): e88081. doi:10.1371/journal.pone.0088081

Environmental Investigation Agency. The Lion's Share: South Africa's Trade Exacerbates Demand for Tiger Parts and Derivatives. July 2017. Available at: https://eia-international.org/wp-content/uploads/The-Lions-Share-FINAL.pdf.

IUCN- Conservation Strategy for the Lion in Eastern and Southern Africa. 2006. IUCN/SSC Cat Specialist Group. http://www.cms.int/sites/default/files/document/IUCN_CatSG_2006_East_and_South_Africa_Lion_Conservation_Strategy.pdf

Kasiki, S., and Hamunyela E. CITES Periodic Review of the Status of African Lion across its Range. AC27 Doc. 24.3.3. (2014). https://cites.org/sites/default/files/eng/com/ac/27/E-AC27-24-03-03.pdf

Kiffner C, Meyer B, Muhlenberg M,Waltert M. Plenty of prey, few predators: what limits lions Panthera leo in Katavi National Park, western Tanzania? Oryx. 2009; 43: 52–59. doi: 10.1017/S0030605307002335

Loveridge A, Searle A, Murindagomo F, Macdonald D. The impact of sport-hunting on the population dynamics of an African lion population in a protected area. Biol Conserv. 2006; 134: 548–558. doi: 10.1016/j.biocon.2006.09.010

Mésochina et al. (2010) Conservation Status of the Lion (*Panthera leo* Linnaeus, 1758) In Tanzania. http://www.rocal-lion.org/documents/Tanzania%20lion%20Conservation%20Status.pdf

Ministry of Natural Resources and Tourism. Policy and Management Plan for Tourist Hunting. MNRT; Government Printer, Dar es Salaam, Tanzania; 1995. Available at: http://www.wildlife-baldus.com/download/Tanzani1.pdf.

Ministry of Natural Resources and Tourism. Comment on ESA Status Review of African Lion. January 27, 2015. (Ref. No. CHA.7/533/01/). (ESA Comment)

Mtui, D., Owen-Smith, N., Lepczyk, C., 2016. Assessment of wildlife population trends in three protected areas in Tanzania from 1991 to 2012. African J. of Ecology 55(3). DOI: 10.1111/aje.12354.

Murray, C. K. The lion's share? On the economic benefits of trophy hunting. A report for the Humane Society International, prepared by Economists at Large, Melbourne, Australia. 2017. Available at: http://www.hsi.org/assets/pdfs/economists-at-large-trophy-hunting.pdf.

Packer, C., Kosmala, M,. Cooley, HS, Brink, H., Pintea, L., et al. (2009) Sport Hunting, Predator Control and Conservation of Large Carnivores. PLoS ONE 4(6): e5941. doi:10.1371/journal.pone.0005941

Packer, C., Brink, H., Kissui, B., Maliti, H., Kushnir, H., & Caro, T. (2011). Effects of trophy hunting on lion and leopard populations in Tanzania. Conservation Biology: DOI: 10.1111/j.1523-1739.2010.01576.x.

Sachedina, H.T. 2008. Wildlife is Our Oil: Conservation, Livelihoods and NGOs in the Tarangire Ecosystem, Tanzania. PhD Thesis. School of Geography and the Environment, University of Oxford. Available at: http://i2.cdn.turner.com/cnn/2015/images/05/19/oxfordstudy.pdf.

The Tanzania Lion and Leopard Conservation Action Plan. February 20-22nd 2006. Tanzania Wildlife Research Institute (TAWIRI).

United States Department of the Interior, Fish and Wildlife Service. General Advice on Importation of Sport-hunted Trophies of African Elephants taken in Tanzania in the Calendar Year 2015. July 01, 2015. (FWS 2015 NDF)

October 6, 2017

Mr. Timothy Van Norman
Chief, Branch of Permits
U.S. Fish and Wildlife Service
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Rosemarie Gnam, Ph.D.
Chief, Division of Scientific Authority
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Re: Imports of African Elephant Trophies from Zimbabwe Should Not Be Permitted

Dear Chief Van Norman and Chief Gnam:

The Humane Society of the United States (HSUS), Humane Society International (HSI), and the Center for Biological Diversity (CBD) strongly urge the U.S. Fish and Wildlife Service (FWS or "the Service") to continue prohibiting the import of African elephant trophies from Zimbabwe. As detailed herein, recent evidence demonstrates that elephants in Zimbabwe are threatened with extinction from poaching and habitat loss and Zimbabwe cannot ensure that recreational offtake of elephants is sustainable. Therefore, the Service cannot lawfully make an enhancement finding under the Endangered Species Act (ESA) for imports of elephant trophies from Zimbabwe.

ESA Requirements for Elephant Trophy Imports

Since the African elephant special rule amendment (50 C.F.R. § 17.40(e)) went into effect in June 2016, every import of an African elephant trophy is required to comply with ESA permitting requirements. Pursuant to the ESA (16 U.S.C. § 1538) and implementing regulations (50 C.F.R. § 17.40(e)), before the Service can authorize the import of an African elephant trophy it must be able to make a finding that the take of the animal enhances the survival of the species. According to the plain language of this statutory term (16 U.S.C. § 1539(a)(1)), "enhancement" permits may only be issued for activities that *positively benefit* the species in the wild. *See also* FWS, *Ensuring the Future of the Black Rhino* (Nov. 25, 2014), *at* http://www.fws.gov/news/blog/index.cfm/2014/11/25/Ensuring-the-Future-of-the-Black-Rhino (acknowledging that the ESA enhancement standard is more stringent than the CITES non-detriment standard); U.S. Fish and Wildlife Service Handbook for Endangered and Threatened

Species Permits (1996) (making clear that an enhancement activity "must go beyond having a neutral effect and actually have a positive effect").

HSUS, HSI, and CBD agree with FWS that the IUCN provides relevant standards for determining whether elephant trophy hunting meets this conservation goal. *See* 81 Fed. Reg. 36388, 36394 (June 6, 2016). We strongly encourage FWS to conduct this enhancement analysis consistent with how the Service conducts its analysis for determining whether African lion hunting meets the enhancement standard. 80 Fed. Reg. 79999, 80045 (Dec. 23, 2015). Specifically,

> "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival[], the Service will examine the <u>overall conservation and management of the subspecies in the country where the specimen originated</u> and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is <u>based on sound scientific principles</u> and that the management program is actively addressing the current and longer term threats to the subspecies). In that review, we will evaluate whether the import contributes to the overall conservation of the species by considering whether the biological, social, and economic aspects of a program from which the specimen was obtained provide a net <u>benefit</u> to the subspecies and its ecosystem" (emphasis added).

HSUS, HSI, and CBD also agree that FWS must consider the following factors when making an enhancement finding for importation of sport-hunted trophies of African elephants, as it does for African lions:

> "(a) Biological Sustainability: The hunting program cannot contribute to the long-term decline of the hunted species. It should not alter natural selection and ecological function of the hunted species or any other species that share the habitat. The program should not inadvertently facilitate poaching or illegal trade in wildlife by acting as a cover for such illegal activities. The hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity.
>
> (b) Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed. The program should produce income, employment, and other benefits to create incentives for reducing the pressure on the target species. The program should create benefits for local residents to co-exist with the target species and other species. It is also imperative that the program is part of a legally recognized governance system that supports conservation.
>
> (c) Socio-Economic-Cultural Benefit: A well-managed hunting program can serve as a conservation tool when it respects the local cultural values and practices. It should be accepted by most members of the community, involving and benefiting local residents in an equitable manner. The program should also adopt business practices that promote long-term economic sustainability.
>
> (d) Adaptive Management: Planning, Monitoring, and Reporting: Hunting can enhance the species when it is based on appropriate resource assessments and monitoring (e.g., population counts, trend data), upon which specific science-based quotas and hunting

programs can be established. Resource assessments should be objective, well documented, and use the best science available. Adaptive management of quotas and programs based on the results of resource assessments and monitoring is essential. The program should monitor hunting activities to ensure that quotas and sex/age restrictions of harvested animals are met. The program should also generate reliable documentation of its biological sustainability and conservation benefits.

(e) Accountable and Effective Governance: A biologically sustainable trophy-hunting program should be subject to a governance structure that clearly allocates management responsibilities. The program should account for revenues in a transparent manner and distribute net revenues to conservation and community beneficiaries according to properly agreed decisions. All necessary steps to eliminate corruption should be taken and to ensure compliance with all relevant national and international requirements and regulations by relevant bodies such as administrators, regulators and hunters."

Further, FWS regulations provide that "No more than two African elephant sport-hunted trophies [can be] imported by any hunter in a calendar year." 50 C.F.R. § 17.40(e)(6)(E).

Strict scrutiny of elephant trophy imports is especially imperative, given that the Service has found that uplisting the species to endangered may be warranted. 81 Fed. Reg. 14058 (March 16, 2016).

There Is No Evidence that Elephant Trophy Hunting in Zimbabwe Enhances the Survival of the Subspecies

Since 2014, the Service has been unable to make the requisite finding that hunting African elephants in Zimbabwe enhances the survival of the species. *See* 79 Fed. Reg. 44,459 (July 31, 2014); 80 Fed. Reg. 42524 (July 17, 2015). Numerous problems with Zimbabwe's elephant management remain unresolved to date: the lack of an elephant management plan; lack of sufficient data on population numbers and trends on which to base management decisions; weak implementation and enforcement; lack of evidence that legal offtake is biologically sustainable, taking into account illegal offtake; lack of information about how money from trophy hunting by U.S. hunters is distributed within Zimbabwe; and lack of a national mechanism, such as government support, to sustain elephant conservation efforts in the country. (USFWS 2014 Enhancement Finding; USFWS 2015 Enhancement Finding). Thus, the Service cannot lawfully make an enhancement finding (or non-detriment finding) for trophy imports from this population for calendar year 2016 or beyond, as detailed herein.

Lack of an elephant management plan

In the 2015 finding, the Service stated, "Zimbabwe's current elephant management plan consists of two primary documents drafted in 1996 and 1997. Although the documents provide a well-developed list of goals and objectives, there is no information on whether these goals and objectives have been met or could be met. This is supported by statements from ZPWMA that the plans are outdated and need to be revised." (USFWS 2015 Enhancement Finding, p. 17)

Subsequent to the 2015 finding, in January 2016, a new Zimbabwe Elephant Management Plan (2015–2020)[1] (hereinafter, the Plan) was signed by relevant Zimbabwean authorities. In addition to a long-term vision and targets at the national level, the Plan includes five key components (protection and law enforcement; biological monitoring and management; social, economic and cultural framework; building conservation capacity; and coordination, collaboration and program management), each with a strategic objective and outputs, as well as key activities, key performance indicators, means of verification, time frames, and responsibility. The Plan includes terms of reference for key committees and staff required to implement the Plan (National Elephant Management Committee, Regional Elephant Management Committees, and the National Elephant Manager). In addition, an Elephant Action Plan was developed for each of the four main regional populations (Northwest Matabeleland (a.k.a. Hwange area), Sebungwe, mid-Zambezi Valley, and South East Lowveld (a.k.a. Gonarezhou area). Finally, and importantly, the Plan notes that the cost of implementing the Plan will be at least $12 million per annum in operational budget alone.

While the highly ambitious new Plan is an improvement over the old plans, there is no publicly available evidence that the Plan is being substantially implemented. Certainly, as noted in the plan itself, without the required $12 million per annum in funding, it is unlikely to be implemented. As the Plan indicates: "Implementing the action plan will also require more human and financial resources than are currently available for the conservation and management of elephant in Zimbabwe" (Plan, p. 32).

The mere presence of a new elephant management plan, in and of itself, surely was not the Service's intended goal. Lack of implementation of the Plan, and lack of funding to undertake the actions in the Plan, means that the Service's conclusion about the previous old Plans (that "although the documents provide a well-developed list of goals and objectives, there is no information on whether these goals and objectives have been met or could be met") remains valid.

Lack of sufficient data on population numbers and trends on which to base management decisions

The Service's 2015 finding noted that preliminary findings from the Pan African Elephant Arial Survey, a.k.a. the Great Elephant Census, indicated that Zimbabwe's elephant population had declined by 6% since 2001, and that poaching had significantly increased. The Service noted the need for evidence that this information has been incorporated into management activities in a scientifically sound manner.

[1] http://www.zamsoc.org/wp-content/uploads/2016/04/ZIMBABWE-ELEPHANT-MANAGEMENT-PLAN-APPROVED-FINAL-1.pdf

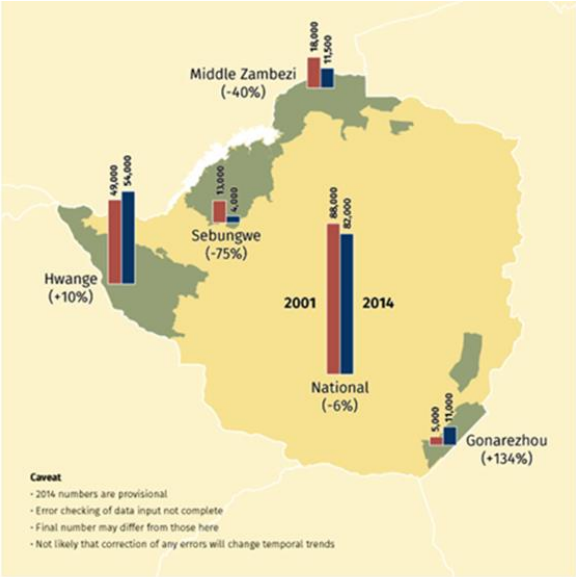

Figure 1. Zimbabwe's national elephant statistics, 2014. From The Zambezi Society Bulletin, February 2015 (http://us10.campaign-archive2.com/?u=f4943277ce971cb1c9028d068&id=50589e3c06).

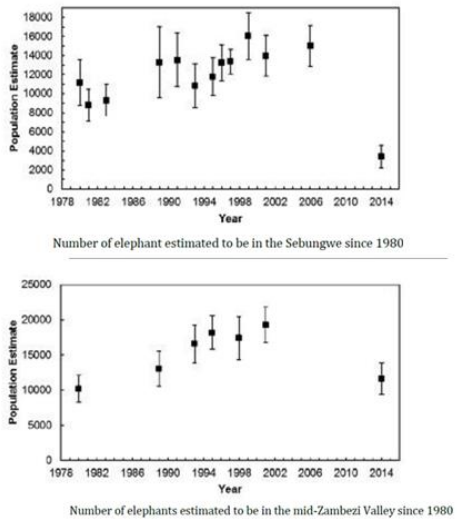

Figure 2. Number of elephants estimated to be in the Sebungwe and mid-Zambezi populations from 1980 to 2014. Source: Zimbabwe Elephant Management Plan (2015–2020), Figures 4 and 5.

Indeed, the Great Elephant Census[2] estimated that Zimbabwe's elephant population was 82,304 ±4,382 with a "carcass ratio" of 8%, meaning the survey recorded one dead elephant for every eight live elephants. The Census found that Zimbabwe's elephant population had declined by 6% overall since 2001, and that there were serious population declines in two of the four main Zimbabwe elephant populations (Figure 1). In Sebungwe, the elephant population decreased by 75%, from about 11,000 to 4,000. And in Middle Zambezi, the population decreased by 40%, from about 18,000 to 11,500. Regarding the other two Zimbabwe elephant populations, the Census found that Hwange's population had increased by 10% from about 49,000 to 54,000, and the population of Gonarezhou had increased by 134% from about 5,000 to 11,000.

While the new Zimbabwe Elephant Management Plan (2015–2020) does not reference the 6% overall elephant population decline in Zimbabwe, it does acknowledge the recent and dramatic elephant population decreases in Sebungwe (Plan, p. 7) and mid-Zambezi (Plan, p. 8) (see Figure 2).

Nevertheless, elephant trophy hunting is still occurring in both Sebungwe and mid-Zambezi,[3] calling into question whether or not the scientific evidence of significant elephant population declines in these areas have been taken into account in setting hunting quotas.

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[2] Chase MJ, Schlossberg S, Griffin CR, Bouché PJC, Djene SW, Elkan PW, Ferreira S, Grossman F, Kohi EM, Landen K, Omondi P, Peltier A, Selier SAJ, Sutcliffe R. (2016) Continent-wide survey reveals massive decline in African savannah elephants. PeerJ 4:e2354 https://doi.org/10.7717/peerj.2354; https://static1.squarespace.com/static/5304f39be4b0c1e749b456be/t/57c71f5fcd0f68b39c3f4bfa/1472667487326/GEC+Results+Country+by+Country+Findings+Fact+Sheet_FINAL_8+26+2016.pdf; http://www.greatelephantcensus.com/final-report.

[3] ZPWMA, *Sebungwe Elephant Management Workshop* (2015), http://www.zamsoc.org/wp-content/uploads/2016/04/Sebungwe_Elephant_Mgmt_Proceedings_29May_Compressed.pdf; https://www.bookyourhunt.com/elephant-hunting-in-zimbabwe

In Sebungwe, hunting blocks in both Chirisa and Chete Safari Areas, were auctioned in 2015 (ZPWMA 2015a, ZPWMA 2015b), with four male elephants on offer in each Area, plus two tuskless elephants in Chirisa. Hunting company Sitatunga Zimbabwe currently offers elephant hunts in Chirisa stating, "Average bull size being in the region of 40 – 45 pounds a side, occasionally 50 lbs can be achieved."[4] Elephant hunting is also curently offered in the Gokwe rural area in Sebungwe: "Elephant hunts in these areas for trophy bulls will produce ivory from around 30-35 pounds per side upwards; tuskless elephant hunting is very good in this area."[5]

There are five Safari Areas in the mid-Zambezi area: Sapi, Chewore, Hurungwe, Dande, and Doma.[6] Together, Mana Pools National Park, and Sapi and Chewore Safari Areas are a World Heritage Site. The 40th meeting of the World Heritage Committee, held 24-26 October 2016, adopted Decision 40 COM 7B.84,[7] which included:

> "4. Notes with significant concern that the 2014 national aerial survey of key wildlife species has revealed a decline in the Zambezi Valley populations of elephants and other mammals which are key attributes of the Outstanding Universal Value (OUV) of the property, and that the threat of poaching is currently too high to consider a feasibility study for a possible reintroduction programme of black rhinoceros;
>
> 5. Notes the development of an anti-poaching strategy for the property and a broader elephant management plan for the Zambezi Valley, and also requests the State Party to ensure that they are fully resourced and effectively implemented so as to restore and maintain the property's OUV;
>
> 6. ***Regrets that the State Party has not been able to complete the new management plan for the property due to lack of funds*** and encourages it to apply for International Assistance to support this work;" **(emphasis added)**

The 2016 Report on the Monitoring of Illegal Killing of Elephants (MIKE) to CITES COP17 noted that the percentage of illegal killing of elephants or "PIKE also increased substantially in . . . Chewore (Zimbabwe; by 69%, from 0.17 to 0.29)."[8] Therefore, it is clear that Zimbabwe has not completed the new management plan for the mid-Zambezi area. Given the lack of funding to complete a new management plan, it seems unlikely that even if such a plan were prepared, it would be fully resourced and effectively implemented.

Nonetheless, elephant trophy hunting is continuing in the Safari Areas in the mid-Zambezi, calling into question whether or not the significant elephant population decline in this area has been taken into account in setting hunting quotas. Charlton McCallum Safaris took numerous

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[4] https://www.bookyourhunt.com/Tour/8709
[5] http://www.zingelasafaris.com/zimbabwe/area/
[6] http://whc.unesco.org/en/list/302/
[7] World Heritage Convention, Decision 40 COM 7B.84, *Mana Pools National Park, Sapi and Chewore Safari Areas (Zimbabwe)* (2016), http://whc.unesco.org/en/decisions/6749
[8] https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf

clients on elephant hunts in the Dande Safari Area of the mid-Zambezi in 2017.[9] In March 2016, the Zimbabwe Parks and Wildlife Management Authority auctioned off hunting blocks that included elephants in Sapi, that included four male elephants and one tuskless elephant.[10] In April 2015, a professional hunter was killed while guiding a client on an elephant hunt in Chewore.[11]

Furthermore, despite the significant elephant population declines in the Sebungwe and mid-Zambezi areas, and the 6% population decline overall, all of which have been publicly known since 2014, Zimbabwe has made no change since 2004 to its voluntary African elephant export quota established under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This export quota stands at 1000 tusks from 500 animals,[12] exported as trophies (as export for commercial purposes is not allowed).

Therefore, the Service's concern, as stated in the 2015 finding, that information from the Great Elephant Census of 2014 has been incorporated into management activities in a scientifically sound manner, remains valid.

Weak implementation and enforcement

The Service's 2015 finding notes that, while strong laws and regulatory mechanisms for the Zimbabwe Parks and Wildlife Management Authority (ZPWMA) and its programs have been established, lack of funding for ZPWMA from the government means they are inadequately implemented and enforced. According to a letter received by the Service from ZPWMA in December 2014, the annual operating budget for ZPWMA is "in excess of US$28 million," yet, with the exception of a few projects, ZPWMA is "funded solely from trophy hunting conducted on state and private lands" (USFWS 2015 Enhancement Finding, p. 9). In the 2015 finding, the Service laments that they lack information about the amount of money generated by elephant trophy hunting specifically, how these funds are distributed, and how these funds enable ZPWMA to enforce and implement laws and regulations.

According to the 2016 report on the Elephant Trade Information System (ETIS) at CITES CoP17 Doc. 57.6 (Rev. 1),[13] "Zimbabwe is the country that pulls the rule of law score down, indicating far greater governance challenges exist in that country" (*id.*, p. 16). The World Justice Project (WJP) Rule of Law Index 2016 ranked Zimbabwe at 108 out of 113 countries and jurisdictions, meaning that Zimbabwe has the sixth worst rule of law.[14] According to WJP, "Effective rule of law reduces corruption, combats poverty and disease, and protects people from injustices large

[9] http://www.cmsafaris.com/zimbabwe-dande-hunt-trophy-gallery/gallery.htm
[10] http://www.desiredauctioneers.co.zw/downloads/ParksSapi.pdf
[11] https://africageographic.com/blog/hunter-killed-bull-elephant-musth/
[12] https://cites.org/eng/resources/quotas/export_quotas?field_party_quotas_tid=&field_full_name_tid=&field_export_quotas_year_value%5Bvalue%5D%5Byear%5D=2017&items_per_page=50
[13] CITES, Report on the Elephant Trade Information System (ETIS), CoP17 Doc. 57.6 (Rev. 1) (2016), https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-06-R1.pdf
[14] https://worldjusticeproject.org/sites/default/files/documents/ROLIndex_2016_Zimbabwe_en.pdf

and small. It is the foundation for communities of peace, opportunity, and equity—underpinning development, accountable government, and respect for fundamental rights."[15]

The ETIS report also found that Zimbabwe had the tenth largest ivory market of any country in the analysis, and stated that there is "increasing evidence of direct Chinese involvement in Africa-based ivory processing operations" in Zimbabwe "with production (primarily bangles, name seals and chopsticks) being shipped to Asia using courier companies as well as individuals who sometimes carry contraband on their bodies using purposefully built clothing" (ETIS p. 20).

Indeed, instead of effectively implementing and enforcing wildlife laws and regulations, ZPWMA personnel have been implicated in the illegal ivory trade. In 2015, three ZPWMA staff members were arrested for involvement in the theft of ivory from a government stockpile held at Hwange National Park.[16] The arrests came after a shipment of 62 tusks on its way to China was seized at the international airport in Harare. Serial numbers on the tusks were traced to the Hwange government stockpile. An alleged Chinese smuggler, who claimed he represented the Chinese government, had obtained export permit signed by the most senior of the three ZPWMA people arrested. All three were released from custody, the senior ZPWMA person after paying a $600 bail; none appeared in court again. Allegedly, the investigation was stopped after senior ZPWMA officials in Harare intervened in order to cover the involvement of other ZPWMA officials in the smuggling. The investigation seems to implicate senior parks and Ministry of Environment, Water and Climate officials. Allegedly, the ZPWMA trio had been exporting ivory from the stockpile since 2012. They had the assistance of ZPWMA security personnel and police units who guarded the trucks carrying the ivory over the 880 km from Hwange to the airport.

Corrupt government officials allegedly have been involved in both poaching of elephants and illegal export of ivory tusks, and involvement in a transnational syndicate.[17] Edson Chidziya, the former Director General, Zimbabwe Parks and Wildlife Management Authority, and one-time regional representative for Africa on the Animals Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),[18] was fired in May 2017 for his alleged involvement in the disappearance of rhino horns worth $3 million two years before.[19]

Of further concern is that the ZPWMA operates without a board which, as noted by Mupfiga and Chirimumimba (2015),[20] creates "a leadership vacuum and also legal constraints for the validation of policy decisions and approval or authorization of programmes" and it is "worrying for State entities to operate without boards for long periods because management are then left to

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[15] *Id.*
[16] https://oxpeckers.org/2016/04/how-to-steal-an-ivory-stockpile/
[17] http://globaljournalist.org/2017/02/zimbabwe-journalist-fights-charges-poaching-report/
[18] https://cites.org/sites/default/files/eng/com/ac/22/E22-05-01.pdf
[19] http://www.thezimbabwean.co/2017/05/zim-wildlife-boss-fired-3m-rhino-horn-goes-missing-report/
[20] Mupfiga, P. and Chirimumimba, M., 2015. Challenges to the implementation of IT Governace in Zimbabwean Parastatals. The International Journal of Engineering and Science 14(12): 1-6. ISSN (e): 2319 – 1813. https://www.researchgate.net/profile/Paul_Mupfiga/publication/286871326_Challenges_to_the_Implementation_of_IT_Governance_in_Zimbabwean_Parastatals/links/566eb41108aea0892c52a40d/Challenges-to-the-Implementation-of-IT-Governance-in-Zimbabwean-Parastatals.pdf

operate without accountability, a situation which may compromise the efficiency and effectiveness of an entity due mainly to the absence of an effective oversight function" (p. 4).

The report on Monitoring the Illegal Killing of Elephants (MIKE) to CITES COP17 further flagged several Zimbabwe monitoring sites for capacity building indicating the need for support to improve patrolling, managing, and monitoring at Mana Pools, Sapi and Chewore World Heritage Site.[21]

Thus, the concern stated in the Service's 2015 finding, that Zimbabwe's wildlife laws and regulatory mechanisms are inadequately implemented and enforced, remains valid.

Furthermore, on the subject of law enforcement, the 2015 finding states that the Service has been told by safari outfitters and hunting guides that the presence of U.S. trophy hunters, and their outfitters and guides, are the major deterrent to poaching in Zimbabwe and that, therefore, such hunting enhances the survival of the species. However, recent data demonstrates that this claim is invalid. For example, between 2006 and 2014, elephant poaching increased substantially in both the Chirisa and Chete Safari Areas where elephant hunting occurs, while elephant densities decreased (Figure 3). Moreover, we agree with the Service's 2015 finding that, even if true, this assertion would do nothing to reduce poaching in places where hunting does not occur, such as National Parks, which have experienced substantial elephant poaching.

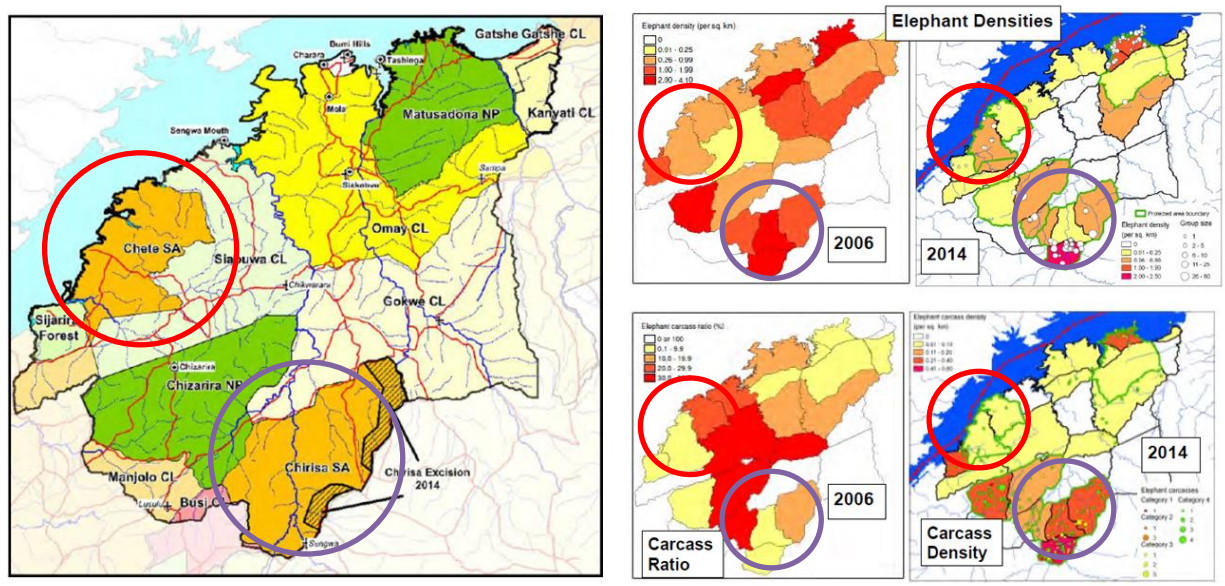

Figure 3: Current land classification of the Sebungwe and survey data. From: Sebungwe Elephant Management Proceedings, p. 10 and 11.

Lack of evidence that legal offtake and quotas are biologically sustainable

The Service's 2015 finding expressed the concern that there is no way to know if legal offtakes are biologically sustainable given that, at that time, there were no up-to-date population

[21] https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf

estimates, no information on the number of elephants legally taken each year, and no credible information on other sources of elephant mortality (such as legal "cropping", natural mortality, accidents, poaching, problem animal control and "management offtake").

The scientific basis for the establishment of elephant hunting and export quotas in Zimbabwe, in light of the recent and significant declines noted above, remains unknown.

Supposedly, quota setting for wildlife in Zimbabwe is a consultative process involving workshops with wildlife farmers, hunters, local authorities, tour operators and photographers and a scientific review that looks at poaching, trophy quality and size, natural mortality, and problem animal control in surrounding communities.[22] However, the reality is something quite different.

A 2016 paper by Muposhi et al.[23] presented the results of a study on the impact of trophy hunting on large herbivores, including elephants, in the Matetsi Safari Area near Hwange National Park. They found that trophy tusk sizes of hunted African elephants declined significantly from 2004-2015 possibly indicating, according the researchers, that elephant trophy hunting in the area is not sustainable. Furthermore, the authors found that, despite the existence since 2014 of data on elephant populations generated from the Great Elephant Census, quotas "may have been based on previous experiences and individual opinions and not based on scientific principles" (Muposhi p. 15). On the general topic of quota-setting in the area, the authors stated, "There seems to be over-reliance on questionable and subjective personal opinions in the quota setting process which in actual sense is supposed to be based on scientific evidence and ecological principles" (Muposhi p. 12). Finally, the authors note the obvious conflict of interest that exists when the ZPWMA, which relies on trophy hunting as income for its operations, is also in charge of setting quotas, posing the question "who will police the regulator" (Muposhi p. 15), noting that it may cause problems when "economic benefits to take precedence over regulatory policy framework" (Muposhi p. 15). In other words, the scientific component of quota setting is lacking.

Selier et al. (2014)[24] found that elephant hunting in the Greater Mapungubwe Transfrontier Conservation Area, which includes Botswana, South Africa and Zimbabwe, was unsustainable and predicted that "trophy bulls will disappear from the population in less than 10 years."

Politics and corruption also play roles in trophy hunting in Zimbabwe. A 2012 news article explained how officials from Zimbabwe's ruling party since 1980 sought to cash in on trophy

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[22] http://www.chronicle.co.zw/elephants-hunting-quota-set-at-500/

[23] Muposhi, V. et al., 2016. Trophy Hunting and Sustainability: Temporal Dynamics in Trophy Quality and Harvesting Patterns of Wild Herbivores in a Tropical Semi-Arid Savanna Ecosystem. PLoS One 11(10). http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0164429&type=printable

[24] Selier, S.A.J., Page, B.R., Vanak, A.T. and Slotow, R., 2014. Sustainability of elephant hunting across international borders in southern Africa: A case study of the greater Mapungubwe Transfrontier Conservation Area. The Journal of Wildlife Management, 78(1), pp.122-132. https://www.researchgate.net/publication/259539652_Sustainability_of_Elephant_Hunting_Across_International_Borders_in_Southern_Africa_A_Case_Study_of_the_Greater_Mapungubwe_Transfrontier_Conservation_Area.

hunting by taking over hunting concessions.[25] A 2015 news article quoted Mary-Jane Ncube of a Zimbabwe NGO that monitors corruption, Transparency in Zimbabwe, as stating "In the area of conservation, I think it [the government] has behaved like a predatory state, going after big investments, giving them to cronies, family, and really not having any concern for communities that are dependent on that land …"[26] Furthermore, she was quoted as saying, "National Parks was the authority in charge of concessions and licensing, but because of the corruption … concessions and licenses are now given according to who you are and who you can pay the highest dollar to." A June 2017 news article described how the Tsholotsho Rural District Council sold permits to a safari hunting company, Lodzi Hunters, to hunt 50 elephants in order to get money to fund the construction of a football stadium. This reportedly came about after Higher and Tertiary Education, Science and Technology Development Minister Professor Jonathan Moyo, who is the MP for the area, made a deal with then Minister of Water, Climate and Environment, Saviour Kasukuwere, who then issued the hunting quota of 50 to the Council. Of relevance, according to Transparency International, in 2016 Zimbabwe was the 22nd most corrupt country, ranking 154 of 176.[27]

Regarding poaching, as noted earlier, it is evident from the Great Elephant Census of 2014 that Sebungwe lost at least 7,000 elephants between 2001 and 2014, and mid-Zambezi lost 6,500 over the same period. (Chase et al. 2016). And the MIKE report to COP17 documented a 69% increase in PIKE (from 0.17 to 0.29) in Chewore.[28] This is roughly equivalent to 13,500 elephants over a 13-year period or 1,350 per year just in these two populations alone. Yet, according to information provided to the Service by ZPWMA, as cited in the 2015 finding, poaching on a national basis averaged only 190 per year from 2009 to 2013; and according to information provided to the Service by safari operators, as noted in the 2015 finding, about 160 elephants are killed by trophy hunters annually. Clearly, there is a large and unexplained discrepancy between these figures that underscores the lack of credible information on all sources and quantity of elephant mortality, without which there is no way to ascertain if legal offtakes are biologically sustainable.

Elephant poaching has continued in Zimbabwe in the three years following the Great Elephant Census of 2014. In October 2015, 22 and possibly as many as 78 elephants were poisoned with cyanide in Hwange National Park, and their tusks removed.[29] Reportedly, 159 elephants were poached in Zimbabwe in 2016.[30] In June 2017 it was reported that ten elephants, including a mother and her young calf, were poisoned and tusks removed in Hwange National Park and in the state forestry land outside the northern part of the Park.[31]

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[25] https://mg.co.za/article/2012-09-07-00-big-bucks-trigger-zimbabwe-scramble
[26] https://mg.co.za/article/2015-10-22-hunters-feed-corrupt-zim-officials
[27] https://www.transparency.org/news/feature/corruption_perceptions_index_2016#table
[28] https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf
[29] http://www.cnn.com/2015/10/27/africa/zimbabwe-elephant-poaching/
[30] http://www.zbc.co.zw/2017/06/15/elephant-poaching-cases-on-the-decline/
[31] https://www.theguardian.com/environment/2017/jun/20/ten-more-elephants-poisoned-by-poachers-in-zimbabwe

Therefore, the Service's concern, as expressed in the 2015 finding, that there is no way to know if legal offtakes are biologically sustainable, given no credible information on other sources of elephant mortality, remains valid.

Lack of information about how money from trophy hunting by U.S. hunters is distributed within Zimbabwe

The Service's 2015 finding stated: "While CAMPFIRE [Communal Areas Management Programme for Indigenous Resources, a Zimbabwe community-based natural resource management program] has provided conservation benefits in the past and improved tolerance of wildlife in rural communities, the program has more recently come under criticism relating to excessive retention of generated funds by district councils, resulting in diminished benefits to communities. Sport-hunting may be an important tool that gives these communities a stake in sustainable management of the elephant as a natural and economic resource and offsets the costs of conflict with wildlife. However, without current information on how funds are utilized and the basis for hunting off-takes, the Service is unable to confirm whether revenue generated through sport-hunting actually provides an incentive to local communities to conserve elephants." (USFWS 2015 Enhancement Finding)

Indeed, Harrison et al. (2014)[32] provided a recent analysis of the CAMPFIRE program. The theory behind CAMPFIRE is to empower community members at a village level to control wildlife and its revenue, and to thus create an economic incentive for communities to conserve wildlife. But, according to Harrison et al., this is not actually happening. According to Harrison et al., although CAMPFIRE had a reputation of success in its early days, over time this perception eroded and by the late 1990s it was criticized for lack of participation, lack of empowerment and lack of participation of local communities in management of natural resources. The main problem with the way that CAMPFIRE was designed is that it established the rural district council, which represents numerous local communities, as the 'local' body in charge of natural resource management, rather than the local communities themselves. Harrison et al. state, "Failure to provide benefits to the local communities and to successfully devolve management are just two of the many common criticisms" (p. 8). Among these criticisms is "insufficient action to tackling problems of elite-capture of resources and wildlife-based tourist revenues within RDCs" (Harrison et al. p. 9).

Harrison et al. (2014) studied the CAMPFIRE program in the Binga district, which is part of Sebungwe, and the Chiredzi district, which is part of Gonarhezou; as noted previously, the elephant populations of both Sebungwe and Gonarhezou have experienced dramatic elephant population declines in recent years. The authors found that CAMPFIRE failed as a governance system for community involvement and empowerment and that the "community-based" terminology is merely rhetoric. They warn that new "community-based" natural resource management projects need to "be aware of the disconnect between the local citizens (as their key stakeholders) and what the RDC may believe and be happy to approve" (Harrison et al. p. 30).

[32] Harrison, E., Stringer, L., and A. Dougill. 2014. The importance of the sub-district level for community-based natural resource management in rural Zimbabwe. Centre for Climate Change Economics and Policy Working Paper No. 183, Sustainability Research Institute Paper No. 69. https://pdfs.semanticscholar.org/1e0e/b71b4b6ce9429abca5ad41738f24978ba915.pdf

They conclude "The lack of understanding and attention paid to the sub-district governance system for natural resource management has meant that project implementation has negatively affected the system as a whole, including the people within it, as well as the project outcomes" (Harrison et al. p. 31). They said, "CAMPFIRE has continued to try and operate in a system it increasingly did not understand and thus its structures did not map appropriately onto those operating at the sub-district level. As a partial result of this, the programme has largely collapsed in many parts of the country" … "including in the four case study villages. The benefits experienced by the communities involved over the projects' lifespans have been negligible" (Harrison et al. p. 32).

Two news reports by Debra Patta looked at local perspectives in Zimbabwe on the claim that trophy hunting benefits local communities. One news report quoted Emmanual Fundira, who heads Safari Operators Association of Zimbabwe as saying that although part of the hunting fees paid by trophy hunters is supposed to go to conservation and community projects, in fact it rarely does.[33] In another article, Fundira stated, "If you talk to communities today and say 'Campfire' they don't want to hear [it]. They say Campfire is not benefitting them at all and that in itself is a disaster."[34] The article also quoted a CAMPFIRE rural district council CEO named Phindile Ncube as saying that his community earned $158,000 in a year for infrastructure and "feeding schemes." However, the article quoted a villager named Edward Ngwenya who said he hadn't received anything from the RDC. This was confirmed in another report which said that, while money from trophy hunting is promised to poor communities, they are only getting poorer.[35] Another news article quoted a local chief, Victor Nekatambe, commenting on the fact that local rural district councils manage CAMFIRE and that communities do not receive funding: "They are getting nothing, absolutely nothing."[36]

Therefore, the Service's concerns about CAMPFIRE and the lack of evidence to confirm that revenue generated through elephant sport-hunting actually provides an incentive to local communities to conserve elephants, remains valid.

Lack of a national mechanism, such as government support, to sustain elephant conservation efforts in the country

The Service's 2015 finding expressed concern that, without a national mechanism, such as government support, elephant conservation efforts in Zimbabwe could not be sustained.

As noted above, according to the ZPWMA, the annual operating budget for ZPWMA is in excess of US$28 million and the new Zimbabwe Elephant Management Plan (2015–2020) states that the cost of implementing the Plan will be at least US$12 million per annum in operational budget alone. Yet, the government of Zimbabwe provides no financial support to the ZPWMA, and indeed, according to ZPWMA itself "no amount is budgeted for conservation in the national

[33] http://www.cbsnews.com/news/zimbabwe-corruption-trophy-hunting-cecil-lion-conservation/
[34] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/
[35] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/
[36] *Id.*

budget,"[37] leading to inadequate enforcement and implementation of laws and regulatory mechanisms. Lack of government funding also leaves the ZPWMA to rely on trophy hunting, even when unsustainable, to pay its bills.

Lack of funding for ZPWMA has limited anti-poaching efforts and this has had negative effect on elephant conservation. Mana Pools National Park and neighboring safari areas, which are located in the mid-Zambezi area, is one of the areas hardest hit by poaching, as noted above. At a 2015 workshop held by ZPWMA to develop an anti-poaching strategy for the Park,[38] the Area Manager for the Park, Marvellous Mbikiyana, was quoted in a workshop report as having stated, "While the ideal staffing level for rangers is 110 for the Park, 75 have been approved, and only 38 are on site. Of the 38 on site, only 13 are deployable at any one time, due to a number of other commitments, such as driving duties, serving in the front office, and so on." The workshop report noted that the effectiveness of enforcement was negatively affected by low manpower.[39]

Therefore, the Service's concern that there is a lack of a national mechanism to sustain elephant conservation efforts in Zimbabwe, remains valid.

Conclusion

As the home to one of the largest remaining populations of African elephants, it is critical that elephants thrive in Zimbabwe; unfortunately, elephants in Zimbabwe face significant threats including human conflict, habitat destruction, and unsustainable trophy hunting. For the aforementioned reasons, concerns expressed about elephant management in Zimbabwe contained in the Service's 2015 finding remain valid today, and the Service's finding that the import of trophies from elephants hunted in Zimbabwe will not enhance the survival of the species, remains valid. The presence of one of the strongest trophy hunting sectors in Africa has not prevented and, in fact, is demonstrated to have contributed to decreases in the elephant population.

Therefore, trophy hunting of elephants in Zimbabwe cannot be said to enhance the survival of the species, and issuing an import permit for elephant trophies from Zimbabwe would therefore violate the Endangered Species Act and FWS regulations. If FWS issues any elephant trophy import permits from Zimbabwe, HSUS, HSI, and CBD will consider seeking judicial review of that decision. Further, this letter serves as formal opposition to any application for an import permit for a elephant trophy from Zimbabwe and HSUS, HSI, and CBD request that FWS

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[37] http://www.zimparks.org/index.php/mc/279-zimbabwe-parks-and-widlife-management-authority-zimparks-successfully-exports-35-african-elephants-to-china

[38] ZPWMA, Workshop to Develop an Anti-Poaching Strategy for Mana Pools National Park and Neighbouring Safari Areas (2015), http://www.zamsoc.org/wp-content/uploads/2016/04/MPNP-Anti-Poaching-Workshop-Summary-Report-15-April-2015.pdf

[39] Similarly, the MIKE report to COP 17 noted a lack of data managers with the associated MIKE sites in Zimbabwe. Table 2 https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf

provide ten days advance notification (via email, afrostic@humanesociety.org) prior to the issuance of any such permits. *See* 50 C.F.R. §§ 17.22(e), 17.32.[40]

Sincerely,

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The Humane Society of the United States

Teresa M. Telecky, Ph.D.
Director, Wildlife Department
Humane Society International

Tanya Sanerib
Senior Attorney
Center for Biological Diversity

[40] HSUS has previously called on FWS to publish notice in the Federal Register of threatened species permit applications, and we reassert that such action is essential to create transparency in FWS' enhancement analysis for African elephant activities, consistent with the intent of ESA Section 10. Similarly, it is arbitrary for the Service to explicitly apply the notification requirements of 50 C.F.R. § 17.22(e) to certain types of threatened species permits (i.e., those for Safe Harbor Agreements and Candidate Conservation Agreements with Assurances) but not to other threatened species permits (i.e., for incidental take and import).

Primary References Attached

Chase MJ, Schlossberg S, Griffin CR, Bouché PJC, Djene SW, Elkan PW, Ferreira S, Grossman F, Kohi EM, Landen K, Omondi P, Peltier A, Selier SAJ, Sutcliffe R. (2016) Continent-wide survey reveals massive decline in African savannah elephants. PeerJ 4:e2354 https://doi.org/10.7717/peerj.2354

CITES, Animals Committee Regional Reports, Africa, AC22 Doc. 5.1 (2006)

CITES, Report on the Monitoring of Illegal Killing of Elephants (MIKE) (2016), https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf

CITES, Report on the Elephant Trade Information System, CoP17 Doc. 57.6 (Rev. 1) (2016), https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-06-R1.pdf

Great Elephant Census, Country-by-Country Fact Sheet (2016)

Harrison, E., Stringer, L., and A. Dougill. 2014. The importance of the sub-district level for community-based natural resource management in rural Zimbabwe. Centre for Climate Change Economics and Policy Working Paper No. 183, Sustainability Research Institute Paper No. 69. https://pdfs.semanticscholar.org/1e0e/b71b4b6ce9429abca5ad41738f24978ba915.pdf

Mupfiga, P. and Chirimumimba, M., 2015. Challenges to the implementation of IT Governace in Zimbabwean Parastatals. The International Journal of Engineering and Science 14(12): 1-6. ISSN (e): 2319 – 1813.
https://www.researchgate.net/profile/Paul_Mupfiga/publication/286871326_Challenges_to_the_Implementation_of_IT_Governance_in_Zimbabwean_Parastatals/links/566eb41108aea0892c52a40d/Challenges-to-the-Implementation-of-IT-Governance-in-Zimbabwean-Parastatals.pdf

Muposhi, V. et al., 2016. Trophy Hunting and Sustainability: Temporal Dynamics in Trophy Quality and Harvesting Patterns of Wild Herbivores in a Tropical Semi-Arid Savanna Ecosystem. PLoS One 11(10).
http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0164429&type=printable

Selier, S.A.J., Page, B.R., Vanak, A.T. and Slotow, R., 2014. Sustainability of elephant hunting across international borders in southern Africa: A case study of the greater Mapungubwe Transfrontier Conservation Area. The Journal of Wildlife Management, 78(1), pp.122-132.
https://www.researchgate.net/publication/259539652_Sustainability_of_Elephant_Hunting_Across_International_Borders_in_Southern_Africa_A_Case_Study_of_the_Greater_Mapungubwe_Transfrontier_Conservation_Area

USFWS 2014 Enhancement Finding for Elephants from Zimbabwe

USFWS 2015 Enhancement Finding for Elephants from Zimbabwe

World Heritage Convention, Decision 40 COM 7B.84, *Mana Pools National Park, Sapi and Chewore Safari Areas (Zimbabwe)* (2016), http://whc.unesco.org/en/decisions/6749

Zimbabwe Elephant Management Plan (2015–2020)

ZPWMA 2015a. The 2015 Chirisa Hunting Camps Auction.

ZPWMA 2015b. The 2015 Chete Hunting Camps Auction.

ZPWMA, *Sebungwe Elephant Management Workshop* (2015), http://www.zamsoc.org/wp-content/uploads/2016/04/Sebungwe_Elephant_Mgmt_Proceedings_29May_Compressed.pdf

ZPWMA, Workshop to Develop an Anti-Poaching Strategy for Mana Pools National Park and Neighbouring Safari Areas (2015), http://www.zamsoc.org/wp-content/uploads/2016/04/MPNP-Anti-Poaching-Workshop-Summary-Report-15-April-2015.pdf

From:	Regina A. Lennox
To:	Vannorman, Tim
Cc:	John J. Jackson, III
Subject:	Enhancement information for Zimbabwe lion and elephant trophy imports (DAPU Q2 2017 Report)
Date:	Wednesday, October 04, 2017 11:41:24 AM
Attachments:	DAPU Second Quarter Newsletter.pdf

Dear Tim,

Attached please find the second period report for the Dande Anti-Poaching Unit (DAPU) in Zimbabwe. This report reflects that "snare yields, elephant poaching and illegal netting are at an historic low." DAPU's intensive anti-poaching efforts and Charlton McCallum Safaris' (CMS) joint venture with the Mbire communities is succeeding.

However, as explained in the report, DAPU and CMS are not resting. They continue to conduct anti-poaching patrols, and have increased their efforts to combat intentional burning. DAPU scouts have assisted in problem animal deterrence, and through the second period 2017, no elephant or lion have been killed as PAC.

The report also details DAPU's cooperation with the Zimbabwe Parks and Wildlife Management Authority to eliminate illegal fishing in a 50 km stretch of the Zambezi River. Approximately 85% of illegal fishing in this area has been stopped as a result of these combined efforts, which illustrate both the operator's and the Authority's commitment to stop the illegal use of wildlife wherever and however it occurs.

This report demonstrates the benefits for wildlife from regulated sport-hunting, and specifically the anti-poaching and community support efforts that allow elephant, lion, and lion prey species to thrive. Please consider this information in making enhancement findings for the import of lion and elephant trophies from Zimbabwe.

Thanks,

Regina

Regina A. Lennox
Conservation Force
3240 S I-10 Service Road W, Suite 200
Metairie, Louisiana 70001 USA
504-837-1233 (office)
919-452-8652 (cell)
regina.lennox@conservationforce.org

---------- Forwarded message ----------
From: **CMS** <admin1@cmsafaris.com>
Date: Wed, Oct 4, 2017 at 6:43 AM
Subject: DAPU second period 2017.
To: "John J. Jackson, III" <cf@conservationforce.org>, "cjackson@conservationforce.org" <cjackson@conservationforce.org>, "regina.lennox@conservationforce.org" <regina.lennox@conservationforce.org>

Dear John, Chrissie and Regina,

I hope that you are all doing well?! It is getting HOT here now as you can imagine.

Please see our second DAPU newsletter for 2017.

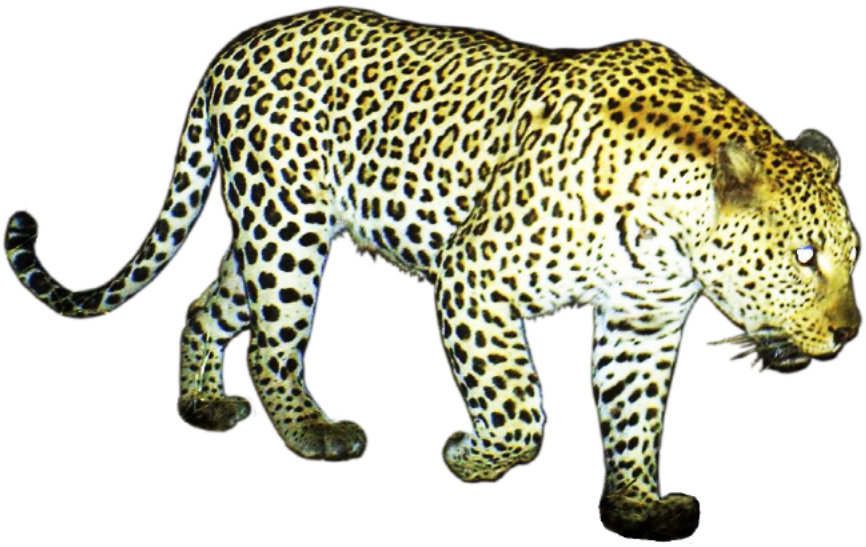
Best

Buzz and Myles

DAPU Second Period Newsletter 2017

Charlton McCallum Safaris

30 September 2017



DAPU

DANDE ANTI POACHING UNIT

visit us at www.dapuzim.com

WELCOME

Dear Friends,

Thank you all so much for your unwavering support. DAPU has continued to build on our very successful first quarter 2017. Snare yields, elephant poaching and illegal netting are at an historic low – let's hope that we can maintain this as we move out of the "safe" hunting season into the hectic burning and poaching season. Poaching always picks up as the hunting winds down, however we actually are able to dedicate more and more resources and time to DAPU because of that. This arrangement typically works very well indeed!

We have continued to meticulously document all of our support, deployments, wins and losses and here we share a summary with everyone who so graciously and generously supported all of our efforts both financially and in kind. As we grow from strength to strength we look forward to your continued support.

With Regards,

Myles E. McCallum
James D. Charlton
Charles Ndondo

Harare, Zimbabwe
30th September 2017

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1. Changes

We have further bolstered the troops with the inclusion of Owen Zviwanza who is a local from Kanyemba and is a Learner Professional Hunter. Owen is 26 years old and is in the second year of a 4-year apprenticeship to be a professional hunter (or guide). Like Peter Solomon, Owen will alternate between going on patrol, attending to PAC and accompanying the odd hunt for experience.

CMS is doing a bit of hunting in the Charara Safari Area, which has been neglected for many years. Peter and Muno have been there full time for 3 months, slowly and successfully getting on top of what poaching they can.

We have had our first disciplinary issues with two DAPU scouts who went AWOL on duty – they have been replaced by two more from the same communities so there are no .net losses in terms of jobs to those wards.

2. Peter Stewart fine art

Well know artist Peter Stewart has created a "DAPU collection" and Peter has undertaken (very graciously) to donate 40% of the proceeds of any of the works in the collection to DAPU.
http://cmsafaris.com/dapu/DAPU-COLLECTION-2017.pdf

3. The dry season
fires, water, and poaching

As I am sure most of you are aware the 2017 rainy season has been incredible BUT the dry season snaring and burning season is now upon us. DAPU patrols are currently patrolling the big

water sources as often as possible for obvious reasons. The local folk are patiently waiting for the rain so as to plan their crops – often at times like this the urge to poach is very strong!

Starting a bushfire in Zimbabwe is an offence and we are beginning to treat it as one. DAPU patrols are now required to investigate fires with the aim of:

1. Putting them out if possible.
2. Finding, apprehending and charging offenders.

Dande as a whole has seen a 69% reduction on hectares lost to fire between 2015 and 2016. We hope to further reduce that this year. We plan to start incentivizing arrests and convictions of those who burn deliberately.

3. Snaring & General Poaching

January to the end of August of 2017 has been much, much quieter than the same period of 2015 and 2016. In terms of snares picked up and meat poachers arrested the yield is drastically reduced.

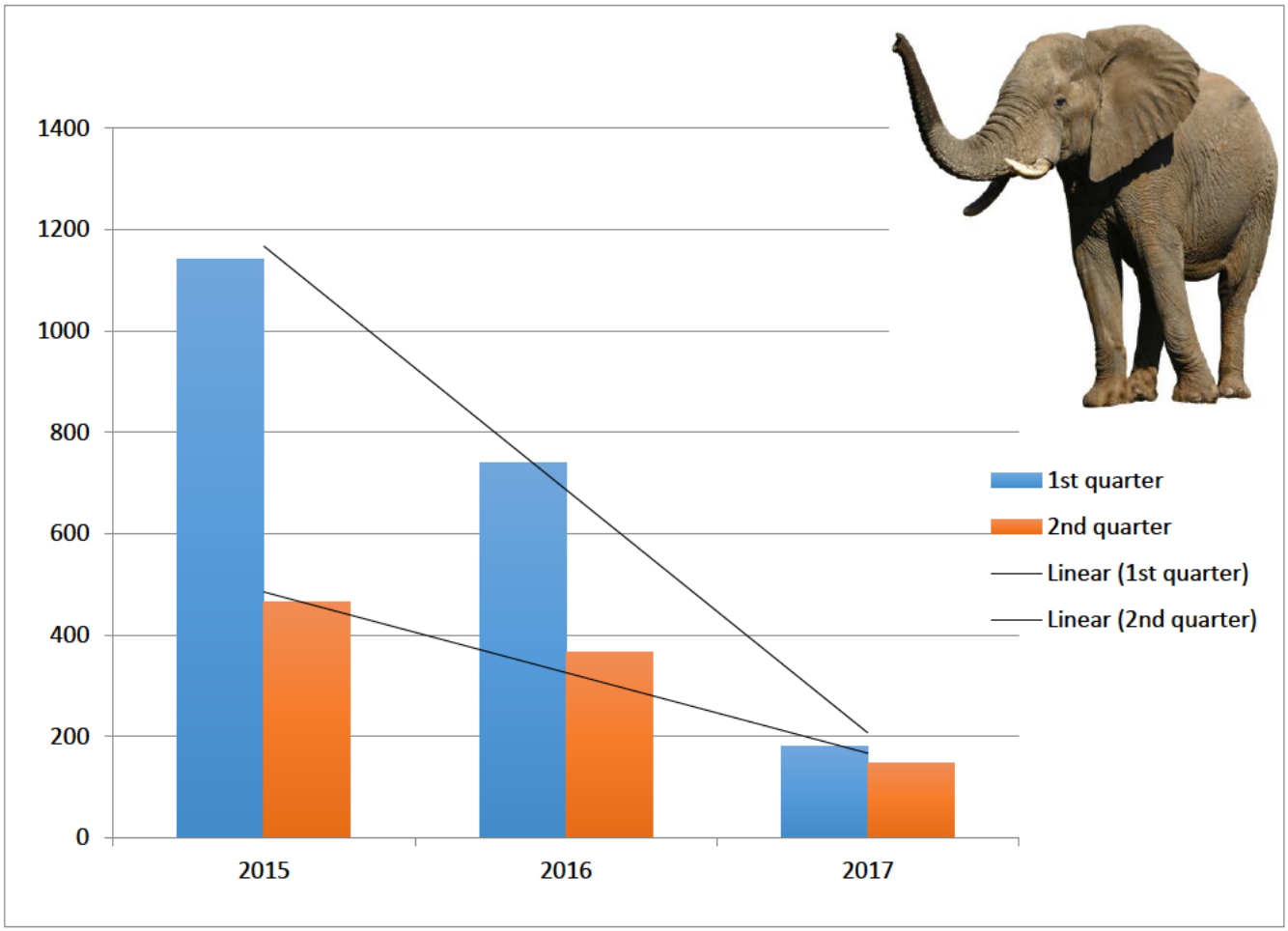
2017 FIRST AND SECOND PERIOD BASELINE COMPARISONS

Month	No. of snares	Dogs shot	Meat Poachers convicted	Elephant poachers	Weapons retrieved	Rewards paid
January	71	0	3	0	2	US$784
February	0	0	1	0	0	US$150
March	7	0	0	0	0	US$19
April	103	0	0	0	0	US$133
	181	**0**	**4**	**0**	**2**	**US$1,086.00**
May	9	0	0	0	0	US$9
June	89	0	2	0	0	US$118
July	19	1	2	0	0	US$439
August	30	0	0	0	1	US$48
	147	**1**	**4**	**0**	**1**	**US$614**
Total YTD	**328**	**1**	**8**	**0**	**3**	**US$1,700.00**

2016 FIRST AND SECOND PERIOD BASELINE COMPARISONS

	No. of snares	Dogs shot	Meat Poachers convicted	Elephant poachers	Weapons retrieved	Rewards paid
January	300	0	3	0	0	US$821
February	208	0	0	2	0	US$978
March	95	0	0		0	US$97
April	137	0	1	0	2	US$321
Total	**740**	**0**	**4**	**2**	**2**	**US$2,217**
May	94	0	5	0	4	US$1,310
June	75	0	0	0	0	US$83
July	27	0	0	0	2	US$67
August	164	1	0	0	0	US$254
Total	360	1	5	0	6	US$1,714
Total Y.T.D.	**1100**	**1**	**9**	**2**	**8**	**US$3,931**

2015, 2016 and 2017
First & Second Period Snare Yields Compared



4. Elephant Poaching

Finally we have picked up the carcasses that we knew must be there. Two in ward 2 in the Irira area and one in ward 1 for a total of three for 2017 thus far. The two Irira carcasses look like a young bull and a young cow respectively, in ward 1 a cow. Total combined ivory yield was probably only 30kg.

Whilst losing only three elephants is pretty good, and today may be even considered excellent, we certainly need to strive for ZERO losses. As the hunting season slows down, so the presence

of hunters also decreases – this has always been and will continue to be the danger time for all poaching.

Ward 1 – elephant cow

One bull and one cow – Yirira river 2017

7. Problem Animal Control

Duties for DAPU scouts also include attending to Problem Animal reports (PAC). Obviously all the crops are now harvested so the cases of genuine PAC are few and far between.

7.1.1 Elephant

None shot BUT there have been sporadic raids by mostly young bulls into riverside vegetable gardens. We treat every report as serious and the DAPU teams really react as strongly as they can early on. This normally saves us shooting.

7.1.2 Lion

Sporadic killing of livestock persists especially in ward 4 but no lions shot.

7.1.3 Buffalo

One blind buffalo cow in the Pedza villages is being a nuisance and she will have to be destroyed. In Kanyemba the dagga boys love to attend to the gardens at night – normally the villages chase them out.

7.1.4 Crocodile

No one killed or injured that we know of.

7.1.5 Hippo

Hippos continue to generally make a nuisance of themselves along the Mwantanda River in ward 1.

7.1.6 Snake bites

Nothing to report.

8. Netting on the Zambezi

DAPU will continue to contribute to efforts to eliminate all illegal fishing in a 50km stretch of the Zambezi River. To date in 2017 Parks have impounded 5 x banana boats, 4 x makoros and burnt 5.0 km of netting. We estimate that 85% of all illegal Netting has been stopped.

Obviously lots of illegal fisherman also lay snares and much worse, so this effort is well worth supporting.

Fish Poaching Statistics

	Fibre glass boats	Makoros	Nets in m
First quarter	5	4	3800
Second quarter	0	0	1200
Total	**5**	**4**	**5000**

Burning nets.

Measuring nets – note the fine gauge (No good they kill everything)

Fish traps – Zambezi River 2017
(Funnily enough large gauge holes & eco friendly - just placed in wrong country!)

Goals for Second period 2017

1	Continue with anti-poaching patrols	Patrols have done well - we have had the quietest quarter in our history.
2	Early burning will start in May as soon as it is dry enough.	Complete – our most intensive effort in 8 years.
3	Repair firearms where possible or replace	Delivered!!!
4	New boots (on the way).	Stuck in Durban.
5	New uniforms – paid for not delivered.	Delivered.
6	If possible trade in one of the older DAPU vehicles for a newer one.	DSC-F has funded DAPU to the tune of 24,000 dollars towards upgrading, which we are in the process of doing.

Goals for third quarter 2017

1	Continue with anti-poaching patrols	
3	Upgraded vehicles delivered by end November.	
4	Boots stuck in Durban to be delivered.	
5	Install New solar pump in East by end of September.	

Aimguard shotguns x 6 per kind favor of a young Harare based hunter

Conservation Force

We continue to work hand in hand with John and Chrissie Jackson of Conservation Force. John and Chrissie are proud hunters and legends in the fight for our way of life and the wild places that we all love.

Conservation Force is a registered non – profit
501(c)(3) public foundation.

How to make a Tax Deductible donation.

Please make a check out to:
Conservation Force

Mail to:
C/O John J. Jackson, III
3240 S. 1-10 SERVICE ROAD W.
SUITE 200, METAIRIE,
LOUISIANA 70001
USA

Check Ref:
DAPU

Conservation Force Contact:
JOHN J. JACKSON, III
TEL:(504) 837 - 1233
FAX:(504) 837 – 1145
Email: Jjw-no@att.net
Website: www.conservationforce.org

DAPU Income and Expenses 2017

Income

Burton Foundation	2,000.00
Community Foundation (OK)	2,000.00
Morning Charitable Trust	500.00
Dallas Safari Club	24,000.00
Clients and Individual donations	27,706.49
Sylvarnus Trust	6,000.00
Total Income (US$)	**62,206.49**

Expenses

1. Wages, Rewards, Rations

	Scouts	Mngmt	Rations	Rewards	Fish Poach	Total
January	1,100	1,605	770	784	250	4,509
February	1,100	1,605	770	150	250	3,875
March	1,100	1,605	770	19	250	3,744
April	1,100	1,605	770	133	250	3,858
May	1,100	1,905	910	9	250	4,174
June	1,100	1,905	910	118	250	4,283
July	1,100	1,905	910	439	250	4,604
August	1,100	1,905	910	48	250	4,213
Total (US$)	**4,400**	**14,040**	**6,720**	**1,700**	**2,200**	**33,260**

2. Equipment Expenses 2017	Total
Grease Junkey repairs to AAX9832	5,000
Burj Auto spares for ABX7074	1,267
MM Auto spares & labor for AAX7074	2,574
LG Harrison Aimguard Shotguns x 6	3,450
Uniforms	2,684
Total (US$)	**14,975**

4. Vehicles (2)	Total
AAX 9832 [9013km x $0.5 x km]	4,506
ABX 7074 [7581km x $0.5 x km]	3,791
Total (US$)	**8,297**

Total expenses (US$)		56,532
Total Income (US$)	62.206.49	
Credit (US$)	5,675.00	

October 6, 2017

Mr. Timothy Van Norman
Chief, Branch of Permits
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041

Rosemarie Gnam, Ph.D.
Chief, Division of Scientific Authority
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803

Re: Imports of African Elephant Trophies from Zimbabwe Should Not Be Permitted

Dear Chief Van Norman and Chief Gnam:

The Humane Society of the United States (HSUS), Humane Society International (HSI), and the Center for Biological Diversity (CBD) strongly urge the U.S. Fish and Wildlife Service (FWS or "the Service") to continue prohibiting the import of African elephant trophies from Zimbabwe. As detailed herein, recent evidence demonstrates that elephants in Zimbabwe are threatened with extinction from poaching and habitat loss and Zimbabwe cannot ensure that recreational offtake of elephants is sustainable. Therefore, the Service cannot lawfully make an enhancement finding under the Endangered Species Act (ESA) for imports of elephant trophies from Zimbabwe.

ESA Requirements for Elephant Trophy Imports

Since the African elephant special rule amendment (50 C.F.R. § 17.40(e)) went into effect in June 2016, every import of an African elephant trophy is required to comply with ESA permitting requirements. Pursuant to the ESA (16 U.S.C. § 1538) and implementing regulations (50 C.F.R. § 17.40(e)), before the Service can authorize the import of an African elephant trophy it must be able to make a finding that the take of the animal enhances the survival of the species. According to the plain language of this statutory term (16 U.S.C. § 1539(a)(1)), "enhancement" permits may only be issued for activities that *positively benefit* the species in the wild. *See also* FWS, *Ensuring the Future of the Black Rhino* (Nov. 25, 2014), *at* http://www.fws.gov/news/blog/index.cfm/2014/11/25/Ensuring-the-Future-of-the-Black-Rhino (acknowledging that the ESA enhancement standard is more stringent than the CITES non-detriment standard); U.S. Fish and Wildlife Service Handbook for Endangered and Threatened

Species Permits (1996) (making clear that an enhancement activity "must go beyond having a neutral effect and actually have a positive effect").

HSUS, HSI, and CBD agree with FWS that the IUCN provides relevant standards for determining whether elephant trophy hunting meets this conservation goal. *See* 81 Fed. Reg. 36388, 36394 (June 6, 2016). We strongly encourage FWS to conduct this enhancement analysis consistent with how the Service conducts its analysis for determining whether African lion hunting meets the enhancement standard. 80 Fed. Reg. 79999, 80045 (Dec. 23, 2015). Specifically,

> "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival[], the Service will examine the <u>overall conservation and management of the subspecies in the country where the specimen originated</u> and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is <u>based on sound scientific principles</u> and that the management program is actively addressing the current and longer term threats to the subspecies). In that review, we will evaluate whether the import contributes to the overall conservation of the species by considering whether the biological, social, and economic aspects of a program from which the specimen was obtained provide a net <u>benefit</u> to the subspecies and its ecosystem" (emphasis added).

HSUS, HSI, and CBD also agree that FWS must consider the following factors when making an enhancement finding for importation of sport-hunted trophies of African elephants, as it does for African lions:

> "(a) Biological Sustainability: The hunting program cannot contribute to the long-term decline of the hunted species. It should not alter natural selection and ecological function of the hunted species or any other species that share the habitat. The program should not inadvertently facilitate poaching or illegal trade in wildlife by acting as a cover for such illegal activities. The hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity.
>
> (b) Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed. The program should produce income, employment, and other benefits to create incentives for reducing the pressure on the target species. The program should create benefits for local residents to co-exist with the target species and other species. It is also imperative that the program is part of a legally recognized governance system that supports conservation.
>
> (c) Socio-Economic-Cultural Benefit: A well-managed hunting program can serve as a conservation tool when it respects the local cultural values and practices. It should be accepted by most members of the community, involving and benefiting local residents in an equitable manner. The program should also adopt business practices that promote long-term economic sustainability.
>
> (d) Adaptive Management: Planning, Monitoring, and Reporting: Hunting can enhance the species when it is based on appropriate resource assessments and monitoring (e.g., population counts, trend data), upon which specific science-based quotas and hunting

programs can be established. Resource assessments should be objective, well documented, and use the best science available. Adaptive management of quotas and programs based on the results of resource assessments and monitoring is essential. The program should monitor hunting activities to ensure that quotas and sex/age restrictions of harvested animals are met. The program should also generate reliable documentation of its biological sustainability and conservation benefits.

(e) Accountable and Effective Governance: A biologically sustainable trophy-hunting program should be subject to a governance structure that clearly allocates management responsibilities. The program should account for revenues in a transparent manner and distribute net revenues to conservation and community beneficiaries according to properly agreed decisions. All necessary steps to eliminate corruption should be taken and to ensure compliance with all relevant national and international requirements and regulations by relevant bodies such as administrators, regulators and hunters."

Further, FWS regulations provide that "No more than two African elephant sport-hunted trophies [can be] imported by any hunter in a calendar year." 50 C.F.R. § 17.40(e)(6)(E).

Strict scrutiny of elephant trophy imports is especially imperative, given that the Service has found that uplisting the species to endangered may be warranted. 81 Fed. Reg. 14058 (March 16, 2016).

There Is No Evidence that Elephant Trophy Hunting in Zimbabwe Enhances the Survival of the Subspecies

Since 2014, the Service has been unable to make the requisite finding that hunting African elephants in Zimbabwe enhances the survival of the species. *See* 79 Fed. Reg. 44,459 (July 31, 2014); 80 Fed. Reg. 42524 (July 17, 2015). Numerous problems with Zimbabwe's elephant management remain unresolved to date: the lack of an elephant management plan; lack of sufficient data on population numbers and trends on which to base management decisions; weak implementation and enforcement; lack of evidence that legal offtake is biologically sustainable, taking into account illegal offtake; lack of information about how money from trophy hunting by U.S. hunters is distributed within Zimbabwe; and lack of a national mechanism, such as government support, to sustain elephant conservation efforts in the country. (USFWS 2014 Enhancement Finding; USFWS 2015 Enhancement Finding). Thus, the Service cannot lawfully make an enhancement finding (or non-detriment finding) for trophy imports from this population for calendar year 2016 or beyond, as detailed herein.

Lack of an elephant management plan

In the 2015 finding, the Service stated, "Zimbabwe's current elephant management plan consists of two primary documents drafted in 1996 and 1997. Although the documents provide a well-developed list of goals and objectives, there is no information on whether these goals and objectives have been met or could be met. This is supported by statements from ZPWMA that the plans are outdated and need to be revised." (USFWS 2015 Enhancement Finding, p. 17)

Subsequent to the 2015 finding, in January 2016, a new Zimbabwe Elephant Management Plan (2015–2020)[1] (hereinafter, the Plan) was signed by relevant Zimbabwean authorities. In addition to a long-term vision and targets at the national level, the Plan includes five key components (protection and law enforcement; biological monitoring and management; social, economic and cultural framework; building conservation capacity; and coordination, collaboration and program management), each with a strategic objective and outputs, as well as key activities, key performance indicators, means of verification, time frames, and responsibility. The Plan includes terms of reference for key committees and staff required to implement the Plan (National Elephant Management Committee, Regional Elephant Management Committees, and the National Elephant Manager). In addition, an Elephant Action Plan was developed for each of the four main regional populations (Northwest Matabeleland (a.k.a. Hwange area), Sebungwe, mid-Zambezi Valley, and South East Lowveld (a.k.a. Gonarezhou area). Finally, and importantly, the Plan notes that the cost of implementing the Plan will be at least $12 million per annum in operational budget alone.

While the highly ambitious new Plan is an improvement over the old plans, there is no publicly available evidence that the Plan is being substantially implemented. Certainly, as noted in the plan itself, without the required $12 million per annum in funding, it is unlikely to be implemented. As the Plan indicates: "Implementing the action plan will also require more human and financial resources than are currently available for the conservation and management of elephant in Zimbabwe" (Plan, p. 32).

The mere presence of a new elephant management plan, in and of itself, surely was not the Service's intended goal. Lack of implementation of the Plan, and lack of funding to undertake the actions in the Plan, means that the Service's conclusion about the previous old Plans (that "although the documents provide a well-developed list of goals and objectives, there is no information on whether these goals and objectives have been met or could be met") remains valid.

Lack of sufficient data on population numbers and trends on which to base management decisions

The Service's 2015 finding noted that preliminary findings from the Pan African Elephant Arial Survey, a.k.a. the Great Elephant Census, indicated that Zimbabwe's elephant population had declined by 6% since 2001, and that poaching had significantly increased. The Service noted the need for evidence that this information has been incorporated into management activities in a scientifically sound manner.

[1] http://www.zamsoc.org/wp-content/uploads/2016/04/ZIMBABWE-ELEPHANT-MANAGEMENT-PLAN-APPROVED-FINAL-1.pdf

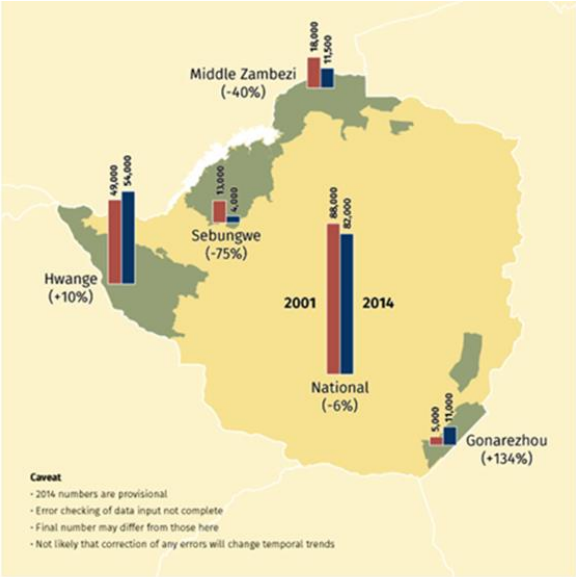


Figure 1. Zimbabwe's national elephant statistics, 2014. From The Zambezi Society Bulletin, February 2015 (http://us10.campaign-archive2.com/?u=f4943277ce971cb1c9028d068&id=50589e3c06).

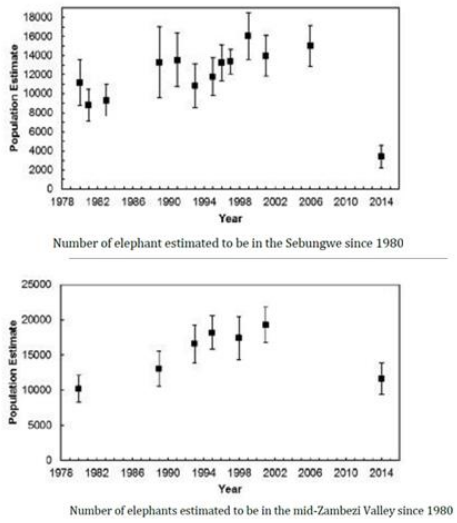


Figure 2. Number of elephants estimated to be in the Sebungwe and mid-Zambezi populations from 1980 to 2014. Source: Zimbabwe Elephant Management Plan (2015–2020), Figures 4 and 5.

Indeed, the Great Elephant Census[2] estimated that Zimbabwe's elephant population was 82,304 ±4,382 with a "carcass ratio" of 8%, meaning the survey recorded one dead elephant for every eight live elephants. The Census found that Zimbabwe's elephant population had declined by 6% overall since 2001, and that there were serious population declines in two of the four main Zimbabwe elephant populations (Figure 1). In Sebungwe, the elephant population decreased by 75%, from about 11,000 to 4,000. And in Middle Zambezi, the population decreased by 40%, from about 18,000 to 11,500. Regarding the other two Zimbabwe elephant populations, the Census found that Hwange's population had increased by 10% from about 49,000 to 54,000, and the population of Gonarezhou had increased by 134% from about 5,000 to 11,000.

While the new Zimbabwe Elephant Management Plan (2015–2020) does not reference the 6% overall elephant population decline in Zimbabwe, it does acknowledge the recent and dramatic elephant population decreases in Sebungwe (Plan, p. 7) and mid-Zambezi (Plan, p. 8) (see Figure 2).

Nevertheless, elephant trophy hunting is still occurring in both Sebungwe and mid-Zambezi,[3] calling into question whether or not the scientific evidence of significant elephant population declines in these areas have been taken into account in setting hunting quotas.

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[2] Chase MJ, Schlossberg S, Griffin CR, Bouché PJC, Djene SW, Elkan PW, Ferreira S, Grossman F, Kohi EM, Landen K, Omondi P, Peltier A, Selier SAJ, Sutcliffe R. (2016) Continent-wide survey reveals massive decline in African savannah elephants. PeerJ 4:e2354 https://doi.org/10.7717/peerj.2354; https://static1.squarespace.com/static/5304f39be4b0c1e749b456be/t/57c71f5fcd0f68b39c3f4bfa/1472667487326/GEC+Results+Country+by+Country+Findings+Fact+Sheet_FINAL_8+26+2016.pdf; http://www.greatelephantcensus.com/final-report.

[3] ZPWMA, *Sebungwe Elephant Management Workshop* (2015), http://www.zamsoc.org/wp-content/uploads/2016/04/Sebungwe_Elephant_Mgmt_Proceedings_29May_Compressed.pdf; https://www.bookyourhunt.com/elephant-hunting-in-zimbabwe

In Sebungwe, hunting blocks in both Chirisa and Chete Safari Areas, were auctioned in 2015 (ZPWMA 2015a, ZPWMA 2015b), with four male elephants on offer in each Area, plus two tuskless elephants in Chirisa. Hunting company Sitatunga Zimbabwe currently offers elephant hunts in Chirisa stating, "Average bull size being in the region of 40 – 45 pounds a side, occasionally 50 lbs can be achieved."[4] Elephant hunting is also curently offered in the Gokwe rural area in Sebungwe: "Elephant hunts in these areas for trophy bulls will produce ivory from around 30-35 pounds per side upwards; tuskless elephant hunting is very good in this area."[5]

There are five Safari Areas in the mid-Zambezi area: Sapi, Chewore, Hurungwe, Dande, and Doma.[6] Together, Mana Pools National Park, and Sapi and Chewore Safari Areas are a World Heritage Site. The 40th meeting of the World Heritage Committee, held 24-26 October 2016, adopted Decision 40 COM 7B.84,[7] which included:

> "4. Notes with significant concern that the 2014 national aerial survey of key wildlife species has revealed a decline in the Zambezi Valley populations of elephants and other mammals which are key attributes of the Outstanding Universal Value (OUV) of the property, and that the threat of poaching is currently too high to consider a feasibility study for a possible reintroduction programme of black rhinoceros;
>
> 5. Notes the development of an anti-poaching strategy for the property and a broader elephant management plan for the Zambezi Valley, and also requests the State Party to ensure that they are fully resourced and effectively implemented so as to restore and maintain the property's OUV;
>
> 6. ***Regrets that the State Party has not been able to complete the new management plan for the property due to lack of funds*** and encourages it to apply for International Assistance to support this work;" **(emphasis added)**

The 2016 Report on the Monitoring of Illegal Killing of Elephants (MIKE) to CITES COP17 noted that the percentage of illegal killing of elephants or "PIKE also increased substantially in . . . Chewore (Zimbabwe; by 69%, from 0.17 to 0.29)."[8] Therefore, it is clear that Zimbabwe has not completed the new management plan for the mid-Zambezi area. Given the lack of funding to complete a new management plan, it seems unlikely that even if such a plan were prepared, it would be fully resourced and effectively implemented.

Nonetheless, elephant trophy hunting is continuing in the Safari Areas in the mid-Zambezi, calling into question whether or not the significant elephant population decline in this area has been taken into account in setting hunting quotas. Charlton McCallum Safaris took numerous

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[4] https://www.bookyourhunt.com/Tour/8709
[5] http://www.zingelasafaris.com/zimbabwe/area/
[6] http://whc.unesco.org/en/list/302/
[7] World Heritage Convention, Decision 40 COM 7B.84, *Mana Pools National Park, Sapi and Chewore Safari Areas (Zimbabwe)* (2016), http://whc.unesco.org/en/decisions/6749
[8] https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf

clients on elephant hunts in the Dande Safari Area of the mid-Zambezi in 2017.[9] In March 2016, the Zimbabwe Parks and Wildlife Management Authority auctioned off hunting blocks that included elephants in Sapi, that included four male elephants and one tuskless elephant.[10] In April 2015, a professional hunter was killed while guiding a client on an elephant hunt in Chewore.[11]

Furthermore, despite the significant elephant population declines in the Sebungwe and mid-Zambezi areas, and the 6% population decline overall, all of which have been publicly known since 2014, Zimbabwe has made no change since 2004 to its voluntary African elephant export quota established under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This export quota stands at 1000 tusks from 500 animals,[12] exported as trophies (as export for commercial purposes is not allowed).

Therefore, the Service's concern, as stated in the 2015 finding, that information from the Great Elephant Census of 2014 has been incorporated into management activities in a scientifically sound manner, remains valid.

Weak implementation and enforcement

The Service's 2015 finding notes that, while strong laws and regulatory mechanisms for the Zimbabwe Parks and Wildlife Management Authority (ZPWMA) and its programs have been established, lack of funding for ZPWMA from the government means they are inadequately implemented and enforced. According to a letter received by the Service from ZPWMA in December 2014, the annual operating budget for ZPWMA is "in excess of US$28 million," yet, with the exception of a few projects, ZPWMA is "funded solely from trophy hunting conducted on state and private lands" (USFWS 2015 Enhancement Finding, p. 9). In the 2015 finding, the Service laments that they lack information about the amount of money generated by elephant trophy hunting specifically, how these funds are distributed, and how these funds enable ZPWMA to enforce and implement laws and regulations.

According to the 2016 report on the Elephant Trade Information System (ETIS) at CITES CoP17 Doc. 57.6 (Rev. 1),[13] "Zimbabwe is the country that pulls the rule of law score down, indicating far greater governance challenges exist in that country" (*id.*, p. 16). The World Justice Project (WJP) Rule of Law Index 2016 ranked Zimbabwe at 108 out of 113 countries and jurisdictions, meaning that Zimbabwe has the sixth worst rule of law.[14] According to WJP, "Effective rule of law reduces corruption, combats poverty and disease, and protects people from injustices large

[9] http://www.cmsafaris.com/zimbabwe-dande-hunt-trophy-gallery/gallery.htm
[10] http://www.desiredauctioneers.co.zw/downloads/ParksSapi.pdf
[11] https://africageographic.com/blog/hunter-killed-bull-elephant-musth/
[12] https://cites.org/eng/resources/quotas/export_quotas?field_party_quotas_tid=&field_full_name_tid=&field_export_quotas_year_value%5Bvalue%5D%5Byear%5D=2017&items_per_page=50
[13] CITES, Report on the Elephant Trade Information System (ETIS), CoP17 Doc. 57.6 (Rev. 1) (2016), https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-06-R1.pdf
[14] https://worldjusticeproject.org/sites/default/files/documents/ROLIndex_2016_Zimbabwe_en.pdf

and small. It is the foundation for communities of peace, opportunity, and equity—underpinning development, accountable government, and respect for fundamental rights."[15]

The ETIS report also found that Zimbabwe had the tenth largest ivory market of any country in the analysis, and stated that there is "increasing evidence of direct Chinese involvement in Africa-based ivory processing operations" in Zimbabwe "with production (primarily bangles, name seals and chopsticks) being shipped to Asia using courier companies as well as individuals who sometimes carry contraband on their bodies using purposefully built clothing" (ETIS p. 20).

Indeed, instead of effectively implementing and enforcing wildlife laws and regulations, ZPWMA personnel have been implicated in the illegal ivory trade. In 2015, three ZPWMA staff members were arrested for involvement in the theft of ivory from a government stockpile held at Hwange National Park.[16] The arrests came after a shipment of 62 tusks on its way to China was seized at the international airport in Harare. Serial numbers on the tusks were traced to the Hwange government stockpile. An alleged Chinese smuggler, who claimed he represented the Chinese government, had obtained export permit signed by the most senior of the three ZPWMA people arrested. All three were released from custody, the senior ZPWMA person after paying a $600 bail; none appeared in court again. Allegedly, the investigation was stopped after senior ZPWMA officials in Harare intervened in order to cover the involvement of other ZPWMA officials in the smuggling. The investigation seems to implicate senior parks and Ministry of Environment, Water and Climate officials. Allegedly, the ZPWMA trio had been exporting ivory from the stockpile since 2012. They had the assistance of ZPWMA security personnel and police units who guarded the trucks carrying the ivory over the 880 km from Hwange to the airport.

Corrupt government officials allegedly have been involved in both poaching of elephants and illegal export of ivory tusks, and involvement in a transnational syndicate.[17] Edson Chidziya, the former Director General, Zimbabwe Parks and Wildlife Management Authority, and one-time regional representative for Africa on the Animals Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),[18] was fired in May 2017 for his alleged involvement in the disappearance of rhino horns worth $3 million two years before.[19]

Of further concern is that the ZPWMA operates without a board which, as noted by Mupfiga and Chirimumimba (2015),[20] creates "a leadership vacuum and also legal constraints for the validation of policy decisions and approval or authorization of programmes" and it is "worrying for State entities to operate without boards for long periods because management are then left to

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[15] *Id.*
[16] https://oxpeckers.org/2016/04/how-to-steal-an-ivory-stockpile/
[17] http://globaljournalist.org/2017/02/zimbabwe-journalist-fights-charges-poaching-report/
[18] https://cites.org/sites/default/files/eng/com/ac/22/E22-05-01.pdf
[19] http://www.thezimbabwean.co/2017/05/zim-wildlife-boss-fired-3m-rhino-horn-goes-missing-report/
[20] Mupfiga, P. and Chirimumimba, M., 2015. Challenges to the implementation of IT Governace in Zimbabwean Parastatals. The International Journal of Engineering and Science 14(12): 1-6. ISSN (e): 2319 – 1813. https://www.researchgate.net/profile/Paul_Mupfiga/publication/286871326_Challenges_to_the_Implementation_of_IT_Governance_in_Zimbabwean_Parastatals/links/566eb41108aea0892c52a40d/Challenges-to-the-Implementation-of-IT-Governance-in-Zimbabwean-Parastatals.pdf

operate without accountability, a situation which may compromise the efficiency and effectiveness of an entity due mainly to the absence of an effective oversight function" (p. 4).

The report on Monitoring the Illegal Killing of Elephants (MIKE) to CITES COP17 further flagged several Zimbabwe monitoring sites for capacity building indicating the need for support to improve patrolling, managing, and monitoring at Mana Pools, Sapi and Chewore World Heritage Site.[21]

Thus, the concern stated in the Service's 2015 finding, that Zimbabwe's wildlife laws and regulatory mechanisms are inadequately implemented and enforced, remains valid.

Furthermore, on the subject of law enforcement, the 2015 finding states that the Service has been told by safari outfitters and hunting guides that the presence of U.S. trophy hunters, and their outfitters and guides, are the major deterrent to poaching in Zimbabwe and that, therefore, such hunting enhances the survival of the species. However, recent data demonstrates that this claim is invalid. For example, between 2006 and 2014, elephant poaching increased substantially in both the Chirisa and Chete Safari Areas where elephant hunting occurs, while elephant densities decreased (Figure 3). Moreover, we agree with the Service's 2015 finding that, even if true, this assertion would do nothing to reduce poaching in places where hunting does not occur, such as National Parks, which have experienced substantial elephant poaching.

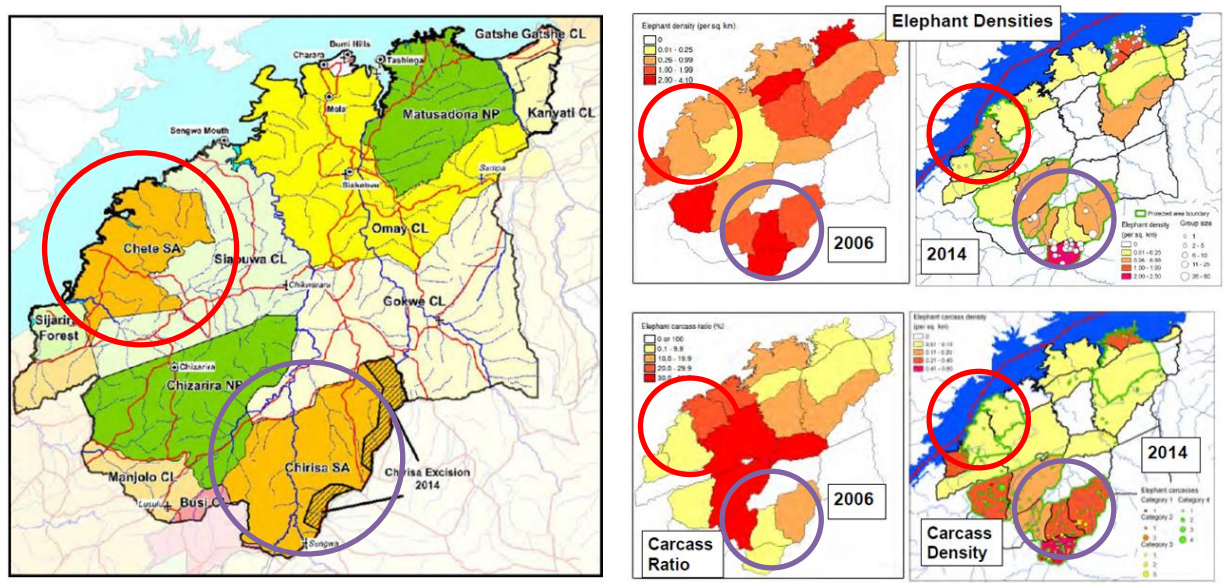

Figure 3: Current land classification of the Sebungwe and survey data. From: Sebungwe Elephant Management Proceedings, p. 10 and 11.

Lack of evidence that legal offtake and quotas are biologically sustainable

The Service's 2015 finding expressed the concern that there is no way to know if legal offtakes are biologically sustainable given that, at that time, there were no up-to-date population

[21] https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf

estimates, no information on the number of elephants legally taken each year, and no credible information on other sources of elephant mortality (such as legal "cropping", natural mortality, accidents, poaching, problem animal control and "management offtake").

The scientific basis for the establishment of elephant hunting and export quotas in Zimbabwe, in light of the recent and significant declines noted above, remains unknown.

Supposedly, quota setting for wildlife in Zimbabwe is a consultative process involving workshops with wildlife farmers, hunters, local authorities, tour operators and photographers and a scientific review that looks at poaching, trophy quality and size, natural mortality, and problem animal control in surrounding communities.[22] However, the reality is something quite different.

A 2016 paper by Muposhi et al.[23] presented the results of a study on the impact of trophy hunting on large herbivores, including elephants, in the Matetsi Safari Area near Hwange National Park. They found that trophy tusk sizes of hunted African elephants declined significantly from 2004-2015 possibly indicating, according the researchers, that elephant trophy hunting in the area is not sustainable. Furthermore, the authors found that, despite the existence since 2014 of data on elephant populations generated from the Great Elephant Census, quotas "may have been based on previous experiences and individual opinions and not based on scientific principles" (Muposhi p. 15). On the general topic of quota-setting in the area, the authors stated, "There seems to be over-reliance on questionable and subjective personal opinions in the quota setting process which in actual sense is supposed to be based on scientific evidence and ecological principles" (Muposhi p. 12). Finally, the authors note the obvious conflict of interest that exists when the ZPWMA, which relies on trophy hunting as income for its operations, is also in charge of setting quotas, posing the question "who will police the regulator" (Muposhi p. 15), noting that it may cause problems when "economic benefits to take precedence over regulatory policy framework" (Muposhi p. 15). In other words, the scientific component of quota setting is lacking.

Selier et al. (2014)[24] found that elephant hunting in the Greater Mapungubwe Transfrontier Conservation Area, which includes Botswana, South Africa and Zimbabwe, was unsustainable and predicted that "trophy bulls will disappear from the population in less than 10 years."

Politics and corruption also play roles in trophy hunting in Zimbabwe. A 2012 news article explained how officials from Zimbabwe's ruling party since 1980 sought to cash in on trophy

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[22] http://www.chronicle.co.zw/elephants-hunting-quota-set-at-500/

[23] Muposhi, V. et al., 2016. Trophy Hunting and Sustainability: Temporal Dynamics in Trophy Quality and Harvesting Patterns of Wild Herbivores in a Tropical Semi-Arid Savanna Ecosystem. PLoS One 11(10). http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0164429&type=printable

[24] Selier, S.A.J., Page, B.R., Vanak, A.T. and Slotow, R., 2014. Sustainability of elephant hunting across international borders in southern Africa: A case study of the greater Mapungubwe Transfrontier Conservation Area. The Journal of Wildlife Management, 78(1), pp.122-132. https://www.researchgate.net/publication/259539652_Sustainability_of_Elephant_Hunting_Across_International_Borders_in_Southern_Africa_A_Case_Study_of_the_Greater_Mapungubwe_Transfrontier_Conservation_Area.

hunting by taking over hunting concessions.[25] A 2015 news article quoted Mary-Jane Ncube of a Zimbabwe NGO that monitors corruption, Transparency in Zimbabwe, as stating "In the area of conservation, I think it [the government] has behaved like a predatory state, going after big investments, giving them to cronies, family, and really not having any concern for communities that are dependent on that land …"[26] Furthermore, she was quoted as saying, "National Parks was the authority in charge of concessions and licensing, but because of the corruption … concessions and licenses are now given according to who you are and who you can pay the highest dollar to." A June 2017 news article described how the Tsholotsho Rural District Council sold permits to a safari hunting company, Lodzi Hunters, to hunt 50 elephants in order to get money to fund the construction of a football stadium. This reportedly came about after Higher and Tertiary Education, Science and Technology Development Minister Professor Jonathan Moyo, who is the MP for the area, made a deal with then Minister of Water, Climate and Environment, Saviour Kasukuwere, who then issued the hunting quota of 50 to the Council. Of relevance, according to Transparency International, in 2016 Zimbabwe was the 22nd most corrupt country, ranking 154 of 176.[27]

Regarding poaching, as noted earlier, it is evident from the Great Elephant Census of 2014 that Sebungwe lost at least 7,000 elephants between 2001 and 2014, and mid-Zambezi lost 6,500 over the same period. (Chase et al. 2016). And the MIKE report to COP17 documented a 69% increase in PIKE (from 0.17 to 0.29) in Chewore.[28] This is roughly equivalent to 13,500 elephants over a 13-year period or 1,350 per year just in these two populations alone. Yet, according to information provided to the Service by ZPWMA, as cited in the 2015 finding, poaching on a national basis averaged only 190 per year from 2009 to 2013; and according to information provided to the Service by safari operators, as noted in the 2015 finding, about 160 elephants are killed by trophy hunters annually. Clearly, there is a large and unexplained discrepancy between these figures that underscores the lack of credible information on all sources and quantity of elephant mortality, without which there is no way to ascertain if legal offtakes are biologically sustainable.

Elephant poaching has continued in Zimbabwe in the three years following the Great Elephant Census of 2014. In October 2015, 22 and possibly as many as 78 elephants were poisoned with cyanide in Hwange National Park, and their tusks removed.[29] Reportedly, 159 elephants were poached in Zimbabwe in 2016.[30] In June 2017 it was reported that ten elephants, including a mother and her young calf, were poisoned and tusks removed in Hwange National Park and in the state forestry land outside the northern part of the Park.[31]

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[25] https://mg.co.za/article/2012-09-07-00-big-bucks-trigger-zimbabwe-scramble
[26] https://mg.co.za/article/2015-10-22-hunters-feed-corrupt-zim-officials
[27] https://www.transparency.org/news/feature/corruption_perceptions_index_2016#table
[28] https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf
[29] http://www.cnn.com/2015/10/27/africa/zimbabwe-elephant-poaching/
[30] http://www.zbc.co.zw/2017/06/15/elephant-poaching-cases-on-the-decline/
[31] https://www.theguardian.com/environment/2017/jun/20/ten-more-elephants-poisoned-by-poachers-in-zimbabwe

Therefore, the Service's concern, as expressed in the 2015 finding, that there is no way to know if legal offtakes are biologically sustainable, given no credible information on other sources of elephant mortality, remains valid.

Lack of information about how money from trophy hunting by U.S. hunters is distributed within Zimbabwe

The Service's 2015 finding stated: "While CAMPFIRE [Communal Areas Management Programme for Indigenous Resources, a Zimbabwe community-based natural resource management program] has provided conservation benefits in the past and improved tolerance of wildlife in rural communities, the program has more recently come under criticism relating to excessive retention of generated funds by district councils, resulting in diminished benefits to communities. Sport-hunting may be an important tool that gives these communities a stake in sustainable management of the elephant as a natural and economic resource and offsets the costs of conflict with wildlife. However, without current information on how funds are utilized and the basis for hunting off-takes, the Service is unable to confirm whether revenue generated through sport-hunting actually provides an incentive to local communities to conserve elephants." (USFWS 2015 Enhancement Finding)

Indeed, Harrison et al. (2014)[32] provided a recent analysis of the CAMPFIRE program. The theory behind CAMPFIRE is to empower community members at a village level to control wildlife and its revenue, and to thus create an economic incentive for communities to conserve wildlife. But, according to Harrison et al., this is not actually happening. According to Harrison et al., although CAMPFIRE had a reputation of success in its early days, over time this perception eroded and by the late 1990s it was criticized for lack of participation, lack of empowerment and lack of participation of local communities in management of natural resources. The main problem with the way that CAMPFIRE was designed is that it established the rural district council, which represents numerous local communities, as the 'local' body in charge of natural resource management, rather than the local communities themselves. Harrison et al. state, "Failure to provide benefits to the local communities and to successfully devolve management are just two of the many common criticisms" (p. 8). Among these criticisms is "insufficient action to tackling problems of elite-capture of resources and wildlife-based tourist revenues within RDCs" (Harrison et al. p. 9).

Harrison et al. (2014) studied the CAMPFIRE program in the Binga district, which is part of Sebungwe, and the Chiredzi district, which is part of Gonarhezou; as noted previously, the elephant populations of both Sebungwe and Gonarhezou have experienced dramatic elephant population declines in recent years. The authors found that CAMPFIRE failed as a governance system for community involvement and empowerment and that the "community-based" terminology is merely rhetoric. They warn that new "community-based" natural resource management projects need to "be aware of the disconnect between the local citizens (as their key stakeholders) and what the RDC may believe and be happy to approve" (Harrison et al. p. 30).

[32] Harrison, E., Stringer, L., and A. Dougill. 2014. The importance of the sub-district level for community-based natural resource management in rural Zimbabwe. Centre for Climate Change Economics and Policy Working Paper No. 183, Sustainability Research Institute Paper No. 69. https://pdfs.semanticscholar.org/1e0e/b71b4b6ce9429abca5ad41738f24978ba915.pdf

They conclude "The lack of understanding and attention paid to the sub-district governance system for natural resource management has meant that project implementation has negatively affected the system as a whole, including the people within it, as well as the project outcomes" (Harrison et al. p. 31). They said, "CAMPFIRE has continued to try and operate in a system it increasingly did not understand and thus its structures did not map appropriately onto those operating at the sub-district level. As a partial result of this, the programme has largely collapsed in many parts of the country" … "including in the four case study villages. The benefits experienced by the communities involved over the projects' lifespans have been negligible" (Harrison et al. p. 32).

Two news reports by Debra Patta looked at local perspectives in Zimbabwe on the claim that trophy hunting benefits local communities. One news report quoted Emmanual Fundira, who heads Safari Operators Association of Zimbabwe as saying that although part of the hunting fees paid by trophy hunters is supposed to go to conservation and community projects, in fact it rarely does.[33] In another article, Fundira stated, "If you talk to communities today and say 'Campfire' they don't want to hear [it]. They say Campfire is not benefitting them at all and that in itself is a disaster."[34] The article also quoted a CAMPFIRE rural district council CEO named Phindile Ncube as saying that his community earned $158,000 in a year for infrastructure and "feeding schemes." However, the article quoted a villager named Edward Ngwenya who said he hadn't received anything from the RDC. This was confirmed in another report which said that, while money from trophy hunting is promised to poor communities, they are only getting poorer.[35] Another news article quoted a local chief, Victor Nekatambe, commenting on the fact that local rural district councils manage CAMFIRE and that communities do not receive funding: "They are getting nothing, absolutely nothing."[36]

Therefore, the Service's concerns about CAMPFIRE and the lack of evidence to confirm that revenue generated through elephant sport-hunting actually provides an incentive to local communities to conserve elephants, remains valid.

Lack of a national mechanism, such as government support, to sustain elephant conservation efforts in the country

The Service's 2015 finding expressed concern that, without a national mechanism, such as government support, elephant conservation efforts in Zimbabwe could not be sustained.

As noted above, according to the ZPWMA, the annual operating budget for ZPWMA is in excess of US$28 million and the new Zimbabwe Elephant Management Plan (2015–2020) states that the cost of implementing the Plan will be at least US$12 million per annum in operational budget alone. Yet, the government of Zimbabwe provides no financial support to the ZPWMA, and indeed, according to ZPWMA itself "no amount is budgeted for conservation in the national

[33] http://www.cbsnews.com/news/zimbabwe-corruption-trophy-hunting-cecil-lion-conservation/
[34] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/
[35] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/
[36] *Id.*

budget,"[37] leading to inadequate enforcement and implementation of laws and regulatory mechanisms. Lack of government funding also leaves the ZPWMA to rely on trophy hunting, even when unsustainable, to pay its bills.

Lack of funding for ZPWMA has limited anti-poaching efforts and this has had negative effect on elephant conservation. Mana Pools National Park and neighboring safari areas, which are located in the mid-Zambezi area, is one of the areas hardest hit by poaching, as noted above. At a 2015 workshop held by ZPWMA to develop an anti-poaching strategy for the Park,[38] the Area Manager for the Park, Marvellous Mbikiyana, was quoted in a workshop report as having stated, "While the ideal staffing level for rangers is 110 for the Park, 75 have been approved, and only 38 are on site. Of the 38 on site, only 13 are deployable at any one time, due to a number of other commitments, such as driving duties, serving in the front office, and so on." The workshop report noted that the effectiveness of enforcement was negatively affected by low manpower.[39]

Therefore, the Service's concern that there is a lack of a national mechanism to sustain elephant conservation efforts in Zimbabwe, remains valid.

Conclusion

As the home to one of the largest remaining populations of African elephants, it is critical that elephants thrive in Zimbabwe; unfortunately, elephants in Zimbabwe face significant threats including human conflict, habitat destruction, and unsustainable trophy hunting. For the aforementioned reasons, concerns expressed about elephant management in Zimbabwe contained in the Service's 2015 finding remain valid today, and the Service's finding that the import of trophies from elephants hunted in Zimbabwe will not enhance the survival of the species, remains valid. The presence of one of the strongest trophy hunting sectors in Africa has not prevented and, in fact, is demonstrated to have contributed to decreases in the elephant population.

Therefore, trophy hunting of elephants in Zimbabwe cannot be said to enhance the survival of the species, and issuing an import permit for elephant trophies from Zimbabwe would therefore violate the Endangered Species Act and FWS regulations. If FWS issues any elephant trophy import permits from Zimbabwe, HSUS, HSI, and CBD will consider seeking judicial review of that decision. Further, this letter serves as formal opposition to any application for an import permit for a elephant trophy from Zimbabwe and HSUS, HSI, and CBD request that FWS

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[37] http://www.zimparks.org/index.php/mc/279-zimbabwe-parks-and-widlife-management-authority-zimparks-successfully-exports-35-african-elephants-to-china

[38] ZPWMA, Workshop to Develop an Anti-Poaching Strategy for Mana Pools National Park and Neighbouring Safari Areas (2015), http://www.zamsoc.org/wp-content/uploads/2016/04/MPNP-Anti-Poaching-Workshop-Summary-Report-15-April-2015.pdf

[39] Similarly, the MIKE report to COP 17 noted a lack of data managers with the associated MIKE sites in Zimbabwe. Table 2 https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf

provide ten days advance notification (via email, afrostic@humanesociety.org) prior to the issuance of any such permits. *See* 50 C.F.R. §§ 17.22(e), 17.32.[40]

Sincerely,

Anna Frostic
Senior Attorney, Wildlife Litigation
The Humane Society of the United States

Teresa M. Telecky, Ph.D.
Director, Wildlife Department
Humane Society International

Tanya Sanerib
Senior Attorney
Center for Biological Diversity

[40] HSUS has previously called on FWS to publish notice in the Federal Register of threatened species permit applications, and we reassert that such action is essential to create transparency in FWS' enhancement analysis for African elephant activities, consistent with the intent of ESA Section 10. Similarly, it is arbitrary for the Service to explicitly apply the notification requirements of 50 C.F.R. § 17.22(e) to certain types of threatened species permits (i.e., those for Safe Harbor Agreements and Candidate Conservation Agreements with Assurances) but not to other threatened species permits (i.e., for incidental take and import).

Primary References Attached

Chase MJ, Schlossberg S, Griffin CR, Bouché PJC, Djene SW, Elkan PW, Ferreira S, Grossman F, Kohi EM, Landen K, Omondi P, Peltier A, Selier SAJ, Sutcliffe R. (2016) Continent-wide survey reveals massive decline in African savannah elephants. PeerJ 4:e2354 https://doi.org/10.7717/peerj.2354

CITES, Animals Committee Regional Reports, Africa, AC22 Doc. 5.1 (2006)

CITES, Report on the Monitoring of Illegal Killing of Elephants (MIKE) (2016), https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-05.pdf

CITES, Report on the Elephant Trade Information System, CoP17 Doc. 57.6 (Rev. 1) (2016), https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-06-R1.pdf

Great Elephant Census, Country-by-Country Fact Sheet (2016)

Harrison, E., Stringer, L., and A. Dougill. 2014. The importance of the sub-district level for community-based natural resource management in rural Zimbabwe. Centre for Climate Change Economics and Policy Working Paper No. 183, Sustainability Research Institute Paper No. 69. https://pdfs.semanticscholar.org/1e0e/b71b4b6ce9429abca5ad41738f24978ba915.pdf

Mupfiga, P. and Chirimumimba, M., 2015. Challenges to the implementation of IT Governace in Zimbabwean Parastatals. The International Journal of Engineering and Science 14(12): 1-6. ISSN (e): 2319 – 1813.
https://www.researchgate.net/profile/Paul_Mupfiga/publication/286871326_Challenges_to_the_Implementation_of_IT_Governance_in_Zimbabwean_Parastatals/links/566eb41108aea0892c52a40d/Challenges-to-the-Implementation-of-IT-Governance-in-Zimbabwean-Parastatals.pdf

Muposhi, V. et al., 2016. Trophy Hunting and Sustainability: Temporal Dynamics in Trophy Quality and Harvesting Patterns of Wild Herbivores in a Tropical Semi-Arid Savanna Ecosystem. PLoS One 11(10).
http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0164429&type=printable

Selier, S.A.J., Page, B.R., Vanak, A.T. and Slotow, R., 2014. Sustainability of elephant hunting across international borders in southern Africa: A case study of the greater Mapungubwe Transfrontier Conservation Area. The Journal of Wildlife Management, 78(1), pp.122-132.
https://www.researchgate.net/publication/259539652_Sustainability_of_Elephant_Hunting_Across_International_Borders_in_Southern_Africa_A_Case_Study_of_the_Greater_Mapungubwe_Transfrontier_Conservation_Area

USFWS 2014 Enhancement Finding for Elephants from Zimbabwe

USFWS 2015 Enhancement Finding for Elephants from Zimbabwe

World Heritage Convention, Decision 40 COM 7B.84, *Mana Pools National Park, Sapi and Chewore Safari Areas (Zimbabwe)* (2016), http://whc.unesco.org/en/decisions/6749

Zimbabwe Elephant Management Plan (2015–2020)

ZPWMA 2015a. The 2015 Chirisa Hunting Camps Auction.

ZPWMA 2015b. The 2015 Chete Hunting Camps Auction.

ZPWMA, *Sebungwe Elephant Management Workshop* (2015), http://www.zamsoc.org/wp-content/uploads/2016/04/Sebungwe_Elephant_Mgmt_Proceedings_29May_Compressed.pdf

ZPWMA, Workshop to Develop an Anti-Poaching Strategy for Mana Pools National Park and Neighbouring Safari Areas (2015), http://www.zamsoc.org/wp-content/uploads/2016/04/MPNP-Anti-Poaching-Workshop-Summary-Report-15-April-2015.pdf

From:	Hoover, Craig
To:	Gloria Bell
Cc:	Tim Van Norman
Subject:	Follow up from Secretary meeting with SCI, NRA, etc.
Date:	Tuesday, September 19, 2017 5:56:18 PM
Attachments:	Briefing paper on SCI - NRA Sport hunting concerns v3 clean (1).docx

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Gloria,

As we briefly discussed, attached is the briefing paper that we worked with ES, OLE and others to prepare to address the numerous issues that SCI, the NRA, and others raised in the meeting with the Secretary.

The suggested next step is to reach out to the Director's Office to arrange a meeting that includes the relevant programs, to discuss these issues, and to plan further engagement based on Greg's feedback. He is interested in meeting with the groups again to talk through each of these issues.

Let me know if you need anything else.

Best,

craig

--
Craig Hoover
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INFORMATION MEMORANDUM FOR THE DIRECTOR

FROM: Craig Hoover, Chief, Division of Management Authority

SUBJECT: Sport-Hunted Trophy issues Raised by Safari Club and others during a meeting with Secretary Zinke

I. SUMMARY

On July 11, 2017, Secretary Zinke hosted a meeting with several hunting advocacy groups, including Safari Club International, Dallas Safari Club, the Congressional Sportsmen's Foundation, and others, to discuss foreign species hunting trophies and how the U.S. Fish and Wildlife Service is implementing the Endangered Species Act and other legal requirements. These groups presented Secretary Zinke with a list of "International Hunting Priorities and Recommended Actions." On July 10, 2017, the Office of the Executive Secretariat received a letter from American tourist hunting community organizations, including Conservation Force, Dallas Safari Club, Houston Safari Club, and others, which also provided a list of recommended actions relating to foreign species hunting trophies and how the U.S. Fish and Wildlife Service is implementing the Endangered Species Act and other legal requirements. This information memo summarizes the recommended actions and how the Service might respond to them.

II. DISCUSSION

Removal of barriers to the importation of legally hunted African lions that enhance the survival of the species:

1. The hunting groups identified what they believe is a barrier to the importation of sport-hunted lion trophies and requested that the Service make the required findings under the Endangered Species Act (ESA) and grant permit applications to allow the import of lion trophies taken in southern and eastern Africa since the listing of the species in January 2016.

In accordance with Service regulations for implementation of the ESA (50 CFR 17.32; 17.40(r)), to issue an import permit for a personally hunted lion trophy, the applicant must demonstrate that the import of the trophy would enhance the propagation or survival of the species in the wild. However, for most sport-hunted trophy imports, the hunter typically does not have access to all of the information the Service needs to make a positive "enhancement finding." To address this issue, the Service has contacted the wildlife authority within the country where the trophies have been or likely will be taken to obtain information on the status of the species within the country, the management program for the species, how sport hunting is integrated into that management plan, how funds generated through hunting contribute to the conservation of the species, how local communities benefit from hunting operations, and other relevant information.

In 2016, the Service made an enhancement finding for sport-hunted wild/wild-managed lions taken in South Africa in 2016. On August 31, 2017, we announced a positive finding for wild/wild-managed lions taken in South Africa in 2017, 2018, and 2019, based on their current management plan that covers this period. We are working to finalize our findings for lions taken in Tanzania, Zimbabwe, and Zambia at this time. We are reviewing material received from the Government of Mozambique and Namibia. As soon as the Service has made a finding on whether the import of a sport-hunted lion trophy meets the enhancement criteria under our regulations, we will authorize the import and notify each applicant of the decision. We anticipate making findings for each of these countries in the next several weeks.

One way that these groups can assist in this process is to encourage countries to provide information so that we can make the necessary findings. This was demonstrated in the provision of information from Namibia shortly after our meeting, after we indicated that Namibia had not yet responded to several inquiries.

2. The hunting groups noted that the Section 4(d) rule that was published at the time the lion was listed under the ESA requires that a permit must be issued prior to the import of a lion trophy. The groups do not believe that import permits should be required and has asked the Service to conduct a formal rulemaking process to remove the permitting requirement from the Section 4(d) rule.

Section 9(c)(2) of the ESA and our ESA implementing regulations at 50 CFR 17.8 provide a limited exemption for the import of some Threatened, CITES Appendix-II specimens, which can be used by hunters to import sport-hunted trophies without an ESA threatened species import permit. Import of threatened species that are also listed in CITES Appendix II is presumed not to be in violation of the ESA if the import is not made in the course of a commercial activity, all CITES requirements have been met, and all general wildlife import requirements under 50 CFR part 14 have been met. However, when the Service promulgates a Section 4(d) rule for a threatened species, the presumption that otherwise would result from the operation of Section 9(c)(2) of the ESA is rebutted on the basis of the rulemaking record for the Section 4(d) rule. When the lion was listed as threatened, a Section 4(d) rule was established that rebutted this provision and established the requirement for an ESA import permit for the import of all lion specimens into the United States, including the requirement that the Service find that the import of a sport-hunted trophy enhances the propagation or survival of the species in the wild. The current Section 4(d) rule was completed through the ordinary notice and comment rulemaking process and was deemed "necessary and advisable for the conservation of the species."

Removal of the import permit requirement for sport-hunted trophies of African lions of the threatened subspecies *P. l. melanochaita* (Southern Africa, Eastern Africa; commonly called the "African lion") would require a revision of the 4(d) rule at 50 C.F.R. § 17.40(r). Removal of the requirement for the endangered subspecies *P. l. leo* (India, Western Africa, Central Africa; commonly referred to as the "Northern African or Asian lion") cannot be accomplished through

a 4(d) rule; an endangered species import permit is required under Section 10 of the ESA. Endangered species are not subject to the rebuttable presumption of Section 9(c)(2). To revise the 4(d) rule for *P. l. melanochaita*, the Service would need to follow the ordinary notice and comment rulemaking process under the Administrative Procedure Act (APA), undertake all required determinations such as NEPA and Section 7 of the ESA, and must make a determination under Section 4(d) that the amendment is "necessary and advisable for the conservation of the species" based on the best available information.

3. The groups encourage the Service to work with the South African hunting community to develop and demonstrate the connection between hunting captive-bred lions and conservation of the species in the wild.

The Service has been communicating with the South African Predator Association (SAPA), which represents a number of farms in South Africa that are raising captive-bred lions. Under the ESA, the enhancement requirements are the same for captive-bred animals as for wild animals. Therefore, in order for the Service to authorize the import of a captive-bred lion trophy, the Service must determine that the import of the trophy would enhance the propagation or survival of the species *in the wild*. While SAPA has discussed certain approaches to meet this enhancement requirement, to date they have not developed a program for their members to contribute either as an organization or as individuals to the conservation of wild lions in South Africa or within the lion's natural range. SAPA has requested an opportunity to meet with the Service to discuss the permitting process and the legal requirements for authorizing import of sport-hunted trophies. The Service will continue to work with SAPA to provide guidance on the permitting process and how SAPA or their members could meet the enhancement requirements.

Removal of barriers to the importation of legally hunted African elephants from Zimbabwe:

The hunting groups identified what they believe is a barrier to the import of sport-hunted elephant trophies from Zimbabwe and requested that the Service make the required findings under the ESA to allow the import of elephant trophies from Zimbabwe legally hunted on or after May 12, 2014, when the Service determined and announced in the Federal Register that import of elephant trophies from Zimbabwe did not meet the enhancement criteria under the ESA.

In April 2014, the Service made an interim determination that the information available to us was not sufficient to make an enhancement finding under the ESA for the import of elephant trophies from Zimbabwe, and announced the resulting suspension of imports until such time as we had sufficient information to make a positive finding. In July 2014, after reviewing information presented by the Zimbabwe Parks and Wildlife Management Authority, the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), professional hunter

association, non-governmental organizations and others, we determined that based on the available information, we were unable to make a positive enhancement finding for elephant trophies taken in Zimbabwe after April 4, 2014 (as a result of litigation over this decision, the Court ruled that the effective date of the suspension should be May 12, 2014, since this was the date the Federal Register notice announcing the decision was published). On March 26, 2015, after reviewing additional information received since the 2014 findings, we announced that we would extend the suspension on elephant trophy imports through 2015 and future hunting seasons until such time as we had sufficient information to make a positive finding. Again, this decision was based on the available information on what was occurring in Zimbabwe at that time. Since these findings, while we have received additional information, we have not received any additional information that demonstrates that the management activities or the status of elephants in Zimbabwe in 2014 and 2015 was substantially different than what was identified in our 2014 and 2015 findings. Therefore, we do not believe there is a basis to amend these findings to allow trophies taken in much of 2014 or 2015 to be imported. These findings have been litigated and upheld on the merits at the District Court level and defense of the findings on appeal has been fully briefed and is currently in front of the Appellate Court with oral argument scheduled for October 13, 2017.

Since the 2015 finding, the Service has received new information on Zimbabwe's elephant management program, the status of elephants in Zimbabwe, and the contribution by U.S. hunters toward elephant conservation. We are able to determine that trophies taken after January 21, 2016, until December 31, 2017, would meet the enhancement criteria and, providing individual applicants are eligible for a permit under the Service general permitting regulations, we would authorize the import of such trophies. The decision to authorize imports of elephants taken on or after January 21, 2016, is tied to this being the date that Zimbabwe's revised elephant management plan was officially adopted and implemented by the Zimbabwe Government. As a result, we are able to make a causal connection between the conservation contribution of U.S. hunters seeking to legally hunt and import elephant trophies from Zimbabwe and enhancement of the elephant's survival in Zimbabwe such that the regulatory standard is satisfied for trophies taken during 2016 and 2017, on or after January 21, 2016. Once we announce this decision (the Federal Register notice is currently in the surname process and awaiting clearance from the Department), we will send the Zimbabwe Government a letter informing them of the decision to authorize trophies taken in 2016 and 2017 and request additional information on several issues in order to make a finding for the 2018 hunting season.

Removal of barriers to the importation of legally hunted African elephants from Tanzania:

The hunting groups identified what they believe is a barrier to the import of sport-hunted elephant trophies from Tanzania and requested that the Service make the required findings under the ESA and CITES to allow the import of elephant trophies from Tanzania since April

2014, when the Service announced that it was unable to determine that import of elephant trophies from Tanzania meet the permit issuance criteria under the ESA and CITES. The groups ask the Service to reinstate a 1997 enhancement finding for the import of Tanzanian sport-hunted elephant trophies and to re-evaluate how the Service makes CITES non-detriment findings.

In April 2014, the Service announced that we were not authorizing the import of sport-hunted elephant trophies taken in Tanzania in 2014 due to the inability to make a positive enhancement finding under the ESA and a non-detriment finding under CITES, both requirements to authorize imports. The Service had reviewed all of the available information that was presented by the Tanzanian Government, non-governmental organizations and others when making its enhancement and non-detriment findings for trophies taken in 2014 and were unable to make the required findings. In 2015, after reviewing the available information, the Service announced that we were still unable to make a positive enhancement or non-detriment finding. We therefore denied all permit applications requesting authorization to import sport-hunted elephant trophies for those years. Since these findings, we have not received any additional information that demonstrates that the management activities or the status of elephants in Tanzania in 2014 and 2015 was different than what was identified in our 2014 and 2015 findings. Therefore, we do not believe there is a basis to amend these findings to allow trophies taken in 2014 or 2015 to be imported. Safari Club and National Rifle Association filed suit against the Service over the merits of our 2014 decisions. The District Court initially found that the plaintiffs did not state a claim upon which relief can be granted because no member of either organization applied for a permit and dismissed the case. Subsequently, the plaintiffs appealed the decision to the Appellate Court, which overturned the lower court decision and remanded the case back to the District Court. The case has now been fully briefed on the merits and is still pending before the District Court.

Since the 2015 findings, the Service has received some information on Tanzania's elephant management program, the status of elephants in Tanzania, and the contribution by U.S. hunters toward elephant conservation. We are evaluating this information now to make a determination of whether elephant trophies taken during the 2016 and 2017 hunting seasons would meet the issuance criteria under the ESA and CITES regulations. There are still outstanding concerns with the status and management of elephants in Tanzania. We are drafting a briefing document to present to the Director in the near future to discuss this further.

In 1997, the Service made a determination, based on the information available at that time, that imports of sport-hunted elephant trophies from Tanzania met the enhancement criteria under the ESA. In 2014, after evaluating the information available at that time on the status and management of African elephants in Tanzania in 2014, the Service issued an updated enhancement finding, determining that imports did not meet the enhancement criteria. Because we had new information that led to our 2014 finding, we are unable to reinstate the 1997 finding.

When the Service makes its non-detriment findings, it uses the best available science, trade data, and other relevant information. This has been the standard used since the United States became a member to CITES and is also provided in our CITES implementing regulations at 50 C.F.R. 23.61. The Service also follows the guidance provided in Resolution Conf. 16.7 (Rev. CoP17). This guidance was developed by the Parties to CITES through an in-depth and exhaustive process and adopted by the Parties at the 16th Meeting of the Conference of Parties in 2013.

Reevaluation of the standard for enhancement of survival:

The hunting groups have requested that the Service review its current practices in developing enhancement of survival findings under the ESA to make the basis of the finding whether the hunting program simply benefits the survival of the species.

The hunting groups believe that the Service is using a different and heightened enhancement standard than was previously used by the Service prior to the 2014 Zimbabwe and Tanzania elephant trophy findings. In contrast with findings made in 1997, they believe that the 2014 and 2015 findings discounted the benefits of sport hunting and required that sport hunting actually ensure rather than merely enhance elephant survival. The Service relied on the same set of factors to make enhancement findings in 1997, 2014, and 2015. Each finding considered current population data, Zimbabwe's elephant management plan and implementation of that plan, enforcement of existing regulations, and whether Zimbabwe demonstrated a sustainable sport-hunting offtake quota. The Service's move to a negative enhancement finding, which the hunting groups refer to as evidence of a heightened standard, merely reflects the different facts that formed the basis of enhancement findings made more than fifteen years apart. The Service did not discount sport hunting's contribution to community-based conservation. Rather, it considered that revenue in proper context. In 2014 and 2015, the Service applied the same standard and, based on substantial but different evidence, made negative enhancement findings. The Service does not expect that a country resolve every outstanding issue facing an ESA-listed trophy species prior to the Service authorizing imports. The enhancement standard under the ESA provides that otherwise prohibited activities may be approved if the activities being carried out enhance the propagation or survival of the species. Such direct or indirect activities need to provide a clear and documentable benefit to the species. The Service recognizes that well-managed, scientifically based wildlife management regimes are adaptive in nature, addressing issues and concerns as they arise.

Removal of the permit requirement for African elephants:

The hunting groups request that the Service withdraw the regulations that require the issuance of import permits for trophies for Appendix-II African elephant populations. The hunting groups

expressed that since neither the ESA nor the African Elephant Conservation Act require the issuance of permits, there should not be such a requirement under the ESA regulation.

The hunting groups are correct that prior to the 2016 revision to the 4(d) rule for African elephants, there was no requirement for the prior issuance of an import permit for elephant trophies from Appendix-II populations. There was, however, a requirement that "[A] determination is made that the killing of the animal whose trophy is intended for import would enhance survival of the species…" The enhancement-finding requirement was established in 1992. The requirement to issue a threatened species permit for import of all African elephant sport-hunted trophies (instead of only those from Appendix-I populations) was promulgated to allow us to more carefully evaluate trophy imports in accordance with legal standards and the conservation needs of the species. The permitting process also establishes a direct avenue of communication with individual hunters to receive information from and provide notification of any changes to our determination.

Removal of the individual import permit requirement for African elephants would require revision of the 4(d) rule for African elephants to delete the language "and the trophy is accompanied by a threatened species permit issued under §17.32" from 50 C.F.R. § 17.40(e)(6)(i)(B). To do so, the Service would need to follow the ordinary notice and comment rulemaking process under the APA, undertake all required determinations such as NEPA and ESA Section 7, and must make a determination under Section 4(d) that the amendment is "necessary and advisable for the conservation of the species" based on the best available information.

Removal of the individual permitting requirement may also complicate enforcement of the two per hunter per year limitation on the number of sport-hunted African elephant trophies that may be imported into the United States. We placed a limit on the number of trophies that can be imported per hunter per year to increase control of the U.S. domestic ivory market and to ensure that we are not allowing the import of commercial quantities of ivory as sport-hunted trophies, as happened in a small number (fewer than 10 per year) of circumstances in the recent past.

Use best available science in the Service's decision whether to uplist African leopards:

The hunting groups request that the Service use the best available scientific data when considering a petition submitted to the Service to uplist the African leopard from threatened to endangered under the ESA. If such information is not currently available, the hunting groups request that the Service work with the leopard range countries to obtain the data. The groups also request that the Service consult with range states prior to enacting stricter domestic measures for foreign species.

As established in the ESA § 4(b)(1)(A), the basis for making a listing decision is that "[t]he Secretary shall make determinations required by subsection (a)(1) solely on the basis of the best scientific and commercial data available to him after conducting a review of the status of the species and after taking into account those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species, whether by predator control, protection of habitat and food supply, or other conservation practices, within any area under its jurisdiction, or on the high seas."

During our status review of the leopard, we will thoroughly evaluate the best scientific and commercial information available on the species, including all potential threats to the species and the extent to which any protections or other conservation efforts have reduced those threats. To that end, following publication of our 90-day finding that reclassifying the leopard as endangered may be warranted, we contacted, or attempted to contact, all but five countries identified by the International Union for the Conservation of Nature as those in which the species is currently "native" or "possibly extinct" (we did not attempt to contact Iran, Bhutan, South Sudan, Turkmenistan, or North Korea because the United States does not have diplomatic relations with these countries or these countries are not signatories to CITES). We notified these countries that we were initiating a status review of the leopard and requested information from them on the status of the species. We will continue to reach out to range countries and will contact other interested parties during the review process. If a listing action is proposed we will also comply with our duty under § 4(b)(5)(B) to "insofar as practical, and in cooperation with the Secretary of State, give notice of the proposed regulation to each foreign nation in which the species is believed to occur or whose citizens harvest the species on the high seas, and invite the comment of such nation thereon" which provides further opportunity to consult with and seek information from range states.

Relief from FOIA-related attacks on importers and exporters:

The hunting groups request that the Service deny Freedom of Information Act (FOIA) requests for personal information about the identity of importers and exporters of wildlife. They believe the Service has taken an inconsistent approach about whether to release the identities of wildlife importers and exporters to FOIA requesters that could be used to attack members of the hunting community.

The Service receives over 1,000 FOIA requests each year. Requests for information on importers and exporters are generally phrased as requests for all information contained in the Law Enforcement Management Information System (LEMIS) database for certain species and time periods (e.g., "information relating to imports of pangolins for all years 2012 to present"). LEMIS tracks information submitted by both commercial and individual importers and exporters.

The names of individual importers and exporters are withheld under FOIA Exemptions 6 and 7(C). Exemption 6 allows an agency to withhold "personnel and medical files and similar files

the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6). Exemption 7(C) protects "records or information compiled for law enforcement purposes, but only to the extent that the production of such law enforcement records or information […] could reasonably be expected to constitute an unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(7). The Service consistently applies Exemptions 6 and 7(C) to withhold the names of individual importers and exporters appearing in LEMIS.

For commercial importers, the Service is required by Subpart F of the Departmental FOIA Regulations (43 CFR §§2.26 to 2.36) to notify submitters of possibly confidential commercial information whenever a FOIA request for that information has been received. Submitters are notified when the requested information appears to be potentially confidential commercial information and are afforded an opportunity to submit objections to the release of that information. In cases where there are so many submitters that individual notifications are not practical, which is sometimes the case when multiple years of LEMIS information are requested, the Service may publish notice in the Federal Register. 43 C.F.R. § 2.27(b).

Notification via the Federal Register is done infrequently, but has been done twice recently due to litigated FOIA requests for entire years' worth of information from LEMIS. This may have contributed to a perception that more requests were being made for information on individuals contained in LEMIS, but in fact the requests are for all information contained in LEMIS.

Individuals are not notified when a FOIA request is received for information about that individual, because the Service does not provide information regarding the existence of records in the case of third-party requests for information on specific individuals. If a generalized request were received, then submitters of possibly confidential commercial information would be notified of the opportunity to submit their Exemption 4 arguments. Individuals, however, need not make an Exemption 4 argument to enjoy the protection of Exemptions 6 and 7(C).

The Service will continue to withhold the names of individual importers and exporters appearing in LEMIS under FOIA Exemptions 6 and 7(C).

Revert to past practices regarding seizure and forfeiture:

The hunting groups believe that seizure and forfeiture practices changed in the last Administration and that FWS should return to previous Service Manual provisions. For example, they believe that FWS should "reincorporate" the thirty-day grace period for non-commercial importers to correct harmless errors, revise the definition of "contraband" that includes lawful property, and remove the requirement for hunters to file claims in federal courts for the port of entry.

FWS seizure and forfeiture practices are consistent with applicable law, including the Civil Asset Forfeiture Reform Act of 2000 (CAFRA) and the Convention on International Trade in

Endangered Species of Wild Fauna and Flora (CITES). A proposed rule was published on June 17, 2016, to update the FWS regulations in part 12 of Title 50 of the Code of Federal Regulations, 50 CFR part 12, in part, to reflect the procedural changes required by CAFRA. 81 FR 39847. The "contraband" definition in the proposed rule reflects the contraband exemptions listed in CAFRA and the current case law. *See* 18 U.S.C. 983(a)(1)(F), 983(d), and 983(f); *see also Conservation Force v. Salazar*, 677 F. Supp. 2d 1203, 1208 (N.D. Cal. 2009).

Adoption of a 30-day grace period for non-compliance with wildlife laws to correct certain permitting errors is not available. While it is not illegal to import many types of wildlife into the United States, a failure to present required permits will transform the wildlife into contraband. Under some circumstances, though not routine, remission is available based upon the petitioner's representations of innocence or lack of knowledge of the underlying unlawful conduct.

The proposed rule does not require anyone to file claims in federal courts, but rather provides the option of either filing a petition for remission with the Office of the Solicitor or filing a claim in federal district court for the return of seized property. As reflected in current case law, the two options are alternative rather than sequential options. *See Conservation Force v. Salazar*, 646 F.3d 1240,1242*; Malladi Drugs & Pharmaceuticals, Ltd. v. Tandy*, 552 F.3d 885, 890 (D.C. Cir. 2009). This is a change from the old practice of allowing petitioners to file claims after their petition for remission was denied.

During the comment period for the proposed rule, we received and are considering a comment from one of the hunting groups regarding the potential burden on non-commercial importers posed by the provision of the proposed rule referring to the filing of a Rule 41(g) motion under certain circumstances for the return of seized property in the district where the property was seized after the filing of a claim. *See* 81 Fed. Reg. 39862. This provision is being considered for revision in or removal from the final rule.

From:	Ruffler, Heidi
To:	Janine Van Norman; Valerie Fellows; Kessler, Danielle; Laury Parramore; Vanessa Kauffman; Gavin Shire; Vannorman, Tim; Dirck Byler; Richard Ruggiero
Cc:	Gadd, Michelle
Subject:	Fwd: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Date:	Friday, July 21, 2017 9:30:57 AM
Attachments:	ATT00001.txt

FYI, in case you haven't seen this yet.

---------- Forwarded message ----------
From: **Gadd, Michelle** <michelle_gadd@fws.gov>
Date: Fri, Jul 21, 2017 at 9:24 AM
Subject: Fwd: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: Heidi Ruffler <heidi_ruffler@fws.gov>

---------- Forwarded message ----------
From: **Save The Elephants News Service** <stenews@elephantnews.org>
Date: Thu, Jul 20, 2017 at 10:18 PM
Subject: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: african-elephant@elephantnews.org

Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Damian Carrington, The Guardian
July 20, 2017

See link for photos & video.

A son of Cecil the lion has been killed by trophy hunters in Zimbabwe, meeting the same fate as his father whose death in 2015 caused a global outcry.

Xanda was six years old and had fathered a number of cubs himself. He was shot on 7 July just outside the Hwange National Park, not far from where Cecil died, but news of the death only became public on Thursday.

The trophy hunt was organised by Zimbabwean private hunter Richard Cooke but his clients, who may have paid tens of thousands of dollars, have not been revealed. Xanda was wearing a GPS tracking collar, fitted by scientists led by Andrew Loveridge at Oxford University, who have studied the Hwange lions for many years.

“Xanda was one of these gorgeous Kalahari lions, with a big mane, big body, beautiful condition - a very, very lovely animal,” Loveridge told the Guardian. “Personally, I think it is sad that anyone wants to shoot a lion, but there are people who will pay money to do that.”

“I put the collar on Xanda last October and spent a bit of time following him around,” he said. “You have handled them so you feel a personal engagement with the animal.” But Loveridge

does not condemn trophy hunting outright: “Trophy hunting protects an area about the size of France and Spain combined in Africa. So if you throw trophy hunting out, what happens to all that habitat?”

Xanda was the pride male in a group with two adult lionesses and cubs which roamed near the boundary of the national park. “He was shot 2km from the park boundary, which is a hop and a skip for a lion,” Loveridge said.

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Cell: 703-203-8435
Fax: 703-358-2115

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From:	Michelle Gadd
To:	craig_hoover@fws.gov; danielle_kessler@fws.gov; tim_vannorman@fws.gov; richard_ruggiero@fws.gov; dirck_byler@fws.gov; matt_muir@fws.gov; darcy_vargas@fws.gov; kathleen_moore@fws.gov; anna_barry@fws.gov; monica_horton@fws.gov; chandler_eaglestone@fws.gov
Subject:	Fwd: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Date:	Friday, July 21, 2017 7:44:10 AM

From: Save The Elephants News Service <stenews@elephantnews.org>
Date: July 20, 2017 at 10:18:27 PM EDT
To: <african-elephant@elephantnews.org>
Subject: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Reply-To: <stenews@elephantnews.org>

Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Damian Carrington, The Guardian
July 20, 2017

See link for photos & video.

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“Xanda was one of these gorgeous Kalahari lions, with a big mane, big body, beautiful condition - a very, very lovely animal,” Loveridge told the Guardian. “Personally, I think it is sad that anyone wants to shoot a lion, but there are people who will pay money to do that.”

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From: Vannorman, Tim
To: Chandler Eaglestone
Subject: Fwd: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Date: Friday, July 21, 2017 11:39:17 AM

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fyi
---------- Forwarded message ----------
From: **Parramore, Laury** <laury_parramore@fws.gov>
Date: Fri, Jul 21, 2017 at 11:36 AM
Subject: Re: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: "Van Norman, Janine" <janine_vannorman@fws.gov>
Cc: "Ruffler, Heidi" <heidi_ruffler@fws.gov>, Valerie Fellows <valerie_fellows@fws.gov>, "Kessler, Danielle" <danielle_kessler@fws.gov>, Vanessa Kauffman <vanessa_kauffman@fws.gov>, Gavin Shire <gavin_shire@fws.gov>, "Vannorman, Tim" <tim_vannorman@fws.gov>, Dirck Byler <dirck_byler@fws.gov>, Richard Ruggiero <Richard_Ruggiero@fws.gov>, "Gadd, Michelle" <michelle_gadd@fws.gov>, Dana Hartley <dana_hartley@fws.gov>, Ellen VanGelder <Ellen_VanGelder@fws.gov>, "Huber, Nic" <nic_huber@fws.gov>, Natchanon Ketram <natchanon_ketram@fws.gov>

Thanks for this perspective, Janine. Really helpful. Would like to keep as background to possibly fashion into if-asked talking points on this topic.

Laury Marshall Parramore

Assistant Chief, Public Affairs

U.S. Fish and Wildlife Service

MS: EA

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Falls Church, VA 22041-3803

703/358 2541 -- direct

703/589 6947 -- mobile

On Fri, Jul 21, 2017 at 9:42 AM, Van Norman, Janine <janine_vannorman@fws.gov> wrote:

> So, I was VERY happy to hear that Xanda was 6 years of age (something our rule recommended as a good management practice) AND that Andrew explained that "Trophy hunting protects an area about the size of France and Spain combined in Africa. So if you throw trophy hunting out, what happens to all that habitat?" AND that he said the outfitter is a reputable outfitter that stays above board, checks in with them and is honest.
>
> It sounds to me like Zimbabwe is taking our listing seriously (regardless of whether the hunters were from the U.S.). The fact that Xanda has healthy offspring indicates that these measures are working. Yes, it's sad that a lion died by trophy hunting, but it also shows how lions can be actively managed in a way that reduces human lion conflict, creates incentives

for keeping lions around, and promotes healthy lion populations.

Great article!

Janine Van Norman
Chief, Branch of Foreign Species
Ecological Services Program
U.S. Fish and Wildlife Service
MS: ES
5275 Leesburg Pike
Falls Church, VA 22041-3803
(703) 358-2370 (work)
(703) 358-1735 (fax)
Janine_VanNorman@fws.gov

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On Fri, Jul 21, 2017 at 9:30 AM, Ruffler, Heidi <heidi_ruffler@fws.gov> wrote:

FYI, in case you haven't seen this yet.

---------- Forwarded message ----------
From: **Gadd, Michelle** <michelle_gadd@fws.gov>
Date: Fri, Jul 21, 2017 at 9:24 AM
Subject: Fwd: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: Heidi Ruffler <heidi_ruffler@fws.gov>

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From: **Save The Elephants News Service** <stenews@elephantnews.org>
Date: Thu, Jul 20, 2017 at 10:18 PM
Subject: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: african-elephant@elephantnews.org

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--

Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

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From:	Ruggiero, Richard
To:	Hoover, Craig
Subject:	Fwd: [African-elephant] Trophy Shows that Big Game Hunting is Even More Complicated than You Think
Date:	Friday, September 01, 2017 2:14:48 PM
Attachments:	ATT00001.txt

Trophy Shows that Big Game Hunting is Even More Complicated than You Think
Josephine Livingstone, The New Republic
September 1, 2017

See link for photos & video.

There is an elephant in the room. He or she (I can't tell these things) is surrounded by an opera house-style velvet rope and frozen in majestic attitude. The elephant is on display at the Safari Club International Convention in Las Vegas, the largest such gathering on earth. There are many human babies at this convention, and every type of animal. There is a coffee table made out of glass and a stuffed crocodile. A woman chirps to the camera that "Crocodiles are really mean, so I don't feel bad about killing them."

The Vegas convention is just one location in Trophy, a new documentary from directors Shaul Schwarz and Christina Clusiau about the business of Americans hunting big game in southern Africa.

Trophy also takes us to the Caprivi Strip in Namibia, where American hunter Philip Glass (no, not the composer) will stalk an elephant on his quest to bag all of what big game hunters call the "Big Five"—buffalo, leopard, elephant, lion, rhino. We go to the Zambezi Valley in Zimbabwe, where a lion is eating a local woman's cows, but anti-poaching laws won't let her shoot it.

We visit the Buffalo Dream Ranch in South Africa, where John Hume is breeding the largest private collection of rhinos on earth: he sells their horn, he says, to keep the species alive. But the heart of this documentary lies in the US and Canada, home of 70 percent of the wealthy hunters who pursue Africa's big game on pleasure trips to enclosed ranches and resorts where their kills are guaranteed.

Trophy is about a single, multifaceted ethical dilemma: Should African farms breed animals for Americans to kill? An American ecologist named Craig Packer explains one angle. In recent decades, property owners have registered a profit motive in changing private land from livestock use to game ranching.

Because Americans want to hunt trophy species like Sable Antelope or the animals of the big five, ranchers breed more of them. So, now, there are probably more predators in South Africa than there were a hundred years ago. Ironically, the demand for animals to kill keeps the species alive.

John Hume doesn't allow his rhino to be hunted, but he harvests their horns every two years with an electric saw in a process that looks horrific but which he compares to a human's wisdom tooth removal. Taking the horns makes the rhino less vulnerable to poaching, he claims, while selling the horn allows him to make enough money to continue breeding this endangered species. Trophy follows Hume as he challenges the South African government to lift their moratorium on the sale of rhino horn, which had been causing illegal poaching to

skyrocket. The hunting industry is full of paradoxes like these. Legislation designed to curb poaching in fact inflates it massively. “If you’re anti legal trade,” Hume says to a friend, “You’re pro illegal trade.”

The argument used by ranchers who breed big game for hunting resembles Hume’s justification for selling rhino horn. Hunting an elephant can cost something like $50,000. That money all flows back into breeding and caring for elephants, hunters argue. This is called the “if it pays, it stays” principle.

Poaching damages that business and reduces the population of animals, so it must be curbed. It is ironic, an anti-poaching professional concedes in Trophy: “We are fighting to save something so that somebody else can kill it.” Meanwhile, lions and elephants can do serious harm to the local population. That woman whose cows have been savaged by a lion has taken to keeping her last cow inside. The lion will follow the cow eventually, and “it’s just a matter of time before somebody gets eaten,” the anti-poaching officer says.

And so we have a rich tangle of ethics surrounding preservation. Hunting means more elephants and lions, but only for the purposes of killing elephants and lions. Only rich tourists are allowed to kill those elephants and lions. Some money will trickle in to the region, and local people are allowed to chop up elephant carcasses, for example, for meat. But is the net result really a positive one for the population? And which population—the animals, the Zimbabweans and South Africans and Namibians, the Americans and Canadians—is really pulling the strings here?

Activists like Adam Roberts of the Born Free organization argue in Trophy that the conservation-and-local-economy argument is an old and tired alibi for the simple, Rooseveltian lust for killing. The money doesn’t flow equitably back into the communities that surround the breeding farms of Southern Africa, the activists argue, especially in regions that suffer from systemic corruption.

Meanwhile, it is not ethical, anti-hunting activists say, to hunt animals like fish in a barrel. That this opinion is a popular one in the West is attested by the enormous celebrity enjoyed by Cecil the Lion after his death at the hands of a Minnesotan Dentist. After that animal’s death, Americans who are not inclined toward big game hunting were forced to consider why some people are.

Are the wealthy men (they are nearly all men) who shoot animals in Africa investing in some fantasy of a powerful, self-sufficient ancient hunter? Is big game hunting in Africa, a pursuit enjoyed largely by white people, a remnant of oppressive colonial structures? Is it simple sadism? In Trophy we follow the sweet-faced Philip Glass on his hunts. He is furious with the bureaucrats who claim it is “a privilege, not a right” to bring back these animals as trophies to the US. He believes that God gave man dominion over the animals. He also says that “Anybody who believes in evolution is a complete fool.”

Glass provides the most horror in this documentary. We see him shoot and kill an elephant, shooting it while it’s running away. The animal makes an extraordinary noise as it lies in the ground, like a growl mixed with a howl that turns into mewling. We see its eye so close up that its eyelashes are visible. The hunter and his guides wash the blood from its flank with water so that it will look better in the trophy photograph. Then we see the dead elephant from an aerial shot, lying flush against the ground with one leg crooked as if it is still running.

The elephant death is extraordinary footage, but Glass's climactic kill is an adult male lion. Glass weeps over its body. He pets its corpse like it is alive. He marvels at its paws and claws, proclaiming it "absolutely magnificent" through tears. "This is my trophy and there's not any bureaucrat that can take it away from me," Glass says, fluffing up the lion's mane like a hairdresser. He cries and speaks about his dead father, who would be proud of him in this moment.

Trophy is an extraordinary accomplishment, for its nuanced presentation of a very tangled issue but more importantly for its gorgeous, wrenching footage of what happens when an American pays to kill an African animal. There are no simple solutions to the ethical and practical problems surrounding species preservation and the economy of southern African nations. But the act of killing is simple, for men like Philip Glass. His right of dominion over the animals is God-given, and in his enactment of that right over the most powerful of animals, he fulfills a tradition and an identity handed down to him from his father. Among the many tensions of Trophy, that dynamic—between complicated and simple, between life and death—animates and unsettles.

Josephine Livingstone is the culture staff writer at The New Republic.

https://newrepublic.com/article/144641/trophy-shows-big-game-hunting-even-complicated-think

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Richard G. Ruggiero, Ph.D
Chief, Division of International Conservation
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All Scientific Papers:
http://elephantnews.org/mailman/listinfo/allpapers_elephantnews.org

From:	Cogliano, Mary
To:	Danielle Kessler
Cc:	Tim Vannorman; Hoover, Craig
Subject:	Fwd: [African-elephant] Zimbabwe to resume hunting trophy exports
Date:	Friday, July 21, 2017 3:19:24 PM
Attachments:	ATT00001.txt

Danielle,

Please see below.

Mary
---------- Forwarded message ----------
From: **Woulard, Tamesha** <tamesha_woulard@fws.gov>
Date: Fri, Jul 21, 2017 at 2:59 PM
Subject: Fwd: [African-elephant] Zimbabwe to resume hunting trophy exports
To: "Cogliano, Mary" <mary_cogliano@fws.gov>

Hi Mary,

Save The Elephants News Service provided a link to some Zimbabwe news that claims that the suspension on Zimbabwe African Elephant trophies has been lifted. Please see below. We are getting questions. Are you aware in the change in the status of the suspension?

Tamesha

Ms. Tamesha Woulard
Senior Wildlife Inspector
U.S. Fish and Wildlife Service
Office of Law Enforcement
5275 Leesburg Pike, MS: OLE
Falls Church, VA 22041
703-358-1949

---------- Forwarded message ----------
From: **Holmes, AnnMarie** <annmarie_holmes@fws.gov>
Date: Mon, Jul 10, 2017 at 9:39 AM
Subject: Fwd: [African-elephant] Zimbabwe to resume hunting trophy exports
To: Sheila Einsweiler <sheila_einsweiler@fws.gov>, "Woulard, Tamesha" <tamesha_woulard@fws.gov>

Did we know the ban was lifted?

_____
Ann-Marie Holmes
Senior Wildlife Inspector
Office of Law Enforcement

US Fish and Wildlife Service
(703) 358-1949

---------- Forwarded message ----------
From: **Save The Elephants News Service** <stenews@elephantnews.org>
Date: Sun, Jul 9, 2017 at 10:59 AM
Subject: [African-elephant] Zimbabwe to resume hunting trophy exports
To: african-elephant@elephantnews.org

Zimbabwe to resume hunting trophy exports
Peta Thornycroft, Independent Online
July 9, 2017

See link for photo.

Harare - The US has lifted its ban on hunting trophies from Zimbabwe, which may lead to a recovery in professional hunting. Revenue from hunting provides most of the funds used to protect Zimbabwe's wildlife.

Many hunters, especially those from the US, abandoned Zimbabwe after the US Fish and Wildlife Service banned importation of elephant trophies in 2014.

Environment, Water and Climate Minister Oppah Muchinguri-Kashiri told The Source, a Harare-based digital business site, that Zimbabwe would be able to start exporting the outstanding trophies later this year.

"All the trophies which were being held in the country will be exported this year but under strict conditions. We have been given an opportunity to export again into the US," she said.

The US ban came into effect a year before Cecil, a black-maned lion that lived near the Hwange National Park, was shot by Walter Palmer, a US trophy hunter.

The unprecedented international fury over the lion's death sharpened criticism of professional hunting. All charges against the US hunter and his Zimbabwean guide were dropped.

Zimbabwe has sufficient lions and elephants in most of its wildlife areas in most areas in the north west of Zimbabwe. But conservationists say poaching is out of control further north east, especially along the border with Zambia.

Hunting provides more than 75% of revenue for the preservation of wildlife in Zimbabwe which includes financing the Parks and Wildlife Management Authority, which controls all state game parks.

http://www.iol.co.za/news/africa/zimbabwe-to-resume-hunting-trophy-exports-10203755

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All Scientific Papers:
http://elephantnews.org/mailman/listinfo/allpapers_elephantnews.org

From:	Gavin Shire
To:	Laury Parramore; Danielle Kessler; tim_vannorman@fws.gov; Craig Hoover; Barbara Wainman; Matthew Huggler
Subject:	Fwd: *News Alert* Xanda the Lion is Dead, But Trohpy Hunting Helps His Kin
Date:	Thursday, August 31, 2017 11:25:38 PM

A timely article given our lion findings and blog today.

G

Sent from my iPhone

Begin forwarded message:

> **From:** "Newell, Russell" <russell_newell@ios.doi.gov>
> **Date:** August 31, 2017 at 6:09:04 PM EDT
> **To:** "Ross, Paul" <paul_ross@ios.doi.gov>, "Shire, Gavin" <gavin_shire@fws.gov>
> **Subject: Fwd: *News Alert* Xanda the Lion is Dean, But Trohpy Hunting Helps His Kin**

Wall Street Journal: Xanda the Lion is Dead, But Trophy Hunting Helps His Kin
Kit Ramgopal and Matt Cooke
August 30, 2017

Cecil the lion became an internet icon two years ago when he was killed by Walter Palmer, a Minnesota dentist on a trophy hunt. Now Cecil's son Xanda has met the same fate. Last month a hunter shot and killed the 6-year-old lion near Hwange National Park in Zimbabwe. The identity of the shooter has not been released, and it's easy to see why.

In 2015 Dr. Palmer was set upon by a social-media mob. Activists claimed that he killed the lion illegally. Although Dr. Palmer never went to trial, trophy hunting certainly did. He needed armed guards to protect him from angry protesters outside his home. "Rot in Hell," read one of their signs. "There's a Deep Cavity Waiting for You," read another.

The general public—particularly millennials—detests trophy hunting. We see the antihunting sentiment at Stanford University. One of us, Matt, is from South Africa. At 10, he had his first hunt—a male impala—and hated it so much he vowed never to do it again. Kit, a native New Yorker, was against hunting before she went to South Africa to investigate for herself. Today we both realize that trophy hunting is vital to African conservation.

Imagining Cecil and Xanda suffering, or their heads hung above some tough guy's fireplace, is cringe-making. Perhaps one day, tourists taking pictures of

wildlife will be enough to sustain Africa's wilderness, no hunting required. But until that day, the alternative to regulated trophy hunting is worse. It's counterintuitive, but banning the practice would mean the systematic slaughter of wildlife, trampling of unique ecosystems, and possible extinction of rare species. Sacrificing a quota of lions to hunters keeps many others alive.

Quotas are set below population growth rates. Since 1968, when regulated hunting of white rhinos was introduced in South Africa, the population has risen from 1,800 to 18,000. Namibia's wildlife numbers have grown sixfold since the '60s, when private landowners first were given rights to use the animals for economic benefit.

Across Africa, at least 538,000 square miles—twice the size of Texas—is used for hunting, according to a 2006 study. That includes 13% of South Africa's land, on which live about 1.7 million animals. Tourism cannot simply replace this activity, since it's geographically concentrated and requires paved roads, accommodations, catering, multilingual staff, Wi-Fi. The antihunting lobby needs to explain how they'd keep these wild animals from losing their homes—and how they'd replace thousands of jobs—if hunting were banned.

Take Xanda and Cecil's homeland of Zimbabwe. The Savé Valley Conservancy there is home to around 1,500 elephants, 160 rhinos and 280 lions. Without hunting revenue, Savé Valley would regress to what it was in 1990: a collection of overgrazed, dusty cattle farms, no elephants in sight.

"For the people in our village, the wildlife is dinner or it is danger," says Isi, a high school math teacher in South Africa. Isi's sons play on junkyard hills of Coca-Cola cans, in a neighborhood of three-walled brick houses and fields of yellowing crops. It's hard to convince poor Africans of the need to conserve animals when they themselves don't have food, shelter or financial stability. They want to do exactly what America's settlers did: Convert habitat to farmland and kill wild animals either for meat or like backyard pests. Who can blame them? After all, elephants trample crops and lions eat cattle.

On the other hand, when an aggressive black rhino can sell for $350,000, which is what one hunting permit fetched in a 2014 auction, the rest of the herd begins to look like a precious resource. Africa's inconvenient truth is that wild spaces rarely occur without the presence of an economic incentive. Besides, the antihunting backlash in rich countries leaves a sour taste in the mouths of many Africans, after centuries of Westerners telling them how to run their affairs. The conservation scientist Rosie Cooney calls it "green neocolonialism."

This isn't to say environmentalists have nothing to do. For starters, the public could help eradicate bad practices like "canned" hunting, in which captive-bred lions are killed in small enclosures. Wildlife advocates could help create a scientific and legal consensus on reasonable quotas and the definition of a "huntable" lion. These issues are unaddressed, in part because the topic is taboo.

The Spanish government is expected soon to unveil a robust certification system distinguishing good hunting reserves from bad ones. That's a great first step. The

next one should be getting nature-lovers to put their money where their tweets are by donating to wildlife preserves or taking an ecotourism trip to Africa.

But think twice before advocating a ban on trophy hunting. Once a wild reserve becomes a mall or a cattle farm—once the elephants are dead and their tracks paved over—the animals are never coming back.

Ms. Ramgopal is an undergraduate at Stanford. Mr. Cooke is an Africa-focused investor.

###

From:	Ruffler, Heidi
To:	Parramore, Laury
Cc:	Van Norman, Janine; Valerie Fellows; Kessler, Danielle; Vanessa Kauffman; Gavin Shire; Vannorman, Tim; Dirck Byler; Richard Ruggiero; Gadd, Michelle; Dana Hartley; Ellen VanGelder; Huber, Nic; Natchanon Ketram; Eleanora_Babji@fws.gov; Rosemarie Gnam
Subject:	Re: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Date:	Friday, July 21, 2017 1:00:24 PM

Thanks from me too for for your perspective, Janine! This just came up in conversation with Elena Babji, so I've added her (and Rose Gnam) to this email.

On Fri, Jul 21, 2017 at 11:36 AM, Parramore, Laury <laury_parramore@fws.gov> wrote:

> Thanks for this perspective, Janine. Really helpful. Would like to keep as background to possibly fashion into if-asked talking points on this topic.
>
> Laury Marshall Parramore
>
> Assistant Chief, Public Affairs
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> U.S. Fish and Wildlife Service
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> MS: EA
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> 5275 Leesburg Pike
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> 703/589 6947 -- mobile
>
> On Fri, Jul 21, 2017 at 9:42 AM, Van Norman, Janine <janine_vannorman@fws.gov> wrote:
>
> > So, I was VERY happy to hear that Xanda was 6 years of age (something our rule recommended as a good management practice) AND that Andrew explained that "Trophy hunting protects an area about the size of France and Spain combined in Africa. So if you throw trophy hunting out, what happens to all that habitat?" AND that he said the outfitter is a reputable outfitter that stays above board, checks in with them and is honest.
> >
> > It sounds to me like Zimbabwe is taking our listing seriously (regardless of whether the hunters were from the U.S.). The fact that Xanda has healthy offspring indicates that these measures are working. Yes, it's sad that a lion died by trophy hunting, but it also shows how lions can be actively managed in a way that reduces human lion conflict, creates incentives for keeping lions around, and promotes healthy lion populations.
> >
> > Great article!
> >
> > Janine Van Norman
> > Chief, Branch of Foreign Species

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(703) 358-1735 (fax)
Janine_VanNorman@fws.gov

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On Fri, Jul 21, 2017 at 9:30 AM, Ruffler, Heidi <heidi_ruffler@fws.gov> wrote:

FYI, in case you haven't seen this yet.

---------- Forwarded message ----------
From: **Gadd, Michelle** <michelle_gadd@fws.gov>
Date: Fri, Jul 21, 2017 at 9:24 AM
Subject: Fwd: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: Heidi Ruffler <heidi_ruffler@fws.gov>

---------- Forwarded message ----------
From: **Save The Elephants News Service** <stenews@elephantnews.org>
Date: Thu, Jul 20, 2017 at 10:18 PM
Subject: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: african-elephant@elephantnews.org

Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Damian Carrington, The Guardian
July 20, 2017

See link for photos & video.

A son of Cecil the lion has been killed by trophy hunters in Zimbabwe, meeting the same fate as his father whose death in 2015 caused a global outcry.

Xanda was six years old and had fathered a number of cubs himself. He was shot on 7 July just outside the Hwange National Park, not far from where Cecil died, but news of the death only became public on Thursday.

The trophy hunt was organised by Zimbabwean private hunter Richard Cooke but his

clients, who may have paid tens of thousands of dollars, have not been revealed. Xanda was wearing a GPS tracking collar, fitted by scientists led by Andrew Loveridge at Oxford University, who have studied the Hwange lions for many years.

“Xanda was one of these gorgeous Kalahari lions, with a big mane, big body, beautiful condition - a very, very lovely animal,” Loveridge told the Guardian. “Personally, I think it is sad that anyone wants to shoot a lion, but there are people who will pay money to do that.”

“I put the collar on Xanda last October and spent a bit of time following him around,” he said. “You have handled them so you feel a personal engagement with the animal.” But Loveridge does not condemn trophy hunting outright: “Trophy hunting protects an area about the size of France and Spain combined in Africa. So if you throw trophy hunting out, what happens to all that habitat?”

Xanda was the pride male in a group with two adult lionesses and cubs which roamed near the boundary of the national park. “He was shot 2km from the park boundary, which is a hop and a skip for a lion,” Loveridge said.

The scientists want a 5km no-hunting zone around the park. “It is something we have suggested for years,” he said. “But there is a lot of resistance because a lot of the hunting happens right on the boundary, because that is where the animals are. The photo-tourism operators in Hwange are very keen to have that discussion. They are annoyed that this has happened.”

Xanda’s death poses no immediate danger to the 550-strong lion population in Hwange national park, which spreads over 15,000 square kilometres, Loveridge said: “The lion population is pretty healthy, but it would probably be better if it didn’t happen,” said Loveridge.

The scientist said Cooke is a responsible operator and had a legal quota for the hunt: “He is very ethical, he doesn’t cut corners. He has always communicated with us when he has hunted an animal, and given us the collar back. He is not one of the fly-by-night guys.” Cooke has killed several collared lions in the past, Loveridge said. Cooke did not respond to requests for comment.

“I’ve had a look at the GPS collar data and it all seems to be as [Cooke] says,” Loveridge said. “The collar goes to a hunting camp and this is when you know the animal has been shot.”

The death of Cecil the lion in 2015, killed by US dentist Walter Palmer, led to widespread criticism of the trophy hunting of lions, which has become a big business with the number killed tripling to 1,500 a year in the last decade. Lions have lost 90% of their overall population in the last century and only about 20,000 remain.

Philip Mansbridge, UK director of the International Fund for Animal Welfare, said: “IFAW opposes the cruel and needless killing of wild animals for recreation and encourages enjoyment and appreciation of these magnificent animals within their natural habitats through sustainable ecotourism opportunities. This has proven to be more beneficial for communities living with wildlife.”

“The unprecedented global outcry after Cecil the lion was killed just goes to show the vast majority oppose the actions of the minority that enjoy slaughtering these animals for trophies,” he said. “These animals deserve our protection, not bullets.”

Masha Kalinina at the Humane Society International said: “Trophy hunters have learned nothing. To stop lions slipping into extinction, it is critical that countries like Zimbabwe focus on keeping as many lions alive as possible. It could follow the examples of Botswana and Kenya, which ban trophy hunting.”

Prof David Macdonald, another of the Oxford team, told the Guardian in December that strictly regulated and sustainable hunting could provide valuable funds to protect lion habitats.

“Of course I understand if people say there are simply no circumstances under which [trophy hunting] will be acceptable to me,” he said. “If so, then they have to look for a mechanism of replacing it with something that is acceptable. That might be people putting their money where their mouth is, buying out the hunting interest and replacing it with some sort of international payment for conservation.”

Cecil, who was 13 when killed, was believed to have had 13 surviving sons and daughters and 15 known grandcubs as of June 2016.

Oxford University’s Wildlife Conservation Research Unit maintains a website about Cecil and a page for donations.

https://www.theguardian.com/environment/2017/jul/20/son-of-cecil-the-lion-killed-by-trophy-hunter

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Michelle Gadd, Ph.D.
Program Officer, African Elephant and African Rhino Programs
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Fax: 703-358-2115

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From:	Parramore, Laury
To:	Van Norman, Janine
Cc:	Ruffler, Heidi; Valerie Fellows; Kessler, Danielle; Vanessa Kauffman; Gavin Shire; Vannorman, Tim; Dirck Byler; Richard Ruggiero; Gadd, Michelle; Dana Hartley; Ellen VanGelder; Huber, Nic; Natchanon Ketram
Subject:	Re: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Date:	Friday, July 21, 2017 11:36:45 AM

Thanks for this perspective, Janine. Really helpful. Would like to keep as background to possibly fashion into if-asked talking points on this topic.

Laury Marshall Parramore

Assistant Chief, Public Affairs

U.S. Fish and Wildlife Service

MS: EA

5275 Leesburg Pike

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703/358 2541 -- direct

703/589 6947 -- mobile

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> Janine Van Norman
> Chief, Branch of Foreign Species
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To: Heidi Ruffler <heidi_ruffler@fws.gov>

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Date: Thu, Jul 20, 2017 at 10:18 PM
Subject: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: african-elephant@elephantnews.org

Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Damian Carrington, The Guardian
July 20, 2017

See link for photos & video.

A son of Cecil the lion has been killed by trophy hunters in Zimbabwe, meeting the same fate as his father whose death in 2015 caused a global outcry.

Xanda was six years old and had fathered a number of cubs himself. He was shot on 7 July just outside the Hwange National Park, not far from where Cecil died, but news of the death only became public on Thursday.

The trophy hunt was organised by Zimbabwean private hunter Richard Cooke but his clients, who may have paid tens of thousands of dollars, have not been revealed. Xanda was wearing a GPS tracking collar, fitted by scientists led by Andrew Loveridge at Oxford University, who have studied the Hwange lions for many years.

“Xanda was one of these gorgeous Kalahari lions, with a big mane, big body, beautiful condition - a very, very lovely animal,” Loveridge told the Guardian. “Personally, I think

it is sad that anyone wants to shoot a lion, but there are people who will pay money to do that."

"I put the collar on Xanda last October and spent a bit of time following him around," he said. "You have handled them so you feel a personal engagement with the animal." But Loveridge does not condemn trophy hunting outright: "Trophy hunting protects an area about the size of France and Spain combined in Africa. So if you throw trophy hunting out, what happens to all that habitat?"

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The scientists want a 5km no-hunting zone around the park. "It is something we have suggested for years," he said. "But there is a lot of resistance because a lot of the hunting happens right on the boundary, because that is where the animals are. The photo-tourism operators in Hwange are very keen to have that discussion. They are annoyed that this has happened."

Xanda's death poses no immediate danger to the 550-strong lion population in Hwange national park, which spreads over 15,000 square kilometres, Loveridge said: "The lion population is pretty healthy, but it would probably be better if it didn't happen," said Loveridge.

The scientist said Cooke is a responsible operator and had a legal quota for the hunt: "He is very ethical, he doesn't cut corners. He has always communicated with us when he has hunted an animal, and given us the collar back. He is not one of the fly-by-night guys." Cooke has killed several collared lions in the past, Loveridge said. Cooke did not respond to requests for comment.

"I've had a look at the GPS collar data and it all seems to be as [Cooke] says," Loveridge said. "The collar goes to a hunting camp and this is when you know the animal has been shot."

The death of Cecil the lion in 2015, killed by US dentist Walter Palmer, led to widespread criticism of the trophy hunting of lions, which has become a big business with the number killed tripling to 1,500 a year in the last decade. Lions have lost 90% of their overall population in the last century and only about 20,000 remain.

Philip Mansbridge, UK director of the International Fund for Animal Welfare, said: "IFAW opposes the cruel and needless killing of wild animals for recreation and encourages enjoyment and appreciation of these magnificent animals within their natural habitats through sustainable ecotourism opportunities. This has proven to be more beneficial for communities living with wildlife."

"The unprecedented global outcry after Cecil the lion was killed just goes to show the vast majority oppose the actions of the minority that enjoy slaughtering these animals for trophies," he said. "These animals deserve our protection, not bullets."

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nothing. To stop lions slipping into extinction, it is critical that countries like Zimbabwe focus on keeping as many lions alive as possible. It could follow the examples of Botswana and Kenya, which ban trophy hunting."

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"Of course I understand if people say there are simply no circumstances under which [trophy hunting] will be acceptable to me," he said. "If so, then they have to look for a mechanism of replacing it with something that is acceptable. That might be people putting their money where their mouth is, buying out the hunting interest and replacing it with some sort of international payment for conservation."

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Fax: 703-358-2115

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From:	Van Norman, Janine
To:	Ruffler, Heidi
Cc:	Valerie Fellows; Kessler, Danielle; Laury Parramore; Vanessa Kauffman; Gavin Shire; Vannorman, Tim; Dirck Byler; Richard Ruggiero; Gadd, Michelle; Dana Hartley; Ellen VanGelder; Huber, Nic; Natchanon Ketram
Subject:	Re: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Date:	Friday, July 21, 2017 9:43:32 AM

So, I was VERY happy to hear that Xanda was 6 years of age (something our rule recommended as a good management practice) AND that Andrew explained that "Trophy hunting protects an area about the size of France and Spain combined in Africa. So if you throw trophy hunting out, what happens to all that habitat?" AND that he said the outfitter is a reputable outfitter that stays above board, checks in with them and is honest.

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Great article!

Janine Van Norman
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Janine_VanNorman@fws.gov

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On Fri, Jul 21, 2017 at 9:30 AM, Ruffler, Heidi <heidi_ruffler@fws.gov> wrote:

> FYI, in case you haven't seen this yet.
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> From: **Gadd, Michelle** <michelle_gadd@fws.gov>
> Date: Fri, Jul 21, 2017 at 9:24 AM
> Subject: Fwd: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
> To: Heidi Ruffler <heidi_ruffler@fws.gov>
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From:	Van Norman, Janine
To:	Shire, Gavin
Cc:	Laury Parramore; Tim Vannorman
Subject:	Re: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
Date:	Friday, July 21, 2017 1:41:52 PM

And we may need to be careful about what we say about Zimbabwe, because AIA (Tim cc'd here) has not finished their enhancement finding for them. We don't want to be predecisional. BUT, I DO think we can say that our listing has had a positive effect on lion conservation b/c we are seeing countries beginning to implement best management practices based what we highlighted in our rule, and the 4(d).

J

Janine Van Norman
Chief, Branch of Foreign Species
Ecological Services Program
U.S. Fish and Wildlife Service
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(703) 358-1735 (fax)
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On Fri, Jul 21, 2017 at 12:02 PM, Shire, Gavin <gavin_shire@fws.gov> wrote:

> As you know, this is a tricky issue. People will react negatively to a lion being killed, let alone one that is a progeny of Cecil. I don't want to put anything out proactively, but I am happy to add something to our if-asked TPs on this issue.
>
> G
>
> Gavin Shire
> Chief of Public Affairs
> U.S. Fish and Wildlife Service
> MS: EA
> 5275 Leesburg Pike
> Falls Church, VA 22041-3803
> 703-358-2649 (o)
> 703-346-9123 (c)
> gavin_shire@fws.gov
>
> On Fri, Jul 21, 2017 at 11:30 AM, Van Norman, Janine <janine_vannorman@fws.gov> wrote:

Gavin, FYI. This is actually a success story regarding our 4(d) rule and how it is moving the needle for lions. I think we should do something about this, or at least be quoted as saying that Zimbabwe is doing good management by following our lion rule and what we stated were good management practices. See below.

J

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Date: Fri, Jul 21, 2017 at 9:42 AM
Subject: Re: [African-elephant] Son of Cecil the lion killed by trophy hunter (Zimbabwe)
To: "Ruffler, Heidi" <heidi_ruffler@fws.gov>
Cc: Valerie Fellows <valerie_fellows@fws.gov>, "Kessler, Danielle" <danielle_kessler@fws.gov>, Laury Parramore <laury_parramore@fws.gov>, Vanessa Kauffman <vanessa_kauffman@fws.gov>, Gavin Shire <gavin_shire@fws.gov>, "Vannorman, Tim" <tim_vannorman@fws.gov>, Dirck Byler <dirck_byler@fws.gov>, Richard Ruggiero <Richard_Ruggiero@fws.gov>, "Gadd, Michelle" <michelle_gadd@fws.gov>, Dana Hartley <dana_hartley@fws.gov>, Ellen VanGelder <Ellen_VanGelder@fws.gov>, "Huber, Nic" <nic_huber@fws.gov>, Natchanon Ketram <natchanon_ketram@fws.gov>

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Great article!

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Office: 703-358-1763
Cell: 703-203-8435
Fax: 703-358-2115

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From: Craig Hoover
To: Cogliano, Mary
Cc: Danielle Kessler; Tim Vannorman
Subject: Re: [African-elephant] Zimbabwe to resume hunting trophy exports
Date: Friday, July 21, 2017 4:57:00 PM

Mary, did you let LE know that there has been no change? If not, pleas do.

Craig

Sent from my iPhone

On Jul 21, 2017, at 3:19 PM, Cogliano, Mary <mary_cogliano@fws.gov> wrote:

> Danielle,
>
> Please see below.
>
> Mary
> ---------- Forwarded message ----------
> From: **Woulard, Tamesha** <tamesha_woulard@fws.gov>
> Date: Fri, Jul 21, 2017 at 2:59 PM
> Subject: Fwd: [African-elephant] Zimbabwe to resume hunting trophy exports
> To: "Cogliano, Mary" <mary_cogliano@fws.gov>
>
>
> Hi Mary,
>
> Save The Elephants News Service provided a link to some Zimbabwe news that claims that the suspension on Zimbabwe African Elephant trophies has been lifted. Please see below. We are getting questions. Are you aware in the change in the status of the suspension?
>
>
> Tamesha
>
>
> Ms. Tamesha Woulard
> Senior Wildlife Inspector
> U.S. Fish and Wildlife Service
> Office of Law Enforcement
> 5275 Leesburg Pike, MS: OLE
> Falls Church, VA 22041
> 703-358-1949
>
> ---------- Forwarded message ----------
> From: **Holmes, AnnMarie** <annmarie_holmes@fws.gov>
> Date: Mon, Jul 10, 2017 at 9:39 AM
> Subject: Fwd: [African-elephant] Zimbabwe to resume hunting trophy exports
> To: Sheila Einsweiler <sheila_einsweiler@fws.gov>, "Woulard, Tamesha"

<tamesha_woulard@fws.gov>

Did we know the ban was lifted?

_____
Ann-Marie Holmes
Senior Wildlife Inspector
Office of Law Enforcement
US Fish and Wildlife Service
(703) 358-1949

---------- Forwarded message ----------
From: **Save The Elephants News Service** <stenews@elephantnews.org>
Date: Sun, Jul 9, 2017 at 10:59 AM
Subject: [African-elephant] Zimbabwe to resume hunting trophy exports
To: african-elephant@elephantnews.org

Zimbabwe to resume hunting trophy exports
Peta Thornycroft, Independent Online
July 9, 2017

See link for photo.

Harare - The US has lifted its ban on hunting trophies from Zimbabwe, which may lead to a recovery in professional hunting. Revenue from hunting provides most of the funds used to protect Zimbabwe's wildlife.

Many hunters, especially those from the US, abandoned Zimbabwe after the US Fish and Wildlife Service banned importation of elephant trophies in 2014.

Environment, Water and Climate Minister Oppah Muchinguri-Kashiri told The Source, a Harare-based digital business site, that Zimbabwe would be able to start exporting the outstanding trophies later this year.

"All the trophies which were being held in the country will be exported this year but under strict conditions. We have been given an opportunity to export again into the US," she said.

The US ban came into effect a year before Cecil, a black-maned lion that lived near the Hwange National Park, was shot by Walter Palmer, a US trophy hunter.

The unprecedented international fury over the lion's death sharpened criticism of professional hunting. All charges against the US hunter and his Zimbabwean guide were dropped.

Zimbabwe has sufficient lions and elephants in most of its wildlife areas in most areas in the north west of Zimbabwe. But conservationists say poaching is out of

control further north east, especially along the border with Zambia.

Hunting provides more than 75% of revenue for the preservation of wildlife in Zimbabwe which includes financing the Parks and Wildlife Management Authority, which controls all state game parks.

http://www.iol.co.za/news/africa/zimbabwe-to-resume-hunting-trophy-exports-10203755

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African-elephant mailing list
African-elephant@elephantnews.org

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http://elephantnews.org/mailman/listinfo/allpapers_elephantnews.org

--
Mary Cogliano, Ph.D.
Supervisory Biologist & Policy Specialist
Division of Management Authority
U.S. Fish and Wildlife Service
5275 Leesburg Pike, MS: IA
Falls Church, VA 22041-3803
Phone: (703) 358-1991

<ATT00001>

From: Cogliano, Mary
To: Woulard, Tamesha
Cc: Tim Vannorman; Danielle Kessler
Subject: Re: [African-elephant] Zimbabwe to resume hunting trophy exports
Date: Friday, July 21, 2017 3:20:31 PM

Hi Tamesha,

The ban has not been lifted. I appreciate you bringing this to our attention. I have forwarded your email to our outreach team so they can follow-up to clarify.

Best,

Mary

On Fri, Jul 21, 2017 at 2:59 PM, Woulard, Tamesha <tamesha_woulard@fws.gov> wrote:

> Hi Mary,
>
> Save The Elephants News Service provided a link to some Zimbabwe news that claims that the suspension on Zimbabwe African Elephant trophies has been lifted. Please see below. We are getting questions. Are you aware in the change in the status of the suspension?
>
> Tamesha
>
> Ms. Tamesha Woulard
> Senior Wildlife Inspector
> U.S. Fish and Wildlife Service
> Office of Law Enforcement
> 5275 Leesburg Pike, MS: OLE
> Falls Church, VA 22041
> 703-358-1949
>
> ---------- Forwarded message ----------
> From: **Holmes, AnnMarie** <annmarie_holmes@fws.gov>
> Date: Mon, Jul 10, 2017 at 9:39 AM
> Subject: Fwd: [African-elephant] Zimbabwe to resume hunting trophy exports
> To: Sheila Einsweiler <sheila_einsweiler@fws.gov>, "Woulard, Tamesha" <tamesha_woulard@fws.gov>
>
> Did we know the ban was lifted?
>
> _____
> Ann-Marie Holmes
> Senior Wildlife Inspector
> Office of Law Enforcement
> US Fish and Wildlife Service
> (703) 358-1949

---------- Forwarded message ----------
From: **Save The Elephants News Service** <stenews@elephantnews.org>
Date: Sun, Jul 9, 2017 at 10:59 AM
Subject: [African-elephant] Zimbabwe to resume hunting trophy exports
To: african-elephant@elephantnews.org

Zimbabwe to resume hunting trophy exports
Peta Thornycroft, Independent Online
July 9, 2017

See link for photo.

Harare - The US has lifted its ban on hunting trophies from Zimbabwe, which may lead to a recovery in professional hunting. Revenue from hunting provides most of the funds used to protect Zimbabwe's wildlife.

Many hunters, especially those from the US, abandoned Zimbabwe after the US Fish and Wildlife Service banned importation of elephant trophies in 2014.

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"All the trophies which were being held in the country will be exported this year but under strict conditions. We have been given an opportunity to export again into the US," she said.

The US ban came into effect a year before Cecil, a black-maned lion that lived near the Hwange National Park, was shot by Walter Palmer, a US trophy hunter.

The unprecedented international fury over the lion's death sharpened criticism of professional hunting. All charges against the US hunter and his Zimbabwean guide were dropped.

Zimbabwe has sufficient lions and elephants in most of its wildlife areas in most areas in the north west of Zimbabwe. But conservationists say poaching is out of control further north east, especially along the border with Zambia.

Hunting provides more than 75% of revenue for the preservation of wildlife in Zimbabwe which includes financing the Parks and Wildlife Management Authority, which controls all state game parks.

http://www.iol.co.za/news/africa/zimbabwe-to-resume-hunting-trophy-exports-10203755

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--
Mary Cogliano, Ph.D.
Supervisory Biologist & Policy Specialist
Division of Management Authority
U.S. Fish and Wildlife Service
5275 Leesburg Pike, MS: IA
Falls Church, VA 22041-3803
Phone: (703) 358-1991

From: Kessler, Danielle
To: Craig Hoover
Cc: Cogliano, Mary; Tim Vannorman
Subject: Re: [African-elephant] Zimbabwe to resume hunting trophy exports
Date: Friday, July 21, 2017 5:09:41 PM

Thanks, Mary. We were alerted to the article earlier this month and EA tried, to no avail, to contact the publication and have them issue a correction. Since that wasn't possible, we did update the sport-hunted trophies webpage to clarify that the ban is still in place. If people are seeking guidance, the hope is that Google will direct them to us and the correct information.

Apologies for not alerting you sooner. Best, Danielle

On Fri, Jul 21, 2017 at 4:30 PM, Craig Hoover <craig_hoover@fws.gov> wrote:

> Mary, did you let LE know that there has been no change? If not, pleas do.
>
> Craig
>
> Sent from my iPhone
>
> On Jul 21, 2017, at 3:19 PM, Cogliano, Mary <mary_cogliano@fws.gov> wrote:
>
>> Danielle,
>>
>> Please see below.
>>
>> Mary
>> ---------- Forwarded message ----------
>> From: **Woulard, Tamesha** <tamesha_woulard@fws.gov>
>> Date: Fri, Jul 21, 2017 at 2:59 PM
>> Subject: Fwd: [African-elephant] Zimbabwe to resume hunting trophy exports
>> To: "Cogliano, Mary" <mary_cogliano@fws.gov>
>>
>>
>> Hi Mary,
>>
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>>
>>
>> Tamesha
>>
>>
>> Ms. Tamesha Woulard
>> Senior Wildlife Inspector
>> U.S. Fish and Wildlife Service
>> Office of Law Enforcement
>> 5275 Leesburg Pike, MS: OLE

Falls Church, VA 22041
703-358-1949

---------- Forwarded message ----------
From: **Holmes, AnnMarie** <annmarie_holmes@fws.gov>
Date: Mon, Jul 10, 2017 at 9:39 AM
Subject: Fwd: [African-elephant] Zimbabwe to resume hunting trophy exports
To: Sheila Einsweiler <sheila_einsweiler@fws.gov>, "Woulard, Tamesha" <tamesha_woulard@fws.gov>

Did we know the ban was lifted?

_____
Ann-Marie Holmes
Senior Wildlife Inspector
Office of Law Enforcement
US Fish and Wildlife Service
(703) 358-1949

---------- Forwarded message ----------
From: **Save The Elephants News Service** <stenews@elephantnews.org>
Date: Sun, Jul 9, 2017 at 10:59 AM
Subject: [African-elephant] Zimbabwe to resume hunting trophy exports
To: african-elephant@elephantnews.org

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Peta Thornycroft, Independent Online
July 9, 2017

See link for photo.

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Hunting provides more than 75% of revenue for the preservation of wildlife in Zimbabwe which includes financing the Parks and Wildlife Management Authority, which controls all state game parks.

http://www.iol.co.za/news/africa/zimbabwe-to-resume-hunting-trophy-exports-10203755

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--
Mary Cogliano, Ph.D.
Supervisory Biologist & Policy Specialist
Division of Management Authority
U.S. Fish and Wildlife Service
5275 Leesburg Pike, MS: IA
Falls Church, VA 22041-3803
Phone: (703) 358-1991

<ATT00001>

--
Danielle Kessler
Chief, Office of Outreach & Communications
International Affairs Program
U.S. Fish & Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803
703-358-2644
www.fws.gov/international

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From: Craig Hoover
To: Durham, Robert J
Cc: Hamlyn, Gunner G; Tim Van Norman; Gloria Bell
Subject: Re: 2017 Amb schultz ltr Hoover oct
Date: Monday, October 23, 2017 10:20:46 AM

Dear Robert,

I am following up to let you know that we have completed a positive Endangered Species Act finding for sport-hunted lions from Zambia for 2016-18. More information can be found here: https://www.fws.gov/international/permits/by-activity/sport-hunted-trophies-lions.html

We did consider the information provided in Ambassador Shultz's letter, but found that, in reviewing all of the information available to us, we had sufficient information to make a positive finding. We are also in the process of completing a finding for sport-hunted elephants from Zambia. If you have any information that you would like to share for our consideration, please let us know.

Best,

Craig Hoover

On Thu, Oct 5, 2017 at 12:37 PM, Hoover, Craig <craig_hoover@fws.gov> wrote:

> Robert,
>
> Thank you very much for sharing this letter from Ambassador Shultz electronically. We will incorporate this information into our work here, particularly as it relates to ESA and CITES findings associated with Zambia. If you have any additional information, correspondence, etc., to share, we would be happy to consider that as well.
>
> Best,
>
> Craig Hoover
>
> On Thu, Oct 5, 2017 at 5:37 AM, Durham, Robert J <DurhamRJ@state.gov> wrote:
>
>> Dear Mr. Hoover:
>>
>> Enclosed is a scanned ltr that Ambassador Schultz signed to you. The original letter will be forthcoming via regular mail.
>>
>> Sincerely,
>>
>> Robert
>> Official
>> UNCLASSIFIED
>
> --
> Craig Hoover

Chief, Division of Management Authority
International Affairs
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803
ph: 703-358-2162
www.fws.gov/international

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--

Craig Hoover
Chief, Division of Management Authority
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5275 Leesburg Pike
Falls Church, VA 22041-3803
ph: 703-358-2162
www.fws.gov/international

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From: Brigida, Danielle
To: Parramore_Laury
Cc: Hoover_Craig; Shire_Gavin; Kessler_Danielle; Tim Vannorman
Subject: Re: Article on Approval for Zim ele/lion imports
Date: Monday, July 10, 2017 2:37:12 PM
Attachments: image005.png
image004.png
image002.png
image007.png
image003.png
image008.png
image006.png
image009.png

Hey all,

Their site is kind of funky and I haven't been able to comment (been trying since I saw this) are other people having issues? It may be my browser--so wanted to check.

Danielle

On Mon, Jul 10, 2017 at 1:54 PM, Parramore, Laury <laury_parramore@fws.gov> wrote:

> There appears to be no way to contact the writer-editor of this media outlet other than through the comment section, on which I posted the following (see below). Danielle, would you be willing to reach out via the IA social media channels with this message? Thanks.
>
> This story needs to be retracted immediately. The import to the United States of elephant trophies from Zimbabwe is still suspended. Please see https://www.fws.gov/international/pdf/questions-and-answers-suspension-of-elephant-sport-hunted-trophies.pdf
>
> Thank you.
>
> Laury Parramore
>
> Assistant Chief, Public Affairs
>
> U.S. Fish and Wildlife Service
>
> Laury Marshall Parramore
>
> Assistant Chief, Public Affairs
>
> U.S. Fish and Wildlife Service
>
> MS: EA
>
> 5275 Leesburg Pike
>
> Falls Church, VA 22041-3803
>
> 703/358 2541 -- direct
>
> 703/589 6947 -- mobile
>
> "Nature does not hurry, yet everything is accomplished." -- Lao Tzu
>
> On Fri, Jul 7, 2017 at 2:47 PM, Hoover, Craig <craig_hoover@fws.gov> wrote:
>
> > I agree.
> >
> > On Fri, Jul 7, 2017 at 2:15 PM, Shire, Gavin <gavin_shire@fws.gov> wrote:
> >
> > > I would be as brief and to the point as possible and not provide dates that we can't predict at this point.
> > >
> > > G

Gavin Shire
Chief of Public Affairs
U.S. Fish and Wildlife Service
MS: EA
5275 Leesburg Pike
Falls Church, VA 22041-3803
703-358-2649 (o)
703-346-9123 (c)
gavin_shire@fws.gov

On Fri, Jul 7, 2017 at 2:02 PM, Kessler, Danielle <danielle_kessler@fws.gov> wrote:

Agreed. We should try to have the story retracted. I'm starting to get questions on social media too. I intend to respond with a simple "The import of elephant trophies from Zimbabwe is still suspended." Sound OK? Do we want to give any indication as to when we will issue a decision to either continue or end the suspension?

On Fri, Jul 7, 2017 at 12:16 PM, Shire, Gavin <gavin_shire@fws.gov> wrote:

Here's the article.

G

Gavin Shire
Chief of Public Affairs
U.S. Fish and Wildlife Service
MS: EA
5275 Leesburg Pike
Falls Church, VA 22041-3803
703-358-2649 (o)
703-346-9123 (c)
gavin_shire@fws.gov

---------- Forwarded message ----------
From: **Barbara Crown** <barbara@huntingreport.com>
Date: Fri, Jul 7, 2017 at 12:01 PM
Subject: RE: Article on Approval for Zim ele/lion imports
To: "Shire, Gavin" <gavin_shire@fws.gov>

Here you go:

in Stories

US lifts ban on hunting trophies from Zimbabwe

The United States of America has lifted its ban on hunting trophies from Zimbabwe, allowing the country to resume exports later this year, the environment minister said today.

On April 4, 2014, the US Fish and Wildlife Service announced an interim suspension of imports of sport-hunted African elephant trophies hunted in Zimbabwe, which it later extended to 2015 and "indefinitely into the future," because the government's measures to protect the animals did not enhance the survival of the species.

The decision was challenged by the US Safari Club and the powerful National Rifle Association but a US District Court upheld the ban.

Environment, Water and Climate Minister Oppah Muchinguri- Kashiri said that according to the provisions of the waiver, Zimbabwe would start exporting the outstanding trophies in the second quarter of 2017.

"All the trophies which were being held in the country will be exported this year but under strict conditions. We have been given an opportunity to export again into the US," she said.

The US ban preceded the controversial killing of the hugely popular Cecil, a 13-year-old male lion which lived in Zimbabwe's Hwange National Park, by Walter Palmer, a US trophy hunter in July, 2015.

The killing led to calls for tighter controls on hunting trophy imports by mainly western countries.

Zimbabwe hosts hunters from various countries including Russia, the United States, Hungary, Spain and Germany who pay to shoot animals such as lions, elephants and leopards, earning the country millions in revenue.

United States provide the bulk of the hunters and the existence of the ban has had negative effects on hunting revenue.

Bookings for the 2017 hunting season, which runs between April and November each year, are up

20 percent from the previous year's $70 million, despite the embargo by the US.

The 2016 hunting season was depressed as most hunters stayed away due to uncertainty over proposals by some Western countries to impose stricter hunting controls on elephants and lions by mostly African countries.- **The Source**

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- US lifts ban on hunting trophies from Zimbabwe
- Zimbabwe has more than 50 political parties three of which are led by women
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From: Shire, Gavin [mailto:gavin_shire@fws.gov]
Sent: Friday, July 07, 2017 12:00 PM
To: Barbara Crown <barbara@huntingreport.com>
Subject: Re: Article on Approval for Zim ele/lion imports

Thanks, Barbara. I can't access the link as it's saying there is an associated virus. I can tell you though, that the ban on elephant trophy imports has not been lifted.

G

Gavin Shire

Chief of Public Affairs

U.S. Fish and Wildlife Service

MS: EA

5275 Leesburg Pike

Falls Church, VA 22041-3803

703-358-2649 (o)

703-346-9123 (c)

gavin_shire@fws.gov

On Fri, Jul 7, 2017 at 11:53 AM, Barbara Crown <barbara@huntingreport.com> wrote:

> Gavin, thanks for speaking with me. Below is a link to the article that is being forwarded around. Makes it sound like elephant and lion imports from Zim have been approved. Is this a misunderstanding, perhaps on trophies from a specific period being allowed import?
>
> http://www.insiderzim.com/us-lifts-ban-on-hunting-trophies-from-zimbabwe/
>
> Thanks,
>
> Barbara Crown
>
> Editor-in-Chief
>
> The Hunting Report

--
Danielle Kessler
Chief, Office of Outreach & Communications
International Affairs Program
U.S. Fish & Wildlife Service
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--
Craig Hoover
Chief, Division of Management Authority
International Affairs
U.S. Fish and Wildlife Service
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Falls Church, VA 22041-3803
ph: 703-358-2162
www fws.gov/international

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--
Danielle Brigida
National Social Media Manager
U S Fish & Wildlife Service
www fws gov/social
p: 703 358 2615
c: 703 577 3170

From:	Parramore, Laury
To:	Hoover, Craig
Cc:	Shire, Gavin; Kessler, Danielle; Tim Vannorman; Danielle Brigida
Subject:	Re: Article on Approval for Zim ele/lion imports
Date:	Monday, July 10, 2017 1:54:30 PM
Attachments:	image007.png image004.png image002.png image003.png image008.png image009.png image005.png image006.png

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There appears to be no way to contact the writer-editor of this media outlet other than through the comment section, on which I posted the following (see below). Danielle, would you be willing to reach out via the IA social media channels with this message? Thanks.

This story needs to be retracted immediately. The import to the United States of elephant trophies from Zimbabwe is still suspended. Please see https://www.fws.gov/international/pdf/questions-and-answers-suspension-of-elephant-sport-hunted-trophies.pdf

Thank you.

Laury Parramore

Assistant Chief, Public Affairs

U.S. Fish and Wildlife Service

Laury Marshall Parramore

Assistant Chief, Public Affairs

U.S. Fish and Wildlife Service

MS: EA

5275 Leesburg Pike

Falls Church, VA 22041-3803

703/358 2541 -- direct

703/589 6947 -- mobile

"Nature does not hurry, yet everything is accomplished." -- Lao Tzu

On Fri, Jul 7, 2017 at 2:47 PM, Hoover, Craig <craig_hoover@fws.gov> wrote:

> I agree.
>
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> > 703-358-2649 (o)
> >

703-346-9123 (c)
gavin_shire@fws.gov

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Subject: RE: Article on Approval for Zim ele/lion imports
To: "Shire, Gavin" <gavin_shire@fws.gov>

Here you go:

in Stories

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To: Shire_Gavin
Cc: Kessler_Danielle; Tim Vannorman; Laury Parramore; Danielle Brigida
Subject: Re: Article on Approval for Zim ele/lion imports
Date: Friday, July 07, 2017 2:47:48 PM
Attachments: image003.png
image004.png
image005.png
image006.png
image007.png
image002.png
image008.png
image009.png

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Subject:	Re: Article on Approval for Zim ele/lion imports
Date:	Friday, July 07, 2017 2:15:24 PM
Attachments:	image007.png image008.png image009.png image006.png image005.png image003.png image002.png image004.png

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Date:	Friday, July 07, 2017 2:02:21 PM
Attachments:	image003.png image007.png image009.png image002.png image004.png image005.png image006.png image008.png

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From: Shire, Gavin [mailto:gavin_shire@fws.gov]
Sent: Friday, July 07, 2017 12:00 PM
To: Barbara Crown <barbara@huntingreport.com>
Subject: Re: Article on Approval for Zim ele/lion imports

Thanks, Barbara. I can't access the link as it's saying there is an associated virus. I can tell you though, that the ban on elephant trophy imports has not been lifted.

G

Gavin Shire

Chief of Public Affairs

U.S. Fish and Wildlife Service

MS: EA

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703-346-9123 (c)

gavin_shire@fws.gov

On Fri, Jul 7, 2017 at 11:53 AM, Barbara Crown <barbara@huntingreport.com> wrote:

> Gavin, thanks for speaking with me. Below is a link to the article that is being forwarded around. Makes it sound like elephant and lion imports from Zim have been approved. Is this a misunderstanding, perhaps on trophies from a specific period being allowed import?
>
> http://www.insiderzim.com/us-lifts-ban-on-hunting-trophies-from-zimbabwe/

Thanks,

Barbara Crown

Editor-in-Chief

The Hunting Report

--
Craig Hoover
Chief, Division of Management Authority
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ph: 703-358-2162
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From: Parramore, Laury
To: Brigida_Danielle
Cc: Hoover_Craig; Shire_Gavin; Kessler_Danielle; Tim Vannorman
Subject: Re: Article on Approval for Zim ele/lion imports
Date: Monday, July 10, 2017 3:55:24 PM
Attachments: image005.png
image003.png
image004.png
image008.png
image002.png
image007.png
image009.png
image006.png

For some reason if you try to comment without inserting the comment (because it won't let you at first), it will kick you back to the comment screen and at that point you can type in a comment. As stated earlier, I already submitted the comment, below. I did not leave a comment on any of the social media sites because I do not want it to come from my personal account. Tx.

Laury Marshall Parramore

Assistant Chief, Public Affairs

U.S. Fish and Wildlife Service

MS: EA

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703/589 6947 -- mobile

"Nature does not hurry, yet everything is accomplished." -- Lao Tzu

On Mon, Jul 10, 2017 at 2:37 PM, Brigida, Danielle <danielle_brigida@fws.gov> wrote:

> Hey all,
>
> Their site is kind of funky and I haven't been able to comment (been trying since I saw this) are other people having issues? It may be my browser--so wanted to check.
>
> Danielle
>
> On Mon, Jul 10, 2017 at 1:54 PM, Parramore, Laury <laury_parramore@fws.gov> wrote:
>
>> There appears to be no way to contact the writer-editor of this media outlet other than through the comment section, on which I posted the following (see below). Danielle, would you be willing to reach out via the IA social media channels with this message? Thanks.
>>
>> This story needs to be retracted immediately. The import to the United States of elephant trophies from Zimbabwe is still suspended. Please see https://www.fws.gov/international/pdf/questions-and-answers-suspension-of-elephant-sport-hunted-trophies.pdf
>>
>> Thank you.
>>
>> Laury Parramore
>>
>> Assistant Chief, Public Affairs
>>
>> U.S. Fish and Wildlife Service
>>
>> Laury Marshall Parramore

Assistant Chief, Public Affairs

U.S. Fish and Wildlife Service

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"Nature does not hurry, yet everything is accomplished." -- Lao Tzu

On Fri, Jul 7, 2017 at 2:47 PM, Hoover, Craig <craig_hoover@fws.gov> wrote:

I agree.

On Fri, Jul 7, 2017 at 2:15 PM, Shire, Gavin <gavin_shire@fws.gov> wrote:

I would be as brief and to the point as possible and not provide dates that we can't predict at this point.

G

Gavin Shire
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703-346-9123 (c)
gavin_shire@fws.gov

On Fri, Jul 7, 2017 at 2:02 PM, Kessler, Danielle <danielle_kessler@fws.gov> wrote:

Agreed. We should try to have the story retracted. I'm starting to get questions on social media too. I intend to respond with a simple "The import of elephant trophies from Zimbabwe is still suspended." Sound OK? Do we want to give any indication as to when we will issue a decision to either continue or end the suspension?

On Fri, Jul 7, 2017 at 12:16 PM, Shire, Gavin <gavin_shire@fws.gov> wrote:

Here's the article.

G

Gavin Shire
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gavin_shire@fws.gov

---------- Forwarded message ----------
From: **Barbara Crown** <barbara@huntingreport.com>
Date: Fri, Jul 7, 2017 at 12:01 PM
Subject: RE: Article on Approval for Zim ele/lion imports
To: "Shire, Gavin" <gavin_shire@fws.gov>

Here you go:

in Stories

US lifts ban on hunting trophies from Zimbabwe

The United States of America has lifted its ban on hunting trophies from Zimbabwe, allowing the country to resume exports later this year, the environment minister said today.

On April 4, 2014, the US Fish and Wildlife Service announced an interim suspension of imports of sport-hunted African elephant trophies hunted in Zimbabwe, which it later extended to 2015 and "indefinitely into the future," because the government's measures to protect the animals did not enhance the survival of the species.

The decision was challenged by the US Safari Club and the powerful National Rifle Association but a US District Court upheld the ban.

Environment, Water and Climate Minister Oppah Muchinguri- Kashiri said that according to the provisions of the waiver, Zimbabwe would start exporting the outstanding trophies in the second quarter of 2017.

"All the trophies which were being held in the country will be exported this year but under strict conditions. We have been given an opportunity to export again into the US," she said.

The US ban preceded the controversial killing of the hugely popular Cecil, a 13-year-old male lion which lived in Zimbabwe's Hwange National Park, by Walter Palmer, a US trophy hunter in July, 2015.

The killing led to calls for tighter controls on hunting trophy imports by mainly western countries.

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- Textile industry calls for tighter controls as Zimbabwe imports clothing worth $20 million in 5 months

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>
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>
> Barbara Crown

Editor-in-Chief

The Hunting Report

--
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Craig Hoover
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ph: 703-358-2162
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***Sign up** for our e-newsletter to learn how we're working around the globe to protect species and their habitats!*

--
Danielle Brigida
National Social Media Manager
U S Fish & Wildlife Service
www fws gov/social
p: 703 358 2615
c: 703 577 3170

From:	Gadd, Michelle
To:	Hoover, Craig; Rosemarie Gnam; Richard Ruggiero; Laura Noguchi; Dirck Byler; Pamela Scruggs; Tim Vannorman; Horton, Monica
Subject:	Re: Booth 2017 Economic assessment of Tanzania"s hunting industry
Date:	Thursday, November 16, 2017 9:42:50 AM
Attachments:	Economic Assessment of the Tanzania Hunting Industry Booth 2017 final.pdf

Dear all, please find an updated version of the Booth 2017 report on TZ hunting economics.
I found an extra digit in a dollar amount on Table 20 and Vernon verified the number should be $39,749 spent per operator in 2015.
In the version attached here that typo has been corrected (please delete the old version and replace it with this version, where the file name ends in 'final'). Thank you, mg

On Thu, Jul 27, 2017 at 2:15 PM, Gadd, Michelle <michelle_gadd@fws.gov> wrote:

> Please find attached Vernon Booth's 2017 report "An Economic Assessment of the Value of Wildlife to the Tanzania Hunting Industry" (based on 2014 revenues).
>
> This was an assessment requested by Tanzania's Ministry of Natural Resources and Tourism in October 2013, with funds awarded by USFWS on behalf of USAID-Tanzania.
>
> Vernon submitted a draft to MNRT in March 2017 and they have not replied with any amendments or corrections, so he has given me the go ahead to share it.
>
> I believe this is the first time we have had access to some of this information. I hope you will find it as enlightening as I did. I am eager to hear your feedback.
>
> *Michelle Gadd, Ph.D.*
> *Program Officer, African Elephant and African Rhino Programs*
> *Division of International Conservation*
> *U.S. Fish and Wildlife Service*
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> *Falls Church, VA 22041-3803*
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--

Michelle Gadd, Ph.D.
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ECONOMIC ASSESSMENT OF THE VALUE OF WILDLIFE TO THE TANZANIA HUNTING INDUSTRY IN 2014

March 2017

V.R. Booth

This report was commissioned the US Agency for International Development and the US Fish and Wildlife Service at the request of Tanzania's Ministry of Natural Resources and Tourism. The opinions expressed herein are those of the author and do not necessarily reflect the views of the US Government.

The data provided in this report is based on information supplied by the Tanzania Wildlife Division. Several inconsistencies became apparent while working with this data set. The attempt to retrieve key socio-economic data from a selection of hunting companies was unsuccessful. The preliminary results presented here are therefore based on the best data available at the time of writing.

All photographs by Vernon Booth

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Acronyms and Abbreviations

AA	Authorized Association
AAC	Authorized Association Consortium
CAWM	College of African Wildlife Management
CBNRM	Community-Based Natural Resource Management
CBO	Community-Based Organization
CF	Conservation Force
CIC	International Council for Game and Wildlife Conservation
CMS	Convention on the Conservation of Migratory Species of Wild Animals
ESA	Endangered Species Act
EU	European Union
SRG	Scientific Review Group (of the European Union)
GCA	Game Controlled Area
CITES	Convention on the International Trade in Endangered Species of Wild Fauna and Flora
FL	Forest Land
GMP	General Management Plan
GR	Game Reserve
GTZ	Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)
IFAW	International Foundation for Animal Welfare
IUCN	International Union for the Conservation of Nature
JVA	Joint Venture Agreement
LGA	Local Government Authorities
LUP	Land Use Plan
MNRT	Ministry of Natural Resources and Tourism
NCAA	Ngorongoro Conservation Area Authority
NDF	Non-Detriment Finding
NGO	Non-Governmental Organization
NP	National Park
OA	Open Area
PPP	Public-Private Partnership
SCI	Safari Club International
SSC	Species Survival Commission (of IUCN)
TANAPA	Tanzania National Parks
TAWA	Tanzania Wildlife Authority
TAWIRI	Tanzania Wildlife Research Institute
USAID	United States Agency for International Development
USFWS	United States Fish and Wildlife Service
VGS	Village Game Scouts
WCS	Wildlife Conservation Society
WD	Wildlife Division
WMA	Wildlife Management Area
WWF	World Wide Fund for Nature

GLOSSARY

Adaptive management	A decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes advances understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Said differently, it is a system approach for improving resource management through taking purposeful management action, monitoring the results and learning from the outcomes. (Adapted from National Research Council, 2004).
Appropriate authority	The person or entity that has been legally awarded the right to hunt on an area of land. This authority extends to organising hunting by others, as well as to some ancillary responsibilities, such as management of the area.
Big five	The five large charismatic mammal species which are the most sought after by wildlife viewing tourists as well as tourist hunters are collectively known as the 'Big five'. These are elephant, black rhinoceros, buffalo, lion and leopard. Some have replaced the black rhino with the white and added the hippo to make the Big Six.
Big game	Large terrestrial mammals, usually but not necessarily always hunted. Big game includes elephant, black rhinoceros, buffalo, lion and leopard (the 'Big five'), as well as hippopotamus. See 'Plains Game'.
Block Fee	The amount of money paid for the concession of a hunting area per hunting season
Bushmeat	In Africa, woodland (or forest) is often referred to as 'the bush', thus wildlife and the meat derived from it is referred to as 'bushmeat' (in French - *viande de brousse*). This term applies to all wildlife species used for meat including mammals, birds, reptiles and amphibians.
Carrying capacity	For a given region, carrying capacity is the maximum number of individuals of a given species that an area can sustain indefinitely without significantly depleting or degrading the resources on which the population depends. It is a dynamic, theoretical modelling construct. Populations are healthier and trophies tend to be bigger if populations are kept at a lower, more productive level.
CITES	Convention on International Trade in Endangered Species of Fauna and Flora: an international treaty to control the trade of species, including the transfer of listed hunting trophies considered to be threatened by international trade.
Client	A person paying an outfitter who is responsible for the organisation and conduct of a personal hunting safari.
Concession	A grant of a tract of land made by a Government or other controlling authority in return for stipulated services or a promise that the land will be used for a specific purpose. Such areas of land are leased together with a hunting quota to companies authorised to guide foreign hunting clients on a hunting safari, frequently referred to as a block or area.

Concession contract	Concession contract means a legal agreement between the wildlife authority and a concession holder that outlines each party's rights and obligations arising from the granting of the concession. For any concession to operate there must be a legal agreement between a country's Government authorities, administered through a protected area agency, and a concessionaire. It contains regulatory and contractual provisions to be respected by both parties.
Concessionaire or concession holder	A person or company who has a concession (that is, official permission from a Government or a company to do business in a particular place). Concessionaire or concession holder means any individual, collective of individuals, community, conservancy, community forest or an incorporated or unincorporated entity that has been granted a concession by the wildlife authority.
Conservation Fee	This is an amount of money paid by a client for hunting through a hunting company to support conservation activities.
Conservancy	An organization of private landholders (private conservancy) or communities (communal conservancy) bound together by agreement for joint management of wildlife. In Namibia, for example, communal conservancies have to meet statutory requirements, which in turn entitle that conservancy to some control and use of wildlife within the demarcated areas.
Daily fees and rates	The amount paid by a hunting client to an outfitter or operator for the right to hunt and for services provided.
Game Controlled Area	An area of land where all forms of hunting are prohibited without a licence or permit. The law, however, makes no restrictions on other forms of land use, and local communities are allowed to reside permanently within a game controlled area.
Game Fee	This is the price set by the Government for an animal hunted or wounded by a tourist hunter.
Game reserve	An area of land gazetted as game reserve and under the full jurisdiction of the Government wildlife authority. With few exceptions, no human habitation is permitted within a game reserve. Game reserves are used for various forms of tourism, including regulated hunting.
Government revenue	Used in this document to reflect the income accrued by the Wildlife Authority from hunting i.e. income from concession fees, licence fees, trophy fees etc. Does not necessarily reflect revenue raised by the Government through other forms of taxation.
Gross hunting revenue	The total revenue generated from regulated hunting that includes the income accrued by the Wildlife Authority, Government taxation, and revenue to the private sector.
Hunting block	This is an area of land with wild game animals which has been delineated or set aside and approved by the Director for trophy hunting.

Hunting company	This is a registered business enterprise allocated a hunting block by the Minister and issued a Hunting Block Allocation Certificate to undertake trophy hunting activities.
Hunter-day	The measure of hunting effort achieved by an outfitter as a result of marketing various hunting packages that are traditionally classified as 21-day, 15-day and 10-day safaris. For example, the sale of 10 x 10-day safaris would generate 100 hunter-days.
Hunting industry	The multitude of businesses that provide services to tourist hunters.
Hunting permit fee	This is a sum of money paid by a hunting company or authorized association on behalf of a client to allow him acquire a lawful hunting licence for a specific safari package.
Hunting safari	A hunting trip taken by a foreign client to hunt a selection of game animals, as trophies for personal use and enjoyment.
Hunting term	This refers to a specified time period of five years within which a hunting company may be allocated and use a hunting block.
Key animals	This refers to a specified list of reptiles, mammals and birds as set out in the Fourth Schedule of the Hunting Regulations.
Licence vs permit	• A licence is granted as permission to do something or use something. In some cases, licensing is granted after a test, to make sure that the person receiving the licence can do the activity e.g. Professional Hunters Licence. Licences are generally granted by a Government agency. • A permit is a type of licence that has an expiry date. Some examples of permits are a) a work permit, and b) a written order granting special permission to do something: e.g. hunt a particular trophy animal such as a leopard or mountain nyala.
Open Area	An area of land without any form of conservation status and no restrictions on human habitation or other forms of land use. The right to hunt in such areas can be leased by the Wildlife Authority as a hunting concession.
Outfitter or operator	A person or hunting company responsible for offering a hunting safari to a hunting client. The outfitter (also known as an operator) generally provides a camp and 4x4 vehicles, and employs a professional hunter, trackers and camp attendants to serve the needs of hunting clients, and is responsible for general organisation.
Plains game	Larger mammals on the schedule of game that can be hunted, excluding big game.
Poaching	Poaching has traditionally been defined as the illegal hunting, killing or capturing of wild animals. Until the 20th century, mostly impoverished peasants poached for subsistence purposes, thus supplementing a protein scarce diet. By contrast, stealing domestic animals such as cattle raiding is considered theft (or rustling), not poaching. Since the 1980s, the term "poaching" has also been used for the illegal harvest of wild plant species. (http://en.wikipedia.org/wiki/Poaching)

Protected Area	Area of land or sea dedicated to the protection and maintenance of biodiversity and of natural and associated cultural resources, and managed through legal or other effective means.
Public-Private Partnership (PPP)	A PPP is a contract between the public sector and a private party, in which the private party assumes substantial financial, technical and operational risk in the design, financing, building, development and operation of a project, in exchange for a proportion of the profits.
Recreational, sustainable, regulated and trophy hunting	These are all terms used to describe the pursuit of wild game that can be interpreted as follows: • Recreational hunting involves the legal hunting of wild animals in natural areas as opposed to 'non-consumptive wildlife tourism' where wildlife is not physically harvested. Recreational hunting generally involves harvesting meat for personal consumption. As a rule, this form of hunting is undertaken by citizens or persons with residential status in a country. Rarely is the objective to hunt a trophy. • The term 'sustainable regulated hunting' is used in place of the synonymous terms 'sport hunting', 'foreign hunting', 'tourism hunting', 'formal hunting', and 'trophy hunting', and is defined as undertaking guided hunting activities for one or more authorised mature specimens of a certain species by a foreign or local hunter who is willing to pay a fee for the special experience of hunting and obtaining a mature trophy in a sustainable and ethical way. • The term "Trophy hunting" has generated the most misunderstanding and misperceptions, and become a polarizing topic, both internationally and in North America. The Boone and Crockett Club does not believe trophy hunting is a particular form of hunting, but rather the selective pursuit of an older, more mature animal that tends to be more wary, elusive, and more challenging to hunt. When hunters choose to selectively hunt in fair chase, they are engaging in wildlife conservation at its core.
Safari package	This refers to a list of animals to be hunted in a specified number of days.
State land	State Land means land inside and outside of protected areas that belongs to the State and includes national parks, game reserves, recreational areas, communal lands and forests.
Trophy	The tangible product of the game animal taken during the hunt for the personal use of the hunter as memorabilia, such as horns, bracelets, skins, skulls, tusks etc. It is not taken for the purpose of commercial trade.
Trophy fees	Fees paid by the client to the hunting company for the right to hunt a specific animal that is on quota. Usually, a commercial trophy fee comprises (i) the Government trophy licence fee as per the schedule of fees listed in the Government gazette and (ii) a profit for the hunting company.
Wildlife Management Area	An area of village land where the wildlife resources are managed by the local community which has the status of an Authorised Association conferred by the Wildlife Authority.

EXECUTIVE SUMMARY

The use of wildlife resources in Tanzania contributes approximately 17% to GDP. Trophy hunting plays a small part especially in remote rural areas, but its economic importance to conserving wilderness areas outside of the national parks and game reserves is poorly understood. This study, commissioned by USAID and Fish and Wildlife Service (USFWS) in collaboration with the Ministry of Natural Resources and Tourism and the Wildlife Division (WD), reviews the contribution of the trophy hunting industry to the Tanzania economy. Where possible, the benefits to local communities from the use of wildlife and wildlife resources are assessed using financial revenue and biological offtake data provided by the Wildlife Division for calendar years 2012, 2013, and 2014. A basic macroeconomic analysis of the countrywide hunting industry is provided, including a summary of the land area which is conserved and managed through hunting tourism and the game populations according to available national wildlife censuses carried out in recent years.

Prevailing Policy and Regulatory Environment

Tanzania has set aside 33.4% of its total surface area (318,038km^2) for conservation. The Tanzania National Parks Authority (TANAPA) is responsible for approximately 57,365km^2, while the Ngorongoro Conservation Area (NCA) covers 8,292km^2. The Game Reserves under the Tanzania Wildlife Authority (TAWA), where most trophy hunting is conducted, cover approximately 114,782km^2. The Game Controlled Areas (GCAs) and Wildlife Management Areas (WMAs) fall under District administration and community Authorised Associations (AA).

An extensive regulatory framework is in place to manage and control the wildlife sector through the Tanzania Wildlife Management Authority Act, 2013 and the Wildlife Conservation (Tourist Hunting) Regulations, 2015, while the Wildlife Conservation (Wildlife Management Areas) Regulations guide developments within the WMAs. The institutional framework within the Ministry of Natural Resources and Tourism is described in the 2007 Tanzania National Wildlife Policy.

The WD is undergoing a restructuring exercise and will in future be responsible for coordinating policy, and overseeing the five parastatals (TANAPA, TAWA, NCAA, TAWIRI and TWPF). TAWA will be responsible for the day-to-day protection and management of wildlife and terrestrial wetland resources throughout Tanzania outside of the national parks and NCA. Its mandate is described in detail in the regulations, and while these are well placed to administer and manage the hunting industry, there are still concerns whether this is done in an open and transparent way. The administration of WMAs is described in the 2012 WMA Regulations that define the revenue sharing process from trophy hunting between the community, TWPF, District and Treasury. This has come under severe criticism over the years since it is an area of continued conflict with communities as it affects benefit sharing mechanisms and conservation of wildlife.

Block categories and allocation

Trophy hunting is conducted on four categories of land in Tanzania, and in 2014 there were 167 hunting blocks covering approximately 266,914km^2. Most hunting blocks occur in Game Reserves (N=83), Game Control Areas (N=34) and Open Areas (N=34) while a small proportion of blocks are now in WMAs (N=15).

In 2011, TAWIRI developed a set of parameters that placed the blocks into one of five categories. Category I blocks attract the highest block rental (US$60,000/year) and the lowest quality blocks (Category V) are set at US$5,000/year. Most the blocks in "Category II" (N=111) at US$30,000/year. If all 167 blocks were allocated and paid for, block fees would generate US$5,435,000/year.

The procedure to apply for or renew a hunting block are described in the Hunting Regulations. All applications are evaluated by the Hunting Block Allocation Advisory Committee appointed by the MNRT in terms of the 2015 Hunting Regulations. This Committee is mandated to review the past performance of hunting operations, deliberate on the state of hunting and allocate hunting concessions and blocks. Upon receiving the recommendations of the committee, the Minister can approve the allocation of hunting blocks to the applicants. The tenure is set for 5 years (the current blocks are due to expire in 2018), and each applicant must abide by several terms and conditions stipulated in the Regulations.

Although the legal framework is clear in that no one person or company may hold more than five blocks, this rule has been circumvented by individual hunting operators by forming consortiums with the net result that some companies having access to up to 20 hunting blocks. The transfer of blocks is also not permitted but despite setting stringent conditions, this still takes place.

Sixty hunting companies were allocated hunting for the 2013 – 2018 period, but these are managed by several consortiums that exist under various holding companies. Fifteen blocks were not allocated in 2013, but because of the difficult operating environment the number of vacant blocks has increased to 46 by September 2016 valued at $1,088,000/year and covering an area of 73,000km^2.

Government Fees and Regulations

The fee structure applicable to the hunting industry are fixed by the 2015 Tourism hunting regulations, and have not been adjusted since 2010. All hunting operators are required to utilize 40% of the quota value of a selection of key animals (see Table 8), and are required to pay any shortfall at the end of the season. This strategy guarantees a minimum income to the WD but can encourage overhunting of the high value species to meet this target. Other fees related to the management and administration of the industry include Block Fees, Permit Fees, Intercompany Hunting Fees, Conservation/Observer Fees, Trophy Handling Fees and Professional Hunter Fees.

Quota Allocation, Utilisation and Income Generation

Quotas are set by the Wildlife Division after receiving inputs from field staff and after taking in the recommendations from TAWIRI. Although quotas can be adjusted annually, the quotas for most species appear not to have varied significantly in recent years. Moreover, the levels of utilisation are low.

TAWIRI are responsible for monitoring the status and distribution of wildlife across all of Tanzania's ecosystems. A variety of methods are used including Systematic Reconnaissance Flight (SRF), Total Count (TC), Aerial Point Survey (APS) and Ground Counts (GC) and Educated Guess (EG). The SRF method is the preferred choice to survey the approximately 296,976km^2 of wild land. The most recent national surveys were funded by the Paul G. Allen Foundation under the Great Elephant Census (www.greatelephantcensus.com/), and TAWIRI has produced comprehensive survey reports for each of the major ecosystems for elephants using these data, and limited analysis of other species.

A full summary of the quota allocation and utilisation by block by company for 2014 is provided. The overall total quota was 17,043 animals (excluding 15,997 birds), that included 11,425 of the Key Species which determine the minimum revenue from game fees (40% must be paid for, whether hunted or not, see Table 8). Of the 5,085 mammals hunted in 2014, the key species amounted to 4,222 animals with buffalo forming the bulk (949/1,817 or 52% of the buffalo quota) followed by zebra (431/1,114 or 39% of the zebra quota). The Prime Species consists of 200 elephants, 317 lions and 459 leopards. Of these, 26% were harvested in 2014, most of which were leopards (200), with 44 lions and 7 elephants. Relatively few small animals and birds are harvested each year (less than 1% of the 2014 quota).

The total value of the 2014 quota is $19,389,735 with the Key Species (buffalo, sable, waterbuck etc.) contributing 66% ($12,938,380) while the Primary Species (elephant, lion and leopard) contribute 25% ($4,859,800) with the remaining 8% ($2,191,045) spread across the tertiary and small mammal's categories. Approximately 33% of the potential value of the quota was generated in 2014 ($6,427,310). The shortfall (7%) would have been paid by the operators. The "Key Species" segment of the quota generated 80% of the income ($5,132,240) while the "Prime species" contributed 15% ($975,100) with the remaining 5% coming from the Tertiary and Small mammals. The bird quota contributed $44,200 from a potential $599,490.

Performance of the Hunting Industry

The efficiency and effectiveness of the hunting industry is measured using the number of clients and country of origin, number of hunter days generated and the amount of block fees, permit fees and game fees paid per company. Data extracted from the 708 hunting permits issued by the Wildlife Division show that clients came from 43 countries across the globe. The Americas dominated the number of clients (364) with 45% of all clients (322) originating from the USA. Europe, represented by 22 countries, supplied 246 clients while only 40 clients were from the Middle East. Approximately 55 companies applied for hunting permits in 2014 that generated 12,612 hunter days which is approximately 50% less than the number of clients recorded in 2007. This decline in clients and hunter days is attributed to the apparent decline in the availability of elephant and lion on quota, and the number of clients that booked buffalo safaris. The number of leopard hunted in 2007(n=268) and 2014(n=200) has remained the same.

In the 2014/15 financial year, the Wildlife Division received $13,177,494 in payments from the hunting sector. Of this, 36% was block fee payments ($4,687,000) and 64% ($8,490,494) were fees paid by clients. The gross income per block to the Wildlife Division is approximately $92,150 or $58/km^2. Each hunting client pays approximately $18,612 in government related fees over and above any charges raised by the hunting company.

Each of 55 hunting companies secured on average 13 clients but when the various consortia are taken into consideration this changes to 50 – 60 clients each per year. An indicative daily cost to conduct a safari is approximately $1,680/day. The basic daily cost of a hunting safari is approximately $2,250/day before profit. If each company is potentially worth 229 hunter days, then by applying a basic daily rate of $2,250/day, it is estimated that the industry would generate approximately $28,377,000. The net result of the changes to the administrative and management environment over the last 10 years is that the Tanzania hunting industry has shrunk by approximately 50% in terms of the number of clients visiting the country but costs have remained high making Tanzania one of the most expensive hunting destinations in the region. There is a high probability that the Tanzania hunting industry will continue to decline in the next 5 years, particularly in areas outside the Game Reserves.

Trophy Hunting and Wildlife Management Areas

The Tanzanian initiative to better include communities in resource management commenced in 2003 with the creation of 16 pilot WMAs. Only a few participated in hunting based CBNRM programmes around the Selous Game Reserve and some photographic safari companies secured agreements with villages adjacent to the Western Serengeti. Direct benefits to communities at that time were marginal and depended largely on non-obligatory contributions from hunting companies operating in these areas. The WMA process faced many challenges that were exposed through numerous reviews and assessments. Expectations were high but progress was frustratingly slow.

By 2012, 17 WMAs had been gazetted, with a further 21 in the pipeline. Many bordered on National Parks and Game Reserves where they serve as buffer zones and facilitated migratory corridors. With better management, it was envisaged that wildlife populations in these areas would increase but most WMAs lacked resources and capacity to negotiate contracts. Moreover, many of the WMAs were in areas that lacked incentives to attract investors with the result that there is a disparity among the WMAs with respect to their earning capacity.

Those that were successful were required to share the income with the central and local government. The revenues retained by the WMA is further shared between the AA and its member villages. From 2006 – 2010, 12 WMAs received approximately US$1.3 million. In 2012, four of the 17 WMAs developed their photographic opportunities, and because they also had safari hunting operations, tended to perform significantly better than other WMAs in terms of revenue generation.

Sixteen WMAs have designated portions of their areas as hunting blocks. Of these, 13 generated incomes from hunting activities in 2014. The 2012 WMA Regulations also paved the way for AAs to advertise investment opportunities and 8 AAs took advantage of this. Twenty game viewing lodges now operate in the four WMAs with photographic potential and have increased their revenues from $63,000 to $903,000 annually, which outperforms the 13 WMAs with hunting agreements. Overall, between 2006 – 2012, the 16 hunting blocks in WMAs generated $764,391 from hunting and $2,702,275 from photo-tourism.

From 2012/13 – 2015/16 (four years) the performance of the WMAs has improved with approximately $1,913,200 accrued from hunting which is more than double that generated between 2007 – 2012. The share due to WMAs from block, game, conservation and permit fees was $1,148,100 or 60% of the overall income.

Conclusions and Recommendations

Despite the challenges to access critical data, this analysis arrives at several conclusions and recommendations aimed at consolidating the Tanzania industry. The WD are to be commended managing a complex database and making this available. Furthermore, the wildlife sector is evolving rapidly, especially with the establishment of TAWA, but the wildlife policy is not keeping pace. Consequently, although the new 2013 Act is eminent, it does not differ significantly from the 2009 Act especially with respect to the administration and management of the hunting sector. This carries through to the 2015 Regulations that contain sufficient safeguards to ensure that wildlife is utilised

sustainably and transparently but fall short with respect to day-to-day administration in the field, and is weak in the governance of block and quota allocations.

Of concern is the shrinkage of the industry in terms of income generation that is placing vast wilderness areas at risk. This is despite a marginal improvement in the performance of the WMAs. Recommendations to address these issues are provided including investment in resources to better manage the databases, a review of policy to consolidate the platform of TAWA, improving the process of block allocations and tenure and resolving the issues surrounding the import of lion and elephant trophies to the USA and elsewhere.

1 INTRODUCTION

The wildlife resources of Tanzania play a major role in the economy of the country. According to the Tourism Division of the Ministry of Natural Resources and Tourism (MNRT) more than 1 million visitors arrived in the country in 2014, contributing approximately 17% to GDP (MNRT, 2014). The trophy hunting industry plays a small but vital role in shaping the conservation policy in Tanzania, especially in remote rural areas. While the importance of photographic tourism to the country is well-documented, the role of tourism (or trophy) hunting is underemphasized and poorly understood in terms of its economic importance and contribution to conserving the vast wilderness areas outside of the national parks and game reserves. The Wildlife Division (WD) is responsible for the management and administration of all trophy hunting in 143 hunting blocks in Tanzania. Since 2009, the industry has gone through several changes in the way that Government implements various charges and fees for the right to hunt. The WD now wants to evaluate the impact of these changes and to estimate the socio-economic contribution of the Tanzanian hunting industry as well as forecasting its potential contribution in the future.

This study, commissioned by the United States Government (through USAID and Fish and Wildlife Service, USFWS) and in collaboration with the WD as well as with the Ministry of Natural Resources and Tourism, examines the socio-economic contribution of the trophy hunting industry to Tanzania and its growth outlook for the next five years. Where possible, this study also assesses the benefits to local communities from the use of wildlife and wildlife resources and gauge whether the economic and natural resources conservation values (especially the wildlife) are being maximized.

Several reports and reviews have been undertaken over the last 15 years by government, international donors and NGOs that focused on determining the contribution of tourism hunting to the economy of Tanzania. Booth (2010) indicated that the potential gross income of the private sector tourism hunting industry in 2007 and 2008 was between US$44m and US$56m with a further US$12m accruing to the Wildlife Division from fees, licenses and permits. To place this into perspective, Southwick Associates (2015)[1] provide an analysis of the economic contributions of hunting-related tourism in Eastern and Southern Africa. Their study shows that the United States provides the largest proportion of hunters (74%), followed by Europe (16%) with an average of 18,851 tourist hunters visiting the continent annually between 2012 and 2014. South Africa received the greatest number of visiting hunters (8,387) followed by Namibia (7,076) and Zimbabwe (1,361). The average total spend per hunter is estimated at US$26,000 of which US$20,600 is spent in-country. Southwick Associates estimate that US$327 million were spent annually in the eight nations examined.

The Tanzania industry has undergone several administrative and policy changes since 2008 that have impacted on level of income generated for government, the private sector and for communities. This report analyzes financial revenue data and biological offtake data provided by the Tanzania Wildlife Division for calendar years 2012, 2013, and 2014.

[1] http://safariclubfoundation.org/wp-content/uploads/2016/06/Southwick-Associates-2015_FINAL.pdf

1.1 Purpose and Objectives of the Study

1.1.1 Purpose

This study to review the current state of the hunting industry was undertaken at the request of the MNRT. The purpose of this study is to assess its economic value to Tanzania at both local and national levels. Recommendations for the effective management of hunting in Tanzania are provided that strive to ensure that there is sustainable and efficient use of the resource while generating the maximum income for its protection. This document analyses data provided by the WD and MNRT with the objective of informing politicians, MNRT, WD, the Tanzania Wildlife Authority (TAWA) and the public that the safari industry is contributing significantly to government through various taxes.

1.1.2 Scope of Work

In collaboration with the Wildlife Division and the Ministry of Tourism, the economic contribution of the hunting industry to Tanzania is to be assessed in 3 phases:

Phase I: Assess current economic value of wildlife-based tourism (consumptive and non-consumptive) outside of national parks in Tanzania using existing data, calculating:

- Direct benefits (concession fees, trophy fees, permit fees, taxes, etc.) of sport hunting
- Direct benefits of photographic tourism on concessions outside of parks
- Indirect economic activity related to the hunting industry (number of jobs supported by the hunting industry, contributions of tourists to the local economy through in-country expenses)
- Identify data gaps and limitations and propose how these can be addressed in this paper and in the future.

Follow up work after this study is finalized will include:

Phase 2 Modelling of scenarios for future hunting revenues under different conditions (e.g. offering different packages, changing specific rates, license fees, permit fees, or minimum number of hunting days, etc.).

Phase 3 Develop strategies with MNRT to maximize the use and impact of this information

1.1.3 Specific Activities to be undertaken under Phase 1

The specific objectives of this study are outlined in the terms of reference and include:

1. To present a brief comprehensive description of the trophy hunting industry at country level by updating and completing the figures provided by the study "The Hunting Industry in Tanzania: A review and Assessment" produced in 2009 (Booth 2009). For direct benefits, the following data will be analyzed:

    - For sport hunting concessions, data gathered from the WD will include:
        - Hunting license fees, concession/block fees, game license fees, certificate of ownership, trophy export certificate, trophy dealer licenses, compounding fees, miscellaneous receipts and CITES fees, and number of animals of each species on license per block per year.
    - For photographic concessions, data gathered from the WD will include:
        - photographic concession fees, bed night fees

- For indirect or secondary benefits, a representative sample of hunting operators in Tanzania will be contacted through direct interviews to obtain the following information:
    - value of the quota, number of hunting concessions and fee structure,
    - likely number of clients based on the hunting quota, hunter days and related fees, typical fees associated with non-hunting guests accompanying hunters.

2. To carry out a basic but thorough macroeconomic analysis of the hunting tourism industry countrywide with particular attention paid to:

    - The global contribution of the hunting industry to tourism and compare this with other industries using natural resources (global tourism, wildlife viewing tourism, agriculture, livestock and forestry), where available;
    - Summary of (i) the land (surface and % of country and Districts) which is conserved and managed through hunting tourism and (ii) the game population (population size and % according to the national wildlife censuses carried out in recent years) which is conserved and managed through hunting tourism.

3. To conduct an analysis of the contribution of the hunting tourism industry:

    - To the Government (Central and District) in terms of direct taxes (income taxes, concession fees, WD trophy fees, hunting licenses, weapon permits, CITES export fees, etc.) and indirect taxes (import taxes, VAT, immigration fees through visas etc.);
    - To the local communities in terms of direct and indirect financial benefit and socio-economic benefit (employment, amount of wages), gratuities, community development projects, etc.;
    - To the private sector, i.e. the suppliers of goods (sundry equipment, fuel, food, etc.) and services (domestic flights, insurance, hotels, etc.).

4. To undertake a comparative analysis of the contribution of the tourism hunting industry in Tanzania with the already published figures, where available, of the respective contributions of the tourism hunting industry in other countries in the sub-region (e.g. Mozambique, Zambia, Zimbabwe, Namibia, South Africa).

5. To undertake a prospective analysis of the potential socio-economic contribution of the tourism hunting industry to Tanzania over the next five years (2015/2020) according to different scenarios of the possible development of the industry. Such scenarios (e.g. high, medium, low) will be based upon (i) the current national quota and (ii) the potential evolution of the quota over the next five years.

6. To consider any other aspects which appear to the consultant as relevant to the study during the course of the mission.

2 METHODOLOGY

With the cooperation of the Utilization Division within the Wildlife Division (WD), a detailed analysis was undertaken of the permits and hunting data for 2012, 2013 and 2014. These data provided the baseline to assess a number of parameters:

1. The allocation of hunting blocks to various companies
2. Quota allocations and utilization per block per company
3. Number and origin of hunting clients
4. Estimation of revenues paid to the Wildlife Division
5. Revenues accruing to Wildlife Management Areas

In conjunction with this exercise, a questionnaire was developed to extract key operational expenses incurred by the safari hunting companies (see Annex I). This questionnaire was circulated to all operators by the WD.

While these were the objectives this study, it proved extremely difficult in practice to secure the necessary data initially from the WD and from the private sector with the latter not responding to any of the requests, despite several direct appeals by the WD for the data.

3 Prevailing Policy and Regulatory Environment

3.1 Extent of the Protected Area

Tanzania covers 942,832km^2 of mainland and 2,400km^2 of Zanzibar (consisting of the Islands of Unguja and Pemba). Currently there are 16 national parks, 28 game reserves, 44 Game Controlled Areas (GCAs), one conservation area, four Ramsar sites, 2 marine parks (and several marine reserves) and 38 Wildlife Management Areas (WMAs), representing 33.4% of Tanzania's total surface area (318,038km^2, Table 1, Figure 1).

Table 1: Wildlife protected areas in Tanzania. The shaded categories (202,875km^2 or 64% of protected areas) allows hunting (source: MNRT, 2013)

Wildlife Areas	Number	Area (km^2)	Institution responsible for wildlife
Ngorongoro Conservation Area (NCA)	1	8,292	Ngorongoro Conservation Area Authority (NCAA)
National Parks (NP)	16	57,365	Tanzania National Parks Authority (TANAPA)
Game Reserves (GRs)	28	114,782	Tanzania Wildlife Authority (TAWA)
Game Controlled Areas (GCAs)	44	58,565	
Wildlife Management Areas (WMAs	38	29,528	
Ramsar Sites	4	48,684	
Marine Parks	2	1,472[1]	Marine Parks and Reserves Unit (MPRU)
Total		**318,688**	

[1] Marine Parks and Reserves are established under the Marine Parks and Reserves (MPRU) Act 29 of 1994. The Marine Parks and Reserves Unit (MPRU) oversee management of these areas that fall under the Minister of Agriculture, Livestock and Fisheries. The two Marine Parks - Mafia Marine Park (822km^2) and Mnazi Bay-Ruvuma Estuary Marine Park (MBREMP, 650km^2) cover approximately 1472km^2 (http://marineparks.go.tz/).

The Tanzania National Parks Authority (TANAPA) is responsible for the administration and management of the national parks (approximately 57,365km^2) that are exclusively used for non-consumptive photographic tourism. No human settlements or hunting are permitted in the national parks.

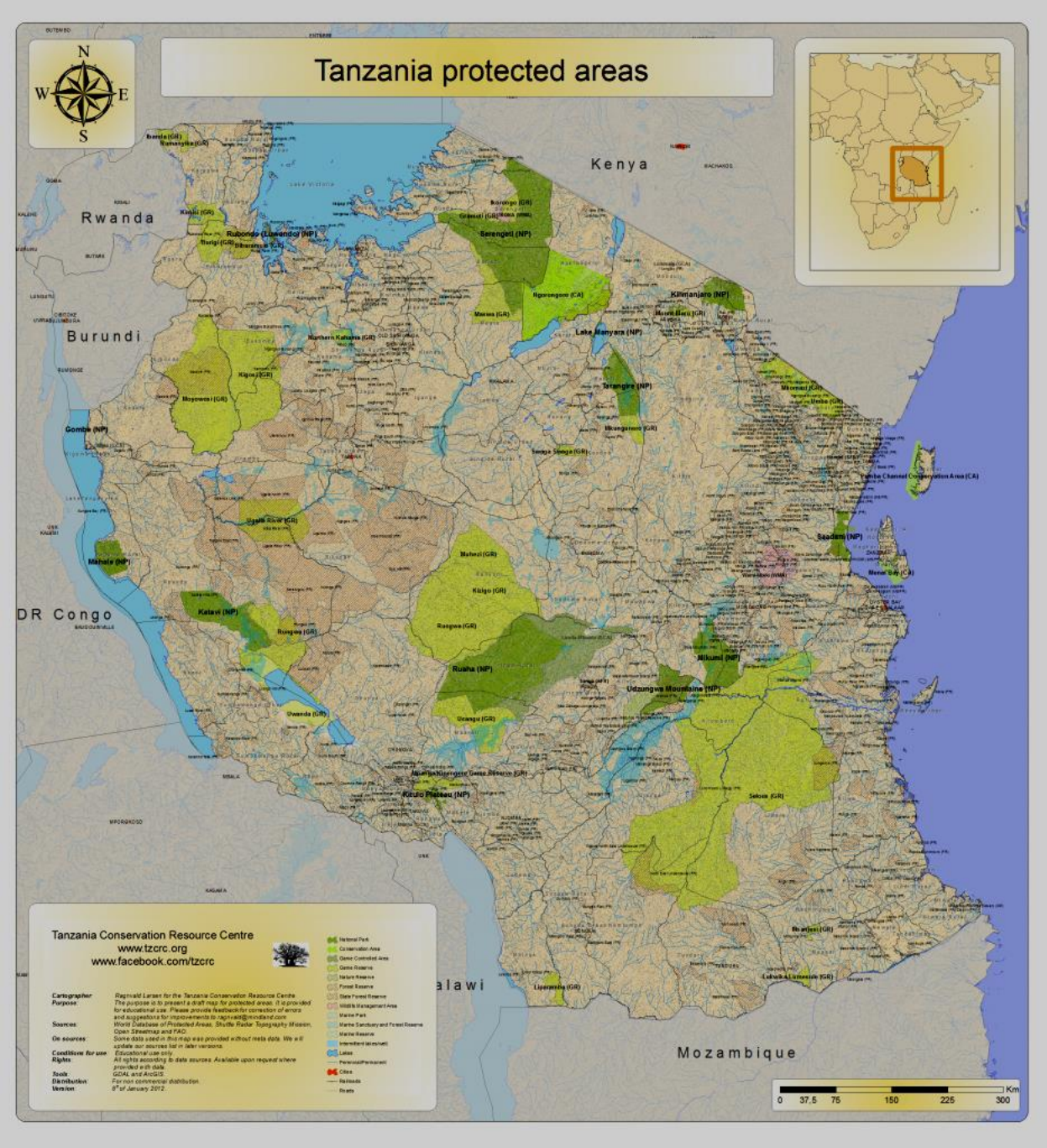


Figure 1: Tanzania Protected Area: National Parks, Game Reserves, Game Controlled Areas, Wildlife Management Areas and Marine Parks (http://www.tzgisug.org/wp/tanzania-protected-areas-poster-map-available-download/).

The Ngorongoro Conservation Area (NCA) covers 8,292km^2 and is under the management of the Ngorongoro Conservation Area Authority (NCAA). As with the national parks, NCAA allows non-consumptive tourism but does allow human settlement and local hunting in certain areas.

The Game Reserves cover approximately 114,782km^2 and until recently were managed by the Wildlife Division (WD) within the Ministry of Natural Resources and Tourism (MNRT). The recently established Tanzania Wildlife Authority (TAWA) will be responsible for these areas in future. With few exceptions, all Game Reserves are used for consumptive tourism hunting. The Game Controlled Areas (GCAs) and Wildlife Management Areas (WMAs) fall under District administration (or Local Government Authorities, LGAs) and community Authorised Associations (AA) although the management of wildlife in these areas remains with the MNRT.

Over the years, the number of active WMAs has changed; in 2012 there were 17 registered WMAs representing 148 villages and covering 27,430km^2 (WWF, 2014); data presented by WD/TAWA in 2015 recorded 21 active WMAs covering 24,576km^2 with a further 17 inactive WMAs. Data provided by the Authorized Association Consortium (AAC) in 2016 listed 17 active WMAs (=28,389km^2) and a further 21 WMAs under development. This latter data is aligned with the data provided by USAID (2013).

Wetlands cover approximately 10% of the total land area. Four RAMSAR sites have been declared in these areas that overlap with existing Game Reserves and Game Controlled Areas:

- Malagarasi-Muyovozi Ramsar Site overlaps with the Moyowosi, Kigosi and Ugalla Game Reserves and the Gombe and Luganzo Game Controlled Areas.
- Lake Natron Basin Ramsar Site overlaps with the Lake Natron Game Controlled Area
- Kilombero Valley Floodplain Ramsar Site overlaps with the Kilombero Game Controlled Area
- Rufiji-Mafia-Kilwa Marine Ramsar Site, incorporates the Mafia Marine Park (MNRT, 2007).

If wetlands are included, the total area under protection is therefore nearer 270,000km^2 of which approximately 202,875km^2 (64% of Tanzania's protected area, and 22% of total land cover) is used primarily for sport hunting[2].

3.2 Regulatory Environment

The regulatory framework for the wildlife sector is extensive. Key among which include:

1. The Tanzania Wildlife Management Authority Act, 2013 (passed by Parliament in July 2013 but not yet in effect because it has not been gazetted at time of writing. When gazetted, it will replace the Wildlife Conservation Act No 5 of 2009).
2. Wildlife Conservation Act No 5 of 2009
3. Tanzania National Parks Act (CAP 282 R.E. 2002)
4. Ngorongoro Conservation Act (CAP 284 R.E. 2002)
5. The Village Land Act (1998)
6. Local Government (District Authorities) Act (CAP 287 R.E. 2002)
7. Natural Resources Act (CAP 259 R.E. 2002)
8. Forest Act No. 14 (2002)

[2] The term "tourism hunting" is used in Tanzania to describe "sport hunting" or "trophy hunting". It is defined in the regulations as follows: "*tourist hunting" means selective hunting of animals within a given hunting block for leisure or obtaining trophies thereof and includes sport hunting, trophy hunting and sport fishing but does not entitle the hunter to export meat.*

Several Regulations exist to implement legislation and guide the wildlife sector. The two key regulations related to sport hunting are:

1. The Wildlife Conservation (Tourist Hunting) Regulations, 2015 (Government Notice No. 414 published on 18/9/2015). These recently replaced the 2010 Hunting Regulations (GN No 243 dated 2/7/2010) which applied when the 2013-2018 hunting blocks were allocated.
2. The Wildlife Conservation (Wildlife Management Areas) Regulations, 2012 (Government Notice No. 206 Published on 15/6/2012).

The institutional framework within the Ministry of Natural Resources and Tourism is described in the Tanzania National Wildlife Policy (MNRT, 2007). Based on the 2007 policy and interpreting the 2013 Wildlife Management Authorities Act, the roles will be as follows:

- The Wildlife Division (formerly responsible for policy, permitting and day to day operations of all wildlife in Tanzania outside of parks and outside of NCAA)
- Tanzania Wildlife Authority (created in 2014, intended to take over the on-the-ground management of wildlife outside of parks)
- Tanzania National Parks (TANAPA)
- Ngorongoro Conservation Area Authority (NCAA)
- Three training institutions (Mweka College of African Wildlife Management, Pasiansi, and Likuyu-Sekamaganga)
- The Tanzania Wildlife Research Institute (TAWIRI, http://www.tawiri.or.tz/)
- The Tanzania Wildlife Protection Fund (TWPF, http://www.twpf.go.tz/) is a source of funds intended to support conservation activities both inside and outside the conservation areas that includes law enforcement, projects, research, conservation education and training.

The 2007 Tanzania Wildlife Policy has not been updated and still defines the roles and objectives of these national wildlife agencies. Various acts and regulations specify how these policies will be implemented. However, local government authorities represented by District Councils, Wards and Village Councils also have a wildlife mandate. Overall, the national agencies are responsible for setting policy and regulatory framework and managing the core conservation areas while district, ward and village councils are responsible for implementing the policies and providing technical extension services at the ground level.

Under the restructuring currently under way, the WD will remain in the Ministry as a department responsible for coordinating policy, and will oversee the five parastatals (TANAPA, TAWA, NCAA, TAWIRI and TWPF). TAWA headquarters were officially opened in 2015 in Morogoro and staffed in 2016. This office is now fully responsible for the day-to-day protection and management of wildlife and terrestrial wetland resources throughout mainland Tanzania outside of TANAPA and NCA. The Wildlife Division will continue to promote Community Based Conservation (CBC) through the establishment of Wildlife Management Areas (WMAs). The WMA Implementation Strategy 2014 – 2019 guides the development of community based areas (MNRT, 2014a). WD will also continue to fulfil the role as the management authority for international conventions e.g. RAMSAR, CITES, CBD, Lusaka Agreement etc.

The key issues contained in these documents are summarized in the following sections.

3.2.1 Tanzania Wildlife Management Authority Act, 2013

Section 8 of the Wildlife Conservation Act No. 5 of 2009, directed the Ministry of Natural Resources and Tourism (MNRT) to establish an autonomous Wildlife Management Authority that would be mandated to address protection, management, and administration of wildlife resources outside national parks and Ngorongoro Conservation Area that previously were undertaken by the Wildlife Division (WD). The mandate and structure of the new Authority assumes many functions of the former Wildlife Division, and in addition, requires that the Authority develop a strategic, business and human resources plan. These plans were developed towards the end of 2016.

The rationale for the establishment of the Authority stems from the changing circumstances in the wildlife sector that saw the other institutions with legal mandates to manage wildlife (TANAPA, NCAA, TAWIRI and the College of African Wildlife Management, CAWM) functioning under the direction of a Board, Governors or Trustees and under different Acts of Parliament. Moreover, the way wildlife is managed in open areas and community areas (through established WMAs) is continually evolving under Local Government Authorities (LGAs), local communities, private sector, and NGOs. This changing governance structure has gradually assimilated more and more roles of the WD thus requiring that its mandate be redefined to enhance the efficiency and effectiveness of wildlife protection, management, administration and coordination of conservation activities.

The functions of the Authority are defined in the 2013 Act and include the following:

(a) To protect and conserve wildlife outside the jurisdiction of Tanzania National Parks and Ngorongoro Conservation Area Authority;

(b) To administer areas that are designated as Game Reserves, Game Controlled Areas, Wetlands Reserves, and Ramsar Sites;

(c) To administer protection and utilization of wildlife in corridors, dispersal areas, open areas, Wildlife Management Areas, village land, public and private land;

(d) To issue permits for utilization of wildlife in sanctuaries, wildlife farms, ranches, Wildlife Management Areas, Zoos and any other related wildlife utilization;

(e) To address all land use conflicts affecting wildlife in collaboration with relevant authorities;

(f) To manage human wildlife conflict in collaboration with other wildlife management institutions;

(g) To ensure the systematic management of financial, human and natural resources for the conservation of wildlife so that the abundance and diversity of species is maintained at optimum level;

(h) To link with other institutions on matters related to wildlife conservation;

(i) To improve wildlife resource base investment in collaboration with other institutions, private sector and or, local communities;

(j) To undertake law enforcement and curb illegal off take of wildlife resources;

(k) To sensitize, educate and communicate the values of wildlife resources to stakeholders;

(l) To ensure participatory wildlife management and equitable distribution of cost and benefits among stakeholders;

(m) To participate in implementation of government commitment to National, Regional and international obligations in relation to development of wildlife sector.

The bulk of these functions are directly or indirectly related to the management and administration of hunting in Game Reserves, Game Controlled Areas and Wildlife Management Areas. PART XI (Sections 50 – 77) outlines the legal framework governing consumptive and non-consumptive use of wildlife.

The key principles applying to tourism(=sport) hunting are as follows:

- The allocation of all hunting blocks is vested to the Board.
- No hunting company shall be allocated more than three hunting blocks of the same grade or category, and tenure of ownership of any hunting block shall be five years' renewable upon the applicant attaining a minimum score as prescribed in the hunting regulations.
- All hunting blocks have been categorised according to size and quality as prescribed in the regulations.
- It is the responsibility of the Board to ensure that the block allocation system is transparent and is in line with the principles of good governance.
- The Board may cancel the allocation of a hunting block where the person allocated a block has
    - failed to satisfy matters required by the Board;
    - gave false or incorrect information on the application for a hunting block;
    - been convicted of any offence under the Act or any wildlife related legislation;
    - failed to pay the necessary fees or any other debt due to him in relation to his hunting block;
    - has sublet a hunting block allocated to him.

Should the Board cancel a hunting block the aggrieved person concerned has the right of appeal, first by appealing to the Minister and thereafter to the High Court. All hunting companies are to be registered in Tanzania and shareholders may not hold shares in other hunting companies. Each company is limited to a maximum of five blocks, and foreign companies are restricted to owning 40% of all blocks. Foreign companies are required to allocate a minimum of 25% of the subscribed shares to citizen shareholders.

The Wildlife Conservation Act (CAP 283) also prescribes the terms and conditions for acquiring various licenses and permits to hunt game, and lists unlawful methods and restrictions that apply to specified or restricted animals. The procedures to apply for Professional Hunter Licenses are described in Section 57 and 58. Part XI also covers a variety of circumstances that may or may not be permitted in terms of the Act. These include general provisions relating to capture permits, non-consumptive wildlife tourism, hunting of unscheduled animals without permits, prohibition on killing young animals and female pregnant animals, recording of game and surrender of licenses, regulate type of weapons and unlawful methods of hunting etc.

3.2.2 Wildlife Conservation (Tourist Hunting) Regulations, 2015

The Wildlife Conservation (Tourist Hunting) Regulations, 2015 (Government Notice No. 414 published on 18/9/2015) that recently replaced the 2010 regulations describe in detail how the Wildlife Conservation Act is to be interpreted with respect to:

1. Procedure for application and allocation of hunting blocks
    - Establishment of and criteria for establishing of hunting blocks

- Category of hunting blocks
- Qualification for application and tenure of ownership of hunting block
- Application and assessment of applicants for hunting blocks
- Procedure for allocation of hunting block in a Wildlife Management Area

2. Condition and restrictions relating to a hunting block
   - Payment of Annual Fees
   - Duration and cancellation of allocation
   - Vacant Hunting Block
   - Conditions applicable to tourist hunting companies and those undertaking tourist hunting
   - Notice of cancellation of a hunting safari
   - Permits, Certificate etc. to be surrendered

3. Management and supervision of professional hunters and other miscellaneous provisions
   - Director to issue Professional Hunter license
   - Control of hunting quota
   - Offences and Penalties etc.

Essentially the 2015 Regulations tighten up some loopholes in the 2010 Regulations by making subtle changes e.g. combining Section 9 + 10 (block application requirements and fees payable), and expanding others to cater for procedures to transfer blocks (Section 14) and how to deal with vacant blocks (Section 18).

The 2015 Regulations also contain all the forms to apply for blocks, and for individual hunters' permits and licenses, and provide lists of the official prescribed fees for the following:

A. Block Fees (for each category of block),
B. Game Fee (for each species of animal for hunting with a firearm or with a bow and arrow),
C. Intercompany Hunting Fees (an additional fee for hunts conducted by companies that are not the holder of the block for the period, based on number of days),
D. Conservation fees per day (for hunters and observers),
E. Trophy Handling Fees (A fixed fee charged for hunting with a rifle/shot gun, or bow and arrow on various 5, 7, 10, 14, 21 or 28-day hunting packages)
F. Professional Hunters Fees (fees to become a licensed Professional Hunter)

Overall, the 2015 Regulations are very thorough and if applied rigorously, are well placed to administer and manage the hunting industry in an open and transparent way. There are however some key areas, notably the grading of the blocks and that all hunting block allocations will be adjudicated by the *Hunting Block Allocation Advisory Committee,* that introduce a lack of transparency. Moreover, as will be shown later, the Regulations have not resolved the issue of block transfers.

3.2.3 The Wildlife Conservation (Wildlife Management Areas) Regulations, 2012

The 2007 Wildlife Policy is weak on how local communities are to benefit from wildlife on Village Land. Under Section 3.1.4, the Policy explains that the role of the public is "*to support the government efforts in the conservation, management, development and sustainable utilisation of wildlife and wetlands resources. In addition, local communities living on village lands with viable populations of wildlife have a*

role of protecting and benefiting from wildlife and wetlands resources, by setting aside wildlife conservation areas on their land".

Implementing this objective has been a long and complex process (WWF, 2014). A set of WMA Regulations was developed in 2002 that resulted in the launching of 16 pilot WMA's. This was the beginning of a steep learning curve that required defining the limits of the State and understanding the rights and responsibilities of local communities. The regulations had to be flexible to ensure that they captured community-based efforts and reflected local conditions, cultural values and institutional capacity.

The 2002 WMA Regulations were revised in 2005 and again in 2012 (MNRT, 2012). These Regulations draw on the lessons learnt since the inception of the WMAs and consist of eleven parts that describe in detail the steps necessary to establish a Wildlife Management Area, including the roles and responsibilities of the various institutions. In summary, the various parts cover the following:

PART I: Preliminary provisions: Defines the terms used in the Regulations.

PART II: Establishment of A Community-Based Organization and Declaration of a Wildlife Management Area. This section describes the steps necessary to establish a Community Based Organization and the process to apply for Authorized Association (AA) status. It also outlines the criteria for establishment of Wildlife Management Areas (WMAs), its designation and requirements for application of a WMA status, including the monitoring of the WMA and application of laws relating to land.

PART III: Administration of Wildlife Management Areas. This section describes in detail the responsibilities and functions of the District Council, Village Council, Authorized Associations and Village Game Scouts. It also caters for the establishment of a District Natural Resources Advisory Body. The Wildlife Division Director has numerous responsibilities in terms of these Regulations[3], including:

- Facilitating the process for the establishment and declaration of WMAs;
- Entering into contractual agreements or Memorandums of Understanding with Authorized Associations on the management of WMAs;
- Oversee the performance of Authorized Associations and conservation activities in the management of WMAs;
- Setting and allocating animal quotas;
- Participate in the entire process of negotiation and signing of agreements between Authorized Associations and potential investors;

[3] It is not clear whether these responsibilities will be transferred to the Director General of TAWA, or be retained under the WD. However, The TAWA 5-year strategy envisages that "*TAWA should engage, raise awareness and incentivize the local populations living in and around its protected areas to play a crucial role in the conservation of wildlife species and their habitats. TAWA needs to work in collaboration with existing Wildlife Management Authorities and provide technical support when needed to ensure that they are delivering the desired results as well as being operated sustainably. The success of these Authorities will demonstrate the value of wildlife conservation to local populations, which will incentivize them to support TAWA's conservation agenda. Essentially, TAWA need to create an enabling environment for WMAs to succeed as well as work with them as close partners in the conservation of wildlife.*" This implies that TAWA will in future play a significant role in the management of WMAs but not in their establishment.

- Approve consumptive and non-consumptive use in the WMAs;
- Provide support in the protection and utilization of natural resources;
- Develop a syllabus and setting standards for training Village Game Scouts, provide support amd training in wildlife conservation, support resource monitoring and inventory and facilitate development activities;
- Support anti-poaching activities and problem animal control;
- Determine the continuation of a Wildlife Management Area.

Part III also describes the responsibilities of TANAPA and NCAA and the functions of Non-Governmental Organizations (NGOs) and the Private Sector.

Part IV Management of Wildlife Management Areas: The steps necessary to establish a WMA are described under this section. These include the preparation of a Village Land Use Plan, and the preparation and approval of General Management Plans (GMP). The GMP must include a Resource Management Zone Plan in which the WMA is to be established. This has to be approved by the Director before User Rights are issued to the Authorized Association. The User Rights can be withdrawn and the WMA disbanded if the Authorised Association contravenes the provisions of these Regulations.

Part V Utilisation of Resources in Wildlife Management Area: The process to apply for and use offtake quotas for resident and tourism hunting are provided for under this section. It also provides for non-consumptive tourism, setting of concession, block and game fees, and sale of game meat.

A key provision under Section 51 is the system for appointing of investors, establishing a Tender Evaluation Committee and appointing a tourist hunting company to conduct tourist hunting activities in a WMA. This process follows that of the Wildlife Division in that the Authorised Association is required advertise the hunting blocks, and after evaluating the tenders received (using the criteria set out in the Wildlife Conservation (Tourist Hunting) Regulations, 2015) shall select and conduct negotiations with the potential tourist company which are then vetted and approved by the WD Director. The successful tourist hunting company is then invited to sign an *investment Agreement* with the Authorized Association as prescribed in the Eleventh Schedule to these Regulations. The income generated from tourist hunting activities in a WMA are to be shared between the Tanzania Wildlife Protection Fund (TWPF), the WMA, District Council and the Treasury as prescribed in the Twelfth Schedule to these Regulations (see Table 4 below)[4].

In line with the policy for hunting blocks on other land uses in Tanzania, the tenure of lease of a hunting block in a WMA shall be for a period of five years' subject to renewal, provided that no renewal shall be made unless the applicant has attained a minimum score as prescribed in the 2015 Wildlife Conservation (Tourist Hunting) Regulations.

Other provisions catered for under Part V include problem animal control, live animal capture, utilization of forest products, bee and fish resources and mining.

Part VI Investments and Developments in Wildlife Management Area: Potential investors in a WMA are required to adhere to various terms and conditions. Potential investors are able to negotiate with

[4] There was a proposal to amend this benefit sharing mechanism in the revised WMA Regulations. These would divert all income that previously went to Treasury to the WMAs and the District Councils, thus boosting the income to WMAs from wildlife utilisation by approximately 16%. However, this proposal was not accepted by the new administration.

the Authorised Association however the entire process is subject to the scrutiny of the Wildlife Division Director. The tenure of tourism hunting and photographic blocks are as follows:

- In the case of tourist hunting, for the term prescribed in the Wildlife Conservation (Tourist hunting) Regulations, 2015 (i.e. 5 years);
- In the case of permanent tented camp, for the term of 15 years which may be renewable for another term of ten years, after which the ownership of the lodge shall be transferred to the Authorized Association (this applies to non-consumptive tourism);
- In the case of development of a lodge, for the term of 25 years which may be renewable for another term of 15 years, after which the ownership of the lodge shall be transferred to the Authorized Association; and
- In the case of any other development for the term of five years.

Where an investment and development in a WMA involves the use and occupation of land, the provisions relating to the management of village land under the Village Land Act shall apply. All prospective development and investment activities shall be subject to Environmental Impact Assessment, and shall conform to the respective Resource Management Zone Plan or General Management Plans.

Before an Authorized Association commences any process of negotiations with potential investors, it must obtain the advice of the District Natural Resource Advisory Board and ensure that a representative of the Director and the District Council are fully involved in the entire process of negotiating and signing an investment and development Agreement.

An Authorized Association may enter into a Joint Venture Agreement (JVA) with an investor for purposes of undertaking investment and development activities in a WMA provided that the JVA does not include the management of natural resources or agreements relating to allocation of hunting blocks. The entire process is to be overseen by a Joint Venture Management Committee comprising representatives from the Authorized Association, the Company, Enterprise or firm, the WD Director and District Natural Resource Advisory Body.

The Joint Venture Management Committee can make its own procedures for transacting its meetings, however the potential investor shall not enter into an investment agreement or joint venture agreement unless the investor has the consent of the Director who has the power to advise the Authorized Association to withdraw, revoke or amend any investment agreement.

The remaining parts of the Regulations deal with dispute settlement and conflict management (Part VII), offences and penalties (Part VIII), and various miscellaneous topics, including cooperation in enforcement, benefit sharing of the annual gross revenues, financial management, budget and action plans, auditing etc. (Part XI).

3.2.4 Wildlife Management Area Implementation Strategy 2014 - 2019

Since the initial pilot WMAs were established in 2003, there have been numerous studies and reviews that heavily criticised the process and have questioned whether communities receive the full benefits from wildlife use. This prompted the authorities to undertake a series of participatory consultative meetings and interactive workshops between 2009 and 2012. The objective of this process was to prepare a WMA Implementation Strategy (MNTR, 2014a).

This strategy is to be implemented between 2014 – 2019 and is based on the lessons learnt since 2003 especially regarding the challenges and issues facing WMAs and the extent to which the WMA process has laid the foundation for the expansion of a community based wildlife tourism industry.

The strategy has also developed a framework through which the 2012 WMA Regulations are to be implemented. This framework provides guidance to Government, NGOs, local government, the private sector and local communities who are in the process of developing WMAS. The ultimate goal is to identify the best management approaches and to scale up the implementation of WMAs and secure more tangible benefits for local communities, districts and the nation. In addition to a vision, mission and goal, eight strategies each with a set of implementation activities are identified. These include:

1. Governance and sustainable utilisation of wildlife
2. Wildlife utilisation and economics
3. Integrated wildlife conservation and rural development
4. Sharing of benefits accruing from conservation of wildlife resources
5. A national approach to CBNRM for all sectors – wildlife, forestry and fishery
6. Institutional organisation for effective CBNRM approaches
7. WMA as a foundation for wildlife-based tourism industry
8. Monitoring and information management.

Currently there are 38 WMAs countrywide that are at different stages of development of which 17 have attained Authorized Association (AAs) status, namely: i) Tunduru (NALIKA), ii) Liwale (MAGINGO), iii) Ngarambe/Tapika (MUNGATA), iv) Wami-Mbiki (WAMI-MBIKI SOCIETY), v) Pawaga-ldodi (MBOMIPA), vi) Ipole (JUHIWAI), vii) Uyumbu (UWIMA), viii) Burunge (JUHIBU), ix) Ikona (JUHIWAIKO), x) Enduimet (ENDUIMET), xi) Mbarang'andu (MBARANG'ANDU), xii) Ukutu(JUKUMU), xiii) Makame (INDEMA), xiv) Makao (JUHIWAPOMA), xv) Kimbande (KIMBANDE), xvi) Kisungule (KISUNGULE) and xvii) Chingoli (CHINGOLI) (see http://www.twma.co.tz/).

With the support from USAID through World Wide Fund for Nature (WWF), 14 founding AAs agreed to establish the Authorised Association Consortium (AAC, http://www.twma.co.tz/). The AAC is the apex body for all Authorised Associations managing WMAs in Tanzania, which, as a civil society organization, provides a platform to the AAs to articulate their views and concerns of different stakeholders, plan and decide on matter of their common interests. The organization was registered on 22nd January, 2010 and is mandated to operate within the framework of Wildlife Conservation Act (2009) and Wildlife Management Areas Regulations (2012).

Despite the substantial investment and reforms of the regulations, there still exists a great deal of controversy surrounding the WMA process. Although the Wildlife Conservation (Wildlife Management Areas) Regulations emphasize the role of the village in independently resolving to create a WMA and in having the legal authority to manage it, in practice this process has been driven in large part by a handful of international conservation organizations, not by communities. Moreover, the process of establishing a WMA still requires significant community investments of time and resources. The requirements and conditions provided in the WMA regulations that communities must fulfil in order to establish a WMA are highly prescriptive and contribute to delays in WMA formation. For example, the Land Use Plan (LUP) and General Management Plan (GMP) require collecting considerable data and the completion of forms that are quite technical. Without the necessary skills, villagers must rely on international conservation organizations (such as WWF) for the necessary resources, experience and technology.

Another area of controversy concerns the change in status of Village Land once the government approves the WMA and grants communities the wildlife user rights. Essentially when a WMA is gazetted, the land still legally belongs to the village, but it becomes an official protected area, and authority over that land to a large degree is vested with the Wildlife Division (now TAWA) and with district and regional governments. Moreover, the WMA regulations give the Director of the Wildlife Division important controls, including over how usufruct rights are realized and how wildlife is actually used in WMAs. It is argued that from the perspective of villagers, their land has been appropriated, and their rights to use that land have been significantly curtailed. Public interest lawyers argue that the Wildlife Conservation Act is in conflict with other legislation, including the Land Act of 1999, the Village Land Act of 1999, and the Local Government and District Authorities Act of 1982. This latter legislation grants village government (i.e., Village Assembly, Village Council) executive powers over Village Land. As such, the Wildlife Act does not provide sufficient foundation for the establishment of WMAs (see also Benjaminsen, Goldman, Minwary, and Maganga, (2013) and Kiwango, Komakech, Tarimo, and Martz, 2015).

These issues are likely to become more acute following the formation of TAWA, and unless there is a substantial review of the policy environment, it is anticipated that TAWA will continue to be in conflict with local communities. At the minimum, the review should include:

1) Streamline and clarify the procedural framework for establishing WMAs;

2) Limit the powers of the Director General of TAWA over wildlife uses, especially non-consumptive uses of wildlife on Village Land;

3) Recognize the established authority of communities over Village Land, including over local investments; and

4) Secure wildlife benefits for rural communities by clarifying benefit-sharing arrangements and establishing generous local revenue retention from wildlife utilization on Village Land.

4 Block Categories and Allocation

4.1 Introduction

Trophy hunting is conducted on five categories of land in Tanzania (Table 2).

Table 2: Parameters relating to hunting blocks. These are drawn from the data set provided by the Wildlife Division for 2014. Some data for 11 blocks is not available.

Land Category	Blocks	Area (km^2)	Average	Max	Min
Game Reserves	83	108,375	1,357	7,638	330
Game Control Areas	34	80,988	2,454	8,784	1,060
Open Areas	34	57,647	1,747	4,350	449
Forest Reserves	1	2,561		2,561	2,561
Wildlife Management Areas	15	17,343	1,713	5,372	211
	167	**266,914**	**1,668**	**8,784**	**211**

WMAs are recent designations on village land primarily devoted to promoting community-based wildlife utilisation and are seen as a mechanism through which communities can benefit from the wildlife on their land. In some cases, WMAs overlap with existing hunting blocks in Open Areas and Game Controlled Areas.

There were 167 hunting blocks in 2014 covering approximately 266,914km^2 that average 1,668km^2. The largest block (Wembere GCA South) is approximately 8,784km^2 while the smallest (211km^2) is Irkiushioibor WMA (Table 3). The majority of hunting blocks are in Game Reserves (N=83), Game Control Areas (N=34) and Open Areas (N=34) while a small proportion of blocks are now in WMAs (N=15).

4.2 Classification of Hunting Blocks

Prior to 2011, all blocks were allocated a fixed rental irrespective of their size, location and the status of wildlife. In 2011, TAWIRI derived a set of parameters (see Annex II) that placed the blocks into one of five categories (I-V, later revised to A-E), which were applied in the 2013-2018 Hunting Block allocation. Those blocks that were deemed to have the highest attributes in terms of proximity to Game Reserves and National Parks, habitat quality, species diversity, etc. were graded as "Category I" to which the maximum Block Fee applies. Figure 2 and Table 3 illustrates the location of these blocks and the gross potential income that these would generate if all were occupied. The full list of all blocks, company allocation, block fee and their classification is provided in Annex II.

The blocks are distributed across Tanzania, in three broad eco zones: Maasailand in northern Tanzania dominated by Serengeti NP, Ngorongoro and Lake Natron; Western Tanzania including Rungwa, Ugalla, Rukwa, Moyowosi and Biharamulo and Ibanda GRs and Southern Tanzania dominated by the Selous GR. The vegetation in western and southern Tanzania is dominated by *miombo* woodlands, vast wetlands and open grassland areas (or *mbugas*). Generally, the woodlands are biologically diverse but because of poor soils and high rainfall, they support low densities of large mammals.

The Maasailand falls into the Somali-Masai ecoregion dominated mainly by *Acacia* and *Commiphora* grasslands. This region is drier than the west and south of the country and supports unique large

mammals (gerenuk, lesser kudu, dik dik and the gazelles). Many hunting companies attempt to secure blocks in both the wetter *miombo* and drier *acacia* zones to take advantage of this species diversity.

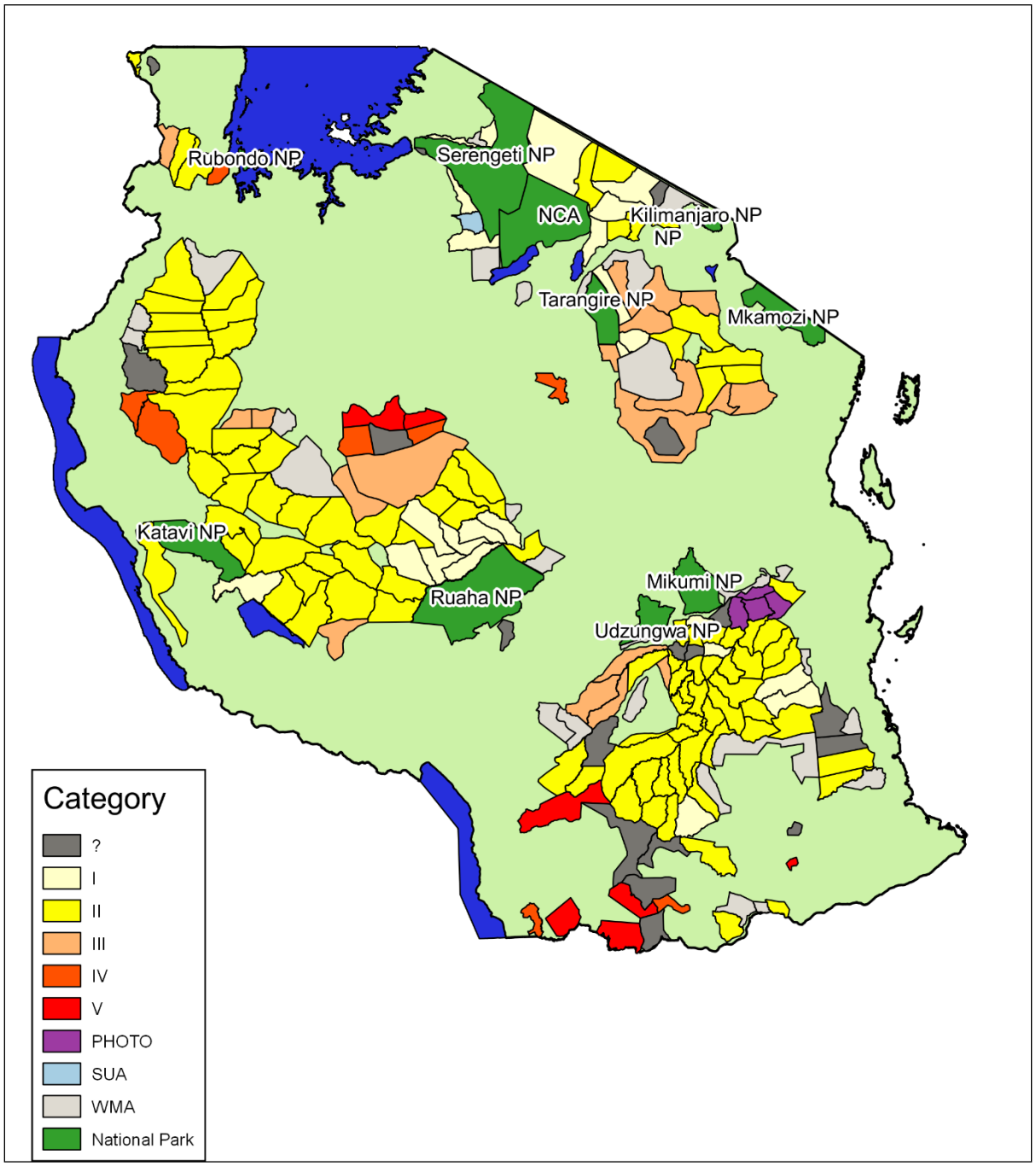


Figure 2: Location of the various categories of hunting blocks in Tanzania (Incomplete). Note: SUA = Special Utilisation Area. The classification of some WMAs is unknown.

Instead of a tender/auction system to establish the market value of the hunting blocks, the Wildlife Division has imposed a fixed rate on a sliding scale. The highest quality blocks, Category I, fetch US$60,000/year and the lowest quality blocks, Category V, are set at US$5,000/year. Most the blocks

have been categorised at "II" (N=111) at US$30,000/year. There is some controversy surrounding this system within the industry. Some operators believe some blocks are categorized too high (overpriced), and others categorized too low (under-priced).

As currently set, if all blocks were bid on and paid for, block fees from all 167 blocks could generate US$5,435,000/year. The bulk of the income (52%) is generated by the 83 blocks located in the Game Reserves. Open Areas and GCAs account for 38% of the blocks with the WMAs making up the balance (10%). Depending upon the designated land use, the block fees collected are shared differently among the various beneficiaries (TWPF, District Councils, Authorised Associations and the National Treasury – see 5.3.3 below).

Table 3: Block fee per category per year and the potential gross income across four land use types. Note these data refer to the categories set in 2011 for the 2013 - 2018 block allocation.

Category	Block fee	No Blocks	Value US$	Game Reserve	Open Area	GCA	WMA
I	$60,000	28	$1,680,000	15	3	7	3
II	$30,000	111	$3,330,000	63	18	19	9
III	$18,000	20	$360,000	2	9	8	1
IV	$10,000	5	$50,000	2	3	0	0
V	$5,000	3	$15,000	1	2	0	0
	Total	**167**	**$5,435,000**	**83**	**35**	**34**	**15**
			Total	**$2,851,000**	**$922,000**	**$1,134,000**	**$468,000**

4.3 PROCEDURE TO APPLY FOR AND RENEW HUNTING BLOCKS

The procedure to apply for or renew a hunting block are described under Part II (sections 1 – 14) of the 2015 Tourist Hunting Regulations. All applicants are required to complete the application form (see Annex V) and pay the requisite fees. All applications are then evaluated by the Hunting Block Allocation Advisory Committee appointed by the MNRT in terms of Part VII, Section 38 of the 1979 Act. The meetings and procedural matters of the committee are described in Schedule 5 of the Act.

The Chairman of this advisory committee is appointed by the Minister for a period of 3 years. The committee consists of:

a. The Director General of Tanzania Wildlife Research Institute;
b. The Director General of Tanzania National Parks;
c. A representative of the Attorney General;
d. The principal of College of Wildlife Management;
e. Any other five persons appointed by the Minister; and
f. The Director of Wildlife who shall be the Secretary.

This committee is mandated to receive and deliberate on the state of hunting and allocation of hunting concessions and blocks. It is also authorised to review and provide advice on any standard, guidelines and regulations relating to the issuance of hunting blocks and any matters related to hunting blocks. Its primary role is to advise the Minister on matters relating to applications, conditions, issuance and criteria of allocating hunting blocks.

Upon receiving the recommendations of the committee, the Minister can approve the allocation of the hunting block to the applicant provided that no more than five blocks are awarded to one person of which three should be of a different category (i.e. no one person or company can be awarded five Category I blocks). The tenure is set for 5 years (the current blocks are due to expire in 2018).

Neither the Act or the Regulations describe the evaluation criteria or how the application is adjudicated although the Regulations state that "*The Minister shall ensure that any modality or system used in allocation of hunting blocks is transparent and is in line with the principles of good governance"* (Section 39 (11)). Instead, according to the regulations the renewal of hunting blocks is dependent on the outcome of an analysis of the performance of the hunting company at the third year of the hunting term conducted by the same committee, and is subject to the applicant attaining a minimum score as described in the Eighth Schedule of the 2015 Tourism Hunting Regulations. The following is taken into consideration:

a. Whether the applicant has been utilizing the hunting block allocated to him and harvested at least forty percent (40%) of the value of the key animals as specified in the Fourth Schedule of the Regulations per hunting season;
b. The level of revenue collected from photographic tourism depending on the category of the hunting block;
c. Whether the applicant has been contributing to the villages within and adjacent to his hunting block an amount of not less than US$5,000 for each hunting block annually as contribution to the implementation of various community development projects;
d. The level of the applicant's contribution to the improvement of infrastructure and protection of the environment within his hunting block;
e. The level of the applicant's contribution towards anti-poaching operations or any other bad intentioned persons in issues of conservation of wildlife; and
f. The applicant's record regarding the export of trophies to relevant clients.

In terms of the Act, the Minister may cancel the allocation of a hunting block before it is due to expire where there is sufficient evidence to show that the person allocated a hunting block:

a. Has failed to satisfy any or a combination of matters required by the Minister to take into consideration;
b. Gave false or incorrect information on the application for a hunting block;
c. Has been convicted of an offence under this Act;
d. Has failed to pay the necessary fees or any other debt due to him in relation to his hunting block; or
e. Has sublet a hunting block allocated to him.

The person who has been allocated the block is free to challenge the decision to cancel the block, including appealing to the high court.

Any person may apply for a hunting block provided that they own shares in a company registered with the Registrar of Companies and that company is established to conduct hunting safaris. Foreign owned companies are required to allocate at least 25% of the shareholding to a local Tanzanian national (Section 39(3)(a) of the Act). In order to apply for a block, locally-owned companies must meet absolutely minimal criteria (i.e. demonstrate ownership of very basic minimal camping supplies).

Foreign owned companies must meet more stringent criteria (a higher number of vehicles, tents, refrigerators, etc.) or "may produce a Bank Bond or guarantee to the tune of at least US$1,000,000 in lieu of the above equipment as commitment for their purchase within three months after allocation of the hunting block."

4.3.1 Block group allocations

Although the legal framework is clear in that no one person or company may hold more than five blocks, this rule has been circumvented by individual hunting operators forming consortiums in which they register more than one hunting company or they buy out a company in order to secure the hunting blocks. In this way, some companies have access to up to 20 hunting blocks. This is discussed further in 4.4 below.

4.3.2 Conditions for transfer of a hunting block

In terms of Section 14 of the Regulations, it is not permitted to transfer[5] a hunting block user rights unless such prior written consent is obtained from the Minister. This facilitates companies or persons who were not allocated a block to acquire a block or alternatively for established companies to secure blocks in order to consolidate their operations. It is also used by companies to offload marginal or unviable blocks to aspiring operators.

To discourage this process, a fee of US$35,000 is charged by the Ministry for each block transfer. In addition, the transferee has to show that it is a registered hunting company and that the transferee has not already been granted five blocks (as per Section 38(7) of the Act) and that the percentage of foreign owned companies allocated hunting blocks shall not exceed fifteen percent of the total hunting companies at any particular time (Section 39(3)(b).

Upon receiving the Minister's consent, the Applicant is required to pay the transfer fees, submit all agreements of transferring the hunting block between the two parties, surrender the hunting block allocation certificate and submit proof of payment of all necessary taxes and authorization as required by other laws. Only after these requirements have been met will the Director issue a hunting block allocation certificate to the transferee.

However, despite the stringent conditions in place to discourage this, the practice of transferring blocks still takes place, and in some instances, it is abused. There are allegations that:

- Individuals with little hunting experience are allocated blocks for the sole purpose of trading these on to more established operators.
- Blocks are transferred between operators without going through the process described above, thus avoiding paying the transfer fees. The block therefore remains in the name of the original applicant but is operated by a third party.
- Various forms of sub-letting take place, even though this is contrary to the Act and regulation.

The net result of this activity is to introduce higher costs to the industry as well as a less than satisfactory governance system that undermines the integrity of the Tanzania hunting industry.

[5] "Transfer of a hunting block user right" means transfer of the hunting block user right from one hunting company to a transferee. The term also includes the transfer of majority shares in a hunting company to another person.

4.3.3 Benefit sharing formula applicable to WMAs

Revenues generated in the WMAs are split across the TWPF, District, Treasury and the Authorised Association according to the percentages shown in Table 4. In effect, the WMAs receive 60% of the overall total from Game Fees, Block Fees, Conservation Fees and Permit Fees. The Treasury and Districts receive 11% and 4% respectively with the balance sent to the TWPF (25%).

Table 4: Sharing of Income Generated from Trophy Hunting Activities in a Wildlife Management Area (Made under Section 51(9) of the 2012 Regulations).

Category	WMA	TWPF	District	Treasury
Game Fees	45%	25%	15%	15%
Block Fee*	75%	25%	0%	0%
Conservation Fee	45%	25%	0%	30%
Permit Fee	15%	25%	0%	60%
Overall percentage split	***60%***	***25%***	***4%***	***11%***

* Block fees to be subjected to sharing is the statutory block fee of that category of hunting block as defined in the 2015 Tourism Hunting Regulations. The excess money negotiated by the AA to be paid as block fees is not subjected to sharing.

4.4 HUNTING BLOCK ALLOCATION 2013

It must be emphasized that there have been several changes to the official block allocation, and in some cases, there have been legal challenges instigated by various operators. The data presented here have been gleaned from discussions with various operators who have requested confidentiality.

The official block allocation to the 60 hunting companies for 2013 – 2018 is shown in Table 5 below. However, these blocks can be re-grouped to illustrate several consortiums that exist under various holding companies (Table 6).

There are probably 40 hunting company groups that hold varying numbers of blocks ranging from 19 (the "Pasanisi" group) to 14 companies holding single blocks. Fifteen blocks have not been allocated, mostly because they are category V and therefore do not hold sufficient wildlife. Some of these blocks are also heavily settled (Table 6).

Several of these companies and consortiums have operated in Tanzania for many years. For example, Gerald Pasanisi, Luke Samaras and Robin Hurt Safaris have a track record pre-dating 1980 (Baldus and Cauldwell, 2004). Others have operated for much shorter periods, and some have only entered the industry in the last 5 years. In contrast, several well-established hunting operations have withdrawn from the Tanzania hunting industry.

Table 5: The list of all hunting blocks allocated to hunting companies for the period 2013 - 2018 by Minister of Natural Resources and Tourism

Hunting Company	Concessions Allocated
African Trophy Hunting Safaris Ltd	Selous GR K5 Selous GR U1
Bartlette Safari Corporation Ltd	Selous GR MT2 Selous GR LL1 Selous GR MHJ2 Selous GR MHJ1
Bushman Hunting Safaris (T)Ltd	Selous GR MHJ3 Maswa GR (N) Rungwa Rungwa GR (E)
Game Frontiers of Tanzania, Ltd	Moyowosi/Njingwe GR 2 Rungwa River GCA Ituru Forest/Open Area Ugalla GR (E)
Gerald Pasanisi Safari Corp	Selous GR MB3 Selous GR MT1 Selous GR ML1 Selous GR LU8 Selous GR LL2
Kiboko Hunting Safaris Ltd	Selous GR Block K1 Selous GR Block K2
Kilimanjaro Game Trails Ltd	Burigi GR (W)
Kilombero North Safaris Ltd	Selous GR LU1 – LU2 Kilombero GCA-Mlimba Lake Natron GCA (S)
Muhesi Safaris Ltd	Muhesi GR (E) Monduli Juu Open Area
Luke Samaras Ltd	Selous GR MS1 Selous GR U4 Selous GR LR 1 Selous GR LR 2
Malagarasi Hunting Safaris	Inyonga GCA (E) Selous GR L1
Masailand Hunting Co. Ltd	Selous GR LU4-K3 Selous GR IHI
Miombo Safaris Ltd	Selous GR R3 Rungwa Mpera GR Lukwika/Lumesule GR Msanjesi GR Kipilimbi, Lihonja FR
Mwanauta & Co. Ltd	Rungwa Mwamagembe GR
Northern Hunting Enterprises Ltd	Burigi GR (E) Rungwa Inyonga GR Biharamulo GR Lwafi GR – Nkamba FR
Old Nyika Safaris Ltd	Chunya Lukwati Open Area Piti (W) Open Area Chunya Msami Open Area
Orttelo Business Corp. Ltd	Loliondo GCA
Palahala Safaris & Hunting Ltd	Kizigo GR (C) Wembere Open Area (Central 2)
Pori Trackers of Africa	Selous GR LR3 Selous GR M2
Robin Hurt Safaris (T). Ltd	Luganzo GCA Mlele GCA (S) Burko Open Area Rungwa Open Area (S)
Tanzania Game Trackers Safaris Ltd	Ugalla GR (S) Moyowosi-Njigiwe GR1 Maswa Kimali GR Ugalla GR (N) Maswa Mbono GR
Tanzania Wildlife Co. Ltd	Selous GR U3 Selous GR MA 1 Rungwa Ikili GR
Traditional African Safaris Ltd	Irkishbor Selous GR LU3
Grumet Reserves (T) Ltd	Grumeti GR Ikorongo GR
Wengert Windrose Safaris (T) Ltd	Moyowosi GR (S) Lake Natron G.C.A (N-South)
Western Frontiers (T) Ltd	Piti O.A. (E) Selous GR R4 Mtungwe O. A. (Central)
Wild Footprint Ltd	Mlele GCA (N) Kizigo GR (W)

Hunting Company	Concessions Allocated
Green Miles Co. Ltd	Selous GR MK1Lake Natron GCA (North)
Marera Safari Lodge & Tours (T) Ltd	Muhesi GR (W) Rungwa Rungwa GR (W)
Bunda Safaris Ltd	Mahenge Open Area North Kilwa Open Area North Ruvuma Open Area Mahenge Open Area (South) Mwatisi O.A. (N) – Furua O.A.
Siafu Safaris Ltd	Gombe GCA
SN F Hunting Safaris Ltd	Landanai GCA
Fereck Safaris Ltd	Selous GR N2 Kitwai GCA (SW) Selous R MB4
Eshkesh Safaris Ltd	Masai Open Area (E)
Coastal Sable Safaris Ltd	Masai Open Area (S)
Wembere Hunting Safaris Ltd	Ruhudji/Ifinga Open Area Rungwa North Open Area Handeni GCA Ngaserai Open Area

Hunting Company	Concessions Allocated
Maully Tours & Safaris Ltd	Ugalla Niensi Makere FR – Uvinza O.A. Ugalla O.A. (North-East) Ugalla O.A. (North-West)
Out of Africa Co. Ltd	Kilombero GCA (S)-B/Ulanga
Mkwawa Hunting Safaris (T) Ltd	Selous GR R1 Selous GR M1 Chunya Open Area (E) Selous GR K4
Green Leaf Ltd	Lake Rukwa GCA Selous GR U2
Giant Hunting Club Ltd	Kilwa O.A. (South)
Mwatisi Safaris Ltd	Msima GCA (W) Rungwa-Mzombe Open Area Kitwai GCA (SE)
African Buffalo Safaris Trackers Ltd	Kizigo GR (E) - 2 Kigosi GR (S) Mto wa mbu GCA
Melami Hunting Safaris Ltd	Simanjiro Kitiangare GCA Muhuwesi GCA
EBN Hunting Safaris Ltd	Kizigo GR (E) – 1

Hunting Company	Concessions Allocated
Tanza Guides Ltd	Kitwai GCA (N)
Said Kawawa Hunting Safaris Ltd	Mwatisi O.A. (S) Ibanda Rumanyika GR
Safari Club (T) Ltd	Kilwa O.A. (S) – Mbwemkuru Kilwa O.A. (S) – Nakiu
Michel Mantheakis Lake Safaris Ltd	Natron GCA (South-West) Lukwati GR (S)
Tandala Hunting Safaris Ltd	Mwambesi GCA Inyonga GCA (C) Msima GCA (E)
Tanganyika Game Fishing & Photographic Safaris Ltd	Selous GR LU5
Tanganyika Wildlife Safari Corporation	Selous GR LU6 Selous GR MB2 Selous GR MB1 Selous GR LU7 Selous GR N1
Tanzania Bundu Safaris Ltd	Mkungunero GR Lolkisale GCA Masai OA (W)
HS K Safaris Co. Ltd	Simanjiro GCA (W)

Hunting Company	Concessions Allocated
Go Wild Hunting	Lunda Mkwambi GCA (N)
Safaris Ltd	
East African Trophy Hunter Ltd	Kigois (C)

Hunting Company	Concessions Allocated
Z.H. Poppe Ltd	Kigosi GR (E)
Royal Frontiers Of (T) Ltd	Moyowosi GR (N) Inyonga GCA (W) Selous GR R2 Talamai O.A.

Hunting Company	Concessions Allocated
Rungwa Game	Moyowosi-Njingwe GR 3
Safaris (T) Ltd	Wembere GCA (S)
Safari Royal Holding Ltd	Lukwati GR (N)

Table 6: Provisional grouping of hunting blocks in 2015. Note: These data have not been verified.

Group	Block Name	Status	Category	Allocated To	Comments
”Pasanisi” (19 blocks)	Selous LL1	GR	II	Barlette Safaris Corp	
	Selous MH1	GR	II	Barlette Safaris Corp	
	Selous MH2	GR	II	Barlette Safaris Corp	
	Selous MT2	GR	II	Barlette Safaris Corp	
	Ruvu Masai	GCA	II	Barlette Safaris Corp	
	Kitwai G.C.A. (South-West)	GCA	II	Fereck Safaris	
	Selous MB4	GR	II	Fereck Safaris	
	Selous N2	GR	II	Fereck Safaris	
	Makame WMA	WMA		Fereck Safaris	
	Selous LL2	GR	II	Gerald Pasanisi	
	Selous LU8	GR	II	Gerald Pasanisi	
	Selous MB3	GR	II	Gerald Pasanisi	
	Selous ML1	GR	II	Gerald Pasanisi	
	Selous MT1	GR	II	Gerald Pasanisi	
	Selous LU6	GR	II	Tawisa	
	Selous LU7	GR	II	Tawisa	
	Selous MB1 (E)	GR	II	Tawisa	
	Selous MB2	GR	II	Tawisa	
	Selous N1	GR	I	Tawisa	
”Sheni” (17 blocks)	Ituru Forest O.A.	OA	III	Game Frontiers	
	Moyowosi/Njingwe G.R 2	GR	II	Game Frontiers	
	Rungwa River G.C.A.	GR	II	Game Frontiers	
	Ugalla G.R. (E)	GR	II	Game Frontiers	
	Lwafi-Nkamba G.R.	GR	II	Northern Hunting	
	Rungwa Inyonga G.R.	GR	I	Northern Hunting	
	Inyonga G.C.A. (W)	GCA	III	Royal Frontiers	
	Moyowosi G.R (N)	GR	II	Royal Frontiers	
	Selous R2	GR	II	Royal Frontiers	
	Ugunda/Ipole WMA	WMA		Game Frontiers	
	Mbarangandu WMA	WMA	II	Game Frontiers	
	Talamai O.A.	OA	III	Royal Frontiers	Possibly returned
	Biharamulo G.R.	GR		Northern Hunting	Believed returned
	Burigi G.R. (E)	GR	II	Northern Hunting	Believed returned
	Mtungwe O.A. (C)	OA	III	Western Frontiers	Possibly returned
	Piti O.A.(E)	GR	II	Western Frontiers	Possibly returned
	Selous R4	GR	II	Western Frontiers	Possibly returned
3 (10 blocks)	Lukwika-Lumesule G.R.	GR	II	Miombo Safaris	Returned?
	Msanjesi GR/Kipitimbi/Lionja FR	GR	V	Miombo Safaris	Returned?
	Wembere G.C.A. (S)	GCA	III	Rungwa Game Safaris	Traded or returned?

Group	Block Name	Status	Category	Allocated To	Comments
	Selous R3	GR	II	Miombo Safaris	Returned?
	Selous K1	GR	II	Kiboko Hunting Safaris	
	Rungwa-Mpera G.R.	GR	I	Miombo Safaris	
	Lolkisale G.C.A.	GCA	I	Tanzania Bundu Safaris	
	Masai O.A. (W)	OA	I	Tanzania Bundu Safaris	
	Mkungunero G.R.	GR	III	Tanzania Bundu Safaris	
	Kizigo G.R. (W)	GR		Wild Footprints	Acquired from Ryan Shallom?
"Charalambous" (9 blocks)	Kilombero G.C.A. (N) Mlimba	GCA	III	Kilombero North Safaris	
	Lake Natron G.C.A. (S)	GCA	I	Kilombero North Safaris	
	Selous LU1 and LU2	GR	II	Kilombero North Safaris	
	Handeni G.C.A.	GCA	II	Wembere Hunting Safaris	
	Ngaserai O.A.	OA	II	Wembere Hunting Safaris	Now Enduimet WMA
	Ruhidji/Ifinga O.A.	OA	II	Wembere Hunting safaris	
	Rungwa (N) O.A.	OA	II	Wembere Hunting Safaris	
	Lunda Nkwambi G.C.A. (N)	GCA	II	Go Wild Hunting Safaris	
	Inyonga G.C.A. (E)	GCA	II	Malagarasi Hunting Safaris	Traded to Akram?
5 (8 blocks)	Inyonga G.C.A. (C)	GCA	II	Tandala Hunting	
	Msima G.C.A. (E)	GCA	II	Tandala Hunting	
	Mwambesi G.C.A.	GR	II	Tandala Hunting	
	Rungwa Ikili G.R.	GR	I	Tawico	Acquired from Brittingham
	Selous MA1	GR	II	Tawico	Acquired from Brittingham
	Selous U3	GR	II	Tawico	Acquired from Brittingham
	Mlele G.C.A.(N)	GCA	II	Wild Footprints	Acquired from Ryan Shallom
	Kizigo GR (E) 1	GR		EBN Hunting	Possible trade to Raul but now vacant?
" Friedkin" (8 blocks)	Maswa Mbono G.R	GR	I	Tanzania Game Tracker Safaris	
	Maswa Kimali	GR	I	Tanzania Game Tracker Safaris	
	Ugalla G.R. (N)	GR	II	Tanzania Game Tracker Safaris	
	Ugalla G.R. (S)	GR	II	Tanzania Game Tracker Safaris	
	Lake Natron G.C.A. (E)	GCA	I	Wengert Windrose Safaris	

Group	Block Name	Status	Category	Allocated To	Comments
	Moyowosi G.R (S)	GR	II	Wengert Windrose Safaris	
	Makere/Uvinza F.R.	FR	IV	Maully Tours & Safaris	Acquired from Mauly
	Moyowosi/Njingwe G.R 1	GR		Tanzania Game Tracker Safaris	Returned
"Rann"	Selous K2	GR	III	Kiboko Hunting Safaris	Traded from Harpreet
	Moyowosi/Njingwe G.R 3	GR	II	Rungwa Game Safaris	Traded from Harpreet
	Kizigo G.R. (C)	GR	II	Palahala Safaris & Horizons	
	Wembere O.A. (C2)	OA	IV	Palahala Safaris & Horizons	
	Monduli Juu O.A.	OA	II	Muhesi Safaris	Traded from Robin Hurt Safaris
"McCallum"	Chunya Lukawati O.A.	OA	II	Old Nyika Safaris	
	Chunya Msami O.A.	OA	II	Old Nyika Safaris	
	Piti O.A. (W)	OA	II	Old Nyika Safaris	
	Lukwati G.R. (N)	GR	II	Safari Royal Holding	
" Robin Hurt"	Burko O.A.	OA	I	Robin Hurt Safaris	
	Luganzo G.C.A.	GCA	II	Robin Hurt Safaris	
	Mlele G.C.A.(S)	GR	II	Robin Hurt Safaris	
	Rungwa O.A. (S)	GCA	II	Robin Hurt Safaris	
	Muhesi G.R (E)	GR	II	Muhesi Safaris	Traded to Jeff Rann now vacant?
10	Kigosi G.R. (S)	GR	II	African Buffalo Safaris	
	Kizigo GR (E) 2	GR	I	African Buffalo Safaris	
	Mto wa Mbu G.C.A.	GCA	I	African Buffalo Safaris	
	Selous K5	GR	II	African Trophy hunting	
	Selous U1	GR	II	African Trophy hunting	
11	Kilwa O.A. (N)	OA	II	Bunda Safaris	
	Mahenge O.A. (N)	OA	III	Bunda Safaris	
	Mahenge O.A. (S)	OA	II	Bunda Safaris	
	Mwantisi O.A. (N) and Furua	OA	II	Bunda Safaris	
	Ruvuma O.A.	OA	V	Bunda Safaris	
"Samaras"	Selous LR1	GR	II	Luke Samaras	
	Selous LR2	GR	II	Luke Samaras	
	Selous MS1	GR	II	Luke Samaras	
	Selous U4	GR	II	Luke Samaras	
13	Chunya O.A (E)	OA	III	Mkwawa Hunting Safaris	
	Selous K4	GR	II	Mkwawa Hunting Safaris	
	Selous M1	GR	II	Mkwawa Hunting Safaris	
	Selous R1	GR	II	Mkwawa Hunting Safaris	

Group	Block Name	Status	Category	Allocated To	Comments
14	Ugalla Niensi O.A.	OA	IV	Maully Tours & Safaris	
	Ugalla North O.A. (E)	OA	III	Maully Tours & Safaris	
	Ugalla North O.A. (W)	OA	III	Maully Tours & Safaris	
15	Maswa G.R. (N)	GR	I	Bushman Hunting Safaris	
	Rungwa-Rungwa G.R (E)	GR	I	Bushman Hunting Safaris	
	Selous MH3	GR	II	Bushman Hunting Safaris	
16	Kitwai G.C.A. (South-East)	GCA	II	Mwatisi Safaris	
	Msima G.C.A. (W)	GCA	II	Mwatisi Safaris	
	Rungwa Mzombe O.A	GCA	II	Mwatisi Safaris	
17	Irkishbor O.A.	OA	I	Traditional African Safaris	
	Selous LU3	GR	II	Traditional African Safaris	
	Simanjiro Naberera G.C.A.	GCA	III	Traditional African Safaris	
17	Lake Rukwa G.R (or GCA)	GR	I	Green Leaf	
	Selous U2	GR	II	Green Leaf	
19	Kilwa O.A. (C) Mbwemkuru	OA	II	Safari Club	
	Kilwa O.A. (C) Nakiu	OA	II	Safari Club	
20	Rungwa-Rungwa G.R (W)	GR	II	Marera Lodges	
	Muhesi G.R (W)	GR	I	Marera Lodges	Offered for sale or lease?
"Mantheakis"	Lake Natron G.C.A. (W)	GCA	II	Michel Mantheakis	
	Lukwati G.R. (S)	GR	II	Michel Mantheakis	
22	Selous LR3	GR	II	Pori Tracker of Africa	
	Selous M2	GR	II	Pori Tracker of Africa	
"Green Mile"	Lake Natron G.C.A. (N)	GCA	I	Green Miles Ltd	
	Selous MK1	GR	II	Green Miles Ltd	
"Singita"	Grumeti G.R.	GR	I	Grumeti Reserves	
	Ikorongo G.R.	GR	I	Grumeti Reserves	
25	Selous IH1	GR	II	Maasailand Hunting	
	Selous K3 and LU4	GR	II	Maasailand Hunting	
26	Muhwesi GCA	GCA	II	Melami Hunting Safaris	
	Simanjiro Kitiangare G.C.A.	GCA	III	Melami Hunting Safaris	
27	Ibanda-Rumanyika G.R.	GR	II	Saidi Kawawa	
	Mwantisi O.A (S)	OA	II	Saidi Kawawa	
28	Selous L1	GR	II	Malagarasi Hunting Safaris	
29	Selous LU5	GR	II	Tanganyika Game Fishing	Traded to Alan Vincent from Harpreet
30	Kilombero G.C.A. (S) Bomaulanga	GCA	II	Out of Africa	

Group	Block Name	Status	Category	Allocated To	Comments
31	Kigosi G.R. (C)	GR	II	East African Trophy Hunters	
32	Masai O.A. (E)	OA	II	Eshkesh Safaris	
33	Kilwa O. A. (S)	OA	II	Giant Hunting Club	
34	Simanjiro G.C.A.(W)	GCA	III	HSK Safaris	
35	Burigi G.R. (W)	GR	II	Kilimanjaro Game Trails	
36	Rungwa Mwamagembe G.R.	GR	II	Mwanauta & Co	Contested and block cancelled?
37	Loliondo G.C.A.	GCA	I	Otterlo Business Corp	
38	Gombe G.C.A.	GCA	II	Siafu Safaris	
39	Landanai G.C.A.	GCA	III	SNF Hunting Safaris	
40	Kitwai G.C. A. (North)	GCA	II	Tanza Guides	
41	Kigosi G.R. (E)	GR	II	Z. H. Pope	
1	Liparamba G.R	GR	IV	Not allocated	
2	Chaya O.A.	OA	III	Not allocated	
3	Kilombero G.C.A. (N) Mngeta	GCA	III	Not allocated	
4	Kilombero G.C.A. (S) Malinyi	GCA	III	Not allocated	
5	Kimisi G. R.	GR	III	Not allocated	
6	Litumbandyosi O.A./Gezamasua F.R.	OA		Not allocated	
7	Magwamila O.A.	OA		Not allocated	
8	Msuluguda O. A	OA		Not allocated	
9	Muhuwesi G.C.A.	GR		Not allocated	
10	Ruvu Masai G.C.A.	GCA		Not allocated	
11	Sasawala F.R/O.A.	FR		Not allocated	
12	Selous MB1 (W)	GR	II	Not allocated	
13	Swagaswaga G.R.	GR		Not allocated	
14	Wembere O.A. (C1)	OA		Not allocated	
15	Wembere O.A. (N)	OA		Not allocated	

4.5 Vacant Hunting Blocks

The 2013 – 2018 hunting period has come under considerable financial pressure as a result of the adverse publicity towards sport hunting, and the impact of hunting bans on elephant and lion. Fewer clients visited Tanzania since 2013 than in previous years when over 1,200 were recorded). Many hunting companies returned their blocks to the MNRT. Some have suggested that the blocks were no longer viable under the current financial schemes, but others have said the blocks were no longer viable because the wildlife had been depleted. Table 7 lists the blocks returned and the area and value of these blocks to the Wildlife Division. Altogether 46 hunting blocks valued at $1,088,000/year and covering an area of 73,000km^2 were handed back. Most the blocks are Category II, and are found in GCA and Open Area where human settlement has taken place but among these, are hunting blocks that were allocated to long standing hunting companies (e.g. Gerald Pasanisi Safari Corp) and which are in prime hunting areas such as the Selous Game Reserve.

A further 9 hunting blocks failed to operate in 2016, although the hunting companies did pay the annual block fees.

Table 7: Vacant and returned hunting blocks as of November, 2016.

COMPANY	NAME OF BLOCK	AREA	ANNUAL FEE USD	CATEGORY	REMARKS
Z.H. Poppe Ltd	Kigosi GR E	2420	$30,000	II	returned
Western Frontiers (T) Ltd	Piti Game Reserve East	2,227	$30,000	II	returned
Wembere Hunting Safaris Ltd	Rungwa OA N	2125	$30,000	II	returned
Traditional African Safaris Ltd	Irkishbor Open Area	206	$60,000	I	returned
Traditional African Safaris Ltd	Selous Game Reserve LU3	613	$30,000	II	returned
Tanganyika Wildlife Safari Corporation	Selous GR N1	520	$60,000	I	returned
Tandala Hunting Safaris Ltd	Mwambesi Game Controlled Area	1,082	$30,000	II	returned
Tandala Hunting Safaris Ltd	Inyonga Game Controlled Area Central	2,106	$30,000	II	returned
SNF Hunting Safaris Ltd	Landanai GCA	1295	$18,000	III	returned
Siafu Safaris Ltd	Gombe Game Controlled Area	2,703	$30,000	II	never applied 2013
Said Kawawa Hunting Safaris Ltd	Mwatisi Open Area (South)	1,110	$18,000	III	returned
Rungwa Game Safaris (T) Ltd	Wembere GCA (S)	8,784	$18,000	III	returned
Royal Frontiers Of (T) Ltd	Talamai Foret Reserve/Open Area	4,350	$18,000	III	returned
Royal Frontiers Of (T) Ltd	Moyowosi GR (N)	3,163	$30,000	II	returned
Royal Fronteirs of (T) Ltd	Moyowosi Game Reserve (Njigwe 1)	1,764	$30,000	II	returned
Palahala Safaris & Hunting Ltd	Wembere Open Area (Central) 2	948	$10,000	IV	returned
Old Nyika Safaris Ltd	Chunya Open Area East	1,554	$18,000	III	returned
Northern Hunting Enterprises Ltd	Biharamulo GR	702	$10,000	IV	returned
Mwatisi Safaris Ltd	Msima Game Controlled Area East	2,096	$30,000	II	returned
Miombo Safaris Ltd	Lukwika Lumesule GR	406	$30,000	II	returned
Miombo Safaris Ltd	Msanjesi Game Reserve-Kipitimbi Lionja FR	409	$5,000	V	returned
Maully Tours & Safaris Ltd	Ugalla Open Area (North East)	820	$18,000	III	returned
Maully Tours & Safaris Ltd	Ugalla Open Area (North West)	866	$18,000	III	returned

COMPANY	NAME OF BLOCK	AREA	ANNUAL FEE USD	CATEGORY	REMARKS
Maully Tours & Safaris Ltd	Ugalla Niensi	3,261	$10,000	IV	returned
Masailand Hunting Co. Ltd	Selous GR IH1	425	$30,000	II	returned
Masailand Hunting Co. Ltd	Selous GR LU4-K3	828	$30,000	II	returned
Marera Safari Lodge & Tours	Muhesi Game Reserve East	2,172	$30,000	II	returned
Malagarasi Hunting Safaris	Selous GR L1	464	$30,000	II	returned
Gerald Pasanisi Safari Corp	Selous GR MT1	873	$30,000	II	returned
Gerald Pasanisi Safari Corp	Selous GR ML1	792	$30,000	II	returned
Game Frontiers of Tanzania Ltd	Ituru Open Area	2,078	$18,000	III	returned
Fereck Safaris Ltd	Selous GR N2	1,032	$30,000	II	returned
EBN Hunting Safaris Ltd	Kizigo GR-(East)-1	1189	$60,000	I	returned, reapplied/returned
Bunda Safaris Ltd	Kilwa Open Area (South)	1,159	$30,000	II	returned
Bunda Safaris Ltd	Ruvuma OA	1195	$5,000	V	returned/converted to WMA
Bartlette Safari Corporation Ltd	Selous GR MHJ2	1,241	$30,000	II	returned
African Buffalo Safaris Trackers Ltd	Kigosi Game Reserve (South)	1,992	$30,000	II	returned
?	Kilombero Game Controlled Area (North-Mgeta)	1,281	$18,000	III	?
?	Kilombero Game Controlled Area (South-Malinyi)	1,358	$18,000	III	?
?	Liparamba Game Reserve	605	$18,000	III	returned
?	Chaya Open Area	874	$10,000	IV	never applied in 2013
?	Sasawala Forest Reserve – Open Area	420	$10,000	IV	never applied in 2013
?	Magwamila Open Area	1,349	$5,000	V	never applied in 2013
?	Msuluguda Open Area	886	$5,000	V	never applied in 2013
?	Litumbandyosi O.A/Gezamasua F.R.	3,141	$5,000	V	never applied in 2013
?	Wembere OA North	2,116.0	$5,000	V	returned
	TOTAL	**73,000**	**$1,088,000**		

Blocks that did not operate in 2016, but not yet returned

COMPANY	NAME OF BLOCK	AREA	ANNUAL FEE USD	CATEGORY
Bunda Safaris Ltd	Kilwa OA N	1,745	$30,000	II
Bunda Safaris Ltd	Mwatisi OA N - Furua OA	1,826	$30,000	II
Fereck Safaris Ltd	Kitwai GCA SW	1,473	$30,000	II
Bushman Hunting Safaris (T)Ltd	SELOUS GR MHJ3	1,147	$30,000	II
Green Leaf Ltd	Lake Rukwa GCA	1,974	$60,000	I
Mwatisi Safaris Ltd	Msima GCA W	2,222	$30,000	II
Mwatisi Safaris Ltd	Rungwa Mzombwe OA	1,962	$30,000	II
Mwatisi Safaris Ltd	Kitwai GCA SE	1,146	$30,000	II
?	KIMISI GR	1,034	$30,000	II
	SUBTOTAL	**13,495**	**$270,000**	

The issue of tenure of hunting blocks has plagued the Tanzania hunting industry for decades. Security of tenure is considered essential for the development of a viable and sustainable tourism hunting industry. Tanzania has continued to offer short term 5-year concessions even though some of the older companies in the country have successfully secured the same blocks for over 20 years.

Over the years, Government has also had to contend with the political issue of there being too few wholly owned national companies involved in the hunting industry. The opportunity for new Tanzanian operators to enter the industry was also hampered by the limited of blocks that were available. To mitigate this, changes were made to the legislation i.e. no one person or company could hold more than 5 blocks, however this has by and large not achieved the objective. Instead, the process has been manipulated by some individuals and companies who take advantage of being awarded a block(s) that would enhance the financial security of one of the more established operations. The result is that there has been a certain degree of "horse trading" among those that have been awarded blocks, which in the long term has not been to the advantage of the industry or to Government. This is seen in the performance of the companies in terms of their ability to secure clients, utilize the quotas and invest in the management and development of the hunting blocks.

Of more concern is the high number of blocks that were returned at the end of the 2016 season. This has left approximately 73,000km^2 of land vulnerable to land use changes that will be to the detriment to wildlife outside of the Game Reserves, and in all likelihood, may lead to the loss and degradation of traditional migration routes and corridors.

Arriving at a transparent and long term arrangement to accommodate security of tenure must be a priority as Tanzania enters the next phase of block allocations after 2018[6].

[6] It is understood that the Wildlife Division/TAWA have allocated blocks for the 2018 – 2022 period.

4.6 GOVERNMENT FEES AND REGULATIONS

The fee structure applicable to the tourism hunting industry is outlined in the 3rd and 5th Schedule of the 2015 Tourism hunting regulations. The Game Fee license for mammals and a selection of birds in provided in Annex VIII. These prices have not been adjusted since 2010.

A factor unique to Tanzania is that all hunting operators are required to utilize 40% of the quota value of a selection of key animals (see Table 8). The operator is required to pay any shortfall at the end of the season if he fails to utilize this portion of the overall quota. This is a strategy on the part of the Wildlife Division to secure guaranteed income if the animals are not hunted by clients. However, it also promotes overhunting of the high value species even when species are difficult to find or obviously in decline. This system has changed from what prevailed in the past where the 40% value was calculated using the entire quota which resulted in the hunting operators shooting all the high value species, especially lion and leopard, and ignoring the low value species. This new system focuses only on the larger and more specialized mammal species. To a degree this has resolved the issue of overhunting sensitive species such as lion, but the potential for abuse still exists if the quotas are initially set too high.

Table 8: List of all key animals that are used to determine the 40% value of the quota (see 4th Schedule, 2015 Tourism Hunting Regulations).

Species	Abbreviation	Species	Abbreviation
Buffalo (1st, 2nd and 3rd)	BU	Burchell's Zebra	ZE
Bushbuck	BB	Bushpig	BP
Coke' Hartebeest	HB C	Common waterbuck	WB C
Eland	EL	Defassa waterbuck	WB D
Gerenuk	GE	Grant's gazelle	GG
Greater kudu	KU G	Hippopotamus	HI
Impala	IM	Klipspringer	KPS
Lesser kudu	KU L	Lichtenstein's hartebeest	HB L
Mountain reedbuck	RB M	Nyasa Wildebeest	GNU
Oribi	OR	Oryx	OR
Puku	PU	Roan antelope	RO
Sable antelope	SA	Sitatunga	SI
Southern Reedbuck	SA R	Spotted hyaena	HY
Striped hyaena	HY S	Thomson's Gazelle	GT
Topi	TO	Warthog	WH

Other fees related to the management and administration of the industry are listed in the 5th Schedule of the 2015 Tourism Regulations and include Block Fees, Permit Fees, Intercompany Hunting Fees, Conservation/Observer Fees, Trophy Handling Fees and Professional Hunter Fees (see Annex III).

The 6th Schedule of the regulations describes the information that the hunting operator is required to submit to secure a Trophy Hunting Permit on behalf of the client. This includes:

- Name and contact details of the operator
- Particulars of the client, including passport details
- Name of the professional hunter, and the area(s) to be hunted
- Date and duration of the safari (i.e. 28-day, 21-day etc.)

- Details of firearms
- Particulars of all observers accompanying the safari
- List of animals and quantity to be hunted

The actual hunting permit is then issued as per the instructions contained in the 7th Schedule. Sections 19 – 22 of the Regulations outlines the terms and conditions that apply to hunting and the surrender of the hunting permit. All relevant fees are required to be paid within 42 days (Section 22 (1)) and any cancellation incurs a 15% penalty (Section 21(2)(b).

The data captured through this system is used to track the performance of the various safari hunting companies.

4.7 Quota Allocation, Utilisation and Income Generation

According to the Tourism Hunting Regulations, quotas are set by the Wildlife Division after receiving inputs from the Project Managers for Game Reserves and Regional Game Officers responsible for Game Controlled Areas and Open Areas. The recommendations from TAWIRI are also taken into consideration. The quotas can be adjusted annually using available information from aerial surveys, hunting records from the blocks and the recommendations of the hunting companies. Table 9 below illustrates this point for elephant where TAWIRI have applied a conservative offtake value of 0.3 – 0.5% of the overall population estimate to arrive at quotas for different ecosystems.

Table 9: Computation of elephant hunting quotas for six regions in Tanzania

Ecosystem – Elephant (2014)	Area (km^2)	Population Estimate	Density	Quota	% of Population
Selous Mikumi ecosystem and adjacent GCA	105,703	15,217	0.14	46	0.3%
Rungwa Game Reserve and surroundings	50,368	8,272	0.16	24	0.3%
Rukwa and surroundings	13,783	3,514	0.25	17	0.5%
Tarangire and surroundings	16,135	4,202	0.26	12	0.3%
Malagarasi and surroundings	44,809	2,953	0.07	9	0.3%
Serengeti and surroundings	34,987	6,087	0.17	18	0.3%
Total	**265,785**	**40,245**	**0.15**	**126**	0.3%

Although no detailed analysis was undertaken, the quotas for the remaining species appear not to have varied significantly from one year to the next. Moreover, although quotas are allocated for a wide variety of animals, the levels of utilisation are low (see below for further discussion).

In terms of Section 24(1) of the Regulations a hunting company is not permitted to reduce the quota allocated to it after the commencement of the hunting season. The hunting company is also required not to exceed the hunting quota and only hunt the quota within its hunting block. Unless there are valid reasons, all trophies are to be exported within 18 months after the end of the hunting season, failing which the operator is required to pay a 10% surcharge fee of the value of the trophies hunted and export the trophies within a period of six months.

4.7.1 Population trends and estimates

TAWIRI are responsible for monitoring the status and distribution of wildlife across all of Tanzania's ecosystems. The methods used include:

- Systematic Reconnaissance Flight (SRF) suitable for zebra, wildebeest, topi, hartebeest, warthog, impala, buffalo, eland, etc. SRF is a systematic sampling approach during which only a portion of the animal population is counted. The totals for various species is then estimated by applying appropriate statistical analysis. Parallel strips are flown at a constant height of 100m (maintained using a laser altimeter) above the ground while animals are counted that fall within 150m strip widths either side of the aircraft.
- Total Count (TC) are used for species that typically occur in large herds that are not evenly distributed (elephant, buffalo). The entire area is flown in parallel strips at a height of 150 – 180m above the ground. All herds seen are photographed in a series of overlapping photographs. The total number of animals are then later counted from these photographs.
- Aerial Point Survey (APS)-migratory species e.g. Wildebeest, Zebra, Gazelles and flamingos. This method is used for single species such as the migratory wildebeest on the Serengeti Plains. Single vertical photographs are taken at intervals while the aircraft flies in parallel strips at a constant height of 140m above the ground. The animals in each photograph are then counted and an estimated total population estimated.
- Ground Counts (GC) and Educated Guess (EG). This method is used mostly in small areas (<100km^2), and where animals occur in low densities.

The first wildlife census in the country was conducted in 1957. Since then about 201 censuses have been conducted. A summary of population estimates and trends for the following regions/ecosystems is provided in the Wildlife Sub-Sector Statistical Bulletin (2nd Edition) published by the Ministry of Natural Resources and Tourism (2013).

- Ruaha – Rungwa: 1993 – 2011
- Serengeti ecosystem: 1990 – 2011
- Tarangire – Manyara: 1990 – 2011
- Moyowasi – Kigosi: 2000 – 2012
- Katavi – Rukwa: 1990 – 2011
- Selous Game Reserve: 1994 – 2011
-

About 90% of these censuses used SRF method, 5% of these censuses used TC, and about 5% used APS and GC. The area of land to be surveyed is extensive (296,976km^2, see Table 10 below), and the cost of conducting these surveys is substantial.

Table 10: Area and survey method for ecosystems and protected areas, 2014.

SN	ECOSYSTEM/PA	AREA (km^2)	METHOD	YEAR
1	Serengeti	33,185	TC	2014
2	Tarangire-Manyara	18,725	TC	2014
3	W. Kilimanjaro-L. Natron	10,060	TC	2013
4	Katavi-Rukwa	19,953	SRF	2014
5	Malagarasi-Muyovosi	44,809	SRF	2014

SN	ECOSYSTEM/PA	AREA (km²)	METHOD	YEAR
6	Selous-Mikumi	105,730	SRF	2014
7	Ruaha-Rungwa	52,464	SRF	2015
8	Burigi-Biharamulo	4,713	SRF	2014
9	Saadani National Park	1,154	SRF	2014
10	Mkomazi National Park	3,107	TC	2014
11	Rubondo Island NP	237	DC	2013
12	Arusha National Park	316	EG	2014
13	Swagaswaga GR	871	EG	2014
14	Kilimanjaro National Park	1,652	EG	2014
	Total	**296,976**		

The most recent survey was funded by the Paul G. Allen Foundation under the Great Elephant Census (www.greatelephantcensus.com/). TAWIRI (http://www.tawiri.or.tz/) has produced comprehensive survey reports for each of the major ecosystems. The summary for elephant is provided in Table 11 below:

Table 11: Elephant population estimates by ecosystem/protected area, 2014

SN	Elephant - Ecosystem/PA	Estimate	SE	Area (Km²)	Method	Year
1	Selous-Mikumi Ecosystem	15,217	1,800	105,730	SRF	2014
2	Ruaha-Rungwa Ecosystem	15,836	4,759	52,464	SRF	2015*
3	Serengeti Ecosystem	6,087		33,185	TC	2014
4	Katavi-Rukwa Ecosystem	5,738	1,375	19,953	SRF	2014
5	Tarangire-Manyara Ecosystem	4,202		18,725	TC	2014
6	Malagarasi-Muyovosi Ecosystem	2,953	1,308	44,809	SRF	2014
7	Arusha National Park	200		316	EG	2014
8	West Lilimanjaro - Lake Natron GCA	200		10,060	TC	2013
9	Burigi-Biharamulo	110		4,713	SRF	2014
10	Rubondo Island National Park	102		237	EG	2013
11	Kilimanjaro National Park	100		1,652	EG	2014
12	Swagaswaga Game Reserve	60		871	EG	2014
13	Mkomazi National Park	59		3,107	TC	2014
14	Saadani National Park	30		1,154	SRF	2014
	TOTAL	**50,894**	**5,430**	**296,976**		

*Survey undertaken independently by Wildlife Conservation Society

An example of other data for Zebra and Buffalo is provided in Figure 3 below (TAWIRE, unpublished). These data underline overall declining populations in the two ecosystems. The reasons for this are not immediately clear: inside of the protected areas these declines could be a result of long-term droughts, fire affecting habitats, poaching or changes in fecundity. Outside of the protected areas poverty stands as the major driver declining populations. Illegal hunting for bushmeat is prevalent as households use bushmeat both for supplementing household protein and for economic gain (Knapp,2012). The extent to which bushmeat poaching is depleting other populations is not known.

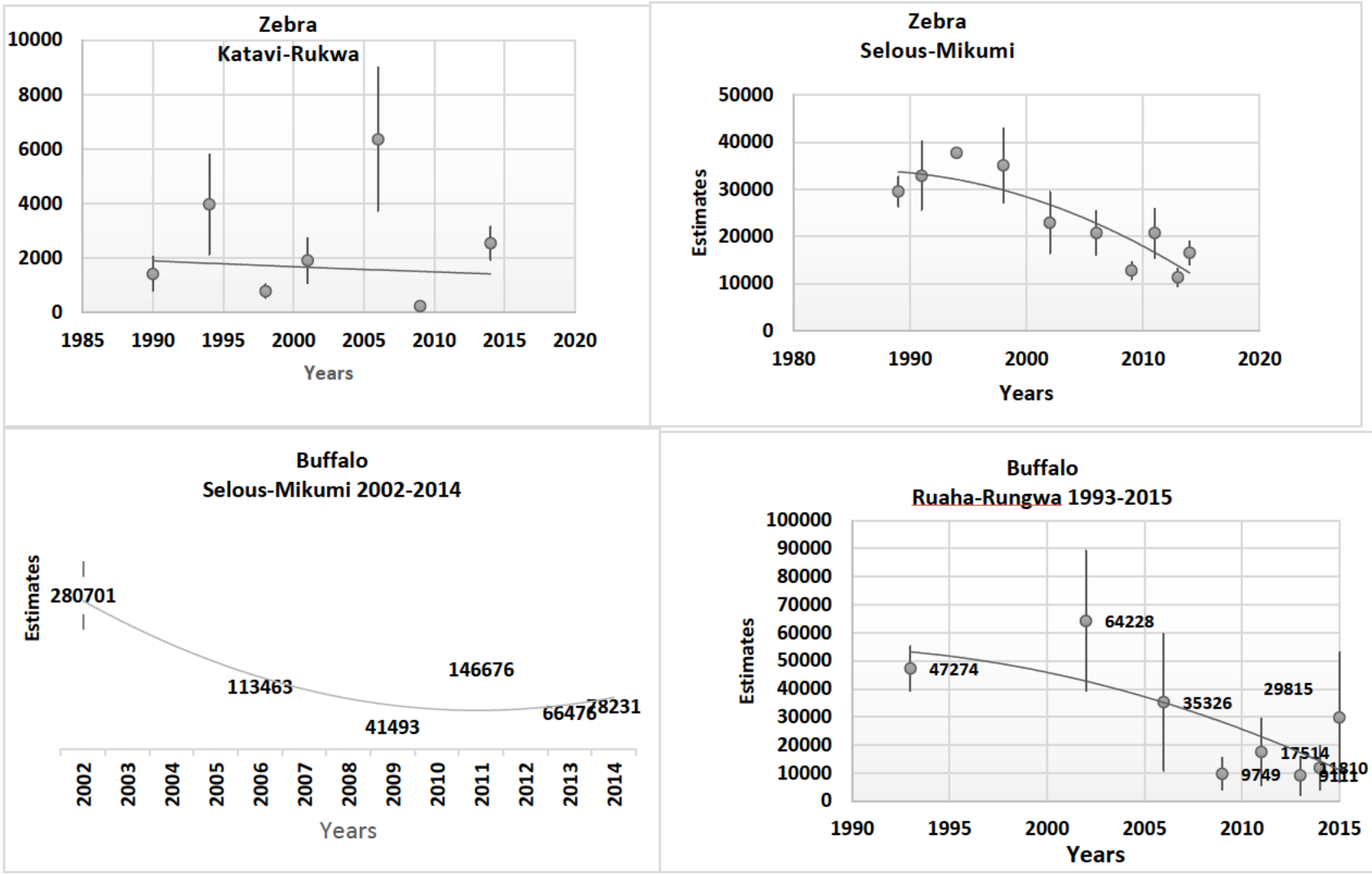


Figure 3: Long term population trends for zebra and buffalo in two ecosystems in Tanzania. Data from PowerPoint presentation prepared by TAWIRE and presented at the TAWA Strategic planning meeting, Dar es Salaam.

4.7.2 Quota Allocation and Utilisation - 2014

Figure 4 and Figure 5 below summarise the overall quota allocation and utilisation for the 2014 hunting season. A full summary of all the quota allocation and utilisation by block by company is provided in Annex VI and Annex VII. The overall total quota for primary (elephant, lion and leopard), key (buffalo, oryx, sable etc.), tertiary (baboon, duiker, gazelles etc.) and small mammal species (caracal, civet, mongoose etc.) was 17,043 animals (excluding 15,997 birds – ducks, doves, spur fowl etc.). The bulk of these were allocated to the 30 Key Species (11,425) which determine the 40% game fee value (see Table 9 for list of Key Species). Buffalo (1,817) are the most numerous Key species on quota followed by zebra (1,114), Lichtenstein's hartebeest (765), warthog (745) and southern Impala (644).

Of the 5,085 mammals hunted in 2014, the key species contributed 4,222 animals with buffalo forming the bulk (949/1,817 or 52% of the buffalo quota) followed by zebra (431/1,114 or 39% of the zebra quota).

The Prime Species quota of 976 animals (see Table 12) consists of 200 elephants (Tanzania has a CITES approved quota of 200), 317 lions and 459 leopards. Of these, 252 prime quota animals (26%) were harvested from this segment of the quota in 2014, the majority of which were leopards (200), with 44 lions and 7 elephants[7].

The tertiary species quota (baboon, duikers, gazelles, dik dik, jackals etc.) is 3,251 while the small mammals and carnivores (genets, mongoose, monkeys etc.) number 1,391 in total.

Striped hyaena (17), puku (25), Defassa waterbuck (26), sitatunga (45) and common sable (60) are on quota. Quotas for the remaining species range from 100 – 450.

Relatively few animals in the tertiary group (N=575) and small mammal group (n=37) are harvested each year. Similarly, of the 15, 997 birds on quota (dove, duck, sand grouse, spur fowl), 171 specimens were hunted in 2014 (less than 1% of the quota, Table 12).

[7] Please note that elephant quotas are set at a national level and not per block or geographical area. All operators are required to apply separately for individual permits to hunt elephant provided that the trophy meets the minimum trophy standard set in the 2015 Hunting Regulations (Section 26 (4)) which states "*Without prejudice to sub-regulation (1), a person shall hunt an elephant whose one of the tusks weighs 20 kgs and above or measures 160cm and above*." A professional hunter who guides a client to hunt an elephant in contravention of this sub-regulation commits an offence and on conviction shall be liable to a fine stipulated under regulation 27(2) i.e. a fine of US2500 or imprisonment for a term not less than six months for the first offence; a fine of US5000 and or imprisonment for not less than one year for the second time of an offence; and a fine of US10000 or imprisonment for a not less than one year and cancellation of the Professional Hunters' license for the third time of commission of an offence.

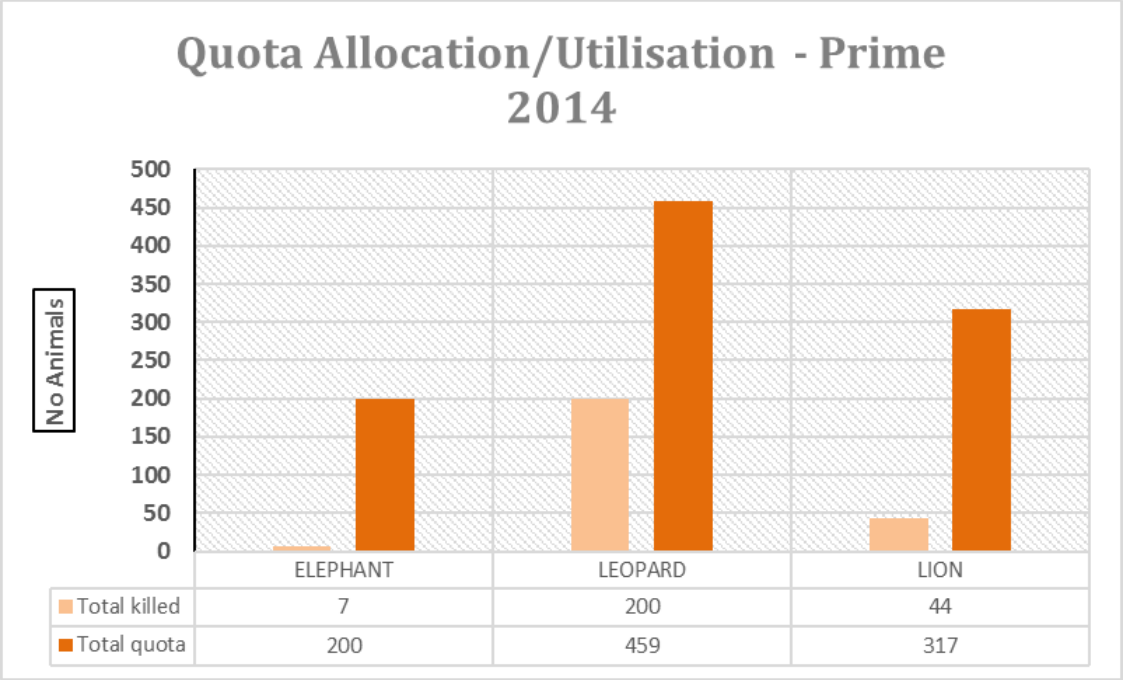
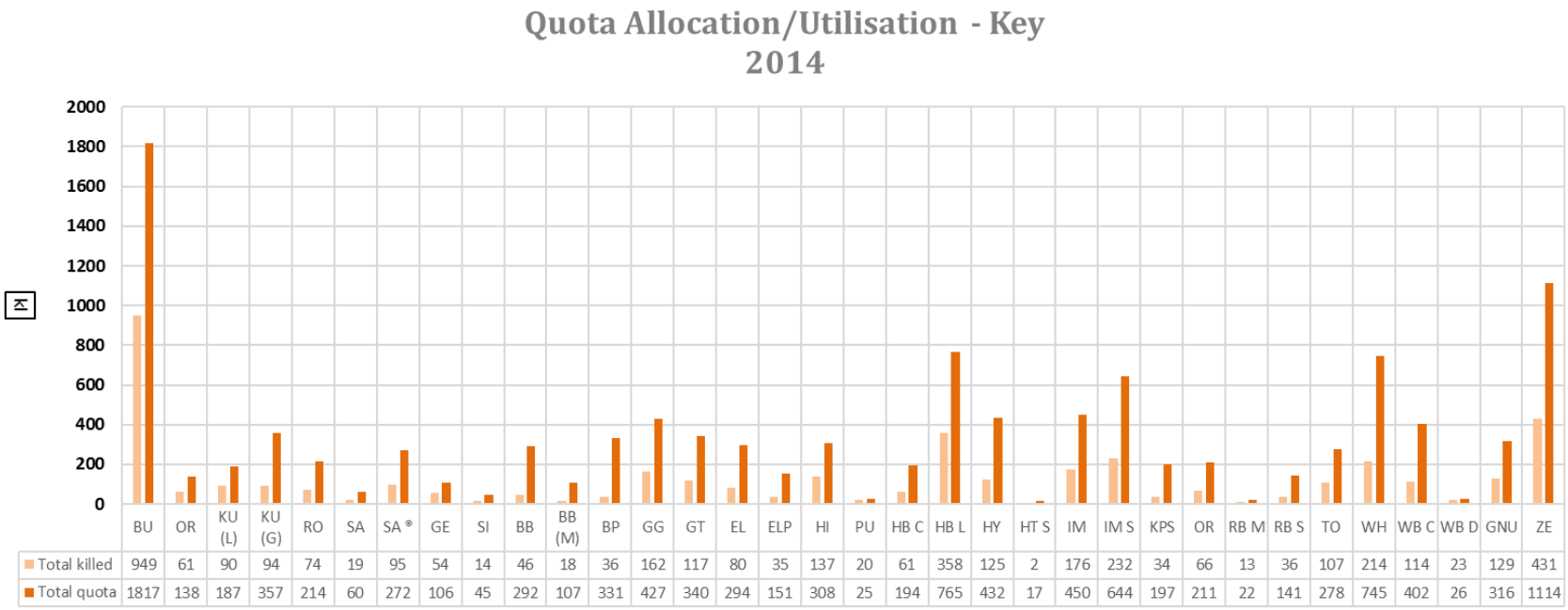


Figure 4: The overall quota allocation and utilisation for the three prime mammal species for the 2014 hunting season.



	BU	OR	KU (L)	KU (G)	RO	SA	SA ®	GE	SI	BB	BB (M)	BP	GG	GT	EL	ELP	HI	PU	HB C	HB L	HY	HT S	IM	IM S	KPS	OR	RB M	RB S	TO	WH	WB C	WB D	GNU	ZE
Total killed	949	61	90	94	74	19	95	54	14	46	18	36	162	117	80	35	137	20	61	358	125	2	176	232	34	66	13	36	107	214	114	23	129	431
Total quota	1817	138	187	357	214	60	272	106	45	292	107	331	427	340	294	151	308	25	194	765	432	17	450	644	197	211	22	141	278	745	402	26	316	1114

Figure 5: The overall quota allocation and utilisation for the key mammal species for the 2014 hunting season.

4.7.3 Quota Value and Income Generation - 2014

The total potential value and the actual revenue generated from the 2014 quota is summarised in Table 12 and illustrated in Figure 6 and Figure 7. The overall value of the quota is $19,389,735, with the bulk of this value (66%) generated from the key species ($12,938,380). The primary species could potentially contribute $4,859,800 (25%) with the remaining 8% ($2,191,045) spread across the tertiary and small mammal's categories.

Overall approximately $6,427,310 (33% of the potential value of the quota) was realized in 2014 (Table 12). The bulk of the income, $5,132,240 (80%), originates from the "Key Species" segment of the quota. The "Prime species" contributed 15% ($975,100) with the remaining 5% coming from the Tertiary and Small mammals. The bird quota contributed $44,200 from a potential $599,490 (7%).

Table 12: Overall quota value and revenues generated from the primary, key and small mammal quota, and birds in 2014.

	Prime (Elephant, Lion, Leopard)	Key (N=30 species)	Tertiary (N=17 species)	Small (n=17 species)	Birds (N= 9)	Total
Total quota	976	11,425	3,251	1,391	15,997	**17,043***
Total killed	251	4,222	575	37	171	**5,256**
% of quota utilisation	26%	37%	18%	3%	1%	**31%**
Total Quota value US$	$4,859,800	$12,938,380	$1,278,530	$313,025	$599,490	**$19,389,735**
Total Game Fee US$	$975,100	$5,132,240	$267,720	$8,050	$44,200	**$6,427,310**

- Excluding 15,799 birds on quota

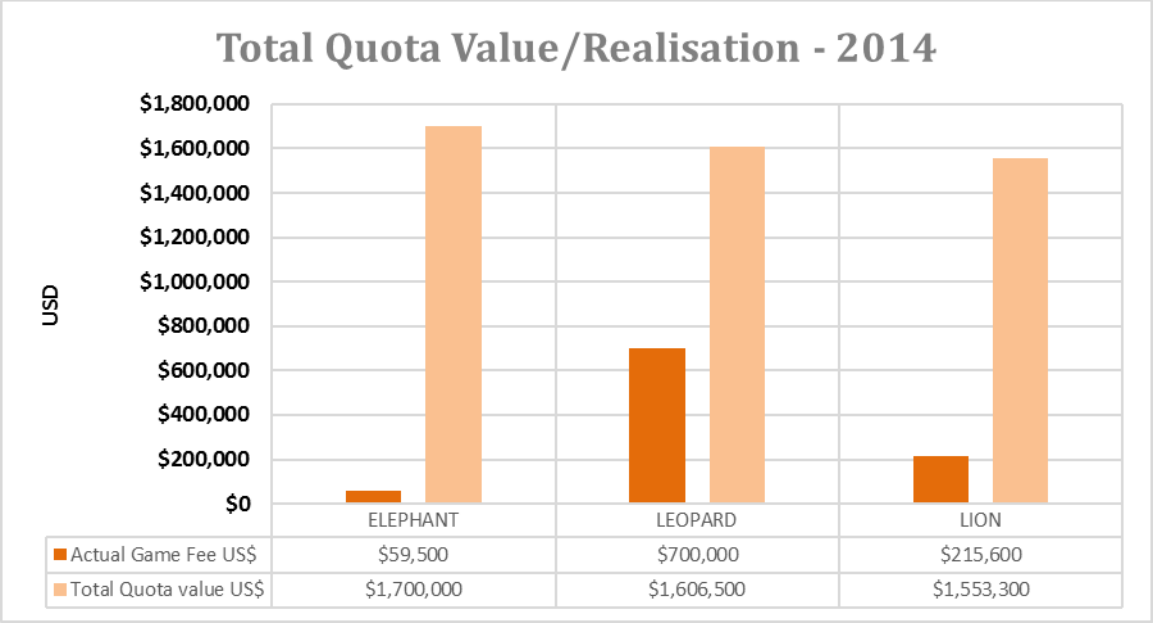


Figure 6: The overall value (USD) of the quota for the three prime species, and the revenue generated in 2014.

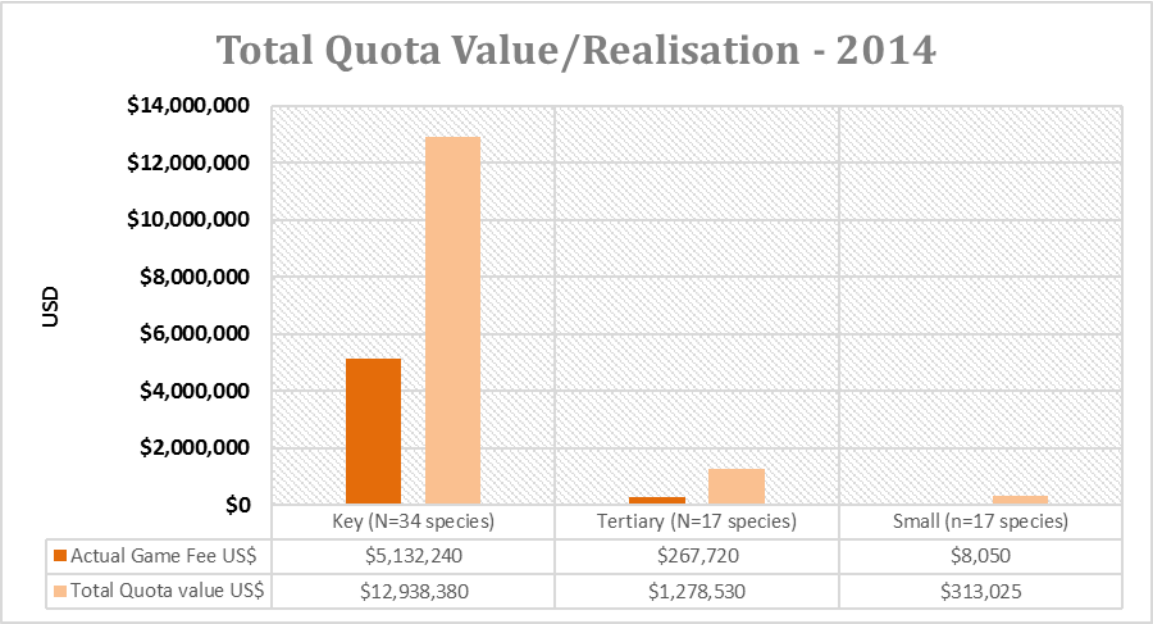


Figure 7: The overall value (USD) of the quota for the Key, Tertiary and Small mammal species, and the revenues generated in 2014.

5 PERFORMANCE OF THE HUNTING INDUSTRY

The terms and condition to apply for or renew a hunting block are described above in Section 4.3. The Regulations do not provide performance indicators that can be used to gauge the efficiency and effectiveness of the hunting companies in utilising the blocks. The following parameters are considered here to assess the performance of the 2014 hunting season. These include:

- Number of clients and country of origin
- Number of hunter days generated
- Payment of block fees, permit fees and game fees per company

5.1 NUMBER OF CLIENTS AND HUNTER DAYS

Table 13 summarises the number of clients that hunted in Tanzania in 2014. These data have been extracted from the permit data provided by the Wildlife Division.

Table 13: The number of hunting clients, their country of origin and preference of hunting packages, 2014.

Region and Total clients	Country (Rank)	Fixed hunting packages (Days)						Total number of clients/country/package	Percentage
		28	21	14	10	7	5		
AMERICAS (N=364)	Argentina		1			3		4	0.6%
	Canada		9	1	2	2		14	2.0%
	Chile				1			1	0.1%
	Mexico		18	1	2			21	3.0%
	Panama		1		1			2	0.3%
	USA (1)	14	214	20	61	13		322	45.5%
EUROPE (N=246)	Albania		1					1	0.1%
	Austria		5	1	6			12	1.7%
	Bulgaria		5					5	0.7%
	Denmark		3			2		5	0.7%
	France (2)		41	2	2	1		46	6.5%
	Germany (3)	1	19	1	12	4		37	5.2%
	Hungary		6		2			8	1.1%
	Ireland					3		3	0.4%
	Italy		17		2			19	2.7%
	Latvia		2		1			3	0.4%
	Ludhiana		2					2	0.3%
	Netherlands		2		1			3	0.4%
	Norway		2					2	0.3%
	Poland		2					2	0.3%
	Portugal		1					1	0.1%

Region and Total clients	Country (Rank)	Fixed hunting packages (Days)						Total number of clients/country/package	Percentage
		28	21	14	10	7	5		
	Romania		1					1	0.1%
	Russia (4)		27		3	2		32	4.5%
	Spain (5)		23	1	3	1		28	4.0%
	Sweden		2		1	5		8	1.1%
	Switzerland	1	6		1			8	1.1%
	Turkey		4		1			5	0.7%
	UK		6		5	4		15	2.1%
MIDDLE EAST (N=40)	Lebanon		1					1	0.1%
	Oman		2	3	1			6	0.8%
	Qatar		3					3	0.4%
	Saudi Arabia		11		1			12	1.7%
	UAE		12	2	3			17	2.4%
	Yemen		1					1	0.1%
OTHER (N=25)	Australia		3	1	6			10	1.4%
	Bahamas		1					1	0.1%
	China		1					1	0.1%
	Guyana		1					1	0.1%
	India		9	1	2			12	1.7%
AFRICA (N=33)	RSA		4		9	5		18	2.5%
	Tanzania	3	3		5			11	1.6%
	Zambia				1			1	0.1%
	Zimbabwe				2	1		3	0.4%
Total	**43 countries**	**19**	**472**	**34**	**137**	**46**	**0**	**708**	
Hunter days		**532**	**9,912**	**476**	**1,370**	**322**	**-**	**12,612**	
Percentage		**4%**	**79%**	**4%**	**11%**	**3%**	**0%**		

The data have been segregated into five regions to illustrate the distribution of clients from the 43 countries recorded on the permits. A total of 708 hunting permits were issued in 2014, which is similar to the number of clients recorded between 2009/10 and 2013/14 that varied from 680 – 850/year. This is significantly lower than the number of permits issued annually between 2002/03 and 2007/08 (MNRT, 2013).

The countries representing the Americas (N= 6) dominated the number of clients (364) with 45% of these clients (322) originating from the USA. Europe, represented by 22 countries, supplied 246 clients with France (46), Germany (37), Russia (32) and Spain (28) being the most represented European countries.

The Middle Eastern countries is often regarded as an important source of hunting clients, yet the 2014 data suggests that only 40 clients originated from this region with UAE (17) and Saudi Arabia (12) being the most popular.

Other countries that appeared in the list (Australia, Bahamas, China, Guyana and India) that are not normally associated with big game hunting. Of interest, is that there is much talk on marketing big game hunting in China yet only one client was recorded in 2014.

There are several "clients" recorded as originating from African countries (N=33), including Tanzania. This may reflect Professional Hunters and Block Managers applying for hunting permits to hunt plains game (for example to pre-bait or provide camp rations) than actually paying for a full hunting safari. This may be the case for hunters originating from Zambia and Zimbabwe but it is difficult to understand why hunters from Tanzania have applied for 28-day and 21-day hunting permits.

Using the number of hunting packages purchased, it is possible to estimate the minimum number of hunter days generated in 2014. The 21-day package is the most popular (79%) as this provides the most flexibility in terms of the number and variety of animals that can be hunted in terms of the Regulations. The least popular permits are the 7 – 14 day packages while the 10-day packages serve those clients that intend only to hunt buffalo. There is hardly any interest in the 5-day "plains game" package.

From these data, it is estimated that the 55 companies who applied for hunting permits in 2014 generated 12,612 hunter days. This is in contrast to the estimated 27,308 hunter days generated from approximately 1,500 hunting clients in 2007 (Booth, 2010, MNRT, 2013). The cause of this apparent decline is probably related to the impact of the terms and conditions that have been applied by Tanzania to hunting, especially of elephant and lion. In 2007, it was estimated that 220 x 21-day lion safaris were sold representing 4,662 hunter days. In contrast, only 44 lion safaris and 7 elephant safaris were recorded in 2014. The decline in lion safaris has come about following the introduction of the "six-year age" rule applied to lion trophies and the heavy penalties (up to US$10,000) for hunting under aged lion (see Section 27 of the 2015 Hunting Regulations).

Similarly, the number of buffalo offered on quota has declined from 2,365 in 2007 to 1,817 in 2014. In 2007, it was estimated that 1,100 buffalo generated approximately 17,000 hunter days through 16-day and 10-day packages. In 2014, the overall quota utilisation was 949 (52%). There is little difference in the number of leopard hunted in 2007 and 2014 (c.200/year, see also MNRT 2013, page 20). This indicates that the "character" of the Tanzania hunting industry has changed over the last 10 years from being a "big four[8]" game hunting destination to one that is now heavily dependent on leopard and buffalo. In these terms, it differs little from destinations such as Zimbabwe, Zambia and Namibia and as such has lost (or is losing) its competitive advantage. It still has, however, vast wilderness areas that remain attractive to "fair chase" hunting.

5.2 Income Generation for the Wildlife Division

The overall income generated by the Wildlife Division on behalf of the Treasury in the 2014/15 financial year (June – July) according to these data was $13,177,494 of which $4,687,000 (36%) was paid in block fees at an average of $32,776 per company (range $30,000 - $180,000, see Table 15). Some of the consortiums however pay approximately $340,000/year in block fees, underlining the importance of

[8] The Big Four refer to elephant, lion, leopard and buffalo

these well-established hunting companies to the stability of the industry and source of revenue to the Government and in future, TAWA.

The variable fee[9] component consisting of Permit Fees ($3,408,650) and Game Fees ($5,081,844) contributed 64% to the overall total of $13,177,494 generated in 2014 (Table 15). This is less than the data provided by the Wildlife Division for all areas under its jurisdiction that indicates that $16,277,373 was generated in the 2014/2015 hunting season (Table 14):

Table 14: Gross income to the Wildlife Division from Trophy Hunting and Photographic Tourism

Financial Year (July/June)	Trophy Hunting	Photographic Tourism	Total USD
2009/2010	$18,444,881	$2,706,603	$21,151,484
2010/2011	$23,536,347	$2,863,287	$26,399,634
2011/2012	$15,062,217	$2,080,978	$17,143,195
2012/2013	$15,917,430	$3,904,808	$19,822,239
2013/2014	$16,723,425	$5,016,703	$21,740,128
2014/2015	$16,277,373	$4,736,187	$21,013,560
2015/2016* (until January 2016)	$11,215,723	$3,041,225	$14,256,948

The variance between these two data sets may be the result of other fees raised by the Wildlife Division that are not captured in the data set provided here (e.g. block transfer fees, trading licenses, PH licences etc.).

[9] These fees depend on the number of hunting clients and the number of animals taken on each safari.

Table 15:Summary of the performance of the 55 hunting companies active in 2014. The parameters include number of clients, diversity of countries, total area under the management of the company, total number of blocks, permit and game fees paid to the Wildlife Division

Company	Total Clients	Number of Countries	Number of Blocks	Total Area (km²)	Block Fees (USD)	Permit fees (USD)	Game Fees (USD)	Total Fees (USD)	Per client (USD)
AFRICAN BUFFALO SAFARIS TRACKERS LTD	24	3	4	5,352	$168,000	$116,650	$73,370	$358,020	$14,917
AFRICAN TROPHY HUNTING SAFARIS LTD	10	2	2	1,175	$60,000	$49,500	$71,710	$181,210	$18,121
BARLETTE SAFARI CORPORATION LTD	20	6	4	7,957	$120,000	$106,800	$227,100	$453,900	$22,695
BUNDA SAFARIS LTD	15	6	6	8,377	$143,000	$57,500	$16,020	$216,520	$14,435
BUSHMAN HUNTING SAFARIS (T) LTD	26	8	3	3,268	$150,000	$131,750	$347,965	$629,715	$24,220
EAST AFRICAN TROPHY HUNTER LTD	6	4	2	11,988	$48,000	$30,450	$65,140	$143,590	$23,932
ESHKESH SAFARIS LTD	4	1	1	3,335	$30,000	$18,150	$15,290	$63,440	$15,860
EUROAFRO GROUP LTD	6	3	2	1,639	$28,000	$24,950	$0	$52,950	$8,825
FERECK SAFARIS LTD	21	5	3		$90,000	$108,900	$133,760	$332,660	$15,841
FOA ADVENTURES SAFARIS LTD	6	1	1	520	$60,000	$27,350	$26,610	$113,960	$18,993
FRANCOLINE SAFARIS LTD	9	4	1	918	$30,000	$34,750	$13,650	$78,400	$8,711
GAME FRONTIERS OF TANZANIA LTD	11	4	5	11,285	$138,000	$62,250	$110,850	$311,100	$28,282
GERALD PASANIS SAFARI CORP LTD	23	4	5	6,218	$150,000	$122,050	$145,220	$417,270	$18,142
GO WILD HUNTING SAFARIS LTD	1	1	1	1,060	$30,000	$4,650	$7,430	$42,080	$42,080
GREEN LEAF LTD	12	2	1	1,974	$60,000	$58,450	$0	$118,450	$9,871
GREENMILES CO. LTD	7	2	3	3,759	$108,000	$42,850	$0	$150,850	$21,550
GRUMETI RESERVES (T) LTD	14	2	3	1,372	$180,000	$52,700	$0	$232,700	$16,621
HSK SAFARIS CO LTD	9	3	2	2,031	$48,000	$40,450	$52,620	$141,070	$15,674
KIBOKO HUNTING SAFARIS LTD	19	6	2	2,392	$60,000	$72,600	$137,230	$269,830	$14,202
KILOMBERO NORTH SAFARI LTD	30	11	3	7,297	$108,000	$150,350	$139,697	$398,047	$13,268
LUKE SAMARAS SAFARIS LTD	13	4	4	5,007	$120,000	$66,100	$170,670	$356,770	$27,444

Company	Total Clients	Number of Countries	Number of Blocks	Total Area (km²)	Block Fees (USD)	Permit fees (USD)	Game Fees (USD)	Total Fees (USD)	Per client (USD)
MALAGARASI HUNTING SAFARIS	9	5	2	4,106	$60,000	$38,950	$2,590	$101,540	$11,282
MARERA SAFARI LODGE AND TOURS (T) LTD	24	6	3	5,608	$95,000	$115,550	$217,010	$427,560	$17,815
MASAI PLATEAU (T) LTD	2	1	1	211	$30,000	$10,300	$7,290	$47,590	$23,795
MASAILAND HUNTING COMPANY LTD	9	5	2	1,253	$60,000	$30,600	$33,070	$123,670	$13,741
MELAMI HUNTING SAFARIS LTD	15	4	2	2,951	$48,000	$71,000	$178,769	$297,769	$19,851
MICHEL MANTHEAKIS SAFARIS LTD	25	6	2	3,180	$60,000	$124,850	$242,875	$427,725	$17,109
MIOMBO SAFARI LTD	1	1	2	815	$35,000	$5,850	$0	$40,850	$40,850
MKWAWA HUNTING SAFARIS (T) LTD	21	8	5	3,519	$138,000	$89,900	$35,090	$262,990	$12,523
MUHESI SAFARIS LTD	5	4	2	2,868	$60,000	$20,350	$30,180	$110,530	$22,106
MWANAUTA AND COMPANY LTD	7	3	1	991	$30,000	$34,650	$0	$64,650	$9,236
MWATISI HUNTING SAFARIS LTD	12	5	3	5,330	$90,000	$55,250	$14,710	$159,960	$13,330
NORTHERN HUNTING ENTERPRISES LTD	9	4	3	8,057	$108,000	$51,600	$122,550	$282,150	$31,350
OLD NYIKA SAFARIS LTD	10	5	3	6,841	$90,000	$53,800	$85,878	$229,678	$22,968
ORIO WILDLIFE SAFARIS	2	1	1	582	$30,000	$8,750	$12,120	$50,870	$25,435
ORTTELO BUSINESS CORPORATION LTD	4	1	1	6,188	$60,000	$28,600	$16,220	$104,820	$26,205
PALAHALA SAFARIS AND HUNTING LTD	6	2	2	2,261	$40,000	$27,900	$69,610	$137,510	$22,918
PORI TRACKERS OF AFRICA LTD	19	5	2	1,531	$60,000	$87,500	$98,050	$245,550	$12,924
ROBIN HURT SAFARIS (T) LTD	44	7	4	8,897	$150,000	$197,500	$328,630	$676,130	$15,367
ROYAL FRONTIERS OF TANZANIA LTD	7	4	3	6,032	$90,000	$31,400	$62,940	$184,340	$26,334
RUNGWA GAME SAFARIS (T) LTD	15	2	3	3,684	$120,000	$79,050	$235,920	$434,970	$28,998
SAFARI CLUB TANZANIA LTD	4	3	2	3,267	$60,000	$20,050	$3,950	$84,000	$21,000
SAFARI ROYAL HOLDINGS LTD	4	3	1	2,153	$30,000	$23,700	$47,750	$101,450	$25,362
SAID KAWAWA HUNTING SAFARIS LTD	2	1	2	1,653	$60,000	$6,200	$0	$66,200	$33,100
TANDALA HUNTING SAFARIS LTD	4	3	3	4,202	$90,000	$19,750	$44,990	$154,740	$38,685

Company	Total Clients	Number of Countries	Number of Blocks	Total Area (km^2)	Block Fees (USD)	Permit fees (USD)	Game Fees (USD)	Total Fees (USD)	Per client (USD)
TANGANYIKA GAME FISHING AND PHOTOGRAPHIC SAFARIS LTD	10	8	1	510	$30,000	$40,750	$71,100	$141,850	$14,185
TANGANYIKA WILDLIFE SAFARI CORPORATION	38	12	5	6,229	$180,000	$212,400	$396,950	$789,350	$20,772
TANZANIA BIG GAME SAFARIS LTD	7	2	2	2,942	$60,000	$53,850	$44,210	$158,060	$22,580
TANZANIA BUNDU SAFARIS LTD	29	6	3	6,880	$138,000	$115,850	$313,510	$567,360	$19,564
TANZANIA GAME TRACKER SAFARIS LTD	22	2	4	5,305	$180,000	$107,150	$184,580	$471,730	$21,442
TANZANIA SAFARI AND HUNTING (2003) LTD	1	1	2	2,078	$70,000	$6,750	$8,300	$85,050	$85,050
TANZANIA WILDLIFE CORPORATION LTD	27	5	3	3,548	$120,000	$129,800	$209,220	$459,020	$17,001
WEMBERE HUNTING SAFARIS LTD	13	6	5	9,087	$138,000	$70,400	$115,940	$324,340	$24,949
WENGERT WINDROSE SAFARIS (T) LTD	11	1	3	7,468	$100,000	$36,650	$81,070	$217,720	$19,793
WILD FOOTPRINTS LTD	4	2	2	11,081	$48,000	$22,800	$12,440	$83,240	$20,810
Total	**708**	**43**	**143**	**228,232**	**$4,687,000**	**$3,408,650**	**$5,081,844**	**$13,177,494**	**$18,612**
Average No Clients/company	**13**	**Average Revenue/block**			**$32,776**	**$23,836**	**$35,537**	**$92,150**	
		Average cost/Company			**$85,218**	**$61,975**	**$92,397**	**$239,591**	
		Revenue generation/Km^2			**$20**	**$15**	**$22**	**$58**	

The gross income per block to the Wildlife Division is therefore approximately $92,150 or $58/km^2, and of this amount 64% is dependent on fees paid by clients (Table 15). Each hunting client therefore pays approximately $18,612 in government related fees (block, permit and game) over and above any charges raised by the hunting company i.e. daily rates, air charter, dip and shipping of trophies etc.).

There is little difference between these data and those arrived at in the 2007 analysis (Booth, 2010) where the gross revenue per block was estimated at $90,956/block (Booth, 2010, Table 16).

Table 16: Comparison of revenue generation per block and per company: 2007 vs 2014

	2014	2007
Revenue/block	$92,150	$90,956
Revenue/Company	$239,951	$271,085
Revenue/Km^2	$58	-

This comparison is suggesting that the industry has not progressed significantly in terms of income generation under the current arrangements (assuming that these data are a true reflection of the industry). This is despite the considerable effort to re-classify the blocks, increase block fees and in some instances, increase the number of blocks available. In addition, quota allocation and utilisation does not differ significantly – in 2007 there were more clients but block fees etc. were lower while in 2014 there were fewer clients but block fees etc. have been increased.

This performance may also be a reflection of the strategy adopted by the 2010 Hunting Regulations to restrict the number of foreign owned companies in order to encourage greater participation of national companies. This approach is commendable but without experience and capacity in this highly personal and competitive industry, there is the risk that the new entrants are likely to underperform. The evidence of this is seen in the low number of clients secured by local companies and hence the revenue generated per hunting block (see Table 15 above).

To understand the factors at play here will require greater scrutiny of the individual companies to determine their marketing strategies and their capacity to operate in this environment.

5.2.1 Tanzania Wildlife Protection Fund

The Tanzania Wildlife Protection Fund (TWPF) was established in 1978 by the MNRT with the objective of facilitating and supporting wildlife conservation, inside and outside protected areas particularly in:

- Anti-poaching operations and law enforcement
- Operations of the Wildlife Protection Unit
- Wildlife conservation education, training and awareness creation in wildlife matters
- Capacity building in wildlife management
- Wildlife management research and any other activity related to conservation of wildlife.

TWPF receives 25% of revenue collected from game fees, block fees, capture permit fees, certificate of ownership, trophy dealer license and trophy export certificate. This accounts for approximately 75% of the funds available to the TWPF. Another source of funds is from the sale of the *Kakakuona* magazine.

The distribution of funds to the Wildlife Division depends on the collection of revenues in the year and as per approved budget. Funds for anti-poaching activities are received from two sources: namely the Treasury and TWPF. In 2010/11 the requested budget for anti-poaching was TZS10.0 billion but the actual amount received was TZS8.0 billion. Similarly, in 2011/2012 the budget was TZS14.9 billion while the actual amount received was TZS10.2 billion. Of these amounts, the TPWF released approximately TZS7.3 billion in 2010/11, and approximately TZS. 5.6 billion in 2011/12.

The annual target set by the Ministry is to conduct surveillance over 60% of the area under its control (i.e. approximately 70,000km^2), however for the period of 2010/11 and 2011/12 and the WD managed to cover approximately 37% and 47% a year respectively.

5.3 ESTIMATED INCOME GENERATION BY THE PRIVATE SECTOR

Although it has not been possible to obtain sufficient data from a representative sample of the hunting companies to determine their operating expenses, Table 15 summarises the performance of the 55 hunting companies that surrendered hunting permits in 2014. On average, each company secured 13 clients however there is a wide variation with Robin Hurt Safaris (44 permits) and Tanganyika Wildlife Safari Corporation (38 permits) being the most prolific individual companies. This changes when the various consortia are taken into consideration with the Sheni, Pasanisi, Raul, Harpreet and Akrum cartels heading the top of the list with 50 – 60 clients each per year.

Table 17 provides an indicative breakdown of the daily costs incurred to conduct a safari. This is estimated to be $1,680/day. Of this amount, logistics (35%) and daily hunting activity expenses (27%) are the most expensive costs. Added to this are a variety of local and national taxes (estimated here at 25%) that are incurred directly and indirectly by the hunting companies (gun licenses, radio and vehicle licenses, VAT, tourism taxes etc.). The basic daily cost of a hunting safari is therefore rounded up to approximately $2,250/day before profit, which is probably one of the highest baseline rates in the region.

This translates into approximately eight hunter days (at $2,250/day) that the company must sell to recover the cost of government related fees per client ($18,600, see Table 14). This is one reason why 5-day, 7-day and 10-day hunting packages are not popular in Tanzania.

Table 17: Indicative breakdown of the estimated daily safari costs (Data provided confidentially by three established operators).

Cost Item	Costs	%
Professional hunter(s) services: PH fees, meals, accommodation	$293	13
Safari field staff services: gun bearers, porters, drivers etc.	$138	6
Game scout allowances, accommodation & meals	$28	1
First aid medical kit in camps and hunting vehicles	$2	0.09
Fully equipped 4-Wheel drive vehicle	$197	9
Camp managers and supervisors	$74	3
Transport to/from Kilimanjaro Airport to Arusha	$14	0.64
Road transport and transfers within hunting blocks	$29	1
Access road construction & roadworks within hunting blocks	$20	1

Cost Item	Costs	%
Subtotal: Logistics, client services, staff, government allowances	**$795**	**35%**
Incidental costs incurred in the bush for safari staff	$68	3
Road work within hunting blocks to enable hunting to take place	$28	1
Radio communications between hunting camps & hunting blocks	$8	0.37
Block fees, TALA, TAHOA	$423	19
Quota under-utilization (40% rule)	$57	3
Anti-poaching related expenses and area maintenance - conservation	$20	1
Airstrip maintenance costs	$10	0.44
Subtotal: Daily Hunting Activities	**$614**	**28%**
Field preparation of trophies: Skinning, salting and skin drying	$44	2
Transfer of trophies to Arusha for further processing	$18	1
Dipping, processing and trophy treatment	Direct to client	
Crating, packing for exporting		
Export documentation for trophies		
Trained skinners, trophy contractors		
Trophy Handling, preparation and export	**$62**	**3%**
Camp accommodation: building expenses, running costs	$49	2
Camp supplies: transport costs (fuel, repair, drivers, license, depreciation)	$21	1
Camp food and beverage	$77	3
Camp non-consumables: (kitchenware, table ware, glasses etc.)	$2	0.09
Food and beverage services attendant: cooks, waiters and tent attendants	$61	3
Subtotal: Camp Accommodation, Meals and Beverage	**$210**	**9%**
Estimated daily cost	**$1,680**	
Estimated tax (VAT, licenses, tourism levy etc.) @25%	**$420**	
TOTAL ROUNDED	**$2,250**	

Using these data however, it is possible to arrive at some idea of the value of the hunting industry to the private sector (Table 18).

Table 18: Approximate number of hunter-days generated by the private hunting industry in Tanzania in 2014.

Permit type	28	21	14	10	7	5	Total
Total Permits (2014/15)	19	472	34	137	46	0	**708**
Potential Hunter days	532	9,912	476	1,370	322	0	**12,612**
Percentage	3%	67%	5%	19%	6%	0%	
Potential Hunter days/company (n=55)							**229**
Average No clients/company (Range 1-44)							**13**

Based on the number of permits issued in 2014, the 708 hunting clients generated 12,612 hunter days. Each company therefore is potentially worth 229 hunter days. In reality, many of the companies did not reach this target simply because they did not secure sufficient clients (see Table 15). At a basic daily rate of $2,250/day, the industry would break even and generate approximately $28,377,000. At $3,000/day it is estimated that the industry generated $37,836,000 in 2014.

The dilemma facing the industry is that these rates are higher than those charged by hunting industries in South Africa, Zambia, Mozambique, Zimbabwe and Namibia. To justify these rates, the Tanzania hunting industry has to offer prime hunting in terms of services (quality of camps, professional hunters, areas etc.) and be in a position to offer the "big four" trophies. Currently the cost of a lion safari in the region is $100,000 and above. The stringent regulations that apply to hunting of under aged lion in Tanzania has greatly reduced the demand for these trophies. Moreover, the recent ruling to classify lion as threatened in terms of the US Endangered Species Act as meant that this trophy is now only marketable to a few countries (Russia, Far East) where there are few potential clients. The financial impact of this decision has been significant and places the viability of several hunting blocks into question, especially those outside of the Game Reserves (see above for the number of vacant blocks).

The net result of the changes to the administrative and management environment over the last 10 years where trophy hunting is practiced is that the Tanzania hunting industry has shrunk by approximately 50% in terms of clients. In 2007 it was estimated to generate approximately US$40 million/year. Currently it is doubtful whether the industry grosses $35 million/year.

Yet the industry is still called upon to manage a vast area both inside and outside of the Game Reserves. When considering that most funds to support law enforcement are generated from game fees (the TWPF receives 25% of the game fees), and that most established companies apply a mark up to their trophy fees to support community development, the future of many of these wilderness areas is under considerable threat.

5.3.1 Contribution to conservation management by private hunting companies

This assignment attempted to retrieve baseline socio-economic information from the Tanzania hunting operators using a dedicated questionnaire (see Annex I). This was unsuccessful. Moreover, it was not possible to gain access to the reports submitted by the hunting companies to the Wildlife Division that summarised their operations. However, under a separate initiative, 27 safari hunting operators provided "Operator Enhancement Reports" to Conservation Force describing their contributions to anti-poaching, community assistance, habitat protection, wildlife monitoring (http://www.conservationforce.org/brochures-posters-reports)[10]. The highlights of this report are summarised below.

In the 2013-2015 period, their contributions are estimated to be $9.8 million, which is over and

[10] The 27 companies are: Bushman Hunting Safaris, Rungwa Game Safaris, Tanzania Bundu Safaris, Game Frontiers of Tanzania, Royal Frontiers of Tanzania, Northern Hunting Enterprises, Old Nyika Safaris, Safari Royal Holdings, Robin Hurt Safaris, Tanzania Big Game Safaris, Tandala Hunting Safaris, Tanzania Safaris & Hunting, Tanzania Wildlife Company, Michel Mantheakis Safaris, Kilombero North Safaris, Malagarasi Hunting Safaris, Wembere Hunting Safaris, Mwanauta Company, Tanganyika Game Fishing & Photographic Safaris, Marera Safaris Lodge and Tours, Pori Trackers Africa, East Africa Trophy Hunters, Kiboko Hunting Safaris, Tanganyika Wildlife Safaris Corporation, Bartlette Safari Corporation, Fereck Safaris, and Gerard Pasanisi Safari Corporation.

above any government fees. These hunting companies manage 74 hunting concessions both inside and outside of the Game Reserves that cover 40% (121,423 km²) of the hunting concessions in Tanzania.

ANTI-POACHING

All 27 hunting operators deploy anti-poaching units in their hunting concessions, and each hunting operator implements a year-round anti-poaching programme that addresses the concession's specific poaching threats. Eleven of the operators maintain records of patrol days and recorded 7,170 patrol days in the 2013-2015 period. The average anti-poaching unit has six to eight members, including a government game scout who has the sole mandate to arrest poachers. To combat the different forms of poaching in the hunting concessions, the hunting operators have employed various tactics including:

- Renting a helicopter to monitor the concessions.
- Purchasing boats to monitor poacher movements on lakes and rivers within the concessions.
- Using cameras traps along paths known to poachers to determine poacher location and times of movement.
- Establishing informer networks in the villages and providing rewards for information leading to arrest of poachers or seizure of contraband
- Sending all company anti-poaching scouts to the Pasanisi Wildlife College for training.

These anti-poaching operations are funded from hunting revenue and from hunting client contributions. Three of the parent companies, representing nine Tanzanian hunting operators, have created foundations by which conservation-driven individuals may donate to anti-poaching and community investment. The foundations are almost totally funded by their hunting clients and revenue.

Anti-poaching expenses include: vehicles (Land Cruisers, motorcycles, boats, custom anti-poaching vehicles, etc.), fuel, vehicle maintenance, cell and satellite phones, high frequency radios, salaries, uniforms, firearms, tents, rations, road maintenance, bonuses, and rewards for informants etc. #

From 2013-2015, the sample hunting operators on average spent $82,928/year on anti-poaching and road opening (Table 19).

Table 19: Estimated cost of anti-poaching operations by 27 hunting companies: 2013 - 2015

	2013	2014	2015	2013 - 2015
Anti-Poaching & Road Opening Contribution	$1,683,268	$2,724,113	$2,309,778	$6,717,160
Average Spent Per Operator	$62,343	$100,893	$85,547	$248,783
Average Spent Per Concession	$22,746	$36,812	$31,213	$90,772

COMMUNITY INVESTMENT AND PARTICIPATION

The Wildlife Conservation (Tourist Hunting) Regulations of 2015 require all hunting operators to contribute a minimum of $5,000.00 towards community investment and participation per concession per year. The data provided by the 27 operators indicates that this minimum is exceeded through their contributions towards health care, education, village governance and water infrastructure. They also make extensive contributions of game meat, employ community members both full-time and seasonally and sponsor conservation workshops to educate rural residents about the value of their wildlife

resources. Cash donations for specific projects are made when called upon (e.g. to support official functions and to improve community livelihoods).

The operators' camp staff is comprised on average of 41.5% of residents from local villages. Twenty-three of the operators reported providing 1,241 permanent jobs. Furthermore, every hunting operator employs community members for short-term employment to assist the operator in road opening and camp building prior to the season. It is estimated that from 2013-2015, the 27 operators spent $3,125,830.00 on community investment and participation (Table 20).[11]

Table 20: Estimated community investment and participation expenditure by 27 hunting companies: 2013 - 2015.

	2013	2014	2015	Total
Community Participation and Investment Contribution	$969,546	$1,083,042	$1,073,242	$3,125,830
Average Spent Per Operator	$35,909	$40,112	$39,749	$115,771
Average Spent Per Concession	$13,101	$14,645	$14,503	$42,240

HABITAT PROTECTION

The hunting operators combat against loss of habitat through regular antipoaching monitoring, through community development incentives, and in some specific ways targeted at timber poaching and cattle encroachment.

The operators' anti-poaching units are not solely focused on wildlife poaching but also extend to protecting habitat. The main forms of illegal habitat destruction are timber poaching, charcoal burning, and cattle encroachment. The operator patrols prevent local residents from encroaching on the areas set aside for wildlife and create crucial buffer zones around national parks. Timber poaching is focused at hardwoods such as *mninga* and ebony.

CONCLUSION

From 2013-2015, the 27 operators reporting here have spent $6,717,160 on anti-poaching and road opening. Community investment and participation projects incentivize the communities to join the operators in being co-stewards of wildlife and habitat within the concessions. During the same period, the operators spent $3,125,830 on community investment and participation.

5.4 Comparative analysis of the Tanzanian hunting industry with Regional hunting industry in the region

Reliable data showing the gross income and number of hunting clients visiting countries in Africa is scant, and inconsistent. Data from 8 countries for which both gross income and number of hunters is available is provided in Table 21. These data are summarised by year to show the gross number of hunters and income for those countries where data are available.

[11] Additional community investment and participation was documented by the Friedkin Conservation Fund (http://allafrica.com/stories/201606280520.html).

The total area available for hunting in these countries is approximately 1,059,593km^2. The average number of hunting clients per year visiting these countries between 2000 and 2015 is 3,083/year with South Africa recording the highest and Ethiopia the lowest. Average gross income (USD) to the private sector over this period is estimated to be approximately $36.325 million/year but varies widely from $1.3 million (Ethiopia) to $156 million (South Africa). An average of 3,083 clients visited these 8 countries/year (Range 50 – 9,138) and paid on average $11,782 per safari.

On a year-by-year basis, the average spend per hunter has remained relatively constant across all countries at $12,825/hunter (Range $5,314 - $29,882). The wide variation is an artefact of the data from those countries offering "big game" safaris (Tanzania, Zambia, Zimbabwe) as opposed to predominantly "plains game" hunting, i.e. Namibia.

Tanzania, as a hunting destination, is at the top end of the scale with the average cost of $26,000 - $40,000 per hunter. As mentioned above, the structure of hunting charges imposed by Tanzania make it one of the most expensive destinations in the region. It is also worth noting that the total number of buffalo trophies taken in South Africa in 2014 and 2015 now exceeds the number taken in Tanzania, and are being sold at prices that are competitive with Tanzania.

Coupled with the bans imposed on the export of elephant and lion, its rigid permitting system and the high cost of operating in Tanzania (c. $1680/hunter day), hunting in Tanzania is under severe pressure. The impact of this operating environment is having a major impact on the financial viability of the industry which has seen a decline in the number of hunters visiting the country and the return of a high proportion of hunting blocks at the end of 2016. If this trend continues, there is a high probability that the area set aside for hunting will decline significantly in the next 5 years, particularly in areas outside the Game Reserves. This will make the future of wildlife in the WMAs more dependent upon the community-based wildlife initiatives. Those that have little or no attractiveness as photographic destinations are particularly precarious.

Table 21: A comparison of hunting statistics from Sub-Saharan Africa. Note: *_Zimbabwe includes 10 CAMPFIRE areas (37,000km²)._

Country	Hunting Area (km²)	Percentage of country	Year	Number of hunters per year	Private Sector Revenue (USD)	Average spending per hunter	Source
Botswana	75,552	13%	2000	339	$12,600,000	$37,000	ULG, (2001)
			2004	350	$20,000,000	$57,142	Peak, (2004)
Ethiopia	7,579	1%	2004	50	$1,300,000	$26,000	In: Lindsey, Roulet, and Romanach (2007)
			2008	57	$1,500,000	$26,316	Seige, (2010)
Mozambique	134,944	17%	2008	542	$5,000,000	$9,225	Booth, (2010 & 2012)
Namibia	168,920	21%	2000	3,644	$19,600,000	$5,379	Humavindu and Barnes, (2003)
			2005	5,363	$28,500,000	$5,314	Damm, (2005)
South Africa	150,000	12%	2006	8,530	$100,000,000	$11,723	PHASA, (2006)
			2011	9,138	$125,000,000	$13,679	Kitshoff, (2013) Chief Executive Officer, PHASA
			2012	8,500	$156,000,000	$18,353	Van De Merwe et al., (2013)
			2012	6,554	$98,000,000	$14,953	Dept. Environmental Affairs
			2013	7,638	$113,000,000	$14,794	Dept. Environmental Affairs
Tanzania	266,914	28%	2004	1,654	$27,600,000	$16,687	Baldus and Cauldwell, (2004)
			2008	1,673	$44,000,000	$26,300	Booth, (2010)
			2014	708	$28,300,000	$39,972	Booth, this study
Zambia	177,404	22%	2004	250	$5,000,000	$20,000	Baldry, (2004)
Zimbabwe*	78,280	20%	2002	1,874	$16,000,000	$8,538	Booth, (2002)
			2006	1,900	$19,100,000	$10,053	Reserve Bank of Zimbabwe
			2007	1,580	$15,800,000	$10,000	Reserve Bank of Zimbabwe
			2014	2,200	$26,100,000	$11,864	Chitauro, 2016. Reserve Bank of Zimbabwe
			2015	2,200	$24,400,000	$11,091	Chitauro, 2016. Reserve Bank of Zimbabwe
Total	**1,059,593**		**Average**	**3,083**	**$36,325,000**	**$11,782**	

Year	Area (Km^2)	Number of hunters per year	Private Sector Revenue (USD)	Average spending per hunter	Number of Countries
2000	244,472	3,983	$32,200,000	$8,084	Botswana, Namibia
2002	78,280	1,874	$16,000,000	$8,538	Zimbabwe
2004	395,479	1,192	$26,300,000	$22,064	Botswana, Ethiopia, Tanzania, Zambia
2005	168,920	5,363	$28,500,000	$5,314	Namibia
2006	228,280	8,530	$119,100,000	$13,962	South Africa, Zimbabwe
2008	409,437	2,272	$50,500,000	$22,227	Ethiopia, Mozambique, Tanzania
2011	150,000	9,138	$125,000,000	$13,679	South Africa
2012	150,000	8,500	$98,000,000	$11,529	South Africa
2013	150,000	7,638	$113,000,000	$14,794	South Africa
2014	345,194	2,908	$54,400,000	$18,707	Tanzania, Zimbabwe
2015	78,280	2,200	$24,400,000	$11,091	Zimbabwe
Average	**239,834**	**5,360**	**$68,740,000**	**$12,825**	
Range	**78,280 - 409,437**	**1,192 – 9,138**	**$16,000,000 - $125,000,000**	**$5,314 - $29,882**	

5.5 Trophy Hunting and Wildlife Management Areas

The Tanzanian CBNRM initiative that established pilot WMAs in 2003 has been the focus of numerous studies and reviews that heavily criticise the process and question whether communities receive the full benefits from wildlife use. One of the first comprehensive reviews to assess and evaluate WMAs was undertaken in 2006 by group of imminent academics from various Universities and Institutions in Tanzania (IRA, 2007). At this time, 16 pilot WMAs were established but only a few that had participated in CBNRM programmes around the Selous Game Reserve benefited from access to legal game meat and revenues derived from sale of quotas in WMAs to resident hunters and from private tourist hunting companies. Some photographic safari companies entered into local agreements with villages adjacent to the Western Serengeti (e.g. Robanda village in Ikona[12]) while WMAs such as the Pawaga-Idodi WMA in Iringa District managed by the MBOMIPA association, earned income by selling wildlife quotas to resident hunters.

Direct benefits to communities at that time was therefore marginal and depended largely on non-obligatory contributions from hunting companies operating in these areas. This is reflected in the 2007 analysis undertaken by Booth (2010) that indicated the communities received approximately 3% in benefits from the hunting industry. The IRA review identified numerous challenges facing the WMA process.

- The process of establishing WMAs is long and cumbersome, and capital-intensive.
- Conflict over land alienation for parks and game reserves contributed substantially to the lack of progress on the establishment of WMAs (e.g. Tarime and Loliondo).
- WMAs that attained AA status and resource User Rights lacked capacity to develop bankable business and strategic plans to manage the WMAs as businesses.
- Poor governance, transparency and accountability plagued village CBOs and Village Councils.
- Villages with rich wildlife and/or potential for investors experienced resistance to the WMA process and the conflicting interests from some NGOs.
- Benefit sharing between the Central Government and the local communities, and between villages with different land sizes that contributed to the WMAs or with different resource bases, was not well defined.
- The Regulations in force at the time ignored the importance of other resources (forests, water, minerals, and land), which could contribute to poverty alleviation.
- Lack of harmonization of policies and legislation contributed to uncertainties and conflicts.
- The different socio-economic conditions and cultural lines within and between WMAs were not fully appreciated, requiring different approaches to planning.

[12] The Citizen (Dar es Salaam), 25 April 2008, Posted to the web 25 April 2008, Felix Mwera
Five villages which control the Ikona wildlife management area in Serengeti district, are set to earn Sh570 million for leasing part of their land to a hunting company during the next three year. Serengeti District Council chairman John Ngoina told journalists here yesterday that the land is to be leased to Grumeti Reserves Limited, an American hunting company. Villages to benefit from the lease funds and which plan to invest the same in community related projects are Natta, Nyakitono, Nyichoka, Park Nyigoti and Robanda. The hunting company will be paying the villages Sh190 million annually during the next three years. The hunting company will also pay another Sh100 million fee to the district council as hunting quota during the same period. The funds will be distributed to the wards to mainly to support community-initiated projects.

Practitioners in CBNRM held high expectations, including the international donor community (USAID invested $27 million in capacity building between 2003 - 2012) but progress was frustratingly slow. By the end of 2012, 17 WMAs had been gazetted, with a further 21 in the pipeline (Table 22, WWF, 2014).

Table 22: Registered WMAs of Tanzania in 2012 and corresponding income from hunting and photo-tourism (Data source: WWF, 2014)

WMA Name	Year started	Year Gazaetted	District	No villages	Area (km^2)	Population (2002)	Income (US$) *	
							Hunting	Photo
Ngarambe-Tapika	2003	2006	Rufuji	2	731	2,514	$138,217	-
Mbarang'andu	2003	2006	Namtumbo	7	2,318	75,170	$48,265	-
Uyumbu	2003	2006	Urambo	4	870	17,075	$5,808	-
Burunge	2003	2006	Babati	10	280	19,989	$55,143	$823,771
Ipole	2003	2006	Sikonge	4	2,540	8,884	-	
Wami-Mbiki	2003	2007	Mvomero, Bagamoyo and Morogor Rural	24	4,000	65,935	-	$30,000
Enduimet	2003	2007	Longido	9	1,282	47,103	$36,042	$264,675
Idodi-Pawaga	2003	2007	Iringa Rural	21	773	56,724	$48,794	$256,658
Ikona	2003	2007	Serengeti	5	242	21,057	$186,197	$1,357,171
Tunduru	2003	2007	Tunduru	9	1,391	8,941	$39,066	-
Liwale	2003	2009	Liwale	9	3,442	15,688	$44,869	-
Makao	2003	2009	Meatu	7	769	2,928	$33,723	-
Makame	2003	2009	Kiteto	4	3,719	10,664		
Ukutu	2008	2010	Morogoro Rura	21	640	58,020	$56,681	-
Chingoli	2008	2012	Tunduru	4	938	No data	-	-
Kimbanda	2008	2012	Namtumbo	5	2,150	22,185	-	-
Kisungule	2008	2012	Namtumbo	3	1,345	11,813	-	-
Total			**17**	**148**	**27,430**	**444,700**	**$764,391**	**$2,702,275**

* Income: 2006 - 2012 (extracted from Tanzania's Wildlife Management Areas 2012 Status Report (WWF 2014)

These WMAs are scattered across the landscape, many bordering National Parks and Game Reserves (Figure 8). The 17 registered WMAs contributed more than 3% of the country's total land area and it was anticipated that the additional 21 WMAs would add a further 4%.

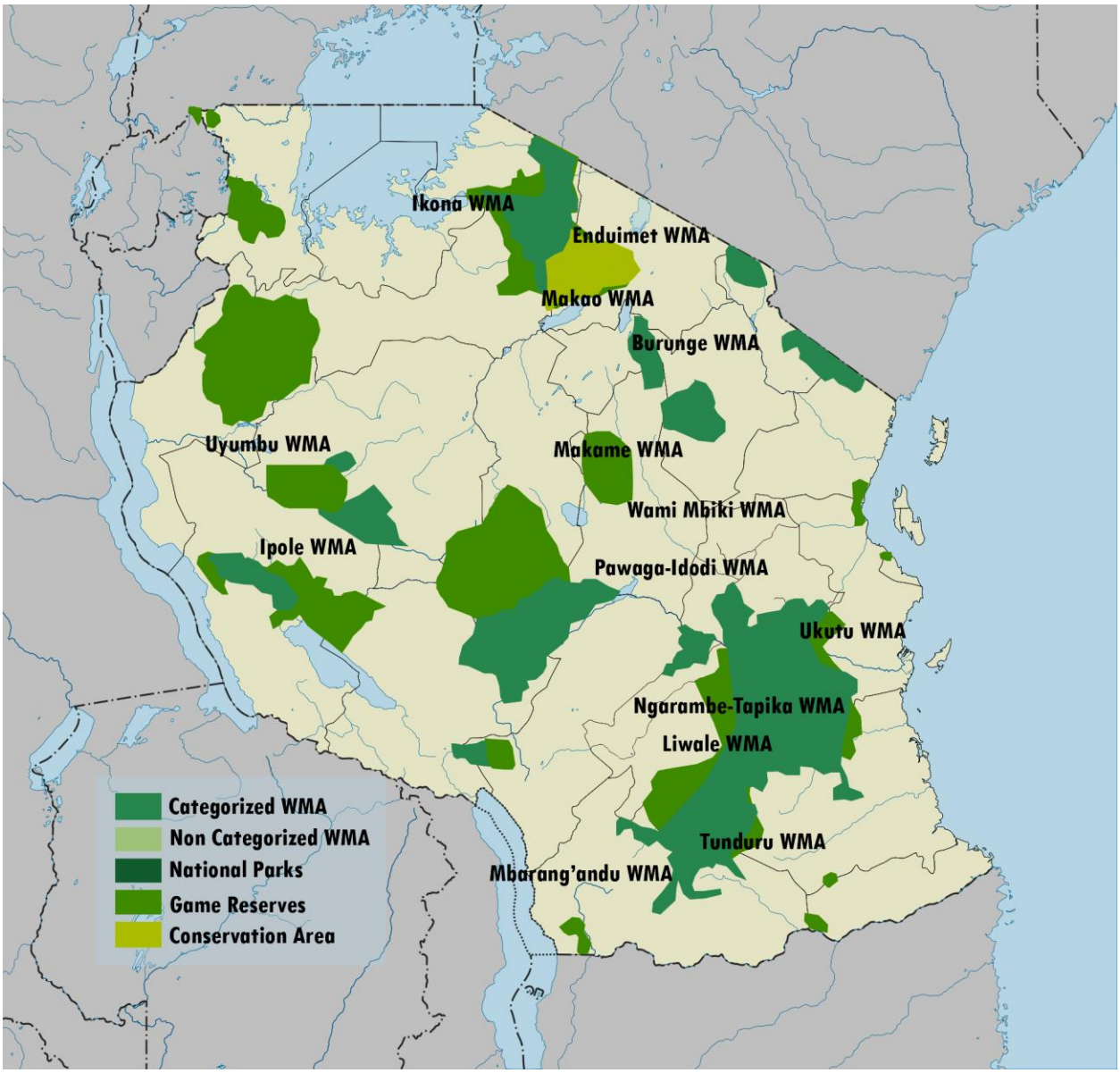


Figure 8: Overview of the location of the WMAs (Map extracted from the AAC: http://www.twma.co.tz).

The location of these WMAs relative to the major protected areas served as buffer zones and facilitated migratory corridors. It was envisaged that wildlife populations in these areas would steadily increase with better management i.e. village game scouts employed to monitor and protect wildlife within the WMA boundaries, prevent illegal encroachment into the WMAs and respond to incidents of human-wildlife conflict. In reality, the WMAs faced many challenges and most lacked the resources and capacity to deal with illegal hunting, cattle invasions etc. The least of which was that although the communities had the opportunity to acquire new skills, they lacked essential skills in contract negotiations, management, organizational, and financial management. Moreover, the ability of a WMA to generate revenue and attract suitable investors is dependent on its location, presence of wildlife species of interest, and availability of quality infrastructure and length of tenure. There is a great disparity among the WMAs with the result that some are far less attractive and have far less wildlife and

earning potential than others. WMAs nestled against the large parks with vast wildlife resources and established infrastructure, such as Ikona WMA in northern Tanzania adjacent to the Serengeti are far better positioned to attract investors (e.g. Legendary Adventures, http://tgts.com/) than WMAs in southern Tanzania between the Selous Game Reserve and the Mozambique border that have limited wildlife, are remote locations and have relatively poor infrastructure.

5.5.1 Performance of WMAs in the tourism sector: 2006 - 2012

Those WMAs that were successful in negotiating contracts with private sector investors were required to share the income generated between the central and local government and the WMA (see 5.3.3 and Table 4 above). The revenues retained by the WMA is further shared between the AA and its member villages. The AA is required to allocate at least 15% of its gross revenue for natural resource development (including coverage for village game scout salaries), at least 50% for disbursement to WMA member villages and at least 25% for AA management costs. The AAs can use the remaining 10% as they deem fit.

Prior to the 2012 WMA Regulations, Burunge, Ikona and Idodi-Pawaga received the revenue directly from the investor, and then they paid the government its share. Only Enduimet's revenue was paid directly to the government after establishment. The various fees charged for photographic tourism activities included concession fees, bed fees, wildlife activity fees (game viewing, walking safaris, night game drives, bird watching and boating), vehicle entry fees, aircraft landing fees, commercial photography fees, etc. The concession fees are part of the tender selection process and can therefore be negotiated. AAs can also negotiate higher than regulated fees for per-person bed night fees (for example). The law also required that the investor pay a minimum non-refundable deposit of US$25,000 to the Director of Wildlife on behalf of the WMA and the District Council.

Data presented in the Wildlife Statistical Bulletin records that 12 WMAs received Tsh1,718 million shillings (approximately US$1.3 million[13]) from 25% of tourism between 2006 and 2010 (MNRT, 2103).

In 2012, four of the 17 registered WMAs had secured investments to develop the photographic opportunities (Burunge, Enduimet and Ikona in northern Tanzania and Idodi-Pawaga in the southwest of Tanzania). Idodi-Pawaga has received revenue from photographic tourism activities since 2003, and all four started to generate tourism revenue in 2006, three years after establishment. These four WMAs also had safari hunting operations and, because of this diversification, tended to perform significantly better than the other WMAs in terms of revenue generation (WWF, 2014). The gross revenue from photographic tourism activities is paid directly to the government, which then distributes it: 20% to the Wildlife Division, 15% to the District Council and 65% to WMAs.

With regard to trophy hunting 16 of the 17 blocks had designated portions of their areas as hunting blocks. Of these, 13 generated incomes from hunting activities. Moreover, prior to 2012, the block fee was set at US$27,000 each for the season. This changed following the categorisation exercise undertaken by TAWIRI that saw some blocks receiving increased block fees and others less. The AAs can negotiate higher than minimum block fees with prospective investors (as was the case with the Ikona WMA) but is unknown whether any of the other AAs were able to or have taken advantage of this.

[13] http://www.usforex.com/forex-tools/historical-rate-tools/monthly-average-rates

The 2012 WMA Regulations also paved the way for AAs to advertise investment opportunities and 8 AAs took advantage of this. Since then a further 5 AAs have been advertised (Enduimet, Indema, Chingoli, Kimbanda and Kisungule).

Twenty game viewing lodges operating in the four WMAs have 500 beds between them. These 4 WMAs were able to increase their revenues from $63,000 to $903,000 annually, which outperformed the 13 WMAs with hunting agreements. It should be noted however, that two of these WMAs are supported by philanthropic investors, and as such, the income to these WMAs is inflated above the actual market value.

Overall, between 2006 – 2012, the 16 hunting blocks in WMAs generated $764,391 from hunting and $2,702,275 from photo-tourism. Several blocks remained vacant and although advertised, failed to attract investors (Table 22).

5.5.2 Status of WMAs – March 2016

Overall income from hunting activities for the period 2012/13 – 2015/16 (four years) is summarised in Table 23. Overall $1,913,200 accrued from hunting, more than double that generated between 2007 – 2012. No data are available for photo-tourism income.

When split across the various institutions, the share due to WMAs from block, game, conservation and permit fees was $1,148,100 or 60% of the overall income.

Table 23: Summary of income generated by WMAs between 2012 - 2016 from hunting activities (Data provided by the Wildlife Division).

Benefit sharing	Total collected	Percentage split			
		WMA	TWPF	District	Treasury
Game Fees	$538,000	45%	25%	15%	15%
Block Fee	$1,038,000	75%	25%	0%	0%
Conservation Fee	$256,400	45%	25%	0%	30%
Permit Fee	$80,800	15%	25%	0%	60%
Game Fees		$242,100	$134,500	$80,700	$80,700
Block Fee		$778,500	$259,500	$0	$0
Conservation Fee		$115,380	$64,100	$0	$76,920
Permit Fee		$12,120	$20,200	$0	$48,480
Total (N= 4 years)	**$1,913,200**	**$1,148,100**	**$478,300**	**$80,700**	**$206,100**
	Overall %	**60%**	**25%**	**4%**	**11%**

An AA is required to disperse the funds it received according to the formula outlined below (Table 23). When comparing the performance between 2007/12 (N=6 years, data extracted from the WWF, 2014 report "Tanzania's Wildlife Management Areas: A 2012 Status Report") and 2012/15 (N= 4 years, data provided by the Wildlife Division), it is noted that the approximate gross income to WMAs from hunting has increased. When this is split according to the AA management requirements (i.e. villages receiving 50% of the income), the per village share has increased from approximately $424/village prior to 2012 to $956/village after 2012. It is regrettable that income data from tourism is not available for the 2012/15

period. Nonetheless, the performance of the WMAs is demonstrating a slow improvement, albeit this performance could be significantly greater if WMAs were able to market their areas unfettered by the restrictions imposed by the legislation and receive 100% of the revenues (Table 24).

Table 24: Comparison of income accruing to WMAs from hunting and tourism investments, and approximate annual income to villages and people (Data extracted from WWF, 2014).

		2013 -2015 (N=4 years)		2007 -2012 (N = 6 years)	
AA Financial Management		**Hunting**	**Tourism**	**Hunting**	**Tourism**
Gross income		$1,148,100	N/A	$764,391	$2,702,275
Natural Resource Development	15%	$172,215		$114,659	$405,341
Village Dividend	50%	$574,050		$382,196	$1,351,138
AA Management	25%	$287,025		$191,098	$675,569
AA Investment	10%	$114,810		$76,439	$270,228
Income/village/year (N=150 villages)		**$956**		**$424**	**$1,501**
Income/person/year (N=440,000)		**$1.29**		**$0.86**	**$3.04**

In March 2016, the AAC provided an update on the status of the 20 active and inactive WMAs, which is summarised in Table 25. The WMAs potentially should raise $612,000 in block fees according to the grading system. In reality, $480,000 was generated from those blocks that had secured investors. It is not known whether any of these WMAs have negotiated fees over and above the minimum block fee.

Table 25: The status of the 15 active and 5 inactive WMAs registered with the AAC in March 2016 (Data provided by the AAC).

Hunting Block	Operator	Block Category	Block Fee	Actual Paid	Villages
Burunge WMA	EBN HUNTING SAFARIS LTD	I	$60,000	$60,000	10
MBOMIPA WMA-Mkupule/Kinyangesi	MKWAWA HUNTING SAFARIS (T) LTD	III	$18,000	$18,000	21
Makame WMA Irlkishbor	MASAI PLATEAU (T) LTD	II	$30,000	$30,000	
Makame WMA -Masai East	FERECK SAFARIS LTD	III	$30,000	$18,000	
Makame WMA -Masai South		II	$30,000		
Makame WMA -Talamai		II	$30,000		4
Magingo WMA-Hokororo	WHITE LION LTD	II	$30,000	$30,000	
Magingo WMA-Nachengo	AYMANOUF SAFARIS LIMITED	II	$30,000	$30,000	
Magingo WMA-Naimba Plains		II	$30,000		
Magingo WMA- Kihurumila		Photographic block			
Magingo WMA- Namawe		II	$30,000		9
Enduimet WMA- Engasurai	SHANGRI-LA WILDLIFE GAME AND TROPHY HUNTERS LTD	I	$60,000	$60,000	9
Makao WMA	MWIBA HOLDINGS LIMITED	II	$30,000	$30,000	7
JUKUMU/UKUTU WMA-Kidunda Gonabisi	GREENMILES CO. LTD	III	$18,000	$18,000	21
Mbarangandu WMA	GAME FRONTIERS OF TANZANIA LTD	II	$30,000	$30,000	7
Ngarambe/Tapika WMA- Lung'onya	HSK SAFARIS CO LTD	II	$30,000	$30,000	2
Ikona WMA-FortIkoma	GRUMETI RESERVES (T) LTD	I	$60,000	$60,000	5
Ugunda GCA-Ipole WMA	NORTHERN HUNTING ENTERPRISES LTD	III	$18,000	$18,000	4
Nalika WMA	AFRICAN INSIGHT SAFARIS LTD	II	$30,000	$30,000	9
Uyumbu WMA	AFRICAN BUFFALO SAFARIS TRACKERS LTD	III	$18,000	$18,000	4
		TOTAL	**$612,000**	**$480,000**	**112**

6 CONCLUSIONS AND RECOMMENDATIONS

The study to assess the economic value of the Tanzania hunting industry experienced a number of challenges, especially accessing critical data related to the socio-economic environment. The WD cooperated fully in providing data, although not always timeously. Analysis of the data was, however, complicated as a result of (for example) incorrect cross referencing, reconciliation of official and unofficial block transfers. Resolving these issues took time to avoid confusion and misinterpretation of the performance data of some blocks/company returns. Except for one or two operators, no data was provided by the industry to support their contribution to the conservation of the various hunting blocks.

In summary, the following conclusions were made:

1. **Quality of the databases**: The data collected through the permit and licensing system is comprehensive and robust. However, the fact that there are 167 blocks awarded to 55 companies, and quota allocation involving over 75 species of mammals, reptiles and birds[14] means that it is difficult to manage. Errors are unavoidable, especially as the data base relies on the use of names. Any misspelling, or transposing of numbers introduces errors that impact on the conclusions of the reports that can be generated. For example, 93 duplicate hunting permits were recorded out of 804 entries registered in the database.
2. **Wildlife Policy**: The WD is still working according to the 2007 Wildlife Policy, and has not adapted to the rapidly changing environment in the wildlife sector. This has an impact on the future development of TAWA, and how this new institution is likely to interact with developments of the WMA. For example, the former Minister announced that the 2012 WMA regulations are to be reviewed, but this was not followed through when there was a change in the Ministry. If this is enacted, it is unclear whether this will substantially improve the benefit flow to communities.
3. **Legislation**: The proposed 2013 Wildlife Act, that will guide the activities of TAWA, has yet to be gazetted. However, this Act does not differ significantly from the 2009 Act especially with respect to the administration and management of the hunting sector. On the other hand, the 2015 Regulations are comprehensive and contain sufficient safeguards to ensure that wildlife is utilised sustainably and transparently. It falls short however with respect to day-to-day administration in the field (completion of permits, over/under quota utilisation, obligatory payments to communities etc.). It is especially weak in the governance of block and quota allocations which will move to the Director General of TAWA.
4. **Block categories**: After several years of applying uniform block fees (which gradually increased from $7,500 to $27,000), the WD has adopted a sliding scale that places the blocks (including those in WMAs) into one of 5 categories. This attempt to match block quality with a fair price has not fully achieved its objective. The bulk of the blocks are classified as Category II with a fee set at $30,000. This does not differ significantly from the uniform fee of $27,000 that was applied prior to 2009. Block fees are also set for the duration of the contracts, with no attention given to inflation. For example, the Tanzania shilling has devalued from approximately Tsh1,300: USD in 2008/10 to Tsh2,200: USD in 2015/16. It is also alleged that the process has been influenced and manipulated so that some blocks are deliberately downgraded. Moreover, the WD has persisted with a rigid block fee system, and although AA's are encouraged to negotiate higher prices, the WD does not adopt this strategy in its own process. The opportunity to determine the market value of the blocks is therefore lost.

[14] List of all animals, together with their common and Swahili names are provided in the Annex IX

5. **With regard to the WMA:** The reclassification process has prejudiced some areas that have been downgraded to Category III and lower, although the AA are able to negotiate higher block fees. This flexibility is commendable however, the operating environment (5-year tenure, quotas set by the WD, appointment of operators vetted by the WD) is not conducive to attracting long-term investors. With the appropriate contractual environment, many of these understocked wildlife areas could recover to become highly lucrative areas.
6. **Block Allocation**: Awarding blocks still remains with the Minister following the recommendations of the Allocation Committee. This aspect of the Tanzania hunting industry has come under heavy criticism for its lack of transparency. Moreover, despite tightening up the regulations, the process has been easily manipulated to the advantage of individual persons and companies. The block allocation system has, to a degree, encouraged the participation of local nationals, but probably at the expense of performance. It should also be noted that not all blocks are being bid for, some blocks are being abandoned midway through the terms, and with some blocks the fees are not collected upfront but are used for a period before being returned.
7. **Performance of the industry**: Income generated by the WD from Block, Game and Permit fees has not increased significantly since 2012, averaging US$16 million/year. This study suggests that the average income per block in 2014/15 (approximately US$92,000/block) is similar to that recorded in 2007. The data also suggest that the industry has shrunk by 50% since 2007 as indicated by the number of clients and hunter days, as well as the percentage quota offtake. The reduction of key safaris for lion and elephant, and a much reduced use of buffalo may be the cause of this decline, but the introduction of several new, but inexperienced, operators who have yet to establish sound reputations may also have played a part in this. In contrast, the performance of the WMAs shows a marginal improvement since 2012, mostly as a result of an increasing number of the blocks being taken up by investors. There is potential to improve and accelerate this growth, but this will require changes to the regulatory environment and improved capacity of the AAs to effectively market and develop the WMAs. Currently there are insufficient incentives to attract long term investors to take advantage of the opportunities that exist[15].
8. **TAHOA**: Without being fully involved, it is not possible to draw any conclusions regarding the efficacy of TAHOA. There is a cadre of individual members who are active with supporting law enforcement, and fund raising for equipment such as helicopters and vehicles. There is, however, little evidence that suggests that, as an organisation, they are addressing the international pressures that strongly condemn the transparency of the industry or its governance. The most recent example of this is seen in the report by the Democratic staff of the House Committee on Natural Resources (USA) that "*found that in many cases trophy hunting in these countries does not have a clear nexus to conservation of the focus species. Further, we found that poorly managed trophy hunting can be detrimental to these species. Factors included weak institutions and governance, a lack of transparency in how revenues associated with trophy hunting are managed, a failure to do away with unsustainable hunting practices and an inability to control wildlife poaching".* Clearly the private sector, through its association, needs to address the massive negative press associated with the hunting industry Tanzania.

[15] See http://www.thecitizen.co.tz/oped/To-save-the-jumbo--make-wildlife-management-areas-effective/1840568-3795296-ykc5jvz/index.html

6.1 RECOMMENDATIONS

Drawing on the conclusions arrived at here, the following recommendations are offered:

1. **Database:** The tourism hunting database held by the WD is probably one of the most comprehensive in the region. The data contained in this database should be used to defend the tourism hunting industry in Tanzania to demonstrate how this is contributing to the sustainable use of wildlife across the numerous hunting blocks. In addition to informing the government, these data could be potentially used by the hunting lobby to inform international organisations and NGOs by supplying more appropriate and relevant information to its members, the public and other interested groups. This will, however, require that the WD further invests in and develops capacity to manage the its database, and provide information to its stakeholders.
2. **Wildlife Policy and legislation:** The wildlife sector is undergoing a transformation with the establishment of TAWA. This presents an opportunity to the WD to review its policy, particularly related to community conservation. In this way, the draft 2013 Act can be aligned to propose community based wildlife land use. It also provides a platform for TAWA to develop a robust strategy that can consolidate its position in the coming years. For example, TAWA could investigate approaches to engage with the hunting industry that provided greater security of tenure, and devolving greater autonomy to WMAs.
3. **Block allocation:** The WD/TAWA are about to embark on the process of re-allocating hunting blocks following the expiry of the current 2013 – 2018 tenure. The period leading up to the renewal of the blocks has traditionally caused a great deal of stress as a result of non-transparency in performance, non-transparency in category assignment, failure for block bidders to pay, lack of emphasis on sustainability and custodianship (not to mention experience) in ranking companies during block allocation culminating in accusations of manipulation and corruption. Despite the convoluted application process, the track record shows that for many years, the established operators have successfully secured their blocks. To avoid this and bring stability to the hunting industry, it is recommended that:
    a. The current established hunting companies are offered long term agreements (e.g. 10 – 15 years) for blocks that they have traditionally secured. However, this offer is to be accompanied by clear conservation and business plans that provides incentives to the operators to invest in the monitoring, management and development of the block. The right to hunt fee can be established based on the historic performance track record and negotiated with the respective operator. If the respective operator declines this offer, he is welcome to compete for the blocks in the open market.
    b. The blocks that are clustered together physically should be consolidated to form a single unit, and the quotas reviewed and adjusted accordingly. This will assist in preventing the current practice of block transfer and subletting.
    c. The blocks are to be awarded in the name of a person, and not a company. This will prevent trading of blocks by selling/buying companies.
    d. A selection of blocks can be reserved on shorter tender periods to accommodate aspiring national companies. Applicants for these blocks should be encouraged to bid over and above the reserve price.
    e. WMAs should be free to negotiate long term management agreements with potential investors to develop viable community-based wildlife enterprises.
4. **Lion and Elephant Non-detrimental finding**: Although US hunters are currently limited to importation of wild and wild-managed lions from South Africa, hunters from the European Union (EU) are now also able to import lion trophies from Tanzania. This is because in

November 2016 the European Union's Scientific Review Group (SRG) issued a positive finding for African lion from Tanzania at the 77th Meeting of the Scientific Review Group on Trade in Wild Fauna and Flora[16]. A group of three SRG experts travelled to Tanzania in August 2016 to assess the sustainability and management of lion and elephant trophy hunting first-hand. While the SRG has not yet changed its negative opinion on Tanzanian elephant issued at the 76th Meeting on June 27, 2016, the visiting group did make some important conclusions that may lead to a positive finding soon. The in-field visit also allowed the EU team to make on-the ground assessments of Tanzania's hunting areas, noting that the size and structure of habitat in the areas presents considerable management challenges in staffing, finances and logistics for surveying elephant and lion populations and to combat poaching. Despite the challenges, the team reports that new enforcement measures introduced in 2014 appear to be bringing poaching and illegal wildlife trade under control. Since the adoption of the six-year-old age regulation in 2010, the harvest of lion trophies has declined by more than 60%. Specifically, Tanzania's lion offtake declined from 165 lions (2.46% of adult male population) in 2008 to only 39 (0.6% of adult male population) in 2015. The off-take is between 0.1 to 0.27 lions per 1,000 km2, depending on the area. Regarding elephants, the team analysed the broad range of quota management and control procedures. They were satisfied with the elephant status information they received and concluded that the overall population appears stable for the last two years after a significant decline. A few populations nevertheless remain seriously threatened, and more research is needed to understand the influence of migration on fluctuations in local elephant populations. New enforcement measures introduced in 2014 to combat poaching and illegal wildlife trade appear to be having an impact. However, the SRG team concluded that it was still too early for a definite assessment. Without expanding on the subject here, the following could form the basis for these negotiations:

a. A moratorium placed on selected hunting areas
b. Reduced hunting seasons
c. Quotas set on a rotational basis among the various blocks, and for alternative years

[16] Gerald Benyr, Zoltán Czirák and Alison Littlewood. 19 - 27 August 2016. EU EXPERTS MISSION TO ASSESS THE SUSTAINABILITY AND MANAGEMENT OF LION AND ELEPHANT TROPHY HUNTING IN TANZANIA.

7 REFERENCES

Baldry, A., 2004. Zambia. In: Wieland, T. (Ed.), African Hunting Guide 2005/6. Future Publishing, South Africa.

Baldus, R.D. and Caudwell, A.E. 2004 Tourist Hunting and it's Role in Development of Wildlife Management Areas In Tanzania. Report Prepared for GTZ, Dar es Salaam.

Benjaminsen, T. A., Goldman, M. J., Minwary, M. Y., and Maganga, F. P. (2013). Wildlife Management in Tanzania: State Control, Rent Seeking and Community Resistance. Development and Change, 44(5), 1087-1109. doi: 10.1111/dech.12055.

Booth, V.R. 2002. Analysis of Wildlife Markets (Sport Hunting and Tourism), WWF (SARPO), Harare, Zimbabwe. 54 pages.

Booth, V.R. 2010. The Contribution of Hunting Tourism: How Significant is this to National Economies? In Contribution of Wildlife to National Economies. Joint publication of FAO and CIC. Budapest. 72 pp.

Booth, V.R. (2012). Contribution of tourism hunting to the economy in Mozambique: Intermediate working paper. Assistencia Technica A DNAC/MITUR para a Proteccao e Gestao da Fauna Bravia nas Zonas de Caca em Mozambique. 77 pp.

Bauer, H., Packer, C., Funston, P.F., Henschel, P. and Nowell, K. 2015. Panthera leo. The IUCN Red List of Threatened Species 2015: e. T15951A79929984. http://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T15951A79929984.en

Child, B.A. (2002). Background Assessment of the Wildlife Sector, Zambia. Norwegian support to the environmental management sector with main focus on wildlife management. Lusaka, Zambia. Draft report, 52 pages.

Chitauro. 2016. Status of the hunting sector in Zimbabwe. Internal report prepared by the Director of Exchange Control om behalf of the Reserve Bank of Zimbabwe. Unpublished

Damm, G. 2005. Hunting in South Africa: facts, risks and opportunities. African Indaba 3, 1–14.

DEA (Department of Environmental Affairs) accessed from https://africacheck.org/factsheets/factsheet-how-much-does-hunting-contribute-to-african-economies/

Erb, K. P. (2004). Consumptive wildlife utilization as a land-use form in Namibia, MBA thesis, Graduate School of Business of the University of Stellenbosch

GoT, 2013: A Performance Audit on Management of Wildlife Hunting in Game Reserves and Game Controlled Areas. The Ministry of Natural Resources and Tourism. A Report of the Controller and Auditor General of the United Republic of Tanzania, December, 2013. 81 pages.

Humavindu, M.N., Barnes, J.I., 2003. Trophy hunting in the Namibian economy: an assessment. South African Journal of Wildlife Research 33, 65–70.

IRA 2007. Assessment and Evaluation of the Wildlife Management Areas in Tanzania. Ministry of Natural Resources and Tourism Wildlife Division, Dar es Salaam. Prepared by Institute of Resource Assessment. Supported by USAID and WWF, Tanzania. 102 pages.

Kitshoff, A. 2013. Economic Contribution: Hunting Indaba. The Ranch, Polokwane: 11 & 12 November 2013 Chief Executive Officer, Professional Hunters' Association of SA (PHASA)

Kiwango, W.A., Komakech, H. C., Tarimo, T. M. C. and Martz, L. 2015. Decentralized Environmental Governance: A reflection on its role in shaping Wildlife Management Areas in Tanzania. Tropical Conservation Science Vol.8 (4): 1080-1097 Available online: www.tropicalconservationscience.org.

Knapp, E. J. 2012. Why poaching pays: a summary of risks and benefits illegal hunters face in Western Serengeti, Tanzania. Tropical Conservation Science Vol. 5(4):434-445. Available online: www.tropicalconservationscience.org

Lindsey, P.A. Roulet, P.A. Romanach, S.S. 2007. Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa. Biological Conservation 134, 455 – 469.

Martin, R. B. (2008). Review of Safari Hunting in Botswana: Financial and Economic Assessment. A consultancy carried out for The Botswana Wildlife Management Association. Maun, Botswana. 48 pages.

MNRT, 2007. The Wildlife Policy of Tanzania. Revised March 2007. Ministry of Natural Resources and Tourism, Dar es Salaam.

MNRT, 2012. The Wildlife Conservation (Wildlife Management Areas) Regulations, 2012. Government Notice No. 206 Published On 15/6/2012. The Wildlife Conservation Act (Cap.283). Regulations (Made Under Section 31 And 121). Ministry of Natural Resources and Tourism, Dar es Salaam.

MNRT 2013. Wildlife Sub-Sector Statistical Bulletin. 2013 Second Edition. Ministry of Natural Resources and Tourism, Dar es Salaam.

MNRT 2014. The 2014 Tourism Statistical Bulletin (Draft). Tourism Division, Ministry of Natural Resources and Tourism, Dar es Salaam.

MNRT 2014a. WMA Implementation Strategy 2014 – 2019. Wildlife Division, Ministry of Natural Resources and Tourism, Dar es Salaam.

Peake, D., 2004a. Botswana. In: Wieland, T. (Ed.), African Hunting Guide 2005/2006. Future Publishing, South Africa.

Peake, D., 2004b. Botswana 2004: a review. African Indaba 3, 7–12.

PHASA, 2006. General hunting information. Professional Hunters Association of South Africa, Centurion, South Africa. Available from: http://www.phasa.co.za>.

Samuelsson, E. and Stage. J (2007). The size and distribution of the economic impacts of Namibian hunting-related tourism. South African Journal of Wildlife Research. 37(1): 41-52.

Siege, L. 2010. Assessment of Sport Hunting in Ethiopia. GTZ. Sustainable Development of the Protected Area System of Ethiopia (SDPASE). (Unpublished). http://www.ewca.gov.et/sites/default/files/Assessment of Sport Hunting in Ethiopiafinal_0.pdf

UNEP-WCMC. 2015. Review of Panthera leo from the United Republic of Tanzania and from Zambia. UNEP-WCMC, Cambridge.

ULG (2001). Economic Analysis of Commercial Consumptive Use of Wildlife in Botswana. Botswana Wildlife Management Association. December 2001. Final Report, ULG Northumbrian Ltd, Gables House, Kenilworth Road Leamington Spa, CV32 6JX United Kingdom. 48 pages.

USAID 2013. Tanzania Wildlife Management Areas (WMA) Evaluation. Final Evaluation Report. Publication produced for review by the United States Agency for International Development by Tetra Tech ARD and Maliasili Initiative, 2012. 132 pages.

Van der Merwe, P. Geldenhuys, L, Scholtz, M and Saayman, M. 2013. A marketing and spending analysis of trophy hunters: 2012 season. Tourism Research in Economic Environs and Society (TREES), North West University, Potchefstroom Campus, Potchefstroom, South Africa. 43 pages.

WWF 2014. Tanzania's Wildlife Management Areas: A 2012 Status Report. WWF, Dar es Salaam.

Zambia Ministry of Finance (2013). Annual Economic Report. Economic Management Department, Ministry of Finance, Lusaka

8 ANNEX I: QUESTIONNAIRE DESIGNED TO GATHER SOCIO-ECONOMIC DATA FROM HUNTING OPERATIONS

ECONOMIC ASSESSMENT OF THE TANZANIA TOURISM HUNTING INDUSTRY

In collaboration with the Wildlife Division and the Ministry of Tourism, the US Government (through USAID and USFWS) has engaged Mr Vernon Booth (http://www.vernonbooth.com) to conduct an analysis of the value of wildlife trophy hunting industry in Tanzania in order to obtain an understanding of its economic importance. The information will be used to:

- Raise the awareness of the economic importance of the wildlife industry to Tanzania's national economy.
- Understanding its value and role in rural economies, especially with respect to the benefits to local communities.
- Provide support and commitment for improved the long term sustainable conservation of Tanzania's valuable wildlife and their habitats.

All information will be treated with the strictest confidence. We urge you to fully cooperate by answering the questions in the attached questionnaire and return this to **Mr Vernon Booth (vernonrbooth@gmail.com).**

Please do not hesitate to contact Mr Charles Mulokozi (100mulokozi@gmail.com) or Mr Joas Makwati (j.makwati@gmail.com) or Mr Vernon Booth (vernonrbooth@gmail.com) if you require any clarification.

QUESTIONS TO BE ANSWERED

1. What is the name of your hunting company(s), and who are the owner(s)?

Name of Company(s):

Name of Owner(s):

Address and contact numbers:

Website address:

2. Please provide the name or Block Number of the concession(s) allocated to your company(s). Please indicate which, if any, are WMAs

Block 1

Block 2 etc.

3. Can you indicate the number of people employed by your company?

Managerial staff

Administrative staff

Professional Hunters

Field Staff

Temporary (Seasonal) workers

4. Can you provide an approximate book value (Tsh or US$) of the current movable and immovable assets held by the company?

Vehicles, aircraft, boats etc.

Plant and Equipment

Tentage, other buildings

5. Please estimate the percentage contribution of the following expense categories applicable to your hunting company.

Approximate annual operating costs (Tsh or US$):

Central Government Licenses:
(TALA, Business, Radio, Vehicle, Firearms)
Duties: (Ammunition, Rifle, Customs):

TAWA Fees:
(Area, Block, Permits, Conservation
Trophy handling, Government Trophy Fees,
Other e.g. ferry, entry

Area Expenses:
(Airstrip License, District Service,
Area maintenance)

Community Development:
(Community support, Donations, School fees etc)

Law Enforcement:
(Patrol rations, fuel, equipment)

Staff wages & Welfare:
(Wages, Bonuses, NSSF, Levies, Leave/severance
Rations, Uniforms, Medical, Accommodation, Transport,
Training, Employee welfare)

Administrative costs:
Telephone, postage, stationary,
electricity, water, office expenses, Office equipment
M&R, bank charges, business travel, miscellaneous

Operating expenses:
Airport expenses, client, food & drink, fuel & oil, vehicle M&R,
Equipment M&R, workshop M&R, building, stores, tentage M&R,
radio communication M&R, camp building expenses, road maintenance,
road building fuel, medical expenses, camp expenses, operating supplies

Management costs:

Marketing costs:

Support services:
(Air charter, hotel, Insurance etc.):

Professional Hunter costs:

6. ***Are you or any of your companies involved in any non-hunting tourism businesses (photographic camps, air charter)? If yes please provide:***

The name(s) of the venture
Approximate annual bed nights
Area of operation
Web Address

7. ***Are any communities involved with any of the non-hunting businesses (Joint venture, lease)? If yes, please provide approximate gross annual payments to the community in terms of:***

Bed night levy

Concession Fees
Other charges

8. ***Number of local people employed by the company?***
   Managerial staff
   Administrative staff
   Guides
   Field Staff

9. ***Please provide any additional information or comments that you feel could be important to this study***

9 ANNEX II: ALLOCATION OF HUNTING BLOCKS BY TYPE AND GRADE.

Company Name	SN	Hunting Block	Block Type	Grade	Area	Block fee	Origin
AFRICAN BUFFALO SAFARIS TRACKERS LTD	3	Mto wa Mbu	GCA	I (A)	1,209	$ 60,000.00	Tanzania
GREEN LEAF LTD	48	Lake Rukwa GCA	GCA	I (A)	1,974	$ 60,000.00	Tanzania
GREENMILES CO. LTD	50	Lake Natron GCA E	GCA	I (A)	2,304	$ 60,000.00	Tanzania
KILOMBERO NORTH SAFARI LTD	61	Lake Natron GCA S	GCA	I (A)	1,768	$ 60,000.00	Tanzania
ORTTELO BUSINESS CORPORATION LTD	103	Loliondo GCA	GCA	I (A)	6,188	$ 60,000.00	Tanzania
TANZANIA BUNDU SAFARIS LTD	140	Lolkisale GCA	GCA	I (A)	5,128	$ 60,000.00	Tanzania
WENGERT WINDROSE SAFARIS (T) LTD	161	Lake Natron GCA N	GCA	I (A)	1,885	$ 60,000.00	Non-Tanzania
BARLETTE SAFARI CORPORATION LTD	10	Ruvu Masai GCA	GCA	II (B)	2,477	$ 30,000.00	Tanzania
BUNDA SAFARIS LTD	19	Kitwai GCA SW	GCA	II (B)	1,473	$ 30,000.00	Tanzania
GAME FRONTIERS OF TANZANIA LTD	38	Rungwa River GCA	GCA	II (B)	3,319	$ 30,000.00	Tanzania
GO WILD HUNTING SAFARIS LTD	47	Lunda Nkwambi GCA N	GCA	II (B)	1,060	$ 30,000.00	Tanzania
MALAGARASI HUNTING SAFARIS	66	Inyonga GCA E	GCA	II (B)	3,642	$ 30,000.00	Tanzania
MELAMI HUNTING SAFARIS LTD	79	Muhwesi GCA	GCA	II (B)	1,755	$ 30,000.00	Tanzania
MICHEL MANTHEAKIS SAFARIS LTD	80	Lake Natron GCA W	GCA	II (B)	1,767	$ 30,000.00	Tanzania
MWATISI HUNTING SAFARIS LTD	93	Msima GCA W	GCA	II (B)	2,222	$ 30,000.00	Tanzania
MWATISI HUNTING SAFARIS LTD	95	Kitwai GCA SE	GCA	II (B)	1,146	$ 30,000.00	Tanzania
OUT OF AFRICA CO. LTD	104	Kilombero GCA S Bomaulanga	GCA	II (B)	1,134	$ 30,000.00	Tanzania
ROBIN HURT SAFARIS (T) LTD	110	Luganzo GCA	GCA	II (B)	5,128	$ 30,000.00	Non-Tanzania
ROBIN HURT SAFARIS (T) LTD	111	Mlele GCA S	GCA	II (B)	1,247	$ 30,000.00	Non-Tanzania
ROYAL FRONTIERS OF TANZANIA LTD	115	Inyonga GCA W	GCA	II (B)	2,181	$ 30,000.00	Tanzania
SIAFU SAFARIS LTD	126	Gombe GCA	GCA	II (B)	2,703	$ 30,000.00	Tanzania
TANDALA HUNTING SAFARIS LTD	128	Mwambesi GCA	GCA	II (B)	xx	$ 30,000.00	Tanzania
TANDALA HUNTING SAFARIS LTD	129	Inyonga GCA C	GCA	II (B)	2,106	$ 30,000.00	Tanzania
TANDALA HUNTING SAFARIS LTD	130	Msima GCA E	GCA	II (B)	2,096	$ 30,000.00	Tanzania
WEMBERE HUNTING SAFARIS LTD	154	Kitwai GCA N	GCA	II (B)	1,796	$ 30,000.00	Tanzania
WILD FOOTPRINTS LTD	165	Mlele GCA N	GCA	II (B)	2,297	$ 30,000.00	Tanzania
HSK SAFARIS CO LTD	56	Simanjiro GCA W	GCA	III (C)	1,300	$ 18,000.00	Tanzania
KILOMBERO NORTH SAFARI LTD	60	Kilombero GCA-Mlimba	GCA	III (C)	2,021	$ 18,000.00	Tanzania
MELAMI HUNTING SAFARIS LTD	78	Simanjiro Kitiangare GCA	GCA	III (C)	1,196	$ 18,000.00	Tanzania
NORTHERN HUNTING ENTERPRISES LTD	98	Ugunda GCA	GCA	III (C)	2,540	$ 18,000.00	Tanzania
SNF HUNTING SAFARIS LTD	127	Landanai GCA	GCA	III (C)	1,295	$ 18,000.00	Tanzania

Company Name	SN	Hunting Block	Block Type	Grade	Area	Block fee	Origin
TRADITIONAL AFRICAN SAFARIS LTD	153	Simanjiro Naberera GCA	GCA	III (C)	1,784	$ 18,000.00	Tanzania
WEMBERE HUNTING SAFARIS LTD	157	Handeni GCA	GCA	III (C)	2,063	$ 18,000.00	Tanzania
WILD FOOTPRINTS LTD	166	Wembere GCA S	GCA	III (C)	8,784	$ 18,000.00	Tanzania
WENGERT WINDROSE SAFARIS (T) LTD	159	Makere FR-Uvinza OA	FR	IV (D)	2,561	$ 10,000.00	Tanzania
AFRICAN BUFFALO SAFARIS TRACKERS LTD	1	Kizigo GR E2	GR	I (A)	1,281	$ 60,000.00	Tanzania
BUSHMAN HUNTING SAFARIS (T) LTD	21	MASWA GR (N)	GR	I (A)	751	$ 60,000.00	Tanzania
BUSHMAN HUNTING SAFARIS (T) LTD	22	RUNGWA RUNGWA GR (E)	GR	I (A)	1,370	$ 60,000.00	Tanzania
EBN HUNTING SAFARIS LTD	26	Selous GR R3	GR	I (A)	330	$ 60,000.00	Tanzania
FOA ADVENTURES SAFARIS LTD	34	Selous GR U2	GR	I (A)	520	$ 60,000.00	Tanzania
GRUMETI RESERVES (T) LTD	52	Ikorongo GR S	GR	I (A)	640	$ 60,000.00	Non-Tanzania
GRUMETI RESERVES (T) LTD	53	Grumeti GR	GR	I (A)	490	$ 60,000.00	Non-Tanzania
MARERA SAFARI LODGE AND TOURS (T) LTD	69	Rungwa Rungwa GR W	GR	I (A)	1,337	$ 60,000.00	Tanzania
NORTHERN HUNTING ENTERPRISES LTD	96	Rungwa Inyonga GR	GR	I (A)	2,148	$ 60,000.00	Tanzania
RUNGWA GAME SAFARIS (T) LTD	117	Rungwa Mpera GR	GR	I (A)	2,064	$ 60,000.00	Tanzania
TANGANYIKA WILDLIFE SAFARI CORPORATION	135	Selous GR N1	GR	I (A)	1,801	$ 60,000.00	Non-Tanzania
TANZANIA GAME TRACKER SAFARIS LTD	142	Maswa Kimali GR	GR	I (A)	1,341	$ 60,000.00	Non-Tanzania
TANZANIA GAME TRACKER SAFARIS LTD	144	Maswa Mbono	GR	I (A)	707	$ 60,000.00	Non-Tanzania
TANZANIA SAFARI AND HUNTING (2003) LTD	146	Kizigo GR E1	GR	I (A)	1,189	$ 60,000.00	Tanzania
TANZANIA WILDLIFE CORPORATION LTD	150	Rungwa Ikili GR	GR	I (A)	1,084	$ 60,000.00	Tanzania
AFRICAN BUFFALO SAFARIS TRACKERS LTD	2	Kigosi GR S	GR	II (B)	1,992	$ 30,000.00	Tanzania
AFRICAN TROPHY HUNTING SAFARIS LTD	6	Selous GR U1	GR	II (B)	589	$ 30,000.00	Tanzania
AFRICAN TROPHY HUNTING SAFARIS LTD	7	Selous GR K5	GR	II (B)	586	$ 30,000.00	Tanzania
BARLETTE SAFARI CORPORATION LTD	11	Selous GR MT2	GR	II (B)	2,025	$ 30,000.00	Non-Tanzania
BARLETTE SAFARI CORPORATION LTD	12	Selous GR LL1	GR	II (B)	2,179	$ 30,000.00	Non-Tanzania
BARLETTE SAFARI CORPORATION LTD	13	Selous GR LL2	GR	II (B)	1,276	$ 30,000.00	Non-Tanzania
BUSHMAN HUNTING SAFARIS (T) LTD	20	SELOUS GR MHJ3	GR	II (B)	1,147	$ 30,000.00	Tanzania
EAST AFRICAN TROPHY HUNTER LTD	24	Kigosi GR C	GR	II (B)	7,638	$ 30,000.00	Tanzania
FERECK SAFARIS LTD	32	Selous GR MB1	GR	II (B)	1,093	$ 30,000.00	Non-Tanzania
FERECK SAFARIS LTD	33	Selous GR MB4	GR	II (B)	xx	$ 30,000.00	Tanzania
FRANCOLINE SAFARIS LTD	35	Selous GR MHJ1	GR	II (B)	918	$ 30,000.00	Non-Tanzania
GAME FRONTIERS OF TANZANIA LTD	37	Moyowosi/Njigwe GR 2	GR	II (B)	1,687	$ 30,000.00	Tanzania
GAME FRONTIERS OF TANZANIA LTD	40	Ugalla GR E	GR	II (B)	1,883	$ 30,000.00	Tanzania
GERALD PASANIS SAFARI CORPORATION LTD	41	Selous GR MB3	GR	II (B)	1,686	$ 30,000.00	Non-Tanzania
GERALD PASANIS SAFARI CORPORATION LTD	42	Selous GR MT1	GR	II (B)	873	$ 30,000.00	Non-Tanzania
GERALD PASANIS SAFARI CORPORATION LTD	43	Selous GR ML1	GR	II (B)	792	$ 30,000.00	Non-Tanzania

Company Name	SN	Hunting Block	Block Type	Grade	Area	Block fee	Origin
GERALD PASANIS SAFARI CORPORATION LTD	44	Selous GR LU8	GR	II (B)	1,626	$ 30,000.00	Non-Tanzania
GERALD PASANIS SAFARI CORPORATION LTD	45	Selous GR MHJ2	GR	II (B)	1,241	$ 30,000.00	Non-Tanzania
GREENMILES CO. LTD	49	Selous GR MK1	GR	II (B)	815	$ 30,000.00	Tanzania
KIBOKO HUNTING SAFARIS LTD	57	Moyowosi-Njingwe GR 3	GR	II (B)	1,750	$ 30,000.00	Tanzania
KIBOKO HUNTING SAFARIS LTD	58	Selous GR K2	GR	II (B)	642	$ 30,000.00	Tanzania
KILOMBERO NORTH SAFARI LTD	59	Selous GR LU1-LU2	GR	II (B)	3,508	$ 30,000.00	Tanzania
LUKE SAMARAS SAFARIS LTD	62	Selous GR U4	GR	II (B)	1,300	$ 30,000.00	Non-Tanzania
LUKE SAMARAS SAFARIS LTD	63	Selous GR LR1	GR	II (B)	1,217	$ 30,000.00	Non-Tanzania
LUKE SAMARAS SAFARIS LTD	64	Selous GR MS1	GR	II (B)	1,345	$ 30,000.00	Non-Tanzania
LUKE SAMARAS SAFARIS LTD	65	SELOUS GR LR2	GR	II (B)	1,145	$ 30,000.00	Tanzania
MALAGARASI HUNTING SAFARIS	67	Selous GR L1	GR	II (B)	464	$ 30,000.00	Tanzania
MARERA SAFARI LODGE AND TOURS (T) LTD	68	Muhesi GR W	GR	II (B)	2,320	$ 30,000.00	Tanzania
MASAILAND HUNTING COMPANY LTD	72	Selous GR LU4-K3	GR	II (B)	828	$ 30,000.00	Tanzania
MASAILAND HUNTING COMPANY LTD	73	Selous GR IH1	GR	II (B)	425	$ 30,000.00	Tanzania
MICHEL MANTHEAKIS SAFARIS LTD	81	Lukwati GR S	GR	II (B)	1,413	$ 30,000.00	Tanzania
MIOMBO SAFARI LTD	82	Lukwika Lumesule	GR	II (B)	406	$ 30,000.00	Tanzania
MKWAWA HUNTING SAFARIS (T) LTD	84	Selous GR R1	GR	II (B)	455	$ 30,000.00	Tanzania
MKWAWA HUNTING SAFARIS (T) LTD	85	Selous GR M1	GR	II (B)	432	$ 30,000.00	Tanzania
MKWAWA HUNTING SAFARIS (T) LTD	86	Selous GR K4	GR	II (B)	377	$ 30,000.00	Tanzania
MOYOWOSI HUNTING SAFARIS LTD	89	Moyowosi-Njingwe GR 1	GR	II (B)	1,764	$ 30,000.00	Non-Tanzania
MUHESI SAFARIS LTD	90	Muhesi GR E	GR	II (B)	2,172	$ 30,000.00	Tanzania
MWANAUTA AND COMPANY LTD	92	Rungwa Mwamagembe GR	GR	II (B)	991	$ 30,000.00	Tanzania
NORTHERN HUNTING ENTERPRISES LTD	97	Lwafi GR/Nkamba FR	GR	II (B)	3,369	$ 30,000.00	Tanzania
ORIO WILDLIFE SAFARIS	102	Selous GR R4	GR	II (B)	582	$ 30,000.00	Tanzania
PALAHALA SAFARIS AND HUNTING LTD	105	Kizigo GR C	GR	II (B)	1,313	$ 30,000.00	Tanzania
PORI TRACKERS OF AFRICA LTD	107	Selous GR LR3	GR	II (B)	1,137	$ 30,000.00	Tanzania
PORI TRACKERS OF AFRICA LTD	108	Selous GR M2	GR	II (B)	394	$ 30,000.00	Tanzania
ROYAL FRONTIERS OF TANZANIA LTD	114	Moyowosi GR N	GR	II (B)	3,163	$ 30,000.00	Tanzania
ROYAL FRONTIERS OF TANZANIA LTD	116	Selous GR R2	GR	II (B)	688	$ 30,000.00	Tanzania
RUNGWA GAME SAFARIS (T) LTD	118	Selous GR K1	GR	II (B)	332	$ 30,000.00	Tanzania
RUNGWA GAME SAFARIS (T) LTD	119	Kizigo GR W	GR	II (B)	1,288	$ 30,000.00	Tanzania
SAFARI ROYAL HOLDINGS LTD	122	Lukwati GR N	GR	II (B)	2,153	$ 30,000.00	Tanzania
SAID KAWAWA HUNTING SAFARIS LTD	123	Ibanda Rumanyika GR	GR	II (B)	543	$ 30,000.00	Tanzania
TANGANYIKA GAME FISHING AND PHOTOGRAPHIC SAFARIS LTD	131	Selous GR LU5	GR	II (B)	510	$ 30,000.00	Tanzania
TANGANYIKA WILDLIFE SAFARI CORPORATION	132	Selous GR LU6	GR	II (B)	883	$ 30,000.00	Non-Tanzania

Company Name	SN	Hunting Block	Block Type	Grade	Area	Block fee	Origin
TANGANYIKA WILDLIFE SAFARI CORPORATION	133	Selous GR MB2	GR	II (B)	1,054	$ 30,000.00	Non-Tanzania
TANGANYIKA WILDLIFE SAFARI CORPORATION	134	Selous GR LU7	GR	II (B)	1,459	$ 30,000.00	Non-Tanzania
TANGANYIKA WILDLIFE SAFARI CORPORATION	136	Selous GR N2	GR	II (B)	1,032	$ 30,000.00	Tanzania
TANZANIA BIG GAME SAFARIS LTD	137	Burigi GR W	GR	II (B)	1,747	$ 30,000.00	Tanzania
TANZANIA BIG GAME SAFARIS LTD	138	Burigi GR E	GR	II (B)	1,195	$ 30,000.00	Tanzania
TANZANIA GAME TRACKER SAFARIS LTD	143	Ugalla GR N	GR	II (B)	1,811	$ 30,000.00	Non-Tanzania
TANZANIA GAME TRACKER SAFARIS LTD	145	Ugalla GR S	GR	II (B)	1,446	$ 30,000.00	Non-Tanzania
TANZANIA WILDLIFE CORPORATION LTD	148	Selous GR U3	GR	II (B)	777	$ 30,000.00	Tanzania
TANZANIA WILDLIFE CORPORATION LTD	149	Selous GR MA1	GR	II (B)	1,687	$ 30,000.00	Tanzania
TRADITIONAL AFRICAN SAFARIS LTD	152	Selous GR LU3	GR	II (B)	613	$ 30,000.00	Tanzania
WENGERT WINDROSE SAFARIS (T) LTD	160	Moyowosi GR S	GR	II (B)	3,022	$ 30,000.00	Non-Tanzania
Z.H POPE LTD	167	Kigosi GR E	GR	II (B)	2,420	$ 30,000.00	Tanzania
EUROAFRO GROUP LTD	29	KIMISI GR	GR	III (C)	1,034	$ 18,000.00	Tanzania
TANZANIA BUNDU SAFARIS LTD	139	Mkungunero GR	GR	III (C)	767	$ 18,000.00	Tanzania
EUROAFRO GROUP LTD	30	Liparamba GR	GR	IV (D)	605	$ 10,000.00	Tanzania
TANZANIA SAFARI AND HUNTING (2003) LTD	147	Swagaswaga GR	GR	IV (D)	889	$ 10,000.00	Tanzania
MIOMBO SAFARI LTD	83	Msanjesi GR/Kipitimbi Lihonja FR	GR	V (E)	409	$ 5,000.00	Tanzania
ROBIN HURT SAFARIS (T) LTD	112	Burko OA	OA	I (A)	712	$ 60,000.00	Non-Tanzania
TANZANIA BUNDU SAFARIS LTD	141	Masai OA W	OA	I (A)	985	$ 60,000.00	Tanzania
TRADITIONAL AFRICAN SAFARIS LTD	151	Irkishbor OA	OA	I (A)	718	$ 60,000.00	Tanzania
BUNDA SAFARIS LTD	15	Kilwa OA N	OA	II (B)	1,717	$ 30,000.00	Tanzania
BUNDA SAFARIS LTD	17	Mahenge OA S	OA	II (B)	1,717	$ 30,000.00	Tanzania
BUNDA SAFARIS LTD	18	Mwatisi OA N - Furua OA	OA	II (B)	1,826	$ 30,000.00	Tanzania
ESHKESH SAFARIS LTD	28	Masai OA E	OA	II (B)	3,335	$ 30,000.00	Tanzania
	46	Kilwa OA S	OA	II (B)	1,159	$ 30,000.00	Tanzania
MUHESI SAFARIS LTD	91	Monduli Juu OA	OA	II (B)	696	$ 30,000.00	Tanzania
MWATISI HUNTING SAFARIS LTD	94	Rungwa Mzombwe OA	OA	II (B)	1,962	$ 30,000.00	Tanzania
OLD NYIKA SAFARIS LTD	99	Chunya Lukwati OA	OA	II (B)	3,308	$ 30,000.00	Tanzania
OLD NYIKA SAFARIS LTD	100	Piti OA W	OA	II (B)	1,068	$ 30,000.00	Tanzania
OLD NYIKA SAFARIS LTD	101	Chunya Msami OA	OA	II (B)	2,465	$ 30,000.00	Tanzania
ROBIN HURT SAFARIS (T) LTD	113	Rungwa OA S	OA	II (B)	1,810	$ 30,000.00	Non-Tanzania
SAFARI CLUB TANZANIA LTD	120	Kilwa OA S Mbwemkuru	OA	II (B)	1,426	$ 30,000.00	Tanzania
SAFARI CLUB TANZANIA LTD	121	Kilwa OA S-Nakiu	OA	II (B)	1,841	$ 30,000.00	Tanzania
SAID KAWAWA HUNTING SAFARIS LTD	124	Mwatisi OA S	OA	II (B)	1,110	$ 30,000.00	Tanzania
WEMBERE HUNTING SAFARIS LTD	155	Ruhudji/Ifinga OA	OA	II (B)	2,214	$ 30,000.00	Tanzania
WEMBERE HUNTING SAFARIS LTD	156	Rungwa OA N	OA	II (B)	2,125	$ 30,000.00	Tanzania

Company Name	SN	Hunting Block	Block Type	Grade	Area	Block fee	Origin
WEMBERE HUNTING SAFARIS LTD	158	Ngaserai OA	OA	II (B)	889	$ 30,000.00	Tanzania
WESTERN FRONTIERS TANZANIA LTD	162	Piti OA E	OA	II (B)	2,227	$ 30,000.00	Tanzania
BUNDA SAFARIS LTD	14	Mahenge OA N	OA	III (C)	449	$ 18,000.00	Tanzania
COASTAL SABLE SAFARIS LTD	23	Masai OA S	OA	III (C)	3,335	$ 18,000.00	Tanzania
EAST AFRICAN TROPHY HUNTER LTD	25	Talamai OA	OA	III (C)	4,350	$ 18,000.00	Tanzania
GAME FRONTIERS OF TANZANIA LTD	39	Ituru Forest/OA	OA	III (C)	2,078	$ 18,000.00	Tanzania
MAULLY TOURS AND SAFARIS LTD	75	Ugalla OA NE	OA	III (C)	820	$ 18,000.00	Tanzania
MAULLY TOURS AND SAFARIS LTD	76	Ugalla OA NW	OA	III (C)	866	$ 18,000.00	Tanzania
MKWAWA HUNTING SAFARIS (T) LTD	87	Chunya OA E	OA	III (C)	1,554	$ 18,000.00	Tanzania
WESTERN FRONTIERS TANZANIA LTD	163	Mtungwe OA C	OA	III (C)	1,530	$ 18,000.00	Tanzania
MAULLY TOURS AND SAFARIS LTD	74	Ugalla Niensi	OA	IV (D)	3,261	$ 10,000.00	Tanzania
PALAHALA SAFARIS AND HUNTING LTD	106	Wembere OA C2	OA	IV (D)	948	$ 10,000.00	Tanzania
BUNDA SAFARIS LTD	16	Ruvuma OA	OA	V (E)	1,195	$ 5,000.00	Tanzania
MARERA SAFARI LODGE AND TOURS (T) LTD	70	Wembere OA C1	OA	V (E)	1,951	$ 5,000.00	Tanzania
EBN HUNTING SAFARIS LTD	27	Burunge WMA	WMA	I (A)	280	$ 60,000.00	Tanzania
GRUMETI RESERVES (T) LTD	54	Ikona WMA	WMA	I (A)	242	$ 60,000.00	Tanzania
SHANGRI-LA WILDLIFE GAME AND TROPHY HUNTERS LTD	125	Enduimet WMA	WMA	I (A)	xx	$ 60,000.00	
AFRICAN INSIGHT SAFARIS LTD	5	Tunduru/Nalika WMA	WMA	II (B)	1,391	$ 30,000.00	Tanzania
AMIMAKA HUNTING SAFARIS LTD	8	Liwale/Hokororo WMA	WMA	II (B)	xx	$ 30,000.00	Tanzania
AYMANOUF SAFARIS LIMITED	9	Nachengo or Nachenyo	WMA	II (B)	4,515	$ 30,000.00	Tanzania
FERECK SAFARIS LTD	31	Maasai OA E - Makame WMA	WMA	II (B)	5,372	$ 30,000.00	Tanzania
GAME FRONTIERS OF TANZANIA LTD	36	Mbarangandu WMA	WMA	II (B)	2,318	$ 30,000.00	Tanzania
HSK SAFARIS CO LTD	55	Ngarambe/Tapika WMA	WMA	II (B)	731	$ 30,000.00	Tanzania
MASAI PLATEAU (T) LTD	71	IRKIUSHIOIBOR WMA	WMA	II (B)	211	$ 30,000.00	Tanzania
MBOGO HUNTING SAFARIS LTD	77	Liwale/Nachengo WMA	WMA	II (B)	xx	$ 30,000.00	Tanzania
MKWAWA HUNTING SAFARIS (T) LTD	88	Mkupule/Kinyangesi WMA	WMA	II (B)	773	$ 30,000.00	Tanzania
RACHARLES LTD	109	Liwale/Naimba WMA	WMA	II (B)	xx	$ 30,000.00	Tanzania
WHITE LION LTD	164	Magingo	WMA	II (B)	xx	$ 30,000.00	Tanzania
AFRICAN BUFFALO SAFARIS TRACKERS LTD	4	Uyumbu WMA	WMA	III (C)	870	$ 18,000.00	Tanzania
GREENMILES CO. LTD	51	Gonabisi/Kidunda OA	WMA	III (C)	640	$ 18,000.00	Tanzania

10 ANNEX III: FESS LISTED UNDER THE WILDLIFE CONSERVATION (TOURIST HUNTING) REGULATIONS, 2015

A: BLOCK FEES

S/N	TYPE OF FEE	AMOUNT (USD)
1.	Application/renewal fee for Category I hunting block	$5,000
2.	Application/renewal fee for Category II hunting block	$2,000
3.	Application/renewal fee for Category III & IV hunting blocks	$1,000
4.	Application/renewal fee for Category V hunting block	$100
5.	5. Block Fee (per hunting season) • Category I • Category II • Category III • Category IV • Category V	 $60,000 $30,000 $18,000 $10,000 $5,000
6.	Hunting block transfer request fee	$5,000
7.	Hunting Block Transfer fee	$35,000

B: PERMIT FEES

S/N	SAFARI PACKAGE	HUNTING BY RIFLE AND SHOTGUN (USD)	HUNTING BY BOW AND ARROW (USD)
1.	5 days	500	N/A
2.	7 days	1,250	$2,500
3.	10 days	1,200	$2,400
4.	14 days	1,100	$2,200
5.	21 days	1,000	$2,000
6.	28 days	900	$2,000

C. INTERCOMPANY HUNTING

S/N	TYPE OF FEE	AMOUNT (USD)
1.	Intercompany hunting permit fee	• $500 for a person holding a 7-days and 10-day safari packages. • $700 for a person holding a 14-day and 21-day safari packages • $1,000 for a person holding a 28-day safari package.

D: CONSERVATION/OBSERVER FEE PER DAY

S/N	TYPE OF TOURIST	HUNTING BY RIFLE AND SHOTGUN (USD)	HUNTING BY BOW AND ARROW (USD)
1.	Hunter	150.00	150.00

2.	Observer	100.00	100.00

E: TROPHY HANDLING FEES

S/N	SAFARI PACKAGE	HUNTING BY RIFLE AND SHOTGUN	HUNTING BY BOW AND ARROW
1.	5, 7 and 10-day safari package	$400	$400
2.	14 and 21-day safari package	$500	$500
3.	28-day safari package	$600	$600

F: PROFESSIONAL HUNTER FEES

S/N	TYPE OF FEE	USD	
		CITIZEN	NON CITIZEN
1.	Examination	$100	$500
2.	Licence	$600	$3,000
3.	Loss of Licence	$50	$50

11 ANNEX IV: DESCRIPTION OF CRITERIA FOR THE CATEGORIZATION OF HUNTING BLOCKS.

The description below appears in the 10th Schedule of the Wildlife Conservation (Tourist Hunting) Regulations, 2010

Score / Criteria	I (A)	II (B)	III (C)	IV (D)	
	4	3	2	1	Weight
Species diversity	High	Medium	Low	None	5
Within Game Reserve (GR) and adjacent to National Park (NP) or Ngorongoro Conservation Area (NCA)	Bordering National Park and/or NCA	Within GR and buffered by other blocks	Adjacent to GR but not buffered all round	Stand alone and/or isolated blocks	5
Habitat diversity	4 main types	3 main types	2 main types	1 main type	4
Distance to nearest airstrip	Within Block	< 20km	20 – 40km	>40km	2
Distance from a block to enter/exit cities Dar es Salaam and Arusha	Within 300km	300 – 600km	600 – 1000km	>1000km	2
Access by road distance to nearest main road	Touching block or going through block	Not more than 20km	20 – 50km	>50km	3
Water for wildlife	Multiple permanent and seasonal	Permanent single source	Only seasonal	None	4
Human activities	>10%	10 – 20%	20 – 50%	>50%	4
Diversity of huntable species weighted by license fee in USD	41> graded value	38 - 41	33 - 37	<33	4
Diversity of huntable species weighted by safari days value	>113	100 - 113	85 - 99	<85	3

GPA Total Graded Points/Total weight (e.g. 105/34 = 3.088)
Note Grade point = (Criteria weight) x (Criteria score for the block)
Value of block = A-4, B-3, C-2, and D-1

12 ANNEX V: HUNTING BLOCK APPLICATION/RENEWAL

FIRST SCHEDULE (Made under regulation 8(4) and regulation 15(2))
THE UNITED REPUBLIC OF TANZANIA
WILDLIFE CONSERVATION ACT (CAP 283)
HUNTING BLOCK APPLICATION/RENEWAL FORM

1. Name of a company: ……

(a) Address of Principal Premises of business:

……..

(b) Postal Address: …….

(c) Telephone Number: …….

(d) Fax Number: …….

(e) E-mail: …….. Website: ……

(f) Exact location of any other premises *(state whether owned or rented, and the nature such as office, garage, store, etc.)*

…….

2. Full names of proprietor(s) or shareholder(s) of the Company and their percentage of shares

……..

……

…….

……

3. Age, country of Birth and present Nationality(of the persons named in number 3 above)

……

……

……

…….

4. Full names of Directors of the Company and their Profession:

……

……

……

…….

5. Name, qualification, experience and nationality of all permanently employed Professional Hunters:

(Attach a separate sheet giving the above particulars)

6. Particulars of Hunting Block (s) you are applying for:

S/n	Name of hunting block	Category	Geographical location	Experience in Tanzania or elsewhere	
				Direct income generated to WD	Tax paid to TRA
1.					
2.					
3.					
4.					
5.					
6.					
7.					

7. List down details of vehicles and equipment you have purchased or proof of financial capacity to acquire all necessary equipment and facilities for the purpose of your hunting operations.

……

……

……

……

……

……

……

……

8. Indicate your source and relative volume of clients: ……

…….

9. How many Tanzanians do you intend to employ and in what capacity?

…….

10. Programme for the recruitment of citizen Professional Hunters, managers and other field staff:

……

……

11. List of Referees and their contacts:

    (a) ……

    (b) ……

    (c) ……

12. Application Fee paid …..…… ERV No…… Date…….

DECLARATION

WE hereby declare on our honour that the above statements are true in every respect and this company will respect and obey the Wildlife Laws of Tanzania. That we are not indebted by the Wildlife Division or on any Government fee.

Signature: ……..Date:……

& official stamp

<u>Application Procedures</u>

1. QUALIFICATION FOR ALLOCATION OF THE HUNTING BLOCK

In accordance with the Wildlife Conservation Act, Cap.283, no person shall be considered for allocation of a hunting block unless:

(a) has a company intending to engage in hunting of animals registered with the Registrar of companies within Tanzania;

(b) at least one of the Directors has five years' experience in wildlife based business and conservation in Tanzania; and

(c) the shares to be owned by the citizens shall not be less than twenty-five percent of subscribed shares.

Each application for allocation of hunting block shall be submitted to the Director together with;

(a) a copy of the Memorandum and Articles of Association of the hunting company;

(b) a copy of the Certificate of Incorporation;

(c) TIN Certificate of VAT Registration number;

(d) an application fee as set out in table 1 herein; and

(e) Four passport size photographs for all Directors and Shareholders.

2. APPLICANTS FOR THE HUNTING BLOCK ALLOCATION SHALL ALSO BE ASSESSED ON THE FOLLOWING CRITERIA

(a) Tanzanian owned hunting company, proof of:

I. having a suitable registered office premises for carrying out the hunting business;
II. proof of having a fleet of not less than two 4WD pick up vehicles in good running condition of not more than three years since first registration in Tanzania, registered under the company's name and comprehensively insured and inspected (Road worthiness) report from the Police or SUMATRA;
III. radio communication frequency license for VHF;
IV. at least six tents;
V. two refrigerators and two freezers;
VI. two generators of 5KVA and above;
VII. beds and other necessary furniture;

In case the applicant doesn't have the above listed equipment shall be required to produce a Bank Bond or guarantee to the tune of at least USD 300,000.00 as a commitment for the purchase of the equipment within three months after allocation of the hunting block.

VIII. acceptable business plan, indicating

- Executive Summary;
- Company description;
- Product or service;
- Market analysis summary;
- Strategy and implementation summary;
- Management team;
- Financial analysis.

IX. good track record with regard to payment of fees and adherence to the Act for currently operating operators;
X. reference of any good business record;
XI. good track record of adherence to payment of Government taxes and other statutory payments;
XII. experience in the Tourist Hunting Industry;
XIII. declaration on level of commitment to support wildlife conservation (i.e. Community Development projects, Anti-poaching activities and hunting block development).
XIV. evidence of payment of a non-refundable application fee (Bank Pay-in Slip) to

NAME OF ACCOUNT XXXXXXXXXXXXXXX

Application for each block will be made on a separate form and relevant fees **MUST** be paid for the same as shown in the Table 1:-

Table 1: Application fee as per category of a hunting block

S/N	Category of Hunting Blocks	Application fee (USD) per each category
1	I	5,000
2	II	2,000
3	III	1,000
4	IV	1,000
5	V	100

(b) **Foreign owned hunting company (100%) or a Company that is not fully owned by Citizens (Partnership).**

I. a suitable registered office premises for carrying on the hunting business;
II. evidence that the business is registered and certified by Tanzania Investment Centre;
III. proof of having fleet of not less than five new 4WD pick up vehicles, registered under the company's name and comprehensively insured and inspection (Road worthiness) report from the Police or SUMATRA;
IV. radio communication frequency license for HF;
V. at least twelve tents;
VI. five refrigerators and five freezers;
VII. two generators of 5KVA each and above
VIII. beds and other necessary furniture, or

In case the applicant doesn't have the above listed equipment shall be required to produce a Bank guarantee to the tune of at least USD 1,000,000.00 as a commitment for the purchase of the equipment within three months after allocation of the hunting block.

IX. acceptable business plan indicating;

- Executive summary;
- Company description;
- Product or service;
- Market analysis summary;
- Strategy and implementation summary;
- Management team; and
- Financial analysis.

X. good track record with regard to payment of fees and adherence to the Act for currently operating operators;
XI. reference of any good business record;
XII. good track record of adherence to payment of Government taxes and other statutory payments;
XIII. experience in the Tourist Hunting Industry;

XIV. declaration on level of commitment to support wildlife conservation (i.e. Community Development projects, Anti-poaching activities and hunting block development);

XV. evidence of payment of a non-refundable application fee (Bank Pay-in Slip) to **NAME OF ACCOUNT XXXXXXXXXXXXXXX**

XVI. application for each block will be made on a separate form and relevant fees **MUST** be paid for the same as shown in the table 1 above.

MODE OF APPLICATION

For those who will be interested to apply, the application forms are available at: -

(i) Director of Wildlife,
Ivory Room, Mpingo House, 4th Floor,
P.O. Box 9372,
40 Julius Nyerere Road,
15472
DAR ES SALAAM

(ii) Tourist hunting and CITES Office,
P. O. Box 1541
ARUSHA

Duly filled application forms in a sealed envelope should be returned to the Director of Wildlife, **Dar es Salaam Office** within **30 days** from the date of the advertisement and any form received after 30 days will not be considered for processing.

13 ANNEX VI: OVERALL QUOTA ALLOCATION PER BLOCK PER HUNTING COMPANY IN 2014

See below for (1) the overall quota summary, including the 40% value, game fee (USD) and percentage of total quota; and (2) the quota allocation by block by hunting company.

English Name for animals	OVERALL SUMMARY				
	Total Quota	40% of total quota	Game Fee (Rifle) US$	40% of Quota value (USD)	% of total Mammals
Baboon Yellow	**538**	215	110	23,672	0.3%
Baboon Olive	**227**	91	110	9,988	0.1%
Buffalo African Cape	**1,817**	727	1,900	1,380,920	19.3%
Bushbuck Chobe	**292**	117	600	70,080	1.0%
Bushbuck Masai	**107**	43	600	25,680	0.4%
Bushpig	**331**	132	420	55,608	0.8%
Caracal	**16**	6	150	960	0.0%
Civet African	**255**	102	200	20,400	0.3%
Crocodile Nile	**233**	93	1,700	158,440	2.2%
Dikdik Kirk's	**360**	144	250	36,000	0.5%
Duiker Abbott's	**14**	6	280	1,568	0.0%
Duiker Common	**320**	128	250	32,000	0.4%
Duiker Harvey's red	**155**	62	250	15,500	0.2%
Eland Livingstones	**294**	118	1,700	199,920	2.8%
Eland Paterson's	**151**	60	1,700	102,680	1.4%
Elephant African	**200**	-	8,500	-	0.0%
Fox Bat eared	**25**	10	250	2,500	0.0%
Gazelle Grant's	**427**	171	450	76,860	1.1%
Gazelle Robert's	**22**	9	450	3,960	0.1%
Gazelle Thomson's	**340**	136	500	68,000	1.0%
Genet Blotched	**200**	80	250	20,000	0.3%
Genet Common	**21**	8	250	2,100	0.0%
Gerenuk	**106**	42	2,500	106,000	1.5%
Grysbock Sharpe's	**82**	33	350	11,480	0.2%
Hare Scrub	**29**	12	75	870	0.0%
Hare Cape	**20**	8	75	600	0.0%
Hartebeest Coke's	**194**	78	650	50,440	0.7%
Hartebeest Lichteinstein's	**765**	306	650	198,900	2.8%
Hippo	**308**	123	1,500	184,800	2.6%

English Name for animals	OVERALL SUMMARY				
	Total Quota	40% of total quota	Game Fee (Rifle) US$	40% of Quota value (USD)	% of total Mammals
Hyaena Spotted	**432**	173	550	95,040	1.3%
Hyaena Striped	**17**	7	550	3,740	0.1%
Impala East African	**450**	180	390	70,200	1.0%
Impala Southern	**644**	258	390	100,464	1.4%
Jackal Common	**104**	42	250	10,400	0.1%
Jackal Side striped	**178**	71	250	17,800	0.2%
Jackal Sliver backed	**17**	7	250	1,700	0.0%
Klipspringer	**197**	79	1,200	94,560	1.3%
Kudu Greater	**357**	143	2,200	314,160	4.4%
Kudu Lesser	**187**	75	2,600	194,480	2.7%
Leopard	**459**	184	3,500	642,600	9.0%
Lion	**317**	127	4,900	621,320	8.7%
Mongoose Banded	**16**	6	75	480	0.0%
Mongoose White tailed	**1**	0	60	24	0.0%
Monkey Blue	**18**	7	120	864	0.0%
Monkey Vervet	**15**	6	120	720	0.0%
Oribi Common	**211**	84	250	21,100	0.3%
Oryx Fringed eared	**138**	55	2,800	154,560	2.2%
Ostrich	**155**	62	1,200	74,400	1.0%
Porcupine Crested	**168**	67	150	10,080	0.1%
Puku	**25**	10	800	8,000	0.1%
Python Rock	**8**	3	360	1,152	0.0%
Ratel (Honey Badger)	**186**	74	300	22,320	0.3%
Reedbuck Bohor	**358**	143	450	64,440	0.9%
Reedbuck Mountain (Chandler's)	**22**	9	450	3,960	0.1%
Reedbuck Southern (Common)	**141**	56	450	25,380	0.4%
Roan Antelope	**214**	86	2,550	218,280	3.1%
Sable Antelope Roosevelt	**272**	109	2,550	277,440	3.9%
Sable Antelope Common	**60**	24	2,550	61,200	0.9%
Serval Cat	**200**	80	300	24,000	0.3%
Sitatunga East African	**45**	18	2,000	36,000	0.5%
Steinbuck	**180**	72	250	18,000	0.3%
Suni (Pygmy Antelope)	**71**	28	160	4,544	0.1%

English Name for animals	OVERALL SUMMARY				
	Total Quota	40% of total quota	Game Fee (Rifle) US$	40% of Quota value (USD)	% of total Mammals
Topi	**278**	111	800	88,960	1.2%
Warthog	**745**	298	450	134,100	1.9%
Waterbuck Common	**402**	161	800	128,640	1.8%
Waterbuck Defassa	**26**	10	800	8,320	0.1%
Wildcat	**134**	54	250	13,400	0.2%
Wildebeest Eastern White bearded	**319**	128	650	82,940	1.2%
Wildebeest Western White bearded	**73**	29	650	18,980	0.3%
Wildebeest Nyasa	**316**	126	650	82,160	1.1%
Zebra Burchell's	**1,114**	446	1,200	534,720	7.5%
Zorilla	**79**	32	150	4,740	0.1%
Dove	**2,580**	1,032	30	30,960	19%
Duck	**1,697**	679	30	20,364	12%
Francolin	**2,891**	1,156	20	23,128	14%
Geese	**2,034**	814	30	24,408	15%
Guineafowl	**3,339**	1,336	30	40,068	24%
Pigeon	**300**	120	30	3,600	2%
Sandgrouse	**2,431**	972	20	19,448	12%
Spurfowl	**570**	228	15	3,420	2%
Total Mammal	**17,462**			**$ 7,150,294**	
Total Bird	**15,899**			**$165,396**	
Grand Total	**33,361**			**$ 7,315,690**	

English Name for mammal species	African Buffalo Safaris Trackers Ltd				African Trophy Hunting Safaris Ltd		Barlette Safari Corporation Ltd				Bunda Safaris Ltd			Bushman Hunting Safaris (T) Ltd		
	Kizigo (E2)	Kigosi (S)	Mto wa Mbu	Uyumbu WMA	Selous K5	Selous U1	Ruvu Maasai	Selous LL1	Selous LL2	Selous MT2	Kilwa (N)	Mwatisi (N)-Furua	Kitwai (SW)	Maswa (N)	Rungwa Rungwa (E)	Selous MHJ 3
Baboon Yellow	4	3	0	2	2	6	0	2	1	1	6	6	0	0	0	15
Baboon Olive	0	0	2	0	0	0	2	0	0		0	0	6	27	15	0
Buffalo African cape	15	8	4	4	12	28	2	14	9	14	20	20	2	40	14	11
Bushbuck Chobe	2	2	0	1	4	4	0	2	3	2	2	2	0	10	2	2
Bushbuck Masai	0	0	2	0	0	0	1	0	0	0	0	0	2	0	0	0
Bushpig	2	1	2	1	2	2	1	2	2	2	2	2	2	6	2	2
Caracal	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Civet African	2	4	0	0	2	1	1	1	1	0	3	3	2	4	4	4
Crocodile Nile	1	1	0	0	6	5	2	1	1	0	2	4	0	0	3	8
Dikdik Kirk's	2	3	10	2	0	0	3	0	0	0	0	0	6	10	8	0
Duiker Abbott's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Duiker Common	6	5	0	2	0	0	2	1	1	1	2	2	2	0	0	4
Duiker Harvey's red	0	0	0	0	2	2	0	1	1	1	2	2	0	0	0	4
Eland Livingstones	0	2	0	1	3	2	0	3	3	3	4	4	0	0	0	4
Eland Paterson's	2	0	3	0	0	0	1	0	0	0	0	0	5	12	0	0
Elephant African	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Grant's	0	0	25	0	0	0	4	0	0	0	0	0	10	5	0	0
Gazelle Robert's	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
Gazelle Thomson's	0	0	25	0	0	0	0	0	0	0	0	0	0	26	0	0
Genet Blotched	0	0	0	0	0	0	1	1	1	1	2	2	2	4	4	6
Genet Common	1	1	1	0	2	2	0	0	0	0	0	0	0	0	0	0
Gerenuk	0	0	4	0	0	0	2	0	0	0	0	0	6	0	0	0
Grysbock Sharpe's	0	0	2	0	0	0	0	0	0	0	0	0	0	5	2	0
Hare Scrub	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hare Cape	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Coke's	4	0	1	3	0	0	0	0	0	0	0	0	0	24	0	0
Hartebeest Lichteinstein's	0	4	0	0	9	20	4	7	8	6	12	10	6	0	6	7
Hippo	1	1	0	0	6	5	0	4	4	2	4	6	0	0	4	5
Hyaena Spotted	2	1	2	2	4	3	0	2	3	2	4	4	2	11	4	2

English Name for mammal species	African Buffalo Safaris Trackers Ltd				African Trophy Hunting Safaris Ltd		Barlette Safari Corporation Ltd				Bunda Safaris Ltd			Bushman Hunting Safaris (T) Ltd		
	Kizigo (E2)	Kigosi (S)	Mto wa Mbu	Uyumbu WMA	Selous K5	Selous U1	Ruvu Maasai	Selous LL1	Selous LL2	Selous MT2	Kilwa (N)	Mwatisi (N)-Furua	Kitwai (SW)	Maswa (N)	Rungwa Rungwa (E)	Selous MHJ 3
Hyaena Striped	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Impala East African	0	0	15	0	0	0	5	0	0	0	16	0	12	24	0	0
Impala Southern	10	0	0	0	10	12	0	6	7	6	0	0	0	0	6	9
Jackal Common	0	0	3	0	0	0	1	0	0	0	0	0	2	6	0	0
Jackal Side striped	2	2	0	0	2	1	0	1	1	1	2	2	0	0	7	6
Jackal Sliver backed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	2	1	2	0	0	0	1	0	0	0	0	1	4	6	1	0
Kudu Greater	3	2	2	2	2	2	3	2	3	2	2	2	4	0	4	3
Kudu Lesser	2	0	5	0	0	0	4	0	0	0	0	0	6	1	0	0
Leopard	3	2	2	2	3	4	3	3	3	3	4	4	3	7	8	5
Lion	2	1	1	1	2	4	2	4	1	4	2	2	2	5	5	5
Mongoose Banded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongoose White tailed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Vervet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oribi Common	3	2	0	2	0	0	0	0	0	0	4	0	0	0	8	0
Oryx Fringed eared	0	0	5	0	0	0	3	0	0	0	0	0	4	0	0	0
Ostrich	1	1	4	0	0	0	2	0	0	0	0	0	4	8	5	0
Porcupine Crested	1	1	4	0	3	1	0	0	0	0	1	0	0	4	5	5
Puku	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Python Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ratel (Honey Badger)	1	1	2	0	2	0	0	0	0	0	1	1	2	2	3	0
Reedbuck Bohor	0	1	3	2	0	0	0	2	4	2	4	6	2	16	3	6
Reedbuck Mountain (Chandler's)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reedbuck Southern (Common)	2	2	0	0	3	4	0	0	0	0	0	0	0	0	0	0
Roan Antelope	4	2	0	2	0	0	0	0	0	0	0	0	0	10	3	0
Sable Antelope Roosevelt	2	2	0	3	2	5	0	2	1	2	0	4	0	0	3	4
Sable Antelope	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0

English Name for mammal species	African Buffalo Safaris Trackers Ltd				African Trophy Hunting Safaris Ltd		Barlette Safari Corporation Ltd				Bunda Safaris Ltd			Bushman Hunting Safaris (T) Ltd		
	Kizigo (E2)	Kigosi (S)	Mto wa Mbu	Uyumbu WMA	Selous K5	Selous U1	Ruvu Maasai	Selous LL1	Selous LL2	Selous MT2	Kilwa (N)	Mwatisi (N)-Furua	Kitwai (SW)	Maswa (N)	Rungwa Rungwa (E)	Selous MHJ 3
Common																
Serval Cat	1	1	2	0	2	1	1	0	1	1	2	2	2	2	3	2
Sitatunga East African	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Steinbuck	4	4	3	0	0	0	3	0	0	0	0	0	4	2	5	0
Suni (Pygmy Antelope)	0	0	0	0	0	1	0	0	0	0	1	0	0	0	2	2
Topi	0	5	0	4	0	0	0	0	0	0	0	0	0	26	0	0
Warthog	4	4	2	1	8	9	3	6	4	4	10	8	6	16	4	4
Waterbuck Common	1	2	1	2	6	5	0	2	2	2	4	8	2	13	3	4
Waterbuck Defassa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildcat	1	0	2	0	2	1	1	1	1	1	2	2	2	2	2	0
Wildebeest Eastern White bearded	0	0	15	0	0	0	2	0	0	0	0	0	0	26	0	0
Wildebeest Western White bearded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildebeest Nyasa	0	0	0	0	8	8	0	4	6	4	10	0	0	0	0	7
Zebra Burchell's	8	0	20	0	8	18	0	6	6	4	10	6	10	26	7	6
Zorilla	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Dove	10	10	15	0	15	10	10	5	5	5	20	20	10	0	0	0
Duck	10	10	18	0	18	10	0	0	0	0	10	10	10	0	0	0
Francolin	20	20	15	10	15	20	10	5	5	5	10	10	30	0	0	0
Geese	20	20	36	20	36	20	10	5	5	5	10	10	10	0	0	0
Guineafowl	20	20	36	20	36	10	10	5	5	5	20	20	40	0	0	0
Pigeon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sandgrouse	0	0	36	0	36	0	0	0	0	0	0	0	40	0	0	0
Spurfowl	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0
Total Mammal	**102**	**74**	**176**	**39**	**117**	**156**	**60**	**80**	**78**	**71**	**146**	**115**	**304**	**394**	**155**	**142**
Total Bird	**80**	**80**	**156**	**50**	**156**	**70**	**40**	**20**	**20**	**20**	**70**	**70**	**180**	**0**	**0**	**0**

English Name for mammal species	FOA Adventures Ltd	Francolin Safaris Ltd	Game Frontiers of Tanzania Ltd					Gérard Pasanisi Safari Corporation				Go Wild Hunting Safaris Ltd	Green Leaf Ltd
	Selous U2	Selous MHJ1	Ituru Forest	Ugalla (E)	Lunda Mkwambi (N)	Lake Rukwa	Mbarang'andu WMA	Selous LU8	Selous MT1	Selous MHJ2	Lake Rukwa	Lunda Mkwambi (N)	Lake Rukwa
Baboon Yellow	6	2	3	4	15	5	4	2	2	1	5	15	5
Baboon Olive	0	0	0	0	0	0	0	0	0	0	0	0	0
Buffalo African cape	11	20	2	6	20	25	4	13	5	12	25	20	25
Bushbuck Chobe	3	3	1	2	6	0	1	3	1	2	0	6	0
Bushbuck Masai	0	0	0	0	0	4	0	0	0	0	4	0	4
Bushpig	2	3	0	3	6	4	1	2	2	1	4	6	4
Caracal	0	0	0	0	0	0	0	0	0	0	0	0	0
Civet African	2	3	1	2	6	2	0	2	0	1	2	6	2
Crocodile Nile	2	4	0	1	5	4	1	3	1	0	4	5	4
Dikdik Kirk's	2	0	0	4	8	0	2	0	0	0	0	8	0
Duiker Abbott's	0	0	0	4	0	0	2	0	0	0	0	0	0
Duiker Common	3	2	1	4	8	2	1	1	0	1	2	8	2
Duiker Harvey's red	0	2	0	0	4	0	1	1	0	1	0	4	0
Eland Livingstones	2	4	1	1	0	2	4	2	0	2	2	0	2
Eland Paterson's	0	0	0	0	0	0	0	0	0	0	0	0	0
Elephant African	0	0	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Grant's	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Robert's	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Thomson's	0	0	0	0	0	0	0	0	0	0	0	0	0
Genet Blotched	1	6	0	0	4	2	1	1	1	0	2	4	2
Genet Common	0	0	0	0	0	0	0	0	0	0	0	0	0
Gerenuk	0	0	0	0	0	0	0	0	0	0	0	0	0
Grysbock Sharpe's	0	0	0	0	2	2	2	0	0	0	2	2	2
Hare Scrub	0	0	0	0	0	0	0	0	0	0	0	0	0
Hare Cape	0	0	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Coke's	0	0	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Lichteinstein's	7	8	2	3	10	12	6	4	3	7	12	10	12
Hippo	3	2	0	3	8	5	3	4	2	3	5	8	5
Hyaena Spotted	4	3	1	2	8	5	4	2	1	1	5	8	5
Hyaena Striped	0	0	0	0	0	0	0	0	0	0	0	0	0
Impala East African	0	0	0	0	12	10	0	0	0	0	10	12	10

English Name for mammal species	FOA Adventures Ltd	Francolin Safaris Ltd	Game Frontiers of Tanzania Ltd					Gérard Pasanisi Safari Corporation				Go Wild Hunting Safaris Ltd	Green Leaf Ltd
	Selous U2	Selous MHJ1	Ituru Forest	Ugalla (E)	Lunda Mkwambi (N)	Lake Rukwa	Mbarang'andu WMA	Selous LU8	Selous MT1	Selous MHJ2	Lake Rukwa	Lunda Mkwambi (N)	Lake Rukwa
Impala Southern	8	8	2	0	0	0	6	5	3	6	0	0	0
Jackal Common	0	0	0	0	0	2	0	0	0	0	2	0	2
Jackal Side striped	0	0	2	0	5	0	2	2	1	0	0	5	0
Jackal Sliver backed	0	0	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	0	0	0	0	3	2	3	0	0	0	2	3	2
Kudu Greater	2	2	1	2	8	4	3	2	1	2	4	8	4
Kudu Lesser	0	0	0	0	8	0	0	0	0	0	0	8	0
Leopard	3	4	1	2	4	7	5	4	2	4	7	4	7
Lion	2	1	1	4	4	4	4	1	1	4	4	4	4
Mongoose Banded	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongoose White tailed	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Blue	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Vervet	0	0	0	0	0	2	0	0	0	0	2	0	2
Oribi Common	0	0	1	3	4	0	2	0	0	0	0	4	0
Oryx Fringed eared	0	0	0	0	0	0	0	0	0	0	0	0	0
Ostrich	0	0	0	0	3	0	0	0	0	0	0	3	0
Porcupine Crested	1	0	0	0	5	2	1	0	0	0	2	5	2
Puku	0	0	0	0	0	7	0	0	0	0	7	0	7
Python Rock	0	0	0	0	0	0	0	0	0	0	0	0	0
Ratel (Honey Badger)	1	0	2	2	3	0	1	0	0	0	0	3	0
Reedbuck Bohor	2	3	1	2	0	5	4	2	1	3	5	0	5
Reedbuck Mountain (Chandler's)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reedbuck Southern (Common)	0	0	0	0	0	0	0	0	0	0	0	0	0
Roan Antelope	0	0	1	3	3	2	0	0	0	0	2	3	2
Sable Antelope Roosevelt	2	3	2	1	3	0	4	1	1	2	0	3	0
Sable Antelope Common	0	0	0	0	0	5	0	0	0	0	5	0	5
Serval Cat	1	2	1	4	3	2	0	1	1	0	2	3	2
Sitatunga East African	0	0	0	4	0	0	0	0	0	0	0	0	0
Steinbuck	0	0	0	0	2	0	0	0	0	0	0	2	0

English Name for mammal species	FOA Adventures Ltd	Francolin Safaris Ltd	Game Frontiers of Tanzania Ltd					Gérard Pasanisi Safari Corporation				Go Wild Hunting Safaris Ltd	Green Leaf Ltd
	Selous U2	Selous MHJ1	Ituru Forest	Ugalla (E)	Lunda Mkwambi (N)	Lake Rukwa	Mbarang'andu WMA	Selous LU8	Selous MT1	Selous MHJ2	Lake Rukwa	Lunda Mkwambi (N)	Lake Rukwa
Suni (Pygmy Antelope)	0	0	0	0	1	0	0	0	0	0	0	1	0
Topi	0	0	2	2	0	0	0	0	0	0	0	0	0
Warthog	6	5	1	2	5	5	4	2	2	4	5	5	5
Waterbuck Common	3	4	0	2	8	0	4	1	1	2	0	8	0
Waterbuck Defassa	0	0	0	0	0	6	0	0	0	0	6	0	6
Wildcat	1	0	0	0	2	0	1	0	0	1	0	2	0
Wildebeest Eastern White bearded	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildebeest Western White bearded	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildebeest Nyasa	3	0	0	0	0	0	6	2	2	6	0	0	0
Zebra Burchell's	6	6	2	2	10	10	8	6	2	5	10	10	10
Zorilla	0	0	0	2	0	0	1	0	0	0	0	0	0
Dove	0	0	10	10	10	10	10	5	5	0	10	10	10
Duck	0	0	20	20	10	10	20	0	0	0	10	10	10
Francolin	20	20	10	10	10	10	30	5	5	0	10	10	10
Geese	10	10	30	30	10	10	20	5	5	0	10	10	10
Guineafowl	10	10	30	30	10	10	20	5	5	5	10	10	10
Pigeon	0	0	0	0	10	10	0	0	0	0	10	10	10
Sandgrouse	0	0	0	0	10	10	0	0	0	0	10	10	10
Spurfowl	0	0	0	0	10	10	0	0	0	0	10	10	10
Total Mammal	**89**	**100**	**32**	**76**	**206**	**149**	**96**	**69**	**36**	**71**	**149**	**206**	**149**
Total Bird	**40**	**40**	**100**	**100**	**80**	**80**	**100**	**20**	**20**	**5**	**80**	**80**	**80**
	129	**140**	**132**	**176**	**286**	**229**	**196**	**89**	**56**	**76**	**229**	**286**	**229**

English Name for mammal species	Green Miles Co Ltd			Grumeti Reserve (T) Ltd			HSK Safaris Co. Ltd		Kiboko Hunting Safaris Ltd		
	Lake Natron (E)	Selous MK1	Kidunda/Gonabisi WMA	Ikona WMA	Grumeti	Ikorongo (S)	Ngarambe /Tapika WMA	Simanjiro (W)	Selous K2	Selous K4	Moyowosi Njingwe 3
Baboon Yellow	0	8	8	0	0	0	2	0	6	6	8
Baboon Olive	4	0	0	2	0	3	0	6	0	0	0
Buffalo African cape	15	20	15	5	6	6	20	20	12	20	18
Bushbuck Chobe	0	4	3	0	0	0	1	0	2	3	2
Bushbuck Masai	4	0	0	4	4	4	0	3	0	0	0
Bushpig	3	4	3	4	4	4	0	2	1	2	1
Caracal	0	0	0	0	0	0	0	0	0	0	0
Civet African	2	2	1	3	3	3	1	3	2	2	2
Crocodile Nile	0	5	3	0	0	2	0	0	2	4	3
Dikdik Kirk's	12	0	0	4	4	6	4	6	0	0	0
Duiker Abbott's	0	0	0	0	0	0	0	0	0	0	0
Duiker Common	2	0	2	4	5	5	0	2	2	0	0
Duiker Harvey's red	5	2	0	0	0	0	0	0	2	3	0
Eland Livingstones	0	5	1	0	0	0	5	0	2	4	0
Eland Paterson's	0	0	0	2	4	4	0	5	0	0	2
Elephant African	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	0	0	0	0	0	0	2	0	0	0	0
Gazelle Grant's	24	0	0	9	9	9	0	23	0	0	0
Gazelle Robert's	0	0	0	0	0	0	0	0	0	0	0
Gazelle Thomson's	20	0	0	11	12	12	0	18	0	0	0
Genet Blotched	15	4	2	2	2	2	2	2	0	0	2
Genet Common	0	0	0	0	0	0	0	0	0	0	0
Gerenuk	0	0	0	0	0	0	0	2	0	0	0
Grysbock Sharpe's	0	0	2	0	0	0	0	2	1	0	1
Hare Scrub	0	0	0	0	0	0	0	0	0	0	2
Hare Cape	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Coke's	3	0	0	2	4	5	0	12	0	0	0
Hartebeest Lichteinstein's	0	8	5	0	0	0	10	0	10	15	7
Hippo	0	5	1	0	0	0	0	0	2	3	1
Hyaena Spotted	4	7	3	4	5	5	2	5	4	3	4
Hyaena Striped	0	0	0	0	0	0	0	0	0	0	0

English Name for mammal species	Green Miles Co Ltd			Grumeti Reserve (T) Ltd			HSK Safaris Co. Ltd		Kiboko Hunting Safaris Ltd		
	Lake Natron (E)	Selous MK1	Kidunda/Gonabisi WMA	Ikona WMA	Grumeti	Ikorongo (S)	Ngarambe /Tapika WMA	Simanjiro (W)	Selous K2	Selous K4	Moyowosi Njingwe 3
Impala East African	10	0	0	9	11	8	0	17	0	0	0
Impala Southern	0	15	15	0	0	0	10	0	12	16	0
Jackal Common	3	0	0	0	0	0	0	2	0	0	0
Jackal Side striped	0	2	1	0	0	0	2	0	1	0	1
Jackal Sliver backed	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	3	5	0	4	4	4	2	3	0	3	0
Kudu Greater	4	4	0	0	0	0	5	4	2	4	2
Kudu Lesser	15	0	0	0	0	0	0	10	0	0	0
Leopard	3	3	2	2	2	2	5	4	1	3	2
Lion	2	2	1	1	1	1	1	2	1	4	3
Mongoose Banded	0	0	0	0	0	0	0	0	0	0	0
Mongoose White tailed	0	0	0	0	0	0		0	0	0	0
Monkey Blue	0	0	0	0	0	0	0	0	0	0	0
Monkey Vervet	0	0	0	0	0	0		0	0	0	0
Oribi Common	0	0	0	2	4	4	0	2	0	0	6
Oryx Fringed eared	8	0	0	0	0	0	0	6	0	0	0
Ostrich	5	0	0	4	4	4	0	5	0	0	0
Porcupine Crested	0	3	2	2	2	2	1	3	2	2	2
Puku	0	0	0	0	0	0	0	0	1	0	0
Python Rock	0	0	0	0	0	0	0	0	0	0	0
Ratel (Honey Badger)	0	2	2	2	3	2	2	2	0	2	1
Reedbuck Bohor	5	4	3	5	5	5	5	4	6	2	5
Reedbuck Mountain (Chandler's)	0	0	0	0	0	0	0	0	0	0	0
Reedbuck Southern (Common)	0	0	0	0	0	0	0	0	0	0	0
Roan Antelope	0	0	0	0	0	0	3	0	0	0	4
Sable Antelope Roosevelt	0	1	2	0	0	0	0	0	1	3	4
Sable Antelope Common	0	0	0	0	0	0	0	0	0	0	0
Serval Cat	2	2	0	0	3	3	2	2	1	1	1

English Name for mammal species	Green Miles Co Ltd			Grumeti Reserve (T) Ltd			HSK Safaris Co. Ltd		Kiboko Hunting Safaris Ltd		
	Lake Natron (E)	Selous MK1	Kidunda/Gonabisi WMA	Ikona WMA	Grumeti	Ikorongo (S)	Ngarambe /Tapika WMA	Simanjiro (W)	Selous K2	Selous K4	Moyowosi Njingwe 3
Sitatunga East African	0	0	0	0	0	0	0	0	0	0	0
Steinbuck	2	0	0	4	3	3	4	16	0	0	2
Suni (Pygmy Antelope)	0	0	0	4	0	0	0	0	0	0	0
Topi	0	0	0	9	8	7	0	0	0	0	10
Warthog	0	10	5	5	9	9	5	6	6	6	6
Waterbuck Common	0	7	4	4	5	5	5	0	4	4	2
Waterbuck Defassa	0	0	0	0	0	0	0	0	0	0	0
Wildcat	2	2	0	2	2	2	2	2	0	1	0
Wildebeest Eastern White bearded	10	0	0	13	11	11	15	20	0	0	0
Wildebeest Western White bearded	0	0	0	0	0	0	0	0	0	0	0
Wildebeest Nyasa	0	15	10	0	0	0	0	0	10	12	0
Zebra Burchell's	10	10	8	12	12	12	12	20	5	6	8
Zorilla	0	15	0	0	0	0	2	2	2	1	2
Dove	20	15	0	90	90	90	10	30	9	10	9
Duck	20	15	0	10	9	9	10	30	10	20	10
Francolin	20	15	20	45	45	45	30	30	9	30	9
Geese	20	20	0	9	9	9	20	30	9	20	9
Guineafowl	20	20	20	90	90	90	20	30	18	30	18
Pigeon	20	0	0	0	0	0	0	0	0	0	0
Sandgrouse	20	0	0	90	90	90	0	20	0	0	0
Spurfowl	0	0	0	0	0	0	0	0	0	0	0
Total Mammal	**197**	**176**	**104**	**140**	**151**	**154**	**132**	**243**	**103**	**135**	**114**
Total Bird	**140**	**85**	**40**	**334**	**333**	**333**	**90**	**170**	**55**	**110**	**55**
	337	**261**	**144**	**474**	**484**	**487**	**222**	**413**	**158**	**245**	**169**

English Name for mammal species	Masailand Hunting Company Ltd		Shangri-La Wildlife Game and Trophy Hunters Ltd	Melami Hunting Safaris Ltd			Michel Mantheakis Safaris Ltd			Miombo Safaris Ltd	
	Selous IH1	Selous LU4-K3	Enduiment WMA	Muhuwesi	Kitwai North	Simanjiro Kitiangare (S)	Lake Natron (W)	Lukwati (N)	Lukwati (S)	Lukwika Lumesule	Msanjesi-Kipitimbi-Lihonja
Baboon Yellow	2	0	0	6	6	0	0	2	10	0	0
Baboon Olive	0	0	0	0	0	20	12	0	0	6	6
Buffalo African cape	6	6	0	8	3	30	10	20	30	9	2
Bushbuck Chobe	1	1	0	3	0	0	0	2	6	6	5
Bushbuck Masai	0	0	2	0	2	5	8	0	0	0	0
Bushpig	1	0	0	4	1	7	5	5	8	3	2
Caracal	0	0	0	0	0	1	3	0	2	0	0
Civet African	1	1	0	0	1	6	4	1	4	4	1
Crocodile Nile	1	2	0	0	0	0	0	2	4	1	0
Dikdik Kirk's	0	0	10	0	2	12	12	1	0	0	0
Duiker Abbott's	0	0	0	0	0	0	0	0	0	0	0
Duiker Common	1	1	5	7	1	2	6	2	8	2	0
Duiker Harvey's red	0	1	0	0	0	0	0	0	0	1	0
Eland Livingstones	2	5	0	4	0	0	0	3	6	0	1
Eland Paterson's	0	0	6	0	1	8	6	0	0	0	0
Elephant African	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	1	0	0	1	0	2	7	0	0	0	0
Gazelle Grant's	0	0	20	0	2	20	18	0	0	0	0
Gazelle Robert's	0	0	0	0	0	0	15	0	0	0	0
Gazelle Thomson's	0	0	20	0	0	10	18	0	0	0	0
Genet Blotched	0	1	0	0	0	4	3	1	3	0	0
Genet Common	0	0	0	1	1	0	3	0	3	0	0
Gerenuk	0	0	4	0	2	1	9	0	0	0	0
Grysbock Sharpe's	0	0	0	2	0	2	0	1	3	0	0
Hare Scrub	0	0	0	0	0	0	10	0	10	0	0
Hare Cape	0	0	0	0	0	0	10	0	10	0	0
Hartebeest Coke's	0	0	0	0	2	14	7	0	0	0	0
Hartebeest Lichteinstein's	3	5	0	5	0	0	0	7	13	0	1
Hippo	2	2	0	0	0	0	0	4	4	3	0

English Name for mammal species	Masailand Hunting Company Ltd		Shangri-La Wildlife Game and Trophy Hunters Ltd	Melami Hunting Safaris Ltd			Michel Mantheakis Safaris Ltd			Miombo Safaris Ltd	
	Selous IH1	Selous LU4-K3	Enduiment WMA	Muhuwesi	Kitwai North	Simanjiro Kitiangare (S)	Lake Natron (W)	Lukwati (N)	Lukwati (S)	Lukwika Lumesule	Msanjesi-Kipitimbi-Lihonja
Hyaena Spotted	1	2	10	2	1	6	12	4	5	3	1
Hyaena Striped	0	0	0	0	0	2	7	0	0	0	0
Impala East African	0	0	15	0	2	16	11	0	0	0	0
Impala Southern	2	6	0	5	0	0	0	6	12	6	0
Jackal Common	0	0	0	2	1	0	8	0	0	3	0
Jackal Side striped	1	0	0	0	0	5	8	1	6	0	0
Jackal Sliver backed	0	0	0	0	0	5	8	0	0	0	0
Klipspringer	0	0	0	2	1	5	8	2	6	3	0
Kudu Greater	2	2	0	1	2	8	2	3	6	3	1
Kudu Lesser	0	0	6	0	2	12	10	0	0	0	0
Leopard	2	2	3	2	1	6	4	4	7	3	1
Lion	1	2	2	2	2	3	1	2	4	2	2
Mongoose Banded	0	0	0	0	0	1	4	0	4	0	0
Mongoose White tailed	0	0	0	0	0	1	0	0	0	0	0
Monkey Blue	0	0	0	0	0	2	4	0	4	0	0
Monkey Vervet	0	0	0	0	0	2	4	0	4	0	0
Oribi Common	0	0	0	2	0	0	0	1	3	0	0
Oryx Fringed eared	0	0	6	0	2	12	10	0	0	0	0
Ostrich	0	0	4	0	1	8	10	0	0	0	0
Porcupine Crested	1	0	0	2	0	8	3	1	3	3	0
Puku	0	0	0	0	0	0	0	0	0	0	0
Python Rock	0	0	0	0	0	2	2	0	2	0	0
Ratel (Honey Badger)	1	0	0	2	0	5	3	1	3	2	0
Reedbuck Bohor	4	0	0	0	0	2	3	0	0	0	0
Reedbuck Mountain (Chandler's)	0	0	0	0	0	2	11	0	0	0	0
Reedbuck Southern (Common)	1	1	0	4	0	0	0	4	8	0	1
Roan Antelope	0	0	0	0	0	0	0	2	5	0	0
Sable Antelope	2	1	0	0	0	0	0	0	0	3	0

English Name for mammal species	Masailand Hunting Company Ltd		Shangri-La Wildlife Game and Trophy Hunters Ltd	Melami Hunting Safaris Ltd			Michel Mantheakis Safaris Ltd			Miombo Safaris Ltd	
	Selous IH1	Selous LU4-K3	Enduiment WMA	Muhuwesi	Kitwai North	Simanjiro Kitiangare (S)	Lake Natron (W)	Lukwati (N)	Lukwati (S)	Lukwika Lumesule	Msanjesi-Kipitimbi-Lihonja
Roosevelt											
Sable Antelope Common	0	0	0	3	0	0	0	5	9	0	0
Serval Cat	1	0	0	2	1	4	4	1	1	2	2
Sitatunga East African	0	0	0	0	0	0	0	0	0	0	0
Steinbuck	0	0	3	1	2	8	8	0	0	0	0
Suni (Pygmy Antelope)	0	0	0	0	0	0	3	0	3	3	0
Topi	0	0	0	0	0	0	0	0	3	0	0
Warthog	3	5	0	5	3	8	8	6	12	3	2
Waterbuck Common	2	2	0	2	0	1	0	0	0	3	0
Waterbuck Defassa	0	0	0	0	0	0	0	3	5	0	0
Wildcat	0	0	0	1	2	4	5	1	3	3	0
Wildebeest Eastern White bearded	0	0	16	0	1	20	20	0	0	0	0
Wildebeest Western White bearded	0	0	0	0	0	0	6	0	0	0	0
Wildebeest Nyasa	2	4	0	8	0	0	0	0	0	0	0
Zebra Burchell's	2	3	16	2	3	20	20	6	18	0	0
Zorilla	0	0	0	1	0	2	2	1	0	0	0
Dove	2	2	20	20	30	30	50	0	20	20	0
Duck	2	2	0	15	0	30	10	0	5	20	0
Francolin	2	2	50	10	20	30	50	5	10	20	0
Geese	2	2	0	5	5	30	20	5	5	20	0
Guineafowl	4	0	50	0	20	30	50	5	10	20	0
Pigeon	0	0	20	15	0	30	50	0	10	0	0
Sandgrouse	0	0	50	20	15	30	50	0	10	20	0
Spurfowl	0	0	0	20	0	30	50	0	10	0	0
Total Mammal	**49**	**55**	**148**	**92**	**51**	**324**	**375**	**105**	**260**	**80**	**28**
Total Bird	**12**	**8**	**190**	**105**	**90**	**240**	**330**	**15**	**80**	**120**	**0**
	61	**63**	**338**	**197**	**141**	**564**	**705**	**120**	**340**	**200**	**28**

English Name for mammal species	Mkwawa Hunting Safaris (T) Ltd			Muhesi Safaris Ltd	Mwatisi Safaris Ltd			Northern Hunting Enterprises Ltd			Old Nyika Safaris Ltd		
	Selous M1	MBOMIPA WMA (Kinyangesi _Mkupule)	Selous R1	Monduli Juu	Chunya Lukwati	Chunya Msami	Piti (W)	Luwafi-Nkamba	Rungwa Inyonga	Ugunda WMA	Chunya Lukwati	Chunya Msami	Piti (W)
Baboon Yellow	0	5	7	0	6	6	6	7	4	2	6	6	6
Baboon Olive	0	0	0	3	0	0	0	0	0	0	0	0	0
Buffalo African cape	0	10	25	2	10	11	12	4	10	10	10	11	12
Bushbuck Chobe	0	2	4	0	2	2	3	1	3	2	2	2	3
Bushbuck Masai	0	0	0	1	0	0	0	0	0	0	0	0	0
Bushpig	0	3	3	2	3	4	4	1	2	2	3	4	4
Caracal	0	0	0	0	0	0	0	0	0	0	0	0	0
Civet African	0	2	2	1	1	1	1	0	1	2	1	1	1
Crocodile Nile	0	0	3	0	2	3	2	0	0	2	2	3	2
Dikdik Kirk's	0	5	0	3	2	2	4	0	4	4	2	2	4
Duiker Abbott's	0	0	0	0	0	0	0	0	0	0	0	0	0
Duiker Common	0	2	0	2	3	3	4	0	0	0	3	3	4
Duiker Harvey's red	0	2	3	1	0	0	0	2	4	2	0	0	0
Eland Livingstones	0	3	1	0	2	2	2	2	4	2	2	2	2
Eland Paterson's	0	0	0	2	0	0	0	0	0	0	0	0	0
Elephant African	0	0	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Grant's	0	0	0	7	0	0	0	0	0	0	0	0	0
Gazelle Robert's	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Thomson's	0	0	0	7	0	0	0	0	0	0	0	0	0
Genet Blotched	0	2	1	0	1	1	1	0	1	2	1	1	1
Genet Common	0	0	0	0	0	0	0	0	0	0	0	0	0
Gerenuk	0	0	0	5	0	0	0	0	0	0	0	0	0
Grysbock Sharpe's	0	0	0	0	2	2	2	0	0	0	2	2	2
Hare Scrub	0	0	0	0	0	0	0	0	0	0	0	0	0
Hare Cape	0	0	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Coke's	0	0	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Lichteinstein's	0	2	11	0	6	6	7	2	7	5	6	6	7

English Name for mammal species	Mkwawa Hunting Safaris (T) Ltd			Muhesi Safaris Ltd	Mwatisi Safaris Ltd			Northern Hunting Enterprises Ltd			Old Nyika Safaris Ltd		
	Selous M1	MBOMIPA WMA (Kinyangesi Mkupule)	Selous R1	Monduli Juu	Chunya Lukwati	Chunya Msami	Piti (W)	Luwafi-Nkamba	Rungwa Inyonga	Ugunda WMA	Chunya Lukwati	Chunya Msami	Piti (W)
Hippo	0	0	4	0	1	2	5	1	1	5	1	2	5
Hyaena Spotted	0	3	3	1	2	2	2	2	1	2	2	2	2
Hyaena Striped	0	0	0	0	0	0	0	0	0	0	0	0	0
Impala East African	0	0	0	3	0	0	0	0	0	0	0	0	0
Impala Southern	0	10	11	0	4	2	6	0	4	8	4	2	6
Jackal Common	0	0	0	3	0	0	0	0	0	0	0	0	0
Jackal Side striped	0	2	0	0	2	2	0	2	1	2	2	2	0
Jackal Sliver backed	0	0	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	0	2	0	1	2	2	2	0	3	0	2	2	2
Kudu Greater	0	5	2	0	2	2	4	2	6	5	2	2	4
Kudu Lesser	0	5	0	5	0	0	0	0	0	0	0	0	0
Leopard	0	3	4	0	3	3	4	2	4	4	3	3	4
Lion	0	2	3	0	2	2	2	3	4	4	2	2	2
Mongoose Banded	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongoose White tailed	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Blue	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Vervet	0	0	0	0	0	0	0	0	0	0	0	0	0
Oribi Common	0	0	0	0	3	2	4	0	4	5	3	2	4
Oryx Fringed eared	0	0	0	1	0	0	0	0	0	0	0	0	0
Ostrich	0	0	0	2	0	0	0	0	0	0	0	0	0
Porcupine Crested	0	2	2	1	1	1	1	1	1	1	1	1	1
Puku	0	0	0	0	0	0	0	0	0	0	0	0	0
Python Rock	0	0	0	0	0	0	0	0	0	0	0	0	0
Ratel (Honey Badger)	0	2	1	0	1	1	0	2	1	1	1	1	0
Reedbuck Bohor	0	2	4	1	0	0	0	2	4	4	0	0	0
Reedbuck Mountain (Chandler's)	0	0	0	0	0	0	0	0	0	0	0	0	0
Reedbuck Southern (Common)	0	0	0	0	3	3	3	0	0	0	3	3	3
Roan Antelope	0	0	0	0	2	2	4	2	6	5	2	2	4
Sable Antelope	0	2	2	0	0	0	0	0	4	5	0	0	0

English Name for mammal species	Mkwawa Hunting Safaris (T) Ltd			Muhesi Safaris Ltd	Mwatisi Safaris Ltd			Northern Hunting Enterprises Ltd			Old Nyika Safaris Ltd		
	Selous M1	MBOMIPA WMA (Kinyangesi Mkupule)	Selous R1	Monduli Juu	Chunya Lukwati	Chunya Msami	Piti (W)	Luwafi-Nkamba	Rungwa Inyonga	Ugunda WMA	Chunya Lukwati	Chunya Msami	Piti (W)
Roosevelt													
Sable Antelope Common	0	0	0	0	4	4	6	0	0	0	4	4	6
Serval Cat	0	2	1	1	1	1	1	2	2	2	1	1	1
Sitatunga East African	0	0	0	0	0	0	0	0	0	0	0	0	0
Steinbuck	0	3	0	3	0	0	0	0	0	2	0	0	0
Suni (Pygmy Antelope)	0	0	0	3	0	0	0	1	0	0	0	0	0
Topi	0	0	0	0	0	0	0	2	0	6	0	0	0
Warthog	0	3	7	1	4	4	6	2	6	2	4	4	6
Waterbuck Common	0	4	3	0	0	0	0	2	4	4	0	0	0
Waterbuck Defassa	0	0	0	0	2	2	3	0	0	0	2	2	3
Wildcat	0	0	1	1	1	1	1	1	1	0	1	1	1
Wildebeest Eastern White bearded	0	0	0	3	0	0	0	0	0	0	0	0	0
Wildebeest Western White bearded	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildebeest Nyasa	0	0	9	0	0	0	0	0	0	0	0	0	0
Zebra Burchell's	0	10	7	3	6	6	8	2	14	4	6	6	8
Zorilla	0	0	0	1	0	0	0	0	1	0	0	0	0
Dove	0	0	13	100	10	0	0	5	5	5	10	0	0
Duck	0	5	0	0	20	0	0	3	3	3	20	0	0
Francolin	0	0	27	40	20	0	0	5	5	5	20	0	0
Geese	0	0	27	5	20	0	0	5	5	5	20	0	0
Guineafowl	0	20	13	40	20	0	0	10	10	10	20	0	0
Pigeon	0	0	0	0	0	0	0	0	0	0	0	0	0
Sandgrouse	0	4	0	100	0	0	0	5	5	5	0	0	0
Spurfowl	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Mammal	**0**	**100**	**124**	**70**	**86**	**87**	**110**	**50**	**112**	**136**	**86**	**87**	**110**
Total Bird	**0**	**29**	**80**	**285**	**90**	**0**	**0**	**33**	**33**	**90**	**90**	**0**	**0**
	0	**129**	**204**	**355**	**176**	**87**	**110**	**83**	**145**	**226**	**176**	**87**	**110**

English Name for mammal species	Orttelo Business Corp. Ltd	Orio Wildlife Safaris Ltd	Palahala Safaris & Hunting Ltd	Pori Trackers of Africa		Robin Hurt Safaris (T) Ltd				Pasiansi Wildlife Insititute	Royal Frontiers of Tanzania Ltd		
	Loliondo	Selous R4	Kizigo (C)	Selous LR3	Selous M2	Burko	Inyonga (W)	Moyowosi (N)	Selous R2		Inyonga (W)	Moyowosi (N)	Selous R2
Baboon Yellow	0	2	8	4	4	0	4	2	7	0	4	2	7
Baboon Olive	22	0	0	0	0	7	0	0	0	5	0	0	0
Buffalo African cape	34	6	14	16	16	22	1	2	8	15	1	2	8
Bushbuck Chobe	0	2	2	2	2	0	1	2	2	0	1	2	2
Bushbuck Masai	11	0	0	0	0	8	0	0	0	0	0	0	0
Bushpig	9	1	1	2	2	2	2	3	3	0	2	3	3
Caracal	0	0	0	1	0	1	0	0	0	0	0	0	0
Civet African	5	1	1	2	2	1	2	2	2	2	2	2	2
Crocodile Nile	0	2	0	2	3	0	2	0	2	0	2	0	2
Dikdik Kirk's	10	0	5	0	0	8	2	0	0	0	2	0	0
Duiker Abbott's	0	0	0	0	0	0	0	0	0	0	0	0	0
Duiker Common	10	1	0	0	0	1	2	2	0	0	2	2	0
Duiker Harvey's red	0	0	2	3	3	0	0	0	3	0	0	0	3
Eland Livingstones	0	1	3	3	2	0	2	1	1	0	2	1	1
Eland Paterson's	10	0	0	0	0	9	0	0	0	0	0	0	0
Elephant African	0	0	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Grant's	27	0	0	0	0	27	0	0	0	10	0	0	0
Gazelle Robert's	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Thomson's	36	0	0	0	0	27	0	0	0	10	0	0	0
Genet Blotched	4	1	0	1	1	0	2	0	1	0	2	0	1
Genet Common	0	0	0	0	0	1	0	0	0	0	0	0	0
Gerenuk	1	0	0	0	0	16	0	0	0	0	0	0	0
Grysbock Sharpe's	0	0	0	1	0	0	1	0	0	0	1	0	0
Hare Scrub	0	0	0	1	1	0	0	0	0	0	0	0	0
Hare Cape	0	0	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Coke's	20	0	0	0	0	2	0	0	0	0	0	0	0
Hartebeest Lichteinstein's	0	5	6	8	8	0	2	2	8	0	2	2	8
Hippo	0	2	1	3	3	0	2	1	4	0	2	1	4
Hyaena Spotted	10	1	3	3	3	2	2	2	3	2	2	2	3

English Name for mammal species	Orttelo Business Corp. Ltd	Orio Wildlife Safaris Ltd	Palahala Safaris & Hunting Ltd	Pori Trackers of Africa		Robin Hurt Safaris (T) Ltd				Pasiansi Wildlife Insititute	Royal Frontiers of Tanzania Ltd		
	Loliondo	Selous R4	Kizigo (C)	Selous LR3	Selous M2	Burko	Inyonga (W)	Moyowosi (N)	Selous R2		Inyonga (W)	Moyowosi (N)	Selous R2
Hyaena Striped	0	0	0	0	0	0	0	0	0	0	0	0	0
Impala East African	36	0	0	0	0	5	0	0	0	0	0	0	0
Impala Southern	0	6	6	12	8	0	6	0	8	0	6	0	8
Jackal Common	10	0	0	0	0	2	0	0	0	0	0	0	0
Jackal Side striped	0	0	3	2	0	0	2	0	0	0	2	0	0
Jackal Sliver backed	0	0	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	5	0	2	0	0	4	0	0	0	0	0	0	0
Kudu Greater	0	1	3	1	0	5	1	0	2	0	1	0	2
Kudu Lesser	2	0	0	0	0	19	0	0	0	0	0	0	0
Leopard	4	2	4	3	4	6	2	2	4	0	2	2	4
Lion	7	1	2	2	0	0	1	4	2	0	1	4	2
Mongoose Banded	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongoose White tailed	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Blue	0	2	0	0	0	0	0	0	0	0	0	0	0
Monkey Vervet	0	0	0	0	0	0	0	0	0	0	0	0	0
Oribi Common	0	0	5	0	0	0	2	1	0	0	2	1	0
Oryx Fringed eared	1	0	0	0	0	13	0	0	0	0	0	0	0
Ostrich	4	0	0	0	0	10	0	0	0	2	0	0	0
Porcupine Crested	4	1	1	2	2	1	2	0	2	0	2	0	2
Puku	0	0	0	0	2	0	0	0	0	0	0	0	0
Python Rock	0	0	0	0	0	0	0	0	0	0	0	0	0
Ratel (Honey Badger)	4	2	1	1	1	1	2	1	1	0	2	1	1
Reedbuck Bohor	4	2	0	2	2	5	2	2	4	0	2	2	4
Reedbuck Mountain (Chandler's)	0	0	1	0	0	5	0	0	0		0	0	0
Reedbuck Southern (Common)	0	0	0	0	0	0	0	0	0		0	0	0
Roan Antelope	0	0	2	0	3	0	1	1	0	0	1	1	0
Sable Antelope Roosevelt	0	1	3	2	2	0	3	1	2	0	3	1	2
Sable Antelope	0	0	0	0	0	0	0	0	0	0	0	0	0

English Name for mammal species	Orttelo Business Corp. Ltd	Orio Wildlife Safaris Ltd	Palahala Safaris & Hunting Ltd	Pori Trackers of Africa		Robin Hurt Safaris (T) Ltd				Pasiansi Wildlife Insititute	Royal Frontiers of Tanzania Ltd		
	Loliondo	Selous R4	Kizigo (C)	Selous LR3	Selous M2	Burko	Inyonga (W)	Moyowosi (N)	Selous R2		Inyonga (W)	Moyowosi (N)	Selous R2
Common													
Serval Cat	4	1	1	1	1	2	2	0	1	0	2	0	1
Sitatunga East African	0	0	0	0	0	0	0	2	0	0	0	2	0
Steinbuck	7	0	2	0	0	3	0	0	0	0	0	0	0
Suni (Pygmy Antelope)	4	0	0	1	1	2	0	0	0	0	0	0	0
Topi	18	0	0	0	0	0	2	3	0	20	2	3	0
Warthog	18	4	4	6	4	4	1	1	4	5	1	1	4
Waterbuck Common	11	2	2	3	3	0	1	1	3	0	1	1	3
Waterbuck Defassa		0	0	0	0	0	0	0	0		0	0	0
Wildcat	4	1	0	1	1	1	1	0	1	0	1	0	1
Wildebeest Eastern White bearded	0	0	0	0	0	22	0	0	0	0	0	0	0
Wildebeest Western White bearded	36	0	0	0	0	0	0	0	0	30	0	0	0
Wildebeest Nyasa	0	5	0	8	0	0	0	0	5	0	0	0	5
Zebra Burchell's	36	4	8	8	4	26	2	2	5	10	2	2	5
Zorilla	3	1	0	1	1	0	2	2	0	0	2	2	0
Dove	100	0	10	5	5	10	10	10	13	0	10	10	13
Duck	100	0	10	5	5	10	20	20	0	10	20	20	0
Francolin	100	50	20	10	10	40	10	10	27	0	10	10	27
Geese	100	50	20	5	5	10	10	30	27	10	10	30	27
Guineafowl	90	0	20	10	10	40	30	30	13	20	30	30	13
Pigeon	0	0	0	0	0	10	0	0	0		0	0	0
Sandgrouse	450	50	0	5	5	40	0	0	0	20	0	0	0
Spurfowl	0	50	0	10	5	40	0	0	0		0	0	0
Total Mammal	**431**	**261**	**96**	**108**	**89**	**270**	**62**	**42**	**88**	**111**	**62**	**42**	**88**
Total Bird	**940**	**200**	**80**	**50**	**45**	**200**	**80**	**100**	**80**	**60**	**80**	**100**	**80**
	1371	**461**	**176**	**158**	**134**	**470**	**142**	**142**	**168**	**171**	**142**	**142**	**168**

English Name for mammal species	Rungwa Game Safaris Ltd			Safari Club Tanzania Ltd		Said Kawawa Hunting Safaris Ltd	SNF Hunting Safaris Ltd	Tandala Hunting Safaris Ltd		Tanganyika Game Fishing & Photographic Safaris Ltd	Tanzania Big Game Safari	
	Kizigo (W)	Selous K1	Rungwa Mpera	Kilwa Mbwemkuru (S)	Kilwa Nakiu (S)	Ibanda Rumanyika	Landanai	Inyonga (C)	Msima (E)	Selous LU5	Burigi West	Burigi East
Baboon Yellow	8	15	12	10	8	3	0	2	3	9	4	4
Baboon Olive	0	0	0	0	0	0	4	0	0	0	0	0
Buffalo African cape	20	7	25	5	5	11	6	7	6	20	10	10
Bushbuck Chobe	2	2	4	3	2	4	0	2	2	4	2	2
Bushbuck Masai	0	0	0	0	0	0	2	0	0	0	0	0
Bushpig	1	2	4	3	2	2	2	1	1	4	0	0
Caracal	0	0	0	0	0	0	0	0	0	0	0	5
Civet African	1	4	4	5	2	3	2	1	0	1	1	1
Crocodile Nile	0	2	0	1	1	2	0	2	2	6	0	0
Dikdik Kirk's	3	0	5	0	0	0	6	1	0	0	0	0
Duiker Abbott's	0	0	0	0	0	0	0	0	0	0	0	0
Duiker Common	3	0	5	2	1	2	3	2	2	2	3	3
Duiker Harvey's red	0	4	0	3	2	0	0	0	0	2	0	0
Eland Livingstones	4	2	5	5	3	0	0	0	0	4	3	3
Eland Paterson's	0	0	0	0	0	3	2	2	3	0	0	0
Elephant African	0	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	1	0	0	0	0	0	0	0	1	1	0	0
Gazelle Grant's	0	0	0	0	0	0	10	0	0	0	0	0
Gazelle Robert's	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Thomson's	0	0	0	0	0	0	2	0	0	0	0	0
Genet Blotched	1	3	4	4	0	2	2	1	1	0	0	0
Genet Common	0	0	0	0	0	0	0	0	0	0	0	0
Gerenuk	0	0	0	0	0	0	4	0	0	0	0	0
Grysbock Sharpe's	1	0	4	0	0	0	2	0	0	1	0	0
Hare Scrub	0	0	0	0	0	0	0	0	0	0	0	0
Hare Cape	0	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Coke's	0	0	0	0	0	0	6	0	0	0	0	0
Hartebeest Lichteinstein's	10	8	11	6	5	0	0	6	6	8	0	0
Hippo	0	3	1	2	2	2	0	2	1	8	1	1

English Name for mammal species	Rungwa Game Safaris Ltd			Safari Club Tanzania Ltd		Said Kawawa Hunting Safaris Ltd	SNF Hunting Safaris Ltd	Tandala Hunting Safaris Ltd		Tanganyika Game Fishing & Photographic Safaris Ltd	Tanzania Big Game Safari	
	Kizigo (W)	Selous K1	Rungwa Mpera	Kilwa Mbwemkuru (S)	Kilwa Nakiu (S)	Ibanda Rumanyika	Landanai	Inyonga (C)	Msima (E)	Selous LU5	Burigi West	Burigi East
Hyaena Spotted	2	3	4	3	3	0	4	2	2	6	1	1
Hyaena Striped	0	0	0	0	0	0	0	0	0	0	0	0
Impala East African	0	0	0	0	0	0	7	4	2	0	10	10
Impala Southern	5	8	4	3	3	12	0	0	0	15	0	0
Jackal Common	0	0	0	0	0	0	0	0	0	0	0	0
Jackal Side striped	2	0	3	2	1	0	0	1	2	1	0	0
Jackal Sliver backed	0	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	3	0	5	2	1	2	1	0	1	2	3	1
Kudu Greater	4	2	6	3	3	0	2	3	3	3	4	2
Kudu Lesser	0	0	0	0	0	0	4	0	0	0	0	0
Leopard	4	3	4	4	4	3	3	3	3	3	2	2
Lion	3	1	3	2	2	1	2	2	2	1	1	1
Mongoose Banded	0	0	0	0	0	0	0	0	0	0	0	0
Mongoose White tailed	0	0	0	0	0			0	0		0	0
Monkey Blue	0	0	0	0	0	2	0	0	0	0	0	0
Monkey Vervet	0	0	0	0	0			0	0		0	0
Oribi Common	6	0	7	3	2	5	1	3	2	0	4	4
Oryx Fringed eared	0	0	0	0	0	0	2	0	0	0	0	0
Ostrich	2	0	0	0	0	0	1	0	0	0	0	0
Porcupine Crested	0	0	3	2	1	0	1	1	0	0	0	0
Puku	0	3	0	0	0	0	0	0	0	0	0	0
Python Rock	0	0	0	0	0	0	0	0	0	0	0	0
Ratel (Honey Badger)	1	2	3	2	1	2	0	1	2	2	0	0
Reedbuck Bohor	2	4	7	3	2	8	2	5	6	0	0	0
Reedbuck Mountain (Chandler's)	0	0	0	0	0	0	0	0	0	0	0	0
Reedbuck Southern (Common)	0	0	0	0	0	0	0	0	0	1	4	4
Roan Antelope	5	0	7	0	0	2	0	3	4	0	2	2
Sable Antelope	5	2	7	4	3	0	0	3	4	3	0	0

English Name for mammal species	Rungwa Game Safaris Ltd			Safari Club Tanzania Ltd		Said Kawawa Hunting Safaris Ltd	SNF Hunting Safaris Ltd	Tandala Hunting Safaris Ltd		Tanganyika Game Fishing & Photographic Safaris Ltd	Tanzania Big Game Safari	
	Kizigo (W)	Selous K1	Rungwa Mpera	Kilwa Mbwemkuru (S)	Kilwa Nakiu (S)	Ibanda Rumanyika	Landanai	Inyonga (C)	Msima (E)	Selous LU5	Burigi West	Burigi East
Roosevelt												
Sable Antelope Common	0	0	0	0	0	0	0	0	0	0	0	0
Serval Cat	1	1	2	1	1	2	2	1	2	0	1	1
Sitatunga East African	0	0	0	0	0	1	0	0	2	0	2	2
Steinbuck	0	2	0	0	0	0	2	0	0	0	0	0
Suni (Pygmy Antelope)	0	0	1	0	1	0	2	0	0	1	0	0
Topi	0	0	0	0	0	8	0	6	8	0	6	6
Warthog	6	4	7	5	5	5	4	5	6	8	6	6
Waterbuck Common	2	4	1	2	2	8	0	2	6	8	6	6
Waterbuck Defassa	0	0	0	0	0	0	0	0	0	0	0	0
Wildcat	1	0	1	1	1	0	1	1	1	1	0	0
Wildebeest Eastern White bearded	0	0	0	0	0	0	4	0	0	0	0	0
Wildebeest Western White bearded	0	0	0	0	0	0	0	0	0	0	0	0
Wildebeest Nyasa	0	5	0	2	2	0	0	0	0	10	0	0
Zebra Burchell's	10	6	16	4	3	0	5	4	1	6	10	10
Zorilla	0	2	0	0	0	0	2	1	1	0	0	0
Dove	0	9	10	20	20	10	10	10	10	10	0	0
Duck	20	10	10	20	20	30	10	20	20	20	20	20
Francolin	50	9	20	10	10	30	30	10	15	40	50	50
Geese	15	8	20	10	10	30	20	20	10	40	15	15
Guineafowl	30	18	30	25	25	20	20	30	10	40	30	30
Pigeon	0	0	0	0	0	0	0	0	0	0	0	0
Sandgrouse	30	0	0	0	0	0	20	0	0	0	0	0
Spurfowl	30	0	0	0	0	5	0	0	0	0	0	0
Total Mammal	**119**	**158**	**175**	**97**	**74**	**95**	**105**	**80**	**88**	**141**	**86**	**87**
Total Bird	**175**	**54**	**90**	**85**	**85**	**125**	**110**	**90**	**65**	**150**	**115**	**115**
	294	**212**	**265**	**182**	**159**	**220**	**215**	**170**	**153**	**291**	**201**	**202**

English Name of mammal species	Tanzania Bundu Safaris Ltd			Tanzania Wildlife Co. Ltd				Tanganyika Wildlife Safari Corporation					Tanzania Game Trackers Safaris Ltd			
	Lolkisale	Masai (W)	Mkung unero	Rung wa Ikili	Selous MA1	Selous U3	Kizigo GR East	Selous LU6	Selous LU7	Selous N2	Selous MB2	Selous N1	Maswa Kimali	Maswa Mbono	Ugalla (N)	Ugalla (S)
Baboon Yellow	0	0	0	4	7	5	4	2	3	2	2	2	6	9	3	3
Baboon Olive	12	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Buffalo African cape	35	35	8	25	25	25	6	17	20	7	20	20	30	24	10	14
Bushbuck Chobe	0	0	0	4	4	4	2	2	3	2	2	3	0	0	4	4
Bushbuck Masai	2	2	1	0	0	0	0	0	0	0	0	0	5	6	0	0
Bushpig	2	2	2	4	4	4	2	1	1	2	2	1	2	1	3	3
Caracal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Civet African	2	3	0	3	3	3	1	2	1	1	1	1	1	1	1	1
Crocodile Nile	0	0	0	0	4	4	0	7	3	1	3	2	0	0	4	4
Dikdik Kirk's	6	6	4	4	0	0	4	0	0	0	0	0	7	7	2	2
Duiker Abbott's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Duiker Common	4	4	0	4	2	2	2	1	1	2	1	1	2	2	3	3
Duiker Harvey's red	0	5	0	0	2	2	0	1	2	1	1	0	0	0	0	0
Eland Livingstones	0	0	0	4	4	4	2	2	2	1	3	3	0	0	1	1
Eland Paterson's	7	8	3	0	0	0	0	0	0	0	0	0	8	5	0	0
Elephant African	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Gazelle Grant's	20	20	6	0	0	0	0	0	0	0	0	0	13	8	0	0
Gazelle Robert's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Thomson's	5	5	2	0	0	0	0	0	0	0	0	0	18	12	0	0
Genet Blotched	2	2	2	2	2	2	0	1	1	0	1	1	0	0	0	0
Genet Common	0	0	0				1	0	0	0	0	0	0	0	0	0
Gerenuk	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Grysbock Sharpe's	0	0	0	3	0	0	0	0	0	0	0	0	0	0	2	2
Hare Scrub	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hare Cape	0	0	0				0	0	0	0	0	0	0	0	0	0
Hartebeest Coke's	15	15	5	0	0	0	2	0	0	0	0	0	0	0	0	0
Hartebeest Lichteinstein's	0	0	0	10	8	10	0	10	10	3	10	9	10	6	6	6
Hippo	0	0	0	2	6	6	2	7	8	3	6	7	0	0	5	4

English Name of mammal species	Tanzania Bundu Safaris Ltd			Tanzania Wildlife Co. Ltd				Tanganyika Wildlife Safari Corporation					Tanzania Game Trackers Safaris Ltd			
	Lolkisale	Masai (W)	Mkung unero	Rung wa Ikili	Selous MA1	Selous U3	Kizigo GR East	Selous LU6	Selous LU7	Selous N2	Selous MB2	Selous N1	Maswa Kimali	Maswa Mbono	Ugalla (N)	Ugalla (S)
Hyaena Spotted	6	5	4	7	4	4	1	5	4	3	3	7	5	4	2	2
Hyaena Striped	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Impala East African	20	20	6	0	0	0	5	0	0	0	1	0	0	16	0	0
Impala Southern	0	0	0	11	9	13	0	13	11	6	11	8	24	0	7	5
Jackal Common	5	4	2	0	0	0	2	0	0	0	0	0	4	3	0	0
Jackal Side striped	0	0	0	5	4	4	0	1	2	1	1	2	0	0	2	2
Jackal Sliver backed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	2	2	0	3	3	3	2	0	0	0	0	0	4	3	1	1
Kudu Greater	5	6	2	5	3	3	3	2	2	2	2	2	3	0	3	3
Kudu Lesser	7	7	4	1	0	0	1	0	0	0	0	0	0	0	0	0
Leopard	4	4	2	5	4	4	3	5	6	4	5	5	5	4	3	3
Lion	2	2	2	4	4	4	2	3	4	2	3	4	3	2	2	1
Mongoose Banded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongoose White tailed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Vervet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oribi Common	0	0	0	5	0	0	4	0	0	0	0	0	0	0	5	5
Oryx Fringed eared	8	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Ostrich	5	5	4	2	0	0	1	0	0	0	0	0	4	2	0	0
Porcupine Crested	2	2	0	3	3	3	0	0	0	0	0	0	1	1	0	0
Puku	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Python Rock	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Ratel (Honey Badger)	4	4	2	4	4	4	1	0	0	0	0	0	2	1	1	1
Reedbuck Bohor	4	4	1	0	0	0	0	0	0	0	0	2	5	4	0	0
Reedbuck Mountain (Chandler's)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reedbuck Southern (Common)	0	0	0	2	4	5	1	4	4	2	4	1	0	0	6	6
Roan Antelope	0	0	0	5	0	0	2	0	0	0	0	0	3	3	3	3
Sable Antelope Roosevelt	0	0	0	5	3	3	0	4	3	2	4	3	0	0	4	4
Sable Antelope	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

English Name of mammal species	Tanzania Bundu Safaris Ltd			Tanzania Wildlife Co. Ltd				Tanganyika Wildlife Safari Corporation					Tanzania Game Trackers Safaris Ltd			
	Lolkisale	Masai (W)	Mkungunero	Rungwa Ikili	Selous MA1	Selous U3	Kizigo GR East	Selous LU6	Selous LU7	Selous N2	Selous MB2	Selous N1	Maswa Kimali	Maswa Mbono	Ugalla (N)	Ugalla (S)
Common																
Serval Cat	2	2	2	3	3	3	1	2	1	0	1	1	2	2	1	1
Sitatunga East African	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Steinbuck	5	5	4	0	0	0	2	0	0	0	0	0	4	3	1	1
Suni (Pygmy Antelope)	3	3	0	0	4	4	0	0	0	0	0	0	0	0	0	0
Topi	0	0	0	0	0	0	0	0	0	0	0	0	3	4	8	6
Warthog	15	15	4	7	5	7	5	5	4	3	4	2	16	12	5	5
Waterbuck Common	0	2	0	2	5	6	1	6	5	3	1	4	6	6	5	5
Waterbuck Defassa	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
Wildcat	2	1	2	3	3	3	1	0	0	0	0	0	1	1	1	1
Wildebeest Eastern White bearded	20	20	5	0	0	0	0	0	0	0	0	0	12	12	0	0
Wildebeest Western White bearded	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildebeest Nyasa	0	0	0	0	8	9	0	10	10	6	10	8	0	0	0	0
Zebra Burchell's	30	25	1	12	10	13	5	10	8	3	8	5	22	18	2	2
Zorilla	2	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0
Dove	10	80	10	50	50	50	0	5	5	10	5	5	200	200	100	100
Duck	20	20	20	5	20	20	20	1	1	0	1	1	40	10	40	40
Francolin	20	40	20	50	50	50	50	5	5	5	5	5	100	100	50	50
Geese	20	10	20	5	20	20	15	5	5	5	5	5	20	15	100	20
Guineafowl	20	30	20	50	50	50	30	5	5	5	5	5	200	200	20	100
Pigeon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sandgrouse	30	100	20	50	0	0	0	0	0	0	0	0	200	200	100	100
Spurfowl	0	0	0	0	0	0	0	0	0	0	0	0	10	10	10	10
Total Mammal	**269**	**261**	**91**	**164**	**155**	**167**	**71**	**123**	**120**	**62**	**110**	**104**	**232**	**183**	**106**	**104**
Total Bird	**120**	**280**	**110**	**210**	**190**	**190**	**115**	**21**	**21**	**25**	**21**	**21**	**770**	**735**	**420**	**420**
	389	**541**	**201**	**374**	**345**	**357**	**186**	**144**	**141**	**87**	**131**	**125**	**1002**	**918**	**526**	**524**

English Name for mammal species	Tanzania Safari and Hunting (2003) Ltd	Traditional African Safaris Ltd	Wembere Hunting Safaris Ltd				Wengert Windrose Safaris (T) Ltd			Wild Footprint Ltd		White Lion T Ltd
	Swagaswaga GR	Simanjiro Naberera	Handeni	Lake Natron (N)	Kizigo (W)	Mlele (N)	Magingo WMA-Hokororo	MakereFR/ Uvinza OA	Moyowosi Njingwe (S)	Kizigo (W)	Mlele (N)	Magingo WMA-Hokororo
Baboon Yellow	0	0	0	0	8	2	4	4	4	8	2	4
Baboon Olive	8	2	0	3	0	0	0	0	0	0	0	0
Buffalo African cape	2	5	0	6	20	8	15	6	13	20	8	15
Bushbuck Chobe	2	0	0	0	2	2	4	4	5	2	2	4
Bushbuck Masai	0	1	2	3	0	0	0	0	0	0	0	0
Bushpig	2	0	1	3	1	1	3	2	2	1	1	3
Caracal	0	0	0	0	0	0	0	0	0	0	0	0
Civet African	1	1	0	1	1	0	2	1	1	1	0	2
Crocodile Nile	0	0	0	0	0	0	3	4	3	0	0	3
Dikdik Kirk's	4	2	10	6	3	0	0	0	0	3	0	0
Duiker Abbott's	0	0	0	0	0	0	0	0	0	0	0	0
Duiker Common	2	0	5	1	3	2	3	2	4	3	2	3
Duiker Harvey's red	0	0	0	0	0	0	0	0	0	0	0	0
Eland Livingstones	2	0	0	0	4	1	4	2	4	4	1	4
Eland Paterson's	0	2	2	2	0	0	0	0	0	0	0	0
Elephant African	0	0	0	0	0	0	0	0	0	0	0	0
Fox Bat eared	0	1	0	0	1	0	1	0	0	1	0	1
Gazelle Grant's	0	4	18	12	0	0	0	0	0	0	0	0
Gazelle Robert's	0	0	0	0	0	0	0	0	0	0	0	0
Gazelle Thomson's	0	4	0	8	0	0	0	0	0	0	0	0
Genet Blotched	0	0	1	0	1	1	2	0	0	1	1	2
Genet Common	1	1	0	0	0	0	0	0	0	0	0	0
Gerenuk	0	0	6	7	0	0	0	0	0	0	0	0
Grysbock Sharpe's	0	0	0	0	1	0	0	0	0	1	0	0
Hare Scrub	0	0	0	0	0	0	0	0	0	0	0	0
Hare Cape	0	0	0	0	0	0	0	0	0	0	0	0
Hartebeest Coke's	2	4	6	1	0	0	0	0	0	0	0	0
Hartebeest Lichteinstein's	0	0	0	0	10	6	8	3	10	10	6	8
Hippo	0	0	0	0	0	0	3	3	3	0	0	3
Hyaena Spotted	1	1	0	1	2	2	2	2	4	2	2	2
Hyaena Striped	0	0	0	0	0	0	0	0	0	0	0	0

English Name for mammal species	Tanzania Safari and Hunting (2003) Ltd	Traditional African Safaris Ltd	Wembere Hunting Safaris Ltd				Wengert Windrose Safaris (T) Ltd			Wild Footprint Ltd		White Lion T Ltd
	Swagaswaga GR	Simanjiro Naberera	Handeni	Lake Natron (N)	Kizigo (W)	Mlele (N)	Magingo WMA-Hokororo	MakereFR/ Uvinza OA	Moyowosi Njingwe (S)	Kizigo (W)	Mlele (N)	Magingo WMA-Hokororo
Impala East African	0	4	12	4	0	0	0	0	0	0	0	0
Impala Southern	0	0	0	0	5	0	12	0	0	5	0	12
Jackal Common	0	1	1	2	0	0	2	0	0	0	0	2
Jackal Side striped	0	0	0	0	2	1	2	0	2	2	1	2
Jackal Sliver backed	0	0	0	0	0	0	0	0	0	0	0	0
Klipspringer	2	1	0	2	3	1	0	0	0	3	1	0
Kudu Greater	3	2	4	2	4	2	5	0	0	4	2	5
Kudu Lesser	2	2	6	7	0	0	0	0	0	0	0	0
Leopard	3	2	3	2	4	4	2	2	4	4	4	2
Lion	1	2	1	1	3	2	2	1	4	3	2	2
Mongoose Banded	1	0	0	0	0	0	0	0	0	0	0	0
Mongoose White tailed	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Blue	0	0	0	0	0	0	0	0	0	0	0	0
Monkey Vervet	0	0	0	0	0	0	3	0	0	0	0	3
Oribi Common	0	0	0	0	6	0	0	0	6	6	0	0
Oryx Fringed eared	0	2	6	7	0	0	0	0	0	0	0	0
Ostrich	1	2	2	2	2	0	0	0	0	2	0	0
Porcupine Crested	1	1	0	0	0	0	3	0	0	0	0	3
Puku	0	0	0	0	0	0	0	0	0	0	0	0
Python Rock	0	0	0	0	0	0	0	0	0	0	0	0
Ratel (Honey Badger)	1	1	0	1	1	1	3	0	2	1	1	3
Reedbuck Bohor	0	1	0	2	0	0	0	8	0	0	0	0
Reedbuck Mountain (Chandler's)	0	0	0	0	0	0	0	0	0	0	0	0
Reedbuck Southern (Common)	2	0	0	0	2	4	4	0	12	2	4	4
Roan Antelope	3	0	0	0	5	3	0	4	4	5	3	0
Sable Antelope Roosevelt	0	0	0	0	5	3	4	0	4	5	3	4
Sable Antelope Common	0	0	0	0	0	0	0	0	0	0	0	0
Serval Cat	1	1	0	1	1	1	3	1	1	1	1	3

English Name for mammal species	Tanzania Safari and Hunting (2003) Ltd	Traditional African Safaris Ltd	Wembere Hunting Safaris Ltd				Wengert Windrose Safaris (T) Ltd			Wild Footprint Ltd		White Lion T Ltd
	Swagaswaga GR	Simanjiro Naberera	Handeni	Lake Natron (N)	Kizigo (W)	Mlele (N)	Magingo WMA-Hokororo	MakereFR/ Uvinza OA	Moyowosi Njingwe (S)	Kizigo (W)	Mlele (N)	Magingo WMA-Hokororo
Sitatunga East African	0	0	0	0	0	0	0	6	3	0	0	0
Steinbuck	2	2	4	1	0	0	0	0	0	0	0	0
Suni (Pygmy Antelope)	0	0	0	0	0	0	0	0	0	0	0	0
Topi	0	0	0	0	0	2	0	6	14	0	2	0
Warthog	4	2	4	0	6	4	5	6	10	6	4	5
Waterbuck Common	0	0	0	0	2	4	6	3	8	2	4	6
Waterbuck Defassa	0	0	0	0	0	0	0	0	0	0	0	0
Wildcat	1	1	0	1	1	1	2	0	0	1	1	2
Wildebeest Eastern White bearded	0	6	0	8	0	0	0	0	0	0	0	0
Wildebeest Western White bearded	0	0	0	0	0	0	0	0	0	0	0	0
Wildebeest Nyasa	0	0	0	0	0	0	10	0	0	0	0	10
Zebra Burchell's	2	6	2	8	10	6	8	0	14	10	6	8
Zorilla	1	1	0	0	0	1	0	0	0	0	1	0
Dove	0	10	20	0	0	10	5	0	0	0	10	5
Duck	20	10	0	0	20	20	5	20	20	20	20	5
Francolin	50	10	5	0	50	20	5	20	20	50	20	5
Geese	15	10	0	0	15	10	0	10	10	15	10	0
Guineafowl	30	10	5	0	30	30	10	20	20	30	30	10
Pigeon	0	0	0	0	0	0	0	0	0	0	0	0
Sandgrouse	0	5	0	0	30	0	0	20	20	30	0	0
Spurfowl	0	0	0	0	30	0	0	20	20	30	0	0
Total Mammal	**58**	**68**	**96**	**105**	**119**	**65**	**130**	**70**	**141**	**119**	**65**	**130**
Total Bird	**115**	**55**	**30**	**0**	**175**	**90**	**25**	**110**	**110**	**175**	**90**	**25**
	173	**123**	**126**	**105**	**294**	**155**	**155**	**180**	**251**	**294**	**155**	**155**

English Name for mammal species	Z.H.Hope Ltd	Masai Plateau TZ Ltd
	Kigosi (E)	Makame WMA(Irikishibor)
Baboon Yellow	2	0
Baboon Olive	0	6
Buffalo African cape	5	12
Bushbuck Chobe	1	0
Bushbuck Masai	0	2
Bushpig	1	2
Caracal	0	0
Civet African	1	1
Crocodile Nile	1	0
Dikdik Kirk's	4	10
Duiker Abbott's	0	0
Duiker Common	3	2
Duiker Harvey's red	0	2
Eland Livingstones	1	0
Eland Paterson's	0	5
Elephant African	0	0
Fox Bat eared	0	0
Gazelle Grant's	0	10
Gazelle Robert's	0	0
Gazelle Thomson's	0	0
Genet Blotched	1	0
Genet Common	0	1
Gerenuk	0	3
Grysbock Sharpe's	0	0
Hare Scrub	0	0
Hare Cape	0	0
Hartebeest Coke's	0	8
Hartebeest Lichteinstein's	9	0
Hippo	3	0
Hyaena Spotted	3	2
Hyaena Striped	0	2
Impala East African	0	10

English Name for mammal species	Z.H.Hope Ltd	Masai Plateau TZ Ltd
	Kigosi (E)	Makame WMA(Irikishibor)
Impala Southern	0	0
Jackal Common	0	10
Jackal Side striped	2	0
Jackal Sliver backed	0	2
Klipspringer	2	1
Kudu Greater	1	2
Kudu Lesser	0	5
Leopard	1	4
Lion	1	0
Mongoose Banded	0	2
Mongoose White tailed	0	0
Monkey Blue	0	0
Monkey Vervet	0	0
Oribi Common	0	1
Oryx Fringed eared	0	5
Ostrich	0	5
Porcupine Crested	1	2
Puku	0	0
Python Rock	0	0
Ratel (Honey Badger)	1	2
Reedbuck Bohor	0	1
Reedbuck Mountain (Chandler's)	0	1
Reedbuck Southern (Common)	1	0
Roan Antelope	1	0
Sable Antelope Roosevelt	1	0
Sable Antelope Common	0	0
Serval Cat	1	1
Sitatunga East African	1	0
Steinbuck	0	6
Suni (Pygmy Antelope)	1	0
Topi	2	0

English Name for mammal species	Z.H.Hope Ltd	Masai Plateau TZ Ltd
	Kigosi (E)	Makame WMA(Irikishibor)
Warthog	2	6
Waterbuck Common	1	0
Waterbuck Defassa	0	0
Wildcat	0	1
Wildebeest Eastern White bearded	0	0
Wildebeest Western White bearded	0	0
Wildebeest Nyasa	0	0
Zebra Burchell's	0	8
Zorilla	0	0
Dove	4	10
Duck	4	10
Francolin	4	20
Geese	4	20
Guineafowl	4	20
Pigeon	0	0
Sandgrouse	5	0
Spurfowl	0	0
Total Mammal	**55**	**143**
Total Bird	**25**	**80**
	80	**223**

14 Annex VII: List of Animals Killed by Hunting Block – 2014

The data are presented for the Primary Species (elephant, lion and leopard), and by Key species. Data are not provided per hunting block for the Tertiary, Small mammals and birds.

Company	Hunting Block	Status	Area	Prime (Elephant, Lion, Leopard)	Key (N=34 species)	Tertiary (N=17 species)	Small (n=17 species)	Birds (N= 9 species)	Total
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR E	GR		0	49	1	0	0	50
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR W	GR	1,195	0	49	2	0	5	56
ROBIN HURT SAFARIS (T) LTD	BURKO OA	OA	712	2	138	29	0	7	176
OLD NYIKA SAFARIS LTD	CHUNYA LUKWATI OA	OA	3,308	1	28	5	0	0	34
OLD NYIKA SAFARIS LTD	CHUNYA MSAMI OA	OA	2,459	1	23	4	0	0	28
GRUMETI RESERVES (T) LTD	GRUMETI GR	GR	435	0	6	2	0	1	9
SAID KAWAWA HUNTING SAFARIS LTD	IBANDA RUMANYIKA GR	GR	535	0	4	0	0	4	8
GRUMETI RESERVES (T) LTD	IKONA WMA	WMA	256	0	1	0	0	0	1
GRUMETI RESERVES (T) LTD	IKORONGO GR S	GR	559	0	3	1	0	0	4
TANDALA HUNTING SAFARIS LTD	INYONGA GCA C	GCA	2,115	1	22	3	0	0	26
MALAGARASI HUNTING SAFARIS	INYONGA GCA E	GCA	3,652	4	10	0	1	0	15
ROYAL FRONTIERS OF TANZANIA LTD	INYONGA GCA W	GCA	2,246	1	7	2	0	0	10
MASAI PLATEAU (T) LTD	IRKIUSHIOIBOR WMA	WMA	211	0	16	2	0	0	18
EAST AFRICAN TROPHY HUNTER LTD	KIGOSI C	GR	2,446	1	37	5	2	0	45
ZH POPPE	KIGOSI GR E	GR	2,420	0	1	0	0	0	1
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIGOSI GR S	GR	1,992	0	5	1	0	0	6
KILOMBERO NORTH SAFARI LTD	KILOMBERO GCA-MLIMBA	GCA	2,021	0	48	7	0	0	55
BUNDA SAFARIS LTD	KILWA OA N	OA	2,387	2	17	0	0	0	19
SAFARI CLUB TANZANIA LTD	KILWA OA S MBWEMKURU	OA	1,149	1	5	0	0	0	6
SAFARI CLUB TANZANIA LTD	KILWA OA S-NAKIU	OA	1,825	1	14	0	0	0	15
EUROAFRO GROUP LTD	KIMISI GR	GR	1,034	0	20	7	0	0	27
MELAMI HUNTING SAFARIS LTD	KITWAI GCA N	GCA	1,809	0	1	0	0	0	1
MWATISI HUNTING SAFARIS LTD	KITWAI GCA SE	GCA	1,157	1	9	2	0	0	12
BUNDA SAFARIS LTD	KITWAI GCA SW	GCA	1,464	1	15	4	0	2	22
PALAHALA SAFARIS AND HUNTING LTD	KIZIGO GR C	GR	1,313	5	41	2	0	0	48
TANZANIA WILDLIFE CORPORATION LTD	KIZIGO GR E1	GR	1,189	0	0	0	0	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIZIGO GR E2	GR	1,281	2	22	1	0	0	25

Company	Hunting Block	Status	Area	Prime (Elephant, Lion, Leopard)	Key (N=34 species)	Tertiary (N=17 species)	Small (n=17 species)	Birds (N= 9 species)	Total
RUNGWA GAME SAFARIS (T) LTD	KIZIGO GR W	GR	1,249	3	35	2	0	0	40
WENGERT WINDROSE SAFARIS (T) LTD	LAKE NATRON GCA NS	GCA	1,824	0	29	8	0	1	38
KILOMBERO NORTH SAFARI LTD	LAKE NATRON GCA S	GCA	1,764	1	57	4	0	1	63
MICHEL MANTHEAKIS SAFARIS LTD	LAKE NATRON GCA W	GCA	1,768	1	70	35	8	15	129
GREEN LEAF LTD	LAKE RUKWA GCA	GCA	2,196	6	85	12	0	0	103
ORTTELO BUSINESS CORPORATION LTD	LOLIONDO GCA	GCA	6,048	1	12	2	0	32	47
TANZANIA BUNDU SAFARIS LTD	LOLKISALE GCA	GCA	1,108	2	106	19	0	4	131
ROBIN HURT SAFARIS (T) LTD	LUGANZO GCA	GCA	5,118	3	96	6	0	0	105
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR N	GR	1,417	3	32	1	0	0	36
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR S	GR	2,156	9	90	9	2	4	114
GO WILD HUNTING SAFARIS LTD	LUNDA NKWAMBI GCA N	GCA	1,051	2	27	2	0	3	34
NORTHERN HUNTING ENTERPRISES LTD	LUWAFI GR/NKAMBA FR	FR	3,408	2	5	0	0	0	7
FERECK SAFARIS LTD	MAASAI OA E - MAKAME WMA	WMA	3,335	3	29	5	0	5	42
WENGERT WINDROSE SAFARIS (T) LTD	MAKERE FR-UVINZA OA	OA	2,561	0	22	3	0	0	25
ESHKESH SAFARIS LTD	MASAI OA E	OA	1,221	1	20	3	0	0	24
TANZANIA BUNDU SAFARIS LTD	MASAI OA W	OA	855	2	98	17	1	3	121
BUSHMAN HUNTING SAFARIS (T) LTD	MASWA GR (N)	GR	751	6	148	31	1	4	190
TANZANIA GAME TRACKER SAFARIS LTD	MASWA KIMALI GR	GR	1,341	2	48	11	0	7	68
TANZANIA GAME TRACKER SAFARIS LTD	MASWA MBONO	GR	707	2	39	4	0	0	45
GAME FRONTIERS OF TANZANIA LTD	MBARANGANDU WMA	WMA	3,090	2	15	0	0	0	17
MKWAWA HUNTING SAFARIS (T) LTD	MBOMIPA WMA	WMA	777	4	14	2	0	0	20
TANZANIA BUNDU SAFARIS LTD	MKUNGUNERO GR	GR	602	0	25	3	0	1	29
WILD FOOTPRINTS LTD	MLELE GCA N	GCA	2,302	2	21	0	0	0	23
ROBIN HURT SAFARIS (T) LTD	MLELE GCA S	GCA	1,244	3	31	0	0	0	34
MUHESI SAFARIS LTD	MONDULI JUU OA	OA	698	0	23	9	0	0	32
ROYAL FRONTIERS OF TANZANIA LTD	MOYOWOSI GR N	GR	3,163	0	18	3	0	5	26
WENGERT WINDROSE SAFARIS (T) LTD	MOYOWOSI GR S	GR	3,018	1	42	7	0	0	50
GAME FRONTIERS OF TANZANIA LTD	MOYOWOSI/NJIGWE GR 2	GR	1,691	4	24	4	0	1	33
KIBOKO HUNTING SAFARIS LTD	MOYOWOSI-NJINGWE GR 3	GR	1,759	3	49	10	0	1	63
TANDALA HUNTING SAFARIS LTD	MSIMA GCA E	GCA	2,094	2	18	3	0	0	23
MWATISI HUNTING SAFARIS LTD	MSIMA GCA W	GCA	2,234	4	31	9	1	0	45

Company	Hunting Block	Status	Area	Prime (Elephant, Lion, Leopard)	Key (N=34 species)	Tertiary (N=17 species)	Small (n=17 species)	Birds (N= 9 species)	Total
AFRICAN BUFFALO SAFARIS TRACKERS LTD	MTO WA MBU	GCA	1,209	0	59	15	0	5	79
MARERA SAFARI LODGE AND TOURS (T) LTD	MUHESI GR W	GR	,253	7	38	6	0	0	51
BUNDA SAFARIS LTD	MWATISI OA N - FURUA OA	OA	,825	0	17	1	0	0	18
OLD NYIKA SAFARIS LTD	PITI OA W	OA	1,088	1	29	4	0	0	34
WEMBERE HUNTING SAFARIS LTD	RUHUDJI/IFINGA OA	OA	2,217	5	35	8	0	0	48
TANZANIA WILDLIFE CORPORATION LTD	RUNGWA IKILI GR	GR	1,084	2	39	0	0	1	42
NORTHERN HUNTING ENTERPRISES LTD	RUNGWA INYONGA GR	GR	2,148	4	52	3	0	0	59
RUNGWA GAME SAFARIS (T) LTD	RUNGWA MPERA GR	GR	2,185	4	39	12	0	0	55
KILOMBERO NORTH SAFARI LTD	RUNGWA MWAMAGEMBE GR	GR	991	4	40	7	0	0	51
MWATISI HUNTING SAFARIS LTD	RUNGWA MZOMBWE OA	OA	1,962	3	16	6	0	0	25
WEMBERE HUNTING SAFARIS LTD	RUNGWA OA N	OA	2,076	0	8	0	0	0	8
ROBIN HURT SAFARIS (T) LTD	RUNGWA OA S	OA	1,810	4	53	6	0	0	63
GAME FRONTIERS OF TANZANIA LTD	RUNGWA RIVER GCA	GCA	3,300	1	14	1	0	0	16
BUSHMAN HUNTING SAFARIS (T) LTD	RUNGWA RUNGWA GR (E)	GR	1,370	4	47	7	1	0	59
MARERA SAFARI LODGE AND TOURS (T) LTD	RUNGWA RUNGWA GR W	GR	1,337	3	46	11	0	0	60
BARLETTE SAFARI CORPORATION LTD	RUVU MASAI GCA	GCA	2,446	1	32	3	0	2	38
MASAILAND HUNTING COMPANY LTD	SELOUS GR IH1	GR	423	1	16	0	1	0	18
RUNGWA GAME SAFARIS (T) LTD	SELOUS GR K1	GR	331	2	24	3	0	0	29
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K2	GR	639	1	50	3	0	0	54
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K4	GR	377	4	66	6	1	15	92
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR K5	GR	574	1	38	1	0	0	40
MALAGARASI HUNTING SAFARIS	SELOUS GR L1	GR	462	0	42	6	0	0	48
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL1	GR	1,695	1	59	3	1	0	64
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL2	GR	1,742	3	45	6	0	0	54
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR1	GR	1,126	2	27	2	0	0	31
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR2	GR	1,136	2	25	2	0	0	29
PORI TRACKERS OF AFRICA LTD	SELOUS GR LR3	GR	1,128	2	32	1	0	0	35
KILOMBERO NORTH SAFARI LTD	SELOUS GR LU1-LU2	GR	3,503	7	73	9	0	0	89
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR LU3	GR	610	0	1	0	0	0	1
MASAILAND HUNTING COMPANY LTD	SELOUS GR LU4-K3	GR	856	2	21	2	0	0	25

Company	Hunting Block	Status	Area	Prime (Elephant, Lion, Leopard)	Key (N=34 species)	Tertiary (N=17 species)	Small (n=17 species)	Birds (N= 9 species)	Total
TANGANYIKA GAME FISHING AND PHOTOGRAPHIC SAFARIS LTD	SELOUS GR LU5	GR	508	2	53	3	0	0	58
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU6	GR	880	3	72	7	1	4	87
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU7	GR	1,456	8	69	2	1	0	80
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR LU8	GR	1,621	4	18	2	0	0	24
PORI TRACKERS OF AFRICA LTD	SELOUS GR M2	GR	394	3	47	2	1	0	53
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR MA1	GR	1,677	2	43	2	0	2	49
FERECK SAFARIS LTD	SELOUS GR MB1	GR	2,156	2	29	2	0	0	33
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR MB2	GR	1,050	6	62	1	0	1	70
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MB3	GR	1,679	1	16	3	3	0	23
FERECK SAFARIS LTD	SELOUS GR MB4	GR		2	17	0	0	0	19
FRANCOLINE SAFARIS LTD	SELOUS GR MHJ1	GR	903	3	31	4	1	0	39
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MHJ2	GR	1,360	1	36	3	0	0	40
BUSHMAN HUNTING SAFARIS (T) LTD	SELOUS GR MHJ3	GR	1,024	2	34	2	0	0	38
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR ML1	GR	788	1	19	2	1	0	23
LUKE SAMARAS SAFARIS LTD	SELOUS GR MS1	GR	1,336	2	22	3	0	0	27
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MT1	GR	867	2	17	0	0	0	19
BARLETTE SAFARI CORPORATION LTD	SELOUS GR MT2	GR	1,998	1	36	5	2	0	44
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N1	GR	1,796	5	54	4	0	1	64
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N2	GR	1,028	5	24	1	0	0	30
MKWAWA HUNTING SAFARIS (T) LTD	SELOUS GR R1	GR	453	2	30	2	0	0	34
ROYAL FRONTIERS OF TANZANIA LTD	SELOUS GR R2	GR	684	3	30	6	0	0	39
ORIO WILDLIFE SAFARIS	SELOUS GR R4	GR	578	1	5	0	0	0	6
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR U1	GR	586	0	9	0	0	0	9
FOA ADVENTURES SAFARIS LTD	SELOUS GR U2	GR	517	1	17	3	1	0	22
TANDALA HUNTING SAFARIS LTD	SELOUS GR U3	GR	773	0	0	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR U3	GR	773	4	56	3	1	8	72
LUKE SAMARAS SAFARIS LTD	SELOUS GR U4	GR	779	3	30	4	0	0	37
HSK SAFARIS CO LTD	SIMANJIRO GCA W	GCA	1,475	1	82	22	0	15	120
MELAMI HUNTING SAFARIS LTD	SIMANJIRO KITIANGARE GCA	GCA	1,718	6	109	24	5	5	149
TANZANIA SAFARI AND HUNTING (2003) LTD	SWAGASWAGA GR	GR	851	1	2	0	0	0	3

Company	Hunting Block	Status	Area	Prime (Elephant, Lion, Leopard)	Key (N=34 species)	Tertiary (N=17 species)	Small (n=17 species)	Birds (N= 9 species)	Total
EAST AFRICAN TROPHY HUNTER LTD	TALAMAI OA	OA	2,726	0	5	1	0	0	6
GAME FRONTIERS OF TANZANIA LTD	UGALLA GR E	GR	1,895	0	28	4	0	0	32
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR N	GR	1,961	1	20	5	0	1	27
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR S	GR	1,382	0	30	4	0	0	34
NORTHERN HUNTING ENTERPRISES LTD	UGUNDA GCA	GCA	4,392	1	16	1	0	5	23
AFRICAN BUFFALO SAFARIS TRACKERS LTD	UYUMBU WMA	WMA	833	1	12	3	0	0	16
MARERA SAFARI LODGE AND TOURS (T) LTD	WEMBERE OA C1	OA	1,502	2	9	6	0	0	17
	Total area/killed		**195,772**	251	4,222	574	37	171	5,255
	Actual Game Fee US$			$975,100	$5,132,240	$267,720	$8,050	$44,200	$6,427,310
	% of total quota			26%	37%	18%	3%	1%	31%
	Total quota			**976**	**11,425**	**3,251**	**1,391**	**15,997**	**17,043**
	Total Quota value			**$4,859,800**	**$12,938,380**	**$1,278,530**	**$313,025**	**$599,490**	**$19,389,735**

Company	Hunting Block	Status	Area	Prime			Total
				ELEPHANT	LEOPARD	LION	Prime (Elephant, Lion, Leopard)
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR E	GR		0	0	0	**0**
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR W	GR	1,195	0	0	0	**0**
ROBIN HURT SAFARIS (T) LTD	BURKO OA	OA	712	0	2	0	**2**
OLD NYIKA SAFARIS LTD	CHUNYA LUKWATI OA	OA	3,308	0	1	0	**1**
OLD NYIKA SAFARIS LTD	CHUNYA MSAMI OA	OA	2,459	0	1	0	**1**
GRUMETI RESERVES (T) LTD	GRUMETI GR	GR	435	0	0	0	**0**
SAID KAWAWA HUNTING SAFARIS LTD	IBANDA RUMANYIKA GR	GR	535	0	0	0	**0**
GRUMETI RESERVES (T) LTD	IKONA WMA	WMA	256	0	0	0	**0**
GRUMETI RESERVES (T) LTD	IKORONGO GR S	GR	559	0	0	0	**0**
TANDALA HUNTING SAFARIS LTD	INYONGA GCA C	GCA	2,115	0	0	1	**1**
MALAGARASI HUNTING SAFARIS	INYONGA GCA E	GCA	3,652	0	2	2	**4**
ROYAL FRONTIERS OF TANZANIA LTD	INYONGA GCA W	GCA	2,246	0	1	0	**1**
MASAI PLATEAU (T) LTD	IRKIUSHIOIBOR WMA	WMA	211	0	0	0	**0**
EAST AFRICAN TROPHY HUNTER LTD	KIGOSI C	GR	2,446	0	1	0	**1**
ZH POPPE	KIGOSI GR E	GR	2,420	0	0	0	**0**
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIGOSI GR S	GR	1,992	0	0	0	**0**
KILOMBERO NORTH SAFARI LTD	KILOMBERO GCA-MLIMBA	GCA	2,021	0	0	0	**0**
BUNDA SAFARIS LTD	KILWA OA N	OA	2,387	0	1	1	**2**
SAFARI CLUB TANZANIA LTD	KILWA OA S MBWEMKURU	OA	1,149	0	1	0	**1**
SAFARI CLUB TANZANIA LTD	KILWA OA S-NAKIU	OA	1,825	0	1	0	**1**
EUROAFRO GROUP LTD	KIMISI GR	GR	1,034	0	0	0	**0**
MELAMI HUNTING SAFARIS LTD	KITWAI GCA N	GCA	1,809	0	0	0	**0**
MWATISI HUNTING SAFARIS LTD	KITWAI GCA SE	GCA	1,157	0	0	1	**1**
BUNDA SAFARIS LTD	KITWAI GCA SW	GCA	1,464	0	1	0	**1**
PALAHALA SAFARIS AND HUNTING LTD	KIZIGO GR C	GR	1,313	0	4	1	**5**
TANZANIA WILDLIFE CORPORATION LTD	KIZIGO GR E1	GR	1,189	0	0	0	**0**
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIZIGO GR E2	GR	1,281	0	2	0	**2**
RUNGWA GAME SAFARIS (T) LTD	KIZIGO GR W	GR	1,249	0	3	0	**3**
WENGERT WINDROSE SAFARIS (T) LTD	LAKE NATRON GCA NS	GCA	1,824	0	0	0	**0**
KILOMBERO NORTH SAFARI LTD	LAKE NATRON GCA S	GCA	1,764	0	1	0	**1**
MICHEL MANTHEAKIS SAFARIS LTD	LAKE NATRON GCA W	GCA	1,768	0	1	0	**1**
GREEN LEAF LTD	LAKE RUKWA GCA	GCA	2,196	0	5	1	**6**

Company	Hunting Block	Status	Area	Prime			Total
				ELEPHANT	LEOPARD	LION	Prime (Elephant, Lion, Leopard)
ORTTELO BUSINESS CORPORATION LTD	LOLIONDO GCA	GCA	6,048	0	1	0	**1**
TANZANIA BUNDU SAFARIS LTD	LOLKISALE GCA	GCA	1,108	0	2	0	**2**
ROBIN HURT SAFARIS (T) LTD	LUGANZO GCA	GCA	5,118	0	3	0	**3**
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR N	GR	1,417	0	1	2	**3**
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR S	GR	2,156	0	7	2	**9**
GO WILD HUNTING SAFARIS LTD	LUNDA NKWAMBI GCA N	GCA	1,051	0	1	1	**2**
NORTHERN HUNTING ENTERPRISES LTD	LUWAFI GR/NKAMBA FR	FR	3,408	1	1	0	**2**
FERECK SAFARIS LTD	MAASAI OA E - MAKAME WMA	WMA	3,335	0	3	0	**3**
WENGERT WINDROSE SAFARIS (T) LTD	MAKERE FR-UVINZA OA	OA	2,561	0	0	0	**0**
ESHKESH SAFARIS LTD	MASAI OA E	OA	1,221	0	1	0	**1**
TANZANIA BUNDU SAFARIS LTD	MASAI OA W	OA	855	0	2	0	**2**
BUSHMAN HUNTING SAFARIS (T) LTD	MASWA GR (N)	GR	751	0	5	1	**6**
TANZANIA GAME TRACKER SAFARIS LTD	MASWA KIMALI GR	GR	1,341	0	2	0	**2**
TANZANIA GAME TRACKER SAFARIS LTD	MASWA MBONO	GR	707	0	2	0	**2**
GAME FRONTIERS OF TANZANIA LTD	MBARANGANDU WMA	WMA	3,090	0	2	0	**2**
MKWAWA HUNTING SAFARIS (T) LTD	MBOMIPA WMA	WMA	777	2	1	1	**4**
TANZANIA BUNDU SAFARIS LTD	MKUNGUNERO GR	GR	602	0	0	0	**0**
WILD FOOTPRINTS LTD	MLELE GCA N	GCA	2,302	0	2	0	**2**
ROBIN HURT SAFARIS (T) LTD	MLELE GCA S	GCA	1,244	0	3	0	**3**
MUHESI SAFARIS LTD	MONDULI JUU OA	OA	698	0	0	0	**0**
ROYAL FRONTIERS OF TANZANIA LTD	MOYOWOSI GR N	GR	3,163	0	0	0	**0**
WENGERT WINDROSE SAFARIS (T) LTD	MOYOWOSI GR S	GR	3,018	0	1	0	**1**
GAME FRONTIERS OF TANZANIA LTD	MOYOWOSI/NJIGWE GR 2	GR	1,691	0	2	2	**4**
KIBOKO HUNTING SAFARIS LTD	MOYOWOSI-NJINGWE GR 3	GR	1,759	0	2	1	**3**
TANDALA HUNTING SAFARIS LTD	MSIMA GCA E	GCA	2,094	0	1	1	**2**
MWATISI HUNTING SAFARIS LTD	MSIMA GCA W	GCA	2,234	0	2	2	**4**
AFRICAN BUFFALO SAFARIS TRACKERS LTD	MTO WA MBU	GCA	1,209	0	0	0	**0**
MARERA SAFARI LODGE AND TOURS (T) LTD	MUHESI GR W	GR	,253	0	5	2	**7**
BUNDA SAFARIS LTD	MWATISI OA N - FURUA OA	OA	,825	0	0	0	**0**
OLD NYIKA SAFARIS LTD	PITI OA W	OA	1,088	0	1	0	**1**
WEMBERE HUNTING SAFARIS LTD	RUHUDJI/IFINGA OA	OA	2,217	1	4	0	**5**

Company	Hunting Block	Status	Area	Prime			Total
				ELEPHANT	LEOPARD	LION	Prime (Elephant, Lion, Leopard)
TANZANIA WILDLIFE CORPORATION LTD	RUNGWA IKILI GR	GR	1,084	0	1	1	**2**
NORTHERN HUNTING ENTERPRISES LTD	RUNGWA INYONGA GR	GR	2,148	0	3	1	**4**
RUNGWA GAME SAFARIS (T) LTD	RUNGWA MPERA GR	GR	2,185	0	3	1	**4**
KILOMBERO NORTH SAFARI LTD	RUNGWA MWAMAGEMBE GR	GR	991	0	3	1	**4**
MWATISI HUNTING SAFARIS LTD	RUNGWA MZOMBWE OA	OA	1,962	0	1	2	**3**
WEMBERE HUNTING SAFARIS LTD	RUNGWA OA N	OA	2,076	0	0	0	**0**
ROBIN HURT SAFARIS (T) LTD	RUNGWA OA S	OA	1,810	0	4	0	**4**
GAME FRONTIERS OF TANZANIA LTD	RUNGWA RIVER GCA	GCA	3,300	0	1	0	**1**
BUSHMAN HUNTING SAFARIS (T) LTD	RUNGWA RUNGWA GR (E)	GR	1,370	0	3	1	**4**
MARERA SAFARI LODGE AND TOURS (T) LTD	RUNGWA RUNGWA GR W	GR	1,337	0	2	1	**3**
BARLETTE SAFARI CORPORATION LTD	RUVU MASAI GCA	GCA	2,446	0	1	0	**1**
MASAILAND HUNTING COMPANY LTD	SELOUS GR IH1	GR	423	0	0	1	**1**
RUNGWA GAME SAFARIS (T) LTD	SELOUS GR K1	GR	331	0	2	0	**2**
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K2	GR	639	0	1	0	**1**
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K4	GR	377	0	4	0	**4**
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR K5	GR	574	0	1	0	**1**
MALAGARASI HUNTING SAFARIS	SELOUS GR L1	GR	462	0	0	0	**0**
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL1	GR	1,695	0	1	0	**1**
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL2	GR	1,742	0	3	0	**3**
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR1	GR	1,126	0	2	0	**2**
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR2	GR	1,136	0	1	1	**2**
PORI TRACKERS OF AFRICA LTD	SELOUS GR LR3	GR	1,128	0	2	0	**2**
KILOMBERO NORTH SAFARI LTD	SELOUS GR LU1-LU2	GR	3,503	1	5	1	**7**
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR LU3	GR	610	0	0	0	**0**
MASAILAND HUNTING COMPANY LTD	SELOUS GR LU4-K3	GR	856	0	2	0	**2**
TANGANYIKA GAME FISHING AND PHOTOGRAPHIC SAFARIS LTD	SELOUS GR LU5	GR	508	0	1	1	**2**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU6	GR	880	0	2	1	**3**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU7	GR	1,456	0	7	1	**8**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR LU8	GR	1,621	1	3	0	**4**
PORI TRACKERS OF AFRICA LTD	SELOUS GR M2	GR	394	0	3	0	**3**
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR MA1	GR	1,677	0	1	1	**2**

Company	Hunting Block	Status	Area	Prime			Total
				ELEPHANT	LEOPARD	LION	Prime (Elephant, Lion, Leopard)
FERECK SAFARIS LTD	SELOUS GR MB1	GR	2,156	0	1	1	**2**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR MB2	GR	1,050	0	4	2	**6**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MB3	GR	1,679	0	1	0	**1**
FERECK SAFARIS LTD	SELOUS GR MB4	GR		1	1	0	**2**
FRANCOLINE SAFARIS LTD	SELOUS GR MHJ1	GR	903	0	2	1	**3**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MHJ2	GR	1,360	0	1	0	**1**
BUSHMAN HUNTING SAFARIS (T) LTD	SELOUS GR MHJ3	GR	1,024	0	2	0	**2**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR ML1	GR	788	0	1	0	**1**
LUKE SAMARAS SAFARIS LTD	SELOUS GR MS1	GR	1,336	0	2	0	**2**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MT1	GR	867	0	2	0	**2**
BARLETTE SAFARI CORPORATION LTD	SELOUS GR MT2	GR	1,998	0	1	0	**1**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N1	GR	1,796	0	5	0	**5**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N2	GR	1,028	0	4	1	**5**
MKWAWA HUNTING SAFARIS (T) LTD	SELOUS GR R1	GR	453	0	2	0	**2**
ROYAL FRONTIERS OF TANZANIA LTD	SELOUS GR R2	GR	684	0	3	0	**3**
ORIO WILDLIFE SAFARIS	SELOUS GR R4	GR	578	0	1	0	**1**
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR U1	GR	586	0	0	0	**0**
FOA ADVENTURES SAFARIS LTD	SELOUS GR U2	GR	517	0	1	0	**1**
TANDALA HUNTING SAFARIS LTD	SELOUS GR U3	GR	773	0	0	0	**0**
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR U3	GR	773	0	4	0	**4**
LUKE SAMARAS SAFARIS LTD	SELOUS GR U4	GR	779	0	2	1	**3**
HSK SAFARIS CO LTD	SIMANJIRO GCA W	GCA	1,475	0	1	0	**1**
MELAMI HUNTING SAFARIS LTD	SIMANJIRO KITIANGARE GCA	GCA	1,718	0	5	1	**6**
TANZANIA SAFARI AND HUNTING (2003) LTD	SWAGASWAGA GR	GR	851	0	1	0	**1**
EAST AFRICAN TROPHY HUNTER LTD	TALAMAI OA	OA	2,726	0	0	0	**0**
GAME FRONTIERS OF TANZANIA LTD	UGALLA GR E	GR	1,895	0	0	0	**0**
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR N	GR	1,961	0	1	0	**1**
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR S	GR	1,382	0	0	0	**0**
NORTHERN HUNTING ENTERPRISES LTD	UGUNDA GCA	GCA	4,392	0	1	0	**1**
AFRICAN BUFFALO SAFARIS TRACKERS LTD	UYUMBU WMA	WMA	833	0	1	0	**1**
MARERA SAFARI LODGE AND TOURS (T) LTD	WEMBERE OA C1	OA	1,502	0	2	0	**2**

Company	Hunting Block	Status	Area	Prime			Total
				ELEPHANT	LEOPARD	LION	Prime (Elephant, Lion, Leopard)
	Total area/killed		**195,772**	**7**	**200**	**44**	**251**
	Game Fee (Rifle): US$			$8,500	$3,500	$4,900	
	Actual Game Fee US$			$59,500	$700,000	$215,600	**$975,100**
	% of total quota			4%	44%	14%	**26%**
	Total quota			200	459	317	**976**
	Total Quota value			**$1,700,000**	**$1,606,500**	**$1,553,300**	**$4,859,800**

Company	Hunting Block	BUFFALO	ORYX FRINGED EARED	KUDU LESSER	KUDU GREATER	ROAN ANTELOPE	SABLE ANTELOPE COMMON	SABLE ANTELOPE ROOSEVELT	GERENUK	SITATUNGA EAST AFRICAN	BUSHBUCK CHOBE	BUSHBUCK MASAI
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR E	6	0	0	0	1	0	0	0	1	0	0
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR W	3	0	0	0	3	0	0	0	0	1	0
ROBIN HURT SAFARIS (T) LTD	BURKO OA	9	10	16	3	0	0	0	16	0	1	2
OLD NYIKA SAFARIS LTD	CHUNYA LUKWATI OA	7	0	0	1	0	3	0	0	0	1	0
OLD NYIKA SAFARIS LTD	CHUNYA MSAMI OA	9	0	0	0	1	1	2	0	0	0	0
GRUMETI RESERVES (T) LTD	GRUMETI GR	1	0	0	0	0	0	0	0	0	0	0
SAID KAWAWA HUNTING SAFARIS LTD	IBANDA RUMANYIKA GR	1	0	0	0	0	0	0	0	0	0	0
GRUMETI RESERVES (T) LTD	IKONA WMA	0	0	0	0	0	0	0	0	0	0	0
GRUMETI RESERVES (T) LTD	IKORONGO GR S	0	0	0	0	0	0	0	0	0	0	0
TANDALA HUNTING SAFARIS LTD	INYONGA GCA C	6	0	0	0	1	0	1	0	0	0	0
MALAGARASI HUNTING SAFARIS	INYONGA GCA E	2	0	0	0	1	0	1	0	0	0	0
ROYAL FRONTIERS OF TANZANIA LTD	INYONGA GCA W	1	0	0	0	1	0	0	0	0	0	0
MASAI PLATEAU (T) LTD	IRKIUSHIOIBOR WMA	4	3	1	0	0	0	0	0	0	0	0
EAST AFRICAN TROPHY HUNTER LTD	KIGOSI C	9	0	1	1	2	0	4	0	2	1	0
ZH POPPE	KIGOSI GR E	1	0	0	0	0	0	0	0	0	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIGOSI GR S	0	0	0	0	0	0	0	0	0	0	0
KILOMBERO NORTH SAFARI LTD	KILOMBERO GCA-MLIMBA	14	0	0	0	0	0	1	0	0	0	0
BUNDA SAFARIS LTD	KILWA OA N	5	0	0	1	0	1	0	0	0	0	0
SAFARI CLUB TANZANIA LTD	KILWA OA S MBWEMKURU	1	0	0	1	0	0	1	0	0	0	0
SAFARI CLUB TANZANIA LTD	KILWA OA S-NAKIU	5	0	0	1	0	0	0	0	0	0	0
EUROAFRO GROUP LTD	KIMISI GR	10	0	0	0	1	0	0	0	0	0	0
MELAMI HUNTING SAFARIS LTD	KITWAI GCA N	0	0	0	0	0	0	0	1	0	0	0

Company	Hunting Block	BUFFALO	ORYX FRINGED EARED	KUDU LESSER	KUDU GREATER	ROAN ANTELOPE	SABLE ANTELOPE COMMON	SABLE ANTELOPE ROOSEVELT	GERENUK	SITATUNGA EAST AFRICAN	BUSHBUCK CHOBE	BUSHBUCK MASAI
MWATISI HUNTING SAFARIS LTD	KITWAI GCA SE	0	1	0	0	0	0	0	1	0	0	0
BUNDA SAFARIS LTD	KITWAI GCA SW	1	2	1	0	0	0	0	3	0	0	0
PALAHALA SAFARIS AND HUNTING LTD	KIZIGO GR C	12	0	0	0	0	0	2	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	KIZIGO GR E1	0	0	0	0	0	0	0	0	0	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIZIGO GR E2	7	0	0	1	0	0	0	0	0	0	0
RUNGWA GAME SAFARIS (T) LTD	KIZIGO GR W	8	0	0	2	1	0	3	0	0	0	0
WENGERT WINDROSE SAFARIS (T) LTD	LAKE NATRON GCA NS	0	1	4	0	0	0	0	6	0	0	0
KILOMBERO NORTH SAFARI LTD	LAKE NATRON GCA S	2	3	4	0	0	0	0	4	0	2	2
MICHEL MANTHEAKIS SAFARIS LTD	LAKE NATRON GCA W	2	4	4	0	0	0	0	3	0	0	0
GREEN LEAF LTD	LAKE RUKWA GCA	20	0	0	1	0	4	0	0	0	0	3
ORTTELO BUSINESS CORPORATION LTD	LOLIONDO GCA	2	0	0	0	0	0	0	0	0	0	0
TANZANIA BUNDU SAFARIS LTD	LOLKISALE GCA	28	7	6	4	0	0	0	0	0	0	0
ROBIN HURT SAFARIS (T) LTD	LUGANZO GCA	11	0	0	2	8	2	5	0	5	3	3
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR N	15	0	0	0	0	1	0	0	0	0	0
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR S	23	0	0	2	1	5	1	0	0	5	0
GO WILD HUNTING SAFARIS LTD	LUNDA NKWAMBI GCA N	3	0	1	4	1	0	0	0	0	2	0
NORTHERN HUNTING ENTERPRISES LTD	LUWAFI GR/NKAMBA FR	3	0	0	0	1	0	0	0	0	0	0
FERECK SAFARIS LTD	MAASAI OA E - MAKAME WMA	1	6	4	1	0	0	0	3	0	0	0
WENGERT WINDROSE SAFARIS (T) LTD	MAKERE FR-UVINZA OA	5	0	0	0	1	0	0	0	5	0	1

Company	Hunting Block	BUFFALO	ORYX FRINGED EARED	KUDU LESSER	KUDU GREATER	ROAN ANTELOPE	SABLE ANTELOPE COMMON	SABLE ANTELOPE ROOSEVELT	GERENUK	SITATUNGA EAST AFRICAN	BUSHBUCK CHOBE	BUSHBUCK MASAI
ESHKESH SAFARIS LTD	MASAI OA E	0	2	2	0	0	0	0	3	0	0	1
TANZANIA BUNDU SAFARIS LTD	MASAI OA W	24	5	5	6	0	0	0	1	0	0	0
BUSHMAN HUNTING SAFARIS (T) LTD	MASWA GR (N)	32	0	0	0	4	0	0	0	0	6	0
TANZANIA GAME TRACKER SAFARIS LTD	MASWA KIMALI GR	15	0	0	0	0	0	1	0	0	0	1
TANZANIA GAME TRACKER SAFARIS LTD	MASWA MBONO	11	0	0	0	0	0	0	0	0	0	0
GAME FRONTIERS OF TANZANIA LTD	MBARANGANDU WMA	5	0	0	0	0	0	0	0	0	0	0
MKWAWA HUNTING SAFARIS (T) LTD	MBOMIPA WMA	1	0	1	1	0	0	0	0	0	1	0
TANZANIA BUNDU SAFARIS LTD	MKUNGUNERO GR	7	0	3	1	0	0	0	2	0	0	0
WILD FOOTPRINTS LTD	MLELE GCA N	5	0	0	1	1	0	1	0	0	0	0
ROBIN HURT SAFARIS (T) LTD	MLELE GCA S	13	0	0	0	0	0	2	0	0	1	0
MUHESI SAFARIS LTD	MONDULI JUU OA	0	0	3	0	0	0	0	3	0	0	0
ROYAL FRONTIERS OF TANZANIA LTD	MOYOWOSI GR N	4	0	0	0	0	0	1	0	1	1	0
WENGERT WINDROSE SAFARIS (T) LTD	MOYOWOSI GR S	12	0	0	0	2	0	2	0	0	0	0
GAME FRONTIERS OF TANZANIA LTD	MOYOWOSI/NJIGWE GR 2	6	0	0	0	0	0	1	0	0	2	0
KIBOKO HUNTING SAFARIS LTD	MOYOWOSI-NJINGWE GR 3	16	0	0	0	4	0	3	0	0	0	0
TANDALA HUNTING SAFARIS LTD	MSIMA GCA E	3	0	0	0	2	0	1	0	0	1	0
MWATISI HUNTING SAFARIS LTD	MSIMA GCA W	4	0	1	0	3	0	2	0	0	3	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	MTO WA MBU	0	1	8	1	0	0	0	6	0	0	0
MARERA SAFARI LODGE AND TOURS (T) LTD	MUHESI GR W	2	0	0	2	5	0	4	0	0	1	0
BUNDA SAFARIS LTD	MWATISI OA N - FURUA	12	0	0	0	0	0	0	0	0	0	0

Company	Hunting Block	BUFFALO	ORYX FRINGED EARED	KUDU LESSER	KUDU GREATER	ROAN ANTELOPE	SABLE ANTELOPE COMMON	SABLE ANTELOPE ROOSEVELT	GERENUK	SITATUNGA EAST AFRICAN	BUSHBUCK CHOBE	BUSHBUCK MASAI
	OA											
OLD NYIKA SAFARIS LTD	PITI OA W	6	0	0	2	3	1	1	0	0	0	0
WEMBERE HUNTING SAFARIS LTD	RUHUDJI/IFINGA OA	11	0	0	0	0	0	2	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	RUNGWA IKILI GR	14	0	0	1	1	0	4	0	0	0	0
NORTHERN HUNTING ENTERPRISES LTD	RUNGWA INYONGA GR	17	0	0	4	4	0	2	0	0	0	0
RUNGWA GAME SAFARIS (T) LTD	RUNGWA MPERA GR	11	0	0	2	3	0	5	0	0	0	0
KILOMBERO NORTH SAFARI LTD	RUNGWA MWAMAGEMBE GR	9	0	0	1	1	0	4	0	0	0	0
MWATISI HUNTING SAFARIS LTD	RUNGWA MZOMBWE OA	5	0	0	0	1	0	1	0	0	0	0
WEMBERE HUNTING SAFARIS LTD	RUNGWA OA N	0	0	0	0	0	0	2	0	0	0	0
ROBIN HURT SAFARIS (T) LTD	RUNGWA OA S	14	0	0	1	2	1	2	0	0	0	0
GAME FRONTIERS OF TANZANIA LTD	RUNGWA RIVER GCA	3	0	0	0	0	0	3	0	0	1	0
BUSHMAN HUNTING SAFARIS (T) LTD	RUNGWA RUNGWA GR (E)	9	0	0	3	1	0	0	0	0	0	0
MARERA SAFARI LODGE AND TOURS (T) LTD	RUNGWA RUNGWA GR W	14	0	0	1	5	0	1	0	0	1	0
BARLETTE SAFARI CORPORATION LTD	RUVU MASAI GCA	1	4	4	3	0	0	0	1	0	1	0
MASAILAND HUNTING COMPANY LTD	SELOUS GR IH1	4	0	0	2	0	0	0	0	0	0	0
RUNGWA GAME SAFARIS (T) LTD	SELOUS GR K1	5	0	0	1	0	0	1	0	0	0	0
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K2	12	0	0	1	0	0	0	0	0	0	0
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K4	10	0	0	0	0	0	1	0	0	0	0
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR K5	8	0	0	0	0	0	2	0	0	0	0

Company	Hunting Block	BUFFALO	ORYX FRINGED EARED	KUDU LESSER	KUDU GREATER	ROAN ANTELOPE	SABLE ANTELOPE COMMON	SABLE ANTELOPE ROOSEVELT	GERENUK	SITATUNGA EAST AFRICAN	BUSHBUCK CHOBE	BUSHBUCK MASAI
MALAGARASI HUNTING SAFARIS	SELOUS GR L1	15	0	0	0	0	0	3	0	0	0	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL1	19	0	0	2	0	0	0	0	0	1	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL2	11	0	0	4	0	0	0	0	0	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR1	7	0	0	1	0	0	0	0	0	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR2	6	0	0	1	0	0	1	0	0	0	0
PORI TRACKERS OF AFRICA LTD	SELOUS GR LR3	10	0	0	0	0	0	0	0	0	0	0
KILOMBERO NORTH SAFARI LTD	SELOUS GR LU1-LU2	23	0	0	1	0	0	0	0	0	1	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR LU3	0	0	0	0	0	0	0	0	0	0	0
MASAILAND HUNTING COMPANY LTD	SELOUS GR LU4-K3	2	0	0	0	0	0	1	0	0	1	0
TANGANYIKA GAME FISHING AND PHOTOGRAPHIC SAFARIS LTD	SELOUS GR LU5	16	0	0	1	0	0	1	0	0	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU6	20	0	0	0	0	0	1	0	0	1	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU7	18	0	0	1	0	0	1	0	0	2	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR LU8	5	0	0	0	0	0	0	0	0	1	0
PORI TRACKERS OF AFRICA LTD	SELOUS GR M2	10	0	0	0	0	0	0	0	0	1	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR MA1	12	0	0	0	0	0	1	0	0	0	0
FERECK SAFARIS LTD	SELOUS GR MB1	14	0	0	2	0	0	0	0	0	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR MB2	13	0	0	1	0	0	0	0	0	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MB3	3	0	0	0	0	0	1	0	0	0	0
FERECK SAFARIS LTD	SELOUS GR MB4	5	0	0	0	0	0	0	0	0	0	0
FRANCOLINE SAFARIS LTD	SELOUS GR MHJ1	11	0	0	1	0	0	2	0	0	0	0

Company	Hunting Block	BUFFALO	ORYX FRINGED EARED	KUDU LESSER	KUDU GREATER	ROAN ANTELOPE	SABLE ANTELOPE COMMON	SABLE ANTELOPE ROOSEVELT	GERENUK	SITATUNGA EAST AFRICAN	BUSHBUCK CHOBE	BUSHBUCK MASAI
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MHJ2	9	0	0	0	0	0	0	0	0	0	0
BUSHMAN HUNTING SAFARIS (T) LTD	SELOUS GR MHJ3	6	0	0	1	0	0	2	0	0	1	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR ML1	1	0	0	0	0	0	0	0	0	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR MS1	5	0	0	1	0	0	1	0	0	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MT1	4	0	0	0	0	0	0	0	0	0	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR MT2	13	0	0	1	0	0	0	0	0	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N1	21	0	0	1	0	0	0	0	0	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N2	5	0	0	1	0	0	0	0	0	0	0
MKWAWA HUNTING SAFARIS (T) LTD	SELOUS GR R1	16	0	0	0	0	0	0	0	0	0	0
ROYAL FRONTIERS OF TANZANIA LTD	SELOUS GR R2	8	0	0	0	0	0	0	0	0	0	0
ORIO WILDLIFE SAFARIS	SELOUS GR R4	3	0	0	0	0	0	0	0	0	0	0
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR U1	2	0	0	0	0	0	0	0	0	0	0
FOA ADVENTURES SAFARIS LTD	SELOUS GR U2	6	0	0	0	0	0	0	0	0	0	0
TANDALA HUNTING SAFARIS LTD	SELOUS GR U3	0	0	0	0	0	0	0	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR U3	11	0	0	0	1	0	1	0	0	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR U4	7	0	0	1	0	0	0	0	0	1	0
HSK SAFARIS CO LTD	SIMANJIRO GCA W	6	0	10	4	0	0	0	0	0	0	0
MELAMI HUNTING SAFARIS LTD	SIMANJIRO KITIANGARE GCA	24	11	10	5	0	0	0	0	0	0	2
TANZANIA SAFARI AND HUNTING (2003) LTD	SWAGASWAGA GR	0	0	1	1	0	0	0	0	0	0	0
EAST AFRICAN TROPHY	TALAMAI OA	0	1	0	0	0	0	0	1	0	0	1

Company	Hunting Block	BUFFALO	ORYX FRINGED EARED	KUDU LESSER	KUDU GREATER	ROAN ANTELOPE	SABLE ANTELOPE COMMON	SABLE ANTELOPE ROOSEVELT	GERENUK	SITATUNGA EAST AFRICAN	BUSHBUCK CHOBE	BUSHBUCK MASAI
HUNTER LTD												
GAME FRONTIERS OF TANZANIA LTD	UGALLA GR E	8	0	0	0	3	0	1	0	0	0	0
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR N	1	0	0	2	1	0	2	0	0	0	1
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR S	6	0	0	0	0	0	0	0	0	0	1
NORTHERN HUNTING ENTERPRISES LTD	UGUNDA GCA	3	0	0	0	1	0	0	0	0	1	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	UYUMBU WMA	2	0	0	1	1	0	3	0	0	0	0
MARERA SAFARI LODGE AND TOURS (T) LTD	WEMBERE OA C1	0	0	0	1	1	0	3	0	0	0	0
	Total area/killed	**949**	**61**	**90**	**94**	**74**	**19**	**95**	**54**	**14**	**46**	**18**
	Game Fee (Rifle): US$	$1,900	$2,800	$2,600	$2,200	$2,550	$2,550	$2,550	$2,500	$2,000	$600	$600
	Actual Game Fee US$	$1,803,100	$170,800	$234,000	$206,800	$188,700	$48,450	$242,250	$135,000	$28,000	$27,600	$10,800
	% of total quota	52%	44%	48%	26%	35%	32%	35%	51%	31%	16%	17%
	Total quota	1817	138	187	357	214	60	272	106	45	292	107
	Total Quota value	$3,452,300	$386,400	$486,200	$785,400	$545,700	$153,000	$693,600	$265,000	$90,000	$175,200	$64,200

Company	Hunting Block	BUSHPIG	GAZELLE GRANT'S	GAZELLE THOMSON'S	ELAND LIVINGSTONES	ELAND PATERSON'S	HIPPO	PUKU	HARTEBEEST COKE'S
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR E	0	0	0	4	0	0	0	0
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR W	0	0	0	3	0	0	0	0
ROBIN HURT SAFARIS (T) LTD	BURKO OA	0	23	25	0	3	0	0	1
OLD NYIKA SAFARIS LTD	CHUNYA LUKWATI OA	1	0	0	0	0	1	0	0
OLD NYIKA SAFARIS LTD	CHUNYA MSAMI OA	0	0	0	1	0	0	0	0
GRUMETI RESERVES (T) LTD	GRUMETI GR	0	1	1	0	0	0	0	0
SAID KAWAWA HUNTING SAFARIS LTD	IBANDA RUMANYIKA GR	0	0	0	0	0	0	0	0
GRUMETI RESERVES (T) LTD	IKONA WMA	0	0	0	0	0	0	0	0
GRUMETI RESERVES (T) LTD	IKORONGO GR S	0	0	0	0	0	0	0	0
TANDALA HUNTING SAFARIS LTD	INYONGA GCA C	0	0	0	0	0	2	0	0
MALAGARASI HUNTING SAFARIS	INYONGA GCA E	0	0	0	1	0	0	0	0
ROYAL FRONTIERS OF TANZANIA LTD	INYONGA GCA W	0	0	0	0	0	1	0	0
MASAI PLATEAU (T) LTD	IRKIUSHIOIBOR WMA	0	1	0	0	1	0	0	1
EAST AFRICAN TROPHY HUNTER LTD	KIGOSI C	2	0	0	0	0	0	0	0
ZH POPPE	KIGOSI GR E	0	0	0	0	0	0	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIGOSI GR S	0	0	1	0	0	0	0	1
KILOMBERO NORTH SAFARI LTD	KILOMBERO GCA-MLIMBA	1	0	0	0	0	0	13	0
BUNDA SAFARIS LTD	KILWA OA N	0	0	0	0	0	1	0	0
SAFARI CLUB TANZANIA LTD	KILWA OA S MBWEMKURU	0	0	0	0	0	0	0	0
SAFARI CLUB TANZANIA LTD	KILWA OA S-NAKIU	0	0	0	0	0	0	0	0
EUROAFRO GROUP LTD	KIMISI GR	0	0	0	1	0	0	0	0
MELAMI HUNTING SAFARIS LTD	KITWAI GCA N	0	0	0	0	0	0	0	0
MWATISI HUNTING SAFARIS LTD	KITWAI GCA SE	0	3	0	0	0	0	0	0
BUNDA SAFARIS LTD	KITWAI GCA SW	0	4	0	1	0	0	0	0
PALAHALA SAFARIS AND HUNTING LTD	KIZIGO GR C	0	0	0	1	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	KIZIGO GR E1	0	0	0	0	0	0	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIZIGO GR E2	1	0	0	0	0	0	0	0
RUNGWA GAME SAFARIS (T) LTD	KIZIGO GR W	1	0	0	1	0	0	0	0
WENGERT WINDROSE SAFARIS (T) LTD	LAKE NATRON GCA NS	0	9	4	0	0	0	0	0
KILOMBERO NORTH SAFARI LTD	LAKE NATRON GCA S	1	15	14	1	0	0	0	0
MICHEL MANTHEAKIS SAFARIS LTD	LAKE NATRON GCA W	0	9	12	1	1	0	0	1

Company	Hunting Block	BUSHPIG	GAZELLE GRANT'S	GAZELLE THOMSON'S	ELAND LIVINGSTONES	ELAND PATERSON'S	HIPPO	PUKU	HARTEBEEST COKE'S
GREEN LEAF LTD	LAKE RUKWA GCA	5	0	0	2	0	5	7	0
ORTTELO BUSINESS CORPORATION LTD	LOLIONDO GCA	0	3	1	0	2	0	0	1
TANZANIA BUNDU SAFARIS LTD	LOLKISALE GCA	0	11	2	0	4	0	0	11
ROBIN HURT SAFARIS (T) LTD	LUGANZO GCA	1	1	0	0	2	2	0	2
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR N	1	0	0	0	1	2	0	0
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR S	3	0	0	0	0	0	0	0
GO WILD HUNTING SAFARIS LTD	LUNDA NKWAMBI GCA N	0	1	0	0	0	4	0	0
NORTHERN HUNTING ENTERPRISES LTD	LUWAFI GR/NKAMBA FR	0	0	0	0	0	0	0	0
FERECK SAFARIS LTD	MAASAI OA E - MAKAME WMA	0	6	0	0	1	0	0	0
WENGERT WINDROSE SAFARIS (T) LTD	MAKERE FR-UVINZA OA	0	0	0	1	1	0	0	0
ESHKESH SAFARIS LTD	MASAI OA E	0	4	2	0	0	0	0	2
TANZANIA BUNDU SAFARIS LTD	MASAI OA W	1	10	2	0	5	0	0	8
BUSHMAN HUNTING SAFARIS (T) LTD	MASWA GR (N)	0	0	18	3	2	1	0	6
TANZANIA GAME TRACKER SAFARIS LTD	MASWA KIMALI GR	0	0	3	0	1	0	0	5
TANZANIA GAME TRACKER SAFARIS LTD	MASWA MBONO	0	0	7	0	1	0	0	1
GAME FRONTIERS OF TANZANIA LTD	MBARANGANDU WMA	0	0	0	1	0	0	0	0
MKWAWA HUNTING SAFARIS (T) LTD	MBOMIPA WMA	1	0	0	1	0	0	0	0
TANZANIA BUNDU SAFARIS LTD	MKUNGUNERO GR	0	2	0	0	0	0	0	3
WILD FOOTPRINTS LTD	MLELE GCA N	0	0	0	0	0	0	0	0
ROBIN HURT SAFARIS (T) LTD	MLELE GCA S	2	0	0	0	0	0	0	0
MUHESI SAFARIS LTD	MONDULI JUU OA	0	7	3	0	2	0	0	0
ROYAL FRONTIERS OF TANZANIA LTD	MOYOWOSI GR N	0	0	0	1	0	0	0	0
WENGERT WINDROSE SAFARIS (T) LTD	MOYOWOSI GR S	0	0	0	0	0	0	0	0
GAME FRONTIERS OF TANZANIA LTD	MOYOWOSI/NJIGWE GR 2	0	0	0	0	0	0	0	0
KIBOKO HUNTING SAFARIS LTD	MOYOWOSI-NJINGWE GR 3	0	0	0	1	0	0	0	0
TANDALA HUNTING SAFARIS LTD	MSIMA GCA E	0	0	0	0	1	0	0	0
MWATISI HUNTING SAFARIS LTD	MSIMA GCA W	1	0	0	0	0	2	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	MTO WA MBU	0	15	10	1	0	0	0	0
MARERA SAFARI LODGE AND TOURS (T) LTD	MUHESI GR W	0	0	0	0	0	0	0	0
BUNDA SAFARIS LTD	MWATISI OA N - FURUA OA	0	0	0	0	0	0	0	0

Company	Hunting Block	BUSHPIG	GAZELLE GRANT'S	GAZELLE THOMSON'S	ELAND LIVINGSTONES	ELAND PATERSON'S	HIPPO	PUKU	HARTEBEEST COKE'S
OLD NYIKA SAFARIS LTD	PITI OA W	1	0	0	1	0	2	0	0
WEMBERE HUNTING SAFARIS LTD	RUHUDJI/IFINGA OA	3	0	0	1	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	RUNGWA IKILI GR	0	0	0	2	0	0	0	0
NORTHERN HUNTING ENTERPRISES LTD	RUNGWA INYONGA GR	0	0	0	4	0	0	0	0
RUNGWA GAME SAFARIS (T) LTD	RUNGWA MPERA GR	0	0	0	1	0	0	0	0
KILOMBERO NORTH SAFARI LTD	RUNGWA MWAMAGEMBE GR	1	0	0	2	0	0	0	0
MWATISI HUNTING SAFARIS LTD	RUNGWA MZOMBWE OA	0	0	0	0	0	0	0	2
WEMBERE HUNTING SAFARIS LTD	RUNGWA OA N	0	0	0	0	0	1	0	0
ROBIN HURT SAFARIS (T) LTD	RUNGWA OA S	0	0	0	2	2	0	0	0
GAME FRONTIERS OF TANZANIA LTD	RUNGWA RIVER GCA	0	0	0	0	0	2	0	0
BUSHMAN HUNTING SAFARIS (T) LTD	RUNGWA RUNGWA GR (E)	0	0	0	3	0	3	0	1
MARERA SAFARI LODGE AND TOURS (T) LTD	RUNGWA RUNGWA GR W	0	0	0	2	0	0	0	0
BARLETTE SAFARI CORPORATION LTD	RUVU MASAI GCA	0	3	0	1	1	0	0	1
MASAILAND HUNTING COMPANY LTD	SELOUS GR IH1	0	0	0	0	0	0	0	0
RUNGWA GAME SAFARIS (T) LTD	SELOUS GR K1	0	0	0	1	0	2	0	0
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K2	1	0	0	0	0	1	0	0
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K4	0	0	0	2	0	4	0	0
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR K5	0	0	0	0	0	5	0	0
MALAGARASI HUNTING SAFARIS	SELOUS GR L1	1	0	0	2	0	2	0	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL1	0	0	0	1	0	4	0	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL2	0	0	0	3	0	5	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR1	0	0	0	1	0	3	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR2	0	0	0	0	0	0	0	0
PORI TRACKERS OF AFRICA LTD	SELOUS GR LR3	0	0	0	0	0	1	0	0
KILOMBERO NORTH SAFARI LTD	SELOUS GR LU1-LU2	0	0	0	0	0	7	0	1
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR LU3	0	0	0	0	0	0	0	0
MASAILAND HUNTING COMPANY LTD	SELOUS GR LU4-K3	0	0	0	0	0	2	0	0
TANGANYIKA GAME FISHING AND PHOTOGRAPHIC SAFARIS LTD	SELOUS GR LU5	0	0	0	2	0	2	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU6	0	0	0	1	0	7	0	0

Company	Hunting Block	BUSHPIG	GAZELLE GRANT'S	GAZELLE THOMSON'S	ELAND LIVINGSTONES	ELAND PATERSON'S	HIPPO	PUKU	HARTEBEEST COKE'S
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU7	0	0	0	2	0	5	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR LU8	0	0	0	0	0	3	0	0
PORI TRACKERS OF AFRICA LTD	SELOUS GR M2	1	0	0	1	0	3	0	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR MA1	0	0	0	1	0	3	0	0
FERECK SAFARIS LTD	SELOUS GR MB1	0	0	0	0	0	1	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR MB2	0	0	0	4	0	4	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MB3	0	0	0	0	0	1	0	0
FERECK SAFARIS LTD	SELOUS GR MB4	0	0	0	1	0	1	0	0
FRANCOLINE SAFARIS LTD	SELOUS GR MHJ1	0	0	0	1	0	4	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MHJ2	0	0	0	2	0	3	0	0
BUSHMAN HUNTING SAFARIS (T) LTD	SELOUS GR MHJ3	0	0	0	1	0	3	0	1
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR ML1	0	0	0	3	0	3	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR MS1	0	0	0	1	0	1	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MT1	0	0	0	0	0	1	0	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR MT2	0	0	0	3	0	2	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N1	0	0	0	0	0	5	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N2	0	0	0	0	0	3	0	0
MKWAWA HUNTING SAFARIS (T) LTD	SELOUS GR R1	0	0	0	1	0	1	0	0
ROYAL FRONTIERS OF TANZANIA LTD	SELOUS GR R2	0	0	0	0	0	3	0	0
ORIO WILDLIFE SAFARIS	SELOUS GR R4	0	0	0	0	0	0	0	0
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR U1	0	0	0	0	0	1	0	0
FOA ADVENTURES SAFARIS LTD	SELOUS GR U2	0	0	0	0	0	1	0	0
TANDALA HUNTING SAFARIS LTD	SELOUS GR U3	0	0	0	0	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR U3	0	0	0	0	1	3	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR U4	0	0	0	1	1	3	0	0
HSK SAFARIS CO LTD	SIMANJIRO GCA W	0	21	11	0	1	0	0	3
MELAMI HUNTING SAFARIS LTD	SIMANJIRO KITIANGARE GCA	5	13	1	0	1	0	0	7
TANZANIA SAFARI AND HUNTING (2003) LTD	SWAGASWAGA GR	0	0	0	0	0	0	0	0
EAST AFRICAN TROPHY HUNTER LTD	TALAMAI OA	0	0	0	0	0	0	0	1
GAME FRONTIERS OF TANZANIA LTD	UGALLA GR E	0	0	0	0	0	1	0	0
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR N	0	0	0	0	0	1	0	0

Company	Hunting Block	BUSHPIG	GAZELLE GRANT'S	GAZELLE THOMSON'S	ELAND LIVINGSTONES	ELAND PATERSON'S	HIPPO	PUKU	HARTEBEEST COKE'S
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR S	1	0	0	0	0	1	0	1
NORTHERN HUNTING ENTERPRISES LTD	UGUNDA GCA	0	0	0	0	0	2	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	UYUMBU WMA	0	0	0	0	0	0	0	0
MARERA SAFARI LODGE AND TOURS (T) LTD	WEMBERE OA C1	0	0	0	0	0	0	0	0
	Total area/killed	36	162	117	80	35	137	20	61
	Game Fee (Rifle): US$	$420	$450	$500	$1,700	$1,700	$1,500	$800	$650
	Actual Game Fee US$	$15,120	$72,900	$58,500	$136,000	$59,500	$205,500	$16,000	$39,650
	% of total quota	11%	38%	34%	27%	23%	44%	80%	31%
	Total quota	331	427	340	294	151	308	25	194
	Total Quota value	$139,020	$192,150	$170,000	$499,800	$256,700	$462,000	$20,000	$126,100

Company	Hunting Block	HARTEBEEST LICHTEINSTEIN'S	HYAENA SPOTTED	HYAENA STRIPED	IMPALA EAST AFRICAN	IMPALA SOUTHERN	KLIPSPRINGER	ORIBI COMMON	REEDBUCK MOUNTAIN (CHANDLER'S)
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR E	0	0	0	8	0	0	2	0
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR W	0	0	0	10	0	0	4	0
ROBIN HURT SAFARIS (T) LTD	BURKO OA	0	0	0	2	0	0	0	5
OLD NYIKA SAFARIS LTD	CHUNYA LUKWATI OA	4	1	0	0	1	1	1	0
OLD NYIKA SAFARIS LTD	CHUNYA MSAMI OA	4	1	0	0	0	0	0	0
GRUMETI RESERVES (T) LTD	GRUMETI GR	0	0	0	3	0	0	0	0
SAID KAWAWA HUNTING SAFARIS LTD	IBANDA RUMANYIKA GR	0	0	0	0	1	0	0	0
GRUMETI RESERVES (T) LTD	IKONA WMA	0	0	0	0	0	0	0	0
GRUMETI RESERVES (T) LTD	IKORONGO GR S	0	0	0	1	0	0	0	0
TANDALA HUNTING SAFARIS LTD	INYONGA GCA C	2	1	0	0	2	0	0	0
MALAGARASI HUNTING SAFARIS	INYONGA GCA E	1	0	0	0	0	0	0	0
ROYAL FRONTIERS OF TANZANIA LTD	INYONGA GCA W	0	0	0	0	2	0	2	0
MASAI PLATEAU (T) LTD	IRKIUSHIOIBOR WMA	0	0	0	2	0	0	0	1
EAST AFRICAN TROPHY HUNTER LTD	KIGOSI C	2	2	0	0	0	0	0	0
ZH POPPE	KIGOSI GR E	0	0	0	0	0	0	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIGOSI GR S	0	0	0	0	0	0	0	0
KILOMBERO NORTH SAFARI LTD	KILOMBERO GCA-MLIMBA	6	0	0	0	0	0	0	0
BUNDA SAFARIS LTD	KILWA OA N	2	1	0	1	0	0	0	0
SAFARI CLUB TANZANIA LTD	KILWA OA S MBWEMKURU	1	0	0	0	0	0	0	0
SAFARI CLUB TANZANIA LTD	KILWA OA S-NAKIU	2	1	0	0	0	1	1	0
EUROAFRO GROUP LTD	KIMISI GR	0	0	0	0	2	0	3	0
MELAMI HUNTING SAFARIS LTD	KITWAI GCA N	0	0	0	0	0	0	0	0
MWATISI HUNTING SAFARIS LTD	KITWAI GCA SE	1	0	0	1	0	0	0	0
BUNDA SAFARIS LTD	KITWAI GCA SW	0	0	0	1	0	0	0	0
PALAHALA SAFARIS AND HUNTING LTD	KIZIGO GR C	7	1	0	0	5	1	2	0
TANZANIA WILDLIFE CORPORATION LTD	KIZIGO GR E1	0	0	0	0	0	0	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIZIGO GR E2	0	0	0	3	1	1	1	0
RUNGWA GAME SAFARIS (T) LTD	KIZIGO GR W	6	0	0	0	0	3	1	0
WENGERT WINDROSE SAFARIS (T) LTD	LAKE NATRON GCA NS	0	0	0	1	0	0	0	0
KILOMBERO NORTH SAFARI LTD	LAKE NATRON GCA S	0	1	0	1	2	0	0	0

Company	Hunting Block	HARTEBEEST LICHTEINSTEIN'S	HYAENA SPOTTED	HYAENA STRIPED	IMPALA EAST AFRICAN	IMPALA SOUTHERN	KLIPSPRINGER	ORIBI COMMON	REEDBUCK MOUNTAIN (CHANDLER'S)
MICHEL MANTHEAKIS SAFARIS LTD	LAKE NATRON GCA W	0	5	2	5	0	2	0	7
GREEN LEAF LTD	LAKE RUKWA GCA	5	7	0	8	0	0	0	0
ORTTELO BUSINESS CORPORATION LTD	LOLIONDO GCA	0	0	0	1	0	0	0	0
TANZANIA BUNDU SAFARIS LTD	LOLKISALE GCA	0	3	0	11	0	0	0	0
ROBIN HURT SAFARIS (T) LTD	LUGANZO GCA	6	1	0	3	4	1	1	0
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR N	4	0	0	1	1	1	0	0
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR S	11	3	0	0	2	6	0	0
GO WILD HUNTING SAFARIS LTD	LUNDA NKWAMBI GCA N	0	1	0	0	5	0	0	0
NORTHERN HUNTING ENTERPRISES LTD	LUWAFI GR/NKAMBA FR	0	0	0	0	0	0	0	0
FERECK SAFARIS LTD	MAASAI OA E - MAKAME WMA	0	0	0	6	1	0	0	0
WENGERT WINDROSE SAFARIS (T) LTD	MAKERE FR-UVINZA OA	0	0	0	0	0	0	0	0
ESHKESH SAFARIS LTD	MASAI OA E	0	0	0	1	1	0	0	0
TANZANIA BUNDU SAFARIS LTD	MASAI OA W	0	2	0	11	0	0	0	0
BUSHMAN HUNTING SAFARIS (T) LTD	MASWA GR (N)	2	9	0	16	0	1	0	0
TANZANIA GAME TRACKER SAFARIS LTD	MASWA KIMALI GR	0	1	0	8	1	0	0	0
TANZANIA GAME TRACKER SAFARIS LTD	MASWA MBONO	0	0	0	7	1	0	0	0
GAME FRONTIERS OF TANZANIA LTD	MBARANGANDU WMA	1	0	0	0	0	0	0	0
MKWAWA HUNTING SAFARIS (T) LTD	MBOMIPA WMA	0	0	0	0	4	0	0	0
TANZANIA BUNDU SAFARIS LTD	MKUNGUNERO GR	0	0	0	5	0	1	0	0
WILD FOOTPRINTS LTD	MLELE GCA N	6	0	0	0	0	0	0	0
ROBIN HURT SAFARIS (T) LTD	MLELE GCA S	5	0	0	0	0	0	0	0
MUHESI SAFARIS LTD	MONDULI JUU OA	0	2	0	0	0	0	0	0
ROYAL FRONTIERS OF TANZANIA LTD	MOYOWOSI GR N	2	1	0	0	0	0	0	0
WENGERT WINDROSE SAFARIS (T) LTD	MOYOWOSI GR S	4	2	0	0	0	0	4	0
GAME FRONTIERS OF TANZANIA LTD	MOYOWOSI/NJIGWE GR 2	3	1	0	0	0	0	0	0
KIBOKO HUNTING SAFARIS LTD	MOYOWOSI-NJINGWE GR 3	3	2	0	0	0	0	1	0
TANDALA HUNTING SAFARIS LTD	MSIMA GCA E	3	0	0	0	0	0	1	0
MWATISI HUNTING SAFARIS LTD	MSIMA GCA W	1	1	0	1	1	0	2	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	MTO WA MBU	0	2	0	4	2	0	0	0

Company	Hunting Block	HARTEBEEST LICHTEINSTEIN'S	HYAENA SPOTTED	HYAENA STRIPED	IMPALA EAST AFRICAN	IMPALA SOUTHERN	KLIPSPRINGER	ORIBI COMMON	REEDBUCK MOUNTAIN (CHANDLER'S)
MARERA SAFARI LODGE AND TOURS (T) LTD	MUHESI GR W	5	3	0	0	8	0	1	0
BUNDA SAFARIS LTD	MWATISI OA N - FURUA OA	2	0	0	0	0	0	0	0
OLD NYIKA SAFARIS LTD	PITI OA W	2	0	0	0	1	0	2	0
WEMBERE HUNTING SAFARIS LTD	RUHUDJI/IFINGA OA	7	0	0	0	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	RUNGWA IKILI GR	6	0	0	0	1	0	0	0
NORTHERN HUNTING ENTERPRISES LTD	RUNGWA INYONGA GR	5	0	0	0	2	1	2	0
RUNGWA GAME SAFARIS (T) LTD	RUNGWA MPERA GR	3	1	0	0	0	0	4	0
KILOMBERO NORTH SAFARI LTD	RUNGWA MWAMAGEMBE GR	5	1	0	0	1	2	6	0
MWATISI HUNTING SAFARIS LTD	RUNGWA MZOMBWE OA	1	0	0	0	0	0	0	0
WEMBERE HUNTING SAFARIS LTD	RUNGWA OA N	2	0	0	0	0	0	1	0
ROBIN HURT SAFARIS (T) LTD	RUNGWA OA S	7	0	0	0	0	2	4	0
GAME FRONTIERS OF TANZANIA LTD	RUNGWA RIVER GCA	2	0	0	0	0	0	0	0
BUSHMAN HUNTING SAFARIS (T) LTD	RUNGWA RUNGWA GR (E)	3	3	0	3	1	4	6	0
MARERA SAFARI LODGE AND TOURS (T) LTD	RUNGWA RUNGWA GR W	4	2	0	0	3	0	5	0
BARLETTE SAFARI CORPORATION LTD	RUVU MASAI GCA	3	1	0	7	0	0	0	0
MASAILAND HUNTING COMPANY LTD	SELOUS GR IH1	3	1	0	0	2	0	0	0
RUNGWA GAME SAFARIS (T) LTD	SELOUS GR K1	5	0	0	0	5	0	0	0
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K2	13	1	0	0	9	0	0	0
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K4	9	2	0	0	11	0	0	0
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR K5	4	1	0	0	9	0	0	0
MALAGARASI HUNTING SAFARIS	SELOUS GR L1	8	2	0	0	1	0	0	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL1	5	2	0	1	5	0	0	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL2	1	4	0	3	3	0	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR1	3	0	0	1	3	0	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR2	4	1	0	0	1	0	0	0
PORI TRACKERS OF AFRICA LTD	SELOUS GR LR3	4	1	0	0	3	0	0	0
KILOMBERO NORTH SAFARI LTD	SELOUS GR LU1-LU2	3	2	0	8	8	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR LU3	0	0	0	0	0	0	0	0

Company	Hunting Block	HARTEBEEST LICHTEINSTEIN'S	HYAENA SPOTTED	HYAENA STRIPED	IMPALA EAST AFRICAN	IMPALA SOUTHERN	KLIPSPRINGER	ORIBI COMMON	REEDBUCK MOUNTAIN (CHANDLER'S)
MASAILAND HUNTING COMPANY LTD	SELOUS GR LU4-K3	4	1	0	0	4	0	0	0
TANGANYIKA GAME FISHING AND PHOTOGRAPHIC SAFARIS LTD	SELOUS GR LU5	2	2	0	0	8	1	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU6	6	2	0	0	12	0	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU7	10	3	0	0	10	0	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR LU8	2	1	0	0	1	0	0	0
PORI TRACKERS OF AFRICA LTD	SELOUS GR M2	10	3	0	0	5	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR MA1	12	2	0	0	6	0	0	0
FERECK SAFARIS LTD	SELOUS GR MB1	3	0	0	0	1	0	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR MB2	7	1	0	0	9	0	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MB3	4	1	0	0	3	0	0	0
FERECK SAFARIS LTD	SELOUS GR MB4	3	0	0	0	1	0	0	0
FRANCOLINE SAFARIS LTD	SELOUS GR MHJ1	2	3	0	0	1	0	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MHJ2	7	1	0	0	5	0	0	0
BUSHMAN HUNTING SAFARIS (T) LTD	SELOUS GR MHJ3	4	2	0	3	1	0	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR ML1	4	0	0	0	3	0	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR MS1	3	0	0	0	2	0	0	0
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MT1	4	2	0	0	2	0	0	0
BARLETTE SAFARI CORPORATION LTD	SELOUS GR MT2	3	1	0	2	2	0	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N1	7	6	0	0	3	0	0	0
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N2	2	2	0	0	2	0	0	0
MKWAWA HUNTING SAFARIS (T) LTD	SELOUS GR R1	6	1	0	0	1	0	0	0
ROYAL FRONTIERS OF TANZANIA LTD	SELOUS GR R2	7	1	0	0	6	0	0	0
ORIO WILDLIFE SAFARIS	SELOUS GR R4	0	0	0	0	2	0	0	0
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR U1	4	1	0	0	0	0	0	0
FOA ADVENTURES SAFARIS LTD	SELOUS GR U2	4	0	0	0	4	0	0	0
TANDALA HUNTING SAFARIS LTD	SELOUS GR U3	0	0	0	0	0	0	0	0
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR U3	9	2	0	0	11	0	0	0
LUKE SAMARAS SAFARIS LTD	SELOUS GR U4	4	2	0	0	3	0	0	0
HSK SAFARIS CO LTD	SIMANJIRO GCA W	0	1	0	14	0	2	0	0

Company	Hunting Block	HARTEBEEST LICHTEINSTEIN'S	HYAENA SPOTTED	HYAENA STRIPED	IMPALA EAST AFRICAN	IMPALA SOUTHERN	KLIPSPRINGER	ORIBI COMMON	REEDBUCK MOUNTAIN (CHANDLER'S)
MELAMI HUNTING SAFARIS LTD	SIMANJIRO KITIANGARE GCA	0	0	0	8	0	3	0	0
TANZANIA SAFARI AND HUNTING (2003) LTD	SWAGASWAGA GR	0	0	0	0	0	0	0	0
EAST AFRICAN TROPHY HUNTER LTD	TALAMAI OA	0	0	0	0	0	0	0	0
GAME FRONTIERS OF TANZANIA LTD	UGALLA GR E	2	2	0	0	2	0	3	0
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR N	1	1	0	0	0	0	2	0
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR S	3	0	0	4	2	0	1	0
NORTHERN HUNTING ENTERPRISES LTD	UGUNDA GCA	2	0	0	0	4	0	0	0
AFRICAN BUFFALO SAFARIS TRACKERS LTD	UYUMBU WMA	2	1	0	0	0	0	1	0
MARERA SAFARI LODGE AND TOURS (T) LTD	WEMBERE OA C1	2	0	0	0	0	0	2	0
	Total area/killed	358	125	2	176	232	34	66	13
	Game Fee (Rifle): US$	$650	$550	$550	$390	$390	$1,200	$250	$450
	Actual Game Fee US$	$232,700	$68,750	$1,100	$68,640	$90,480	$40,800	$16,500	$5,850
	% of total quota	47%	29%	12%	39%	36%	17%	31%	59%
	Total quota	765	432	17	450	644	197	211	22
	Total Quota value	$497,250	$237,600	$9,350	$175,500	$251,160	$236,400	$52,750	$9,900

Company	Hunting Block	REEDBUCK SOUTHERN (COMMON)	TOPI	WARTHOG	WATERBUCK COMMON	WATERBUCK DEFASSA	WILDEBEEST NYASA	ZEBRA BURCHELL'S	Total Key Species (N=34)
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR E	7	8	0	4	0	0	8	**49**
TANZANIA BIG GAME SAFARIS LTD	BURIGI GR W	5	8	1	5	0	0	6	**49**
ROBIN HURT SAFARIS (T) LTD	BURKO OA	0	0	1	0	0	0	21	**138**
OLD NYIKA SAFARIS LTD	CHUNYA LUKWATI OA	0	0	3	0	0	0	3	**28**
OLD NYIKA SAFARIS LTD	CHUNYA MSAMI OA	0	0	2	0	0	0	2	**23**
GRUMETI RESERVES (T) LTD	GRUMETI GR	0	0	0	0	0	0	0	**6**
SAID KAWAWA HUNTING SAFARIS LTD	IBANDA RUMANYIKA GR	0	2	0	0	0	0	0	**4**
GRUMETI RESERVES (T) LTD	IKONA WMA	0	1	0	0	0	0	0	**1**
GRUMETI RESERVES (T) LTD	IKORONGO GR S	0	0	0	1	0	0	1	**3**
TANDALA HUNTING SAFARIS LTD	INYONGA GCA C	0	1	2	2	0	0	2	**22**
MALAGARASI HUNTING SAFARIS	INYONGA GCA E	0	2	1	0	0	0	1	**10**
ROYAL FRONTIERS OF TANZANIA LTD	INYONGA GCA W	0	0	0	0	0	0	0	**7**
MASAI PLATEAU (T) LTD	IRKIUSHIOIBOR WMA	0	0	1	0	0	0	1	**16**
EAST AFRICAN TROPHY HUNTER LTD	KIGOSI C	1	5	1	2	2	0	0	**37**
ZH POPPE	KIGOSI GR E	0	0	0	0	0	0	0	**1**
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIGOSI GR S	0	3	0	0	0	0	0	**5**
KILOMBERO NORTH SAFARI LTD	KILOMBERO GCA-MLIMBA	0	0	11	2	0	0	0	**48**
BUNDA SAFARIS LTD	KILWA OA N	0	0	1	0	0	2	2	**17**
SAFARI CLUB TANZANIA LTD	KILWA OA S MBWEMKURU	0	0	1	0	0	0	0	**5**
SAFARI CLUB TANZANIA LTD	KILWA OA S-NAKIU	0	0	2	0	0	0	1	**14**
EUROAFRO GROUP LTD	KIMISI GR	0	1	0	1	0	0	1	**20**
MELAMI HUNTING SAFARIS LTD	KITWAI GCA N	0	0	0	0	0	0	0	**1**
MWATISI HUNTING SAFARIS LTD	KITWAI GCA SE	0	0	1	0	0	0	1	**9**
BUNDA SAFARIS LTD	KITWAI GCA SW	0	0	2	0	0	0	0	**15**
PALAHALA SAFARIS AND HUNTING LTD	KIZIGO GR C	0	0	0	0	0	0	10	**41**
TANZANIA WILDLIFE CORPORATION LTD	KIZIGO GR E1	0	0	0	0	0	0	0	**0**
AFRICAN BUFFALO SAFARIS TRACKERS LTD	KIZIGO GR E2	0	0	1	0	0	0	6	**22**
RUNGWA GAME SAFARIS (T) LTD	KIZIGO GR W	0	0	3	0	0	0	6	**35**
WENGERT WINDROSE SAFARIS (T) LTD	LAKE NATRON GCA NS	0	0	0	0	0	0	4	**29**
KILOMBERO NORTH SAFARI LTD	LAKE NATRON GCA S	0	0	0	0	0	2	3	**57**

Company	Hunting Block	REEDBUCK SOUTHERN (COMMON)	TOPI	WARTHOG	WATERBUCK COMMON	WATERBUCK DEFASSA	WILDEBEEST NYASA	ZEBRA BURCHELL'S	Total Key Species (N=34)
MICHEL MANTHEAKIS SAFARIS LTD	LAKE NATRON GCA W	0	0	0	0	0	0	12	**70**
GREEN LEAF LTD	LAKE RUKWA GCA	0	0	3	0	5	0	10	**85**
ORTTELO BUSINESS CORPORATION LTD	LOLIONDO GCA	0	1	0	0	0	0	1	**12**
TANZANIA BUNDU SAFARIS LTD	LOLKISALE GCA	0	0	2	0	0	0	17	**106**
ROBIN HURT SAFARIS (T) LTD	LUGANZO GCA	2	13	4	10	0	0	4	**96**
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR N	0	0	0	0	0	0	5	**32**
MICHEL MANTHEAKIS SAFARIS LTD	LUKWATI GR S	5	0	6	1	3	0	13	**90**
GO WILD HUNTING SAFARIS LTD	LUNDA NKWAMBI GCA N	0	0	1	2	0	0	2	**27**
NORTHERN HUNTING ENTERPRISES LTD	LUWAFI GR/NKAMBA FR	0	0	1	0	0	0	0	**5**
FERECK SAFARIS LTD	MAASAI OA E - MAKAME WMA	0	0	0	0	0	0	0	**29**
WENGERT WINDROSE SAFARIS (T) LTD	MAKERE FR-UVINZA OA	2	3	1	2	0	0	0	**22**
ESHKESH SAFARIS LTD	MASAI OA E	0	0	0	0	0	0	2	**20**
TANZANIA BUNDU SAFARIS LTD	MASAI OA W	0	0	3	0	0	0	15	**98**
BUSHMAN HUNTING SAFARIS (T) LTD	MASWA GR (N)	0	14	11	6	0	0	17	**148**
TANZANIA GAME TRACKER SAFARIS LTD	MASWA KIMALI GR	0	0	1	0	2	0	9	**48**
TANZANIA GAME TRACKER SAFARIS LTD	MASWA MBONO	0	0	1	1	1	0	8	**39**
GAME FRONTIERS OF TANZANIA LTD	MBARANGANDU WMA	0	0	2	3	0	1	2	**15**
MKWAWA HUNTING SAFARIS (T) LTD	MBOMIPA WMA	0	0	1	0	0	0	3	**14**
TANZANIA BUNDU SAFARIS LTD	MKUNGUNERO GR	0	0	0	0	0	0	1	**25**
WILD FOOTPRINTS LTD	MLELE GCA N	0	0	1	2	0	0	4	**21**
ROBIN HURT SAFARIS (T) LTD	MLELE GCA S	1	0	2	0	0	0	5	**31**
MUHESI SAFARIS LTD	MONDULI JUU OA	0	0	0	0	0	0	3	**23**
ROYAL FRONTIERS OF TANZANIA LTD	MOYOWOSI GR N	1	3	1	0	0	0	2	**18**
WENGERT WINDROSE SAFARIS (T) LTD	MOYOWOSI GR S	0	7	3	1	2	0	3	**42**
GAME FRONTIERS OF TANZANIA LTD	MOYOWOSI/NJIGWE GR 2	0	5	2	1	0	0	3	**24**
KIBOKO HUNTING SAFARIS LTD	MOYOWOSI-NJINGWE GR 3	0	9	4	0	0	0	6	**49**
TANDALA HUNTING SAFARIS LTD	MSIMA GCA E	0	4	1	1	0	0	0	**18**
MWATISI HUNTING SAFARIS LTD	MSIMA GCA W	0	3	0	1	5	0	0	**31**
AFRICAN BUFFALO SAFARIS TRACKERS LTD	MTO WA MBU	0	0	0	0	0	0	9	**59**

Company	Hunting Block	REEDBUCK SOUTHERN (COMMON)	TOPI	WARTHOG	WATERBUCK COMMON	WATERBUCK DEFASSA	WILDEBEEST NYASA	ZEBRA BURCHELL'S	Total Key Species (N=34)
MARERA SAFARI LODGE AND TOURS (T) LTD	MUHESI GR W	0	0	1	0	0	0	6	**38**
BUNDA SAFARIS LTD	MWATISI OA N - FURUA OA	0	0	1	0	0	0	2	**17**
OLD NYIKA SAFARIS LTD	PITI OA W	1	0	3	1	0	0	2	**29**
WEMBERE HUNTING SAFARIS LTD	RUHUDJI/IFINGA OA	2	0	5	2	0	0	2	**35**
TANZANIA WILDLIFE CORPORATION LTD	RUNGWA IKILI GR	0	0	1	0	0	0	9	**39**
NORTHERN HUNTING ENTERPRISES LTD	RUNGWA INYONGA GR	0	0	4	0	0	0	7	**52**
RUNGWA GAME SAFARIS (T) LTD	RUNGWA MPERA GR	0	0	2	0	0	0	7	**39**
KILOMBERO NORTH SAFARI LTD	RUNGWA MWAMAGEMBE GR	0	0	3	0	0	0	4	**40**
MWATISI HUNTING SAFARIS LTD	RUNGWA MZOMBWE OA	0	0	2	0	0	0	4	**16**
WEMBERE HUNTING SAFARIS LTD	RUNGWA OA N	0	0	0	0	0	0	2	**8**
ROBIN HURT SAFARIS (T) LTD	RUNGWA OA S	0	0	5	0	0	0	11	**53**
GAME FRONTIERS OF TANZANIA LTD	RUNGWA RIVER GCA	0	0	1	0	0	0	2	**14**
BUSHMAN HUNTING SAFARIS (T) LTD	RUNGWA RUNGWA GR (E)	0	0	1	0	0	0	6	**47**
MARERA SAFARI LODGE AND TOURS (T) LTD	RUNGWA RUNGWA GR W	0	0	2	0	0	0	6	**46**
BARLETTE SAFARI CORPORATION LTD	RUVU MASAI GCA	0	0	0	0	0	0	1	**32**
MASAILAND HUNTING COMPANY LTD	SELOUS GR IH1	0	0	2	0	0	2	0	**16**
RUNGWA GAME SAFARIS (T) LTD	SELOUS GR K1	0	0	0	2	0	1	1	**24**
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K2	0	0	2	1	0	6	3	**50**
KIBOKO HUNTING SAFARIS LTD	SELOUS GR K4	0	0	9	1	0	9	8	**66**
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR K5	2	0	5	1	0	1	0	**38**
MALAGARASI HUNTING SAFARIS	SELOUS GR L1	0	0	3	0	0	4	1	**42**
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL1	0	0	6	0	0	5	8	**59**
BARLETTE SAFARI CORPORATION LTD	SELOUS GR LL2	0	0	6	1	0	1	3	**45**
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR1	0	0	2	2	0	1	3	**27**
LUKE SAMARAS SAFARIS LTD	SELOUS GR LR2	1	0	3	3	0	2	2	**25**
PORI TRACKERS OF AFRICA LTD	SELOUS GR LR3	0	0	3	1	0	4	5	**32**
KILOMBERO NORTH SAFARI LTD	SELOUS GR LU1-LU2	0	0	5	8	0	5	1	**73**
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR LU3	0	0	0	0	0	1	0	**1**

Company	Hunting Block	REEDBUCK SOUTHERN (COMMON)	TOPI	WARTHOG	WATERBUCK COMMON	WATERBUCK DEFASSA	WILDEBEEST NYASA	ZEBRA BURCHELL'S	Total Key Species (N=34)
MASAILAND HUNTING COMPANY LTD	SELOUS GR LU4-K3	0	0	2	0	0	2	2	**21**
TANGANYIKA GAME FISHING AND PHOTOGRAPHIC SAFARIS LTD	SELOUS GR LU5	0	0	4	3	0	7	4	**53**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU6	0	0	4	4	0	8	6	**72**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR LU7	0	0	3	2	0	6	6	**69**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR LU8	0	0	0	0	0	3	2	**18**
PORI TRACKERS OF AFRICA LTD	SELOUS GR M2	0	0	4	4	0	0	5	**47**
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR MA1	1	0	0	1	0	2	2	**43**
FERECK SAFARIS LTD	SELOUS GR MB1	0	0	1	3	0	4	0	**29**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR MB2	0	0	2	6	0	8	7	**62**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MB3	0	0	0	0	0	3	0	**16**
FERECK SAFARIS LTD	SELOUS GR MB4	0	0	0	1	0	2	3	**17**
FRANCOLINE SAFARIS LTD	SELOUS GR MHJ1	0	0	1	1	0	0	4	**31**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MHJ2	0	0	2	1	0	4	2	**36**
BUSHMAN HUNTING SAFARIS (T) LTD	SELOUS GR MHJ3	0	0	1	1	0	4	3	**34**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR ML1	0	0	1	0	0	2	2	**19**
LUKE SAMARAS SAFARIS LTD	SELOUS GR MS1	0	0	2	0	0	4	2	**22**
GERALD PASANIS SAFARI CORPORATION LTD	SELOUS GR MT1	0	0	0	0	0	2	2	**17**
BARLETTE SAFARI CORPORATION LTD	SELOUS GR MT2	0	0	3	1	0	1	4	**36**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N1	2	0	0	2	0	6	1	**54**
TANGANYIKA WILDLIFE SAFARI CORPORATION	SELOUS GR N2	0	0	0	3	0	6	0	**24**
MKWAWA HUNTING SAFARIS (T) LTD	SELOUS GR R1	0	0	4	0	0	0	0	**30**
ROYAL FRONTIERS OF TANZANIA LTD	SELOUS GR R2	0	0	2	1	0	0	2	**30**
ORIO WILDLIFE SAFARIS	SELOUS GR R4	0	0	0	0	0	0	0	**5**
AFRICAN TROPHY HUNTING SAFARIS LTD	SELOUS GR U1	0	0	1	0	0	0	0	**9**
FOA ADVENTURES SAFARIS LTD	SELOUS GR U2	0	0	0	1	0	0	1	**17**
TANDALA HUNTING SAFARIS LTD	SELOUS GR U3	0	0	0	0	0	0	0	**0**
TANZANIA WILDLIFE CORPORATION LTD	SELOUS GR U3	1	2	4	1	0	7	2	**56**
LUKE SAMARAS SAFARIS LTD	SELOUS GR U4	0	0	2	1	0	1	3	**30**
HSK SAFARIS CO LTD	SIMANJIRO GCA W	0	0	0	0	0	0	9	**82**

Company	Hunting Block	REEDBUCK SOUTHERN (COMMON)	TOPI	WARTHOG	WATERBUCK COMMON	WATERBUCK DEFASSA	WILDEBEEST NYASA	ZEBRA BURCHELL'S	Total Key Species (N=34)
MELAMI HUNTING SAFARIS LTD	SIMANJIRO KITIANGARE GCA	0	0	4	0	0	0	15	**109**
TANZANIA SAFARI AND HUNTING (2003) LTD	SWAGASWAGA GR	0	0	0	0	0	0	0	**2**
EAST AFRICAN TROPHY HUNTER LTD	TALAMAI OA	0	0	0	0	0	0	1	**5**
GAME FRONTIERS OF TANZANIA LTD	UGALLA GR E	0	4	0	2	0	0	0	**28**
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR N	1	2	4	0	1	0	0	**20**
TANZANIA GAME TRACKER SAFARIS LTD	UGALLA GR S	1	5	1	1	2	0	0	**30**
NORTHERN HUNTING ENTERPRISES LTD	UGUNDA GCA	0	1	0	2	0	0	0	**16**
AFRICAN BUFFALO SAFARIS TRACKERS LTD	UYUMBU WMA	0	0	0	1	0	0	0	**12**
MARERA SAFARI LODGE AND TOURS (T) LTD	WEMBERE OA C1	0	0	0	0	0	0	0	**9**
	Total area/killed	36	107	214	114	23	129	431	**4,222**
	Game Fee (Rifle): US$	$450	$800	$450	$800	$800	$650	$1,200	
	Actual Game Fee US$	$16,200	$85,600	$96,300	$91,200	$18,400	$83,850	$517,200	**$5,132,240**
	% of total quota	26%	38%	29%	28%	88%	41%	39%	**37%**
	Total quota	141	278	745	402	26	316	1114	**11,425**
	Total Quota value	$63,450	$222,400	$335,250	$321,600	$20,800	$205,400	$1,336,800	**$12,938,380**

15 ANNEX VIII: GAME FEES PAYABLE FOR TOURIST HUNTING (THIRD SCHEDULE, WILDLIFE CONSERVATION ACT, (CAP.283)

Note that the purchase of a 28-day permit does not mean that every client is entitled to hunt all the animals listed on the permit. This will depend on whether the particular block has these animals on quota or not.

A. MAMMALS

Animal Name	Rifle & Shotgun US$	Bow & Arrow US$	5-Days	7-Days	10-Days	14-Days	21-days	28-Days
AFRICAN ELEPHANT	8,500	10,479					1	1
AFRICAN ELEPHANT 15KG (33LBS) /1.5M	8,500	10,479						
AFRICAN ELEPHANT 27KG (60LB) +	15,000	17,000						
AFRICAN ELEPHANT 32KG (80LBS) +	21,000	26,190						
BABOON OLIVE	110	143			2	2	3	3
BABOON YELLOW	110	143			2	2	3	3
BUFFALO AFRICAN CAPE	1,900	2,375		2	2	2	3	3
BUSHBUCK CHOBE	600	780				1	1	1
BUSHBUCK MASAI	600	780				1	1	1
BUSHPIG	420	546			1	1	1	1
CARACAL	150	195				1	1	1
CIVET AFRICAN	200	260				1	1	1
CROCODILE NILE	1,700	3,400				1	1	1
DIKDIK KIRK'S	250	325				1	1	1
DOVE	30	0	5	5	5	5	5	5
DUCK	30	0	5	5	5	5	5	5
DUIKER ABBOTT'S	280	330		1	1	1	1	1
DUIKER COMMON	250	325		1	1	1	1	1
DUIKER HARVEY'S RED	250	325		1	1	1	1	1
ELAND LIVINGSTONES	1,700	2,125					1	1
ELAND PATERSON'S	1,700	2,125					1	1
FOX BAT EARED	250	312						
FRANCOLIN	20	0	5	5	5	5	5	5
GAZELLE GRANT'S	450	562			1	1	2	2
GAZELLE ROBERT'S	450	900			1	1	2	2
GAZELLE THOMSON'S	500	650			1	1	2	2
GEESE	30		5	5	5	5	5	5

Animal Name	Rifle & Shotgun US$	Bow & Arrow US$	5-Days	7-Days	10-Days	14-Days	21-days	28-Days
GENET BLOTCHED	250	312					1	1
GENET COMMON	250	312					1	1
GERENUK	2,500	3,125					1	1
GRYSBOCK SHARPE'S	350	455		1	1	1	2	2
GUINEAFOWL	30	0	5	5	5	5	5	5
HARE CAPE	75	0	1	1	2			
HARE SCRUB	75	0	1	1	2			
HARTEBEEST COKE'S	650	975		1	1	1	2	2
HARTEBEEST LICHTEINSTEIN'S	650	845		1	1	1	2	2
HIPPO	1,500	3,000					1	1
HYAENA SPOTTED	550	715				1	1	1
HYAENA STRIPED	550	715				1	1	1
IMPALA EAST AFRICAN	390	507		1	1	1	2	2
IMPALA SOUTHERN	390	507		1	1	1	2	2
JACKAL COMMON	250	325				1	1	1
JACKAL SIDE STRIPED	250	325				1	1	1
JACKAL SLIVER BACKED	250	325				1	1	1
KLIPSPRINGER	1,200	1,560					1	1
KUDU GREATER	2,200	2,860					1	1
KUDU LESSER	2,600	3,250					1	1
LEOPARD	3,500	4,375					1	1
LION	4,900	6,125					1	1
MONGOOSE BANDED	75	0		1	1	1	1	1
MONGOOSE WHITE TAILED	60	0		1	1	1	1	1
MONKEY BLUE	120	0	1	1	2	1	1	1
MONKEY VERVET	120	0	1	1	2			
ORIBI COMMON	250	325	1	1	1	1	2	2
ORYX FRINGED EARED	2,800	3,500					1	1
OSTRICH	1,200	1,560					1	1
PIGEON	30	0	5	5	5	5	5	5
PORCUPINE CRESTED	150	195				1	1	1
PUKU	800	1,040			1		1	1
PYTHON ROCK	360	0				1	1	1
RATEL (HONEY BADGER)	300	375				1	1	1
REEDBUCK BOHOR	450	548		1		1	2	2

Animal Name	Rifle & Shotgun US$	Bow & Arrow US$	5-Days	7-Days	10-Days	14-Days	21-days	28-Days
REEDBUCK MOUNTAIN (CHANDLER'S)	450	585		1		1	2	2
REEDBUCK SOUTHERN (COMMON)	450	675		1		1	2	2
ROAN ANTELOPE	2,550	3,187					1	1
SABLE ANTELOPE COMMON	2,550	3,187					1	1
SABLE ANTELOPE ROOSEVELT	2,550	3,187					1	1
SANDGROUSE	20	0	5	5	5	5	5	5
SERVAL CAT	300	390				1	1	1
SITATUNGA EAST AFRICAN	2,000	2,600					1	1
SPURFOWL	15	0	5	5	5	5	5	5
STEINBUCK	250	325		1	2	2	2	2
SUNI (PYGMY ANTELOPE)	160	208				1	1	1
TOPI	800	1,040			1	1	2	2
WARTHOG	450	585		1	1	1	2	2
WATERBUCK COMMON	800	1,040				1	2	2
WATERBUCK DEFASSA	800	1,040				1	2	2
WILDCAT	250	325				1	1	1
WILDEBEEST EASTERN WHITE BEARDED	650	845		2	2	2	2	2
WILDEBEEST NYASA	650	845		2	2	2	2	2
WILDEBEEST WESTERN WHITE BEARDED	650	845		2	2	2	2	2
ZEBRA BURCHELL'S	1,200	1,560		1	1	1	2	2
ZORILLA	150	195				1	1	1

The regulations also provide an extensive list of game fees for birds. The price for most commonly hunted birds are listed below.

DOVE	DUCK	GEESE	FRANCOLIN	GUINEAFOWL	PIGEON	OSTRICH	SANDGROUSE	SPURFOWL
$30	$30	$30	$20	$30	$30	$1,200	$20	$15

16 ANNEX IX: COMMON AND LOCAL NAMES OF WILDLIFE ON QUOTA IN TANZANIA

English	Scientific Name	Swahili Name
Baboon Yellow	*Papio anubis*	Nyani Njano
Baboon Olive	*Papio cynocephalus*	Nyani Mwekundu
Buffalo African cape	*Syncerus caffer caffer*	Nyati (Mbogo)
Bushbuck Chobe	*Tragelaphus scriptus omatus*	Pongo (Mbawala)-Chobe
Bushbuck Masai	*Tragelaphus scriptus delameri*	Pongo (Mbawala)-Masai
Bushpig	*Potamochoerus larvatus*	Nguruwe
Caracal	*Caracal caracal*	Simba Mangu
Civet African	*Civettictis civetta*	Fungo
Crocodile Nile	Crocodilus niloticus	Mamba
Dik Dik, Kirk's	*Madoqua kirkii kirkii*	Digidigi (Suguya)
Duiker Abbott's	*Cephalophas spadix*	Mindi
Duiker Common	*Sylvicapra grimmia abyssinicus*	Nsya (Ngorombwe)
Duiker Harvey's red	*Cephalophas natalensis*	Funo (Mbutuka)
Eland Livingstones	*Tragelaphus oryx livingstoni*	Pofu (Mbunju) Livingistonis
Eland Paterson's	*Tragelaphus oryx pattersonius*	Pofu (Mbunju) Petersonis
Elephant African	*Loxodonta africana*	Tembo (Ndovu)
Fox Bat eared	Otocyon megalotis	Mbweha Masikio
Gazelle Grant's	*Nanger granti granti*	Swala Granti
Gazelle Robert's	*Nanger granti robertsi*	Swala Robertsi
Gazelle Thomson's	*Eudorcas thomsonii*	Swala Tomi
Genet Blotched	*Genetta tigrina*	Kanu Mkubwa
Genet Common	*Genetta genetta*	Kanu
Gerenuk	*Litocranius walleri walleri*	Swala Twiga
Grysbock Sharpe's	*Raphicerus sharpei*	Ndondoro Shapi
Hare Scrub	*Lepus capensis*	Sungura
Hare Cape	*Lepus saxatilis*	Kamendegere
Hartebeest Coke's	*Alcelaphus buselaphus cokii*	Kongoni
Hartebeest Lichteinstein's	*Alcelaphus buselaphus lichtensteinii*	Konzi
Hippo	*Hippopotamus amphibius*	Boko
Hyaena Spotted	*Crocuta crocuta*	Kingugwa (Fisi Madoa)
Hyaena Striped	*Hyaena hyaena dubbah*	Fisi Milia
Impala East African	*Aepyceros melampus rendili*	Swalapala Mashariki
Impala Southern	*Aepyceros melampus melampus*	Swalapala Kusini
Jackal Common	*Canis aureus*	Mwehadhahabu
Jackal Side striped	*Canis adustus*	Mbweha mistari
Jackal Sliver backed	*Canis mesomelas*	Mwehashaba
Klipspringer	*Oreotragus oreotragus*	Mbuzi Mawe
Kudu Greater	*Tragelophus strepsiceros bea*	Tandala Kubwa
Kudu Lesser	*Tragelaphus imberbis*	Tandala Dogo
Leopard	*Panthera pardus pardus*	Chui
Lion	*Panthera leo*	Simba
Mongoose Banded	*Mungos mungo*	Nguchiro
Mongoose White tailed	*Ichneumia albicauda*	Nguchiro mkia mweupe
Monkey Blue	*Cercopithecus mitis*	Kima
Monkey Vervet	*Chlorocebus pygerythrus*	Tumbili
Oribi Common	*Ourebia ourebi ourebi*	Taya (Kihea)
Oryx Fringed eared	*Oryx beisa calotis*	Choroa

English	Scientific Name	Swahili Name
Ostrich	*Struthioformes camelopardalus*	Mbuni
Porcupine Crested	*Hystrix cristata*	Nungununngu
Puku	*Kobus vardonii*	Sheshe
Python Rock	*Pythin sebae*	Chatu
Ratel (Honey Badger)	*Mellivora capensis*	Nyegere
Reedbuck Bohor	*Redunca redunca wardi*	Tohe Ndope
Reedbuck Mountain (Chandler's)	*Redunca fulvorufula chandleri*	Tohe Milima
Reedbuck Southern (Common)	*Redunca arundinum*	Tohe Kusi
Roan Antelope	*Hippotragus equinus langheldi*	Korongo
Sable Antelope Roosevelt	*Hippotragus niger roosevelti*	Palahala (Mbarapi)
Sable Antelope Common	*Hippotragus niger kirkii*	Palahala (Mbarapi)
Serval Cat	*Leptailurus serval*	Mondo
Sitatunga East African	*Tragelaphus spekii spekii*	Nzohe
Steinbuck	*Raphicerus campestris*	Ndondoro
Suni (Pygmy Antelope)	*Neotragus moschatus*	Paa (Suni)
Topi	*Damaliscus lunatus jimela*	Nyamera
Warthog	*Phacochoerus africanus*	Ngiri
Waterbuck Common	*Kobus ellipsiprymnus ellipsiprymnus*	Kuro Ndogoro
Waterbuck Defassa	*Kobus ellipsiprymnus defassa*	Kuro Singsing
Wildcat	*Felis sylvestris lybica*	Kimburu
Wildebeest Eastern White bearded	*Connochaetes taurinus albojubatus*	Nyumbu kidevu -Mashariki
Wildebeest Western White bearded	*Connochaetes taurinus johnstoni*	Nyumbu kidevu -Magharibi
Wildebeest Nyasa	*Connochaetes taurinus mearnsi*	Nyumbu Kusi
Zebra Burchell's	*Equus quagga bruchelli*	Pundamilia
Zorilla	*Ictonyx striatus*	Kicheche

From:	Gadd, Michelle
To:	Hoover, Craig
Cc:	Bell, Gloria; Gnam, Rosemarie; Richard Ruggiero; Michelle Haynes; Tim Van Norman; Danielle Kessler
Subject:	Re: Briefing Request on Predators - due COB Friday, September 1st
Date:	Thursday, August 31, 2017 12:43:14 PM

Here's my part from the field side:

Most up to date citable source on lion populations and threats to lion survival:
http://letlionslive.org/LionReport.pdf

African Lion status

- Lions have declined 90% in the past century
- Lions have declined 43% in the past twenty years
- Currently, there are an estimated 20,000 lions left in Africa
- Lions have disappeared from 92% of their historic range and today occur in only 8% of their historic range
- Only six countries are believed to have more than 1,000 wild lions (Tanzania, Kenya, Botswana, Mozambique, South Africa and Zimbabwe). Zambia may or may not have 1,000
- Only ten populations have more than 500 surviving adults, and all of these strongholds overlap with the important elephant populations identified by USFWS in the African Elephant Conservation Program

Of these ten lion strongholds, FWS is supporting projects (through the AFECF and the Rhino Tiger Conservation Fund) that assist with vital operating costs for wildlife security and management in 7 of the 10 lionscapes:

- Ruaha-Rungwa
- Serengeti-Mara
- Tsavo-Mkomazi
- Luangwa
- Mid-Zambezi
- Niassa
- and Great Limpopo

(We do not fund Kgalagadi which has neither elephants nor rhinos, nor do we currently have active funding in Okavango-Hwange or Selous)

Please let me know if additional info is needed.
thx, mg

On Thu, Aug 31, 2017 at 12:10 PM, Hoover, Craig <craig_hoover@fws.gov> wrote:

> Thanks. Adding Danielle, Tim and Gadd here. If we are going to have one slide on lions, we should note the ESA status, the status of findings, and any specific projects we are supporting. Tim/Michelle, can you provide those respective points?
>
> craig

On Thu, Aug 31, 2017 at 12:06 PM, Bell, Gloria <gloria_bell@fws.gov> wrote:

Hi everyone, please see the request below and note the due date of COB tomorrow (Friday). Unfortunately, no context has been provided. I'll try to get more clarity this afternoon.

Thanks,
gloria

Gloria Bell | Acting Assistant Director for International Affairs | U.S. Fish & Wildlife Service
5275 Leesburg Pike, MS: IA, Falls Church, Virginia, 22041-3803, USA | 703-358-1767
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---------- Forwarded message ----------
From: **Gale, Michael** <michael_gale@fws.gov>
Date: Thu, Aug 31, 2017 at 10:23 AM
Subject: Briefing Request on Predators - due COB Friday, September 1st
To: Gary Frazer <Gary_Frazer@fws.gov>, Gina Shultz <Gina_Shultz@fws.gov>
Cc: Charisa Morris <charisa_morris@fws.gov>, Gloria Bell <Gloria_Bell@fws.gov>

Hello,

Charisa asked me to send an email regarding the need for briefing information for Greg Sheehan (to give to DOI Acting Deputy Chief of Staff Downey Magallanes) regarding our work with "**predators**."

It came in as a somewhat vague request. From talking to Greg, our understanding is that he would like a PowerPoint slide deck with **one slide** per predator species.

The species he mentioned (but you should add others that you feel meet the intent of this exercise) are:

- Red wolves
- Mexican wolves
- Grizzly bears
- Great Lakes wolves
- Lions

Gary is checking in with Greg to see if he can get any more clarity on this ask. I've copied Gloria Bell in case "Lions" fits under AIA and not the Branch of Foreign Listing with AES.

We would need this information in the Director's Office by **COB Friday, September 1st**. That way, we can get it in front of Greg for review on Tuesday morning prior to the deadline of September 5th to get this information to FWP.

Thank you for your assistance, and please let us know if you have any questions or

concerns.

cheers,

Michael

--

Michael Gale

Deputy Chief of Staff (Acting), Director's Office
U.S. Fish and Wildlife Service

202.208.4923 (office)
571.982.2158 (cell)

--

Craig Hoover
Chief, Division of Management Authority
International Affairs
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803
ph: 703-358-2162
www.fws.gov/international

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--

Michelle Gadd, Ph.D.
Program Officer, African Elephant and African Rhino Programs
Division of International Conservation
U.S. Fish and Wildlife Service
5275 Leesburg Pike, MS: IA
Falls Church, VA 22041-3803
michelle_gadd@fws.gov

FYI

Sent from my iPhone

Begin forwarded message

From: Downey Magallanes <downey_magallanes@ios.doi.gov>
Date: November 10, 2017 at 9 19 44 AM EST
To: russell_newell@ios.doi.gov, laura_rigas@ios.doi.gov
Subject: Fwd: Cleared today to be sent to the Federal Register

Zimbabwe elephants went- will be in Fed Register Tuesday

Sent from my iPad

Begin forwarded message

From: "Lillie, Juliette" <juliette_lillie@ios.doi.gov>
Date: November 9, 2017 at 4 47 29 PM EST
To: "Mashburn, Lori" <lori_mashburn@ios.doi.gov>, Scott Hommel <scott_hommel@ios.doi.gov>, "Magallanes, Downey" <downey_magallanes@ios.doi.gov>, Daniel Jorjani <daniel.jorjani@sol.doi.gov>
Subject: Cleared today to be sent to the Federal Register

Good evening Below are the documents cleared today to be sent to the FR.

Julie
Juliette Lillie
Director Executive Secretariat and Regulatory Affairs
Department of the Interior
1849 C St NW
Washington DC 20240

Email juliette_lillie@ios.doi.gov
Ph 202-219-7724

Cleared Today for Federal Register Publication
Date
11/09/2017
Records 2

DCN	Bureau	Title	Synopsis	Type	Approved
REG0007515	FWS	Issuance of Import Permits for Zimbabwe Elephant Trophies Taken on or After January 21, 2016 and on or before December 31, 2018	This notice announces to the public that the Service has made a finding that the killing of African elephant trophy animals in Zimbabwe on or after 1/21/2016 and before or on 12/31/2018 meets the ESA criteria for authorizing imports.	Notice	11/09/2017
REG0007605	NPS	Request for Nominations National Park System Advisory Board	The FR notice requests nominations for the appointment of three members to the National Park System Advisory Board.	Notice	11/09/2017

--
Craig Hoover
Chief, Division of Management Authority
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From: Wainman Barbara
To: Hoo er Cra g
Cc: Sh re Gavin; Laury Parramore; Daniel e Kessler; Christ na Meister; Matthew Huggler; Gloria Bell; Tim Van Norman
Subject: Re: Cleared today to be sent to the Federal Register
Date: Monday November 13 2017 9:06:48 AM

So Craig could you tell if his #2 was referring to Zambia or Zimbabwe it was really not clear to me I think Zambia but wanted another pair of eyes because that is where he wants me to inform DOI Communications. Clearly we will be talking to them about both of them but I don't want him to think Zimbabwe will be as "soft" a roll out as it will require an announcement.

Barbara W. Wainman
Assistant Director, External Affairs
US Fish and Wildlife Service
(202) 208-5256 (office)
(571) 471-4159 (cell)

On Mon, Nov 13, 2017 at 9 03 AM, Hoover, Craig <craig_hoover@fws.gov> wrote

Greg is at the SCI Foundation's Wildlife Consultative Forum, which is attended by numerous African countries. It is an excellent venue for him to make this announcement. It may not be seen in a positive light by Tanzania, but it's an opportunity to show them that it's possible to get approved, which is part of why he was going.

Regarding Zambia, we are ready to issue permits today. No formal announcement or FR Notice is necessary. It's a new finding and is not reversing a negative finding. It's similar to our recent lion findings, where we just updated our website.

craig

On Mon, Nov 13, 2017 at 8 55 AM, Wainman, Barbara <barbara_wainman@fws.gov> wrote

also how does his email about Zambia elephant permits fit in I am getting very confused but that is not unusual

Barbara W. Wainman
Assistant Director, External Affairs
US Fish and Wildlife Service
(202) 208-5256 (office)
(571) 471-4159 (cell)

On Mon, Nov 13, 2017 at 8 50 AM, Shire, Gavin <gavin_shire@fws.gov> wrote

We need to make sure that DOI comms has time to clear the outreach. I will call them first thing, but at this point, I don't think they even have the most recent version, so we need to get it to them ASAP and ensure they review and approve today, if indeed Greg wants to announce tomorrow. I am curious, though, what the pressure is fro Greg to announce this in Tanzania, given this is about Zimbabwe and we are not (yet) approving elephant trophies from the country he'll be in. Could this backfire if the Tanzanian's start asking about their program (or start making assumptions about it)? Just want to make sure here.

G

Gavin Shire
Chief of Public Affairs
U.S. Fish and Wildlife Service
MS EA
5275 Leesburg Pike
Falls Church VA 22041-3803
703-358-2649 (o)
703-346-9123 (c)
gavin_shire@fws gov

On Mon, Nov 13, 2017 at 8 30 AM, Hoover, Craig <craig_hoover@fws.gov> wrote

All,

Based on an email from PPM, it appears that this has not yet gone to the FR. The notice is set up for Tim's signature, but Tim is currently in Tanzania. Ideally, we can change the signature line to Brenda Tapia and she can submit to the FR today so that Greg can announce in Tanzania tomorrow that the finding has been made and will publish this week. We could then issue permits by the end of the week. Thoughts?

craig

On Sat, Nov 11, 2017 at 2 15 PM, Hoover, Craig <craig_hoover@fws.gov> wrote

Here are the latest versions in DTS, updated about a month ago. You will see that some of them have tracked changes and comment bubbles that still need to be addressed.

On Sat, Nov 11, 2017 at 1 34 PM, Laury Parramore <laury_parramore@fws.gov> wrote

I can't currently get into DTS but unless IA has made revisions I believe the DYS version is the most recent.

Sent from my iPhone

On Nov 11, 2017, at 11 29 AM, Gavin Shire <gavin_shire@fws.gov> wrote

Whoever has the most recent version of the comma plan, please send to this group ASAP.

Thanks,

G

Sent from my iPad

On Nov 11, 2017, at 10 42 AM, Barbara Wainman <barbara_wainman@fws.gov> wrote

I have to talk to Greg momentarily about our communications plans on this assuming s very soft roll out of anyone has anything I need to know call or email me. Thanks.

Sent from my iPhone

On Nov 10, 2017, at 6 12 PM, Craig Hoover <craig_hoover@fws.gov> wrote

This is truly unbelievable.

Sent from my iPhone

On Nov 10, 2017, at 3 27 PM, Gavin Shire <gavin_shire@fws gov> wrote

Guess we need to be ready for the elephant-sized $h!t to hit the fan Monday.

G

Sent from my iPad

Begin forwarded message

From: Russell Newell <russell_newell@ios.doi.gov>
Date: November 10, 2017 at 11 54 08 AM EST
To: Paul Ross <paul_ross@ios doi gov>, gavin_shire@fws gov

Subject: Fwd: Cleared today to be sent to the Federal Register

FYI

Sent from my iPhone

Begin forwarded message

From: Downey Magallanes <downey_magallanes@ios.doi.gov>
Date: November 10, 2017 at 9 19 44 AM EST
To: russell_newell@ios doi gov, laura_rigas@ios doi gov
Subject: Fwd: Cleared today to be sent to the Federal Register

Zimbabwe elephants went- will be in Fed Register Tuesday

Sent from my iPad

Begin forwarded message

From: "Lillie, Juliette" <juliette_lillie@ios.doi.gov>
Date: November 9, 2017 at 4 47 29 PM EST
To: "Mashburn, Lori" <lori_mashburn@ios.doi.gov>, Scott Hommel <scott_hommel@ios.doi.gov>, "Magallanes, Downey" <downey_magallanes@ios doi gov>, Daniel Jorjani <daniel jorjani@sol doi gov>
Subject: Cleared today to be sent to the Federal Register

Good evening Below are the documents cleared today to be sent to the FR.

Julie
Juliette Lillie
Director Executive Secretariat and Regulatory Affairs
Department of the Interior
1849 C St. NW
Washington DC 20240

Email juliette_lillie@ios.doi.gov
Ph 202-219-7724

Cleared Today for Federal Register Publication
Date
11/09/2017
Records 2

DCN	Bureau	Title	Synopsis	Type	Approved
REG0007515	FWS	Issuance of Import Permits for Zimbabwe Elephant Trophies Taken on or After January 21, 2016 and on or before December 31, 2018	This notice announces to the public that the Service has made a finding that the killing of African elephant trophy animals in Zimbabwe on or after 1/21/2016 and before or on 12/31/2018 meets the ESA criteria for authorizing imports.	Notice	11/09/2017
REG0007605	NPS	Request for Nominations National Park System Advisory Board	The FR notice requests nominations for the appointment of three members to the National Park System Advisory Board.	Notice	11/09/2017

--
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From: Hoover Craig
To: Wainman Barbara
Cc: Shire Ga in; La ry Parramore; Danie le Kessler; Christ na Me ster; Matthe H ggler; Glor a Bell; Tim Van Norman
Subject: Re: C eared today to be sent to the Federal Register
Date: Monday November 13 2017 9:03:43 AM

Greg is at the SCI Foundation's Wildlife Consultative Forum, which is attended by numerous African countries. It is an excellent venue for him to make this announcement. It may not be seen in a positive light by Tanzania, but it's an opportunity to show them that it's possible to get approved, which is part of why he was going.

Regarding Zambia, we are ready to issue permits today. No formal announcement or FR Notice is necessary. It's a new finding and is not reversing a negative finding. It's similar to our recent lion findings, where we just updated our website.

craig

On Mon, Nov 13, 2017 at 8 55 AM, Wainman, Barbara <barbara wainman@fws.gov> wrote

also how does his email about Zambia elephant permits fit in I am getting very confused but that is not unusual

Barbara W. Wainman
Assistant Director, External Affairs
US Fish and Wildlife Service
(202) 208-5256 (office)
(571) 471-4159 (cell)

On Mon, Nov 13, 2017 at 8 50 AM, Shire, Gavin <gavin shire@fws.gov> wrote

We need to make sure that DOI comms has time to clear the outreach. I will call them first thing, but at this point, I don't think they even have the most recent version, so we need to get it to them ASAP and ensure they review and approve today, if indeed Greg wants to announce tomorrow. I am curious, though, what the pressure is fro Greg to announce this in Tanzania, given this is about Zimbabwe and we are not (yet) approving elephant trophies from the country he'll be in. Could this backfire if the Tanzanian's start asking about their program (or start making assumptions about it)? Just want to make sure here.

G

Gavin Shire
Chief of Public Affairs
U.S. Fish and Wildlife Service
MS EA
5275 Leesburg Pike
Falls Church VA 22041-3803
703-358-2649 (o)
703-346-9123 (c)
gavin shire@fws gov

On Mon, Nov 13, 2017 at 8 30 AM, Hoover, Craig <craig hoover@fws.gov> wrote

All,

Based on an email from PPM, it appears that this has not yet gone to the FR. The notice is set up for Tim's signature, but Tim is currently in Tanzania. Ideally, we can change the signature line to Brenda Tapia and she can submit to the FR today so that Greg can announce in Tanzania tomorrow that the finding has been made and will publish this week. We could then issue permits by the end of the week. Thoughts?

craig

On Sat, Nov 11, 2017 at 2 15 PM, Hoover, Craig <craig hoover@fws.gov> wrote

Here are the latest versions in DTS, updated about a month ago. You will see that some of them have tracked changes and comment bubbles that still need to be addressed.

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I can't currently get into DTS but unless IA has made revisions I believe the DYS version is the most recent.

Sent from my iPhone

On Nov 11, 2017, at 11 29 AM, Gavin Shire <gavin shire@fws.gov> wrote

Whoever has the most recent version of the comma plan, please send to this group ASAP.

Thanks,

G

Sent from my iPad

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This is truly unbelievable.

Sent from my iPhone

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Guess we need to be ready for the elephant-sized $h t to hit the fan Monday.

G

Sent from my iPad

Begin forwarded message

From: Russell Newell <russell newell@ios doi gov>
Date: November 10, 2017 at 11 54 08 AM EST
To: Paul Ross <paul ross@ios.doi.gov>, gavin shire@fws.gov
Subject: Fwd: Cleared today to be sent to the Federal Register

FYI

Sent from my iPhone

Begin forwarded message

From: Downey Magallanes <downey magallanes@ios.doi.gov>
Date: November 10, 2017 at 9 19 44 AM EST
To: russell newell@ios.doi.gov, laura rigas@ios.doi.gov
Subject: Fwd: Cleared today to be sent to the Federal Register

Zimbabwe elephants went- will be in Fed Register Tuesday

Sent from my iPad

Begin forwarded message

From: "Lillie, Juliette" <juliette_lillie@ios.doi.gov>
Date: November 9, 2017 at 4 47 29 PM EST
To: "Mashburn, Lori" <lori_mashburn@ios.doi.gov>, Scott Hommel <scott_hommel@ios.doi.gov>, "Magallanes, Downey" <downey_magallanes@ios.doi.gov>, Daniel Jorjani <daniel.jorjani@sol.doi.gov>
Subject: Cleared today to be sent to the Federal Register

Good evening Below are the documents cleared today to be sent to the FR.

Julie
Juliette Lillie
Director Executive Secretariat and Regulatory Affairs
Department of the Interior
1849 C St. NW
Washington DC 20240

Email juliette_lillie@ios.doi.gov
Ph 202-219-7724

Cleared Today for Federal Register Publication
Date
11/09/2017
Records 2

DCN	Bureau	Title	Synopsis	Type	Approved
REG0007515	FWS	Issuance of Import Permits for Zimbabwe Elephant Trophies Taken on or After January 21, 2016 and on or before December 31, 2018	This notice announces to the public that the Service has made a finding that the killing of African elephant trophy animals in Zimbabwe on or after 1/21/2016 and before or on 12/31/2018 meets the ESA criteria for authorizing imports.	Notice	11/09/2017
REG0007605	NPS	Request for Nominations National Park System Advisory Board	The FR notice requests nominations for the appointment of three members to the National Park System Advisory Board.	Notice	11/09/2017

--
Craig Hoover
Chief, Division of Management Authority
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U.S. Fish and Wildlife Service
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ph 703-358-2162
www.fws.gov/international

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From: Wa nman Barbara
To: Shire Gavin
Cc: Hoover Craig; Laury Parramore; Danielle Kessler; Christina Meister; Matthew Huggler; Gloria Bell; Tim Van Norman
Subject: Re: Cleared today to be sent to the Federal Reg ster
Date: Monday November 13 2017 8:56:20 AM

---

also how does his email about Zambia elephant permits fit in I am getting very confused but that is not unusual

Barbara W Wainman
Assistant Director, External Affairs
US Fish and Wildlife Service
(202) 208-5256 (office)
(571) 471-4159 (cell)

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703-358-2649 (o)
703-346-9123 (c)
gavin shire@fws.gov

On Mon, Nov 13, 2017 at 8:30 AM, Hoover, Craig <craig hoover@fws gov> wrote:

All,

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craig

On Sat, Nov 11, 2017 at 2:15 PM, Hoover, Craig <craig hoover@fws gov> wrote:

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On Sat, Nov 11, 2017 at 1:34 PM, Laury Parramore <laury parramore@fws gov> wrote:

I can't currently get into DTS but unless IA has made revisions I believe the DYS version is the most recent

Sent from my iPhone

On Nov 11, 2017, at 11:29 AM, Gavin Shire <gavin shire@fws gov> wrote:

Whoever has the most recent version of the comma plan, please send to this group ASAP

Thanks,

G

Sent from my iPad

On Nov 11, 2017, at 10:42 AM, Barbara Wainman <barbara wainman@fws gov> wrote:

I have to talk to Greg momentarily about our communications plans on this assuming s very soft roll out of anyone has anything I need to know call or email me Thanks

Sent from my iPhone

On Nov 10, 2017, at 6:12 PM, Craig Hoover <craig hoover@fws gov> wrote:

This is truly unbelievable

Sent from my iPhone

On Nov 10, 2017, at 3:27 PM, Gavin Shire <gavin shire@fws gov> wrote:

Guess we need to be ready for the elephant-sized $h!t to hit the fan Monday

G

Sent from my iPad

Begin forwarded message:

From: Russell Newell <russell newell@ios doi gov>
Date: November 10, 2017 at 11:54:08 AM EST
To: Paul Ross <paul ross@ios doi gov>, gavin shire@fws gov
Subject: Fwd: Cleared today to be sent to the Federal Register

FYI

Sent from my iPhone

Begin forwarded message:

From: Downey Magallanes <downey magallanes@ios doi gov>
Date: November 10, 2017 at 9:19:44 AM EST
To: russell newell@ios doi gov, laura rigas@ios doi gov
Subject: Fwd: Cleared today to be sent to the Federal Register

Zimbabwe elephants went- will be in Fed Register Tuesday

Sent from my iPad

Begin forwarded message:

From: "Lillie, Juliette" <juliette_lillie@ios doi gov>
Date: November 9, 2017 at 4:47:29 PM EST
To: "Mashburn, Lori" <lori_mashburn@ios doi gov>, Scott Hommel <scott_hommel@ios doi gov>, "Magallanes, Downey" <downey_magallanes@ios doi gov>, Daniel Jorjani <daniel jorjani@sol doi gov>
Subject: Cleared today to be sent to the Federal Register

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Julie
Juliette Lillie
Director Executive Secretariat and Regulatory Affairs
Department of the Interior
1849 C St NW
Washington DC 20240

Email: juliette_lillie@ios doi gov
Ph: 202-219-7724

Cleared Today for Federal Register Publication
Date:
11/09/2017
Records: 2

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Craig Hoover
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To: Wainman Bar ara
Cc: Shire Gavin; Laury Parramore; Daniel e Kessler; Christina Meister; Matthew Huggler; G oria Be l; Tim Van Norman
Subject: Re: C eared today to be sent to the Federal Register
Date: Monday November 13 2017 10:09:41 AM

His #2 was referring to Zambia elephants, which is like Zambia and Zimbabwe lion, but not Zimbabwe elephant.

On Mon, Nov 13, 2017 at 9 06 AM, Wainman, Barbara <barbara wainman@fws.gov> wrote

So Craig could you tell if his #2 was referring to Zambia or Zimbabwe it was really not clear to me I think Zambia but wanted another pair of eyes because that is where he wants me to inform DOI Communications. Clearly we will be talking to them about both of them but I don't want him to think Zimbabwe will be as "soft" a roll out as it will require an announcement.

Barbara W. Wainman
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Date: November 10, 2017 at 11 54 08 AM EST

To: Paul Ross <paul_ross@ios.doi.gov>, gavin_shire@fws.gov
Subject: Fwd: Cleared today to be sent to the Federal Register

FYI

Sent from my iPhone

Begin forwarded message

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Date: November 10, 2017 at 9 19 44 AM EST
To: russell_newell@ios.doi.gov, laura_rigas@ios.doi.gov
Subject: Fwd: Cleared today to be sent to the Federal Register

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To: "Mashburn, Lori" <lori_mashburn@ios.doi.gov>, Scott Hommel <scott_hommel@ios.doi.gov>, "Magallanes, Downey" <downey_magallanes@ios.doi.gov>, Daniel Jorjani <daniel.jorjani@sol.doi.gov>
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Director Executive Secretariat and Regulatory Affairs
Department of the Interior
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Email juliette_lillie@ios.doi.gov
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***Sign up** for our e-newsletter to learn how we re working around the globe to protect species and their habitats!*

From:	Hoover, Craig
To:	Vannorman, Tim
Subject:	Re: draft letter for Conservation Force
Date:	Wednesday, September 06, 2017 4:04:20 PM
Attachments:	Conservation Force letter DTS066073 rev.docx

And here's the other one.

craig

On Tue, Sep 5, 2017 at 3:21 PM, Vannorman, Tim <tim_vannorman@fws.gov> wrote:

> Craig,
>
> I put a draft response to Conservation Force's July 4 letter in DTS (066293) for your review. The letter is also saved on the R drive (R:/DMA/CTRLCORR/17 corr.
>
> I also did a draft response to CF May 5 letter in DTS (066073) for your review.
> This letter is also saved on the R drive (R:/DMA/CTRLCORR/17 corr).
>
> Tim
>
> --
> Timothy J. Van Norman, Chief
> Branch of Permits
> Division of Management Authority
> U.S. Fish and Wildlife Service
> (703) 358-2350
>
> ***Sign up** for our e-newsletter to learn how we're working around the globe to protect species and their habitats!*

--
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International Affairs
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803
ph: 703-358-2162
www.fws.gov/international

In Reply Refer To:
FWS/IA/DCN066073

John Jackson
Conservation Force
3240 S. I-10 Service Rd. W.
Suite 200
Metairie, LA 70001

Dear Mr. Jackson:

Thank you for your letter of May 5, 2017, to Secretary Zinke regarding pending permit applications for the import of sport-hunted lion and elephant trophies. Your letter was referred to me for a response. I recognize and appreciate your role in promoting conservation efforts through hunting and your interest in this matter, the conservation of the species involved, and your support for our mission.

In accordance with Service regulations for implementation of the ESA (50 CFR 17.32; 17.40(r)), to issue an import permit for a personally hunted lion trophy, the applicant must demonstrate that the import of the trophy would enhance the propagation or survival of the species in the wild. However, for most sport-hunted trophy imports, the hunter typically does not have access to all of the information the Service needs to make a positive "enhancement finding." To address this issue, the Service has contacted the wildlife authority within the country where the trophies have been or likely will be taken to obtain information on the status of the species within the country, the management program for the species, how sport hunting is integrated into that management plan, how funds generated through hunting contribute to the conservation of the species, how local communities benefit from hunting operations, and other relevant information.

In 2016, the Service made an enhancement finding for sport-hunted wild/wild-managed lions taken in South Africa in 2016. On August 31, 2017, we announced a positive finding for wild/wild-managed lions taken in South Africa in 2017, 2018, and 2019, based on their current management plan that covers this period. We are working to finalize our findings for lions taken in Tanzania, Zimbabwe, and Zambia at this time. We are also reviewing material received from the governments of Mozambique and Namibia. We anticipate making findings for each of these countries in the next several weeks.

As you are aware, in April 2014, the Service made an interim determination that the information available to us was not sufficient to make an enhancement finding under the ESA for the import of elephant trophies from Zimbabwe, and announced the resulting suspension of imports until such time as we had sufficient information to make a positive finding. In July 2014, after reviewing additional information made available to the Service, we determined that we were unable to make a positive enhancement finding for elephant trophies taken in Zimbabwe after April 4, 2014 (as a result of litigation over this decision, the Court ruled that the effective date of the suspension should be May 12, 2014, since this was the date the Federal Register notice announcing the decision was published). On March 26, 2015, after reviewing additional information received since the 2014 findings, we announced that we would extend the

suspension on elephant trophy imports through 2015 and future hunting seasons until such time as we had sufficient information to make a positive finding.

Since the 2015 finding, the Service has received new information on Zimbabwe's elephant management program, the status of elephants in Zimbabwe, and the contributions by U.S. hunters to elephant conservation. We are currently reviewing this information to make a determination about requests to import trophies taken since 2015 and if such imports would meet the enhancement criteria. Any decision that we make will be announced in a Federal Register notice prior to taking any action with permit applications currently pending review.

As with Zimbabwe, in April 2014, the Service announced that we were not authorizing the import of sport-hunted elephant trophies taken in Tanzania in 2014 due to the inability to make a positive enhancement finding under the ESA and a non-detriment finding under CITES, both requirements to authorize imports. In 2015, after reviewing the available information, the Service announced that we were still unable to make a positive enhancement or non-detriment finding. We therefore denied all permit applications requesting authorization to import sport-hunted elephant trophies for those years.

Since the 2015 findings, the Service has received some information on Tanzania's elephant management program, the status of elephants in Tanzania, and the contribution by U.S. hunters toward elephant conservation. We are evaluating this information now to make a determination of whether elephant trophies taken during the 2016 and 2017 hunting seasons would meet the issuance criteria under the ESA and CITES regulations. We anticipate making a decision soon and will notify pending applicants of the decision.

The Service is currently reviewing information received from Zambia and other sources to determine if we can authorize imports of sport-hunted elephant trophies taken in 2016 and 2017 in Zambia. Prior to Zambia establishing a moratorium on all elephant hunting activities in 2013 and 2014, the Service had authorized the import of trophies taken in 2011 and 2012. We currently have no applications for trophies taken in 2015, but we have several applications for trophies that were taken in 2016 or 2017. Once we have completed our review of the available information, we will respond to these pending applications.

The Service recognizes that well-managed hunting programs can contribute to the conservation of the hunted species, and we appreciate your efforts to assist countries with such programs. We look forward to being able to communicate with you in the future regarding these issues. If you have any questions, please contact Craig Hoover, Chief, Division of Management Authority, at Craig_Hoover@fws.gov or 703-358-2162.

Sincerely,

Greg Sheehan
Acting Director

From: Craig Hoover
To: Vannorman, Tim
Cc: Bell, Gloria
Subject: Re: draft memo re: enhancement findings
Date: Wednesday, October 04, 2017 9:39:06 AM

Wednesday works for me too.

Sent from my iPhone

On Oct 4, 2017, at 9:36 AM, Vannorman, Tim <tim_vannorman@fws.gov> wrote:

> Gloria and Craig,
>
> I will be attending the Zimbabwe appeal moot court Tuesday afternoon so not available. Wednesday is good for me.
>
> Tim
>
> On Wed, Oct 4, 2017 at 9:32 AM, Bell, Gloria <gloria_bell@fws.gov> wrote:
>
> > Craig/Tim,
> >
> > Are you available next Wednesday at 3:30 (Greg's preferred option) to meet with Greg to discuss this? Tuesday at 2:30?
> >
> > Thanks,
> > gloria
> >
> > Gloria Bell | Acting Assistant Director for International Affairs | U.S. Fish & Wildlife Service
> > 5275 Leesburg Pike, MS: IA, Falls Church, Virginia, 22041-3803, USA | 703-358-1767
> > www.fws.gov/international | Sign up for our e-newsletter to learn how we're working around the globe to protect species and their habitats!
> >
> > On Fri, Sep 29, 2017 at 12:46 PM, Vannorman, Tim <tim_vannorman@fws.gov> wrote:
> >
> > > Gloria,
> > >
> > > Actually, I rechecked the numbers and realized that I did not include the applications that have both elephant and leopard trophies together (current application form allows for multiple species). The number should be 4 pending applications with elephants.
> > >
> > > So should read "We currently have 4 pending applications for elephants taken in 2016 and 2017"

Thank you for catching this error.

Tim

On Fri, Sep 29, 2017 at 12:03 PM, Bell, Gloria <gloria_bell@fws.gov> wrote:

> Tim,
>
> For the Zambia elephant info, in the pending application column you refer to 2 pending applications for lions taken in 2016 and 17. Should this be 2 pending apps for elephants or is the number different?
>
> Thanks,
> gloria
>
> Gloria Bell | Acting Assistant Director for International Affairs | U.S. Fish & Wildlife Service
> 5275 Leesburg Pike, MS: IA, Falls Church, Virginia, 22041-3803, USA | 703-358-1767
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>
> ---------- Forwarded message ----------
> From: **Hoover, Craig** <craig_hoover@fws.gov>
> Date: Thu, Sep 28, 2017 at 6:09 PM
> Subject: draft memo re: enhancement findings
> To: Gloria Bell <gloria_bell@fws.gov>
> Cc: Tim Van Norman <tim_vannorman@fws.gov>, Eleanora Babij <eleanora_babij@fws.gov>, Rosemarie Gnam <rosemarie_gnam@fws.gov>
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> Gloria,
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> Please find attached a draft response to Greg's memo regarding the status of elephant and lion findings. Tim will be available to answer any questions you may have.
>
> Best,
>
> craig
>
> --
> Craig Hoover
> Chief, Division of Management Authority
> International Affairs
> U.S. Fish and Wildlife Service
> 5275 Leesburg Pike
> Falls Church, VA 22041-3803
> ph: 703-358-2162

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(703) 358-2350

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From: Vannorman, Tim
To: Bell, Gloria
Cc: Craig Hoover
Subject: Re: draft memo re: enhancement findings
Date: Wednesday, October 04, 2017 9:36:07 AM

Gloria and Craig,

I will be attending the Zimbabwe appeal moot court Tuesday afternoon so not available. Wednesday is good for me.

Tim

On Wed, Oct 4, 2017 at 9:32 AM, Bell, Gloria <gloria_bell@fws.gov> wrote:

> Craig/Tim,
>
> Are you available next Wednesday at 3:30 (Greg's preferred option) to meet with Greg to discuss this? Tuesday at 2:30?
>
> Thanks,
> gloria
>
> Gloria Bell | Acting Assistant Director for International Affairs | U.S. Fish & Wildlife Service
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Thanks,
gloria

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Craig Hoover
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From: Bell, Gloria
To: Craig Hoover; Vannorman, Tim
Subject: Re: draft memo re: enhancement findings
Date: Wednesday, October 04, 2017 9:32:30 AM

Craig/Tim,

Are you available next Wednesday at 3:30 (Greg's preferred option) to meet with Greg to discuss this? Tuesday at 2:30?

Thanks,
gloria

Gloria Bell | Acting Assistant Director for International Affairs | U.S. Fish & Wildlife Service
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Craig Hoover
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From: Bell, Gloria
To: Vannorman, Tim
Subject: Re: draft memo re: enhancement findings
Date: Friday, September 29, 2017 12:50:32 PM

Thanks. I had already handed him the memo and was going through it more thoroughly for my own edification. I'll give him a clean copy of that page.

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From: Vannorman, Tim
To: Bell, Gloria
Subject: Re: draft memo re: enhancement findings
Date: Friday, September 29, 2017 12:47:04 PM

Gloria,

Actually, I rechecked the numbers and realized that I did not include the applications that have both elephant and leopard trophies together (current application form allows for multiple species). The number should be 4 pending applications with elephants.

So should read "We currently have 4 pending applications for elephants taken in 2016 and 2017"

Thank you for catching this error.

Tim

On Fri, Sep 29, 2017 at 12:03 PM, Bell, Gloria <gloria_bell@fws.gov> wrote:

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> To: Gloria Bell <gloria_bell@fws.gov>
> Cc: Tim Van Norman <tim_vannorman@fws.gov>, Eleanora Babij <eleanora_babij@fws.gov>, Rosemarie Gnam <rosemarie_gnam@fws.gov>
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From: Bell, Gloria
To: Craig Hoover
Cc: Vannorman, Tim
Subject: Re: draft memo re: enhancement findings
Date: Wednesday, October 04, 2017 9:39:41 AM

Thanks!

Gloria Bell | Acting Assistant Director for International Affairs | U.S. Fish & Wildlife Service
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On Wed, Oct 4, 2017 at 9:38 AM, Craig Hoover <craig_hoover@fws.gov> wrote:

> Wednesday works for me too.
>
> Sent from my iPhone
>
> On Oct 4, 2017, at 9:36 AM, Vannorman, Tim <tim_vannorman@fws.gov> wrote:
>
>> Gloria and Craig,
>>
>> I will be attending the Zimbabwe appeal moot court Tuesday afternoon so not available. Wednesday is good for me.
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>> Tim
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Cc: Tim Van Norman <tim_vannorman@fws.gov>, Eleanora Babij <eleanora_babij@fws.gov>, Rosemarie Gnam <rosemarie_gnam@fws.gov>

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Best,

craig

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Craig Hoover
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(703) 358-2350

From:	Hoover, Craig
To:	Bell, Gloria
Cc:	Vannorman, Tim; Danielle Kessler; Charisa Morris
Subject:	Re: Due by 2pm today: REQUEST FOR LION AND ELEPHANT INFO: Bullets for Secretary"s BiWeekly Check-in
Date:	Tuesday, October 24, 2017 12:34:13 PM

I'm working on it now.

On Tue, Oct 24, 2017 at 12:33 PM, Bell, Gloria <gloria_bell@fws.gov> wrote:

Hi all,

Please see Charisa's email below. She needs the information by 2 pm today.

Thanks,
gloria

Gloria Bell | Acting Assistant Director for International Affairs | U.S. Fish & Wildlife Service
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---------- Forwarded message ----------
From: **Morris, Charisa** <charisa_morris@fws.gov>
Date: Tue, Oct 24, 2017 at 11:56 AM
Subject: REQUEST FOR LION AND ELEPHANT INFO BY 2PM TODAY: Bullets for Secretary's BiWeekly Check-in
To: Gary Frazer <Gary_Frazer@fws.gov>, Gina Shultz <Gina_Shultz@fws.gov>, Gloria Bell <gloria_bell@fws.gov>, Craig Hoover <craig_hoover@fws.gov>

Good morning, all-

We submitted a Lion and Elephant bullet (at bottom of this thread) for an upcoming check-in meeting with the Secretary, and FWP has requested the following additional information:

Topic title

- *Date and Action*
- *Controversy and media attention expected*
- *Items of note*
- *Interested parties*

Would you be able to provide this information by 2pm today? So sorry for the rapid turnaround time - this level of detail is a new ask.

Thank you,
Charisa

---------- Forwarded message ----------
From: **Gale, Michael** <michael_gale@fws.gov>

Service | 1849 C Street NW, Room 3348 | Washington, DC 20240 | (202) 208-3843 | For urgent matters, please dial cell: 301-875-8937

--

Craig Hoover
Chief, Division of Management Authority
International Affairs
U.S. Fish and Wildlife Service
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Falls Church, VA 22041-3803
ph: 703-358-2162
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From:	Anna Frostic
To:	Vannorman, Tim; Keisha Sedlacek
Subject:	RE: Elephant and Lion Imports
Date:	Monday, November 20, 2017 11:31:54 AM
Attachments:	image002.png Zimbabwe Lion Letter to FWS (11.20.17).pdf
Importance:	High

Tim – please find attached a letter requesting reconsideration of the Zimbabwe lion finding.

Best,

Anna

Anna Frostic
Managing Attorney, Wildlife & Animal Research Litigation
Animal Protection Litigation
afrostic@humanesociety.org
t 202.676.2333

The Humane Society of the United States
1255 23rd Street NW, Suite 450
Washington, DC 20037
humanesociety.org

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Before printing this e-mail, think green and conserve paper.

From: Vannorman, Tim [mailto:tim_vannorman@fws.gov]
Sent: Tuesday, October 24, 2017 4:50 PM
To: Keisha Sedlacek <ksedlacek@hslf.org>
Cc: Anna Frostic <afrostic@humanesociety.org>
Subject: Re: Elephant and Lion Imports

Afternoon Keisha and Anna.

Here are the findings for Zimbabwe and Zambia lions.

Tim

On Tue, Oct 24, 2017 at 1:41 PM, Keisha Sedlacek <ksedlacek@hslf.org> wrote:

Tim,

Will you please send the enhancement findings for these countries over to us?

Thanks,

Keisha

From: Vannorman, Tim [mailto:tim_vannorman@fws.gov]
Sent: Tuesday, October 24, 2017 1:06 PM
To: Keisha Sedlacek <ksedlacek@hslf.org>
Cc: Anna Frostic <afrostic@humanesociety.org>
Subject: Re: Elephant and Lion Imports

Dear Keisha,

I hope all is well. I did receive the packages and the cd. We are reviewing the letters and information you provided in relation to Zimbabwe elephant and Tanzania elephant and lion. Nothing has been finalized on these findings, so there is time to consider your comments.

Since I have you, I will let you know that on Friday, we approved the import of lion trophies from Zimbabwe and Zambia. After considering the information we had on lions from these countries and their management, we made a positive finding for 2016, 2017, and 2018. These findings, however, are subject to change if new information becomes available that would affect the findings.

Tim

On Tue, Oct 24, 2017 at 12:44 PM, Keisha Sedlacek <ksedlacek@hslf.org> wrote:

> Hi Tim:
>
> On October 6, 2017, we mailed the attached letters regarding (1) Tanzania elephant trophy imports, (2) Zimbabwe elephant trophy imports, and (3) Tanzania lion imports. We just wanted to make sure you had electronic copies of the letters as well (attached). Hopefully, you have had time to review the letters. Would you have time to meet next week to discuss the letters?
>
> Hope all is well.
>
> Best,
>
> Keisha
>
> Keisha Sedlacek
> Senior Regulatory Specialist, Federal Affairs
> Humane Society Legislative Fund
> rd

1255 23 Street, NW, Suite 455
Washington, DC 20037
T: 202-955-3661

HUMANE SOCIETY
LEGISLATIVE FUND

--
Timothy J. Van Norman, Chief
Branch of Permits
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November 20, 2017

Mr. Timothy Van Norman
Chief, Branch of Permits
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041

Re: Imports of African Lion Trophies from Zimbabwe

Dear Chief Van Norman:

On October 11, 2017, the U.S. Fish and Wildlife Service ("FWS" or "the Service") issued a positive enhancement finding for African lion trophies from Zimbabwe. That finding is not based on the best available science and the conclusions made in the finding are not supported by the information relied on by the agency. On behalf of The Humane Society of the United States ("HSUS"), Humane Society International ("HSI"), and Humane Society Legislative Fund ("HSLF"), we write to strongly urge the U.S. Fish and Wildlife Service ("FWS" or "the Service") to rescind the enhancement finding for Zimbabwean lions, as it cannot be demonstrated that trophy hunting of lions in Zimbabwe affirmatively benefits the conservation of the species. Issuing any import permits for lion trophies from Zimbabwe in reliance on this finding would violate the Endangered Species Act ("ESA").

ESA Requirements for Lion Trophy Imports

The Endangered Species Act (ESA) listings for *Panthera leo leo*[1] and *Panthera leo melanochaita* went into effect on January 22, 2016 (80 Fed. Reg. 79999 (Dec. 23, 2015)). Pursuant to the Section 4(d) regulation for *Panthera leo melanochaita* (50 C.F.R. § 17.40(r)), the Service can only issue a permit to import a lion trophy from east or southern Africa if the best available science supports a finding that trophy hunting enhances the survival of this subspecies. Pursuant to the plain language of this statutory term (16 U.S.C. § 1539(a)(1)), "enhancement" permits may only be issued for

[1] HSUS, HSI, and HSLF fully expect that no permits will be issued to import trophies of endangered *Panthera leo leo*, as this subspecies is on the brink of extinction and cannot sustain recreational offtake. As the U.S. Fish and Wildlife Service (FWS) acknowledged in the lion listing rule, in western and central Africa, "[m]anagement programs do not appear to be sufficient to deter unsustainable offtakes" and "experts agree that there is no level of offtake that would be sustainable for *P. l. leo* populations…" 80 Fed. Reg. 79999, 80040 (Dec. 23, 2015).

activities that *positively benefit* the species in the wild. *See also* FWS, *Ensuring the Future of the Black Rhino* (Nov. 25, 2014), *at* http://www.fws.gov/news/blog/index.cfm/2014/11/25/Ensuring-the-Future-of-the-Black-Rhino (acknowledging that the ESA enhancement standard is more stringent than the CITES non-detriment standard); U.S. Fish and Wildlife Service Handbook for Endangered and Threatened Species Permits (1996) (making clear that an enhancement activity "must go beyond having a neutral effect and actually have a positive effect"). It is critical that FWS apply the precautionary principle and strictly scrutinize the impacts that trophy hunting has on African lions – indeed, as recently published in *Nature*, overutilization, including trophy hunting, is the biggest threat to biodiversity.[2]

HSUS, HSI, and HSLF agree with the standard that FWS established in the 4(d) Rule for *Panthera leo melanochaita*, requiring that,

> "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival of *P. l. melanochaita*, the Service will examine the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is based on sound scientific principles and that the management program is actively addressing the current and longer term threats to the subspecies). In that review, we will evaluate whether the import contributes to the overall conservation of the species by considering whether the biological, social, and economic aspects of a program from which the specimen was obtained provide a net benefit to the subspecies and its ecosystem" (emphasis added).

HSUS, HSI, and HSLF also agree that FWS must consider the following factors when making an enhancement finding for importation of hunting trophies of *P. l. melanochaita*:

> "(a) Biological sustainability: The hunting program cannot contribute to the long-term decline of the hunted species. It should not alter natural selection and ecological function of the hunted species or any other species that share the habitat. The program should not inadvertently facilitate poaching or illegal trade in wildlife by acting as a cover for such illegal activities. The hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity.
>
> (b) Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed. The program should produce income, employment, and other benefits to create incentives for reducing the pressure on the target species. The program should create benefits for local residents to co-exist with the target species and other species. It is also imperative that the program is part of a legally recognized governance system that supports conservation.
>
> (c) Socio-Economic-Cultural Benefit: A well-managed hunting program can serve as a conservation tool when it respects the local cultural values and practices. It should be accepted

[2] Sean L. Maxwell et al., *Biodiversity: The Ravages of Guns, Nets, and Bulldozers*, Nature Vol. 536, 143-145 (Aug. 11, 2016), *at* http://www.nature.com/news/biodiversity-the-ravages-of-guns-nets-and-bulldozers-1.20381.

by most members of the community, involving and benefiting local residents in an equitable manner. The program should also adopt business practices that promote long-term economic sustainability.

(d) Adaptive Management: Planning, Monitoring, and Reporting: Hunting can enhance the species when it is based on appropriate resource assessments and monitoring (e.g., population counts, trend data), upon which specific science-based quotas and hunting programs can be established. Resource assessments should be objective, well documented, and use the best science available. Adaptive management of quotas and programs based on the results of resource assessments and monitoring is essential. The program should monitor hunting activities to ensure that quotas and sex/age restrictions of harvested animals are met. The program should also generate reliable documentation of its biological sustainability and conservation benefits.

(e) Accountable and Effective Governance: A biologically sustainable trophy-hunting program should be subject to a governance structure that clearly allocates management responsibilities. The program should account for revenues in a transparent manner and distribute net revenues to conservation and community beneficiaries according to properly agreed decisions. All necessary steps to eliminate corruption should be taken and to ensure compliance with all relevant national and international requirements and regulations by relevant bodies such as administrators, regulators and hunters."

Evidence is Insufficient to Support Claims that Lion Trophy Hunting in Zimbabwe Enhances the Survival of the Subspecies

(1) Unfenced lion populations in Zimbabwe have declined over the past decade and today fewer than 300 truly wild adult male lions remain in the country

As acknowledged in the Service's October 2017 enhancement finding (USFWS 2017), it is critical that lion management, quotas, and assessments should be based on sound science and it is "vital" to have data on population numbers and trends. Specifically, the finding states that: "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival of *P. l. melanochaita*, the Service examines the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (i.e., <u>that it is based on sound scientific principles</u> and that the management program is actively addressing the current and longer term threats to the subspecies)" (p. 3, emphasis added); hunting should be based on "appropriate resource assessments and monitoring (e.g., population counts, trend data), upon which specific <u>science-based quotas and hunting programs</u> can be established. Resource assessments should be <u>objective, well documented, and use the best science available</u>" (p. 4, emphasis added); and "to manage any population to ensure an appropriate population level and determine whether sport hunting is having

a positive effect, it is vital to have sufficient data on population numbers and population trends on which to base management decisions" (p. 9, emphasis added).

The Zimbabwe enhancement and non-detriment finding document (ZPWMA 2016) provides a table with "estimated minimum" population sizes by subpopulation, and gives a total estimated minimum population size in Zimbabwe of 1,917 lions (p. 6) (Figure 1, below). The source of the data is said to have been "compiled from a variety of reports" (p. 6). As ZPWMA did not provide the source of the data contained in the table, or the methodology employed to obtain the estimates, or the year in which the data were collected, the data cannot be considered by the Service to be objective, well-documented or to be made using the best science available. Later in the Zimbabwe document it is stated that population estimates are determined through "carnivore spoor surveys, systematic lion collaring and call-up surveys" and also "patrol reports, field observations by ZPWMA rangers and other sightings by tour operators and tourists" and in Safari Areas, "resident safari operators, including those operating in CAMPFIRE areas" (p. 15). While the "carnivore spoor surveys, systematic lion collaring and call-up surveys" may be made using the best science available (although the document itself does not make that clear), the other sources of population estimates listed are not. Random, unplanned sightings by patrols, rangers, tour operators and tourists cannot meaningfully contribute to population estimates.

REGION	AREA	AREA (km^2)	Estimated Number of Lions	Percentage
Western	Hwange NP	14,900	559	38%
	Matetsi Units 1-5	1,934	59	
	Matetsi Units 6-7 and Zambezi NP	1,585	67	
	Kazuma Pan NP	313	20	
	Kazuma Forest	240		
	Panda Masuie Forest	355		
	Matetsi ECA	1,556	15	
	Ngamo and Sikumi Forest	1,386	6	
	Gwaai Conservancy	927	22	
	Hwange Communal Land	392	2	
	Tsholotsho buffer adjacent HNP	1,275	7	
Subtotal		**24,863**	**737**	
Central	Chizarira NP	1,948	31	4%
	Chirisa SA	1,713		
	Omay	1,865	10	
	Matusadona NP	1,427	31	
Subtotal		**6,953**	**72**	
Northern	Chewore North and South	1,648	45	11%
	Dande	1,155	21	
	Hurungwe (Nyakasanga and Rifa)	1,709	32	
	Charara/Mukuti	1,692	20	
	Mana Pools	1,287	94	
Subtotal		**7,491**	**212**	
Southern	Gonarezhou National Park	5,053	125	48%
	Malilangwe	400	37	
	Bubye Valley Conservancy	3,440	450	
	Save	3,442	284	
Subtotal		**12,335**	**896**	
Overall Total		**51,642**	**1,917**	

Figure 1. Enhancement and Non-Detrimental Findings for Panthera leo in Zimbabwe (ZPWMA 2016, Table 2, p. 6)

The ZPWMA (2016) national lion population size estimate of 1,917 is much higher than other published estimates, including studies cited in the Service's 2015 final rule listing lions under the ESA. Bauer and Van Der Merwe (2004) estimated a national population size of 987; Chardonnet (2002) estimated 1,686; and Bauer et al. (2016, IUCN Red List assessment) estimated 703 in five well-studied populations (Bubye, Gonarezhou, Hwange, Malilangwe, and Save Valley) in 2014.

ZPWMA (2016) provides information indicating that several of the population estimates come from scientific studies that used appropriate methodologies; these are populations of Gonarezhou National Park, Save Valley Conservancy, Bubye Valley Conservancy, Mana Pools National Park,

Hwange National Park, Zambezi National Park, Units 6 and 7 of the Matetsi Safari Area, and Chizarira National Park and Chirisa / Sengwa Safari Area.

Assuming the population estimates for these areas given in the table are accurate, when added together they total 1,610 which is 307 (16%) fewer lions than the 1,917 estimate. As there appears to be no scientific basis for the existence of these 307 lions, the Service cannot consider the number to be objective, well-documented or to have been made using the best science available. Therefore, it is arbitrary and capricious for the Service to conclude that the national population of lions in Zimbabwe is any greater than 1,610. According to Loveridge et al. (2007), "Almost all lion populations show a bias towards females and have an adult population sex ratio of 1:2;" given this, there are, at most, 536 adult male lions in all of Zimbabwe.

Most of Zimbabwe's lion population sizes have decreased in the past decade (Table 1). The only exceptions are those in Save Valley Conservancy and Bubye Valley Conservancy, which are fenced and have increased, and Hwange, which has stayed the same. Comparing the population sizes estimated by Chardonnet (2002) to those estimated by ZPWMA (2016), there is a 32% decrease in Gonarezhou, an 81% decrease in Mana Pools, and a 55% decrease in Zambezi National Park and Units 6 and 7 of the Matetsi Safari Area. Comparing the Chizarira National Park and Chirisa / Sengwa Safari Area population size estimated by Bauer and Van der Merwe (2004) to that estimated by ZPWMA (2016), there is a 69% decrease; this decrease is acknowledged in Zimbabwe's "enhancement and non-detriment" finding (ZPWMA 2016), but was not acknowledged by USFWS (2017). USFWS (2017) did not acknowledge any lion population decreases in Zimbabwe, contrary to the information before the agency at the time of its finding.

Table 1: Zimbabwe lion population size trends.

Population	Chardonnet 2002	Bauer and Van Der Merwe 2004	ZPWMA 2016	Trend
Gonarezhou National Park	183	130	125	32% decrease
Save Valley Conservancy		-	284	100% increase
Bubye Valley Conservancy	-	-	450	100% increase
Mana Pools National Park	495	97	94	81% decrease
Hwange National Park	543	120	559	same
Zambezi National Park and Units 6 and 7 of the Matetsi Safari Area	150	85	67	55.5% decrease
Chizarira National Park and Chirisa / Sengwa Safari Area	-	100	31	69% decrease

Returning to Bubye Valley Conservancy and Save Valley Conservancy, as noted in ZPWMA (2016), these are fenced areas that were formerly used for cattle, where the owners decided to pursue a new business model based on raising wildlife to sell them to trophy hunters. Both Conservancies are multi-million dollar a year businesses that plow revenue back into the management of the Conservancies; this is not surprising, as these are businesses that must take necessary measures to ensure that their investment is protected. These lion populations started with the introduction of a small number of lions and the populations have grown exponentially. As noted above, this contrasts starkly with the populations in the National Parks which are mostly decreasing.

The contribution of fenced lion populations to the conservation status of lions is highly questionable, particularly when they are not part of a metapopulation management program that mimics, to the extent possible, natural genetic exhange. Indeed, according to Bauer et al. (2015), "Fenced reserves in Kenya and southern Africa are very effective, but these reserves include many small populations that require metapopulation management, euthanasia, and contraception and only make limited contributions to ecosystem functionality and conservation outcomes" (p. 14897). Instead of implementing the management protocols noted by Bauer et al. (2015), these conservancies have allowed the lion population density to increase to abnormal levels, presumably in order to be able to sell more lions to hunters. The population density in Save Valley Conservancy is 11.7 lions/100km² and that of Bubye Valley Conservancy is 19 lions/ 100km^2, which is much higher than the average population density estimate of 9.6 lions/100km² for some other lion populations (Kruger, Hwange, Selous and Serengeti) (du Preez et al. 2015). This high lion density negatively impacts other species, not only their prey species, but also competitors such as leopard, cheetah, and wild dog (du Preez et al. 2015). It is also likely that the lions on these conservancies are highly inbred as they started from a small number of lions. And while the Conservancies reportedly provide benefits to people in the local communities (including meat, jobs, schools, and community projects), since the lions are fenced in, this does not offset livestock loss to Conservancy lions and make people more tolerant of lions; thus, the management of these lion populations cannot be said to benefit the conservation of the species.

The Service has committed to using the IUCN Species Survival Commission (SSC) Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incenties when making enhancement findings. The first of these principles is "biological sustainability" including that "it should not alter natural selection and ecological function of the hunted species or any other species that share the habitat" and "the hunting program should also not manipulate the ecosystem or its component elements in a way that alters the native biodiversity." (USFWS enhancement finding, p. 4). Clearly, Bubye Valley Conservancy and Save Valley Conservancy have violated these principles. Accordingly, the Service must conclude that lion hunting on these Conservancies is not enhancing the survival of the species, contrary to the positive finding it made in October 2017.

With regard to Hwange National Park, Loveridge et al. (2016) estimated to the total number of lions to be approximately 120 in 2012 (Figure 2F). By comparison, Zimbabwe estimates the current population to be "over 550" (ZPWMA 2016, p. 18). It would seem impossible for the Hwange lion population to have nearly quadrupled in four years. Even the lion population at Bubye Valley Conservancy only doubled over a four year period between 2008 and 2012 (du Preez et al. 2016, Figure 7). The document from Zimbabwe does not provide any details on the source of the "over 550" figure. If the true population size is much lower, it would mean that the population has decreased as compared to the population figure of Chardonnet (2002).

In summary, although the current national lion population size estimate, based on studies that use appropriate scientific methodology, is similar to that in 2002 (Chardonnet 2002), wild lion populations in Zimbabwe have decreased over approximately the past decade, while two fenced populations have increased over this time. Truly wild (not fenced in) lions in Zimbabwe number only 876 and, given a typical female:male ratio of 2:1, this means there are only 292 truly wild male lions in Zimbabwe, far less lions that assumed in the Service's enhancement finding.

(2) Zimbabwe's lion hunting quotas are not science-based, and age restrictions are poorly implemented and do not apply to all lion hunting areas in the country

Another one of the IUCN Species Survival Commission (SSC) Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incenties principles is "Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and <u>scientifically based quotas</u>, established with local input, that are transparent and periodically reviewed" (USFWS 2017, p. 4, emphasis added).

According to ZPWMA (2016), a new system for quota setting, the "points system for adaptively managing lion quotas", commenced in 2015 (ZPWMA 2016, p. 37). This new system, based on a study that modelled the impact of age-based lion hunting restrictions on a Tanzania lion population (Whitman et al. 2004), aims to ensure that only male lions five years of age and older are hunted. The system "rewards operators with increased quotas if they hunt animals of six years and older, but it does not penalize them if they hunt animals of five years. Neither are they penalised if they do not shoot a lion that they have on quota, however, the quotas will be reduced if they hunt animals younger than five years or if they failed to complete hunt returns" (ZPWMA, p. 40).

However, there are several major flaws with this quota setting system.

First, as pointed out by Loveridge et al. (2007), who studied lions and lion hunting in Hwange National Park, because male lions in Zimbabwe mature later than their counterparts in Tanzania, the 5 year age limit is not appropriate there. The authors said, "Measures of maturity of males in HNP (mane size, testicle size) suggest that lions in this population reach physical maturity at around 6–7 years old. These data accord with those from Kruger National Park, South Africa, showing that testicle weight, seminiferous tubule diameter, body weight and size peak between 5

and 9 years (Smuts et al., 1978b) and mean age of pride males was 6.5 (range 5–9) years (Smuts, 1978). It appears that male lions in southern Africa mature later than conspecifics in East Africa (Tanzania), where male lions reach maturity at 4 years (West and Packer, 2002; Whitman et al., 2004). If an age threshold is used to determine harvests of male lions then the 6 year minimum that Whitman et al. (2004) suggest may need to be reviewed and adjusted to take into account what is apparently later maturation of males in southern Africa. Off-take of males aged between 7 and 8 years might be more appropriate" (p. 553).

Second, the starting point for establishing quotas under this new system was the previously existing quotas (ZPWMA 2016, p. 37); however, the scientific basis for the previously existing quotas is not provided by ZPWMA (2016). ZPWMA states, "Zimbabwe implements an adaptive quota setting quota system that uses inputs from monitoring data and input from a variety of stakeholders including ZPWMA field and research staff, local communities, hunting operators, and independent biologists. Quotas are set based on population estimates or trend analyses, monitoring data, hunt return data, research work and indices as may be reflected in various reports by field personnel" (ZPWMA 2016, p. 56). It seems from this statement that some science may inform the setting of quotas but this does not mean the final outcome is science-based. Indeed, the Service concedes in its finding that quotas are not science based in some situations: "In CAMPFIRE areas, incidences of human-lion conflict are also taken into consideration where survey information is not readily available, when determining quotas for those areas (ZPWMA 2014). The quota setting process involves all stakeholders, including the ZPWMA, landowners, safari operators, and CAMPFIRE managers and their representatives. During the annual quota-setting workshop, presentations are made by the proponents who then make proposals for quotas. Where it is felt that not enough information has been presented, however, a precautionary quota will still be issued (ZPWMA 2014). The Service is not aware of how precautionary quotas are treated after they are issued, or if there is a protocol for obtaining necessary information when a precautionary quota is put in place" (USFWS 2017, p. 13).

Third, quotas do not take into account all forms of lion mortality including retaliatory killing and snaring. Indeed, the number of lions killed as a result of human-lion conflict exceeds the number killed by trophy hunters: ZPWMA states, "The exact number of lions killed in this way is difficult to assess, but may number over 50/year" (ZPWMA 2016, p. 44). Loveridge et al. (2007), who studied lion mortality in Hwange 1999-2004, found that, in addition to hunting, the population "also experienced mortality from other anthropogenic sources, including illegal snaring and killing. Lions are often inadvertently caught in snares set for other wildlife. While this only accounted for 11.8% of all mortality of [62] marked animals, we know of at least seven additional unmarked lions killed in snares during the study. It is possible that this source of mortality is under-represented as this is difficult to measure because evidence of illegal killing is often concealed. Conflict mortality needs to be taken into account when setting hunting quotas, as this mortality is additive and it is possible that even conservative hunting off-takes coupled with high levels of illegal killing could make a population vulnerable to decline" (p. 555). ZPWMA (2016) states that

21 lions were killed illegally 2013-2015, although this is likely an underestimate because the full scope of illegal activities are usually not known to government authorities.

Another form of lion mortality that may not be adequately accounted for in the quota setting process is official Problem Animal Control. Groom et al. (2014), who studied lions in Gonarhezou, said "Another important cause of lion mortality in Gonarezhou was the destruction of lions considered to be problem animals. Problem animal control incidences are poorly recorded and the responsibility is often handed over to hunting operators, with apparently little record-keeping (RJG, pers. obs.). However, we acquired records of at least 18 lions being shot as problem animals between 1993 and 2009 around the southern half of Gonarezhou. In many cases the sex of the lion killed was not recorded but at least five of them were females and one was a cub. This is likely to affect the population negatively, as regular removal of even small numbers of reproductive females can expose a population to decline (Van Vuuren et al., 2005). Moreover, as reproductive success is closely related to pride size, and prides of three or more adult females are significantly more successful at rearing cubs than smaller prides (Packer et al., 1988), removal of adult females may result in lower cub survival. Since 2009 there has been virtually no lethal problem animal control for lions around Gonarezhou, although lions are still reported to be killing livestock and there is evidence that communities poison them. Exact figures are unknown but presumed to be higher than recorded" (p. 6).

Fourth, CAMPFIRE areas are exempt from age-based quotas. ZPWMA (2016) states "the CAMPFIRE areas in which lions occur are currently exempted from the age restrictions. This approach was adopted as a means of ensuring that impoverished communities obtain the opportunity to benefit from the presence of lions, recognising the potential negative impacts the species has on the livelihoods of livestock farmers" (p. 41). This exemption is acknowledged by the Service (USFWS 2017, p. 14) but later in the document the Service arbitrarily states, "The adaptive quota management system for lion hunting based on the ages of lions hunted has been accepted and embraced by all stakeholders" (USFWS 2017, p. 17). The Service downplays the importance of this exemption by stating, "While hunting is allowed in CAMPFIRE areas, it is unclear if American sport hunters conduct lion hunts in these areas; if so, the Service is not aware if sport hunters are exempted from the age restriction in this case, and how this exemption in CAMPFIRE areas is taken into consideration when setting quotas for other portions of the country" (p. 14). It is unclear why the Service would think that American trophy hunters would not be exempt from the age restrictions if they hunted lions in CAMPFIRE areas, and it is unreasonable for the Service to make an enhancement finding based on such a presumption.

As to the question of whether American trophy hunters hunt lions in CAMPFIRE areas, the Service repeatedly argues later in the document that American hunters do hunt lions in CAMPFIRE areas and that this is an important source of income. For example, the Service states, "Across all CAMPFIRE districts, from 2010 to 2015, there was a total quota of 140 lions, with actual offtake equaling 45 animals. During this same period, U.S. trophy hunters apparently accounted for 51% of Zimbabwe's trophy hunting clients; trophy fees represented 74% of CAMPFIRE income, of

which lions play a small role" (USFWS 2017, p. 17). Using these figures, it can be hypothesized that of the approximately eight lions killed annually from 2010-2015, four were killed by Americans. The fact that Zimbabwe is willing to forgo age-restrictions for lions hunted in CAMPFIRE areas, means that hunting in these areas is potentially detrimental to the lion populations therein because younger lions will be killed. Consequently, it would violate the Endangered Species Act for the Service to issue import permits for lions killed in CAMPFIRE areas based on the October 2017 finding and without evidence that they were at least five years old when killed.

Fifth, the age restrictions are poorly implemented. According to du Preez et al. (2016), in 2015, 16% of lions hunted were under 5 years of age; this means that, of the 49 lions hunted that year (ZPWMA 2016, p. 38), seven were under age. Furthermore, the implementation of the restrictions varied between the three main lion-hunting areas in 2015: In Zambezi Valley, about 50% of lions hunted were less than 5 years old, compared to about 20% in Lowveld and about 5% in Matland North (Du Preez et al. 2016, Table 6, p. 11); thus, certain areas of the country is more prone to violating the age restrictions. Hunting of lions under the age of 5 is detrimental of lion populations. Consequently, the Service cannot lawfully issue import permits for lions from Zimbabwe hunted in areas that are prone to violating the age restrictions.

In summary, although the current national lion population size estimate, based on scientific surveys, is similar to that in 2002 (Chardonnet 2002), wild lion populations in Zimbabwe have decreased over approximately the past decade, while two fenced populations have increased over this time. Truly wild (not fenced in) lions in Zimbabwe number only 876 and, given a typical female:male ratio of 2:1, this means there are only 292 truly wild male lions in Zimbabwe. Given that the 2016 hunting quota was 81 male lions (ZPWMA 2016, p. 38), and subtracting the 15 lion quota for Bubye (du Preez et al. 2016, p. 13) and 10 lion quota for Save (du Preez et al. 2016, p. 18), the 56 wild lions remaining on quota represent 19 percent of the wild male population. This exceeds the recommendation of Loveridge et al. (2007, p. 556) that quotas should be reduced "to realistic levels (no more than 10% of adult males) based on robust population estimates would ease excessive off-takes of male lions." Therefore, the Service's positive enhancement finding is not in accordance with law and import permits cannot lawfully be issued pursuant to this finding.

(3) Zimbabwe's 11-year-old lion management plan still has not been substantially implemented

The Service states, "when making a determination of whether an otherwise prohibited activity enhances the propagation or survival of *P. I. melanochaita*, the Service examines the overall conservation and management of the subspecies in the country where the specimen originated and whether that management of the subspecies addresses the threats to the subspecies (i.e., that it is based on sound scientific principles and that the management program is actively addressing the current and longer term threats to the subspecies)" (USFWS 2017, p. 2)

The Service further states, "When evaluating whether the importation of a trophy of *P. I. melanochaita* would be authorized pursuant to 50 CFR 17.32, in accordance with our threatened species issuance criteria, we will examine how a country's management program for lions addresses the three main threats that have led to the decline of the subspecies: habitat loss, loss of prey base, and human-lion conflict. When examining a management program and whether trophies taken as part of that program meet the issuance criteria, we study a number of factors. Some of the factors we consider include whether the program is based on sound scientific information and identifies mechanisms that would arrest the loss of habitat or increase available habitat (i.e., by establishing protected areas and ensuring adequate protection from human encroachment). We consider whether the management program actively addresses the loss of the lion's prey base by addressing poaching or unsustainable offtake within the country. A component of a management plan from which trophy imports would meet the issuance criteria would be whether there are government incentives in place that encourage habitat protection by private landowners and communities and incentives to local communities to reduce the incursion of livestock into protected areas or to actively manage livestock to reduce conflicts with lions. We examine if the hunting component of the management program supports all of these efforts by looking at whether hunting concessions/tracts are managed to ensure the long-term survival of the lion, its prey base, and habitat" (USFWS 2017, p. 5).

Finally, the Services states, "Management programs for *P. I. melanochaita* are expected to address, but are not limited to, evaluating population levels and trends; the biological needs of the species; quotas; management practices; legal protection; local community involvement; and use of hunting fees for conservation. In evaluating these factors, we will work closely with the range countries and interested parties to obtain the information. By allowing entry into the United States of *P. I. melanochaita* trophies from range countries that have science-based management programs, we anticipate that other range countries would be encouraged to adopt and financially support the sustainable management of lions that benefits both the species and local communities. In addition to addressing the biological needs of the subspecies, a scientifically based management program would provide economic incentives for local communities to protect and expand *P. I. melanochaita* habitat" (USFWS 2017, p. 5).

The Service has previously stated, "We evaluate whether a country has a valid national or regional management plan and if the country has the resources and political will to enact the plan. If there is a plan, what government entities implement the plan and how often is it reviewed and updated? Does the plan have clear, achievable objectives? Are the objectives measurable and are they being achieved? Is there an adaptive management approach within the plan so that enacting agencies can quickly respond to changing environmental or social issues?" (USFWS 2015, p. 1-2).

The Service concedes that the most recent lion management plan for Zimbabwe is the 2006 Conservation Strategy and Action Plan for the Lion (*Panthera leo*) in Zimbabwe (USFWS 2017). The plan aims to: ensure the persistence of key lion populations and other important populations including those of doubtful viability; reduce human and livestock loss; and optimize wildlife

conservation-related net benefits to local communities. The plan contains seven objectives, each with several targets; each target has activities to be conducted to achieve the target. If fully implemented, the plan could address the three main threats that have led to the decline of the subspecies: habitat loss, loss of prey base, and human-lion conflict. However, data in the Service's possession reveals that the plan has not been fully implemented.

ZPWMA (2016) provided an update on implementation of the plan (Table 2, below). According to the information provided by ZPWMA (2016), after eleven years, none of the seven identified outputs in the plan have been completed. Of the 24 identified targets in the plan, only one, Target 1.4 (develop and implement a national lion captive breeding management policy), is completed, but this is irrelevant to the Service's finding regarding enhancement based on hunting of wild lions in Zimbabwe. Of the 108 activities in the plan, evidence presented by ZPWMA (2016) indicates that only 26 have been completed. Therefore, Zimbabwe has not made substantial progress on implementation of the plan over the past eleven years and it is arbitrary and capricious for the Service to issue an enhancement finding based on this outdated plan.

Instead of conducting a thorough analysis of whether or not the plan has been implemented over the past eleven years, using the information provided by ZPWMA (2016) – as we have in Table 2 below – the Service instead examined implementation of only three outputs which the Service states "are most relevant to determining if the implementation of the strategy enhances the propagation or survival of the species, as required by the ESA for the issuance of import permits" (USFWS 2017, p. 10); these are Output 1 (lion populations, their habitats and wild prey effectively conserved and managed in collaboration with local stakeholders), Output 3 (human-lion related conflicts minimized and, where possible, eliminated), and Output 4 (the costs and benefits of long-term lion management equitably distributed). However, even the Service's analysis of these outputs is flawed.

For each Output, the Service (USFWS 2017) copied and pasted information provided by ZPWMA (2016) about the output's targets with no analysis. Furthermore, the Service failed to analyze whether or not the activities in plan to meet the targets had been undertaken or completed. Our analysis of Outputs 1, 3 and 4 (Table 2) indicate that these outputs have not been completed. Specifically, for Output 1, only one of the six targets have been completed (on captive breeding management), and only 12 of 28 activities have been completed (and six of these relate to captive lions). Yet, the Service finds that "ZPWMA is actively working toward meeting the target areas for this output" (USFWS 2017, p. 11). For Output 3, none of the six targets have been completed, and only 2 of 21 activities have been completed. Yet, the Service finds that "information submitted in the ZPWMA update suggests that they have met one target, and are in the process of implementing the remaining two" (USFWS 2017, p. 11). For Output 4, three of the four targets have not been completed and the remaining target has been partially completed, and only 3 of 18 activities have been completed. Yet, the Service finds that "ZPWMA has made progress toward this output's targets" (USFWS 2017, p. 11).

In summary, the information provided by ZPWMA and adopted without independent analysis by the Service, clearly demonstrates a lack of progress toward meeting the stated targets and undertaking the stated activities in the plan. Without such evidence, principally this is a plan on paper only, and it is entirely arbitrary and capricious for the Service to have made a positive enhancement finding based on this information.

Table 2. Implementation status of the 2006 Conservation Strategy and Action Plan for the Lion (*Panthera leo*) in Zimbabwe.			
Outputs and Targets	**Information Provided in ZPWMA (2016) Regarding Target Completion**	**Analysis of Progress on Completing Targets and Activities** (underscored text)	
		Targets (targets cannot be considered "completed" unless all activities are completed)	**Activities** (activities cannot be considered "completed" unless they are thoroughly completed; partial completion is not considered to be completed)
Output 1. Lion Management - Lion populations, their habitats and wild prey effectively conserved and managed in collaboration with local stakeholders			
Target 1.1 Establish a baseline survey and monitoring programme for identified lion populations and their range inside and outside the Parks & Wildlife Estate	Baseline surveys have been completed for the Parks Estate using monitoring protocols for key variables (populations, habitats, prey). Selected surveys undertaken of areas outside National Parks in conservancies and some communal land and forest areas.	Not completed.	1) Undertake baseline surveys, and where necessary, identify populations outside Parks & Wildlife Estate. Not completed (only partially completed). 2) Design, develop and set up simple but robust monitoring protocols for key variables (populations, habitats, prey). No details provided to substantiate this has been concluded. 3) Set up systems for carrying out collaborative surveys and monitoring across boundaries with shared lion populations (National Park, Safari Area, Forest Area, Communal Land, Large/Small Scale Commercial Farming and/or International). No information provided.
Target 1.2 Maintain and strengthen capacity for lion conservation, management, monitoring and research	Carnivore research programmes undertaken by NGOs (Mana, Matusadona, Gonarezhou, Zambezi and Hwange NPs,	Not completed.	1) Undertake training needs assessment. No information provided. 2) Identify and secure funding resources. No information provided.

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within PWMA and amongst other key stakeholders	Matetsi, Chirisa SA) and research institutions (Bubye and Save Conservancies) in various parts of the country. Personnel trained in data collection and capture, management, lion aging and analysis.		3) Provide training and capacity strengthening within PWMA and amongst other key stakeholders e.g. RDCs. No information provided. 4) Train personnel in data capture, management and analysis. No details provided to substantiate this has been concluded.
Target 1.3 Identify and implement best management standards and practice for all trophy hunted lion populations, ensuring their viability and sustainable, equitable and adaptively managed trophy quotas	Quota setting methodology reviewed and annual quotas and offtakes analysed considering population changes, trophy quality and levels of PAC over time. Trophy hunting database in place and in process of being refined to provide cost-effective system for collation, entry, analysis, reporting and feedback to key stakeholders in the wildlife industry (ZPWMA, RDCs, SOAZ, ZPHGA, conservation NGOs, Researchers etc.). System of fixed and optional quotas reviewed and age- based	Not completed.	1) Implement Quota Setting Methodology rigorously and consistently across all hunting areas. No information provided to address rigorousness or consistency across all hunting areas. 2) Review and analyse annual quotas and offtakes to ensure these are adaptive and responsive to population changes, trophy quality and levels of PAC over time. Insufficient details provided to substantiate this has been concluded.. 3) Allocate quotas at a scale reflective of lion ecological and biological functionality which invariably differs

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	criteria for male trophy animals in place and functioning.		across different land unit sizes or land uses. No information provided. 4) Refine and update the hunt return form [TR2] and the trophy hunting database and review annually thereafter. Annual review, and TR2 not addressed in information provided. 5) Ensure centralised database and cost-effective system for data collection from hunting areas and subsequent collation, entry, analysis, reporting and feedback to key stakeholders in the wildlife industry (PWMA, RDCs, SOAZ, conservation NGOs, Researchers etc). Apparently in progress. 6) Replicate Matetsi Safari Area hunt data collection system in all Parks and non-Parks hunting areas and train PWMA, RDC and other relevant field staff to gather and collate hunting data as per the Matetsi system. No information provided.

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			7) Train PWMA, RDC and other relevant field staff in the Quota Setting Methodology. No information provided. 8) Review system of fixed and optional quotas (and auctioned hunts) to improve incentives to hunt trophy male lion only, including quota-based incentives/disincentives. Reportedly completed. 9) Review trophy fees to maximise benefit and generate additional revenue. No information provided. 10) Review and put in place criteria for age-based identification of male trophy animals. Reportedly completed.
Target 1.4 Develop and implement a national lion captive breeding management policy	Policy in place.	Reportedly completed; policy is available.	1) Identify captive breeding enterprises and establish purpose 2) Consult with stakeholders including breeders, ZNSPCA, IUCN Captive Breeding Specialist Group, and others e.g. Tikki Hywood Trust (THT) 3) Establish destination and role of captive bred lions upon reaching maturity

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			4) Relate captive bred lions to existing captive breeding policies for crocodiles, ostriches and operations for other captive bred wild species, e.g. Lion & Cheetah Park, Chipangali 5) Review existing policies and/or guidelines 6) Appoint Working Group to develop captive lion breeding policy as appropriate or necessary e.g. WWF-SARPO, NSPCA, THT, Captive Breeders, Wildlife Veterinary Unit.
Target 1.5 Develop and implement co-management frameworks for wildlife management	Collaborative national lion action plans to co-management lion populations in place for NW Matabeleland and SE Lowveld, including three conservancies (Bubye Valley, Save and Malilangwe).	Not completed.	1) Develop a national lion action plan that articulates collaborative co-management of lion populations amongst different land categories and users in the four major wildlife areas of the country: NW Matabeleland, Sebungwe Region, Zambezi Valley and SE Lowveld. Partially completed. 2) Ensure adoption and implementation of co-managements plans by stakeholders

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			including conservancies. No information provided. 3) Develop and implement participatory monitoring of implementation of plans. No information provided.
Target 1.6 The geographic distribution range of the lion population expanded	Conservancies and neighbouring communities are working together to maintain existing geographic distribution of lion populations. Zimbabwe proactive in the KAZA and GLTFCA programmes.	Not completed. Information provided relates to maintaining existing geographic distribution, rather than expanding the distribution.	1) Conservancies and neighbouring communities to work together and incorporate neighbouring communal lands into conservancies where possible. Reportedly completed, but lack of details makes it impossible to evaluate. 2) TFCAs to develop programmes to increase jointly managed lion populations. No information provided on all programs.
Output 2. Lion Research - Information for effective and adaptive lion conservation management generated			
Target 2.1 Initiate targeted research on lion ecology, management and mitigation of conflict	Extensive research programmes focussing on lion ecology and biology undertaken in Hwange, Bubye, Save, Malilangwe, Matusadona, Chizarira and Chirisa. ZPWMA have cooperated with NGOs, such as Panthera, to	Not completed.	1) Identify gaps in knowledge of lion ecology and biology that require research. No information provided. 2) Identify areas where collaborative (including cross boundary/border) research is required. No information provided.

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	develop cost-effective age determination methods for lions. Key threats to lion populations, with focus on human-lion conflict, snaring and poisoning, undertaken and continually monitored.		3) Standardise methodology where collaborative research is required. No information provided. 4) Develop cost-effective age determination methods for lions. Reportedly completed. 5) Identify population ecology research questions in key lion populations. No information provided. 6) Explore predator-prey relationships. No information provided. 7) Identify socio-ecological research needs. No information provided. 8) Assess the impact of key threats to lion populations in Zimbabwe at present, with particular focus on human-lion conflict, snaring (both direct mortality of lions in snares and depletion of prey populations), and the sustainability of hunting quotas. Reportedly completed.

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Output 3. Mitigation - Human-lion related conflicts minimized and, where possible, eliminated			
Target 3.1 Develop and establish databases on lion/human conflict	Data on Problem Animal Control (PAC) reports on lion related problems collated.	Not completed.	1) Collect PAC (Problem Animal Control) reports on lion related problems. Reportedly completed, although whether this is national or more limited in scope is not clear. 2) Analyse reports & produce evaluation matrix. No information provided. 3) Produce report with recommendations on appropriate PAC monitoring system, e.g. MOMS Oriented Monitoring Systems). No information provided. 4) Undertake community training on MOMS. No information provided.
Target 3.2 Identify and implement methods to reduce and mitigate livestock losses and lion attacks on humans	Approaches to mitigate livestock losses and lion attacks on humans being tested and implemented in Hwange. Methods to mitigate lion attacks on livestock being implemented as appropriate at selected sites (e.g. Tsholotsho).	Not completed.	1) Undertake participatory planning on how to mitigate livestock losses and lion attacks on humans. No information provided. 2) Undertake field work to identify weakness in livestock husbandry in relation to mitigation. No information provided. 3) Review literature, capitalise on experiences and lessons learned

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			elsewhere, e.g. Namibia, and undertake community leadership exchange visits. No information provided. 4) Examine and design appropriate farmer-based compensation schemes, e.g. HACSIS, Namibia. No information provided. 5) Provide training on lion mitigation methods. Limited efforts underway in a few places, according to information provided. 6) Implement mitigation methods as appropriate at selected sites. Reportedly completed.
Target 3.3 Trained and properly staffed PAC Units established to conduct rapid response, restrained and precisely targeted problem animal control	PAC Units at ZPWMA field station and/or RDC levels partially established.	Not completed.	1) Undertake needs assessment and capacity for managing PAC Units at PWMA field station and/or RDC levels. No information provided. 2) Define the role and responsibility of Units. No information provided. 3) Train and equip Units. No information provided. 4) Training and capacity building for PAC to be delegated to the responsible

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			appropriate authority (RDC) and sub-district levels. No information provided. 5) Collaborative and effective PAC techniques developed and implemented within 5 years. No information provided.
Target 3.4 Incidents of human-lion conflict reduced by at least 30% in 5 years while also reducing retaliatory killing	Specific awareness and education package on lion conservation and management developed and implemented in Matusadona, Hwange and Gonarezhou regions.	Not completed. Answer does not address target percent reduction or timeline.	1) Specific awareness and education package on lion conservation and management developed and implemented within 5 years. Partially implemented, according to information provided. 2) Mechanisms developed with the livestock sector to reduce livestock predation by lions by at least 35% from the current level within 5 years. No information provided.
Target 3.5 Number of lions killed through indiscriminate killings reduced by at least 30% in 5 years after baseline established.		Not completed. Target missing from ZPWMA (2016).	1) Country specific awareness and education package on lion conservation and management developed and implemented within 5 years. No information provided. 2) Develop incentives for communities to use legal PAC in identified 3 hotspots within 5 years. No information provided.

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Target 3.6 Incidences of lion attacks on humans reduced by at least 30% from the current levels in 5 years		Not completed. Target missing from ZPWMA (2016).	1) Develop and implement collaborative and effective PAC techniques. No information provided. 2) Develop appropriate educational and awareness programmes to promote avoidance of potentially lethal encounters between humans and lions. No information provided.
Output 4. Socio- Economic - The costs and benefits of long-term lion management equitably distributed			
Target 4.1 Complete an inventory of stakeholders directly affected by lion conservation	Stakeholder groups (e.g. local communities, CAMPFIRE RDC representatives, commercial safari hunting operators (SOAZ, ZPHGA), tourism operators (ZATSO) identified. Financial impacts of lion conservation and extent and magnitude of socio-economic impacts on each stakeholder group completed.	Partially completed.	1) Identify stakeholder groups (e.g. local communities, CAMPFIRE RDC representatives, commercial safari hunting operators (SOAZ, ZPH&GA), tourism operators ZATSO) at the appropriate scale. Reportedly completed. 2) Identify the financial impacts of lion conservation on each stakeholder group. Reportedly completed. 3) Determine extent and magnitude of socio-economic impacts on each stakeholder group. Reportedly completed.

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			4) Prioritise groups for intervention based on extent and magnitude of socio-economic impacts. No information provided.
Target 4.2 Deliver appropriate training and capacity building to prioritised stakeholders	Representative stakeholder groups in some regions identified (Hwange, Matusadona, Gonarezhou). Limited training undertaken. Implement adaptive programme across four wildlife regions	Not completed.	1. Identify representative stakeholders groups per wildlife region. Partially completed according to information provided. 2. Identify training needs in consultation with identified stakeholders. No information provided. 3. Develop training materials and implement training programmes. No information provided. 4. Review effectiveness of training material and programme in consultation with identified stakeholders. No information provided. 5. Implement adaptive programme across 4 wildlife regions. No information provided.
Target 4.3 Agree and implement collaboratively	In progress. Hwange NP Management Plan approved.	Not completed.	1) Consult identified stakeholders. No information provided.

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developed area-specific lion management plans with identified stakeholder groups in each wildlife region within 5 years			2) Determine the scope and scale of the key activities of the management plan. No information provided, although reportedly a management plan for one area, Hwange NP, is approved. 3) Identify and integrate 'best practices', making provisions for: • Ownership issues • Zoning for wildlife • Mutually binding agreement • Verifiable compliance • Suitable wildlife utilization plan (e.g. tourism, trophy hunting) • Income flows and cost distribution (including rainy-day funds to anticipate uncertainties in tourist revenues) • Appropriate husbandry techniques • Conflict-mitigation measures • Regulation of human immigration • Adequate wildlife and conflict monitoring • Annual environmental audits No information provided.

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			4) Implement management plan. No information provided. 5) Review plan annually and amend where necessary. No information provided.
Target 4.4 Implement transparent mechanisms to equitably distribute lion-related/generated income to identified stakeholders (groups and/or communities)	Scale of income generated from lion conservation reviewed and use of funds to encourage protection of lion populations reach local stakeholders undertaken (see CAMPFIRE generated revenues)	Not completed.	1) Identify income generated from lion conservation (see CAMPFIRE generated revenues). No detailed information provided. 2) Ensure that benefits of protecting lion populations reach local stakeholders. No information provided. Zimbabwe document does not provide enough details to evaluate if this activity occurred and its scope (national or local). 3) Distribute generated income according to intensity of lion impact (Apply CAMPFIRE Producer Community/Ward principles). No information provided. 4) Provide appropriate incentives, e.g. implementation of mitigation measures

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			and/or local re-location of people in high-conflict areas to low-conflict areas. No information provided. 5) Provide appropriate incentives e.g. participatory land use planning, to discourage immigration into lion and other wildlife range. No information provided.
Output 5. Regulations - Effective regulation of consumptive lion utilisation ensured			
Target 5.1 Implement approved policy and practice at national and local levels regarding problem animal control (PAC) of lions within 2 years	Current policy and practice regarding problem animal control of lion reviewed, at national and local levels. PAC offtakes reconciled with trophy hunting quota offtake to ensure that the overall offtake (i.e. total quota) is sustainable.	Not completed. ZPWMA (2016) did not address timeline in target.	1) Review, and revise where necessary, current policy and practice at national and local levels regarding problem animal control of lions (PAC). Reportedly completed. 2) Identify key responsibilities of the Appropriate Authority (AA), i.e. the land occupier in respect of problem animal control of lions, given the vulnerable status of lions and recent changes in land tenure. No information provided. 3) Incorporate PAC offtakes with trophy hunting quota offtake to ensure that the

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			overall offtake (i.e. total quota) is sustainable. Reportedly completed, but lack of details makes it impossible to analyze. 4) Determine need for regulation of PAC, including the provision of incentives/disincentives. No information provided. 5) Establish database for lion PAC (see Targets 1.5 & 3.1 above). Reportedly completed. 6) Ensure PAC policy and practice conforms to the appropriate scale of lion ecological functionality, temporally and spatially, and that this is recognised as an AA responsibility with respect to hunting and PAC offtakes. No information provided.
Output 6. Communication, Awareness and Information Dissemination			
Target 6.1 To carry out awareness programmes in 50% of the districts in	Awareness programmes initiated at a national level, with professional hunters, communities and NGO community. Awareness	Not completed. ZPWMA (2016) did not address percentage and	1) Identify target groups that need awareness. Reportedly completed.

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Zimbabwe within the next three 3 years	campaigns being carried out by the Extension and Interpretation Unit in all the regions.	timelines in the target.	2) Identify awareness needs for different target groups e.g. hunters, politicians, farmers. No information provided. 3) Develop and package awareness materials for different target groups, e.g. multi-media tools, TV, internet, radio. No information provided. 4) Implement awareness programmes. Information provided indicates that awareness programs have been 'initiated,' but no information is provided on whether this reached 50% of districts in three years, as per the target. 5) Create feedback mechanisms for target groups. No information provided. 6) Provide extension, information and interpretative services to surrounding communities. Reportedly completed.
Target 6.2 Create lion conservation and management information units within one year	Databases established at some key research centres using dedicated external research programmes (e.g. WILDCRU).	Not completed. ZPWMA (2016) did not address target of	1) Facilitate flow of information from various sources. No information provided.

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		establishing lion conservation and management units in one year.	2) Document and process information from various sources. No information provided. 3) Create information database. Reportedly completed. 4) Use Mushandike Natural Resources College as a training centre. No information provided. 5) Define personnel needs and resource requirements. No information provided. 6) Training, M&E, Research. No information provided.
Output 7. Regional and Trans-Boundary Collaboration			
Target 7.1 Undertake an inventory of national strategies for lion management	Done.	Not completed. Reportedly "done"; however, no information is provided on activities for this target.	1) Make a presentation at the AWCF Meeting in November 2006. Reportedly completed, but outcome not reported. 2) Develop a budgeted proposal seeking funds to undertake the inventory. No information provided. 3) Appoint 1/. a consultant or 2/. design questionnaire or 3/. use TFCA Conservation Committee or a combination of 2 & 3. No information provided.

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Target 7.2 Encourage the development of national lion conservation strategies where these are missing &/ or incomplete	National lion conservation strategies discussed at AWCF (meeting held under auspices of KAZA).	Not completed. ZPWMA (2016) did not report on outcome of activities for this target.	1) Seek consensus from the AWCF for the development & implementation of national lion conservation strategies. No information provided on outcome. 2) Contact counterparts before the AWCF Meeting. No information provided. 3) Present national lion strategies where applicable and/or available. No information provided on whether presentations were made. 4) Obtain support from neighbouring countries for the development of national lion conservation strategies. No information provided. 5) Persuade neighbours to develop national lion conservation strategies. No information provided.
Target 7.3 Develop an integrated and harmonised lion management strategy for Transfrontier Conservation Areas (TFCAs)	Lion conservation strategies for SADC discussed at AWCF meeting held under auspices of KAZA.	Not completed. ZPWMA (2016) did not report on activities for this target.	1) Within 2-3 years (medium term) develop the SADC strategy for lion conservation and management. No information provided; no information on outcome or whether time-frame in activity was met.

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			2) Develop appropriate framework: − Develop National strategies − Seek consensus through AWCF Incorporate into TFCA Treaties − Develop SADC strategy No information provided on outcome of discussions held at meetings.
Target 7.4 Implement lion conservation strategy and management plan	Strategy under review.	Not completed. ZPWMA (2016) did not report on activities for this target.	1) Incorporate strategy into TFCA Conservation Committee workplans [& other stakeholder workplans]. No information provided. 2) Seek funding as required. No information provided. 3) Carry out half-yearly compliance reviews. No information provided. 4) Report back annually to all stakeholders especially those not involved in implementation. No information provided.

(4) ZPWMA lacks funding to enforce existing laws

As noted by the Service, "only revenues generated through sport-hunting conducted on state and private lands are used to finance ZPWMA; to our knowledge, no other government funding is provided, and only limited outside funding from NGOs or other governments appears to be available" (USFWS 2015, p. 8). ZPWMA (2016) confirmed this remains the case, and stated that it is unable to generate adequate revenue to cover both the capital and operating requirements (p. 26). In 2015, ZPWMA incurred a loss of US$5.4 million including depreciation (ZPWMA 2016, p. 26). The Service has expressed concerns about "the ability of ZPWMA to generate sufficient funds to support adequately their stated mission" and "if Zimbabwe has adequate resources to enforce existing laws and regulations" (USFWS 2015, p. 10-11). According to ZPWMA itself "no amount is budgeted for conservation in the national budget,"[3] leading to inadequate enforcement and implementation of laws and regulatory mechanisms. Lack of government funding also leaves the ZPWMA to rely on trophy hunting, even when unsustainable, to pay its bills, creating an inherent conflict of interest for the wildlife management agency. Therefore, the Service's concern – expressed in its 2015 finding concluding that Zimbabwe does not sustainably manage its elephant populations – that there is a lack of a national mechanism to sustain wildlife conservation efforts in Zimbabwe (USFWS 2015) remains valid.

ZPWMA (2016) noted that enforcement efforts have been hampered by lack of funding:

- "The current remuneration levels have remained low with the lowest paid worker receiving a gross salary of $375 per month. The last salary increase of 23% was in January, 2014. A comparison with other Parastatals within the same parent ministry, shows that the Authority has the lowest salary scales" (p. 20).
- "Only 70% of the Authority's vehicle fleet are in "sound condition" and, of three aircraft owned by the Authority, only one is in operation (p. 20).
- At the end of 2015, there were only 67% of rangers in post (1,448 out of 2,146), and only 1,004 of these were deployable for anti-poaching operations (p. 20).
- "Commercial wildlife poaching involving both local and foreign nationals continues to plague Zimbabwe, especially with respect to elephant and rhino located in the Zambezi Valley, Sebungwe, North-West Matabeleland, South-East Lowveld" (p. 21) "Note that 21 lions were killed illegal between 2013 – 2015, with 6 animals killed through snaring in the area adjacent to Hwange National Park in 2015." (p. 21).

In its October 2017 finding, the Service acknowledged the lower number of rangers in post, but ignored these other enforcement problems (USFWS 2017, p. 7).

[3] http://zimparks.org/zimbabwe-parks-and-widlife-management-authority-zimparks-successfully-exports-35-african-elephants-to-china/ (viewed 5 October 2017)

Lack of funding for ZPWMA has limited anti-poaching efforts and this has had negative effect on wildlife conservation. Mana Pools National Park and neighboring safari areas, which are located in the mid-Zambezi area, is one of the areas hardest hit by poaching. At a 2015 workshop held by ZPWMA to develop an anti-poaching strategy for the Park,[4] the Area Manager for the Park, Marvellous Mbikiyana, was quoted in a workshop report as having stated, "While the ideal staffing level for rangers is 110 for the Park, 75 have been approved, and only 38 are on site. Of the 38 on site, only 13 are deployable at any one time, due to a number of other commitments, such as driving duties, serving in the front office, and so on." The workshop report noted that the effectiveness of enforcement was negatively affected by low manpower.

Furthermore, according to the 2016 report on the Elephant Trade Information System (ETIS) at CITES CoP17 Doc. 57.6 (Rev. 1),[5] "Zimbabwe is the country that pulls the rule of law score down, indicating far greater governance challenges exist in that country" (p. 16). The World Justice Project (WJP) Rule of Law Index 2016 ranked Zimbabwe at 108 out of 113 countries and jurisdictions, meaning that Zimbabwe has the sixth worst rule of law.[6] According to WJP, "Effective rule of law reduces corruption, combats poverty and disease, and protects people from injustices large and small. It is the foundation for communities of peace, opportunity, and equity—underpinning development, accountable government, and respect for fundamental rights."[7]

Indeed, instead of effectively implementing and enforcing wildlife laws and regulations, ZPWMA personnel have been implicated in the illegal wildlife trade. In 2015, three ZPWMA staff members were arrested for involvement in the theft of ivory from a government stockpile held at Hwange National Park.[8] The arrests came after a shipment of 62 tusks on its way to China was seized at the international airport in Harare. Serial numbers on the tusks were traced to the Hwange government stockpile. An alleged Chinese smuggler, who claimed he represented the Chinese government, had obtained export permit signed by the most senior of the three ZPWMA people arrested. All three were released from custody, the senior ZPWMA person after paying a $600 bail; none appeared in court again. Allegedly, the investigation was stopped after senior ZPWMA officials in Harare intervened in order to cover the involvement of other ZPWMA officials in the smuggling. The investigation seemed implicate senior parks and Ministry of Environment, Water and Climate officials. Allegedly, the ZPWMA trio had been exporting ivory from the stockpile since 2012.

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[4] http://www.zamsoc.org/wp-content/uploads/2016/04/MPNP-Anti-Poaching-Workshop-Summary-Report-15-April-2015.pdf
[5] https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-57-06-R1.pdf (viewed 5 October 2017)
[6] https://worldjusticeproject.org/sites/default/files/documents/ROLIndex_2016_Zimbabwe_en.pdf (viewed 5 October 2017)
[7] https://worldjusticeproject.org/sites/default/files/documents/ROLIndex_2016_Zimbabwe_en.pdf (viewed 5 October 2017)
[8] https://oxpeckers.org/2016/04/how-to-steal-an-ivory-stockpile/ (viewed 5 October 2017)

They had the assistance of ZPWMA security personnel and police units who guarded the trucks carrying the ivory over the 880 km from Hwange to the airport.

Corrupt government officials allegedly have been involved in both poaching of elephants and illegal export of ivory tusks, and involvement in a transnational syndicate.[9] Edson Chidziya, the former Director General, Zimbabwe Parks and Wildlife Management Authority, and one-time regional representative for Africa on the Animals Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),[10] and who has supported Safari Club International's lawsuit against the U.S. Department of the Interior regarding the prohibition of elephant trophies from Zimbabwe,[11] was fired in May 2017 for his alleged involvement in the disappearance of rhino horns worth $3 million two years before.[12]

Of further concern is that the ZPWMA operates without a board which, as noted by Mupfiga and Chirimumimba (2015), creates "a leadership vacuum and also legal constraints for the validation of policy decisions and approval or authorization of programmes" and it is "worrying for State entities to operate without boards for long periods because management are then left to operate without accountability, a situation which may compromise the efficiency and effectiveness of an entity due mainly to the absence of an effective oversight function" (p. 4).

Politics and corruption also play roles in trophy hunting in Zimbabwe. A 2012 news article explained how officials from Zimbabwe's ruling party since 1980 sought to cash in on trophy hunting by taking over hunting concessions.[13] A 2015 news article quoted Mary-Jane Ncube of a Zimbabwe NGO that monitors corruption, Transparency in Zimbabwe, as stating "In the area of conservation, I think it [the government] has behaved like a predatory state, going after big investments, giving them to cronies, family, and really not having any concern for communities that are dependent on that land …"[14] Furthermore, she was quoted as saying, "National Parks was the authority in charge of concessions and licensing, but because of the corruption … concessions and licenses are now given according to who you are and who you can pay the highest dollar to." A June 2017 news article described how the Tsholotsho Rural District Council sold permits to a safari hunting company, Lodzi Hunters, to hunt 50 elephants in order to get money to fund the construction of a football stadium. This reportedly came about after Higher and Tertiary Education, Science and Technology Development Minister Professor Jonathan Moyo, who is the MP for the

[9] http://globaljournalist.org/2017/02/zimbabwe-journalist-fights-charges-poaching-report/ (viewed 10 August 2017)
[10] https://cites.org/sites/default/files/eng/com/ac/22/E22-05-01.pdf (viewed 5 October 2017)
[11] https://www.courtlistener.com/docket/4212662/safari-club-international-v-jewell/ (viewed 5 October 2017)
[12] http://www.thezimbabwean.co/2017/05/zim-wildlife-boss-fired-3m-rhino-horn-goes-missing-report/ (viewed 5 October 2017)
[13] https://mg.co.za/article/2012-09-07-00-big-bucks-trigger-zimbabwe-scramble (viewed 5 October 2017)
[14] https://mg.co.za/article/2015-10-22-hunters-feed-corrupt-zim-officials (viewed 5 October 2017)

area, made a deal with then Minister of Water, Climate and Environment, Saviour Kasukuwere, who then issued the hunting quota of 50 to the Council. Of relevance, according to Transparency International, in 2016 Zimbabwe was the 22nd most corrupt country, ranking 154 of 176.[15]

Thus, the Service's concern – expressed in its negative enhancement finding for Zimbabwe elephants in 2015 – that Zimbabwe's wildlife laws and regulatory mechanisms are inadequately implemented and enforced (USFWS 2015) remains valid.

(5) There is no evidence that revenue from lion hunting enhances the survival of lions

The Service states "Hunting, if properly conducted and well managed, can generate significant economic benefits that may contribute to the conservation of lions. In looking at whether we are able to authorize the import of a trophy under the issuance criteria of 50 CFR 17.32, we will examine if the trophy hunting provides financial assistance to the wildlife department to carry out elements of the management program and if there is a compensation scheme or other incentives to benefit local communities that may be impacted by lion predation" (USFWS 2017, p. 5). It is clear from this statement that no amount of economic benefit from hunting will offset the detrimental effect on lion populations of unsustainable, poorly managed trophy hunting. Thus, any economic benefit from hunting alone is not sufficient evidence that hunting is enhancing the survival of lions.

As noted previously, Zimbabwe's wild lion populations have declined since 2002 and fewer than 300 truly wild (not fenced in) male lions remain; Zimbabwe's lion hunting quotas are not science-based and age restrictions are poorly implemented; Zimbabwe's lion management plan has not been substantially implemented after eleven years; and the ZPWMA does not receive funding from the Zimbabwe government and consequently has insufficient funds to enforce existing laws. Given this situation, lion hunting in Zimbabwe clearly is not properly conducted or well managed and it is irrelevant that there is economic benefit from such unsustainable hunting.

Yet, the Service ignores the poor management of lion trophy hunting in Zimbabwe and states, "While, over the years, ZPWMA has failed to generate adequate revenue for its operations, U.S. sport hunters play a large role in the hunting industry of Zimbabwe. The Service anticipates that by granting the importation of sport-hunted lion trophies, there would be an increase in funds provided to Zimbabwe's conservation initiatives through this program by U.S. sport hunters" (USFWS 2017, p. 19).

As noted above, the Service states that it will examine "if there is a compensation scheme or other incentives to benefit local communities that may be impacted by lion predation" (USFWS 2017, p. 5). The Service explains, "we recognize that in many parts of the world, wildlife exists outside

[15] https://www.transparency.org/news/feature/corruption_perceptions_index_2016 (viewed 5 October 2017)

of protected areas and must share the same habitat and compete with humans living in these areas for space and resources" and "if communities that share these resources with wildlife do not perceive any benefits from the presence of wildlife, they may be less willing to tolerate the wildlife. However, under certain circumstances, trophy hunting can address this problem by making wildlife more valuable to the local communities anti encourage community support for managing and conserving the hunted species, as well as other species." Further, "A component of a management plan from which trophy imports would meet the issuance criteria would be whether there are government incentives in place that encourage habitat protection by private landowners and communities and incentives to local communities to reduce the incursion of livestock into protected areas or to actively manage livestock to reduce conflicts with lions" (USFWS 2017, p. 5). The Service states, "Co-existence of lions and people is promoted through giving value to lions, through tourism and hunting in CAMPFIRE areas" (USFWS 2017, p. 8).

First, the evidence before the Service demonstrates that the government of Zimbabwe is not actively mitigating human-lion conflict. Although one of the Outputs of Zimbabwe's lion management plan is "Mitigation - Human-lion related conflicts minimized and, where possible, eliminated," and this includes the target of "Incidents of human-lion conflict reduced by at least 30% in 5 years while also reducing retaliatory killing," this output and target have not been met. In its analysis of this output and target, the Service copies and pastes information from ZPWMA's (2016) that "approaches to mitigate livestock losses and lion attacks on humans are in the process of being tested and implemented in Hwange and methods to mitigate lion attacks on livestock are being implemented as appropriate at selected sites (e.g. Tsholotshe)" (USFWS 2017, p. 11; and ZPWMA 2016, p. 12). Further, the Service states, "Additionally, to mitigate human-lion conflict, the "Long Shields Guardian Programme" was initiated whereby communities are notified of movements of collared lions into their areas via cell phone, and then have the opportunity to take appropriate action, such as moving cattle. In 2013 alone, 1,850 warnings were passed to the "Long Shields"" (USFWS 2017, p. 12).

However, as explained in ZPWMA (2016), human-lion conflict mitigation being conducted in the country is limited to an Oxford University WildCru Lion Research project in the Hwange area, which includes the aforementioned Long Shields Guardian Programme and efforts to improve livestock husbandry to avoid lion attacks; this is not a government program and it is not implemented in all lion areas in Zimbabwe. The program is limited to the Hwange area and is the only such program noted in ZPWMA (2016) despite their acknowledgement that "The main source of illegal killing of lions is a result of Human-Lion conflict" (ZPWMA 2016, p. 44). Indeed, as noted previously, the number of lions killed as a result of human-lion conflict exceeds the number killed by trophy hunters. ZPWMA states, "The exact number of lions killed in this way is difficult to assess, but may number over 50/year" (ZPWMA 2016, p. 44); this compares to 49 lions trophy hunted in 2015, and 33 in 2016 (ZPWMA 2016, p. 38).

It must also be noted that the government of Zimbabwe does not compensate farmers for livestock lost to lions. According to a May 2017 news article by Jeffrey Moyo,[16] "Villagers in this Southern African nation say despite the threat the lions pose to their livestock, national parks and wildlife authorities here are doing nothing to help them, as stray lions roam freely, and it takes park officials too much time to round them up. "Our lives are in danger. We can't kill the lions even if we see them attacking our livestock because the law doesn't let us; if you do it they put you in jail," said Ezra Ncube, 37, a local villager. "But if our cows are eaten by lions, no one goes to jail and nobody even bothers to compensate us, yet the lions stray from parks and some private safaris."

One human-lion conflict mitigation effort conducted by a foreign university research team is not evidence that the government of Zimbabwe is making a serious effort to address human-lion conflict.

Second, there is no evidence that there is flow of money from American lion trophy hunting in CAMPFIRE areas. According to ZPWMA (2016), "The potential and real loss of habitat and the fragmentation of range and conflicts with people in the absence of effective incentive mechanisms to maintain such habitat is probably the second greatest threat to lions after retaliatory killings" and "integrating income from lions into rural economies, and demonstrating that lions contribute to the welfare and development of people is regarded as one strategy to mitigate against this" (ZPWMA 2016, p. 44). ZPWMA states that 2010-2015, eight lions were hunted on CAMPFIRE land per year on average, and this generated US$ 40,000 per year (ZPWMA 2016, p. 31). Although it is stated that American hunters contribute 51% of all revenue generated by hunting in CAMPFIRE areas (not lion hunting specifically) (ZPWMA 2016, p. 31), the Service admits "While hunting is allowed in CAMPFIRE areas, it is unclear if American sport hunters conduct lion hunts in these areas" (USFWS 2017, p. 14). Consequently, the Service cannot reasonably conclude that U.S. hunter revenue is contributing to lions or their habitat on CAMPFIRE land.

Third, there is no evidence that financial flow from lion hunting in CAMPFIRE areas has increased people's tolerance of lions and has resulted in enhancement of the survival of lions. ZPWMA asserts that "The involvement and empowerment of rural people in natural resource management through the CAMPFIRE programme that strives to provide economic and financial incentives through sustainable use, is one of the main driving forces behind changes in attitudes towards wildlife in communities where lion-livestock conflicts occur" (ZPWMA 2016, p. 44). The Service similarly claims, citing to ZPWMA, that "co-existence of lions and people is promoted through giving value to lions, through tourism and hunting in CAMPFIRE areas" (USFWS 2017, p. 8). The Service further claims that "the participation of communities in CAMPFIRE has heralded a reversal in wildlife declines on private land. When the benefits of CAMPFIRE were extended to RDCs, it further aided in the equitable distribution of benefits from trophy hunting to local communities, which incentivizes them to conserve the African lion" (USFWS 2017, p. 15).

[16] http://aa.com.tr/en/africa/stray-zimbabwe-lions-pit-villagers-vs-conservationists/818598

Harrison et al. (2014) provided a recent analysis of the CAMPFIRE program. The theory behind CAMPFIRE is to empower community members at a village level to control wildlife and its revenue, and to thus create an economic incentive for communities to conserve wildlife. But, according to Harrison et al., this is not actually happening. According to Harrison et al., although CAMPFIRE had a reputation of success in its early days, over time this perception eroded and by the late 1990s it was criticized for lack of participation, lack of empowerment and lack of participation of local communities in management of natural resources. The main problem with the way that CAMPFIRE was designed is that it established the rural district council, which represents numerous local communities, as the 'local' body in charge of natural resource management, rather than the local communities themselves. Harrison et al. state, "Failure to provide benefits to the local communities and to successfully devolve management are just two of the many common criticisms" (p. 8). Among these criticisms is "insufficient action to tackling problems of elite-capture of resources and wildlife-based tourist revenues within RDCs" (p. 9).

Harrison et al. (2014) studied the CAMPFIRE program in the Binga district, which is part of Sebungwe, and the Chiredzi district, which is part of Gonarhezou; as noted previously, the elephant populations of both Sebungwe and Gonarhezou have experienced dramatic elephant population declines in recent years. The authors found that CAMPFIRE failed as a governance system for community involvement and empowerment and that the "community-based" terminology is merely rhetoric. They warn that new "community-based" natural resource management projects need to "be aware of the disconnect between the local citizens (as their key stakeholders) and what the RDC may believe and be happy to approve" (p. 30). They conclude "The lack of understanding and attention paid to the sub-district governance system for natural resource management has meant that project implementation has negatively affected the system as a whole, including the people within it, as well as the project outcomes" (p. 31). They said, "CAMPFIRE has continued to try and operate in a system it increasingly did not understand and thus its structures did not map appropriately onto those operating at the sub-district level. As a partial result of this, the programme has largely collapsed in many parts of the country" … "including in the four case study villages. The benefits experienced by the communities involved over the projects' lifespans have been negligible" (p. 32).

Two news reports by Debra Patta looked at local perspectives in Zimbabwe on the claim that trophy hunting benefits local communities. One news report quoted Emmanual Fundira, who heads Safari Operators Association of Zimbabwe as saying that although part of the hunting fees paid by trophy hunters is supposed to go to conservation and community projects, in fact it rarely does.[17] In another article, Fundira stated, "If you talk to communities today and say 'Campfire' they don't

[17] http://www.cbsnews.com/news/zimbabwe-corruption-trophy-hunting-cecil-lion-conservation/ (viewed 9 August 2017)

want to hear. They say Campfire is not benefitting them at all and that in itself is a disaster."[18] The article also quoted a CAMPFIRE rural district council CEO named Phindile Ncube as saying that his community earned $158,000 in a year for infrastructure and "feeding schemes." However, the article quoted a villager named Edward Ngwenya who said he hadn't received anything from the RDC. This was confirmed in another report which said that, while money from trophy hunting is promised to poor communities, they are only getting poorer.[19] Another news article quoted a local chief, Victor Nekatambe, commenting on the fact that local rural district councils manage CAMFIRE and that communities do not receive funding: "They are getting nothing, absolutely nothing."[20]

Indeed, most wildlife poachers are from local communities that are receiving financial benefits from trophy hunting. Gandiwa et al. (2014) studied law enforcement in Gonarezhou NP by interviewing law enforcement staff from Feb-May 2011. They found "Nearly all respondents (95%; n = 40) reported that most poachers were residents of villages adjacent to GNP (≤ 20 km); whereas about 5 % (n = 2) reported that only the commercial poachers were those living far away from GNP (> 20 km)" (p. 122-123). The Service ignored these readily available sources of pertinent information in making its October 2017 enhancement finding.

Therefore, it is erroneous for the Service to conclude that revenue generated through trophy hunting of lions actually provides an incentive to local communities to conserve lions. Simply, lion hunting revenue cannot be found to enhance the survival of lions when lion hunting is being poorly managed in Zimbabwe.

Conclusion

The Service's enhancement finding for lions taken as hunting trophies in Zimbabwe during 2016, 2017 and 2018 is the result of a lack of critical analysis of information contained in documents submitted to the Service by the government of Zimbabwe and others (and the Service failed to solicit comment from knowledgeable stakeholders, contrary to its assertion in the October 2017 finding). The Service repeatedly cites to information contained in ZPWMA (2016) and du Preez et al. (2016), often copying and pasting the text from these documents in the finding, although the original documents lack evidence to support the claims made. As a result, the finding is the product of a lack of scientific rigor, in violation of the Endangered Species Act.

[18] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/ (viewed 9 August 2017)
[19] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/ (viewed 9 August 2017)
[20] https://zimbabwe-today.com/corrupt-government-officials-and-cabals-profit-from-trophy-hunting-riches-in-zimbabwe/ (viewed 9 August 2017)

Further, there are numerous, inexplicable internal inconsistencies in the Service's finding. For example, the Service concludes that "Based on the information available to the Service, the funds generated by hunting trophies contribute to the ZPWMA's ability to manage the country's lion populations as well as the success of CAMPFIRE" (p. 16, emphasis added); but earlier in the finding, the Service states, "While hunting is allowed in CAMPFIRE areas, it is unclear if American sport hunters conduct lion hunts in these areas" (p. 14). Thus, the facts found by the agency do not match the conclusions drawn and the finding is therefore arbitrary and capricious.

Numerous recent studies in the Service's possession have demonstrated that Zimbabwe has poorly managed lion trophy hunting. For ecample, Groom et al. (2014) found that unsustainably high trophy hunting quotas in the concessions, mostly CAMPFIRE areas, around Gonarezhou in 2009-2010 caused the population to collapse; and, similarly, Loveridge et al. (2016) provided quantitative evidence that uncontrolled trophy hunting of lions in areas around Hwange National Park in 2000-2012 was a cause of population decline. Thus, information provided to the Service from Zimbabwe must be subject to scrutiny and carefully examined for veracity, but the Service failed to do so in issuing its finding.

An objective analysis of this information must lead to conclusions that:

- Unfenced lion populations in Zimbabwe have declined over the past decade and today fewer than 300 truly wild adult male lions remain in the country.
- Zimbabwe's lion hunting quotas are not science-based, and age restrictions are poorly implemented and do not apply to all lion hunting areas in the country.
- Zimbabwe's 11-year-old lion management plan still has not been substantially implemented.
- ZPWMA lacks funding to enforce existing laws.
- There is no evidence that revenue from American lion hunting enhances the survival of lions.

For these reasons, we strongly urge the Service to rescind its determination that the import of lions taken in Zimbabwe in 2016, 2017 and 2018 would meet the issuance criteria under 50 C.F.R. § 17.32. Issuing any import permits for lion trophies from Zimbabwe pursuant to this finding would violate the Endangered Species Act and FWS regulations. This letter serves as formal opposition to any application for an import permit for a lion trophy from Zimbabwe and HSUS, HSI, and HSLF request that FWS provide ten days advance notification (via email, afrostic@humanesociety.org) prior to the issuance of any such permits. *See* 50 C.F.R. §§ 17.22(e), 17.32.[21]

[21] HSUS has previously called on FWS to publish notice in the Federal Register of threatened species permit applications, and we reassert that such action is essential to create transparency in FWS' enhancement analysis for African lion activities, consistent with the intent of ESA Section 10. Similarly, it is arbitrary

Respectfully,

Anna Frostic
Managing Attorney, Wildlife Litigation
The Humane Society of the United States

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Director, Wildlife Department
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Keisha Sedlacek
Senior Regulatory Specialist, Federal Affairs
Humane Society Legislative Fund

References cited

Bauer, H. and S. Van Der Merwe. 2004. Inventory of free-ranging lions *Panthera leo* in Africa. *Oryx* 38 (1): 26-31.

Bauer, H., G. Chapron, K. Nowell, P. Henschel, P. Funston, L.T.B. Hunter, D.W. Macdonald, and C. Packer. 2015. Lion (*Panthera leo*) populations are declining rapidly across Africa, except in intensively managed areas. *Proceedings of the National Academy of Sciences* 112 (48): 14894-14899.

Bauer, H., C. Packer, P.F. Funston, P. Henschel, and K. Nowell. 2016. *Panthera leo*. The IUCN Red List of Threatened Species 2016: e.T15951A115130419. http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T15951A107265605.en. Downloaded on 16 November 2017.

Chardonnet, P. 2002. *Conservation of the African Lion: Contribution to a Status Survey.* International Foundation for the Conservation of Wildlife, France and Conservation Force, USA, Paris, France.

du Preez, B., R. Groom, O. Mufute, and R. Mandisodza-Chikerema. 2016. *Sport-Hunting and Lion* Panthera leo *Conservation in Zimbabwe.* Zimbabwe Lion Conservation Research Report 2016. Zimbabwe Parks and Wildlife Management Authority, Bubye Valley Conservation Research Zimbabwe, and African Wildlife Conservation Fund.

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for the Service to explicitly apply the notification requirements of 50 C.F.R. § 17.22(e) to certain types of threatened species permits (i.e., those for Safe Harbor Agreements and Candidate Conservation Agreements with Assurances) but not to other threatened species permits (i.e., for incidental take and import).

Harrison, E., L. Stringer, and A. Dougill. 2014. *The importance of the sub-district level for community-based natural resource management in rural Zimbabwe.* Centre for Climate Change Economics and Policy Working Paper No. 183, Sustainability Research Institute Paper No. 69.

Loveridge, A.J., A.W. Searle, F. Murindagomo, and D.W. Macdonald. 2007. The impact of sport-hunting on the population dynamics of an African lion population in a protected area. *Biological Conservation* 134(4): 548-558.

Loveridge, A.J., M. Valeix, G. Chapron, Z. Davidson, G. Mtare, and D.W. Macdonald. 2016. Conservation of large predator populations: demographic and spatial responses of African lions to the intensity of trophy hunting. *Biological Conservation* 204: 247-254.

Loveridge, A.J., M. Valeix, N.B. Elliot, and D.W. Macdonald. 2017. The landscape of anthropogenic mortality: how African lions respond to spatial variation in risk. *Journal of Applied Ecology* 54(3): 815-825.

Mupfiga, P. and Chirimumimba, M., 2015. Challenges to the implementation of IT Governace in Zimbabwean Parastatals. *The International Journal of Engineering and Science* 14(12): 1-6. ISSN (e): 2319 – 1813.

USFWS (U.S. Fish and Wildlife Service). 2015. *Enhancement Finding for African Elephants Taken as Sport-hunted Trophies in Zimbabwe on or after January 1, 2015*. 26 March 2015.

USFWS (U.S. Fish and Wildlife Service). 2017. *Enhancement Finding for Lions Taken as Sport-hunted Trophies in Zimbabwe during 2016, 2017 and 2018*. 11 October 2017.

Whitman, K., A. Starfield, H. Quadling, and C. Packer. 2004. Sustainable trophy hunting of African lions. *Nature* 428 (6979): 175-178.

ZPWMA (Zimbabwe Parks and Wildlife Management Authority). 2016. *Enhancement and Non-Detrimental Findings for* Panthera leo *in Zimbabwe*. October 2016.

From:	Vannorman, Tim
To:	Mike Moore; Monica Horton
Subject:	Fwd: Fw: Non Detriment Findings 2015; African Elephant Zambia and other documents
Date:	Friday, August 18, 2017 10:11:26 AM
Attachments:	POSSIBLE EXPLANATION FOR THE ELEPHANT INCREASE IN THE KAFUE AREA.pdf NDF for African Elephant sport hunting in Zambia_draft 2015rev.pdf DRY SEASON SURVEY OF LARGE HERBIVORES FOR KAFUE AND LUANGWA ECOSYSTEMS_for Ministry.pdf IUCN Summary Report SC65 July 2014.pdf

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Mike and Monica,

Here is the electronic version of Chomba's email.

Tim

---------- Forwarded message ----------
From: **Andrew Chomba** <rhinorangerzawa@yahoo.co.uk>
Date: Sun, Jan 31, 2016 at 3:05 AM
Subject: Fw: Non Detriment Findings 2015; African Elephant Zambia and other documents
To: "tim_vannorman@fws.gov" <tim_vannorman@fws.gov>

Dear Tim,
See email attached documents Zambia provided to the EU regarding NDF for Elephants that was sent to you after the AWCF meeting in South Africa but appears may have bounced back. Please contact me if you will need any further clarification. I am also informed that the USFWS may request us to provide similar information on lions following the recent listing of lions in the ESA.
Kind regards,
Andrew

On Sunday, 31 January 2016, 9:58, Andrew Chomba <andrew.chomba@zawa.org.zm> wrote:

Principal Warden-Operations
Wildlife Law Enforcement Unit
Department of National Parks and Wildlife
Private Bag 1,
Chilanga
ZAMBIA
Tel: +260 211 278 501
Cell: +260 978 176 078

From: Terry Basabeka Njovu
Sent: Tuesday, December 22, 2015 12:32 PM
To: tim_vannorman@fws.gov
Cc: Andrew Chomba
Subject: Non Detriment Findings 2015; African Elephant Zambia and other documents

Dear Timothy
Please find attached the Elephant NDF for 2015 for Zambia and other document. I am sending these documents on behalf of Mr Andrew Chomba Eldred herein copied. The documents were also sent to the EU.
Regards

Terry Basabeka Njovu
Park Ranger-CITES
Zambia Wildlife Authority HQ
CITES Management Authority Zambia
P/Bag 1
Chilanga
Zambia

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Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

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From:	Shire, Gavin
To:	Danielle Kessler; Craig Hoover; Tim Vannorman; Laury Parramore
Subject:	Fwd: Article on Approval for Zim ele/lion imports
Date:	Friday, July 07, 2017 12:16:50 PM
Attachments:	image003.png image002.png image007.png image009.png image004.png image006.png image008.png image005.png

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Here's the article.

G

Gavin Shire
Chief of Public Affairs
U.S. Fish and Wildlife Service
MS: EA
5275 Leesburg Pike
Falls Church, VA 22041-3803
703-358-2649 (o)
703-346-9123 (c)
gavin_shire@fws.gov

---------- Forwarded message ----------
From: **Barbara Crown** <barbara@huntingreport.com>
Date: Fri, Jul 7, 2017 at 12:01 PM
Subject: RE: Article on Approval for Zim ele/lion imports
To: "Shire, Gavin" <gavin_shire@fws.gov>

Here you go:

in Stories

US lifts ban on hunting trophies from Zimbabwe

The United States of America has lifted its ban on hunting trophies from Zimbabwe, allowing the country to resume exports later this year, the environment minister said today.

On April 4, 2014, the US Fish and Wildlife Service announced an interim suspension of imports of sport-hunted African elephant trophies hunted in Zimbabwe, which it later extended to 2015 and "indefinitely into the future," because the government's measures to protect the animals did not enhance the survival of the species.

The decision was challenged by the US Safari Club and the powerful National Rifle Association but a US District Court upheld the ban.

Environment, Water and Climate Minister Oppah Muchinguri- Kashiri said that according to the provisions of the waiver, Zimbabwe would start exporting the outstanding trophies in the second quarter of 2017.

"All the trophies which were being held in the country will be exported this year but under strict conditions. We have been given an opportunity to export again into the US," she said.

The US ban preceded the controversial killing of the hugely popular Cecil, a 13-year-old male lion which lived in Zimbabwe's Hwange National Park, by Walter Palmer, a US trophy hunter in July, 2015.

The killing led to calls for tighter controls on hunting trophy imports by mainly western countries.

Zimbabwe hosts hunters from various countries including Russia, the United States, Hungary, Spain and Germany who pay to shoot animals such as lions, elephants and leopards, earning the country millions in revenue.

United States provide the bulk of the hunters and the existence of the ban has had negative effects on hunting revenue.

Bookings for the 2017 hunting season, which runs between April and November each year, are up 20 percent from the previous year's $70 million, despite the embargo by the US.

The 2016 hunting season was depressed as most hunters stayed away due to uncertainty over proposals by some Western countries to impose stricter hunting controls on elephants and lions by mostly African countries.- **The Source**

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- FBC to set up offshore reinsurance centre
- Textile industry calls for tighter controls as Zimbabwe imports clothing worth $20 million in 5 months

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From: Shire, Gavin [mailto:gavin_shire@fws.gov]
Sent: Friday, July 07, 2017 12:00 PM
To: Barbara Crown <barbara@huntingreport.com>
Subject: Re: Article on Approval for Zim ele/lion imports

Thanks, Barbara. I can't access the link as it's saying there is an associated virus. I can tell you though, that the ban on elephant trophy imports has not been lifted.

G

Gavin Shire

Chief of Public Affairs

U.S. Fish and Wildlife Service

MS: EA

5275 Leesburg Pike

Falls Church, VA 22041-3803

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gavin_shire@fws.gov

On Fri, Jul 7, 2017 at 11:53 AM, Barbara Crown <barbara@huntingreport.com> wrote:

> Gavin, thanks for speaking with me. Below is a link to the article that is being forwarded around. Makes it sound like elephant and lion imports from Zim have been approved. Is this a misunderstanding, perhaps on trophies from a specific period being allowed import?

http://www.insiderzim.com/us-lifts-ban-on-hunting-trophies-from-zimbabwe/

Thanks,

Barbara Crown

Editor-in-Chief

The Hunting Report

From:	brenda_tapia@fws.gov
To:	Tim Vannorman; Laury Parramore
Cc:	Craig Hoover; Danielle Kessler
Subject:	Fwd: BuzzFeed News Inquiry
Date:	Monday, November 20, 2017 7:35:00 AM

Tim and Laury,

We received in the DMAFR mail box this email from a reporter. So far in this mail box we have received 423 emails concerning the elephants from Zimbabwe. Please let me know if I need to respond or forward this email to someone else.

Thanks,
Brenda

---------- Forwarded message ----------
From: **Blake Montgomery** <blake.montgomery@buzzfeed.com>
Date: Fri, Nov 17, 2017 at 8:00 PM
Subject: BuzzFeed News Inquiry
To: DMAFR@fws.gov

Hello,
I'm a reporter for BuzzFeed News. How is the Fish and Wildlife Service responding to President Trump's decision to put the decision about elephant trophies on hold?

--

Blake Montgomery | **BuzzFeed** | Reporter | 650.731.5423 | @blakersdozen
989 Market Street, 4th floor, San Francisco, CA 94103
You can send us tips at contact.buzzfeed.com

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Thank you,
Division of Management Authority
Branch of Permits

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ORIGINAL ARTICLE

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Chinko/Mbari drainage basin represents a conservation hotspot for Eastern Derby eland in Central Africa

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Abstract

One of the largest of antelopes, Derby eland (*Taurotragus derbianus*), is an important ecosystem component of African savannah. While the western subspecies is Critically Endangered, the eastern subspecies is classified as least concern. Our study presents the first investigation of population dynamics of the Derby eland in the Chinko/Mbari Drainage Basin, Central African Republic, and assesses the conservation role of this population. We analysed data from 63 camera traps installed in 2012. The number of individuals captured within a single camera event ranged from one to 41. Herds were mostly mixed by age and sex, mean group size was 5.61, larger during the dry season. Adult (AD) males constituted only 20% of solitary individuals. The overall sex ratio (M:F) was 1:1.33, while the AD sex ratio shifted to 1:1.52, reflecting selective hunting pressure. Mean density ranged from 0.04 to 0.16 individuals/km^2, giving an estimated population size of 445 1,760 individuals. Chinko harbours one of the largest documented populations of Derby eland in Central Africa, making Chinko one of its potential conservation hotspots.

Résumé

Une des plus grandes antilopes, l'éland de Derby (*Taurotragus derbianus*) est une composante importante de l'écosystème de savane africaine. Alors que la sous-espèce de l'Ouest est "En danger critique d'extinction", la sous-espèce de l'Est est classée comme "Préoccupation mineure". Notre étude présente la première enquête sur la dynamique de la population de l'éland de Derby dans le bassin de drainage de Chinko/Mbari, en République Centrafricaine, et elle évalue le rôle de cette population pour la conservation. Nous avons analysé les données provenant de 63 pièges photographiques installés en 2012. Le nombre d'individus capturés par une seule caméra allait de 1 à 41. Les troupeaux étaient en général mélangés quel que soit l'âge et le sexe, et la taille moyenne d'un groupe était de 5.61 individus, plus grand en saison sèche. Les mâles adultes ne représentaient que 20% des animaux solitaires. Le sex-ratio global (M/F) était de 1/1.33, alors que le sex-ratio des adultes passait à 1/1.52, reflétant l'impact de la pression sélective de la chasse. La densité moyenne allait de 0.04 à 0.16 individu/km^2, ce qui donne une population estimée entre 445 et 1,760 individus. Chinko accueille une des plus grandes populations d'élands de Derby connues en Afrique centrale, ce qui en fait un des hauts lieux potentiels de leur conservation.

KEYWORDS
antelope, Central African Republic, Giant eland, *Tragelaphus derbianus*, trophy hunting

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1 | INTRODUCTION

Despite being one of the largest antelopes, with males reaching >900 kg (Planton & Michaux, 2013), the main source of information about Derby eland ecology is an unpublished MSc. thesis (Bro-Jørgensen (1997). Derby or Giant eland (DE, *Tautrotragus derbianus*, syn. *T. derbianus*) (Wilson & Reeder, 2005), is a savannah-woodland dwelling antelope inhabiting Western and Central Africa. It plays a crucial role in savannah ecosystem function as a browser and as prey for large predators (Bro-Jørgensen, 1997). The DE also has an important economic role, especially through tourism and sport hunting. Its massive horns make it one of the most sought-after trophies in Africa (Angwafo, Nji, Mbida, & Wiegleb, 2008). The Western subspecies (*T. d. derbianus*) is assessed as Critically Endangered (IUCN, 2008a) and is the subject of a long-term conservation programme in Senegal (Brandlová et al., 2013; Koláčková, Hejcmanová, Antonínová, & Brandl, 2011; Zemanová, Bolfíková, Brandlová, Hejcmanová, & Hulva, 2015). The eastern subspecies (*Tautrotragus derbyanus gigas*) has until recently been listed as least concern (IUCN, 2008b) but a revised assessment as Vulnerable has been submitted.

In West and Central Africa, populations of large mammals collapsed in protected areas between 1970 and 2005 by 65% 85% (Bouche et al., 2010; Craigie et al., 2010), and identifying drivers of these declines is urgent (Scholte, 2011). Elephants in the region have been decimated due to the ivory trade and other large mammals are declining because of overhunting for bushmeat, increased cattle grazing resulting in transmission of disease and outcompeting wildlife for resources, and habitat changes due to shifts in rainfall patterns (Bouche et al., 2012). After the rinderpest outbreak of 1983 1984 the DE population declined by an estimated 60 80%, but later recovered, particularly in Central African Republic (CAR). East (1999) estimated the DE population at 15,000 20,000 (*c.* 12,500 in CAR, the rest in Cameroon and South Sudan) and said the species was likely declining. Contrastingly, Chardonnet and Chardonnet (2004) reported DE as "increasing" in CAR, without further explanation. Recent counts in some CAR protected areas and hunting zones reported stable or slightly increasing populations of DE (Bouche et al., 2010; Fay, Elkan, Marjan, & Grossmann, 2007); however, absolute numbers are very low (see further). The largest population, *c.* 4,125 individuals, was in the CAR in the Bamingui-Bangoran National Park (NP), Manovo-Gounda St. Floris NP and surrounding hunting reserves (Bouche et al., 2010; Graziani & d'Alessio, 2004). The second most important population was recorded in three NPs (Bouba Ndjida, Bénoué and Faro) in Northern Cameroon, which are surrounded by hunting areas and transboundary with the Sena Ouara protected area in Chad. Although population estimates suggested 2,000 3,000 individuals in northern Cameroon (Bro-Jørgensen, 1997), only 200 individuals were spotted there during aerial counts (Omondi, Bitok, Tchamba, Mayienda, & Lambert, 2008). Finally, an aerial count in Southern NP in South Sudan confirmed the presence of 100 200 individuals of DE (Fay et al., 2007).

DE could be a potentially key species for conservation in the area provided that setting of trophy hunting quotas is based on population dynamics and that some of the revenue reaches the local level.

The aim of our investigation was to carry out the first evaluation of population characteristics of the DE population in the Chinko Project Area (called hereafter Chinko) in Chinko/Mbari Drainage basin in south-eastern CAR. Legal hunting in this area was controlled by one safari provider. Based on camera trap data we aimed (i) to identify DE population characteristics in the dry and wet seasons; (ii) to provide an index of DE population size and density.

2 | MATERIAL AND METHODS

2.1 | Study area

Chinko is located in south-eastern CAR (6.3°N, 24.0°E), covers 17,600 km^2, and is part of a wilderness of more than 85,000 km^2 (Figure 1). It represents a natural mosaic of woody Sudanese and Sudano-Guinean savannah and Congolese lowland rainforest without permanent human settlements or agricultural activities. Average annual precipitation is 1,200 1,600 mm (Roulet, Pelissier, Patek, Beina, & Ndallot, 2007). The wet season occurs between April and October and is followed by a dry season. More than 82 species of mammals have been documented in Chinko so far, including African forest elephant (*Loxodonta cyclotis*), African wild dog (*Lycaon pictus*), leopard (*Panthera pardus*) and lion (*Panthera leo*). Large antelopes besides the DE are represented by lelwel hartebeest (*Alcepahus buselaphus lelwel*), roan antelope (*Hippotragus equinus*), defassa waterbuck (*Kobus defassa*) and bongo (*Tragelaphus eurycerus*).

The area was administered in cooperation with the hunting company Central African Wildlife Adventures (CAWA), then converted into a nature conservation area under the management of the Chinko Project (www.chinkoproject.com). Since 2014, Chinko has been a member of the African Parks Network (www.africanparks.org). In Chinko, selective trophy hunting took place in a defined zone from December to May. Between 2007 and 2012, the hunting quotas for DE were assigned by the authorities in Bangui and professional hunters on the ground. Since 2013, quotas have been based on the first field observations assuming a minimum population of 350 individuals and a quota of 6.4%, taking into account the 10% incidental off-take considered sustainable for common eland (*Taurotragus oryx*) (Caro, Young, Cauldwell, & Brown, 2009). This resulted in a hunting quota of 22.4 individuals per year. There were 24 individuals legally hunted in the season before our study (2010/2011) and 21 in the study season (2011/2012), all within the Chinko hunting blocks. Six of these individuals were hunted in the camera trap study area and another three individuals just outside (<10 km).

Nomadic herdsmen from Sudan have traditionally passed through the area and since 2011 have been seasonally present with increasing numbers and frequency. As well as grazing livestock, herders apparently poach wildlife as a valuable food resource selectively

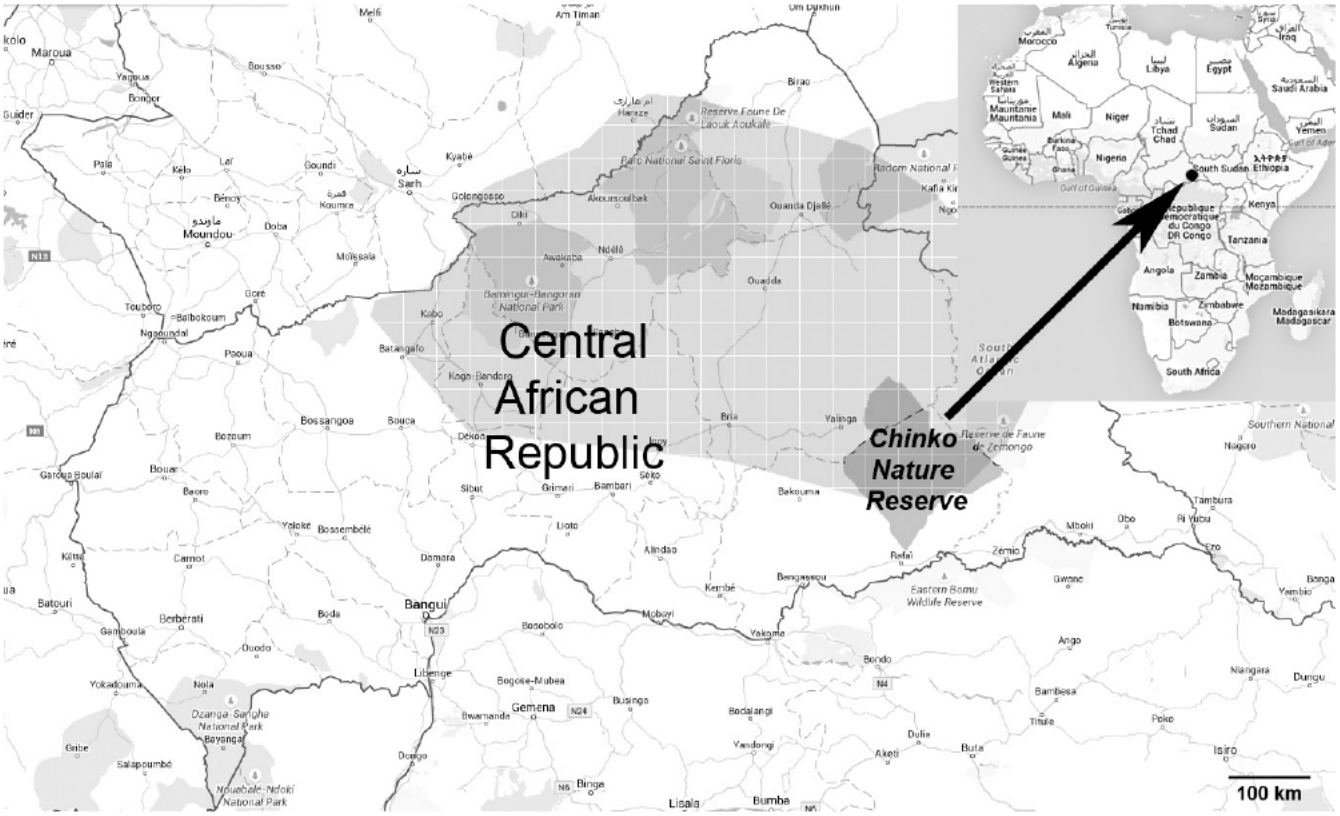

FIGURE 1 Distribution of Eastern Derby eland in the Central African Republic (light grey) and location of the study area (dark grey)

DE and African buffalo (*Syncerus caffer*; T. Aebischer personal observation). Furthermore, their livestock comprising thousands of cattle, donkeys, goats and sheep interact with wildlife at salt licks and water points and may transmit diseases.

2.2 | Methods

Camera traps were placed in the north-eastern part of Chinko (Figure 1) in woody savannah, at altitudes between 567 and 721 m. Two types of camera traps were used: Bushnell 119436 Trophy Cam (Bushnell Outdoor Products, France) and Reconyx HC500 HyperFire Semi-Covert IR (Reconyx Inc., Wisconsin, USA). Photos were taken by activation of motion sensors, every detection resulted in three consecutive pictures with a minimum interval between events of 1 s. Infrared light was automatically activated in poor light conditions. The functioning of some cameras was compromised by a combination of events, including theft, leaking batteries, hyaena bites, fires, floods and falling trees. We finally used data from 63 camera traps functional in dry and wet seasons 2012. There were 47 camera traps functional during 22 days in the dry season (DRY, 1,034 trap-days) covering 667 km^2, and 21 camera traps during 73 days in the wet season (WET, 1,533 trap-days) covering 385 km^2. Five camera traps functioned during both DRY and WET. The other 15 camera traps were not included in the analyses because they worked for only a few days or not simultaneously with other camera traps. None of these 15 camera traps recorded DE.

We analysed all photos containing DE. When possible, we identified animals individually and/or determined the sex (male M, female F, unspecified U) and age category (adult older than 2 years AD, subadult, 1 2 years SUB, juvenile up to 1 year JUV) of each animal using external traits such as body size and horn size and shape. Individuals were recognized by the coat pattern, namely the white stripes unique to each animal (Brandlová et al., 2013). We assessed the resulting photos for left (L) and right (R) sides of animals separately, as in most cases it was not possible to assign both sides together.

We organized photos into camera events, defined as the time period containing all photos from the first approaching animal and to the last individual of a group. During a single event, camera traps therefore took photos constantly when animals were moving. All individuals recorded during one event were considered members of one herd. Assuming equal trapping probability for all age-sex classes, we calculated the number of individuals recorded during one camera event, average group size, M:F ratio, and number of SUB and JUV individuals and assigned the group types (mixed, unisex). The differences among group types and between DRY and WET were tested by nonparametric Mann Whitney *U* and Kruskal Wallis tests, respectively, the latter followed by multiple comparisons of mean ranks of all groups. Statistical analyses were performed in STATISTICA 12 (StatSoft Inc., Tulsa, USA).

We estimated the birth season based on JUV horn size (horns are shorter than ears in individuals <4 months) (Antonínová, 2008). Given that eland females have one calf each year and assuming stationary age distribution and equal probability of sampling for all

individuals we calculated vital rates of the DE population. Annual mortalities of selected age-sex classes were calculated from age-sex class ratios, based on the assumption that the number of calves born each year remains stable, as follows:

$$M_{anJUV} \quad (N_{JUV}-N_{SUB})/N_{JUV},$$
$$M_{anSUB} \quad N_{SUB} * (1-M_{anJUV})/N_{TOT},$$
$$M_{anADF} \quad N_{SUBF} * (1-M_{anJUV})/N_{ADF},$$
$$M_{anADM} \quad N_{SUBM} * (1-M_{anJUV})/N_{ADM}$$

where M_{anJUV}, M_{anSUB}, M_{anADF} and M_{anADM} represent annual mortality rate of JUVs, SUBs, AD females and AD males (in %) and N_{JUV}, N_{SUB}, N_{SUBF}, N_{SUBM}, N_{ADF} and N_{ADM} represent number of recorded JUVs, SUBs, SUB females, SUB males, AD females and AD males, respectively. N_{TOT} indicates total number of recorded DE.

To assess the influence of legal hunting on M_{anADM}, we added the number of hunted bulls (N_{HUN}) to the number of AD bulls.

$$M_{anADM} \quad N_{SUBM} * (1-M_{anJUV})/N_{ADM} + N_{HUN}$$

We are aware that some hunted males may be already recorded on the camera-traps and that this may artificially increase the number of males in the population, so it should be considered an extreme value.

Based on the assumption that one calf may be born per female per year, while the calf is reared only when its mother survives we calculated the breeding rate:

$$\text{Breeding rate (\%)} \quad N_{JUV}/N_{ADF} * (1-M_{anADF})$$

Number of individuals of a specific sex was calculated as the sum of individuals with determined sex and the proportional number of individuals with undetermined sex within the same age category.

To index the abundance and density of DE in Chinko area we used two methods leading to (i) minimum abundance and density (MIN) and (ii) observed abundance and density (OBS). The MIN values represent the number of individuals which were individually identified or recorded during a single event. We counted individually identified animals and compared their number with the maximum number of individuals of the same age and sex category recorded during one camera event (Table 2). The higher number was taken as the MIN number of individuals of the age and sex category in the study area (MIN abundance). No individually identified animal was captured repeatedly. We therefore calculated OBS abundance, based on assumption that each individual DE was captured just once.

For the calculation of MIN DE population density, we used the MIN abundance per area covered by camera traps in the dry and wet season, respectively. OBS density was calculated from OBS abundance. Mean density (MIN and OBS) was further multiplied by the extent of the whole area suitable for DE and used for the index of total DE abundance in Chinko.

3 | RESULTS

Thirteen cameras of 63 captured DE (eight and five during DRY and WET, respectively). In total, 638 photos of DE were analysed (435 and 203 from DRY and WET, respectively) and arranged into 54 events (34 and 20 from DRY and WET, respectively).

We successfully identified 44 individuals of 128 (34%) during DRY and two of 44 individuals (5%) during WET. In total, 33 DE (six AD M, five SUB M, 12 AD F, six SUB F, seven JUV U) were identified from the right side and 15 (three AD M, four SUB M, seven AD F, one SUB F) from the left side. Only one individual was identified from both sides (AD F) as it turned in front of the camera trap during a single event.

Number of individuals captured within a single-camera event ranged from one to 41. Solitary individuals were caught in 29 events (17 and 12 in DRY and WET, respectively). Both M and F of all age classes were caught alone, AD M were only six of them.

From 25 events we identified five types of groups: females (n 1), males (n 1), calves (n 1), female with calves (n 1) and mixed groups (n 14). For the other groups (n 7), we could not identify age-sex classes. Mean group size was 5.61 ± 0.82 *SE* (range 2 41) and differed by group type (H (5, n 49) 32.326, $p \leq .001$), reaching the highest values in mixed groups. Group size differed between seasons (U 546, Z −2.035, $p < .05$), with larger groups during DRY (Table 1).

The overall sex ratio (M to F) was 1:1.33 (DRY 37:47, WET 9:14), AD sex ratio 1:1.52 (DRY 21:34, WET 4:4). The overall sex ratio would be less skewed if all nine hunted males were included (1:1.12). JUV individuals formed 15% (16 records of 128 in DRY, and five of 44 in WET) of the population, SUB individuals 18% (27 records out of 128 in DRY, five of 44 in WET; Table 2). Given JUV horn size, births occurred October December.

Annual mortality rate of JUV reached 54% and dropped in AD to 19.6%. Annual mortality was 9.6% and 36% for AD F and AD M, respectively. Considering the six (nine) males legally hunted in the study area and in its close proximity, AD M annual mortality decreased to 27% (24.5%). However, this result combines data from different sources and should be interpreted with caution. Breeding rate was 82%.

MIN number of individuals within the camera trap area corresponded to the size of the largest herd within each season (Table 2). In DRY, it was 41 individuals per 667 km^2, setting MIN density at 0.061 individuals/km^2. In WET, eight individuals were recorded in 385 km^2, so MIN density was 0.02 individuals/km^2. Mean MIN density was 0.0405 individuals/km^2.

Assuming that each individual was captured just once, the OBS abundance of DE was 128 individuals during DRY and 44 individuals during WET, resulting in OBS densities of 0.19 and 0.11 individuals/km^2, respectively. Mean OBS density was 0.16 individuals/km^2.

Given the total area of suitable habitat in Chinko (11,000 km^2), the total number of DE in Chinko may be expressed as MIN 445 individuals (220 671) or OBS 1,760 (1,210 2,090), respectively.

4 | DISCUSSION

Our study presents the first documentation of the DE population in south-eastern CAR, which represents a bridging area between the

TABLE 1 Composition of the herds (>1 individual) of Derby elands captured by camera traps in the Chinko area in Central African Republic in 2012

Period	Event ID	AD M	AD F	AD U	SUB M	SUB F	SUB U	JUV M	JUV F	JUV U	U	Total
Dry	6	1	0	0	1	2	0	0	0	0	0	4
	8	1	1	1	2	0	2	0	0	0	0	7
	11	2	1	0	0	0	0	0	0	0	0	3
	13	1	3	0	0	0	0	0	0	0	0	4
	23	2	4	2	2	0	1	0	0	0	1	12
	39	1	2	0	1	0	1	0	0	0	0	5
	44	0	2	0	1	0	0	0	0	2	2	7
	48	1	2	0	0	1	0	0	0	0	1	5
	49	0	0	2	1	0	0	0	0	1	0	4
	56	1	1	0	1	0	0	0	0	0	0	3
	62	5	10	8	6	1	0	0	5	3	3	41
Wet	22	1	1	1	0	2	0	0	2	0	0	7
	53	0	1	1	0	0	0	1	0	1	4	8
	65	1	0	1	0	1	0	0	0	1	0	4
Total		17	28	16	15	7	4	1	7	8	11	114

AD, adult; SUB, subadult; JUV, juvenile; M, male; F, female; U, unknown.

NPs of northern CAR and the easternmost part of the distribution range of this species.

The camera trap survey benefited from the possibility of individual identification through unique white stripe patterns on the flanks of DE, similar to spotted or striped carnivores (Karanth & Nichols, 1998; Karanth, Nichols, Kumar, & Hines, 2006); however, the study design did not allow identification of both sides of an animal together as the camera traps were not paired (Marshal, 2016). We succeeded in identifying from one side photographs only 46 of 176 individuals (27%). The low success was caused by the predominantly nocturnal activity of DE (K. Brandlová, unpublished data) when the stripes were not clearly visible, as reported by Jůnek, Jůnková Vymyslická, Hozdecká, and Hejcmanová (2015). Furthermore, we could not use capture-recapture methods (Borchers & Efford, 2008), as none of the identified DE was spotted more than once. We are aware that some DE might have been captured repeatedly even if the quality of the photographs did not allow identification, which is the main source of overestimation of population size. On the other hand, it is likely that not all the animals were photographed during the study period, leading to underestimation.

It is generally stated that DE are gregarious and seldom dwell alone, except for solitary males (Planton & Michaux, 2013). However, the number of solitary individuals formed a considerable part of all capture events (51% and 60% in DRY and WET). Adult males which are generally considered the most solitary formed only 20% of recorded solitary individuals. However, DE frequently move and browse in a loose herd structure with long inter-individual distances (K. Brandlová, personal observation). Combined with screening from dense vegetation cover, the animals photographed alone did not imply that there were no other individuals out of reach of the camera. The higher proportion of solitary individuals during WET may reflect vegetation density decreasing visibility of animals. The visibility problem is supported by the fact that most of the solitary individuals were photographed during darkness. Together with the fact that mixed groups formed the most frequent type of group recorded it implies that AD males may have been mostly accompanying herds of females and calves rather than wandering alone.

The mean herd size detected corresponded to the average herd size of 20 30 individuals reported by Planton and Michaux (2013). The largest herd in Chinko was recorded in March, a mixed herd containing all age and sex classes, in accordance with estimated reproductive cycle. Herd sizes in Chinko support the observations of Planton and Michaux (2013) that large herds are formed already in early dry season (December January in Cameroon) and stay together until the rains (June), when they split into smaller groups of less than ten. A large mixed herd of 69 individuals was recorded by Renaud, Gueye, Hejcmanová, Antonínová, and Samb (2006) in Senegal during the peak dry season in May. According to Bro-Jørgensen (1997) in Cameroon large herds (even over 100 individuals) formed during late dry and early wet seasons.

In agreement with Bro-Jørgensen (1997), the social structure of the DE in Chinko seems to respond to seasonal changes in vegetation, water availability and/or bushfires. The camera trap data suggest that DE move around in smaller herds during the wet season, which may further split by the end of wet season for the birth period, as the females generally give birth alone. The calves stay hidden for several weeks and then females with calves join together to form large herds, with calves concentrated into nursery groups. Calves are nursed up to 6 months (Hejcmanová et al., 2011).

The overall sex ratio and AD sex ratio were skewed in favour of females. Increased skew may be induced by selective hunting (Planton & Michaux, 2013). However, when the data were corrected to

TABLE 2 Distribution of age-sex classes within herds of Derby elands captured by camera traps in the Chinko area, Central African Republic in 2012

	Dry		Wet	
	Number of animals (of which ID R)	Mean number per event (range)	Number of animals (of which ID R)	Mean number per event (range)
AD M	21 (5)	1.5 (1 5)	4	1.00 (1 1)
AD F	34 (14)	2.125 (1 10)	4	1.00 (1 1)
AD (M, F, U)	76 (19)	2.81 (1 23)	13	1.44 (1 3)
SUB M	16 (5)	1.78 (1 6)	2 (1)	1.00 (1 1)
SUB F	7 (1)	1.17 (1 2)	3	1.5 (1 2)
SUB (M, F, U)	27 (6)	2.07 (1 7)	5 (1)	1.25 (1 2)
JUV M	0 (0)	0	2	1.00 (1 1)
JUV F	6 (6)	3.00 (1 5)	5 (1)	1.25 (1 2)
JUV (M, F, U)	16 (6)	2.67 (1 8)	10	1.43 (1 2)
Total	128 (31)	3.66 (1 41)	44 (2)	2.2 (1 8)

Observed and minimal (in parentheses) numbers of animals in herds of Derby elands.
AD, adult; SUB, subadult; JUV, juvenile; M, male; F, female; U, unknown; ID R, number of animals identified from the right side.

exclude effect of selective hunting (i.e., legally hunted males were included to the dataset) the sex ratio remained skewed, suggesting either higher natural male mortality and/or selective poaching of AD males. Male mortality is reportedly higher in both wild and captive environments (Brandlová et al., 2013; Bro-Jørgensen, 1997), and monitored populations in human care have male-biased sex ratios (1.04:1 in USA and 1.2:1 in Senegal) (Brandlová et al., 2013; McCaffree, 2011). The AD sex ratio in a hunting concession in Cameroon was even more female biased (1:3.1) (Bro-Jørgensen, 1997) which suggest higher selective hunting pressure than in Chinko.

Although juveniles and subadults were not as numerous as in Cameroon where juveniles formed 25% and subadults 20% of the population (Bro-Jørgensen, 1997), Chinko population values are still higher than those from a semicaptive population in Senegal (juveniles 17%, SUBs 13%) which is still growing (deterministic population growth λ 1.2) (Brandlová et al., 2013).

Given a gestation length of about 9 months (Brandlová et al., 2013; McCaffree, 2011), the mating season of DE in Chinko occurs in January and February, as reported for Cameroon (December February; Planton & Michaux, 2013). The mating season therefore corresponds with the formation of large herds where males compete for access to females (Bro-Jørgensen, 1997, K. Brandlová personal observation).

Parturition in DE is seasonal, mostly occurring at the end of wet season or start of dry season (October to December) (Brandlová et al., 2013), which is also the case in Chinko. In Senegal, the birth season extends until February, corresponding to the later start of the rains. A less clear seasonal pattern was recorded in the USA, with the majority of births during summer, however in captivity this was likely manipulated by breeding management (McCaffree, 2011).

Juvenile mortality in Chinko was relatively high (54%) in comparison with known rates in the semicaptive population in Senegal (7%) (Brandlová et al., 2013). Juvenile mortality is one of the most fluctuating vital rates, influenced by population density, stochastic environmental variation (Gaillard, Festa-Bianchet, & Yoccoz, 1998) and predation. Given the high proportion of juveniles within the population and high breeding rate in Chinko, higher than in Cameroon 74% (Bro-Jørgensen, 1997) and in Senegal 77% (Brandlová et al., 2013), the high juvenile mortality rate does not seem to affect population growth negatively. High breeding rate could be a stronger determinant of population change than AD mortality (Gaillard et al., 1998), which is relatively higher in Chinko (19.6%) than in Senegal (5%) (Brandlová et al., 2013).

Annual mortality of adult males in Chinko is higher than that of females, likely due to selective hunting. Given that male mortality may be naturally higher than female mortality (Brandlová et al., 2013) and that hunting of adult males could alter the age-sex structure, specific attention should be paid to setting hunting quotas. In Chinko, the number of legally hunted males decreased in the years following the study period in an attempt to reduce potential negative effects of hunting. In 2013/2014, only five DE bulls were legally hunted and only three in 2014/2015.

Maximum densities of a healthy undisturbed DE population were estimated at about 0.5 individuals/km^2 (Bro-Jørgensen, 1997), and up to 1.19 individuals/km^2 in intensively surveyed hunting zones in Northern CAR (Bouche et al., 2010). On the other hand, the semicaptive population of Western DE kept in the fenced Fathala reserve at a density of 1.51 individuals/km^2 is apparently over the carrying capacity of the environment and must be provided with supplementary feeding (Hejcmanová, Vymyslická, Žácková, & Hejcman, 2013).

Both MIN and OBS population densities in Chinko were lower during WET than during DRY. We attribute this difference to a lower detection rate during WET due to vegetation cover. OBS population density in Chinko corresponds to the 0.15 0.3 individuals/km^2 reported by Planton and Michaux (2013); however, the MIN

density is far lower, comparable with the densities reported from other suitable habitats. Bro-Jørgensen (1997) in Boumedjé hunting concession observed 68 DE in 970 km^2, for example 0.07 individuals/km^2. Densities of 0.07 and 0.09 individuals/km^2 were reported during aerial counts in 1991 and 1998 and ranged from 0.002 to 0.10 individuals/km^2 in 2005 in protected and hunting areas in northern CAR (Bouche et al., 2010). Omondi et al. (2008) reported 0.08 individuals/km^2 in Bouba-Ndjida NP and 0.003 individuals/km^2 in Faro NP, and (Fay et al., 2007) 0.006 individuals/km^2 in Southern NP in South Sudan. However, these low estimates were derived from aerial surveys, and not adjusted for undercounting resulting from low detection rates in thick vegetation.

Derby eland population size estimates from camera-traps were higher than those from field observations used to set hunting quotas. Despite this, hunting apparently affected the observed sex ratio, which may be also a consequence of poaching. The increasing levels of poaching in Chinko should be considered when reassessing quotas in future.

Chinko may hold 10% 25% of DE in CAR, taking into consideration the different methods used to estimate population size. However, the population is assumed to be declining due to the numerous poaching incidents recorded since 2012.

It is difficult to extrapolate the density figures from our survey widely, but given the area of suitable habitat in Chinko and the uninhabited eastern part of CAR, including Zemongo reserve with 8,000 km^2 of woody savannah and Chinko Headwater with 18,000 km^2 of woody savannah, this region potentially holds one of the largest populations of this species. Chinko should be therefore viewed as a key locality for DE conservation.

Overall DE numbers are far lower than those estimated by East (1999). Taking into account the political insecurity, and the likely DE population trend in Chinko, we urge the need for further promotion of anti-poaching and other conservation measures.

ACKNOWLEDGEMENTS

We are grateful to the family Mararv and collaborators of CAWA safaris who made it possible to execute the first scientific field work in the Chinko area namely Erik, Emelie, Charlotte, Roland and Gunnel Mararv and David Simpson. Special thanks go also to the professional hunters, trackers and guides of CAWA which not only generously tolerated field work but also assisted whenever possible. Special thanks goes also to the "Basler Stiftung fur biologische Forschung," PANTHERA and a very supportive community of private persons and small companies in Switzerland that financially supported field work. We thank also to Derbianus Conservation NGO for providing research capacities. We are grateful to Kateřina Hozdecká for initial processing of photographs. This work was supported by the Czech University of Life Sciences Prague CIGA 20135010 and 20134220, and the Faculty of Tropical AgriSciences, grants IGA 20165010 and 20165017. PJV was supported by project Postdok ČZU (ESF and MEYS CZ.1.07/2.3.00/30.0040).

REFERENCES

Angwafo, T. E., Nji, A., Mbida, M. & Wiegleb, G. (2008). Estimated minimum and maximum sustainable exploitation values for Derby eland and other big game in Benoue National Park, Cameroon. *Nature & Faune*, *23*, 27 31.

Antonínová, M. (2008). *The breeding and management of small animal populations: Case study of Western giant eland (Taurotragus derbianus derbianus, GRAY 1847) in Senegal*. Department of animal sciences and food processing in TS, Ph.D. thesis, Czech University of Life Sciences Prague, Institute of Tropics and Subtropics, Prague.

Borchers, D. L. & Efford, M. G. (2008). Spatially explicit maximum likelihood methods for capture-recapture studies. *Biometrics*, *64*, 377 385.

Bouche, P., Mange, R. N. M., Tankalet, F., Zowoya, F., Lejeune, P. & Vermeulen, C. (2012). Game over! Wildlife collapse in northern Central African Republic. *Environmental Monitoring and Assessment*, *184*, 7001 7011.

Bouche, P., Renaud, P. C., Lejeune, P., Vermeulen, C., Froment, J. M., Bangara, A., ... Fay, M. (2010). Has the final countdown to wildlife extinction in Northern Central African Republic begun? *African Journal of Ecology*, *48*, 994 1003.

Brandlová, K., Mallon, D., Hejcmanová, P., Regnaut, S., Jůnková Vymyslická, P., ... Ndiaye, S. (2013). *Western Derby eland (Taurotragus derbianus derbianus) conservation strategy*. Prague: Czech University of Life Sciences Prague.

Bro-Jørgensen, J. (1997). *The ecology and behaviour of the Giant eland (Tragelaphus derbianus, Gray 1847) in the wild*. Master's Thesis, University of Copenhagen, Copenhagen, Denmark.

Caro, T. M., Young, C. R., Cauldwell, A. E. & Brown, D. D. E. (2009). Animal breeding systems and big game hunting: Models and application. *Biological Conservation*, *142*, 909 929.

Chardonnet, B. & Chardonnet, P. (2004). *Antelope survey update*. IUCN/SSC Antelope Specialist Group Report n. 9. pp. 81.

Craigie, I. D., Baillie, J. E. M., Balmford, A., Carbone, C., Collen, B., Green, R. E. & Hutton, J. M. (2010). Large mammal population declines in Africa's protected areas. *Biological Conservation*, *143*, 2221 2228.

East, R. (1999). *African antelope database*. Gland, Switzerland and Cambridge, UK: IUCN/SSC Antelope Specialist Group.

Fay, M., Elkan, P., Marjan, M. & Grossmann, F. (2007). *Aerial surveys of wildlife, livestock, and human activity in and around existing and proposed protected areas of Southern Sudan, dry season 2007 (Phase I)*. Wildlife Conservation Society, Southern Sudan.

Gaillard, J.-M., Festa-Bianchet, M. & Yoccoz, N. G. (1998). Population dynamics of large herbivores: Variable recruitment with constant adult survival. *Trends in Ecology & Evolution*, *13*, 58 63.

Graziani, P. & d'Alessio, S. G. (2004). Monitorage radiotélémetrique de l'Eland de Derby *(Tragelaphus derbyanus gigas)* dans le Nord de la République Centrafricaine. In *Programme regional ecofac composante zones cynegetiques villageoises (R.C.A.)* (pp. 77). Roma: I.E.A. (Istituto di Ecologia Applicata).

Hejcmanová, P., Vymyslická, P., Koláčková, K., Antonínová, M., Havlíková, B., Stejskalová, M., ... Hejcman, M. (2011). Suckling behavior of eland antelopes *(Taurotragus spp.)* under semi-captive and farm conditions. *Journal of Ethology*, *29*, 161 168.

Hejcmanová, P., Vymyslická, P., Žácková, M. & Hejcman, M. (2013). Does supplemental feeding affect behaviour and foraging of critically endangered Western Giant eland in an ex situ conservation site? *African Zoology*, *48*, 250 258.

IUCN (2008a). *Tragelaphus derbianus derbianus. The IUCN Red List of Threatened Species*. e.T22056A9354316. Retrieved from https://doi.org/10.2305/IUCN.UK.2008.RLTS.T22056A9354316.en.

IUCN (2008b). *Tragelaphus derbianus gigas*. The IUCN Red List of Threatened Species. e.T22059A9354799. Retrieved from http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T22059A9354799.en.

Jůnek, T., Jůnková Vymyslická, P., Hozdecká, K. & Hejcmanová, P. (2015). Application of spatial and closed capture-recapture models on known population of the Western Derby eland *(Taurotragus derbianus derbianus)* in Senegal. *PLoS ONE*, *10*(9), e0136525.

Karanth, K. U. & Nichols, J. D. (1998). Estimation of tiger densities in India using photographic captures and recaptures. *Ecology*, *79*, 2852 2862.

Karanth, K. U., Nichols, J. D., Kumar, N. S. & Hines, J. E. (2006). Assessing tiger population dynamics using photographic capture-recapture sampling. *Ecology*, *87*, 2925 2937.

Koláčková, K., Hejcmanová, P., Antonínová, M. & Brandl, P. (2011). Population management as a tool in the recovery of the critically endangered Western Derby eland Taurotragus derbianus in Senegal, Africa. *Wildlife Biology*, *17*, 299 310.

Marshal, J.P. (2016). Survival estimation of a cryptic antelope via photographic capture-recapture. *African Journal of Ecology*, *55*, 21 29.

McCaffree, L. (2011). *Eastern giant eland (Taurotragus derbianus gigas)*. San Diego, CA: International Studbook, San Diego Zoo's Safari Park.

Omondi, P., Bitok, E. K., Tchamba, M., Mayienda, R. & Lambert, B. B. (2008). *Total aerial count of elephants and other wildlife species in Faro, Benoue and Bouba Ndjidda national parks and adjacent hunting blocks in Northern Cameroon*. Yaoundé: WWF.

Planton, H. P. & Michaux, I. G. (2013). Traglephus derbianus Giant eland (Lord Derby's eland). In J. Kingdon & M. Hoffmann (Eds.), *Mammals of Africa. Volume VI: Pigs, hippopotamuses, chevrotain, giraffes, deer and bovids* (pp. 186 190). London: Bloomsbury publishing.

Renaud, P. C., Gueye, M. B., Hejcmanová, P., Antonínová, M. & Samb, M. (2006). Inventaire aérien et terrestre de la faune et relevé des pressions au Parc National du Niokolo Koba. *Plan d'Urgence PNNK, rapport annexe A* (pp. 74). Dakar: APF, DPNS.

Roulet, P. A., Pelissier, C., Patek, G., Beina, B. & Ndallot, J. (2007). *Projet Zemongo - un aper cu du contexte ecologique et de la pression anthropique sur les ressources naturelles de la reserve de faune de Zemongo*. pp. 56.

Scholte, P. (2011). Towards understanding large mammal population declines in Africa's protected areas: A West-Central African perspective. *Tropical Conservation Science*, *4*, 1 11.

Wilson, D. E. & Reeder, D. A. M. (2005). *Mammal species of the world: A taxonomic and geographic reference*. Johns Hopkins University Press.

Zemanová, H., Bolfíková, B. Č., Brandlová, K., Hejcmanová, P. & Hulva, P. (2015). Conservation genetics of the Western Derby eland *(Taurotragus derbianus derbianus)* in Senegal: Integration of pedigree and microsatellite data. *Mammalian Biology-Zeitschrift für Säugetierkunde*, *80*, 328 332.

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From:	Vannorman, Tim
To:	Mike Moore; Monica Horton
Subject:	Fwd: Fw: Non Detriment Findings 2015; African Elephant Zambia and other documents
Date:	Friday, August 18, 2017 10:11:26 AM
Attachments:	POSSIBLE EXPLANATION FOR THE ELEPHANT INCREASE IN THE KAFUE AREA.pdf NDF for African Elephant sport hunting in Zambia_draft 2015rev.pdf DRY SEASON SURVEY OF LARGE HERBIVORES FOR KAFUE AND LUANGWA ECOSYSTEMS_for Ministry.pdf IUCN Summary Report SC65 July 2014.pdf

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Mike and Monica,

Here is the electronic version of Chomba's email.

Tim

---------- Forwarded message ----------
From: **Andrew Chomba** <rhinorangerzawa@yahoo.co.uk>
Date: Sun, Jan 31, 2016 at 3:05 AM
Subject: Fw: Non Detriment Findings 2015; African Elephant Zambia and other documents
To: "tim_vannorman@fws.gov" <tim_vannorman@fws.gov>

Dear Tim,
See email attached documents Zambia provided to the EU regarding NDF for Elephants that was sent to you after the AWCF meeting in South Africa but appears may have bounced back. Please contact me if you will need any further clarification. I am also informed that the USFWS may request us to provide similar information on lions following the recent listing of lions in the ESA.
Kind regards,
Andrew

On Sunday, 31 January 2016, 9:58, Andrew Chomba <andrew.chomba@zawa.org.zm> wrote:

Principal Warden-Operations
Wildlife Law Enforcement Unit
Department of National Parks and Wildlife
Private Bag 1,
Chilanga
ZAMBIA
Tel: +260 211 278 501
Cell: +260 978 176 078

From: Terry Basabeka Njovu
Sent: Tuesday, December 22, 2015 12:32 PM
To: tim_vannorman@fws.gov
Cc: Andrew Chomba
Subject: Non Detriment Findings 2015; African Elephant Zambia and other documents

Dear Timothy
Please find attached the Elephant NDF for 2015 for Zambia and other document. I am sending these documents on behalf of Mr Andrew Chomba Eldred herein copied. The documents were also sent to the EU.
Regards

Terry Basabeka Njovu
Park Ranger-CITES
Zambia Wildlife Authority HQ
CITES Management Authority Zambia
P/Bag 1
Chilanga
Zambia

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Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

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From:	Hoover, Craig
To:	Tim Van Norman
Subject:	Fwd: Lion conservation in Namibia
Date:	Friday, August 18, 2017 8:11:46 AM
Attachments:	ATT00001.htm Namibia Lion Conservation Strategy_July 2017.pdf NW Lion Management Plan_July 2017.pdf ATT00002.htm

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Second of two.
---------- Forwarded message ----------
From: **Gregory Sheehan** <gregory_sheehan@fws.gov>
Date: Fri, Aug 18, 2017 at 7:07 AM
Subject: Fwd: Lion conservation in Namibia
To: gloria_bell@fws.gov, Craig Hoover <craig_hoover@fws.gov>

Per the prior email.
Thanks
Greg

Greg Sheehan
Principal Deputy Director
US Fish and Wildlife Service
202-208-4545 office
202-676-7675 cell

Begin forwarded message:

> **From:** kenneth uiseb <kenneth.uiseb@met.gov.na>
> **To:** "Gregory_sheehan@fws.gov" <Gregory_sheehan@fws.gov>
> **Cc:** louisa mupetami <louisa.mupetami@met.gov.na>, colgar sikopo <colgar.sikopo@met.gov.na>, elly hamunyela <elly.hamunyela@met.gov.na>, Malan Lindeque <Malan.Lindeque@met.gov.na>
> **Subject: RE: Lion conservation in Namibia**
>
> Dear Mr. Sheehan,
>
> I refer to the email below sent to you by Dr. Lindeque on 12 July 2017. Please find herewith attached the copies of the approved Lion Conservation Strategy for Namibia, and Human-Lion Conflict Management Plan for the North Western Namibia.
>
> Yours sincerely,
>
> Kenneth Uiseb

Deputy Director, Wildlife Monitoring and Research

Ministry of Environment and Tourism

From: Malan Lindeque
Sent: Wednesday, July 12, 2017 8:12 AM
To: Gregory_sheehan@fws.gov
Cc: louisa mupetami <louisa.mupetami@met.gov.na>; colgar sikopo <colgar.sikopo@met.gov.na>; elly hamunyela <elly.hamunyela@met.gov.na>; kenneth uiseb <kenneth.uiseb@met.gov.na>
Subject: Lion conservation in Namibia

Dear Mr Sheehan

I am aware that the Fish and Wildlife Service is currently considering lion conservation issues in a number of countries, possibly including Namibia. I wish to inform you that we will shortly be able to send you two key documents that we have developed in this regard, namely a new Lion Conservation Strategy for Namibia and a Human-Lion Conflict Management Plan for Northwestern Namibia (which was approved only yesterday). The latter is the first of a series of sub-national plans to deal with conflict issues.

Yours sincerely

Malan Lindeque

Permanent Secretary

Ministry of Environment and Tourism

Namibia

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--
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Ministry of Environment and Tourism
Republic of Namibia

LION CONSERVATION STRATEGY FOR NAMIBIA

July 2017

Foreword

The lion *Panthera leo* is iconically African, and an important indicator of wilderness quality and integrity where it occurs. A key species for wildlife tourism, research and sports hunting, the lion is nevertheless, increasingly threatened.

Recent surveys indicated a suspected decline of 43% over the past 21 years of the African lion populations. With much of its former range now lost, and human-livestock densities increasing around core lion populations, the lion has become one of the major predators of livestock, presenting challenges and hardship to those who live amongst lions. Whilst an economic liability, and a threat to human safety, the lion is also a major source of economic benefit, being one of Africa's most important tourism attractions.

Compared to other Sub-Saharan lion range states, Namibia is home to only a small population of around 1000 lions, but, unlike the situation in most other countries, the lion population in Namibia has slowly increased over the past 20 years. This was mainly due to the expansion of lions into the Kunene Region. In other parts of Namibia, lion habitat is threatened through land use change and fragmentation resulting in human wildlife conflict and reduction in range available for lions.

The Ministry of Environment and Tourism has the constitutional mandate to safeguard and sustain the biological diversity of Namibia for the long-term benefits of current and future generations. It is the vision of this strategy to ensure the long-term conservation of the Namibian lion in a sustained environment.

The Ministry of Environment and Tourism acknowledges the contributions made by different stakeholders in the development of the Lion Conservation Strategy for Namibia. The Ministry is looking forward to join hands with all key stakeholders involved in wildlife and lion conservation to implement the Lion Conservation Strategy to ensure that our lion populations remain viable and are beneficial to the people who share their land and resources with lions.

Malan Lindeque
PERMANENT SECRETARY

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1. Introduction and background

The African lion (*Panthera leo*) is the largest African member of the genus *Panthera*, weighing up to about 230 kg, and is confined to the African continent. The lion is a highly charismatic member of the megafauna of Africa and is the only cat species that is conspicuously social (Schaller 1972).

The African lion plays a key role in the ecological functioning of the African ecosystems, but also provides key challenges when they come into conflict with other land uses like stock farming.

Three categories of lions are found in Namibia; wild free roaming lions in large and open protected areas and other land used for conservation purposes such as conservancies, managed lions free roaming in small fenced reserves, and captive lions that are entirely dependent on humans for their survival.

1.1 Lion Conservation status

The African lion is listed as Vulnerable on the IUCN Red List (Bauer *et al*. 2016) and the Namibian population is included in Appendix II of the Convention on the International Trade of Endangered Species (CITES). African lion is a Specially Protected Species under the Nature Conservation Ordinance, Ordinance 4 of 1975 of Namibia.

1.2. Distribution

Lions are found in most countries of sub-Saharan Africa (Bauer *et al.* 2016). Lions are largely found in the savanna biome of Africa, which includes areas that receive annual rainfall of between 300 and 1500 mm. Savannas encompass a wide variety of habitats including grasslands, wetlands, dry woodlands and mosaics of all of these. Lion distribution is represented in 67 lion areas comprising 3.4 million square kilometres, which is 17% of the former range or about 25% of the savannah (Riggio *et al*. 2013). Lions no longer occur in the desert parts of North Africa, but occur and are expanding in numbers and range in the Namib Desert in Namibia (Bauer & van der Merwe 2004; Stander 2007).

Lion populations are decreasing in west and east Africa and are only stable in the southern African region (Bauer *et al*., 2015). It is assumed that they are extinct in most of their historical range and may be surviving in as little as 8% of their former range (Bauer *et al.*2016) Absent from forests, lions otherwise have a wide habitat tolerance, penetrating deep into deserts, even where only ephemeral watercourses occur. Where water is available, lions will drink regularly, but are by no means water dependent, getting most of their water requirements from their prey (Smithers 1983, Skinner and Smithers 1990). The most important habitat requirement is that it provides an adequate food supply in the form of medium to large sized mammals.

Historically lions were distributed throughout Namibia with sightings recorded in the areas of Swakop River, south of Windhoek, Keetmanshoop and many other areas by the early travellers (Vedder, 1938). Lion populations where extirpated from most parts of Namibia by the turn of the 20th Century.

The Namibian lion population can be subdivided into 2 populations, the Etosha-Kunene population and the Khaudum-Zambezi population. It is unlikely that there is any significant exchange between these populations at present and it is unlikely that this will change in the near future. In addition there are a number of small populations on private game reserves, most notable is the population maintained in a private game reserve in the Kalahari, Ongava and Etosha Heights Safari Lodge on the edge of Etosha National Park. There are also possible genetic differences between the populations but the significance of this is still unclear but should be considered when making management decisions (Dubach et al., 2013).

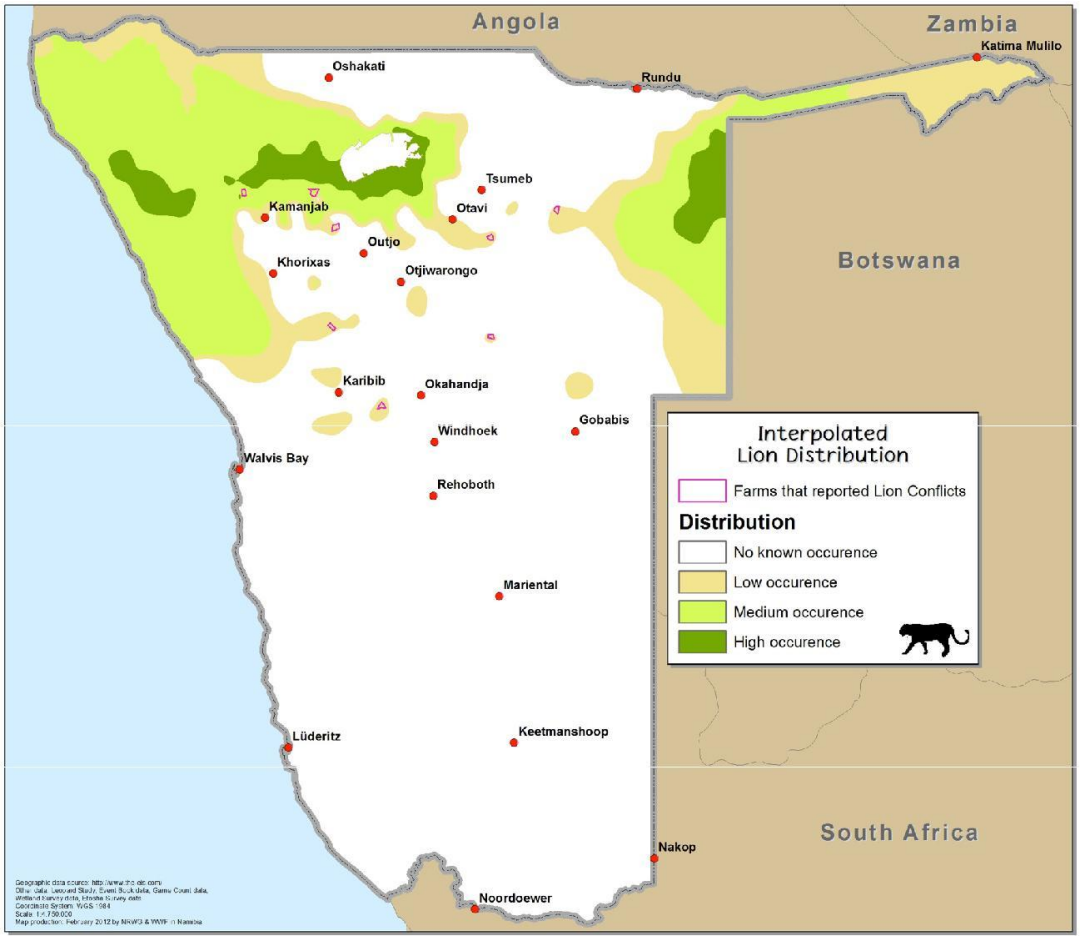

Fig.2. *Distribution of free ranging lions in Namibia (Large Carnivore Atlas, 2012)*

1.3. Habitat requirements

The Lion has a broad habitat tolerance; they are absent only from the tropical rainforest and interior of the Sahara desert (Nowell & Jackson 1996). Like most large carnivores, lions require areas with sufficient prey base and low human densities. Within their home ranges lions require habitats or locations that are suitable for hunting, resting and breeding. Although landscape features may vary from area to area, lions tend to select areas where prey is easier to catch, than areas where prey densities are highest (Hopcroft *et al*. 2005).

1.4. Biology:

Lions are the most social of the cats, with related females remaining together in prides, and related and unrelated males forming coalitions competing for tenure over prides. Average pride size (including males and females) is four to six adults; prides generally break into smaller groups when hunting (Bauer *et al.*2016). Lions live at higher densities than most felids with a variation from 1.5 adults per 100km2 in Southern African semi-deserts to 55 per 100 km2. (Sunquist & Sunquist 2002).

In most large protected areas, lion populations tend to be stable (Packer *et al*. 2005; Ferreira & Funston 2010a), but when introduced into a new reserve with naïve and high prey densities, lion populations increase very rapidly (Kilian & Bothma 2003; Miller & Funston 2014) requiring active management interventions to avoid undesired outcomes resulting from overpopulation.

1.5. Ecology

Lion prey consists of medium- to large-sized ungulates, including antelopes, zebra and wildebeest. However, lions feed on almost any animal, from rodents to a rhino and do at times also scavenge, displacing other predators from their kill (IUCN, 2016).

Lions respond to behavioural and physiological changes in prey in terms of what species, sex and age of prey they select (Owen-Smith 2008). Although lions hunt cooperatively (Stander 1992) no clear evidence was found that this benefits lions in terms of the amount of food they eat (Packer *et al*. 1988), and thus hunting success is not a driver of sociality in lions (Packer *et al*. 1990).

Lion home range size differs contrastingly between populations, ranging from as small as 20 km^2 in the Ngorongoro Crater (Elliot & Cowan 1978), to 400 km^2 in Etosha National Park (Stander 1991), and up to 4500 km^2 in the Kgalagadi system (Funston 2011).

1.6. Diseases

It is believed that disease risk for lions increases as populations become isolated, placing them at a higher risk when confined by fencing (Keet *et al*. 2009). In addition, their increasing proximity to people and domestic animals exposes them to new diseases (IUCN SSC Cat Specialist Group 2006).

Namibian lion are generally believe to be free from most of the diseases affecting African lions elsewhere. Therefore it is important that the disease free status of the lion populations, especially the populations in large protected areas such as Etosha National Park are protected against introduction of diseases.

2. Threats to the survival of lion

Surveys have indicated a suspected decline of 30-50% in the African lion population in recent decades. A decade ago estimates ranged from 23,000 to 39,000 wild lions (Chardonnet 2002; Bauer & van der Merwe 2004), with a current estimate of 30,000 (Riggio *et al*. 2013). The main threats to lions are indiscriminate killing (primarily as a result of human-lion conflict) and prey base depletion. Habitat loss and conversion have led to a number of subpopulations becoming small and isolated (Bauer *et al.* 2008).

The following are known threats to the long-term survival of lion in Namibia as well as their wider range:

- Persecution by livestock farmers (both commercial and communal)
- Habitat loss and degradation, as well as habitat fragmentation
- Decreasing wild prey populations
- Potential loss of connectivity with neighbouring countries
- Diseases

3. Background and Rationale for the Conservation Strategy

This is the first Namibian species management plan for the Lion and its development follows from and is guided through the National Policy on the Conservation and Management of Large Carnivores of 2014. The Policy outlined the following strategies:

- Targeted and sustained Research and Monitoring
- Species-specific Large Carnivore Conservation and Management Planning
- Sustainable Utilization of Large Carnivores
- Management of Human-Carnivore Conflict
- Stakeholder Engagement Platforms
- Standard Operational Procedures
- Large carnivore conservation at landscape level

4. Vision and Goal statements

Vision

Ensure the long-term conservation of the Namibian lion in a sustainable environment for the mutual benefit of present and future generations of people and lions

Goal

Viable free-ranging lion populations on formally protected land, conservation areas and in suitable game reserves providing social, cultural and economic benefits to all

4.1. Objectives

The following objectives are developed to meet the strategies set out in the National Policy on the Conservation and Management of Large Carnivores:

Objectives

1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that recognise and promote wildlife as an integral part of multiple land use systems and which provide conservation-related socio-economic benefits across current and potential lion range.

2. **Management**: To ensure effective conservation management of lions, their habitats and prey through identified needs including research and monitoring.

3. **Conflict mitigation**: To reduce and mitigate human/livestock conflicts with lions in a participatory, responsible and transparent manner.

4. **Socio-economics**: Analyze and distribute equitably the costs and benefits of lion conservation and management, whilst optimizing wildlife-related net benefits to affected communities.

5. **Trade and regulation**: To prevent illegal trade and to regulate consumptive use of lions and lion products.

6. Transboundary connectivity: Ensure connectivity with the neighbouring lion populations is maintained

4.2. Objectives and strategic actions

Objective	Strategic Actions	Intended 5-Year Outcomes	Indicators	Implementing Party	Estimated Cost
1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that promote wildlife as an integral part of multiple land use systems and which provide conservation related socio-economic benefits across current and potential lion range	1.1. Implement lion conservation strategy within existing wildlife and other relevant policies, and consistent with primary legislation	Enabling policy and legislative environment that promotes lion conservation established, and operational	Lion conservation strategy in place and implemented	MET and relevant Government agencies	100,000
	1.2. Develop and implement regulations prohibiting translocation of lions from other areas to Etosha National Park	Etosha NP lion population is protected, and its disease-free status and genetic integrity of lion populations is maintained through prevention of mixing of geographically separated lion populations	Regulations preventing introductions of lions from distant areas into Etosha National Park developed and in place	MET	50,000
	1.3. Develop and implement regulations for the keeping of lions on private game reserves, clarifying rights, responsibilities and ownership	Viable lion populations established in suitable areas, especially on private land mainly used for wildlife management.	(i) Regulations on establishment of lion populations in other suitable areas in place, (ii) Increase in number of new lion populations	MET, Private Game Reserves, Communal and freehold conservancies	500,000

			established in the historical range		
	1.4 Develop and implement mechanisms to regulate hunting of problem lions	(i) All legal hunting of problem lions ethically conducted, benefiting the areas most affected by lion problems (ii) Compliance with international rules on trade in lion products resulting from the lion hunts.	Regulation of all matters pertaining to hunting of problem lions, prohibiting leg-hold traps and regulating cage traps	MET	50,000
	1.5. Develop and implement regulations for the rehabilitation of lions, and lions kept in captivity.	(i) Lion rehabilitation process is regulated to ensure that it does not lead to socio-economically detrimental outcomes (ii) Numbers of lion kept in captivity remain stable	(i) Regulations in place for rehabilitation of lions (ii) All permit holders comply to conditions under the regulations or be closed down	MET, Large Carnivore Management of Association Namibia (LCMAN), registered large carnivore rehabilitation centres &	200,000

		or decrease over time.	permanently	captive facilities.	
2. **Lion Management:** lion populations, their habitats and prey base effectively managed in collaboration with local stakeholders	2.1. Continue long-term monitoring of lion populations and their prey throughout the lion range	Lion and their prey base remain stable or increase in the lion range	Regular monitoring of lions and prey species in lion range areas	MET, LCMAN and private game reserves, wildlife research and monitoring organisations, NGOs	1,500,000
	2.2. Maintain and strengthen capacity for lion conservation, management , monitoring and research within the MET and amongst the other key stakeholders	Capacity to manage lion in Namibia is established within MET, LCMAN and other key stakeholders.	(i) Large carnivore coordinator is appointed and capacitated (i) Large carnivore coordinator and LCMAN attends regular training workshops and capacity building initiatives	MET, LCMAN, Range wide Large Carnivore Programme	500,000
	2.3. Identify and implement best	(i) Hunting of lion is ethically conducted, and	(i) Regulations and guidelines on lion	MET, LCMAN,	100,000

	management standards and practices for all legally hunted lion populations, ensuring their viability and sustainable and adaptively managed hunting quotas	is not detrimental to the long-term survival of the species in Namibia (ii) Legal hunting of lion contributes meaningful and tangible benefits to the landholders, and communities sustaining and sharing their land with lion populations	hunting in place (ii) Records of benefit flows to landholders and communities from lion hunts	hunting operators, conservancies	
	2.4 Promote collaborative management of lion populations across landscapes	Lion conservation is practiced beyond the boundaries of the formally protected areas	Lion range expansion adjacent to formally protected areas and other suitable places.	MET, communal and freehold landholders, private sector, NGOs	200,000
	2.5. Maintain viable and sustainable populations of prey species in lion range areas to enhance lion conservation and to further reduce human-lion conflicts	(i) Stable or increasing wild prey populations in lion range (ii) Improved and predator friendly livestock husbandry	(i) Regularly conducted wildlife survey reports (ii) Number of projects supporting predator friendly	MET, LCMAN, NGOs	1,000,000

		practices in place (iii) Reduce lion predation on domestic livestock	livestock husbandry practices (iii) Acceptable community attitudes towards lions		
	2.6 Facilitate lion re-introduction programmes in the region informed by science	Namibia contributes to lion re-introduction programmes in southern Africa region	Number of lion re-introductions supported by Namibian Government (on request, opportunistic)	MET, SADC member states	500,000
3. **Conflict mitigation:** To reduce and minimise human-lion conflict in a participatory, responsible and accountable manner	3.1. Identify and implement strategies to reduce and mitigate livestock losses	(i) Reduction in lion caused livestock losses (ii) Increased level of tolerance of lions by livestock rearing communities	(i) Decrease in number of livestock killed by lions (ii) Continued co-existence of lions and cattle in dominantly livestock farming areas (iii) Reduction in	MET, NACSO, WWF Namibia	500,000

			number of lions destroyed as problem animals		
	3.2. Through partnership with civil society and private sector establish well trained and properly staffed problem animal response units to deal with lion-human conflicts	Capacity in place at various levels throughout the lion range to provide instant response to reported lion conflicts	Number of rapid response units established and operational in the lion range	MET, NACSO, NGOs & Private sector	2,000,000
	3.3. Implement and raise awareness on the National Human-Wildlife Conflict Management Policy	Human-wildlife conflict in Namibia managed according to the strategies of the National Policy on Human Wildlife Conflict Management	Level of implementation of the provisions of the National Policy on Human-Wildlife Conflict Management	MET, NACSO, CANAM, Farmers Unions	200,000
	3.4. Exchange information on best practices, working models to prevent human-lion conflict both nationally and internationally	Best practices and lessons learnt are shared with all stakeholders leading to reduction in incidences of human-lion conflicts	Reduction in incidences of human-lion conflicts	MET, NGOs, KAZA TFCA	500,000
	3.5. Work closely with traditional authorities to prevent new land	Traditional authorities support and respect areas zoned for wildlife	(i) Number of workshops conducted with Traditional	MET, MURD, NACSO, NGOs,	500,000

	allocations in areas zoned for wildlife and lion conservation on communal land	conservation when considering new land allocations	Authorities (ii) No new human-settlements in areas zoned for wildlife conservation except for emergency grazing during drought conditions	Traditional Authorities	
	3.6. Develop area-specific lion conflict management strategies adapted to local conditions	Area-specific management strategies for human- lion conflict considering the opportunities and challenges presented by different areas.	Area-specific human – lion conflict management strategies developed for the lions in Northwest and Northeast	MET	500,000
4. **Socio-economics:** The costs and benefits of long-term lion conservation and management equitably distributed	4.1. Strongly promote the concept of competitive advantage that African wildlife provides Namibia compared to other land uses types and industries	Wildlife, including lion, fully integrated in multi-species production systems in suitable areas in Namibia	(i) Contribution of the wildlife and tourism sector to the GDP of the country (ii) Expansion of the wildlife based production systems	MET, private sector, farmers unions	500,000

			inclusive of lions		
	4.2. Deliver appropriate training, education and capacity building to identified stakeholders	Capacity exists at community level to manage conflict with lions	Reduction in human-lion conflict incidences	MET, NACSO, NGOs, KAZA TFCA	300,000
	4.3. Agree, and implement collaboratively developed area-specific lion management plans with identified stakeholder groups in the lion range in Namibia	Lion management at area specific scale taking into consideration the opportunities and challenges unique to lion range areas	Separate local level lion management plans for key lion populations in the Northwest, Northeast and on small fenced reserves.	MET, LCMAN, KAZA TFCA, conservancies	500,000
	4.4. Implement transparent mechanisms to equitably distribute lion related/generated income to identified stakeholders	Communities and landholders supporting lion conservation on their land obtain direct and equitable benefits from the conservation of lions	Mechanisms developed to distribute benefits from lion to communities and landholders	MET, NACSO, tourism operators, hunting operators	200,000
	4.5. Engage more actively in the integrated landuse planning processes as well as the implementation and monitoring thereof	Land use planning is applied as a tool to secure lion conservation friendly land uses in lion range areas	Wildlife and lion conservation recognised and supported in integrated land use planning	MET, MURD, MLR, TA, NACSO, NGOs	100,000

			processes.		
5. **Trade and Regulation:** Effective regulation of consumptive, non-consumptive lion utilization and trade in lion products ensured	5.1. Implement approved policy and practice at national and local level regarding problem animal control and hunting of lions	(i) Problem animal control and hunting of lion adhere to approved policies and regulations governing such activities and is transparently conducted (ii) Potential loopholes in problem lion hunting by farmers and any associated fraudulent activities eliminated	No reported cases of fraudulent activities concerning problem lion hunts	MET, Hunting operators, Hunting Associations	50,000
	5.2. Ensure trophy hunting contributes directly to lion conservation by providing lion hunting quotas only to landholders that have well managed resident lion populations on their	(i) Benefits from lion accrue to communities and landholders supporting viable resident populations of lion	Lion utilization quotas granted to landholders and communities with viable resident lion populations	MET, conservancies, farmers, NACSO, NGOs	100,000

	land	(ii) Communities and landholders supporting resident lion population are more organised and support lion conservation at larger landscape level			
6. **Transboundary connectivity** – lion conservation across transboundary landscape in the KAZA TFCA	6.1. Develop and implement transboundary collaborative research and management projects	New knowledge and information is generated on lion conservation at transboundary scale that is used to influence management interventions for shared lion populations	Number of collaborative research projects in the KAZA TFCA	MET, KAZA, Angola, Botswana and Zambia	500,000
	6.2. Ensure and maintain connectivity between regional lion populations through, and in line with the transboundary conservation programmes	(i) Regional lion populations are connected and remain viable and stable over time (ii) Protected, and respected lion and other wildlife dispersal areas in	(i) Number of collaborative research projects in the KAZA TFCA (ii) Research and Monitoring results	MET, KAZA, Angola, Botswana and Zambia	500,000

		place ensuring unhindered movement of lion and other wildlife between and across international boundaries	demonstrating connectivity between regional lion populations		
	6.3. Where possible, promote compatible land uses on both sides of national boundaries through existing transboundary conservation programmes	Land uses incompatible with lion conservation across national boundaries are reduced over time, creating viable environment for lion dispersal without negative outcomes for both lion and human activities.	(i) Studies conducted to assess level incompatible land uses across international boundaries (ii) Stable or decline in incompatible land uses	MET, Traditional Authorities, KAZA, Angola, Botswana and Zambia	500,000

5. Implementation and revision of the Strategy

The Lion Conservation Strategy is structured so that the activities identified that will contribute to the achievement of the strategic objectives, can be used more effectively in the development of annual action plans and work plans by MET, private partners, conservancies and NGOs. It is intended that the strategy would provide the main foundation for an annual planning cycle, which in the process of implementation of annual action plans will provide input and lessons learnt for revision of the strategy after five years.

Within MET this process will be guided through the Large Carnivore Advisory Group (LCTAG) and MET will give input to the stakeholder meetings of private sector through stakeholder meetings like the Large Carnivore Management Association (LCMAN) of Namibia.

The strategy will be revised after 5 years or earlier should the need arise due to unforeseen circumstances. This will be determined through a mid-term review after two years.

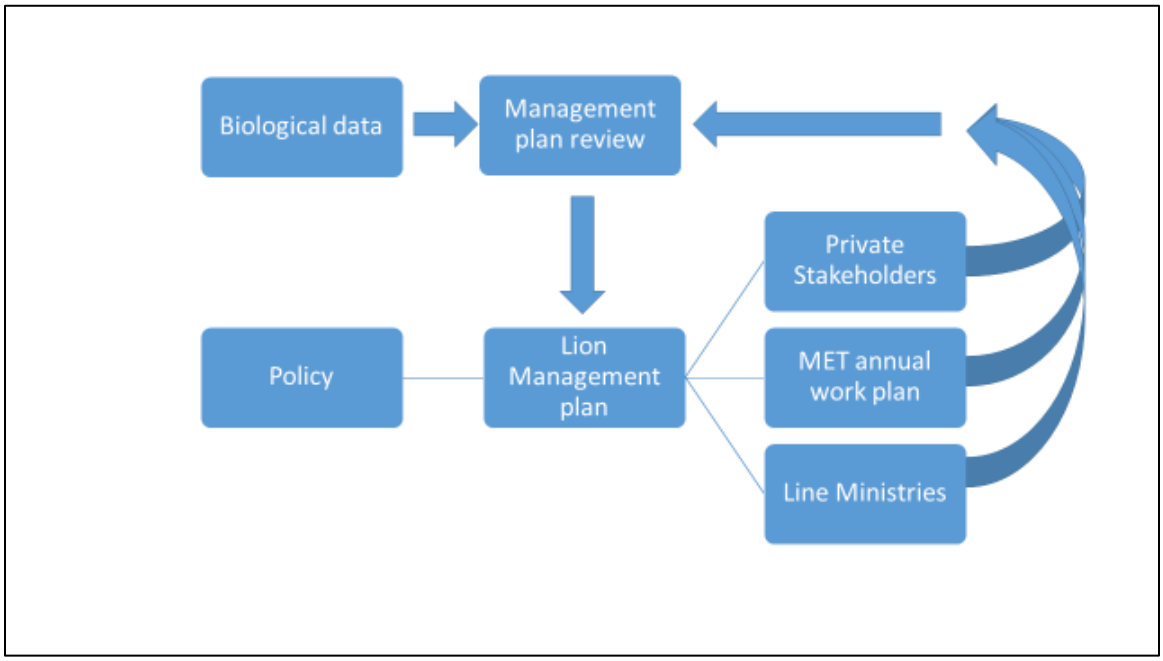

Fig. 2 *Flow diagram showing the implementation and review process*

6. List of sources consulted

Chardonnet, P. (Ed.). (2002). *Conservation of the African Lion: Contribution to a Status Survey*. France: International Foundation for the Conservation of Wildlife, USA: Conservation Force.

Bauer, H., Packer, C., Funston, P, F., Henschel, P & Nowell, K. (2016). Panthera leo. The IUCN Red List of Threatened Species 2016:e.T15951A7162455.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Dloniak, S.M., Packer, C., (2016), Reply to Riggio et al.: Ongoing lion declines across most of Africa warrant urgent action. Proceedings of the National Academy of Sciences 113, E109.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Packer, C., (2015), Lion (Panthera leo) populations are declining rapidly across Africa, except in intensively managed areas. Proceedings of the National Academy of Sciences 112, 14894-14899.

Bauer, H. & Van Der Merwe, S. (2004). Inventory of free-ranging lions (*Panthera leo*) in Africa. *Oryx* 38: 26-31.

Dubach, J.M., Briggs, M.B., White, P.A., Ament, B.A., Patterson, B.D., (2013), Genetic perspectives on "Lion Conservation Units" in Eastern and Southern Africa. Conservation Genetics 14, 741-755.

Elliot, J.P. & Cowan, I. Mc T. (1978). Territoriality, density and prey of the lion in Ngorongoro Crater, Tanzania. *Canadian Journal of Zoology* 56: 1726-1734.

Funston, P.J. (2011). Population characteristics of lions (*Panthera leo*) in the Kgalagadi Transfrontier Park. *South African Journal of Wildlife Research* 41: 1-12.

Hopcraft, J. G. C., Sinclair, A. R. E. & Packer, C. (2005). Planning for success: Serengeti lions seek prey accessibility rather than abundance. *Journal of Animal Ecology* 74: 559–566.

Keet, D.F., Davies-Mostert, H., Bengis, R.G., Funston, P., Buss, P., *et al*. (Eds.). (2009). *Lion (Panthera leo) Bovine tuberculosis disease risk assessment* (Workshop report). Skukuza, South Africa: Conservation Breeding Specialist Group (CBSG SSC / IUCN), CBSG Southern Africa, Endangered Wildlife Trust.

Kilian, P.J. & Bothma, J. Du P. (2003). Notes on the social dynamics and behaviour of reintroduced wild lions in the Welgevonden Private Game Reserve. *South African Journal of Wildlife Research* 33: 119-124

Miller, S.M. & Funston, P.J. (2014). Population growth rates of lions (*Panthera leo*) on small fenced reserves in South Africa: a management dilemma. *South African Journal of Wildlife Research* 44: 43-55.

Minin, E.D., Leader-williams, N., Bradshaw, C.J.A., (2016), Banning Trophy Hunting Will Exacerbate Biodiversity loss. Trends in Ecology & Evolution 31, 4.

Nowell, K. & Jackson, P. (1996). Status Survey and Conservation Action Plan Wild Cats. IUCN, Gland, Switzerland.

Owen-Smith, N. (2008). Changing vulnerability to predation related to season and sex in an African ungulate assemblage. *Oikos* 117: 602-610.

Packer, C., Scheel, D. & Pusey, A. E. (1990). Why lions from groups: food is not enough. American Naturalist 136: 1–19.

Packer, C., Herbst, L., Pusey, A. E., Bygott, J. D., Hanby, J. P., Cairns, S. J. & Borgerhoff-Mulder, M. (1988). Reproductive success in lions. In: Reproductive Success (Ed. by T. H. Clutton-Brock), pp. 363–383. Chicago: University of Chicago Press.

Packer, C., Pusey, A.E., Rowley, H., Gilbert, D.A., Martenson, J. & O'Brian, S.J. (1991). Case study of a population bottleneck: lions of the Ngorongoro crater. Conservation Biology 5: 219–230.

Packer, C., Gilbert, A., Pusey, A.E. & O'Brien, S. J. (1991). A molecular genetic analysis of kinship and cooperation in African lions. *Nature* 351: 562–565.

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Dickman, A., Funston, P., Henschel, P., de Iongh, H., Lichtenfeld, L., Packer, C. and Pimm, S. (2013). The size of savannah Africa: a lion's view. *Biodiversity and Conservation* 22(1): 17-35

Riggio, J., Caro, T., Dollar, L., Durant, S.M., Jacobson, A.P., Kiffner, C., Pimm, S.L., van Aarde, R.J., (2016), Lion populations may be declining in Africa but not as Bauer et al. suggest. Proceedings of the National Academy of Sciences 113, E107-E108.

Schaller, G.B. (1972). The Serengeti Lion: A Study of Predator Prey Relations. University of Chicago Press, Chicago.

Stander, P. E. (1992). Cooperative hunting in lions: the role of the individual. *Behavioral Ecology and Sociobiology* 29: 445–454.

Stander, P. (2007). Behaviour-ecology and Conservation of desert-adapted Lions. *2007 Progress Report of the Kunene Lion Project. Desert Lions Conservation. Namibia*, 17.

Sunquist, M., and F. Sunquist. 2002. Wild Cats of the World. University of Chicago Press, Chicago and London

Trinkel, M., Angelici, F.M., 2016, The Decline in the Lion Population in Africa and Possible Mitigation Measures, In: Angelici, M.F. (Ed.) Problematic Wildlife: A Cross-Disciplinary Approach. Springer International Publishing, Cham, pp. 45-68.

Vedder, H. 1938. South West Africa in Early Times. Thomas Nelson Printers Ltd. London & Edinburgh

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

HUMAN-LION CONFLICT MANAGEMENT PLAN FOR NORTH WEST NAMIBIA

July 2017

FOREWORD

Managing Human-Lion Conflict in the arid environment of the Kunene Region is complex. Sporadic and variable rainfall patterns, typical of arid environments, result in large overlapping home ranges amongst the lions that often clash with local farmers in search of suitable grazing for their livestock. Lions are important to the growing tourism industry and there is an urgent need to manage Human-Lion Conflict in the region.

Long-term data collected on the ecology of the lion population provide a sound basis to develop and implement a management strategy to address the conflict. The Human-Lion Conflict Management Plan is subject to the National Policy on Human-Wildlife Conflict Management and relies on full collaboration by the various stakeholders under the guidance of the Ministry of Environment and Tourism.

Malan Lindeque
PERMANENT SECRETARY

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ABBREVIATIONS

CBNRM	Community-based Natural Resource Management
DECP	Desert Elephant Conservation Project
DLCT	Desert Lion Conservation Trust
DWNP	Directorate of Wildlife and National Parks
DSS	Directorate of Scientific Services
GPTF	Game Products Trust Fund
IRDNC	Integrated Rural Development and Nature Conservation
HWC	Human-Wildlife conflict
HLC	Human-Lion conflict
KRCCA	Kunene Region Communal Conservancy Association
MET	Ministry of Environment and Tourism
MLR	Ministry of Land Reform
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
PH	Professional Hunter
UNAM	University of Namibia

GLOSSARY

For the purposes of this management plan, the words or phrases set out below have the following meanings:

Authorized staff member	Regional heads of the Ministry authorized by the Minister to carry such duties, functions and responsibilities.
Capacity building	Transfer of knowledge, information, skills and understanding.
Conservancy	Communal area conservancy Gazetted in terms of the Nature Conservation Amendment Act (No.5 of 1996).
Culling	Lethal removal of wild animals to reduce their numbers.
Director	Director of Wildlife and National Parks
Human-Wildlife Conflict	Any event in which wild animals harm, destroy or damage human life or property (including damage to or destruction of crops), or in which wild animals are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Human-Lion Conflict	Any event in which lions harm or destroy human life or their domestic livestock, or in which wild lions are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Government	Government of the Republic of Namibia.
Ministry	The Ministry of Environment and Tourism.

Problem-causing animal	An identified individual wild animal that at any point in time harms, destroys or damages human life or property.
Professional Hunter	A professional hunter approved by MET.
Protected Area	Formal protected area proclaimed in the Government Gazette according to legislation.
Staff member	Person appointed in terms of the Public Service Act (13 of 1995).
Stakeholder	Any individual, group of individuals, organization or government department or agency that is affected by HWC or is involved in research on HWC or implementation of measures to mitigate HWC.
Wild animal	Any wild animal that is included in Schedules 3, 4 and 5 of the Nature Conservation Ordinance (Ordinance 4 of 1975, as amended) or any similar schedules contained in legislation that replaces the Ordinance.

1. INTRODUCTION

Addressing Human-Wildlife Conflict requires striking a balance between conservation priorities and the needs of people who live with wildlife. Most Namibians depend on the land for their subsistence. But the presence of many species of large mammals, combined with settlement patterns of people, leads to conflict between people and wildlife. It is therefore necessary that mechanisms are created for rural communities and farmers to manage and benefit from wildlife and other natural resources.

A variety of approaches can be implemented in order to manage the conflict efficiently and effectively, and that are in line with the strategies set out in the policy. These include prevention strategies which endeavour to avoid the conflict occurring in the first place and take action towards addressing its root causes, and protection strategies that are implemented when the conflict is certain to happen or has already occurred, as well as mitigation strategies that attempt to reduce the level of impact and lessen the problem.

2. BACKGROUND

Successful conservation efforts and the growth of communal conservancies in the North West of Namibia during the past 20 years have resulted in an increase of wildlife populations.

Along the borders of the Skeleton Coast Park a small population of lions survives in extreme desert conditions. These lions exhibit unique adaptation to their environment and live in a harsh habitat of sand dunes, gravel plains and barren mountains, and occasionally forage along the beaches of the Skeleton Coast. This has resulted in the growth in tourism because nowhere else in the world can free-ranging lions be seen amongst sand dunes or on a beach. These lions should be viewed as a National asset to Namibia that needs to be managed wisely to the optimum benefit of the Namibian people.

However, the increase in wildlife numbers, has led to heightened conflict between lions and the local people. While income-generating enterprises such as tourism, trophy hunting and crafts have thrived at conservancy level; considerably less attention has been

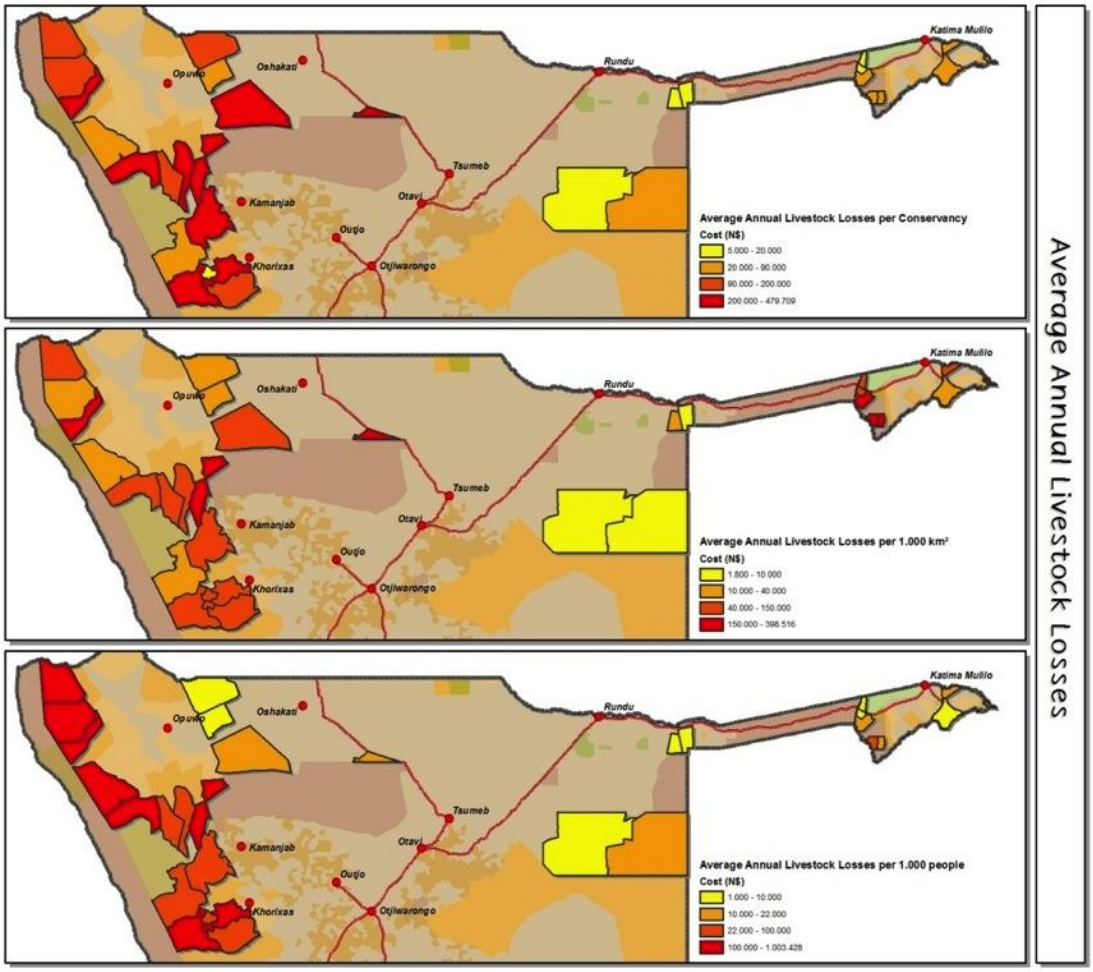
paid to reducing human-wildlife conflict. In most conservancies the costs experienced by conservancy members that suffer livestock losses from lions exceeds the selected income they earned from their respective conservancies. Table 1 shows the annual costs of livestock losses in some of the key conservancies across northern Namibia. Conservancies in the North West (NW) of Namibia suffer significantly higher losses when compared to conservancies across northern Namibia (Table 1).

Conservancies with the highest incidents of human-wildlife conflict are those on or near to national parks and tourism concession areas (Figure 1) with conservancies along the borders of Etosha National Park and Skeleton Coast Park, and around Palmwag concession areas suffering most livestock losses. Lions prey on domestic livestock, and farmers respond by shooting lions to protect their livelihood. Local communities have to bear the costs of living with lions but do not always share equally in the benefits. As a result, members of those conservancies are often least sympathetic to the presence of the park and are less inclined to support conservation practices. These attitudes can be turned around by providing communal farmers with information, support, management skills and infrastructure to protect livestock, as part of the implementation of conservancy and/or regional HWC management plans.

Table 1: The estimated costs of Human-Wildlife Conflict through livestock losses (N$) per conservancy and per 1,000 people for each conservancy.

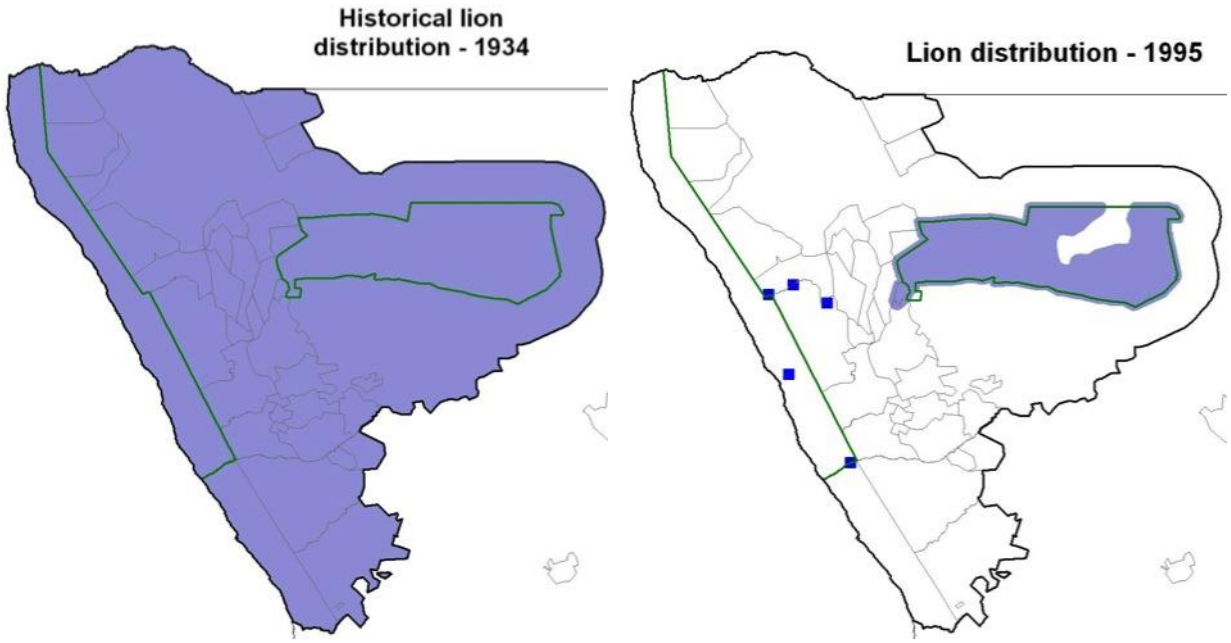
Average annual livestock losses per conservancy			Average annual livestock losses per 1,000 people per conservancy	
Conservancy	**Cost (N$)**		**Conservancy**	**Cost (N$)**
Muduva Nyangana	5,868		Uukwaluudhi	1,185
Mayuni	9,976		N=/a Jaqna	2,473
Uibasen Twyfelfontein	16,063		Muduva Nyangana	2,934
N=/a Jaqna	17,311		Uukolonkadhi/Ruacana	3,603
George Mukoya	18,044		Mayuni	4,157
Kwandu	18,484		Kwandu	4,299
Sikunga	22,445		Salambala	4,801
Impalila	27,873		George Mukoya	9,022
Uukwaluudhi	29,633		King Nehale	10,122
Salambala	36,968		Sikunga	11,223
Balyerwa	37,849		Sheya Uushona	13,566
Wuparo	40,196		Impalila	18,582
Nyae Nyae	48,998		Wuparo	19,141
Puros	50,508		Mashi	20,500
Mashi	79,952		Nyae Nyae	21,303
Torra	88,596		Balyerwa	25,232
Uukolonkadhi/Ruacana	90,074		Anabeb	45,126
Anabeb	90,252		Uibasen Twyfelfontein	69,840
Orupembe	100,636		Torra	73,830
Sorris Sorris	123,372		#Khoadi//hoas	74,261
Marienfluss	165,771		Omatendeka	85,673
King Nehale	202,446		Sorris Sorris	94,902
Doro !Nawas	207,000		Sesfontein	106,211
Omatendeka	214,182		Ehirovipuka	131,443
#Khoadi//hoas	237,636		Doro !Nawas	138,000
Sanitatas	250,857		Puros	194,262
Sesfontein	265,527		Orupembe	251,591
Ehirovipuka	328,608		Marienfluss	552,570
Sheya Uushona	479,709		Sanitatas	1,003,428

Figure 1. Livestock losses recorded in conservancies across northern Namibia.



Historically lions occurred throughout the Kunene Region, but with autocratic political structures, land reform (such as the Odendaal Commission in 1970) and the growth of agriculture post 1970, the population declined dramatically (Figure 2). Lions that inhabited the Skeleton Coast Park and the bordering arid habitat of the northern Namib Desert were all but wiped out leaving only the Etosha population.

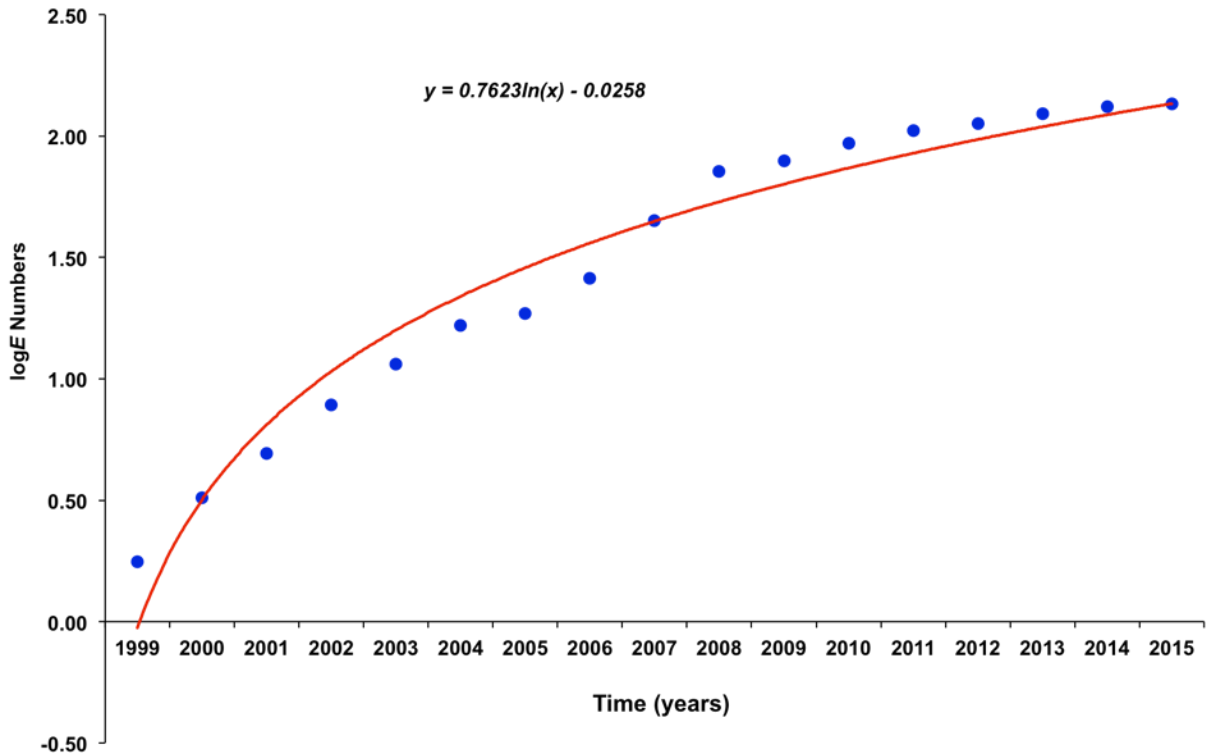
Figure 2. Historical distribution of lions in the North West of Namibia (1934 – 1995).



Following the independence of Namibia in 1990 that led to the establishment of communal conservancies, the development of CBNRM programmes, and the rapid growth of tourism, as well as above average rainfall in the region the few surviving desert-adapted lions increased and expanded to parts of its former range (Figure 4).

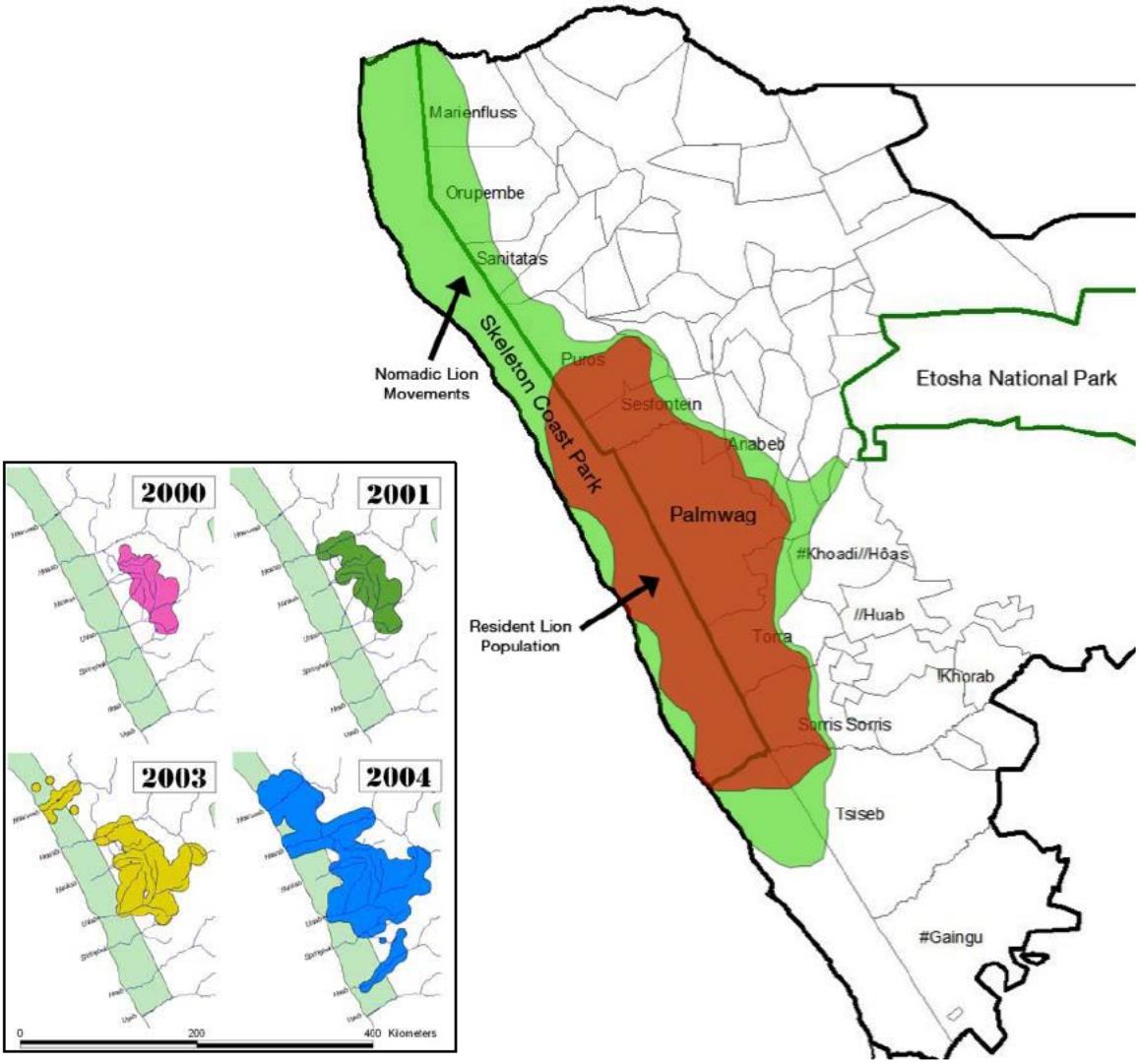
The lions have been the subject of intensive long-term research and monitoring since 1998. During this period the population displayed a positive growth rate (Figure 3) and the number of lions increased from approximately 20 individuals in 2000 to an estimated 180 in 2015.

Figure 3. Growth rate of the desert-adapted lion population between 1999 and 2015.



Lions may occasionally still move between Etosha and the arid areas bordering the Skeleton Coast Park, but the increase in livestock farming east of the Grootberg escarpment has essentially created an effective barrier. The lions inhabiting the Skeleton Coast Park and bordering areas exhibit unique adaptation to the arid environment and are treated as a separate sub-population, referred to as the "Desert" population. Between 1999 and 2015 the "Desert" lion population expanded from the core area northwest of Palmwag to occupy ephemeral river systems and suitable habitats between the Hoaruseb and Ugab Rivers (Figure 4).

Figure 4. The distribution of desert-adapted lions in the North West of Namibia in 2015 with indications of the recorded expansion between 2000 and 2004.



The “Desert” lion sub-population is important to the conservation of the species in Namibia. Their range (Figure 4) contributes to 51% of the total area inhabited by lions in Namibia, but only 16% of this range falls inside a protected area. Nevertheless, the conservation prospects are favourable, since the area has a rapid-growing tourism industry and forms the hub of CBNRM and Communal Conservancy programmes.

3. RATIONALE

In 2009, Cabinet approved the National Policy on Human Wildlife Conflict Management. The Policy provided a framework for addressing human-wildlife conflict efficiently and effectively in order to promote both biodiversity conservation as well as human development.

Due to human population growth, wildlife population growth, unplanned agricultural activities, and the expansion of agricultural and industrial activities, which together have led to increased human encroachment on previously wild and uninhabited areas the incidents of human-wildlife conflict have increased. With the current challenges and new innovative ideas on how to address the conflict, the National Policy on Human Wildlife Conflict Policy has been reviewed. The new policy is more focused and specific on affected areas and the specific conflict that should be addressed. The policy also contains an implementation plan that outlines the required human and financial resources requirements to deal with the problem. This human-lion conflict management plan contributes to the revised National Policy on Human Wildlife Conflict Management.

4. ALIGNMENT

The Human-Lion Conflict Management Plan is aligned with both the National Policy on Human Wildlife Conflict Management and the Lion Conservation Strategy (Draft). The legislative basis for control of problem causing animals, hunting and the rights on the utilisation of wildlife is currently covered by the Nature Conservation Ordinance 4 of 1975 as amended by the Nature Conservation Amendment Act (Act 5 of 1996).

5. PRINCIPLES

The Human-Lion Conflict Management Plan is based on a number of fundamental principles outlined in the National Policy on Human Wildlife Conflict Management.

6. POLICY DIRECTION

6.1 Vision

To manage human wildlife conflict in a way that recognizes the rights and development needs of local communities, recognizes the need to promote biodiversity conservation, promotes self-reliance and ensures that decision-making is quick, efficient and based on the best available information.

In order to achieve this, the Government will devolve decision-making to the lowest appropriate institutional levels, develop appropriate mitigation and monitoring methods and develop the capacity of all stakeholders to manage human wildlife conflict.

6.2 Mission

To provide a framework for addressing Human-Lion conflict efficiently and effectively in NW Namibia following the guidelines of the revised National Policy on Human Wildlife Conflict Management.

6.3 Goal

To provide measures and approaches to manage and reduce human lion conflict in NW Namibia according to the revised National Policy on Human Wildlife Conflict Management.

6.4 Objectives

The objectives of the Management Plan are:

6.4.2 To contribute to a standardised monitoring system for human-lion conflict Management.

6.4.3 To establish best practice mitigation measures for human-lion conflict management.

6.4.4 To develop innovative mechanisms to reduce the level of human-lion conflict.

6.4.5 To provide clarity on the question of compensation with regard to damages caused by wildlife, especially the lion.

6.5 Strategies

Human-Lion Conflict (HLC) is a multi-faceted problem. In order to address its impacts, a number of different strategies are required to address the following key issues:

- The economic impacts of HLC on local communities.

- The appropriate level of decision-making power for managing HLC, particularly in a case where an animal that persistently causes problems needs to be destroyed.

- Accurate information on the scale, the costs and impacts of conflict, and the success of mitigation methods and approaches.

- The skills of all stakeholders to manage HLC efficiently and effectively.

In order to address these key issues the Government has developed the following strategies:

6.5.1 Land use planning and livestock management structures

Understanding the patterns and extent of human-lion conflict experienced by communities farming with livestock in NW Namibia is important to the development of effective management options. Data collected by conservancies through the Event Book procedures and other monitoring systems provide valuable information. Between 2003 and 2015 the five conservancies that share their land with the Desert lion population recorded 5,863 incidents of livestock attacks caused by lions and other carnivores. On average 451 incidents were recorded per year (range: 205 in 2003 to 713 in 2013) with Sesfontein Conservancy recording the highest number of attacks (N = 2293) followed by Anabeb (N = 1393), Torra (N = 1303) and Purros Conservancies (N = 873). The pattern and frequency of livestock attacks varied between years and between conservancies (Figure 5).

Between 2005 and 2015 a total of 343 incidents of human-lion conflict were recorded by the five conservancies at an average of 32 incidents per year (range: 15 in 2011 to 54 in 2015). Torra Conservancy recorded the highest number of incidents (N = 121) followed by Purros (N = 85), Sesfontein (N = 77) and Anabeb Conservancies (N = 60). Although Torra Conservancy recorded a dramatic increase between 2011 and 2015, the pattern and frequency of human-lion conflict incidents between years and between conservancies appears to be random (Figure 6).

A total of 37 lions were destroyed between 2005 and 2015 (Figure 7). Torra Conservancy reported the highest number of lions destroyed during human-lion conflict (N = 18) followed by Sesfontein (N = 9), Anabeb (N = 7) and Purros Conservancies (N = 3). There was no statistical relationship between the recorded incidents of human-lion conflict and the number of lions destroyed. However, the number of lions destroyed increased dramatically between 2013 and 2015 when 27 of the 37 lions (73 %) were killed. During the same period the five conservancies only recorded 36 % of the total recorded human-lion incidents and 26 % of the recorded attacks on livestock.

Figure 5. Number of livestock damage incidents caused by lions and other carnivores per year between 2003 and 2015 as recorded by five conservancies.

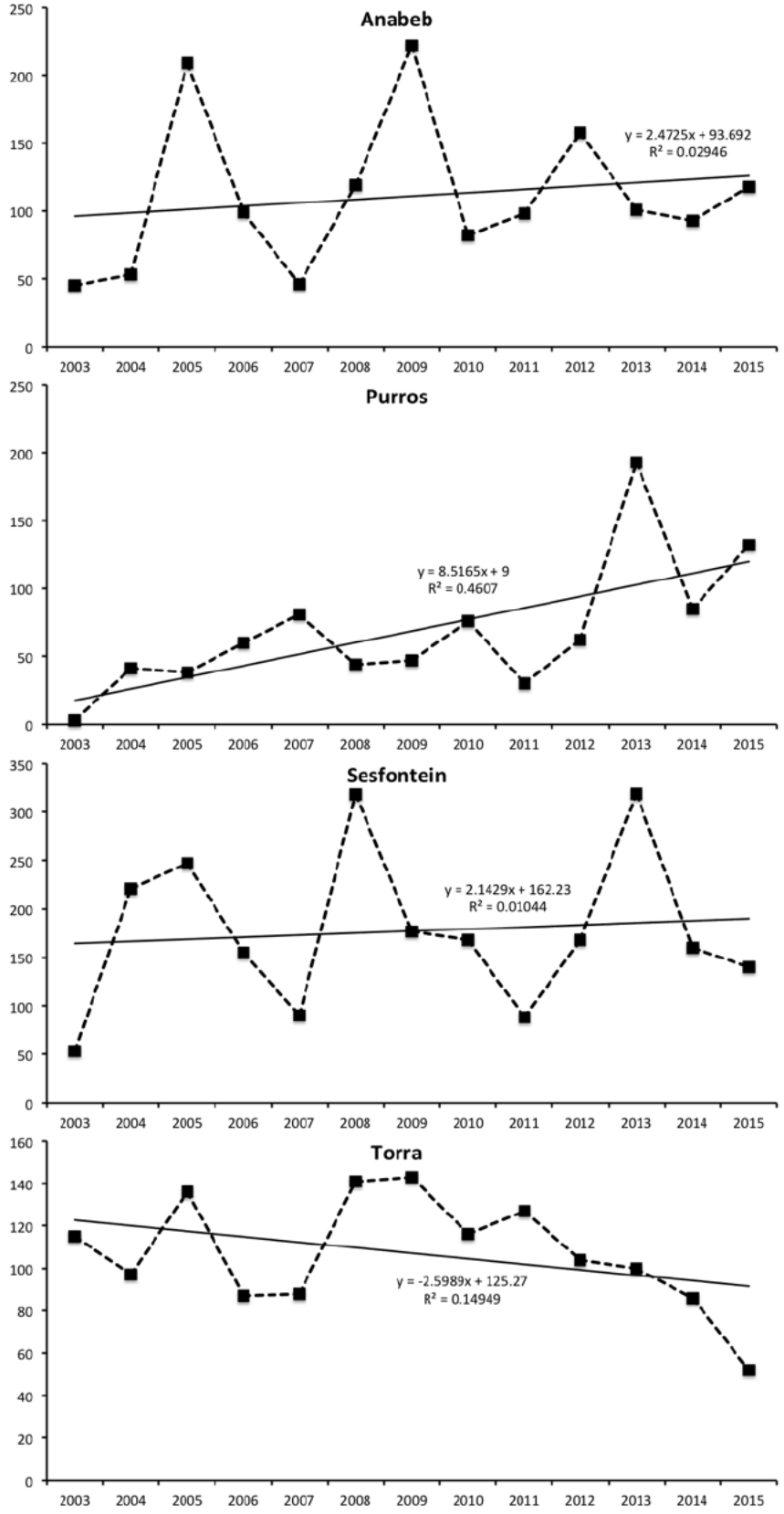
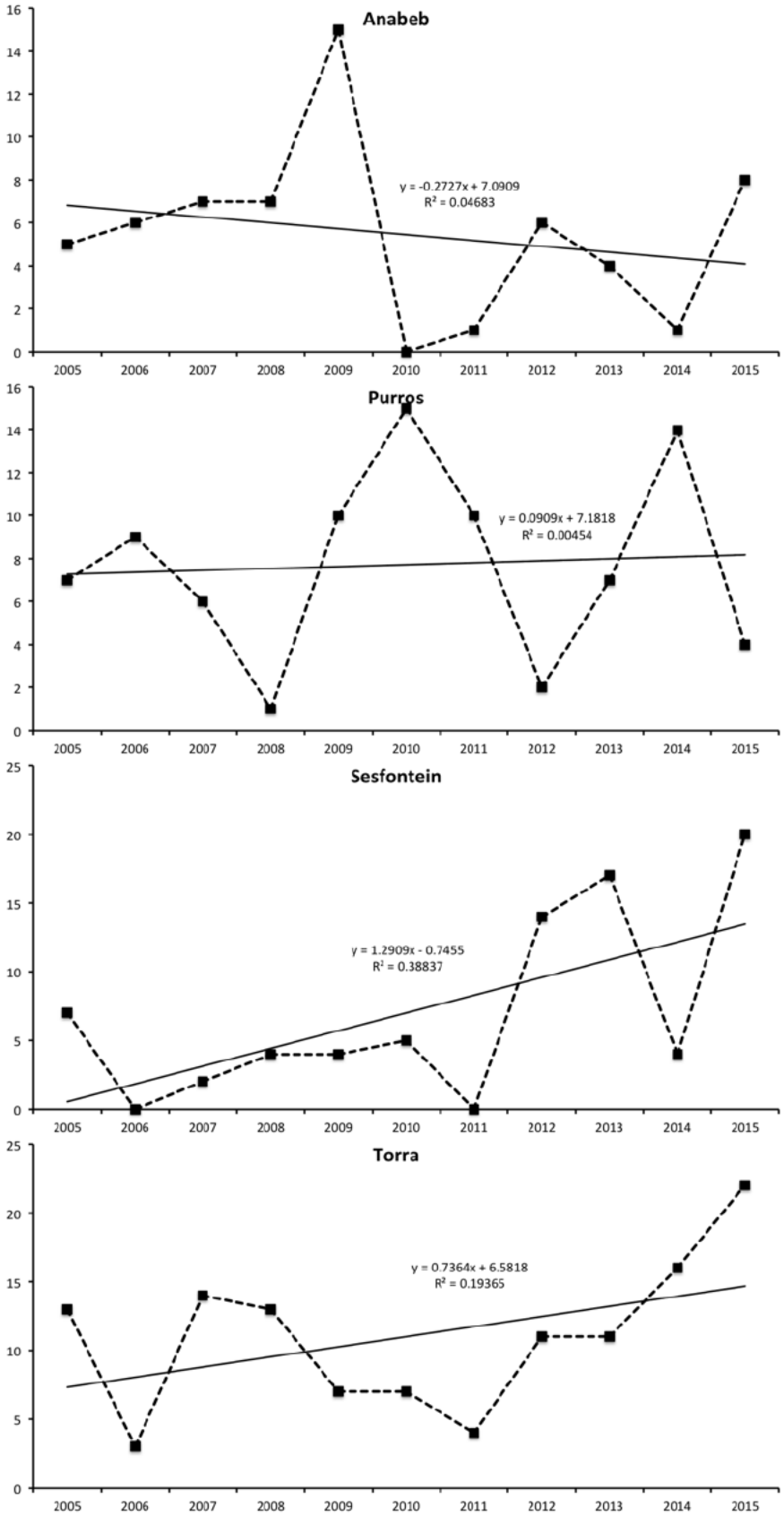


Figure 6. Number of human-lion conflict incidents per year between 2003 and 2015 as recorded by five conservancies.



6.5.2 Aspects of lion demography & behaviour ecology relevant to HLC

A sound understanding of the population dynamics, demography and behaviour ecology of the Desert lion population is essential to the process of conserving the species and managing human-lion conflict. This can only be achieved through the systematic collection of long-term data on the key aspects of their ecology. These include habitat utilisation, home ranges, movement patterns, hunting behaviour, activity patterns, group/pride structures and limiting factors.

6.5.2.1 Movements and habitat use

Over the past seven years (2008 – 2015) satellite and GPS radio-collars were fitted to 19 different lions that represent all the current prides in the population. In total 196,849 data points were recorded that contain accurate movement patterns and habitat utilisation of all the major prides/groups of lions that represent data over 43.5 lion-years (Table 2 & Figure 7).

Table 2. Sample sizes and status of 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	N^{-1} (points)	N^{-2} (nights)	Duration	Status
Hoanib Floodplain	Xpl-10,	♀	38,438	2,365	16.5 yrs	Dead***
	Xpl-55	♀				On-going**
Hoanib River	Xpl-47	♀	29,017	2,741	7.6 yrs	Dead
	Xpl-59	♀				On-going
Okongwe	Xpl-70	♀	11,298	1,142	2.8 yrs	Malfunction*
Orowau / Hunkap	Xpl-81	♂	9,226	1,169	3.4 yrs	On-going
	Xpl-53	♀	10,051	794	2.2 yrs	Malfunction
	Xpl-100	♀	861	164	8 mo	On-going
Uniab Delta	Xpl-45	♀	32,277	2,033	5.8 yrs	On-going
Barab / Obab	Xpl-54	♂	5,868	533	1.5 yrs	Malfunction
	Xpl-49	♀	30,253	1,447	4 yrs	Malfunction
Aub - Etendeka	Xpl-79	♂	420	210	7 mo	Dead
	Xpl-65	♀	3,281	402	1.1 yrs	Malfunction
	Xpl-94	♂	811	139	6 mo	On-going
Agab River	Xpl-50	♂	6,892	329	1 yr	Dead
	Xpl-36	♀	4,567	515	3.2 yrs	Dead

Huab River	Xpl-75	♀	8,998	1,338	3.9 yrs	On-going
Ugab River	Xpl-77	♂	2,799	247	9 mo	Dead
	Xpl-98	♂	1,792	305	11 mo	On-going
Totals			196,849	15,873	**or 43.5 Lion years**	

Key:
Dead*** = Lion was shot, trophy hunted or died of natural causes during the past year.
On-going** = Lion is alive and collecting of movement data continues.
Malfunction* = Satellite radio collar failed.

The distance that a lion moves per night is a function of home range size and habitat use. Accurate information on this is important to the conservation process and essential for the management of Human-Lion-Conflict. The home ranges of male lions are larger than those of females and on average the 19 lions moved 8.2 km per night (Table 6). Male lions, however, moved further per night (9.3 ± 1.2 km) than did lionesses (7.3 ± 0.9, t = 3.963, $P < 0.01$).

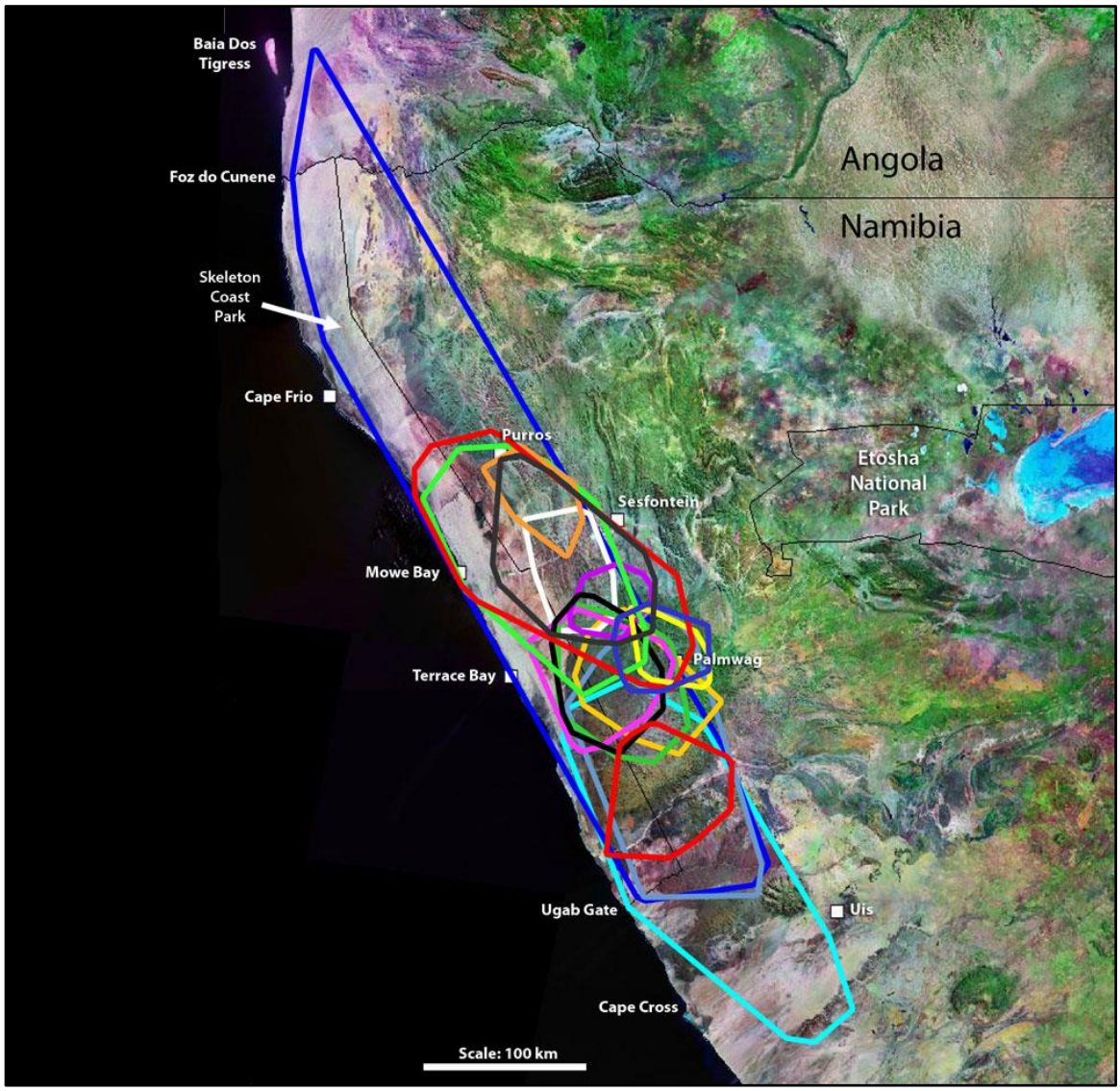
Table 6. Home range estimates (km^{-2}), using the Minimum Convex Polygon (MCP) technique, and distances moved by 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	Home Range MCP* (km^2)	Total distance moved (km)	Average distance moved per	Range of distance per night (km)
Floodplain	Xpl-10	♀	12,642	17,334	9.8	0 – 62.1
	Xpl-55	♀	2,550	11,410	9.5	0 – 36.4
Hoanib	Xpl-47	♀	2,471	14,136	7.9	0 – 36.3
	Xpl-59	♀				
Okongwe	Xpl-70	♀	1,668	4,922	6.1	0 –37.7
Orowau / Hunkap	Xpl-81	♂	6,405	11,437	11.4	0 – 52.0
	Xpl-53	♀	1,236	4,328	5.5	0 –22.8
	Xpl-100	♀	618	1,032	6.3	0 – 26.3
Uniab Delta	Xpl-45	♀	3,997	2,135	6.9	0 – 38.9
Barab / Obab	Xpl-54	♂	3,978	4,911	9.5	0 – 63.2
	Xpl-49	♀	4,161	13,219	7.9	0 – 40.1
Aub / Etendeka	Xpl-79	♂	1,923	1,115	7.7	0 – 27.7
	Xpl-65	♀	1,258	984	7.1	0 – 21.5
	Xpl-94	♂	915	1,329	9.6	0 – 24.8
Agab River	Xpl-50	♂	4,881	1,108	8.1	0 – 31.9
	Xpl-36	♀	3,882	3,454	6.9	0 – 32.0
Huab River	Xpl-75	♀	4,865	8,137	7.1	0 – 46.5

Ugab River	Xpl-77	♂	16,872	2,544	10.3	0 – 54.1
	Xpl-98	♂	3,878	2,517	8.3	0 – 30.8

The spatial and temporal patterns of movements and how lions utilise their home ranges are important parameters for all aspects of conservation, mitigation of human/lion conflict and tourism development. There are many different statistical methods to calculate home range sizes. Depending on the movement patterns of animals and the habitat, some methods are more suitable than others. In this analysis the home range size of lions marked with satellite radio collars were calculated using the universal Minimum Convex Polygon (MCP) method. In some cases Spider Distance techniques were used as an additional assessment of habitat use. The movement data from the 19 collared lions provide an essential base-line understanding of the demography of the population.

Figure 7. Layout of the areas utilised by 19 lions fitted with satellite radio collars in the northern Namib between 2008 and 2015.



Conflict between lions and people occur essentially all along the eastern edge of the distribution of the lion population. However, the long-term data collected on lion movements indicate that there are particular “hotspots” where incidents of Human-Lion-Conflict occur repeatedly over the years regardless of the individual lions. These “hotspots” coincide with reports of Human-Lion-Conflict recorded by the communities. Data are presented on lion movements in relation to these “hotspots” with a focus on the past three years due to heightened levels of Human-Lion-Conflict.

- *Torra Conservancy*

Human-lion conflict has been particularly problematic in parts of the Torra Conservancy due to an abundance of sub-adult lions that have dispersed from their natal prides. Data collected on the demography and movements of the established lion prides since 2008 provide a base-line understanding of habitat utilisation by these lions (see Figs. 6 – 10).

- *Aub / Etendeka Pride*

During the past three years the original Aub Pride have expanded extensively into the Etendeka and Klip River area. The adult male Xpl-79 that was fitted with a satellite collar was unfortunately shot and the collar destroyed (Figure 8). A young adult male (Xpl-94) from the Hunkap Pride moved into the area and was fitted with a new satellite collar (Figure 9). Unfortunately this lion was also shot a few months later and the collar was destroyed.

Figure 8. The home range area of Xpl-79 (male).

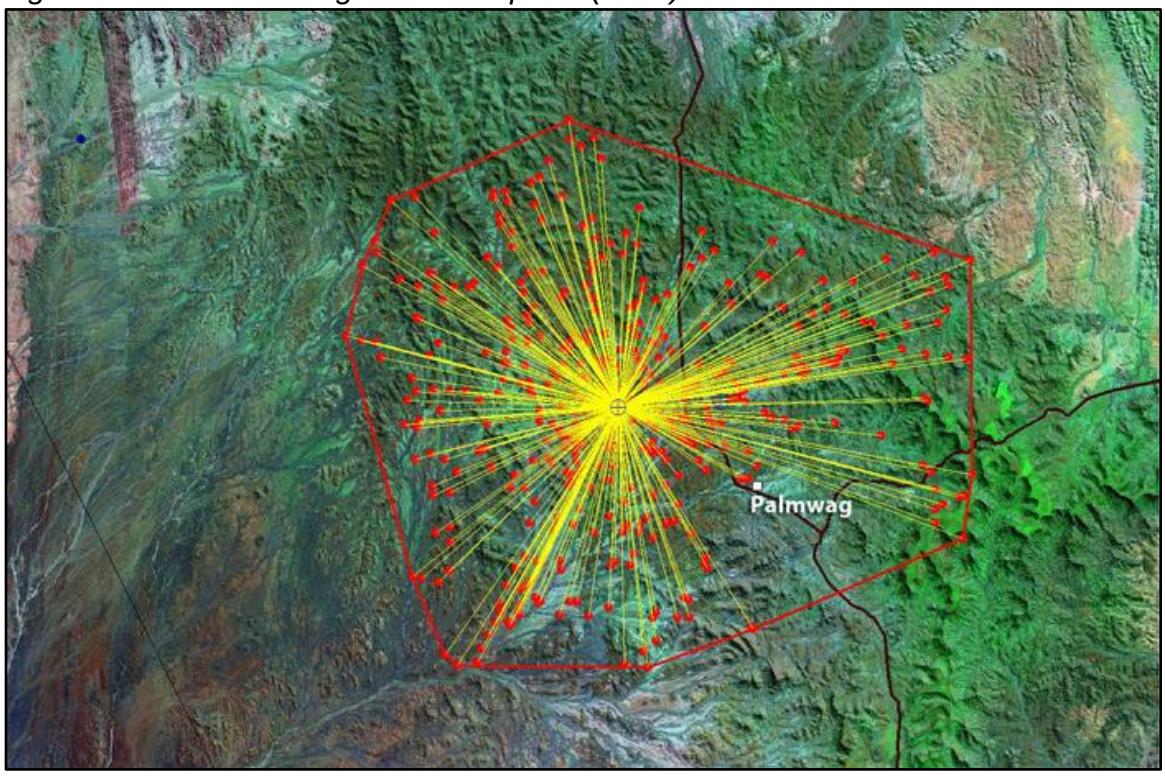
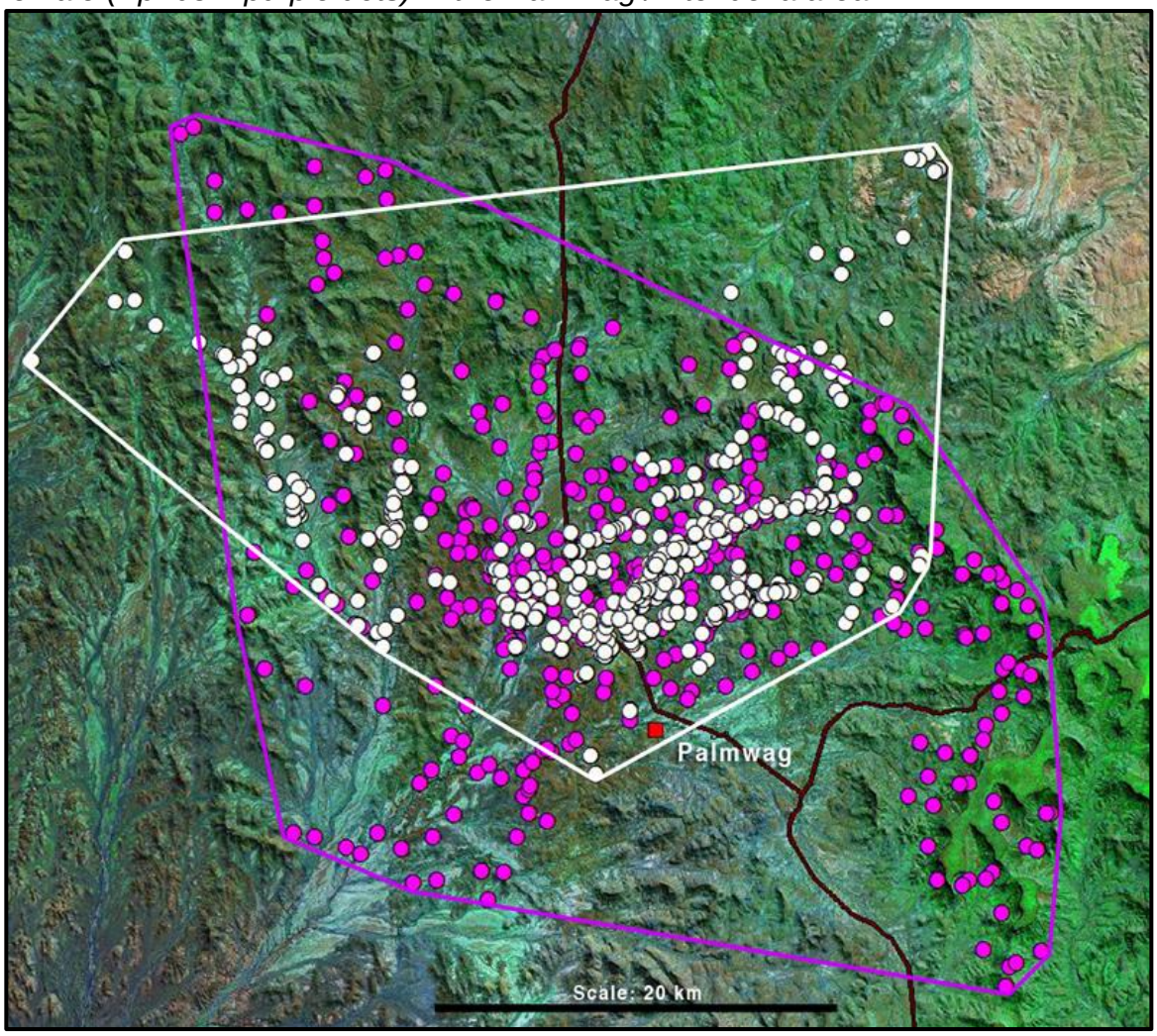


Figure 9. The home range area of an adult male (Xpl-94 – white dots) and an adult female (Xpl-65 – purple dots) in the Palmwag / Etendeka area.



- *Agab / Springbok River Pride*

The numbers of the Agab Pride increased substantially during the past two years and many of the sub-adult lions expanded to the Springbok River and into the Bergsig area. As a result the incidents of conflict with the local communities increased. After the pride male (Figure 10) and the Ugab male (Xpl-77) was shot whilst mating with Xpl-36 (Figure 11) the Pride spent more time between the Agab and Springbok Rivers. An adult male from the Obab Pride (Xpl-74) joined the lionesses.

Figure 10. The home range area of Xpl-50 (male).

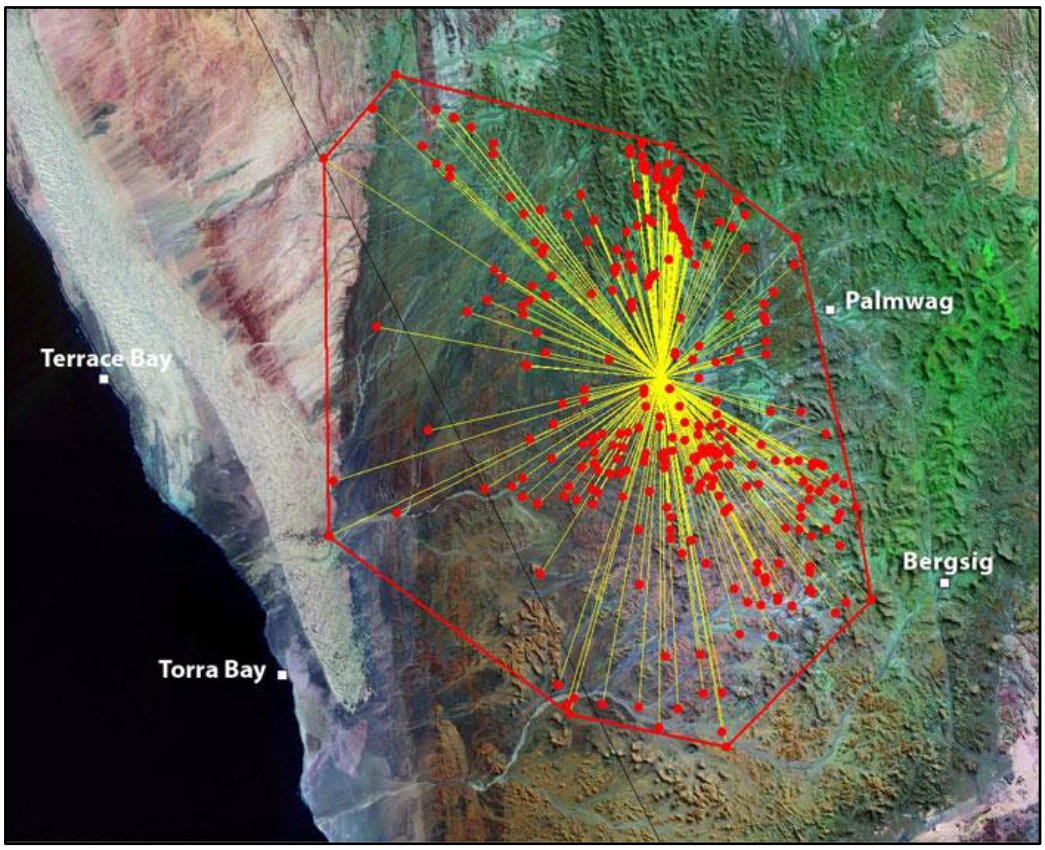
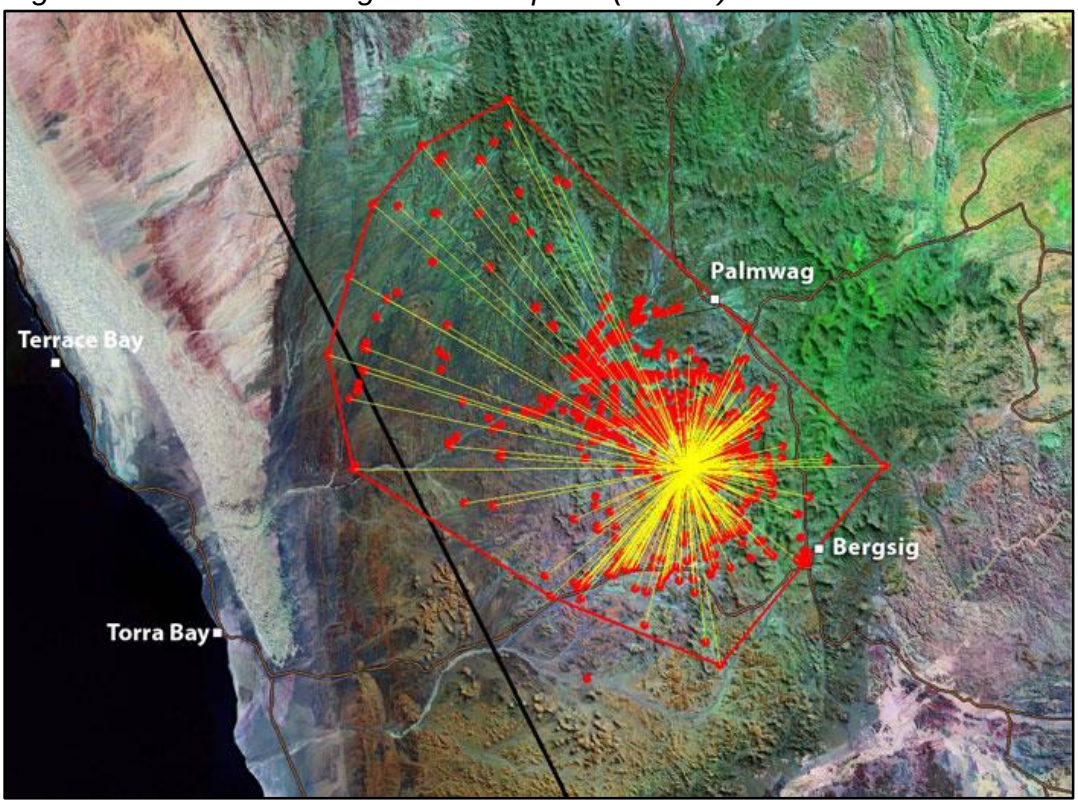


Figure 11. The home range area of Xpl-36 (female).



- *Huab Pride*

The Huab Pride expanded from 3 individuals (1 male Xpl-68 and two females Xpl-75 / Xpl-76) in 2012 to approximately 13 – 15 lions. Five sub-adults, from the first litter of Xpl-75 & Xpl-76 born early in 2012, dispersed and settled in the Ugab River. The home range of Xpl-75 expanded from 2013 (Figure 12) to a larger area that extended up to the Ugab River by the end of 2015 (Figure 13).

Figure 12. The home range area of Xpl-75 (female) up to the end of 2013.

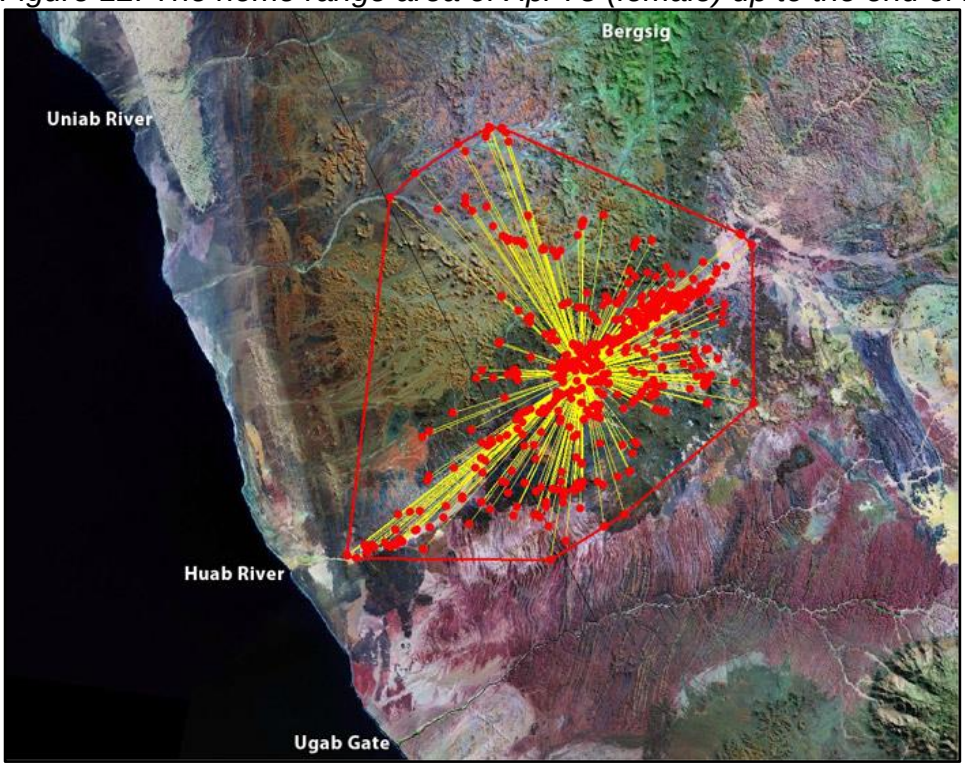
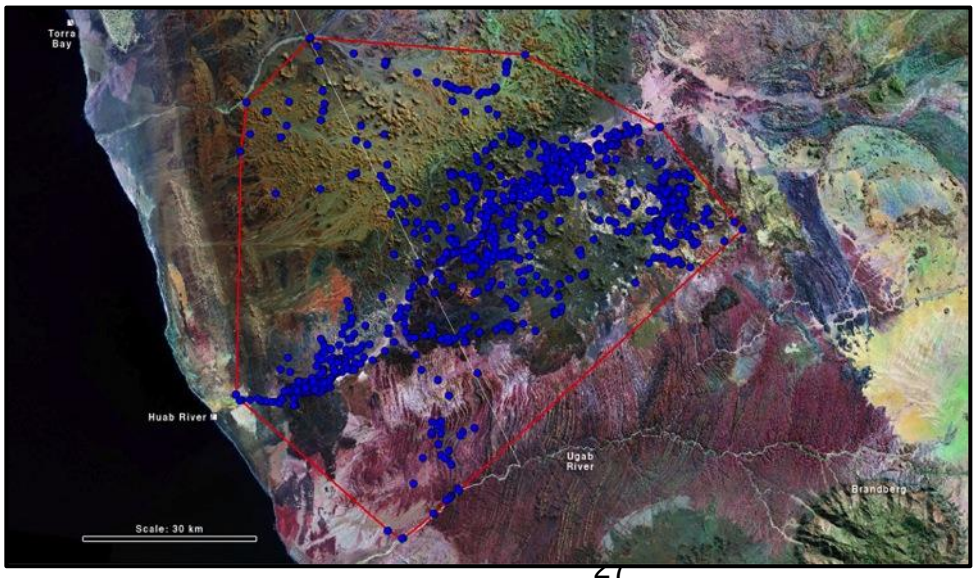


Figure 13. The home range area of Xpl-75 (female) up to the end of 2015.



- *Ugab Pride*

After the adult male (Xpl-77, Figure 14) was shot close to Bergsig on 27 Sep 2013, the Ugab River was vacant until five sub-adult lions from the Huab Pride dispersed and occupied the Ugab (Figure 15).

Figure 14. The home range area of Xpl-77 (male) up until September 2013.

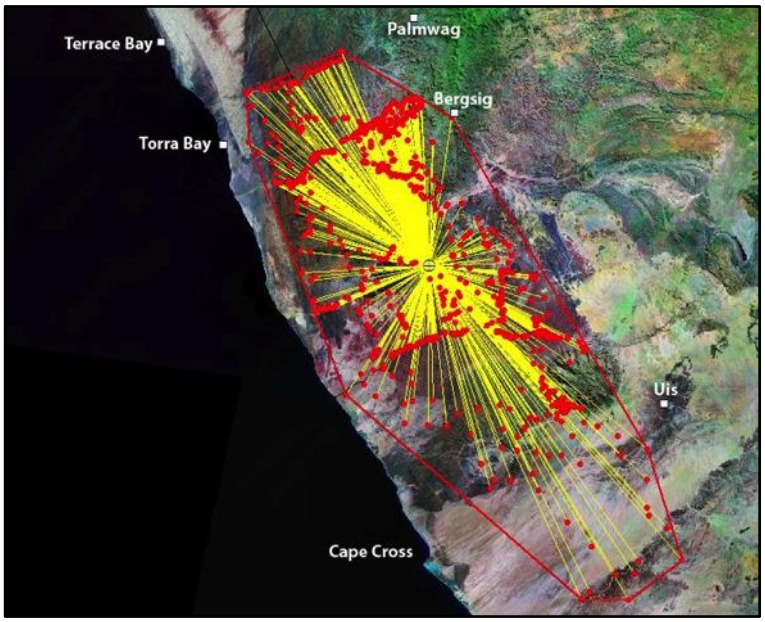
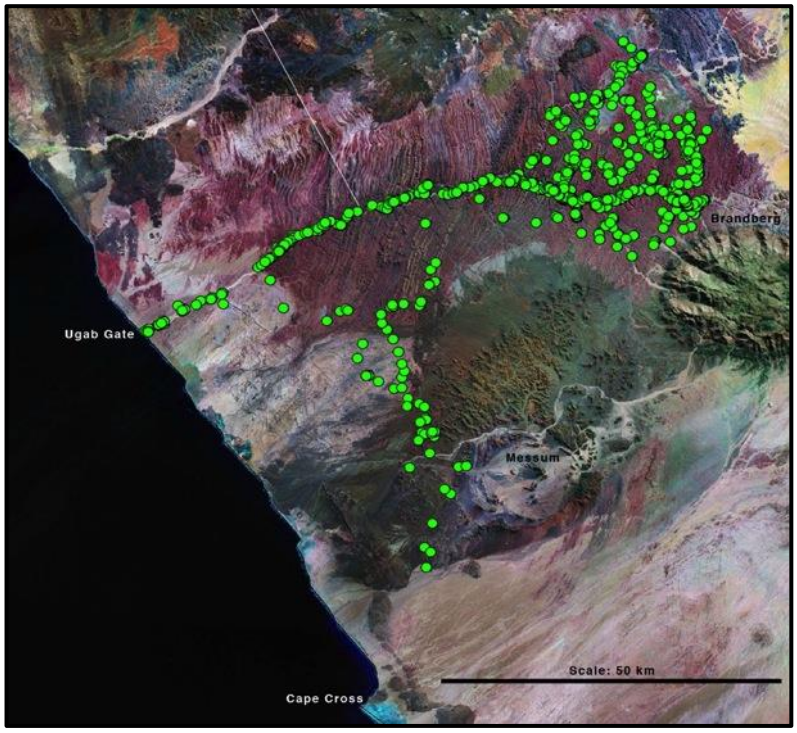


Figure 15. The current home range area of Xpl-98 (male).



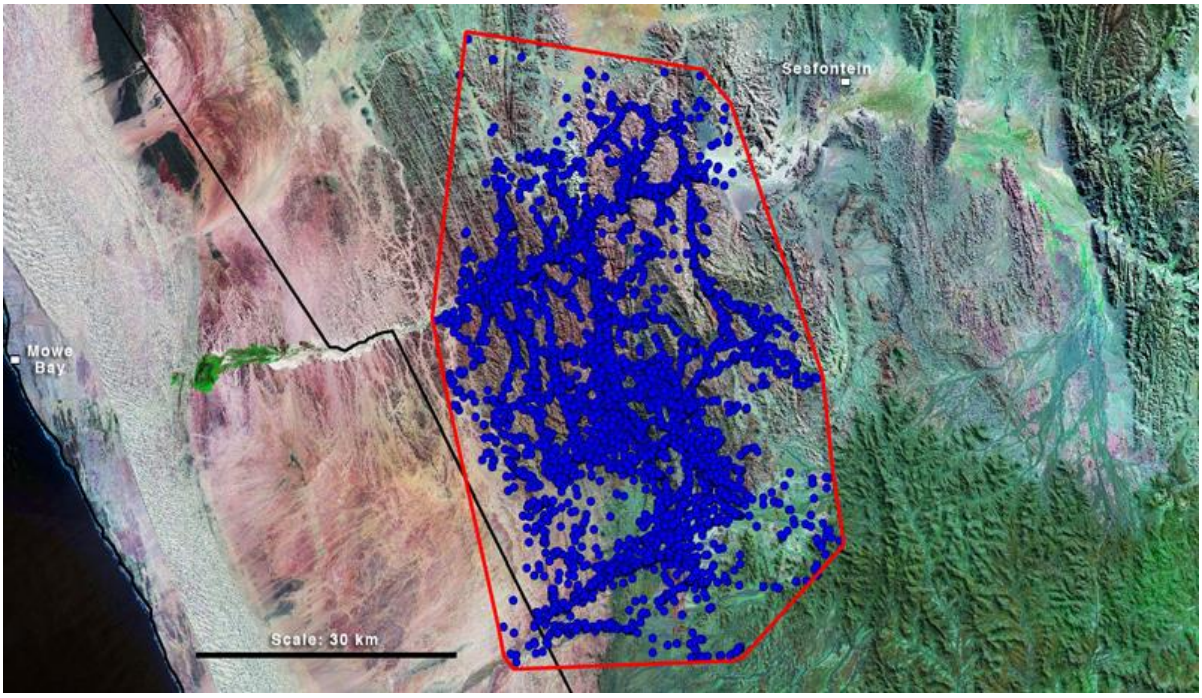
- Purros, Sesfontein & Anabeb Conservancies

The home ranges of desert-adapted lions are exceptionally large and there is extensive overlap between the home ranges of different prides. This is an important strategy in their adaptation to the harsh arid environment that is particularly relevant to understanding the frequency and patterns of Human-Lion-Conflict. The home ranges of lion prides in the northern section of the study area overlap with at least two, but sometimes with all three conservancies. As a result, each of these prides is generally responsible for incidents of Human-Lion-Conflict in two or all three conservancies over the course of a few years. More relevant to understanding and the managing Human-Lion-Conflict is the fact that lions from several different prides may be responsible for Human-Lion-Conflict at any one location over time.

- *Hoanib Pride*

The Hoanib Pride has occupied the Hoanib River between Elephant Song and Amp's Poort since 2006 (Figure 16). Their range extends up to the southern section of Okongwe and south to the Hunkap River. These lions have been responsible for Human-Lion-Conflict in both the Purros and Sesfontein Conservancies. The lioness Xpl-47 was fitted with a GPS collar in May 2008 and her movements were recorded until she was shot in the upper Obias River on 8 November 2015. A new satellite collar was fitted to the last surviving adult lioness (Xpl-59).

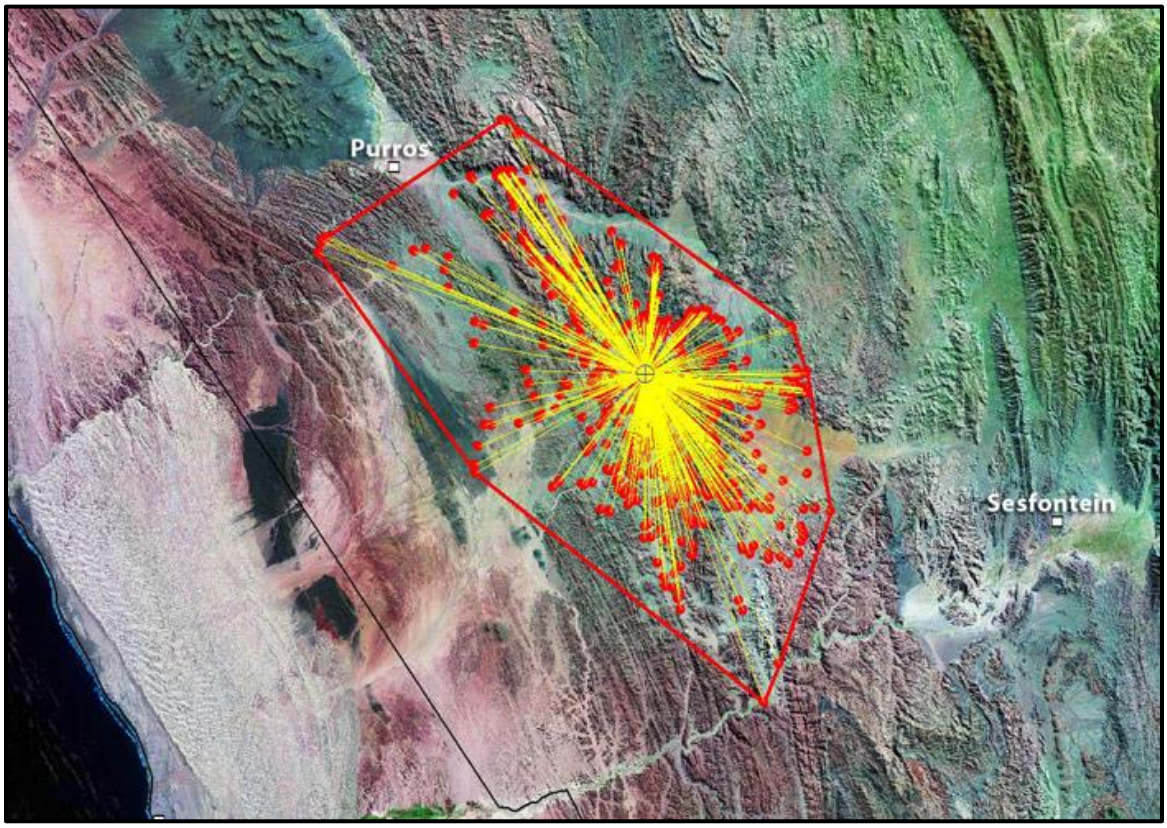
Figure 16. The home range area of Xpl-47 (female) until her death in November 2015.



- *Okongwe Pride*

Three lionesses dispersed from the Hoanib Pride in 2007 to form the Okongwe Pride. They were known as the “70s Lionesses” and occupied the mountainous terrain around Okongwe waterhole (Figure17). Conflict with local livestock farmers at Tomakas and along the Gamatum River in Purros Conservancy and at Ganamub and Elephant Song in the Sesfontein Conservancy has resulted in high mortality rates. At least 10 lions were shot or poisoned during the past three years. These included seven adult males (Xpl-56, Xpl-73, Xpl-68 “Terrace Male” & four of the “Five Musketeers”) and three adult females (Xpl-70, Xpl-72 & Xpl-96) that were fitted with satellite collars. The collars and all evidence of the lions were destroyed. The destruction of collars and other information by local communities undermines the process of managing and limiting Human-Lion-Conflict.

Figure 17. The home range area of Xpl-70 (female) of the Okongwe Pride.



- *Orowau / Hunkap Pride*

There are currently only two established adult pride males in the northern section of the population. The males (Xpl-81 & Xpl-87) are currently favouring the Orowau and Hunkap areas, but during the past two years they have regularly interacted with the Floodplain, Hoanib and Okongwe lionesses (Figure 18). The home range of Xpl-81 "Kebbel" indicates that there is extensive overlap with the five different groups of lionesses (Figs. 19 & 20). Both lionesses are responsible for Human-Lion-Conflict in Anabeb and Sesfontein Conservancies. The male lions have significantly larger home ranges and also cause Human-Lion-Conflict problems in the Purros Conservancy.

Figure 18. The home range area of the adult male Xpl-81 (red dots & polygon) in relation to the home ranges of five different groups of lionesses.

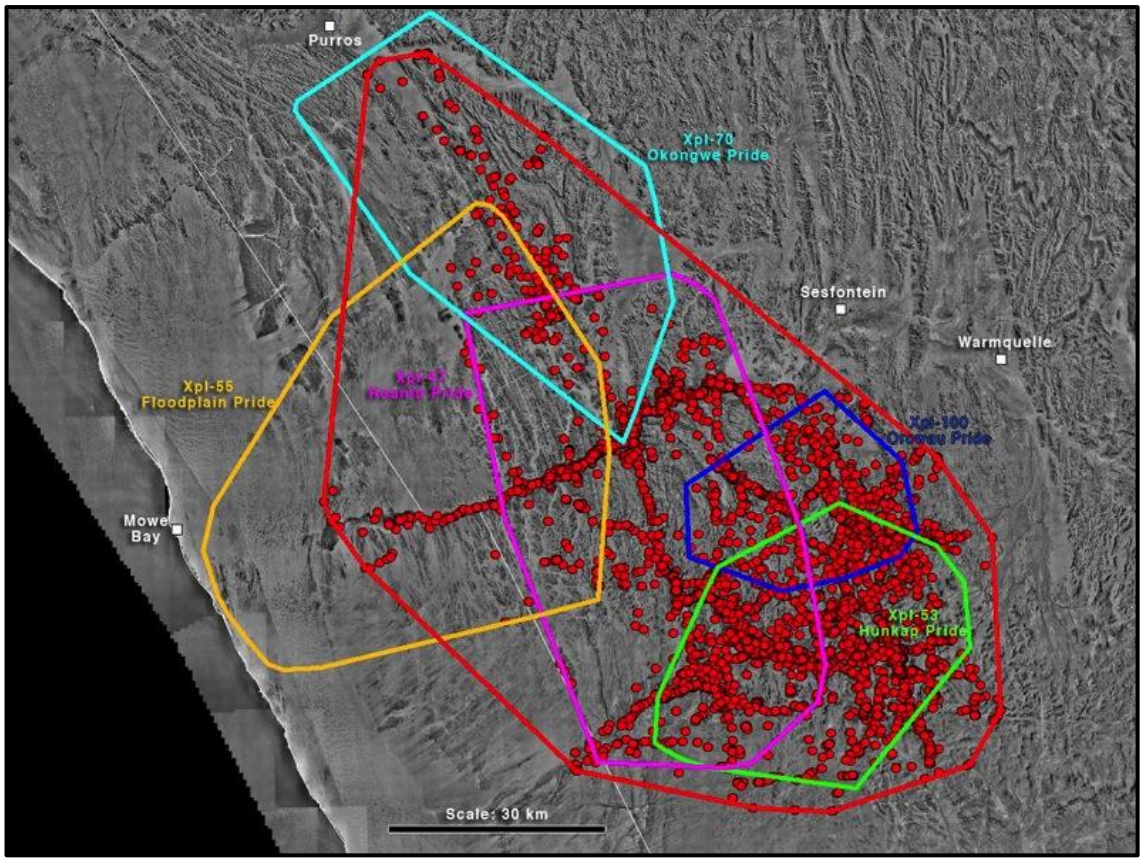


Figure 19. The home range area of Xpl-53 (female) of the Hunkap Pride.

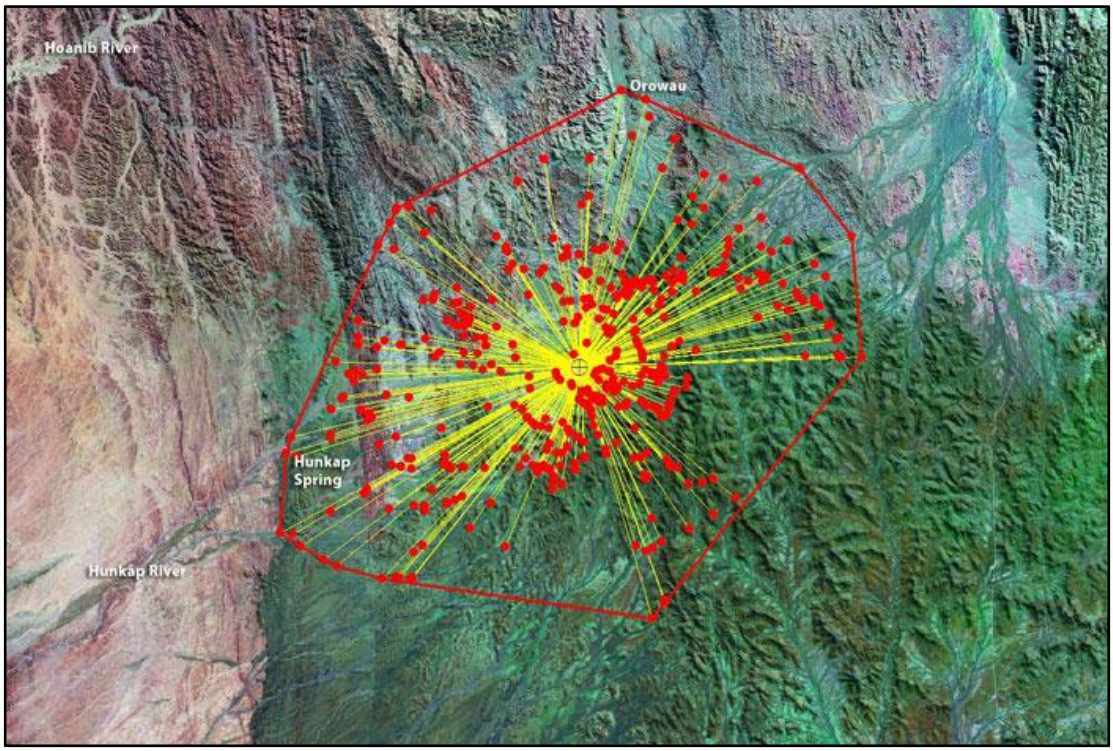
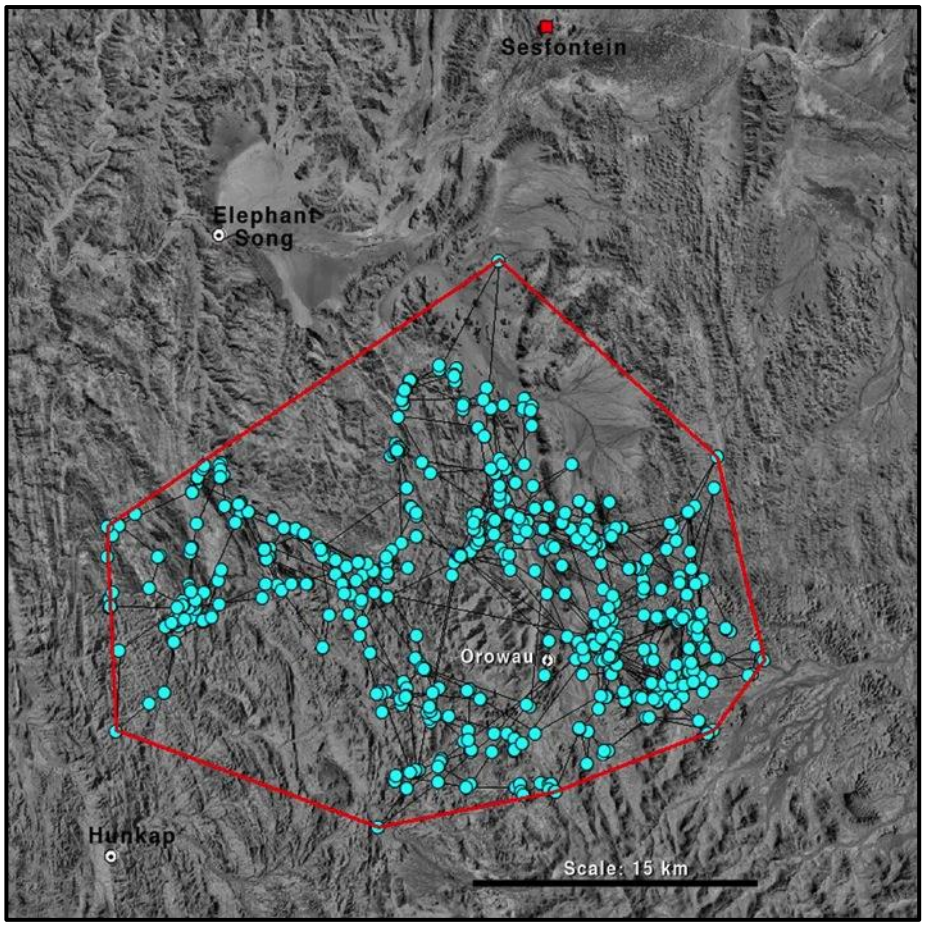


Figure 20. The home range area of Xpl-100 (female) of the Orowau Pride.



6.5.2.2 Understanding "Hotspots"

In order to survive in the harsh arid conditions these lion have developed particular skills and adapted behaviour. They have large overlapping home ranges and they move long distances of up 70 km per night. This is necessary because the sporadic and highly variable rainfall in the arid environment result in a heterogeneous and unpredictable distribution of prey animals. Detailed behavioural observations over the past 17 years suggest that the lions maintain and rely on a mental "map" (both spatial and temporal) of rich food patches. Rich food patches are areas where prey animals concentrate at certain times of the year, or after certain environmental conditions, and/or where the habitat (e.g. broken terrain or thick vegetation) result in higher hunting success. These rich food patches are therefore referred to as "hotspots" and lions regularly return to them to search for prey.

To demonstrate the significance of "hotspots", the movements and behaviour of the Uniab Delta Pride in relation to a "hotspot" are presented here.

The mouth of the Uniab River consists of a delta structure with numerous fresh water springs and thick reed beds that attract large numbers of Oryx, springboks and ostriches. Lions regularly visited the Uniab Delta before the population crash during the 1990s and the knowledge of the rich food source died with them. In December 2014 a sub-group of the Obab Pride discovered the Uniab Delta and feasted on the selection of prey that are vulnerable between the thick reeds and with strong coastal winds that aid their hunting success. The discovery of the rich food source resulted in the lions separating from their natal pride to form the Uniab Delta Pride (Figure 21). Between January and November 2015 the Uniab Delta Pride visited the mouth of the Uniab River on six occasions (Figure 22). On average they spent 23.3 days along the coastal habitat of the Uniab Delta (range: 7 – 60 days). In between these visits the four lionesses moved inland, up to 38.9 km from the mouth of the Uniab River, for an average of 20 days (range: 5 – 41 days, $N = 5$). When the lionesses were at the Uniab Delta they moved an average of 4.8 km/day, but when they moved inland their daily distances increased to 8.5 km/day.

Figure 21. The home range area of Xpl-45 (female) in relation to the Uniab Delta.

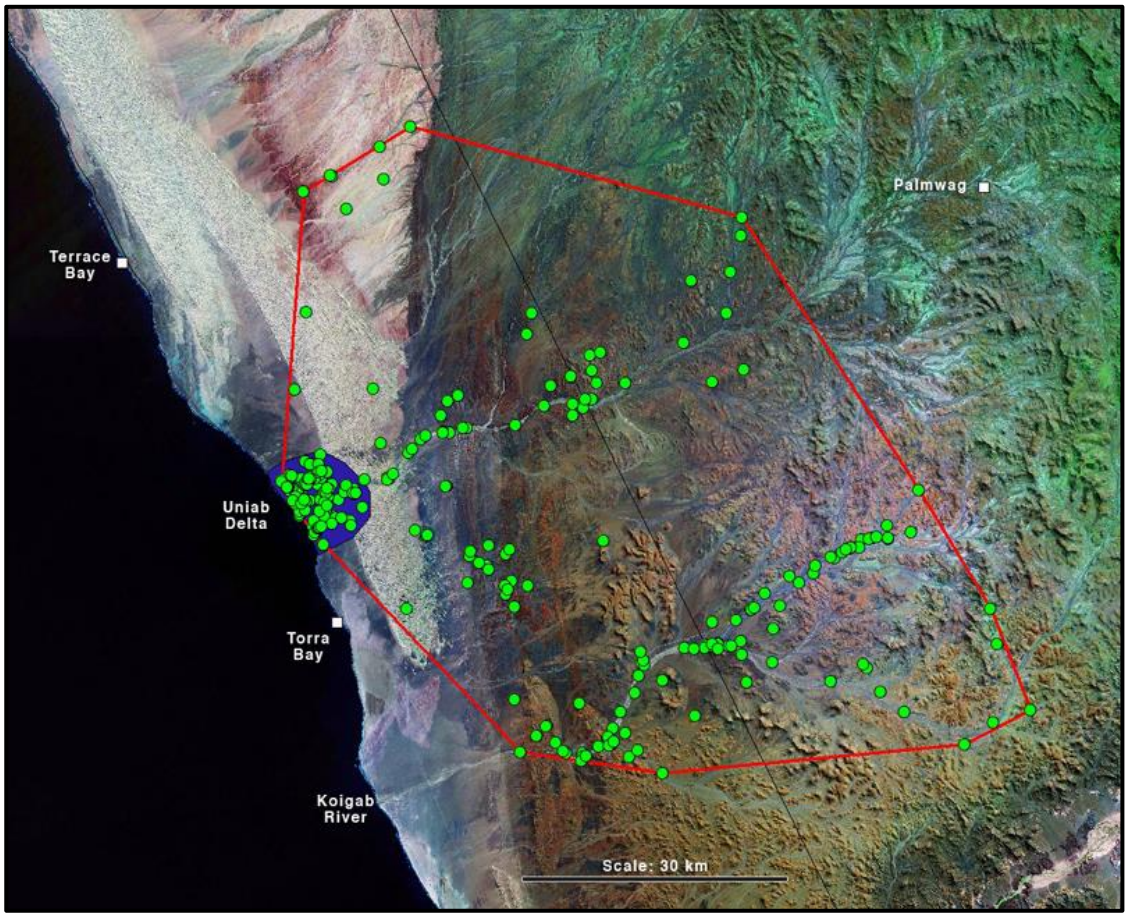
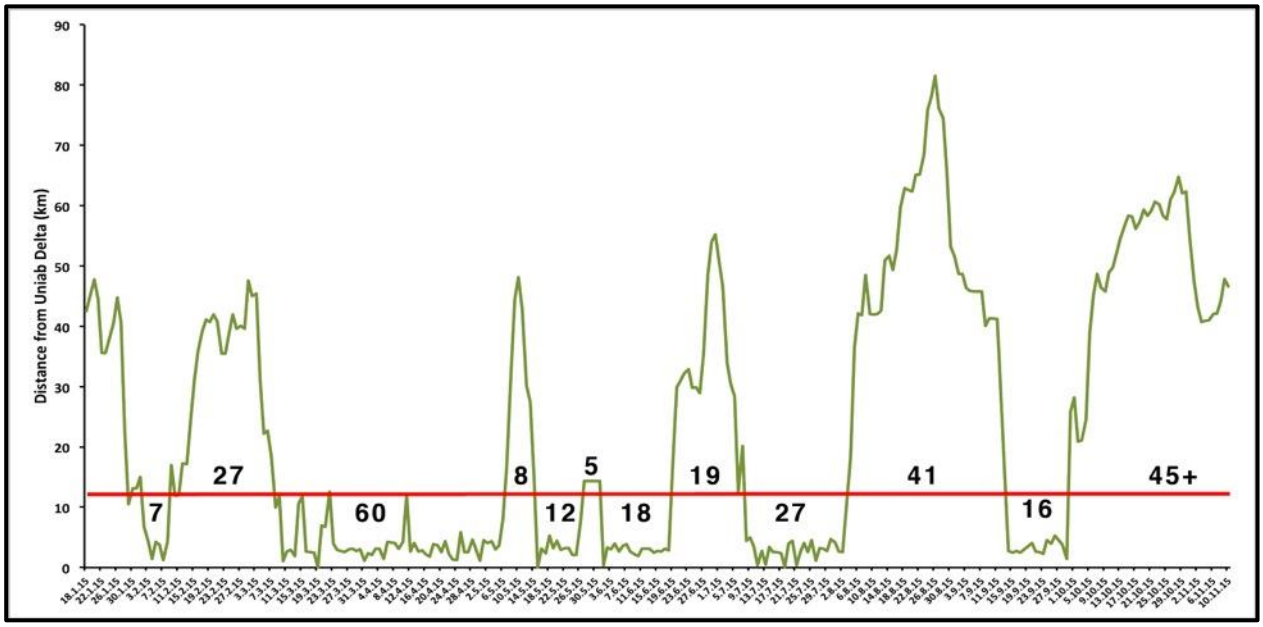


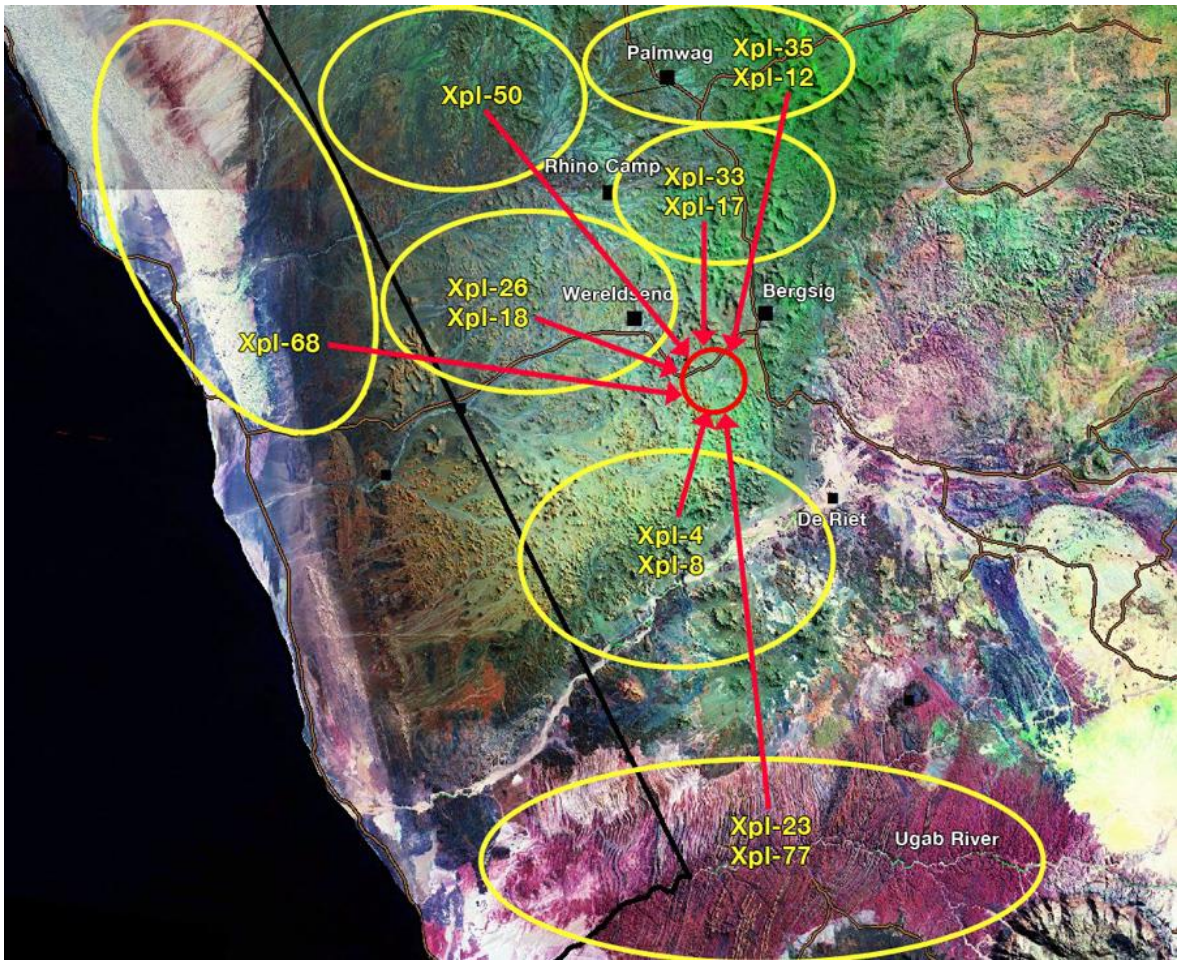
Figure 22. Sequential distances of the Floodplain Pride from the mouth of the Hoanib River between Aug 2014 and Nov 2015. The red line denotes the border of the coastal habitat and the numbers represent the number of days spent at the coast (below the red line) or further inland (above the red line).



Domesticated animals have been selectively bred over thousands of years to meet the needs of humans. As a result they have lost the ability to fend for themselves in nature and rely on humans to protect them. This is particularly pertinent at night when predators, such as lions, are active. Livestock, such as cattle, goats and donkeys are extremely vulnerable to predation by lions. The presence of livestock around a settlement that roam freely at night constitute all the hallmarks of a “hotspot”. Once lions become aware of the rich food source, they will return regularly.

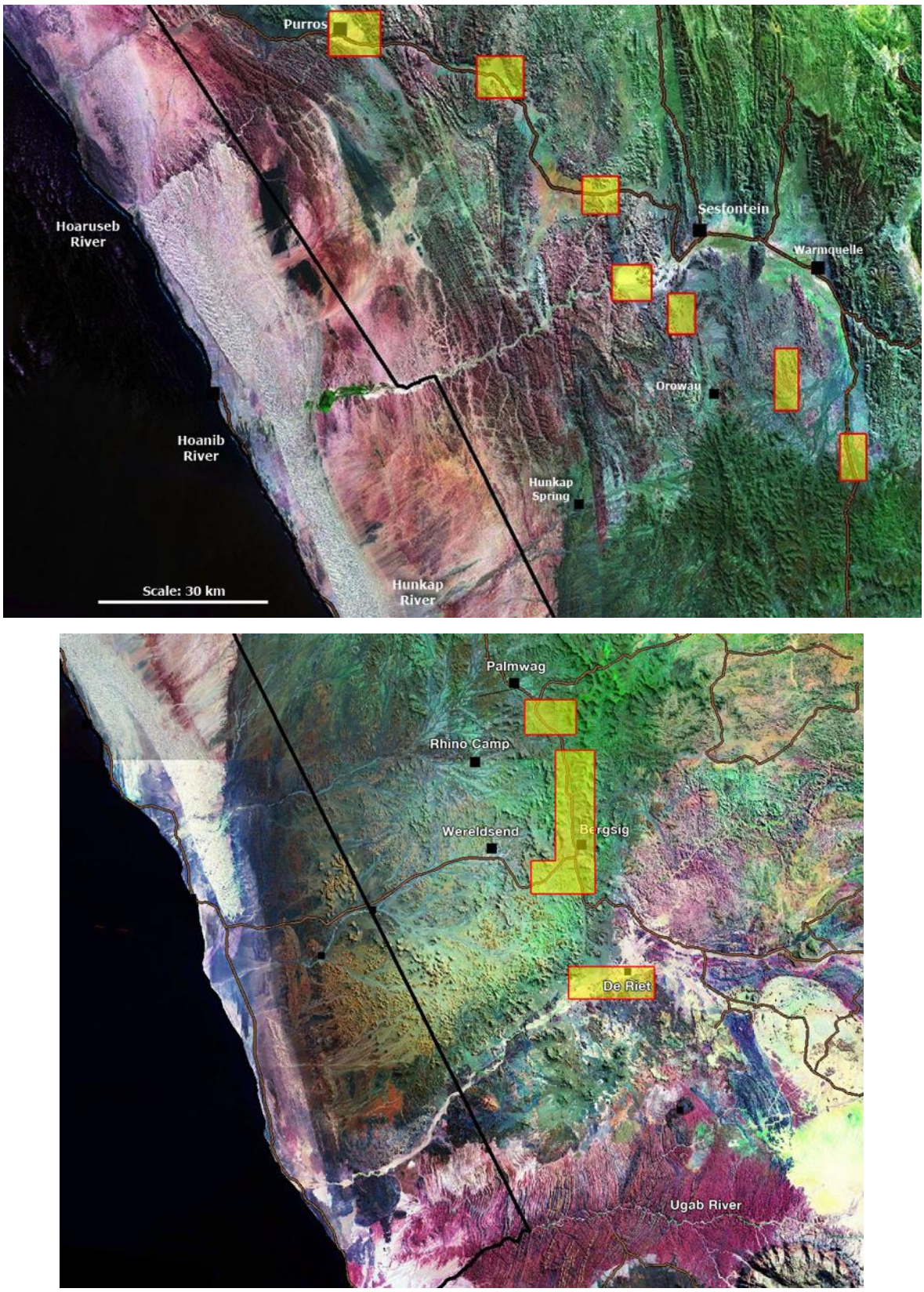
Over a seven-year period between 2006 and 2013 a total of 22 cases of human-lion conflict were recorded at Driefontein near Bergsig in the Torra Conservancy (Figure 23). Driefontein has all the characteristics of a “hotspot” and attracted 12 radio-collared lions from seven different prides with some individual returning to Driefontein several times. During this sample of human-lion conflict 16 lions were destroyed including 11 of the 12 radio-collared lions.

Figure 23. The origins of 12 radio-collared lions that caused human-lion conflict problems at Driefontein in the Torra Conservancy between 2006 and 2013.



Based on monitoring data collected since 2000 a total of ten “hotspots” were identified where lions have regularly been attracted to settlements and livestock (Figure 24). There are two “hotspots” in Purros Conservancy, three in Sesfontein Conservancy, two in Anabeb Conservancy and three in Torra Conservancy. These “hotspots” can be managed effectively for a marked reduction in human-lion conflict problems.

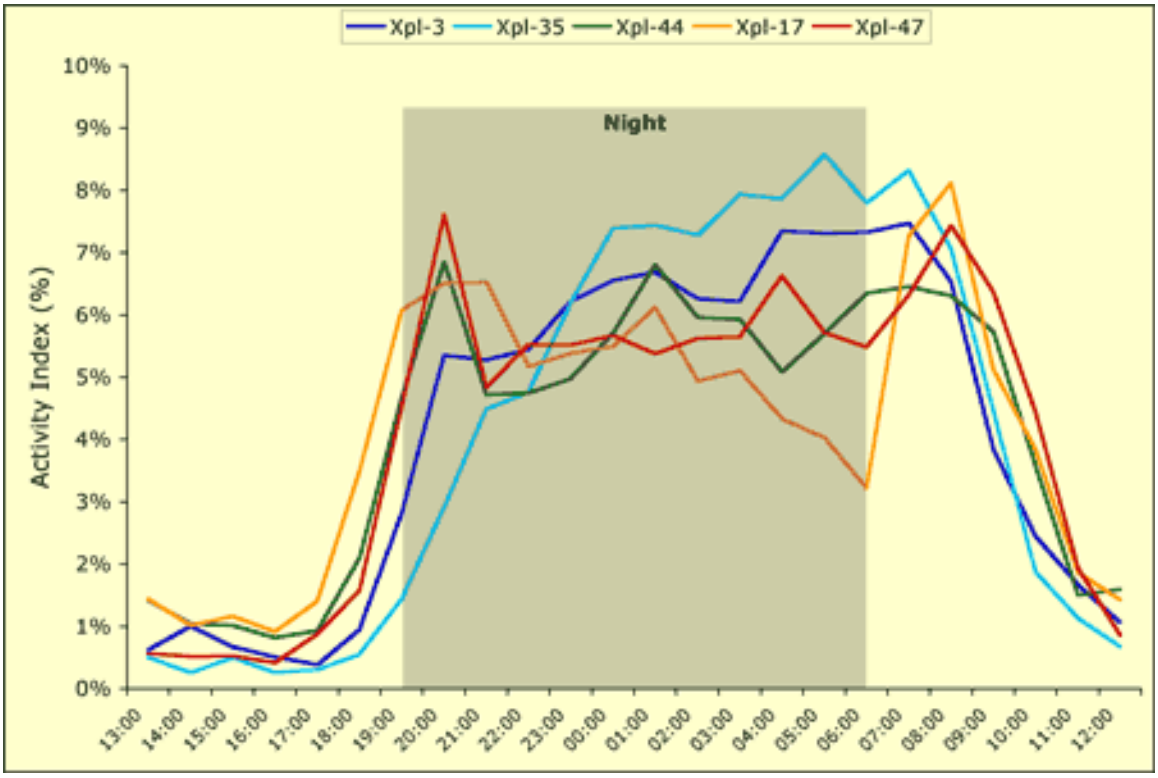
Figure 24. The locations of ten "hotspots" where lions are regularly attracted to settlements and livestock in the Purros, Sesfontein, Anabeb and Torra Conservancies.



6.5.2.3 Activity Patterns

Lions are active primarily at night. Data from five satellite collars, where the sampling frequency was ≥1 fix/hour, were included to assess patterns of activity. Distances moved per hour were used as an index of activity. To control for individual biases (e.g. mean distances moved by different lions per night) the distance moved per hour was expressed as a proportion of the total distance moved by the lion on that night. The patterns of activity are remarkably similar for all five lions (Figure 25). A sharp peak of activity occurred from between sunset and 20h00, followed by a drop in activity between 21h00 and 22h00. Activity increased again around midnight, but thereafter the pattern became less uniform although activity decreased towards daybreak, especially amongst the females. After sunrise activity increased and peaked between 07h00 and 08h00, followed by a uniformly sharp decline, and by 11h00 all five lions had stopped moving.

Figure 25. Activity patterns of five lions (males = blue/green, females = red/orange) in the northern Namib.



6.5.2.3 Population Dynamics

Aspects of the population dynamics of the Desert lion population, such as group structures, reproduction and mortality, have been monitored since 2000. Human-lion conflict and the related shooting or poisoning of lions is the main limiting factor of the population and amounts to 89 % of all adult and sub-adult mortalities.

The major cause of mortality in the lion population between 1999 and 2012 was the killing (by local people during Human-Lion-Conflict) and trophy hunting of adult and sub-adult lions. Male lions were particularly vulnerable and contribute to >80% of the recorded mortalities. The regularity, especially since 2004, at which male lions were shot, poisoned or hunted, and the selection of adult males for trophy hunting, has resulted in a significant reduction of males in the population. It also contributed to vastly different age-specific mortality rates between males and females (Figure 26), which serve to illustrate the negative impact on the population. Increasingly skewed sex ratios, favouring females (Figure 27), have reached critical levels (2010 - 1♀ : 0.18 ♂). Seven of the nine major prides are currently without a pride male.

The excessive killing of adult and sub-adult males has compromised the long-term viability of the Desert lion population. There is an urgent need to adapt the management and utilisation strategies relating to lions, if the long-term conservation of the species in the Kunene were to be secured.

Figure 27. Probability of age-specific mortality rates for females (red line) and males (blue line) in the Desert lion population (females: n = 277 lion-years; males: n = 225 lion-years).

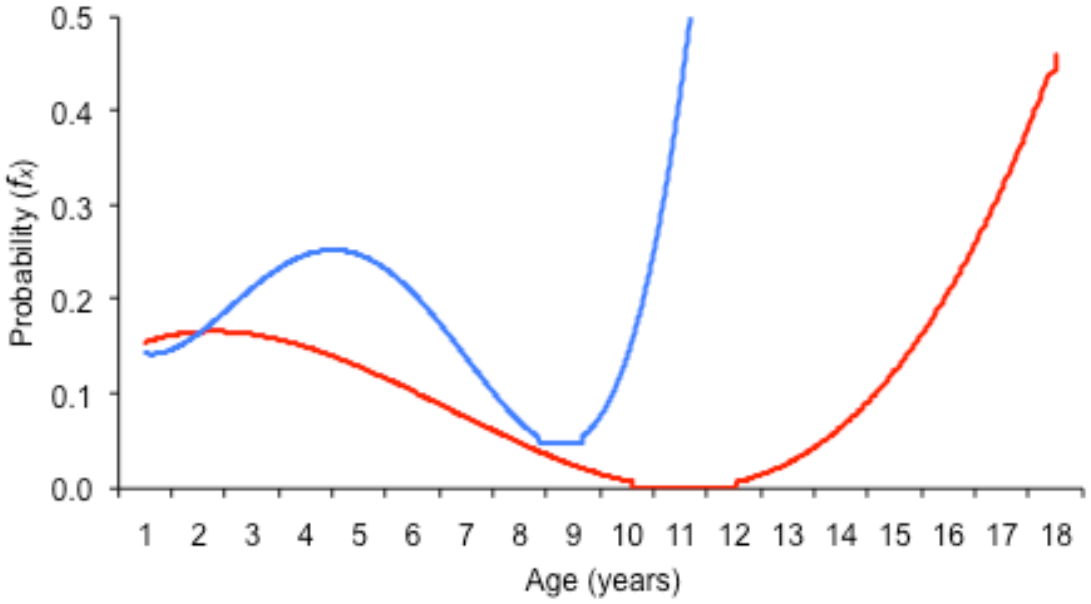
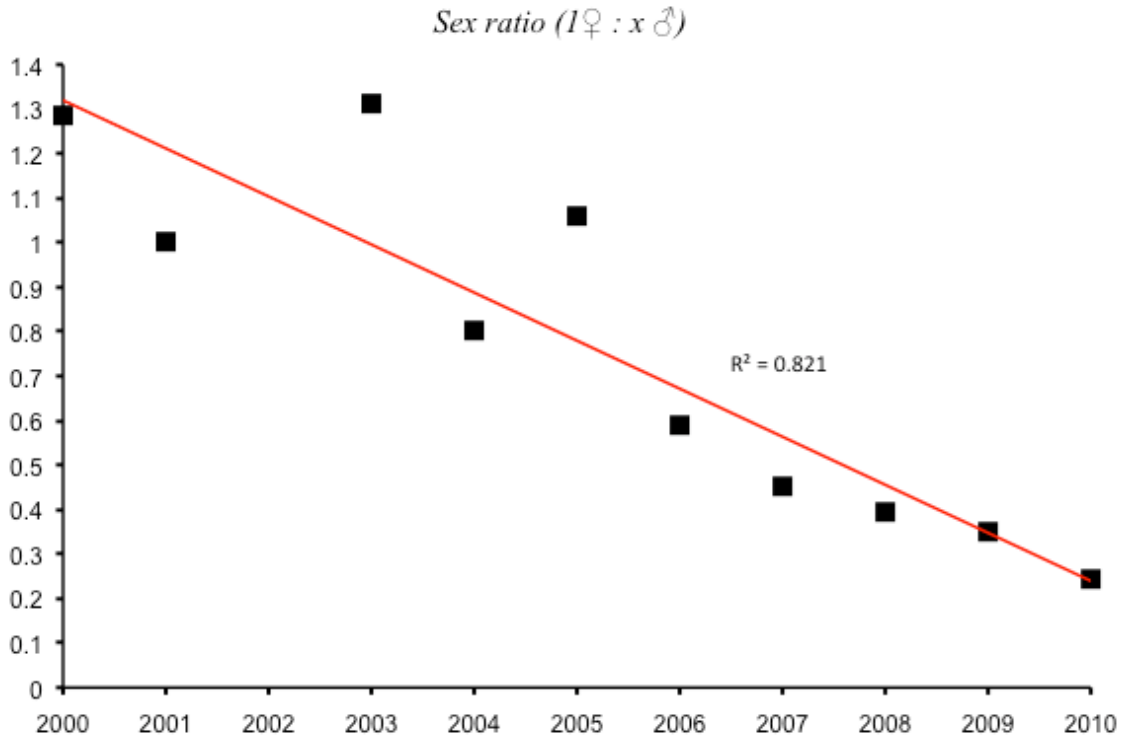


Figure 27. The decline of males in the sex ratio (1♀ : x ♂) of sub-adult and adult lions in the Desert lion population, between 2000 and 2010.



6.5.3 Developing & implementing appropriate technical solutions for mitigating HLC

The National Policy on Human-Wildlife Conflict Management states that the implantation of preventative measures is an effective and efficient way to manage Human-Lion Conflict. Local wildlife management units should carry out local level land-use planning as a means to reduce Human-Lion-Conflict. As part of zoning their area for different land-uses, such as exclusive wildlife and tourism zones, they should also identify wildlife corridors. In this case the establishment of a “high-risk lion corridor” that includes all the conflict “hotspots” will isolate the problem and facilitate an efficient management structure.

Effective and appropriate land use planning must be regulated and enforced by the elected committee for each conservancy and by the traditional leaders and Regional Councils. The exclusive wildlife zones, as per the gazetted registration of conservancies, and the “high-risk lion corridors” should be respected and implemented.

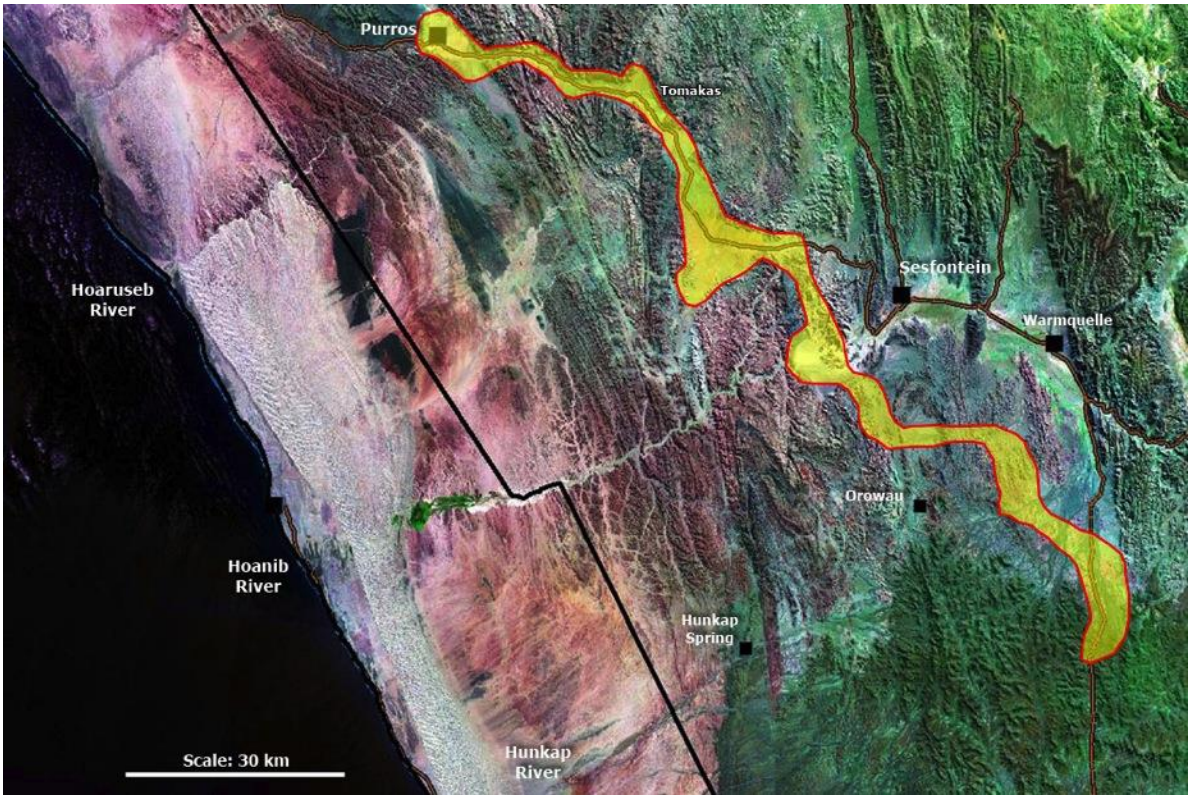
6.5.3.1 “High-Risk Lion Corridor”:

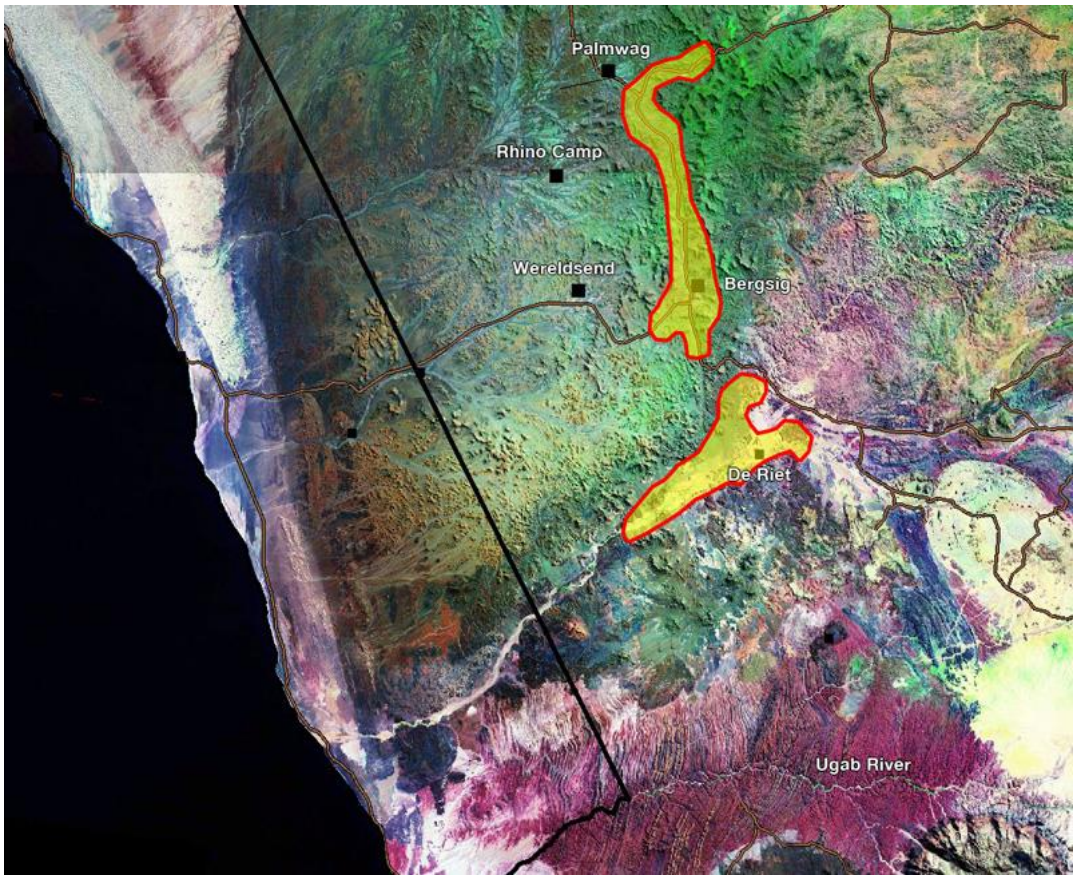
Research and monitoring of the Desert lion population and incidents of Human-Lion-Conflict over the past 15 years have produced reliable data indicating that lion problems occur repeatedly at the same locations. All previous management efforts, including the destruction of many lions, at these locations have failed for the following reasons:

a) Livestock that roam freely at night constitute all the characteristics of a rich food patch or “hotspot”.
b) Lions are quick to identify “hotspots” and will return regularly in search of prey.
c) Lions have large overlapping home ranges and as a result individual lions from several different prides will be attracted to these “hotspots”.

Establishing a “high-risk lion corridor” that includes all the known “hotspots” (Figure 27) and implementing stringent livestock management protocols, supplemented by various techniques to deter lions, within the corridor will effectively reduce Human-Lion-Conflict.

Figure 27. Proposed "High-Risk Lion Corridor" that includes all the major areas of HLC in the Puros, Sesfontein, Anabeb and Torra Conservancies.





6.5.3.2 Effective Livestock Management

Most conflict situations arise from livestock management practices that leave animals vulnerable to predators, such as allowing livestock to roam freely at night or untended during the day. The communities from all four conservancies have expressed their reluctance and disagreement to keep livestock inside protective corrals at night. Due to the low rainfall and lack of sufficient grazing in the region the communities prefer to allow their livestock to also feed at night. This is a key element to the success of Human-Lion-Conflict management that needs to be reconsidered. Based on the information presented here with regards to lion behavioural ecology, “hotspots” and on-going problems that occur at the same locations, the protection of livestock at night is paramount to the implementation and success of this Human-Lion-Conflict Management Plan.

6.5.3.2.1. Herding and guarding

The use of a person and/or dogs to walk with the livestock while grazing during the day can have a significant positive impact in reducing predator incidents. However care should be taken that guard dogs do not kill non-target predators or natural prey species.

6.5.3.2.2. Lion-proof Corrals

Keeping livestock inside protective corrals overnight will not only prevent lions from killing livestock, but it will also prevent the escalation of Human-Lion-Conflict problems in the area. Without free-roaming livestock (all species, including donkeys) at night lions will not identify the area as a “hotspot”, other methods of deterring lions from the area will be more effective and lions are likely to vacate the area. A compromise can be reached between the local livestock farmers, the conservancies and MET where only those farmers inside the proposed “high-risk lion corridor” (Figure 27) need to herd their livestock and place them inside corrals at night. Supplemented by the other preventative measures, such as early warning systems, discussed below the proposed “high-risk lion corridor” will essentially create a buffer zone that will deter lions from leaving the safety of their known home ranges. Without livestock grazing at night to attract them and low

numbers of wildlife (due to the livestock controlling the available grazing) lions are unlikely to move into areas utilised by people and livestock.

Lion-proof corrals are made from metal poles, wire mesh and other commercially available materials. The structure consists of short posts 2.5m apart, 1.8m high with an over-hang to the outside, mesh wire and shade netting surrounding the whole structure. There are two gates at opposite corners, thus allowing farmers to erect their own internal fencing. The following materials are required for a corral that is 30 x 40 metres in size:

- Tar (gum) poles: length = 3 metres x 49 poles
- Diamond mesh: height = 3 metres x 140metres.
- Steel wire x 1 roll (sufficient for several additional kraals).
- Medium thickness binding wire x 1 roll (sufficient for several additional kraals).
- Extra thin binding wire x 1 roll (sufficient for several additional kraals).
- Metal farm gates: length = 2.4 metres x 2 gates.
- Threaded rods (12-15mm x 1 metre) with nuts x 10.
- Wire-straining tool x 1 (to be used for the construction of all future kraals).
- Large-size Crescent fencing pliers x 4 (to be used for the construction of all future kraals).

6.5.3.3 Early Warning Systems and Scare Tactics

Since November 2012 a total of 16 lions from selected prides in areas where there is potential for high conflict were fitted with satellite collars and their movements monitored by the DLP. The daily positions of the lions were plotted on a map and posted on the Desert Lion website. Lion Rangers, appointed by conservancies, or other community organisations monitored the website and the information on lion movements was then given to farmers who could then take precautionary actions when lions moved towards their livestock. This initiative served as an early warning system where local farmers can monitor the locations of lions in their area and take precautionary actions when lions move towards their livestock. This approached, referred to as the Satellite Early Warning System, produced promising results, but lacked institutional support and did not reach its full potential. A central “Early Warning” unit in Windhoek controlled by MET, as described

in the National Policy on Human-Wildlife Conflict Management, will provide the necessary structure to support this approach.

A second more direct early warning system (the Logger Early Warning System) was developed in 2016. The Desert Lion Conservation Trust (DLCT) collaborated with a highly qualified electronic engineer in Swakopmund and they designed and built several units. The system produced favourable results during a dry-testing phase and now needs to be implemented in the field at settlements where regular problems with lions are experienced.

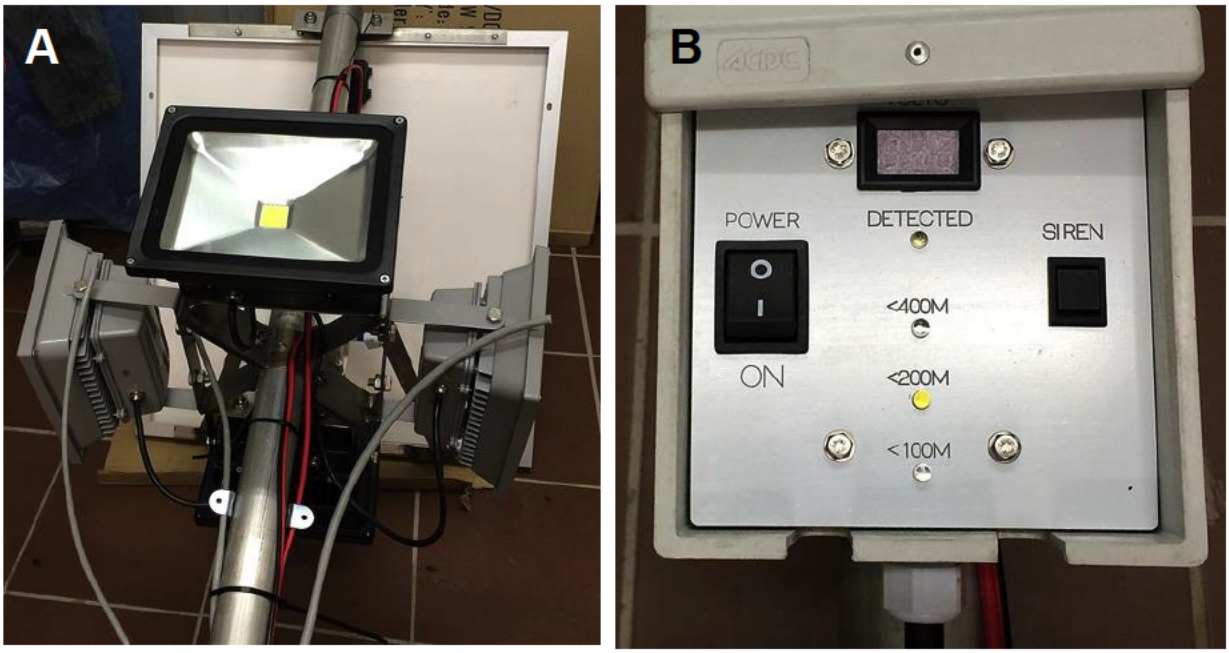
The Logger Early Warning System consists of several components (Figure 28) and a brief summary of the mechanisms is described here.

- Several lions from all the prides that border human settlements or that may be responsible for HLC are fitted with collars that contain GPS recorder and a special RFID Tag unit in addition to the normal VHF transmitter.
- The GPS unit will record accurate position coordinates every hour at night and every four hours during the day. The coordinates will be stored on a memory chip in the collar and can be downloaded remotely.
- An “Early Warning Logger” will then be mounted adjacent to a corral at settlements with high incidents of HLC.
- The “Early Warning Logger” consists of an antenna, an electronic circuit board that acts as a small computer processor, four powerful LED floodlights (Figure 28a) and a siren that are mounted on top of a 4 metre pole. The unit is also fitted with a solar panel and a 12 Volt battery to provide sufficient power throughout the night. The logger will be mounted so that each of the four LED floodlights point towards one of the four wind directions (North, East, South and West).
- The Logger will continuously transmit RFID signals to probe for any RFID Tags (fitted to the lion collars) that may be nearby.
- Preliminary results indicate that the Logger can detect the lion collars from a distance of 2 – 3 km.
- When the Logger detects a lion collar it will instruct the collar to record a GPS position every 5 minutes and relay the information to the Logger. Whereupon the Logger will calculate the direction and distance of the lion from the settlement and

trigger one or two of the LED floodlight to "point" in the direction of the lions. The floodlights are very powerful and will allow the people to see the lions as well as deter the lions from approaching the corral.

- A control/display unit that is mounted lower down on the Logger pole (Figure 28b) will display the distance of the lions from the settlement. When the lions reach a distance of 200 metres from the settlement a powerful siren will be triggered to deter the lions from approaching.

Figure 28. Elements of the "Logger Early Warning System" that will be mounted at settlements that experience HLC problems.



Generating disturbances associated with settlements, people & livestock is an effective way to scare lions away and prevent Human-Lion-Conflict. Whenever the lions come into contact with settlements and livestock they should be deterred & discouraged. However, it is vitally important for the lions to form a clear association between the disturbance and the settlement/livestock. Various scare tactics have been tested and the successful methods are addressed below:

- Sound playbacks. In recent years lions have successfully been deterred from approaching human settlements by playing modern music or recordings of human

voices, especially stand-up comedy shows with female or high-pitched male voices, at high amplitude.

- Loud Noises. The use of fireworks and especially rockets that explode overhead have been successful in scaring lions away from settlements. Air-horns and whistles can also be used but they are less effective than fireworks.
- Ultra-sound playbacks. A method of reproducing ultra-high frequencies (above human hearing) using electronic oscillators and frequency generators was designed in Swakopmund along with the Logger Early Warning System. The electronics were attached to an amplifier and a powerful speaker (Figure 29) and the system is currently being tested in the field. The preliminary results are exceptionally good. Lions immediately reacted to the sound playbacks and moved away. The same response was observed with several black-backed jackals and one brown hyaena.

Figure 29. Ultra-sound system developed to deter lions

- Vehicles. Lions can be chased-off and deterred by vehicles, but there are several important elements to consider. 1) Lions are capable of distinguishing between different types of vehicles based on engine type (petrol or diesel), appearance (e.g. came-drive vehicles or open pick-up vehicles with people on the back) and the manner of driving. 2) Some lions that live inside tourism areas are habituated to tourist vehicles and this leads to high quality sightings for tourists. 3) Care must be taken not to compromise this important tourism value by using game-drive vehicles to deter lions. 4) This can be

achieved by a) only using white open pick-up trucks, b) with people on the back, c) that are making a lot of noise and shouting, d) by driving fast and aggressively, and e) by ensuring that lions can easily associate these vehicles and the disturbance with human settlements and livestock.

6.5.3.4 Rapid Response Unit

Following the guidelines under the National Policy on Human-Wildlife Conflict Management two Rapid Response Teams need to be established. An initiative led by IRDNC with support from DLCT and DECP is underway to secure funding and implement the Rapid Response programme.

Objectives of the Rapid Response programme:

- Develop two teams, each comprising of trained local people, to monitor aspects of the lion population and to respond to potential or actual incidents of HLC. Critical is that these teams will liaise with conservancy management, lodges and traditional leaders. Develop systems of local community game guards and rangers to assist in this.
- Through these Teams, to mentor conservancies and farmers into taking rational and objective decisions about lions and the challenges of living with them. This goes right from managing threats and incidents to drawing up and adopting conservancy management plans for the species.
- Reduce HLC through a variety of means, for example, constructing lion-proof corrals, deploying and maintaining automated early warning systems at key villages
- Educate and train farmers, game guards, tourists, guides and residents on living with lions and promote the value of lions.
- Add value by providing information on individuals, movements and history of the lion population, and by encouraging tourism industry development and buy-in to the in-situ conservation of these animals.
- Mentorship of local qualified Namibians to run the program in the long term.
- Develop systems to monitor the progress and success of this program

The development of two teams to respond to human wildlife conflict incidents, facilitate in training farmers, communicate with Traditional Leaders, conservancy management and farmers and to gather information and data is essential. The procurement of 2 vehicles and recruitment of 4 suitable members is important and already underway. The appointment of a Project Co-ordinator and a Project Administrator to drive and manage the project is necessary. Training will be extensive and is to be provided by DLCT, DEP and IRDNC. These teams will be mobile, have satellite phones, radio communication (vehicle and hand held sets), spotlights and be equipped to respond to incidents and stay in the bush for several weeks at a time. The vehicles will also be monitored by commercial satellite fleet management systems. While the ideal is to have two operational independent teams, this will be phased in gradually to allow for developing efficient management and reporting structures. A system of Lion Rangers is already in place in three of the lion range conservancies. These rangers were nominated and appointed by their communities. However, it is only with the development of the Rapid Response Teams that they can become truly efficient. In year two a suitable UNAM conservation graduate will be sourced to join the program. Training and mentoring will be on site with focus on all aspects, research, HWC, logistics and admin with a view to this person eventually taking over management of the program.

Reducing Human-Lion-Conflict is a crucial aspect of the program. There have been extensive meetings with affected local communities to seek solutions to this problem. The main thrust of this aspect is to build structures and systems to reduce losses to farmers and to ensure human safety. Over and above the response teams and education this will entail constructing lion-proof corrals, providing early warning of the presence of animals using collaring and providing lights in key localities at farms/homesteads. While most conservancies have land use zonation plans in place, these are often not respected properly and some of these need to be changed to better accommodate lions and elephants.

The Rapid Response Teams will be trained in (excluding the skills they need for their daily tasks) living with elephants and lions, basic elephant and lion behaviour, basic biology and requirements of the two species. The Kunene Region Communal Conservancy

Association (KRCCA) is an influential organization with respected leadership. They will also be trained to pass on the information and to monitor peoples' reaction and attitudes to these efforts. A major part of the education effort is to build capacity within these communities to deal with living with wildlife and also to communicate to visitors to these areas. A concerted effort will be made to educate the tourism sector, local guides and visitors to the area about these unique animals. This will take the form of formal training for guides and the production and distribution (via key entrance points to the area and car hire firms) of pamphlets. This is already taking place, but does need to be increased. The ambition is to accommodate one Namibian University of Science and Technology student per year on their 6-month practical or internship. This will provide them with an opportunity to partake in meaningful and relevant surveys and actions.

Poaching at present is not a problem in the region. However, there is an increase in poaching of both elephants (for ivory) and lions (bones and body parts for the Asian traditional medicine market) in southern Africa. As anti-poaching efforts become more successful elsewhere, so we can expect poachers to target our area. This has already been evident with the free-ranging black rhino population in the Kunene Region. We urgently need to increase our efforts in this regard to make it as difficult as possible for poachers to operate in this area. Our Teams and Coordinator will work closely with the Ministry of Environment and Tourism, the Save The Rhino Trust and the Protected Resources Unit of the Namibian Police. A relationship has already been established with these stakeholders and will be maintained as a priority.

Adding value or increasing tangible benefits to farmers and residents affected by these animals is a priority. Employment and increased compensation rates are seen as crucial in this regard. Tour operators and Lodge or accommodation operators will be asked to encourage their guests to contribute to a "sightings fund". Whenever lions or elephants are seen, a small donation can be made. It is important that research provide information on individuals, group sizes, habits, personality etc. of lions and elephants. This makes the experience tourists might have more personal and meaningful. In the long-term, we will develop Lion and Elephant Rangers to the point where visitors can accompany them on their patrols, thus gaining an insight into local conservation first hand.

Systems will be developed to measure the success of the Rapid Response programme. This is not just about work completed, number of kraals built or number of patrol days, but also includes monitoring actual number of HWC incidents and very importantly, the attitude and buy-in by local farmers and residents.

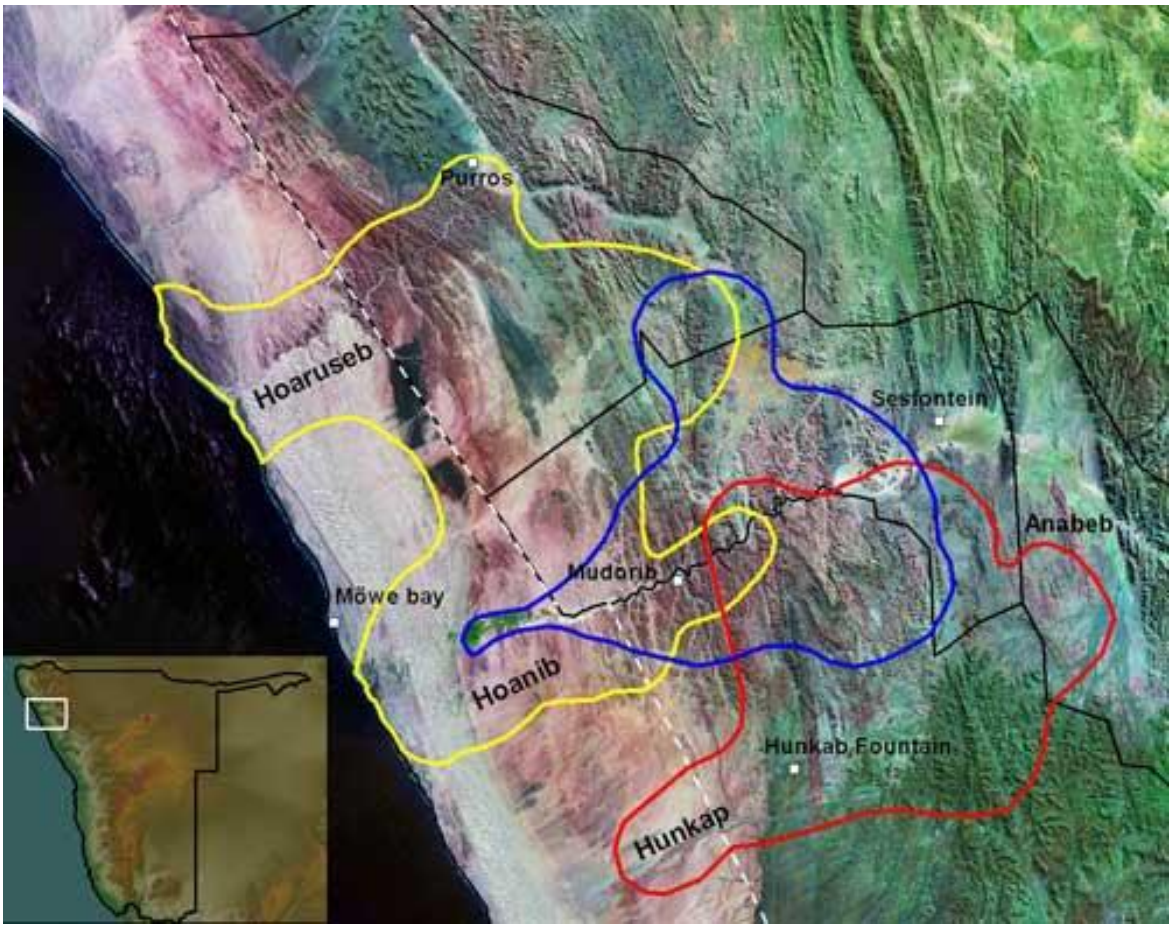
6.5.4 Lion Tourism

Tourism can play an important role in the conservation of lions and in the mitigation of Human-Lion Conflict. The simultaneous growth of wildlife populations, tourism, and community-based conservation efforts during recent years in NW Namibia is testimony to this. Under the current climate where local people benefit from wildlife and communal conservancies enter into contractual agreements with tour operators, the tourism industry's potential role in wildlife conservation is ever increasing. Along with black rhinos and elephants, lions are one of the most popular species among tourists. The value of lions and the benefits derived through tourism in the region, must arguably out-way the losses incurred as a result of Human-Lion Conflict.

Notwithstanding, people still pose the biggest threat to lions. Local communities suffer financial losses when lions prey on their livestock, upon which they often retaliate (legally) by killing lions. The tourism industry and related entities (including the communal conservancies) enjoy the benefits, but the local people that live close to lions (i.e. individual farmers) have to bear the costs. This discrepancy has been identified and according the National Policy on Human-Wildlife Conflict Management there is a need for preferential benefits to those local people.

Between 2007 and 2008 a detailed study was conducted in the Hoaruseb River (Purros Conservancy), the Hoanib River (Sesfontein Conservancy) & Hunkap River (Anabeb Conservancy; Figure 30). The objectives were: a) to evaluate the tourism potential of lions, and b) to propose a system where direct benefits derived from lions would reach the appropriate local people in order to offset the losses.

Figure 30. The home ranges of three lion prides that utilise the Hoanib River (Yellow - Hoaruseb pride 4584 km², Blue - Hoanib pride 2345 km², Red - Hunkap pride 2927 km².



There were a total of 35 individually known lions in three separate prides (Hoaruseb = 14, Hoanib = 14, Hunkap = 7) and they occupied a combined area of 6171 km² (Figure 30). There was overlap between the home ranges of all three groups, but they rarely interacted with each other.

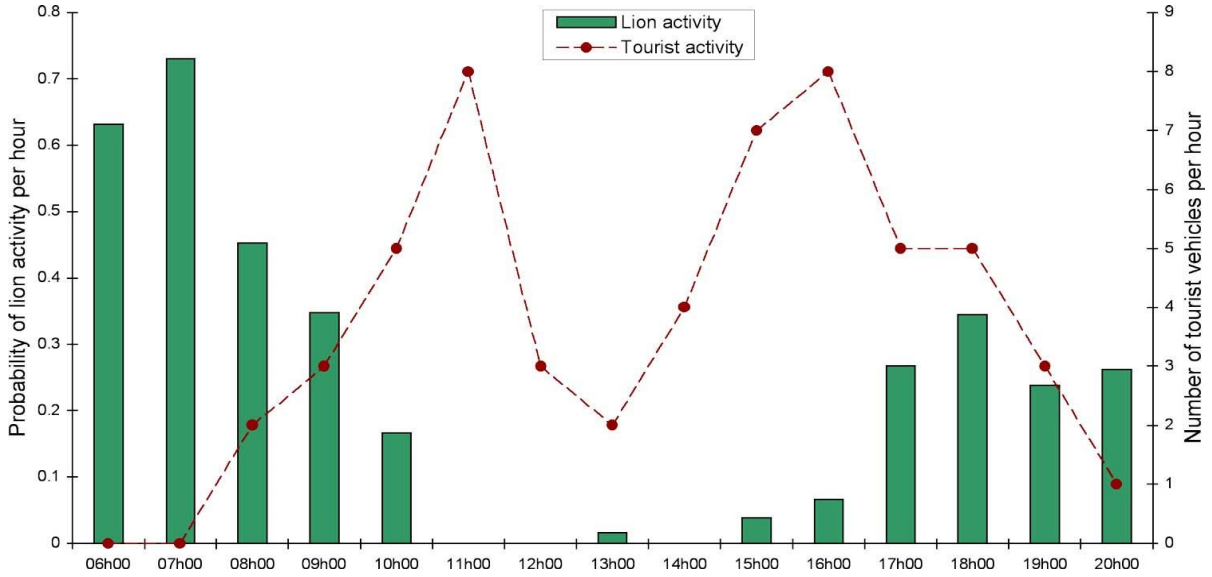
The lions were observed intensively for 2208 hours (92 x 24hrs) during which time they killed 51 prey animals of 12 different species. Oryx was the most important prey species and along with zebra, ostrich and springbok, formed 75% of the lion's food. Livestock (donkeys) represented only 5% of the kills.

Lions were inactive for 72 % of the 24-hour day (N = 92 days) and activity was highest at night and during the early morning up until. During the middle of the day (10h00 – 15h00)

they generally rested in thick vegetation and were not visible. Although lions were active mostly at night, the main peak of activity was around sunrise, followed by another increase in activity at sunset.

The Hoaruseb lions spent 85 % of their time in the riverbed and the remainder in rocky outcrops close to the river (5 – 10 km). The likelihood of finding and seeing the lions, during a sample of 82 attempts, was high (69 %). The average distance between passing vehicles and lions was 74 metres (range: 15-250 m). Despite this high probability of seeing lions, only 8 % of the 86 tourists vehicles that drove past the lions (average = 4.2 vehicles per day) actually saw them. The peak tourism traffic was between 09h00 and 18h00 when lions were inactive (Figure 31) and resting behind vegetation and other forms of cover. The lions were mostly relaxed when vehicles drove past them, but when vehicles were noisy or caused disturbance, they often walked or ran out of sight.

Figure 31. Daytime activity patterns of lions and tourist vehicles in the Hoaruseb River. Data were collected during 83 periods of 24-hour observations. Tourism activity represents the number of vehicles that drove past the lions per hour, during the 24-hour observations.



Because of their nocturnal habits, the movements and behaviour of lions are often poorly understood. Tour operators will benefit from accurate and current information on lions, and there is a need to provide such information to the industry, so as to increase the

potential benefit of tourism to wildlife conservation. Collaborating with the communal conservancies and involving them in the process is essential.

The Desert Lion Project has provided numerous training courses to conservancy members and local tour operators to improve the tourism potential of Desert lions. Such training has helped to increase the success rate of finding and approaching lions during game drives, and improve the quality and accuracy of information conveyed to tourists. In the Hoaruseb River the proportion of tourist vehicles spotting and observing lions increased to 52 % after such training courses.

The major tour operators and TOSCO should be approached to discuss the mechanisms of a establishing a “Lion Fund” where operators agree to donate a minimal fee (e.g. N$ 100 per vehicle) for every sighting of lions. A system of collecting and managing the funds must be developed and approved by MET. Each communal conservancy should establish a separate “Lion Fund” account where income derived from lions-related tourism and hunting can be used to off-set the losses and costs of Human-Lion Conflict. Options of securing matching or “gear-up” funds from other sources to supplement the “Lion Funds” at conservancy level should be investigated.

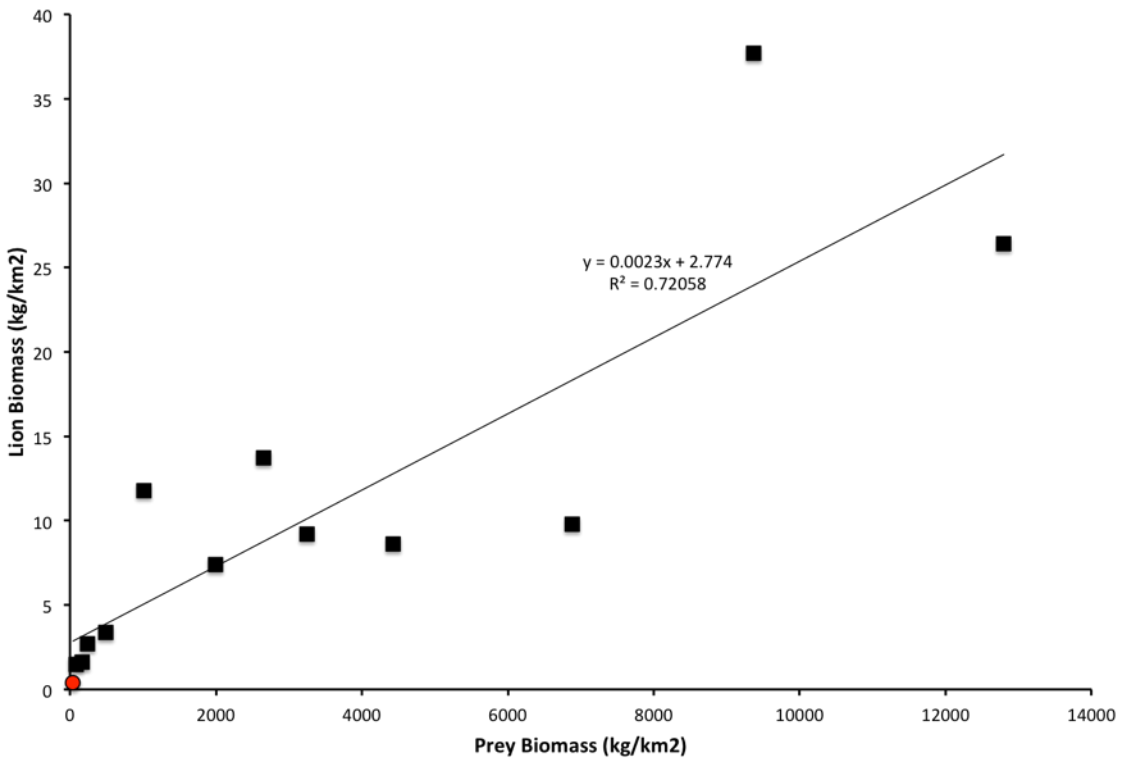
6.5.5 Lion Population Management

Some conservancies and local communities have raised concern that the Desert lion population have increased beyond the expected ecological carrying capacity and that their numbers may need to be reduced.

An analysis of the frequency of Human-Lion Conflict incidents (see Page 22) between conservancies and between years revealed that increased levels of Human-Lion Conflict occur randomly and are generally related to a localised abundance of particularly sub-adult males in one of two prides. The Hoanib Floodplain pride is currently the only pride that do not move into areas used for livestock farming and that are safe from human-related mortalities. The home ranges of all the other prides overlap to some extent with livestock areas (Figure 7).

The density of lions in the Desert population (0.48 – 0.62 / 100 km^{-2}) appears to be in balance with the arid environment and compares favourable with lion population densities in other semi-arid environments, such as Etosha National Park (1.8 – 2.4 / 100 km^{-2}) and Kalagadi Transfrontier Park (1.5 / 100 km^{-2}). Furthermore, to relationship between lion biomass and prey biomass (based on figures from the 2016 Aerial Survey in NW Namibia) compares favourably with similar data from 13 other lion populations in sub-Saharan Africa (Figure 32).

Figure 32. Lion biomass as a function of available prey biomass in 14 conservation areas in sub-Saharan Africa. The Desert lion population is indicated by a red dot.



The genetic heterozygosity of the Desert lion population is sufficiently diverse and similar to that of the Etosha lion population. However, due to the skewed adult sex ratio and shortage of adult pride males there is a need for regular monitoring. The genetic variability and viability of the Desert lion population should be measured at least once every ten years.

6.5.5.1 Trophy Hunting

Trophy hunting of lions can be a very lucrative and selective option for turning a problem into an asset. As with every form of utilisation there is always the fear of exploitation and greediness. Notwithstanding with good scientific data as backup and carefully designed control measures in place the selective use of trophy hunting can be valuable in managing Human-Lion Conflict, removing “problem” lions and generating income towards the “Lion Funds” at conservancy level.

Hunting quotas are generally allocated for each conservancy separately, but in NW Namibia it is, however, essential that sustainable off-take quotas are first calculated for the whole Desert lion population, and then divided between the relevant conservancies. This is necessary because lions move across several conservancies and the home ranges of all the prides overlap extensively.

Quota settings should be based on the CITES standard of 5% off-take and follow the import conditions of the US Fish and Wildlife Service under the Endangered Species Act, that require proof of sustainable and ethical hunting of free-ranging lions where trophy fees are used for the conservation of the species.

In the event of prolonged incidents of Human-Lion Conflict, the Ministry of Environment & Tourism could identify and declare a “problem” lion that can be utilized for trophy hunting. Clear and binding conditions must be stipulated and an MET staff member should accompany the PH to ensure that the actual “problem” lion is shot. On numerous occasions during the past 15 years hunters have misused such hunting permits by ignoring the “problem” lions and selecting unrelated adult male lions. Care must be taken that “problem” lion trophy hunting permits in addition to the allocated annual quotas do not amount to unsustainable off-takes. Due to the current skewed sex ratio in the population – the result, partly, of excessive numbers of adult males shot on quota and “problem” trophy hunting permits – adult male lions (> 4 years of age) may not be trophy hunted.

Funds generated through trophy hunting will provide a much need income to local communities and conservancies. Permit conditions issued by MET must stipulate the proportion of funds to be allocated to the relevant conservancy “Lion Funds” and to the Game Products Trust Fund (GPTF).

6.5.5 Research and Monitoring

In order to manage Human-Lion Conflict in NW Namibia conflict effectively and efficiently it is crucial to have adequate data that is available in a usable form for key decision-makers. There is a need for more comprehensive data that enables the Government and other stakeholders to understand better the nature and scale of the problems, to develop solutions and monitor the success of the solutions. Data gathering needs to be standardized so that results can be compared from area to area and over time. Data needs to be stored in a central database that all stakeholders can have access to.

The specific objectives of this strategy are:

6.5.5.1 To develop a standardized monitoring and reporting system on HLC that captures the most relevant data for use by all stakeholders

6.5.5.2 To monitor and evaluate the effectiveness of different HLC mitigation methods and to disseminate findings to all stakeholders

6.5.5.3 To determine the social and ecological carrying capacity for lions

Strategic approach

Establish National database with the MET that should include historical and current data from existing systems including the MET Permit Office.

Record data from each reported HLC incident capturing:

- Numbers, age and sex structure of lions
- Location of incident

- Date & time when incident occurred
- Damage caused
- Who was affected
- Action taken
- Was any mitigation in place (e.g. were animals in a corral?, etc.)
- Who recorded the data;
- Sex and age structure of the animal
- Any other information which may be appropriate

Provide data on the economic impact of HLC on households – this provides a better indication of the costs to citizens than simply recording the cost of damage as it takes into account the economic status of the household bearing the loss and other factors. For example, the impact of losing five cows to a lion is much higher on a household owning eight cows compared to a household owning 50 cows. Similarly the loss will be greater to a female-headed household with few other assets and little or no cash income.

Provide data on the effectiveness of HLC mitigation methods including type of method, features of the method (e.g. detailed description of the infrastructure, components, ingredients, position in relation to other important features such as other water points, houses, etc), aim of the method, extent to which the method has achieved its aims, reasons for success or failure, length of time over which monitoring has taken place, description of monitoring methodology, provide comparative data to improve our understanding of the factors influencing patterns of HLC, and designed to detect possible duplication of data.

Work with all other stakeholders to develop standardized data gathering and monitoring systems that are simple and cost-effective to implement. Disseminate data in appropriate forms to all stakeholders. Build capacity of stakeholders in collecting, recording and using data and ensure that there is systematic and consistent data recording in terms of level of effort and across temporal, spatial and numerical scales.

Develop various forms of “Early Warning Systems” to provide communities and farmers with sufficient and timely information in order to take appropriate measures to prevent livestock losses. The early warning system should provide information on a daily basis.

MET will coordinate a centrally-based Rapid Response structure which will coordinate with Rapid Response Units deployed in NW Namibia to address incidents of HLC and manage “problem” lions.

All efforts to monitor and manage HLC will be coordinated by MET. The general public, interested parties and individuals may not be involved in any form of HLC management without the written approval of MET and the conservancies.

6.5.6 Human Lion Conflict Insurance Scheme

It has not been Government policy to provide compensation to farmers for losses due to wild animals since compensation schemes implemented elsewhere have proved to be very problematic and open to abuse. However, there is a need to reduce the growing tension around HWC as losses of human lives, livestock, and crops as well as damage to infrastructure are highly emotional issues and affect livelihoods.

The National Policy on Human-Wildlife Conflict Management is addressing new approaches to insurance against HWC that will also cover the Human-Lion Conflict Management Plan for NW Namibia. Income generated from lion-related tourism and hunting in the NW should be applied to balance the losses at grass-route level.

7. IMPLEMENTATION FRAMEWORK

7.4 Monitoring and Evaluation

7.4.1 The impact of the implementation of this Management Plan and progress and constraints regarding its implementation will be periodically assessed by the Ministry of Environment and Tourism in consultation with other stakeholders.

7.4.2 The Event/Incident Book System and the Human-Wildlife Conflict Data form will be used for monitoring and evaluation of HLC.

7.5 Implementation Action Plan

Table 1: Land use planning and livestock management structures

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of livestock & HLC	On-going	Planning aimed at avoiding HLC	General operational funds	Conservancies MET, IRDNC DLCT

Table 2: Aspects of lion demography & behaviour ecology relevant to HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of lion population	On-going	Record population demography & ecology	General operational funds	MET, DLCT & IRDNC

Table 3: Developing & implementing appropriate technical solutions for mitigating HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Zoning of conservancies to avoid HLC	Wildlife zones & high-risk areas free of livestock	Implement "High-Risk Lion Corridor"	General operational funds	Conservancies, Traditional authorities, MET

Table 4: Effective Livestock Management & "High-Risk Lion Corridor"

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish protocols for livestock management inside "High-Risk Lion Corridor"	Erect several lion corrals inside "High-Risk Lion Corridor"	Ensure that no livestock, including donkeys, roam freely at night	N$ 250,000	Conservancies, IRDNC & MET

Table 5: *Early Warning Systems and Scare Tactics*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Satellite Early Warning System	Six key lions fitted with satellite collars	Provide early warning movement data to farmers	N$ 150,000	DLCT, MET
Logger Early Warning System	Establish 4 Logger Systems at key locations. Fit RFID collars to 15 key lions.	ID key lion prides & fit collars. Erect Loggers at 4 corrals.	N$ 285,000	DLCT, MET

Table 6: *Rapid Response Units*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Develop Rapid Response protocol	Establish 4 RRU teams	MET establish central control	N$751,920	MET, IRDNC, DLCT, Conservancies

Table 7: Lion Tourism

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish "Lion Funds" at conservancy level to manage lion-sighting fees	All major tour operators pay N$ 100 for every lion sighting	Involve tourism industry		TOSCO, Conservancies, MET & IRDNC

8. BIBLIOGRAPHY

8.1 Ministry of Environment and Tourism. 2005. National workshop on human-wildlife conflict management in Namibia. Safari Hotel, Windhoek.

8.2 Nature Conservation Amendment Act of 1996 (Act 5 of 1996).

8.3 Nature Conservation Ordinance of 1975 (Number 4 of 1975).

8.4 The National Policy on Human-Wildlife Conflict Management.

8.5 National Lion Conservation Strategy (Draft).

8.6 Human-Lion Conflict in the Northwest of Namibia. Regional workshop on managing lion conflict. Kamanjab - 11 May 2016.

From:	Vannorman, Tim
To:	Farkas, Sandra
Subject:	Fwd: Lion conservation in Namibia
Date:	Tuesday, September 26, 2017 1:43:05 PM
Attachments:	ATT00001.htm Namibia Lion Conservation Strategy_July 2017.pdf NW Lion Management Plan_July 2017.pdf ATT00002.htm

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---------- Forwarded message ----------
From: **Hoover, Craig** <craig_hoover@fws.gov>
Date: Fri, Aug 18, 2017 at 8:11 AM
Subject: Fwd: Lion conservation in Namibia
To: Tim Van Norman <tim_vannorman@fws.gov>

Second of two.
---------- Forwarded message ----------
From: **Gregory Sheehan** <gregory_sheehan@fws.gov>
Date: Fri, Aug 18, 2017 at 7:07 AM
Subject: Fwd: Lion conservation in Namibia
To: gloria_bell@fws.gov, Craig Hoover <craig_hoover@fws.gov>

Per the prior email.
Thanks
Greg

Greg Sheehan
Principal Deputy Director
US Fish and Wildlife Service
202-208-4545 office
202-676-7675 cell

Begin forwarded message:

> **From:** kenneth uiseb <kenneth.uiseb@met.gov.na>
> **To:** "Gregory_sheehan@fws.gov" <Gregory_sheehan@fws.gov>
> **Cc:** louisa mupetami <louisa.mupetami@met.gov.na>, colgar sikopo <colgar.sikopo@met.gov.na>, elly hamunyela <elly.hamunyela@met.gov.na>, Malan Lindeque <Malan.Lindeque@met.gov.na>
> **Subject: RE: Lion conservation in Namibia**
>
> Dear Mr. Sheehan,
>
> I refer to the email below sent to you by Dr. Lindeque on 12 July 2017. Please find herewith attached the copies of the approved Lion Conservation Strategy for Namibia,

and Human-Lion Conflict Management Plan for the North Western Namibia.

Yours sincerely,

Kenneth Uiseb

Deputy Director, Wildlife Monitoring and Research

Ministry of Environment and Tourism

From: Malan Lindeque
Sent: Wednesday, July 12, 2017 8:12 AM
To: Gregory_sheehan@fws.gov
Cc: louisa mupetami <louisa.mupetami@met.gov.na>; colgar sikopo <colgar.sikopo@met.gov.na>; elly hamunyela <elly.hamunyela@met.gov.na>; kenneth uiseb <kenneth.uiseb@met.gov.na>
Subject: Lion conservation in Namibia

Dear Mr Sheehan

I am aware that the Fish and Wildlife Service is currently considering lion conservation issues in a number of countries, possibly including Namibia. I wish to inform you that we will shortly be able to send you two key documents that we have developed in this regard, namely a new Lion Conservation Strategy for Namibia and a Human-Lion Conflict Management Plan for Northwestern Namibia (which was approved only yesterday). The latter is the first of a series of sub-national plans to deal with conflict issues.

Yours sincerely

Malan Lindeque

Permanent Secretary

Ministry of Environment and Tourism

Namibia

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--
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Ministry of Environment and Tourism
Republic of Namibia

LION CONSERVATION STRATEGY FOR NAMIBIA

July 2017

Foreword

The lion *Panthera leo* is iconically African, and an important indicator of wilderness quality and integrity where it occurs. A key species for wildlife tourism, research and sports hunting, the lion is nevertheless, increasingly threatened.

Recent surveys indicated a suspected decline of 43% over the past 21 years of the African lion populations. With much of its former range now lost, and human-livestock densities increasing around core lion populations, the lion has become one of the major predators of livestock, presenting challenges and hardship to those who live amongst lions. Whilst an economic liability, and a threat to human safety, the lion is also a major source of economic benefit, being one of Africa's most important tourism attractions.

Compared to other Sub-Saharan lion range states, Namibia is home to only a small population of around 1000 lions, but, unlike the situation in most other countries, the lion population in Namibia has slowly increased over the past 20 years. This was mainly due to the expansion of lions into the Kunene Region. In other parts of Namibia, lion habitat is threatened through land use change and fragmentation resulting in human wildlife conflict and reduction in range available for lions.

The Ministry of Environment and Tourism has the constitutional mandate to safeguard and sustain the biological diversity of Namibia for the long-term benefits of current and future generations. It is the vision of this strategy to ensure the long-term conservation of the Namibian lion in a sustained environment.

The Ministry of Environment and Tourism acknowledges the contributions made by different stakeholders in the development of the Lion Conservation Strategy for Namibia. The Ministry is looking forward to join hands with all key stakeholders involved in wildlife and lion conservation to implement the Lion Conservation Strategy to ensure that our lion populations remain viable and are beneficial to the people who share their land and resources with lions.

Malan Lindeque
PERMANENT SECRETARY

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1. Introduction and background

The African lion (*Panthera leo*) is the largest African member of the genus *Panthera*, weighing up to about 230 kg, and is confined to the African continent. The lion is a highly charismatic member of the megafauna of Africa and is the only cat species that is conspicuously social (Schaller 1972).

The African lion plays a key role in the ecological functioning of the African ecosystems, but also provides key challenges when they come into conflict with other land uses like stock farming.

Three categories of lions are found in Namibia; wild free roaming lions in large and open protected areas and other land used for conservation purposes such as conservancies, managed lions free roaming in small fenced reserves, and captive lions that are entirely dependent on humans for their survival.

1.1 Lion Conservation status

The African lion is listed as Vulnerable on the IUCN Red List (Bauer *et al*. 2016) and the Namibian population is included in Appendix II of the Convention on the International Trade of Endangered Species (CITES). African lion is a Specially Protected Species under the Nature Conservation Ordinance, Ordinance 4 of 1975 of Namibia.

1.2. Distribution

Lions are found in most countries of sub-Saharan Africa (Bauer *et al.* 2016). Lions are largely found in the savanna biome of Africa, which includes areas that receive annual rainfall of between 300 and 1500 mm. Savannas encompass a wide variety of habitats including grasslands, wetlands, dry woodlands and mosaics of all of these. Lion distribution is represented in 67 lion areas comprising 3.4 million square kilometres, which is 17% of the former range or about 25% of the savannah (Riggio *et al*. 2013). Lions no longer occur in the desert parts of North Africa, but occur and are expanding in numbers and range in the Namib Desert in Namibia (Bauer & van der Merwe 2004; Stander 2007).

Lion populations are decreasing in west and east Africa and are only stable in the southern African region (Bauer *et al*., 2015). It is assumed that they are extinct in most of their historical range and may be surviving in as little as 8% of their former range (Bauer *et al.*2016) Absent from forests, lions otherwise have a wide habitat tolerance, penetrating deep into deserts, even where only ephemeral watercourses occur. Where water is available, lions will drink regularly, but are by no means water dependent, getting most of their water requirements from their prey (Smithers 1983, Skinner and Smithers 1990). The most important habitat requirement is that it provides an adequate food supply in the form of medium to large sized mammals.

Historically lions were distributed throughout Namibia with sightings recorded in the areas of Swakop River, south of Windhoek, Keetmanshoop and many other areas by the early travellers (Vedder, 1938). Lion populations where extirpated from most parts of Namibia by the turn of the 20th Century.

The Namibian lion population can be subdivided into 2 populations, the Etosha-Kunene population and the Khaudum-Zambezi population. It is unlikely that there is any significant exchange between these populations at present and it is unlikely that this will change in the near future. In addition there are a number of small populations on private game reserves, most notable is the population maintained in a private game reserve in the Kalahari, Ongava and Etosha Heights Safari Lodge on the edge of Etosha National Park. There are also possible genetic differences between the populations but the significance of this is still unclear but should be considered when making management decisions (Dubach et al., 2013).

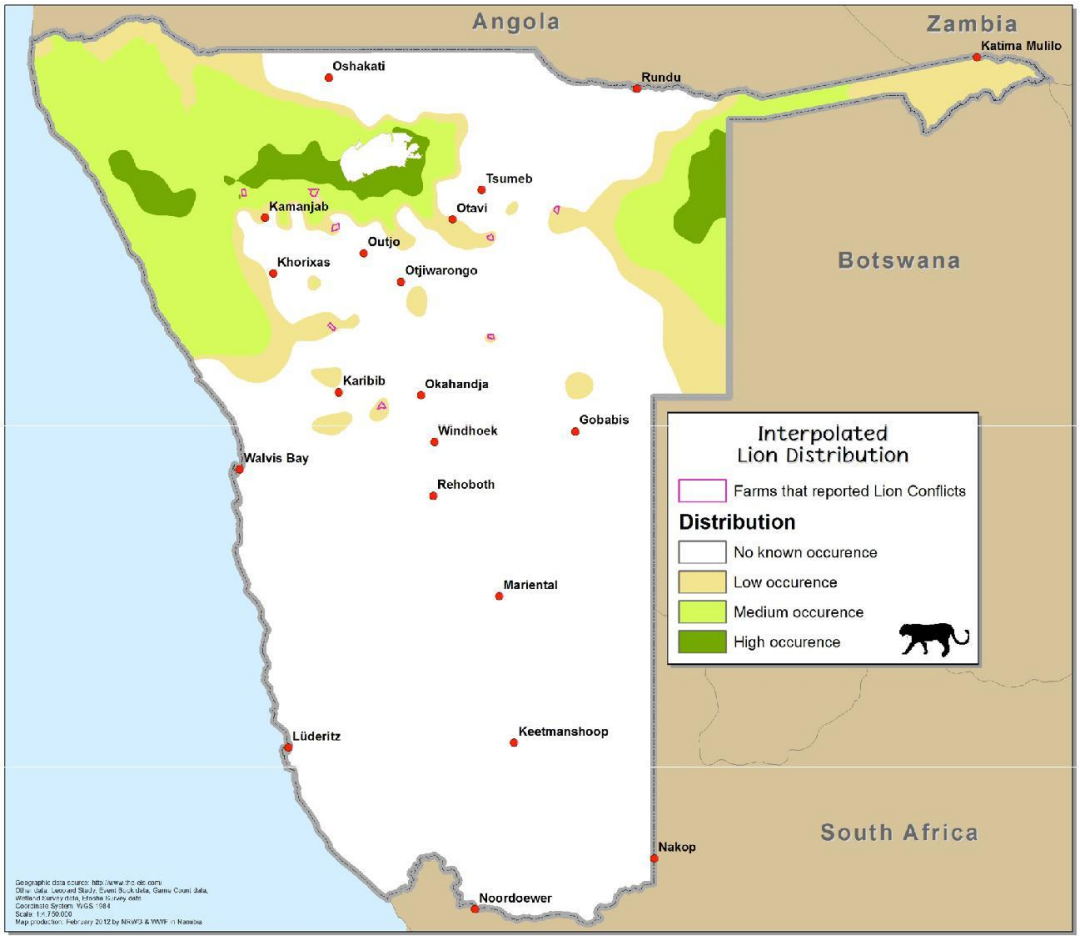

Fig.2. *Distribution of free ranging lions in Namibia (Large Carnivore Atlas, 2012)*

1.3. Habitat requirements

The Lion has a broad habitat tolerance; they are absent only from the tropical rainforest and interior of the Sahara desert (Nowell & Jackson 1996). Like most large carnivores, lions require areas with sufficient prey base and low human densities. Within their home ranges lions require habitats or locations that are suitable for hunting, resting and breeding. Although landscape features may vary from area to area, lions tend to select areas where prey is easier to catch, than areas where prey densities are highest (Hopcroft *et al*. 2005).

1.4. Biology:

Lions are the most social of the cats, with related females remaining together in prides, and related and unrelated males forming coalitions competing for tenure over prides. Average pride size (including males and females) is four to six adults; prides generally break into smaller groups when hunting (Bauer *et al.*2016). Lions live at higher densities than most felids with a variation from 1.5 adults per 100km2 in Southern African semi-deserts to 55 per 100 km2. (Sunquist & Sunquist 2002).

In most large protected areas, lion populations tend to be stable (Packer *et al*. 2005; Ferreira & Funston 2010a), but when introduced into a new reserve with naïve and high prey densities, lion populations increase very rapidly (Kilian & Bothma 2003; Miller & Funston 2014) requiring active management interventions to avoid undesired outcomes resulting from overpopulation.

1.5. Ecology

Lion prey consists of medium- to large-sized ungulates, including antelopes, zebra and wildebeest. However, lions feed on almost any animal, from rodents to a rhino and do at times also scavenge, displacing other predators from their kill (IUCN, 2016).

Lions respond to behavioural and physiological changes in prey in terms of what species, sex and age of prey they select (Owen-Smith 2008). Although lions hunt cooperatively (Stander 1992) no clear evidence was found that this benefits lions in terms of the amount of food they eat (Packer *et al*. 1988), and thus hunting success is not a driver of sociality in lions (Packer *et al*. 1990).

Lion home range size differs contrastingly between populations, ranging from as small as 20 km^2 in the Ngorongoro Crater (Elliot & Cowan 1978), to 400 km^2 in Etosha National Park (Stander 1991), and up to 4500 km^2 in the Kgalagadi system (Funston 2011).

1.6. Diseases

It is believed that disease risk for lions increases as populations become isolated, placing them at a higher risk when confined by fencing (Keet *et al*. 2009). In addition, their increasing proximity to people and domestic animals exposes them to new diseases (IUCN SSC Cat Specialist Group 2006).

Namibian lion are generally believe to be free from most of the diseases affecting African lions elsewhere. Therefore it is important that the disease free status of the lion populations, especially the populations in large protected areas such as Etosha National Park are protected against introduction of diseases.

2. Threats to the survival of lion

Surveys have indicated a suspected decline of 30-50% in the African lion population in recent decades. A decade ago estimates ranged from 23,000 to 39,000 wild lions (Chardonnet 2002; Bauer & van der Merwe 2004), with a current estimate of 30,000 (Riggio *et al*. 2013). The main threats to lions are indiscriminate killing (primarily as a result of human-lion conflict) and prey base depletion. Habitat loss and conversion have led to a number of subpopulations becoming small and isolated (Bauer *et al.* 2008).

The following are known threats to the long-term survival of lion in Namibia as well as their wider range:

- Persecution by livestock farmers (both commercial and communal)
- Habitat loss and degradation, as well as habitat fragmentation
- Decreasing wild prey populations
- Potential loss of connectivity with neighbouring countries
- Diseases

3. Background and Rationale for the Conservation Strategy

This is the first Namibian species management plan for the Lion and its development follows from and is guided through the National Policy on the Conservation and Management of Large Carnivores of 2014. The Policy outlined the following strategies:

- Targeted and sustained Research and Monitoring
- Species-specific Large Carnivore Conservation and Management Planning
- Sustainable Utilization of Large Carnivores
- Management of Human-Carnivore Conflict
- Stakeholder Engagement Platforms
- Standard Operational Procedures
- Large carnivore conservation at landscape level

4. Vision and Goal statements

Vision

Ensure the long-term conservation of the Namibian lion in a sustainable environment for the mutual benefit of present and future generations of people and lions

Goal

Viable free-ranging lion populations on formally protected land, conservation areas and in suitable game reserves providing social, cultural and economic benefits to all

4.1. Objectives

The following objectives are developed to meet the strategies set out in the National Policy on the Conservation and Management of Large Carnivores:

Objectives

1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that recognise and promote wildlife as an integral part of multiple land use systems and which provide conservation-related socio-economic benefits across current and potential lion range.

2. **Management**: To ensure effective conservation management of lions, their habitats and prey through identified needs including research and monitoring.

3. **Conflict mitigation**: To reduce and mitigate human/livestock conflicts with lions in a participatory, responsible and transparent manner.

4. **Socio-economics**: Analyze and distribute equitably the costs and benefits of lion conservation and management, whilst optimizing wildlife-related net benefits to affected communities.

5. **Trade and regulation**: To prevent illegal trade and to regulate consumptive use of lions and lion products.

6. Transboundary connectivity: Ensure connectivity with the neighbouring lion populations is maintained

4.2. Objectives and strategic actions

Objective	Strategic Actions	Intended 5-Year Outcomes	Indicators	Implementing Party	Estimated Cost
1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that promote wildlife as an integral part of multiple land use systems and which provide conservation related socio-economic benefits across current and potential lion range	1.1. Implement lion conservation strategy within existing wildlife and other relevant policies, and consistent with primary legislation	Enabling policy and legislative environment that promotes lion conservation established, and operational	Lion conservation strategy in place and implemented	MET and relevant Government agencies	100,000
	1.2. Develop and implement regulations prohibiting translocation of lions from other areas to Etosha National Park	Etosha NP lion population is protected, and its disease-free status and genetic integrity of lion populations is maintained through prevention of mixing of geographically separated lion populations	Regulations preventing introductions of lions from distant areas into Etosha National Park developed and in place	MET	50,000
	1.3. Develop and implement regulations for the keeping of lions on private game reserves, clarifying rights, responsibilities and ownership	Viable lion populations established in suitable areas, especially on private land mainly used for wildlife management.	(i) Regulations on establishment of lion populations in other suitable areas in place, (ii) Increase in number of new lion populations	MET, Private Game Reserves, Communal and freehold conservancies	500,000

			established in the historical range		
	1.4 Develop and implement mechanisms to regulate hunting of problem lions	(i) All legal hunting of problem lions ethically conducted, benefiting the areas most affected by lion problems (ii) Compliance with international rules on trade in lion products resulting from the lion hunts.	Regulation of all matters pertaining to hunting of problem lions, prohibiting leg-hold traps and regulating cage traps	MET	50,000
	1.5. Develop and implement regulations for the rehabilitation of lions, and lions kept in captivity.	(i) Lion rehabilitation process is regulated to ensure that it does not lead to socio-economically detrimental outcomes (ii) Numbers of lion kept in captivity remain stable	(i) Regulations in place for rehabilitation of lions (ii) All permit holders comply to conditions under the regulations or be closed down	MET, Large Carnivore Management of Association Namibia (LCMAN), registered large carnivore rehabilitation centres &	200,000

		or decrease over time.	permanently	captive facilities.	
2. **Lion Management:** lion populations, their habitats and prey base effectively managed in collaboration with local stakeholders	2.1. Continue long-term monitoring of lion populations and their prey throughout the lion range	Lion and their prey base remain stable or increase in the lion range	Regular monitoring of lions and prey species in lion range areas	MET, LCMAN and private game reserves, wildlife research and monitoring organisations, NGOs	1,500,000
	2.2. Maintain and strengthen capacity for lion conservation, management , monitoring and research within the MET and amongst the other key stakeholders	Capacity to manage lion in Namibia is established within MET, LCMAN and other key stakeholders.	(i) Large carnivore coordinator is appointed and capacitated (i) Large carnivore coordinator and LCMAN attends regular training workshops and capacity building initiatives	MET, LCMAN, Range wide Large Carnivore Programme	500,000
	2.3. Identify and implement best	(i) Hunting of lion is ethically conducted, and	(i) Regulations and guidelines on lion	MET, LCMAN,	100,000

	management standards and practices for all legally hunted lion populations, ensuring their viability and sustainable and adaptively managed hunting quotas	is not detrimental to the long-term survival of the species in Namibia (ii) Legal hunting of lion contributes meaningful and tangible benefits to the landholders, and communities sustaining and sharing their land with lion populations	hunting in place (ii) Records of benefit flows to landholders and communities from lion hunts	hunting operators, conservancies	
	2.4 Promote collaborative management of lion populations across landscapes	Lion conservation is practiced beyond the boundaries of the formally protected areas	Lion range expansion adjacent to formally protected areas and other suitable places.	MET, communal and freehold landholders, private sector, NGOs	200,000
	2.5. Maintain viable and sustainable populations of prey species in lion range areas to enhance lion conservation and to further reduce human-lion conflicts	(i) Stable or increasing wild prey populations in lion range (ii) Improved and predator friendly livestock husbandry	(i) Regularly conducted wildlife survey reports (ii) Number of projects supporting predator friendly	MET, LCMAN, NGOs	1,000,000

		practices in place (iii) Reduce lion predation on domestic livestock	livestock husbandry practices (iii) Acceptable community attitudes towards lions		
	2.6 Facilitate lion re-introduction programmes in the region informed by science	Namibia contributes to lion re-introduction programmes in southern Africa region	Number of lion re-introductions supported by Namibian Government (on request, opportunistic)	MET, SADC member states	500,000
3. **Conflict mitigation:** To reduce and minimise human-lion conflict in a participatory, responsible and accountable manner	3.1. Identify and implement strategies to reduce and mitigate livestock losses	(i) Reduction in lion caused livestock losses (ii) Increased level of tolerance of lions by livestock rearing communities	(i) Decrease in number of livestock killed by lions (ii) Continued co-existence of lions and cattle in dominantly livestock farming areas (iii) Reduction in	MET, NACSO, WWF Namibia	500,000

			number of lions destroyed as problem animals		
	3.2. Through partnership with civil society and private sector establish well trained and properly staffed problem animal response units to deal with lion-human conflicts	Capacity in place at various levels throughout the lion range to provide instant response to reported lion conflicts	Number of rapid response units established and operational in the lion range	MET, NACSO, NGOs & Private sector	2,000,000
	3.3. Implement and raise awareness on the National Human-Wildlife Conflict Management Policy	Human-wildlife conflict in Namibia managed according to the strategies of the National Policy on Human Wildlife Conflict Management	Level of implementation of the provisions of the National Policy on Human-Wildlife Conflict Management	MET, NACSO, CANAM, Farmers Unions	200,000
	3.4. Exchange information on best practices, working models to prevent human-lion conflict both nationally and internationally	Best practices and lessons learnt are shared with all stakeholders leading to reduction in incidences of human-lion conflicts	Reduction in incidences of human-lion conflicts	MET, NGOs, KAZA TFCA	500,000
	3.5. Work closely with traditional authorities to prevent new land	Traditional authorities support and respect areas zoned for wildlife	(i) Number of workshops conducted with Traditional	MET, MURD, NACSO, NGOs,	500,000

	allocations in areas zoned for wildlife and lion conservation on communal land	conservation when considering new land allocations	Authorities (ii) No new human-settlements in areas zoned for wildlife conservation except for emergency grazing during drought conditions	Traditional Authorities	
	3.6. Develop area-specific lion conflict management strategies adapted to local conditions	Area-specific management strategies for human- lion conflict considering the opportunities and challenges presented by different areas.	Area-specific human – lion conflict management strategies developed for the lions in Northwest and Northeast	MET	500,000
4. **Socio-economics:** The costs and benefits of long-term lion conservation and management equitably distributed	4.1. Strongly promote the concept of competitive advantage that African wildlife provides Namibia compared to other land uses types and industries	Wildlife, including lion, fully integrated in multi-species production systems in suitable areas in Namibia	(i) Contribution of the wildlife and tourism sector to the GDP of the country (ii) Expansion of the wildlife based production systems	MET, private sector, farmers unions	500,000

			inclusive of lions		
	4.2. Deliver appropriate training, education and capacity building to identified stakeholders	Capacity exists at community level to manage conflict with lions	Reduction in human-lion conflict incidences	MET, NACSO, NGOs, KAZA TFCA	300,000
	4.3. Agree, and implement collaboratively developed area-specific lion management plans with identified stakeholder groups in the lion range in Namibia	Lion management at area specific scale taking into consideration the opportunities and challenges unique to lion range areas	Separate local level lion management plans for key lion populations in the Northwest, Northeast and on small fenced reserves.	MET, LCMAN, KAZA TFCA, conservancies	500,000
	4.4. Implement transparent mechanisms to equitably distribute lion related/generated income to identified stakeholders	Communities and landholders supporting lion conservation on their land obtain direct and equitable benefits from the conservation of lions	Mechanisms developed to distribute benefits from lion to communities and landholders	MET, NACSO, tourism operators, hunting operators	200,000
	4.5. Engage more actively in the integrated landuse planning processes as well as the implementation and monitoring thereof	Land use planning is applied as a tool to secure lion conservation friendly land uses in lion range areas	Wildlife and lion conservation recognised and supported in integrated land use planning	MET, MURD, MLR, TA, NACSO, NGOs	100,000

			processes.		
5. **Trade and Regulation:** Effective regulation of consumptive, non-consumptive lion utilization and trade in lion products ensured	5.1. Implement approved policy and practice at national and local level regarding problem animal control and hunting of lions	(i) Problem animal control and hunting of lion adhere to approved policies and regulations governing such activities and is transparently conducted (ii) Potential loopholes in problem lion hunting by farmers and any associated fraudulent activities eliminated	No reported cases of fraudulent activities concerning problem lion hunts	MET, Hunting operators, Hunting Associations	50,000
	5.2. Ensure trophy hunting contributes directly to lion conservation by providing lion hunting quotas only to landholders that have well managed resident lion populations on their	(i) Benefits from lion accrue to communities and landholders supporting viable resident populations of lion	Lion utilization quotas granted to landholders and communities with viable resident lion populations	MET, conservancies, farmers, NACSO, NGOs	100,000

	land	(ii) Communities and landholders supporting resident lion population are more organised and support lion conservation at larger landscape level			
6. **Transboundary connectivity** – lion conservation across transboundary landscape in the KAZA TFCA	6.1. Develop and implement transboundary collaborative research and management projects	New knowledge and information is generated on lion conservation at transboundary scale that is used to influence management interventions for shared lion populations	Number of collaborative research projects in the KAZA TFCA	MET, KAZA, Angola, Botswana and Zambia	500,000
	6.2. Ensure and maintain connectivity between regional lion populations through, and in line with the transboundary conservation programmes	(i) Regional lion populations are connected and remain viable and stable over time (ii) Protected, and respected lion and other wildlife dispersal areas in	(i) Number of collaborative research projects in the KAZA TFCA (ii) Research and Monitoring results	MET, KAZA, Angola, Botswana and Zambia	500,000

		place ensuring unhindered movement of lion and other wildlife between and across international boundaries	demonstrating connectivity between regional lion populations		
	6.3. Where possible, promote compatible land uses on both sides of national boundaries through existing transboundary conservation programmes	Land uses incompatible with lion conservation across national boundaries are reduced over time, creating viable environment for lion dispersal without negative outcomes for both lion and human activities.	(i) Studies conducted to assess level incompatible land uses across international boundaries (ii) Stable or decline in incompatible land uses	MET, Traditional Authorities, KAZA, Angola, Botswana and Zambia	500,000

5. Implementation and revision of the Strategy

The Lion Conservation Strategy is structured so that the activities identified that will contribute to the achievement of the strategic objectives, can be used more effectively in the development of annual action plans and work plans by MET, private partners, conservancies and NGOs. It is intended that the strategy would provide the main foundation for an annual planning cycle, which in the process of implementation of annual action plans will provide input and lessons learnt for revision of the strategy after five years.

Within MET this process will be guided through the Large Carnivore Advisory Group (LCTAG) and MET will give input to the stakeholder meetings of private sector through stakeholder meetings like the Large Carnivore Management Association (LCMAN) of Namibia.

The strategy will be revised after 5 years or earlier should the need arise due to unforeseen circumstances. This will be determined through a mid-term review after two years.

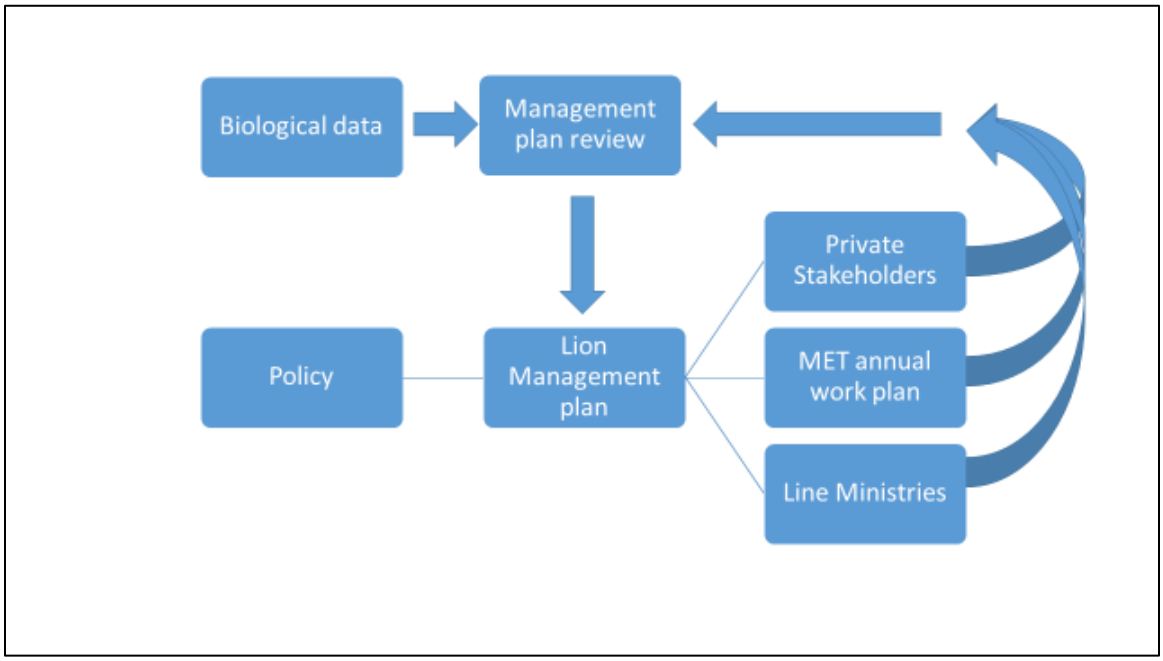

Fig. 2 *Flow diagram showing the implementation and review process*

6. List of sources consulted

Chardonnet, P. (Ed.). (2002). *Conservation of the African Lion: Contribution to a Status Survey*. France: International Foundation for the Conservation of Wildlife, USA: Conservation Force.

Bauer, H., Packer, C., Funston, P, F., Henschel, P & Nowell, K. (2016). Panthera leo. The IUCN Red List of Threatened Species 2016:e.T15951A7162455.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Dloniak, S.M., Packer, C., (2016), Reply to Riggio et al.: Ongoing lion declines across most of Africa warrant urgent action. Proceedings of the National Academy of Sciences 113, E109.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Packer, C., (2015), Lion (Panthera leo) populations are declining rapidly across Africa, except in intensively managed areas. Proceedings of the National Academy of Sciences 112, 14894-14899.

Bauer, H. & Van Der Merwe, S. (2004). Inventory of free-ranging lions (*Panthera leo*) in Africa. *Oryx* 38: 26-31.

Dubach, J.M., Briggs, M.B., White, P.A., Ament, B.A., Patterson, B.D., (2013), Genetic perspectives on "Lion Conservation Units" in Eastern and Southern Africa. Conservation Genetics 14, 741-755.

Elliot, J.P. & Cowan, I. Mc T. (1978). Territoriality, density and prey of the lion in Ngorongoro Crater, Tanzania. *Canadian Journal of Zoology* 56: 1726-1734.

Funston, P.J. (2011). Population characteristics of lions (*Panthera leo*) in the Kgalagadi Transfrontier Park. *South African Journal of Wildlife Research* 41: 1-12.

Hopcraft, J. G. C., Sinclair, A. R. E. & Packer, C. (2005). Planning for success: Serengeti lions seek prey accessibility rather than abundance. *Journal of Animal Ecology* 74: 559–566.

Keet, D.F., Davies-Mostert, H., Bengis, R.G., Funston, P., Buss, P., *et al*. (Eds.). (2009). *Lion (Panthera leo) Bovine tuberculosis disease risk assessment* (Workshop report). Skukuza, South Africa: Conservation Breeding Specialist Group (CBSG SSC / IUCN), CBSG Southern Africa, Endangered Wildlife Trust.

Kilian, P.J. & Bothma, J. Du P. (2003). Notes on the social dynamics and behaviour of reintroduced wild lions in the Welgevonden Private Game Reserve. *South African Journal of Wildlife Research* 33: 119-124

Miller, S.M. & Funston, P.J. (2014). Population growth rates of lions (*Panthera leo*) on small fenced reserves in South Africa: a management dilemma. *South African Journal of Wildlife Research* 44: 43-55.

Minin, E.D., Leader-williams, N., Bradshaw, C.J.A., (2016), Banning Trophy Hunting Will Exacerbate Biodiversity loss. Trends in Ecology & Evolution 31, 4.

Nowell, K. & Jackson, P. (1996). Status Survey and Conservation Action Plan Wild Cats. IUCN, Gland, Switzerland.

Owen-Smith, N. (2008). Changing vulnerability to predation related to season and sex in an African ungulate assemblage. *Oikos* 117: 602-610.

Packer, C., Scheel, D. & Pusey, A. E. (1990). Why lions from groups: food is not enough. American Naturalist 136: 1–19.

Packer, C., Herbst, L., Pusey, A. E., Bygott, J. D., Hanby, J. P., Cairns, S. J. & Borgerhoff-Mulder, M. (1988). Reproductive success in lions. In: Reproductive Success (Ed. by T. H. Clutton-Brock), pp. 363–383. Chicago: University of Chicago Press.

Packer, C., Pusey, A.E., Rowley, H., Gilbert, D.A., Martenson, J. & O'Brian, S.J. (1991). Case study of a population bottleneck: lions of the Ngorongoro crater. Conservation Biology 5: 219–230.

Packer, C., Gilbert, A., Pusey, A.E. & O'Brien, S. J. (1991). A molecular genetic analysis of kinship and cooperation in African lions. *Nature* 351: 562–565.

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Dickman, A., Funston, P., Henschel, P., de Iongh, H., Lichtenfeld, L., Packer, C. and Pimm, S. (2013). The size of savannah Africa: a lion's view. *Biodiversity and Conservation* 22(1): 17-35

Riggio, J., Caro, T., Dollar, L., Durant, S.M., Jacobson, A.P., Kiffner, C., Pimm, S.L., van Aarde, R.J., (2016), Lion populations may be declining in Africa but not as Bauer et al. suggest. Proceedings of the National Academy of Sciences 113, E107-E108.

Schaller, G.B. (1972). The Serengeti Lion: A Study of Predator Prey Relations. University of Chicago Press, Chicago.

Stander, P. E. (1992). Cooperative hunting in lions: the role of the individual. *Behavioral Ecology and Sociobiology* 29: 445–454.

Stander, P. (2007). Behaviour-ecology and Conservation of desert-adapted Lions. *2007 Progress Report of the Kunene Lion Project. Desert Lions Conservation. Namibia*, 17.

Sunquist, M., and F. Sunquist. 2002. Wild Cats of the World. University of Chicago Press, Chicago and London

Trinkel, M., Angelici, F.M., 2016, The Decline in the Lion Population in Africa and Possible Mitigation Measures, In: Angelici, M.F. (Ed.) Problematic Wildlife: A Cross-Disciplinary Approach. Springer International Publishing, Cham, pp. 45-68.

Vedder, H. 1938. South West Africa in Early Times. Thomas Nelson Printers Ltd. London & Edinburgh

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

HUMAN-LION CONFLICT MANAGEMENT PLAN FOR NORTH WEST NAMIBIA

July 2017

FOREWORD

Managing Human-Lion Conflict in the arid environment of the Kunene Region is complex. Sporadic and variable rainfall patterns, typical of arid environments, result in large overlapping home ranges amongst the lions that often clash with local farmers in search of suitable grazing for their livestock. Lions are important to the growing tourism industry and there is an urgent need to manage Human-Lion Conflict in the region.

Long-term data collected on the ecology of the lion population provide a sound basis to develop and implement a management strategy to address the conflict. The Human-Lion Conflict Management Plan is subject to the National Policy on Human-Wildlife Conflict Management and relies on full collaboration by the various stakeholders under the guidance of the Ministry of Environment and Tourism.

Malan Lindeque
PERMANENT SECRETARY

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ABBREVIATIONS

CBNRM	Community-based Natural Resource Management
DECP	Desert Elephant Conservation Project
DLCT	Desert Lion Conservation Trust
DWNP	Directorate of Wildlife and National Parks
DSS	Directorate of Scientific Services
GPTF	Game Products Trust Fund
IRDNC	Integrated Rural Development and Nature Conservation
HWC	Human-Wildlife conflict
HLC	Human-Lion conflict
KRCCA	Kunene Region Communal Conservancy Association
MET	Ministry of Environment and Tourism
MLR	Ministry of Land Reform
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
PH	Professional Hunter
UNAM	University of Namibia

GLOSSARY

For the purposes of this management plan, the words or phrases set out below have the following meanings:

Authorized staff member	Regional heads of the Ministry authorized by the Minister to carry such duties, functions and responsibilities.
Capacity building	Transfer of knowledge, information, skills and understanding.
Conservancy	Communal area conservancy Gazetted in terms of the Nature Conservation Amendment Act (No.5 of 1996).
Culling	Lethal removal of wild animals to reduce their numbers.
Director	Director of Wildlife and National Parks
Human-Wildlife Conflict	Any event in which wild animals harm, destroy or damage human life or property (including damage to or destruction of crops), or in which wild animals are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Human-Lion Conflict	Any event in which lions harm or destroy human life or their domestic livestock, or in which wild lions are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Government	Government of the Republic of Namibia.
Ministry	The Ministry of Environment and Tourism.

Problem-causing animal	An identified individual wild animal that at any point in time harms, destroys or damages human life or property.
Professional Hunter	A professional hunter approved by MET.
Protected Area	Formal protected area proclaimed in the Government Gazette according to legislation.
Staff member	Person appointed in terms of the Public Service Act (13 of 1995).
Stakeholder	Any individual, group of individuals, organization or government department or agency that is affected by HWC or is involved in research on HWC or implementation of measures to mitigate HWC.
Wild animal	Any wild animal that is included in Schedules 3, 4 and 5 of the Nature Conservation Ordinance (Ordinance 4 of 1975, as amended) or any similar schedules contained in legislation that replaces the Ordinance.

1. INTRODUCTION

Addressing Human-Wildlife Conflict requires striking a balance between conservation priorities and the needs of people who live with wildlife. Most Namibians depend on the land for their subsistence. But the presence of many species of large mammals, combined with settlement patterns of people, leads to conflict between people and wildlife. It is therefore necessary that mechanisms are created for rural communities and farmers to manage and benefit from wildlife and other natural resources.

A variety of approaches can be implemented in order to manage the conflict efficiently and effectively, and that are in line with the strategies set out in the policy. These include prevention strategies which endeavour to avoid the conflict occurring in the first place and take action towards addressing its root causes, and protection strategies that are implemented when the conflict is certain to happen or has already occurred, as well as mitigation strategies that attempt to reduce the level of impact and lessen the problem.

2. BACKGROUND

Successful conservation efforts and the growth of communal conservancies in the North West of Namibia during the past 20 years have resulted in an increase of wildlife populations.

Along the borders of the Skeleton Coast Park a small population of lions survives in extreme desert conditions. These lions exhibit unique adaptation to their environment and live in a harsh habitat of sand dunes, gravel plains and barren mountains, and occasionally forage along the beaches of the Skeleton Coast. This has resulted in the growth in tourism because nowhere else in the world can free-ranging lions be seen amongst sand dunes or on a beach. These lions should be viewed as a National asset to Namibia that needs to be managed wisely to the optimum benefit of the Namibian people.

However, the increase in wildlife numbers, has led to heightened conflict between lions and the local people. While income-generating enterprises such as tourism, trophy hunting and crafts have thrived at conservancy level; considerably less attention has been

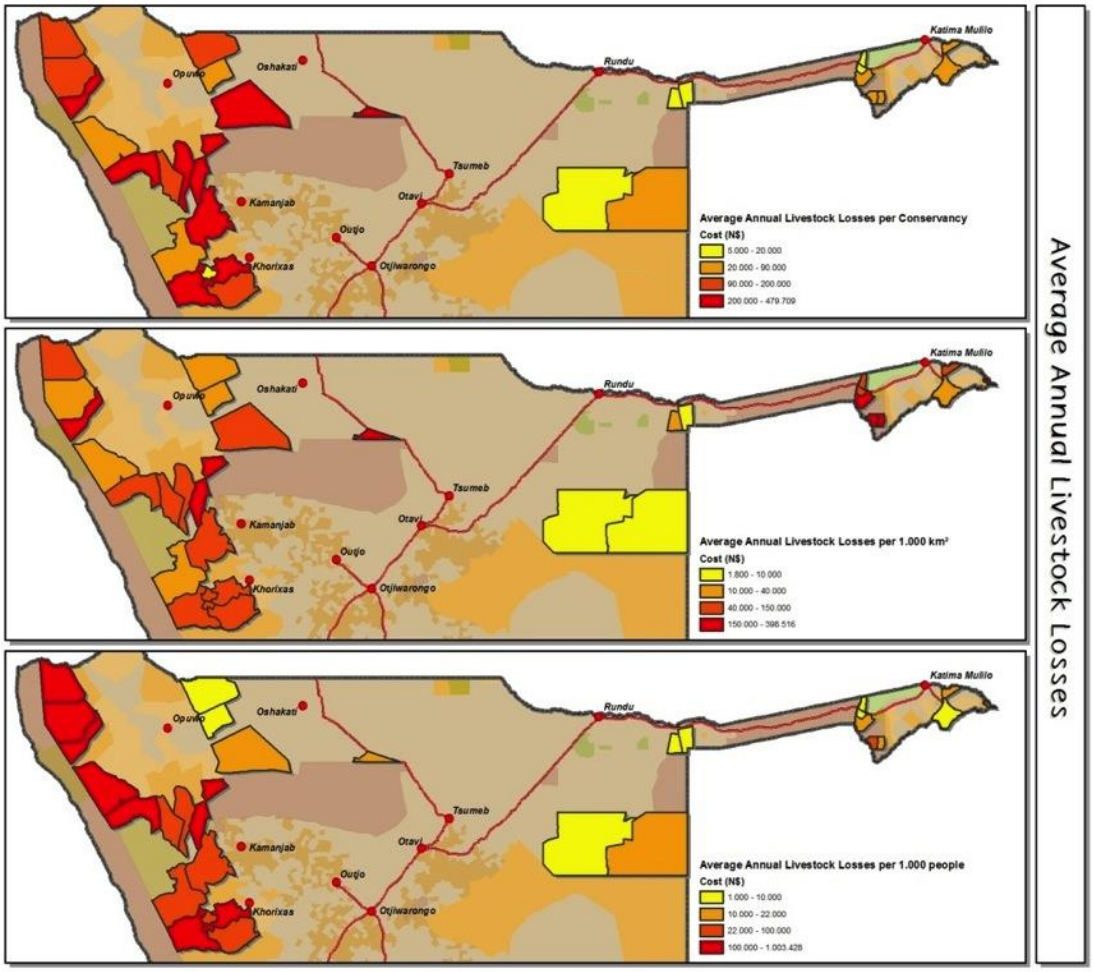
paid to reducing human-wildlife conflict. In most conservancies the costs experienced by conservancy members that suffer livestock losses from lions exceeds the selected income they earned from their respective conservancies. Table 1 shows the annual costs of livestock losses in some of the key conservancies across northern Namibia. Conservancies in the North West (NW) of Namibia suffer significantly higher losses when compared to conservancies across northern Namibia (Table 1).

Conservancies with the highest incidents of human-wildlife conflict are those on or near to national parks and tourism concession areas (Figure 1) with conservancies along the borders of Etosha National Park and Skeleton Coast Park, and around Palmwag concession areas suffering most livestock losses. Lions prey on domestic livestock, and farmers respond by shooting lions to protect their livelihood. Local communities have to bear the costs of living with lions but do not always share equally in the benefits. As a result, members of those conservancies are often least sympathetic to the presence of the park and are less inclined to support conservation practices. These attitudes can be turned around by providing communal farmers with information, support, management skills and infrastructure to protect livestock, as part of the implementation of conservancy and/or regional HWC management plans.

Table 1: The estimated costs of Human-Wildlife Conflict through livestock losses (N$) per conservancy and per 1,000 people for each conservancy.

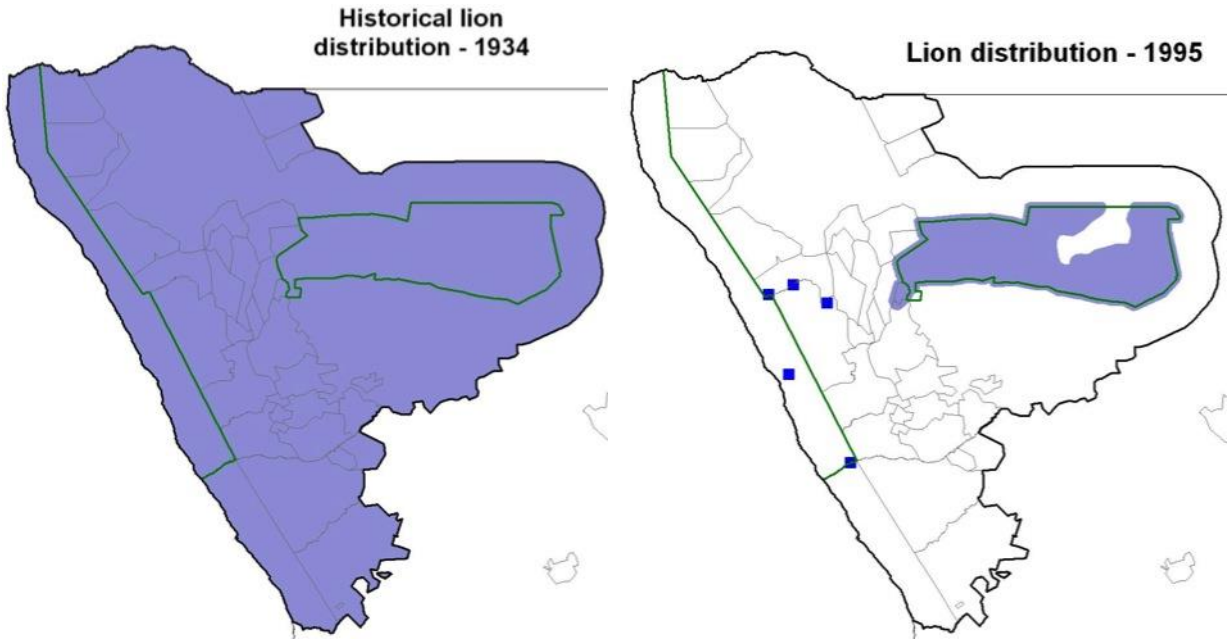
Average annual livestock losses per conservancy			Average annual livestock losses per 1,000 people per conservancy	
Conservancy	**Cost (N$)**		**Conservancy**	**Cost (N$)**
Muduva Nyangana	5,868		Uukwaluudhi	1,185
Mayuni	9,976		N=/a Jaqna	2,473
Uibasen Twyfelfontein	16,063		Muduva Nyangana	2,934
N=/a Jaqna	17,311		Uukolonkadhi/Ruacana	3,603
George Mukoya	18,044		Mayuni	4,157
Kwandu	18,484		Kwandu	4,299
Sikunga	22,445		Salambala	4,801
Impalila	27,873		George Mukoya	9,022
Uukwaluudhi	29,633		King Nehale	10,122
Salambala	36,968		Sikunga	11,223
Balyerwa	37,849		Sheya Uushona	13,566
Wuparo	40,196		Impalila	18,582
Nyae Nyae	48,998		Wuparo	19,141
Puros	50,508		Mashi	20,500
Mashi	79,952		Nyae Nyae	21,303
Torra	88,596		Balyerwa	25,232
Uukolonkadhi/Ruacana	90,074		Anabeb	45,126
Anabeb	90,252		Uibasen Twyfelfontein	69,840
Orupembe	100,636		Torra	73,830
Sorris Sorris	123,372		#Khoadi//hoas	74,261
Marienfluss	165,771		Omatendeka	85,673
King Nehale	202,446		Sorris Sorris	94,902
Doro !Nawas	207,000		Sesfontein	106,211
Omatendeka	214,182		Ehirovipuka	131,443
#Khoadi//hoas	237,636		Doro !Nawas	138,000
Sanitatas	250,857		Puros	194,262
Sesfontein	265,527		Orupembe	251,591
Ehirovipuka	328,608		Marienfluss	552,570
Sheya Uushona	479,709		Sanitatas	1,003,428

Figure 1. Livestock losses recorded in conservancies across northern Namibia.



Historically lions occurred throughout the Kunene Region, but with autocratic political structures, land reform (such as the Odendaal Commission in 1970) and the growth of agriculture post 1970, the population declined dramatically (Figure 2). Lions that inhabited the Skeleton Coast Park and the bordering arid habitat of the northern Namib Desert were all but wiped out leaving only the Etosha population.

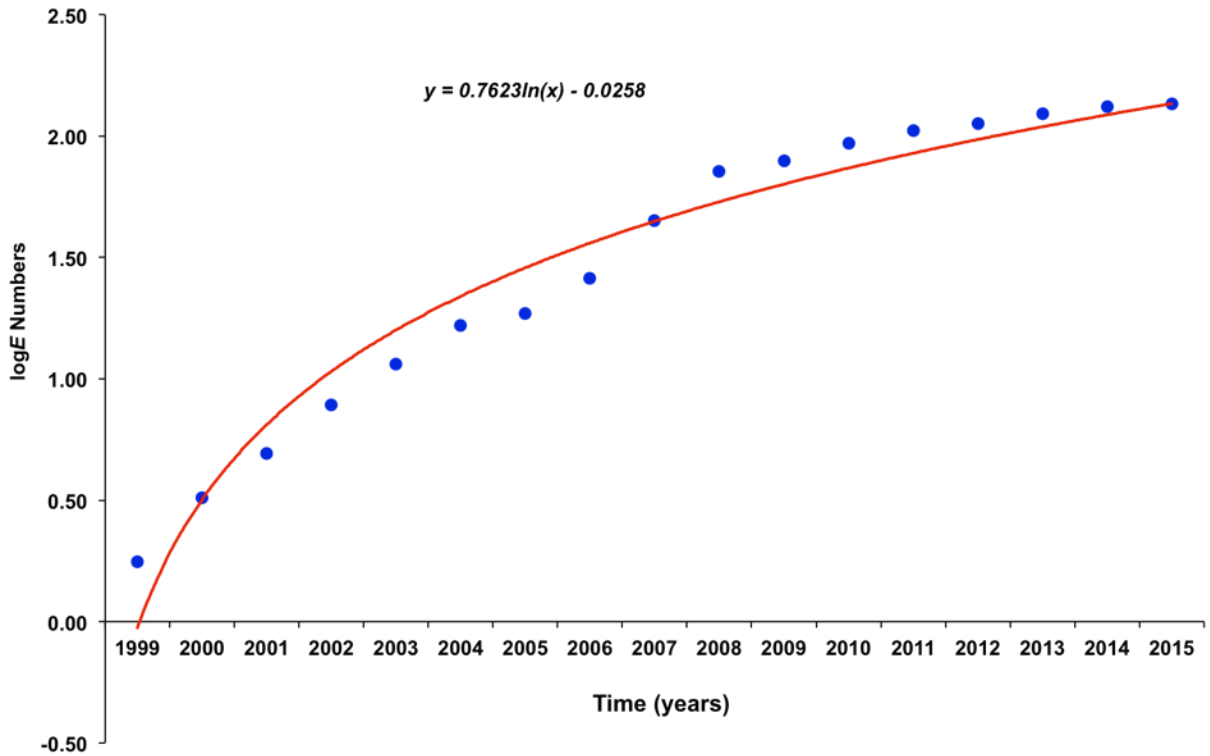
Figure 2. Historical distribution of lions in the North West of Namibia (1934 – 1995).



Following the independence of Namibia in 1990 that led to the establishment of communal conservancies, the development of CBNRM programmes, and the rapid growth of tourism, as well as above average rainfall in the region the few surviving desert-adapted lions increased and expanded to parts of its former range (Figure 4).

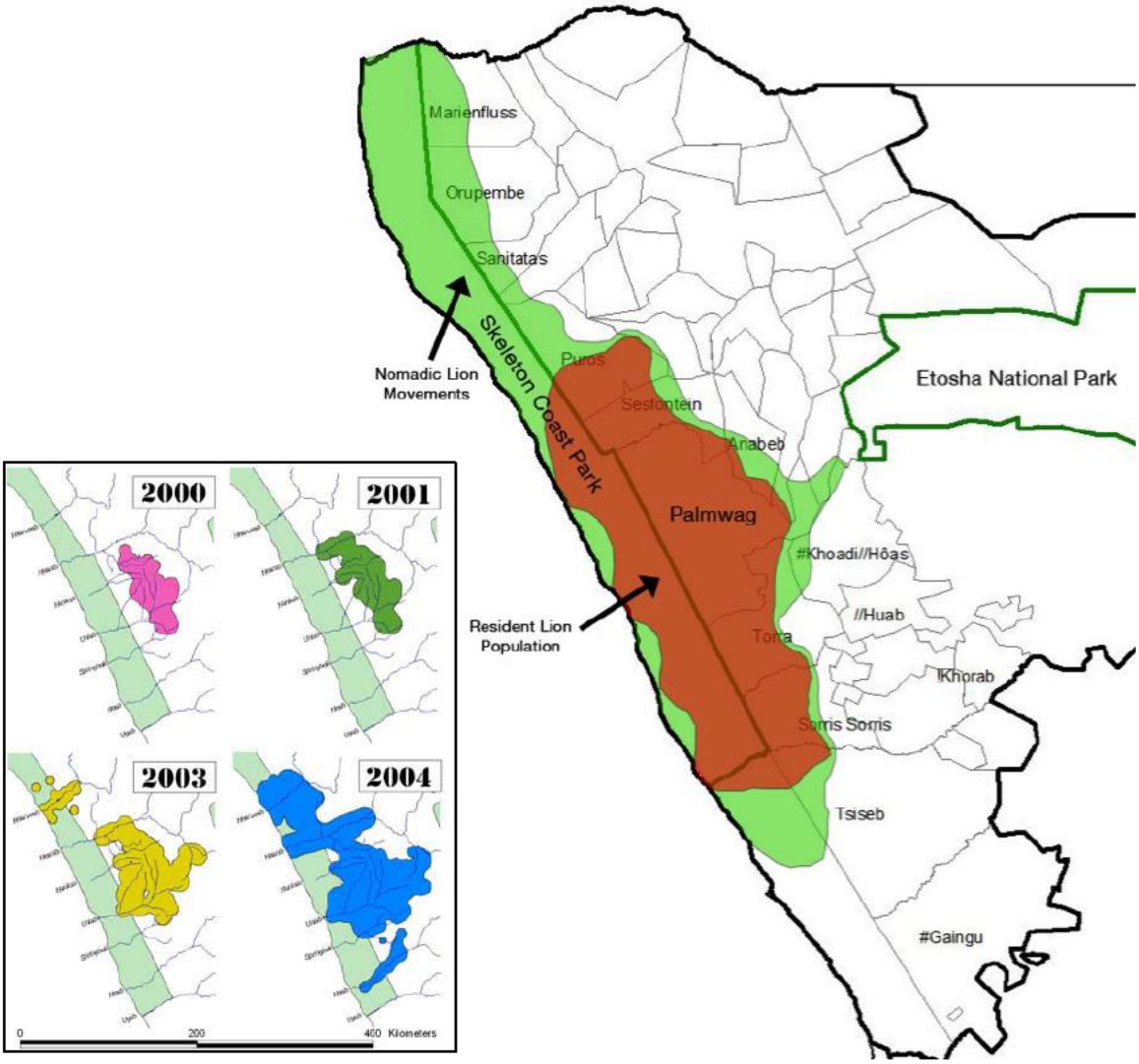
The lions have been the subject of intensive long-term research and monitoring since 1998. During this period the population displayed a positive growth rate (Figure 3) and the number of lions increased from approximately 20 individuals in 2000 to an estimated 180 in 2015.

Figure 3. Growth rate of the desert-adapted lion population between 1999 and 2015.



Lions may occasionally still move between Etosha and the arid areas bordering the Skeleton Coast Park, but the increase in livestock farming east of the Grootberg escarpment has essentially created an effective barrier. The lions inhabiting the Skeleton Coast Park and bordering areas exhibit unique adaptation to the arid environment and are treated as a separate sub-population, referred to as the "Desert" population. Between 1999 and 2015 the "Desert" lion population expanded from the core area northwest of Palmwag to occupy ephemeral river systems and suitable habitats between the Hoaruseb and Ugab Rivers (Figure 4).

Figure 4. The distribution of desert-adapted lions in the North West of Namibia in 2015 with indications of the recorded expansion between 2000 and 2004.



The “Desert” lion sub-population is important to the conservation of the species in Namibia. Their range (Figure 4) contributes to 51% of the total area inhabited by lions in Namibia, but only 16% of this range falls inside a protected area. Nevertheless, the conservation prospects are favourable, since the area has a rapid-growing tourism industry and forms the hub of CBNRM and Communal Conservancy programmes.

3. RATIONALE

In 2009, Cabinet approved the National Policy on Human Wildlife Conflict Management. The Policy provided a framework for addressing human-wildlife conflict efficiently and effectively in order to promote both biodiversity conservation as well as human development.

Due to human population growth, wildlife population growth, unplanned agricultural activities, and the expansion of agricultural and industrial activities, which together have led to increased human encroachment on previously wild and uninhabited areas the incidents of human-wildlife conflict have increased. With the current challenges and new innovative ideas on how to address the conflict, the National Policy on Human Wildlife Conflict Policy has been reviewed. The new policy is more focused and specific on affected areas and the specific conflict that should be addressed. The policy also contains an implementation plan that outlines the required human and financial resources requirements to deal with the problem. This human-lion conflict management plan contributes to the revised National Policy on Human Wildlife Conflict Management.

4. ALIGNMENT

The Human-Lion Conflict Management Plan is aligned with both the National Policy on Human Wildlife Conflict Management and the Lion Conservation Strategy (Draft). The legislative basis for control of problem causing animals, hunting and the rights on the utilisation of wildlife is currently covered by the Nature Conservation Ordinance 4 of 1975 as amended by the Nature Conservation Amendment Act (Act 5 of 1996).

5. PRINCIPLES

The Human-Lion Conflict Management Plan is based on a number of fundamental principles outlined in the National Policy on Human Wildlife Conflict Management.

6. POLICY DIRECTION

6.1 Vision

To manage human wildlife conflict in a way that recognizes the rights and development needs of local communities, recognizes the need to promote biodiversity conservation, promotes self-reliance and ensures that decision-making is quick, efficient and based on the best available information.

In order to achieve this, the Government will devolve decision-making to the lowest appropriate institutional levels, develop appropriate mitigation and monitoring methods and develop the capacity of all stakeholders to manage human wildlife conflict.

6.2 Mission

To provide a framework for addressing Human-Lion conflict efficiently and effectively in NW Namibia following the guidelines of the revised National Policy on Human Wildlife Conflict Management.

6.3 Goal

To provide measures and approaches to manage and reduce human lion conflict in NW Namibia according to the revised National Policy on Human Wildlife Conflict Management.

6.4 Objectives

The objectives of the Management Plan are:

6.4.2 To contribute to a standardised monitoring system for human-lion conflict Management.

6.4.3 To establish best practice mitigation measures for human-lion conflict management.

6.4.4 To develop innovative mechanisms to reduce the level of human-lion conflict.

6.4.5 To provide clarity on the question of compensation with regard to damages caused by wildlife, especially the lion.

6.5 Strategies

Human-Lion Conflict (HLC) is a multi-faceted problem. In order to address its impacts, a number of different strategies are required to address the following key issues:

- The economic impacts of HLC on local communities.

- The appropriate level of decision-making power for managing HLC, particularly in a case where an animal that persistently causes problems needs to be destroyed.

- Accurate information on the scale, the costs and impacts of conflict, and the success of mitigation methods and approaches.

- The skills of all stakeholders to manage HLC efficiently and effectively.

In order to address these key issues the Government has developed the following strategies:

6.5.1 Land use planning and livestock management structures

Understanding the patterns and extent of human-lion conflict experienced by communities farming with livestock in NW Namibia is important to the development of effective management options. Data collected by conservancies through the Event Book procedures and other monitoring systems provide valuable information. Between 2003 and 2015 the five conservancies that share their land with the Desert lion population recorded 5,863 incidents of livestock attacks caused by lions and other carnivores. On average 451 incidents were recorded per year (range: 205 in 2003 to 713 in 2013) with Sesfontein Conservancy recording the highest number of attacks (N = 2293) followed by Anabeb (N = 1393), Torra (N = 1303) and Purros Conservancies (N = 873). The pattern and frequency of livestock attacks varied between years and between conservancies (Figure 5).

Between 2005 and 2015 a total of 343 incidents of human-lion conflict were recorded by the five conservancies at an average of 32 incidents per year (range: 15 in 2011 to 54 in 2015). Torra Conservancy recorded the highest number of incidents (N = 121) followed by Purros (N = 85), Sesfontein (N = 77) and Anabeb Conservancies (N = 60). Although Torra Conservancy recorded a dramatic increase between 2011 and 2015, the pattern and frequency of human-lion conflict incidents between years and between conservancies appears to be random (Figure 6).

A total of 37 lions were destroyed between 2005 and 2015 (Figure 7). Torra Conservancy reported the highest number of lions destroyed during human-lion conflict (N = 18) followed by Sesfontein (N = 9), Anabeb (N = 7) and Purros Conservancies (N = 3). There was no statistical relationship between the recorded incidents of human-lion conflict and the number of lions destroyed. However, the number of lions destroyed increased dramatically between 2013 and 2015 when 27 of the 37 lions (73 %) were killed. During the same period the five conservancies only recorded 36 % of the total recorded human-lion incidents and 26 % of the recorded attacks on livestock.

Figure 5. Number of livestock damage incidents caused by lions and other carnivores per year between 2003 and 2015 as recorded by five conservancies.

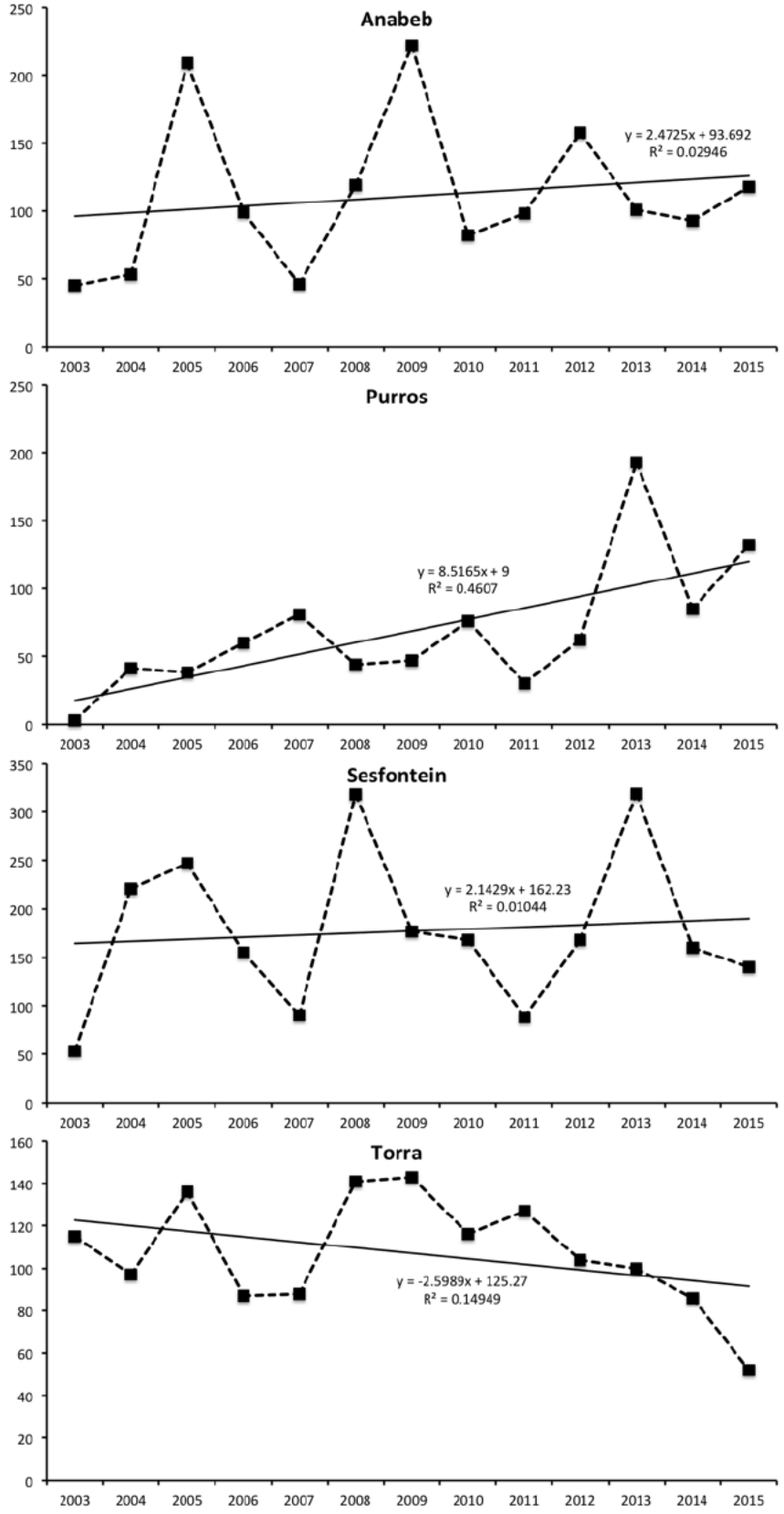
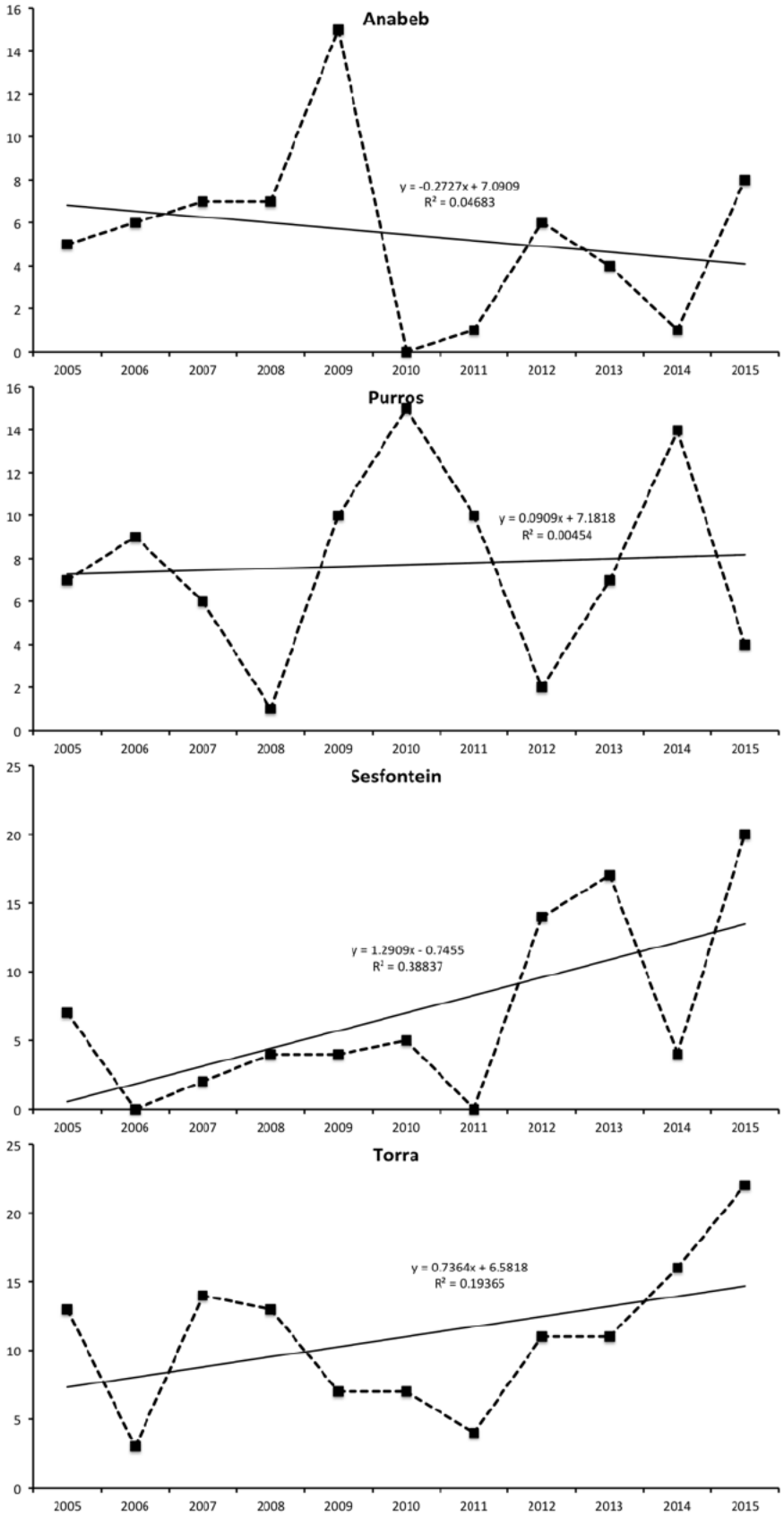


Figure 6. Number of human-lion conflict incidents per year between 2003 and 2015 as recorded by five conservancies.



6.5.2 Aspects of lion demography & behaviour ecology relevant to HLC

A sound understanding of the population dynamics, demography and behaviour ecology of the Desert lion population is essential to the process of conserving the species and managing human-lion conflict. This can only be achieved through the systematic collection of long-term data on the key aspects of their ecology. These include habitat utilisation, home ranges, movement patterns, hunting behaviour, activity patterns, group/pride structures and limiting factors.

6.5.2.1 Movements and habitat use

Over the past seven years (2008 – 2015) satellite and GPS radio-collars were fitted to 19 different lions that represent all the current prides in the population. In total 196,849 data points were recorded that contain accurate movement patterns and habitat utilisation of all the major prides/groups of lions that represent data over 43.5 lion-years (Table 2 & Figure 7).

Table 2. Sample sizes and status of 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	N^{-1} (points)	N^{-2} (nights)	Duration	Status
Hoanib Floodplain	Xpl-10,	♀	38,438	2,365	16.5 yrs	Dead***
	Xpl-55	♀				On-going**
Hoanib River	Xpl-47	♀	29,017	2,741	7.6 yrs	Dead
	Xpl-59	♀				On-going
Okongwe	Xpl-70	♀	11,298	1,142	2.8 yrs	Malfunction*
Orowau / Hunkap	Xpl-81	♂	9,226	1,169	3.4 yrs	On-going
	Xpl-53	♀	10,051	794	2.2 yrs	Malfunction
	Xpl-100	♀	861	164	8 mo	On-going
Uniab Delta	Xpl-45	♀	32,277	2,033	5.8 yrs	On-going
Barab / Obab	Xpl-54	♂	5,868	533	1.5 yrs	Malfunction
	Xpl-49	♀	30,253	1,447	4 yrs	Malfunction
Aub - Etendeka	Xpl-79	♂	420	210	7 mo	Dead
	Xpl-65	♀	3,281	402	1.1 yrs	Malfunction
	Xpl-94	♂	811	139	6 mo	On-going
Agab River	Xpl-50	♂	6,892	329	1 yr	Dead
	Xpl-36	♀	4,567	515	3.2 yrs	Dead

Huab River	Xpl-75	♀	8,998	1,338	3.9 yrs	On-going
Ugab River	Xpl-77	♂	2,799	247	9 mo	Dead
	Xpl-98	♂	1,792	305	11 mo	On-going
Totals			196,849	15,873	**or 43.5 Lion years**	

Key:
Dead*** = Lion was shot, trophy hunted or died of natural causes during the past year.
On-going** = Lion is alive and collecting of movement data continues.
Malfunction* = Satellite radio collar failed.

The distance that a lion moves per night is a function of home range size and habitat use. Accurate information on this is important to the conservation process and essential for the management of Human-Lion-Conflict. The home ranges of male lions are larger than those of females and on average the 19 lions moved 8.2 km per night (Table 6). Male lions, however, moved further per night (9.3 ± 1.2 km) than did lionesses (7.3 ± 0.9, t = 3.963, $P < 0.01$).

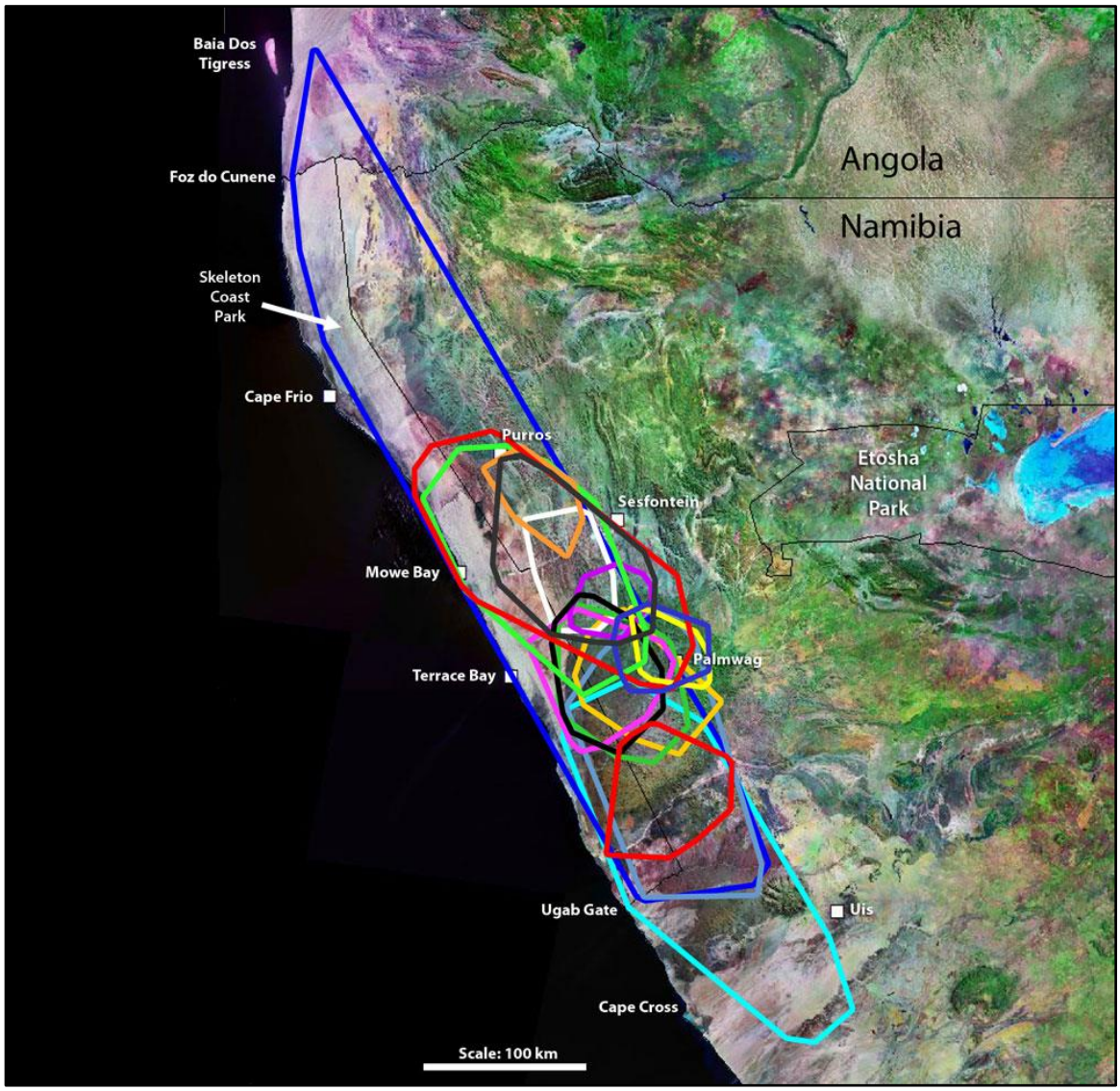
Table 6. Home range estimates (km^{-2}), using the Minimum Convex Polygon (MCP) technique, and distances moved by 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	Home Range MCP* (km^2)	Total distance moved (km)	Average distance moved per	Range of distance per night (km)
Floodplain	Xpl-10	♀	12,642	17,334	9.8	0 – 62.1
	Xpl-55	♀	2,550	11,410	9.5	0 – 36.4
Hoanib	Xpl-47	♀	2,471	14,136	7.9	0 – 36.3
	Xpl-59	♀				
Okongwe	Xpl-70	♀	1,668	4,922	6.1	0 –37.7
Orowau / Hunkap	Xpl-81	♂	6,405	11,437	11.4	0 – 52.0
	Xpl-53	♀	1,236	4,328	5.5	0 –22.8
	Xpl-100	♀	618	1,032	6.3	0 – 26.3
Uniab Delta	Xpl-45	♀	3,997	2,135	6.9	0 – 38.9
Barab / Obab	Xpl-54	♂	3,978	4,911	9.5	0 – 63.2
	Xpl-49	♀	4,161	13,219	7.9	0 – 40.1
Aub / Etendeka	Xpl-79	♂	1,923	1,115	7.7	0 – 27.7
	Xpl-65	♀	1,258	984	7.1	0 – 21.5
	Xpl-94	♂	915	1,329	9.6	0 – 24.8
Agab River	Xpl-50	♂	4,881	1,108	8.1	0 – 31.9
	Xpl-36	♀	3,882	3,454	6.9	0 – 32.0
Huab River	Xpl-75	♀	4,865	8,137	7.1	0 – 46.5

Ugab River	Xpl-77	♂	16,872	2,544	10.3	0 – 54.1
	Xpl-98	♂	3,878	2,517	8.3	0 – 30.8

The spatial and temporal patterns of movements and how lions utilise their home ranges are important parameters for all aspects of conservation, mitigation of human/lion conflict and tourism development. There are many different statistical methods to calculate home range sizes. Depending on the movement patterns of animals and the habitat, some methods are more suitable than others. In this analysis the home range size of lions marked with satellite radio collars were calculated using the universal Minimum Convex Polygon (MCP) method. In some cases Spider Distance techniques were used as an additional assessment of habitat use. The movement data from the 19 collared lions provide an essential base-line understanding of the demography of the population.

Figure 7. Layout of the areas utilised by 19 lions fitted with satellite radio collars in the northern Namib between 2008 and 2015.



Conflict between lions and people occur essentially all along the eastern edge of the distribution of the lion population. However, the long-term data collected on lion movements indicate that there are particular “hotspots” where incidents of Human-Lion-Conflict occur repeatedly over the years regardless of the individual lions. These “hotspots” coincide with reports of Human-Lion-Conflict recorded by the communities. Data are presented on lion movements in relation to these “hotspots” with a focus on the past three years due to heightened levels of Human-Lion-Conflict.

- *Torra Conservancy*

Human-lion conflict has been particularly problematic in parts of the Torra Conservancy due to an abundance of sub-adult lions that have dispersed from their natal prides. Data collected on the demography and movements of the established lion prides since 2008 provide a base-line understanding of habitat utilisation by these lions (see Figs. 6 – 10).

- *Aub / Etendeka Pride*

During the past three years the original Aub Pride have expanded extensively into the Etendeka and Klip River area. The adult male Xpl-79 that was fitted with a satellite collar was unfortunately shot and the collar destroyed (Figure 8). A young adult male (Xpl-94) from the Hunkap Pride moved into the area and was fitted with a new satellite collar (Figure 9). Unfortunately this lion was also shot a few months later and the collar was destroyed.

Figure 8. The home range area of Xpl-79 (male).

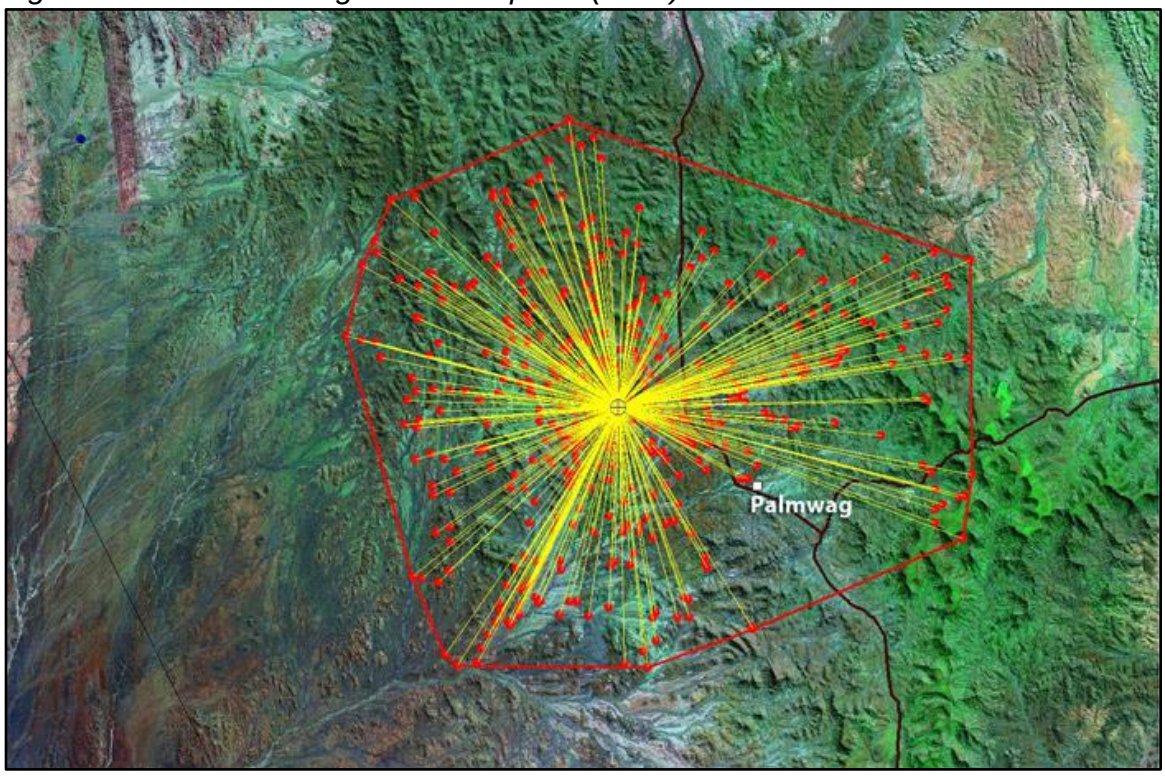
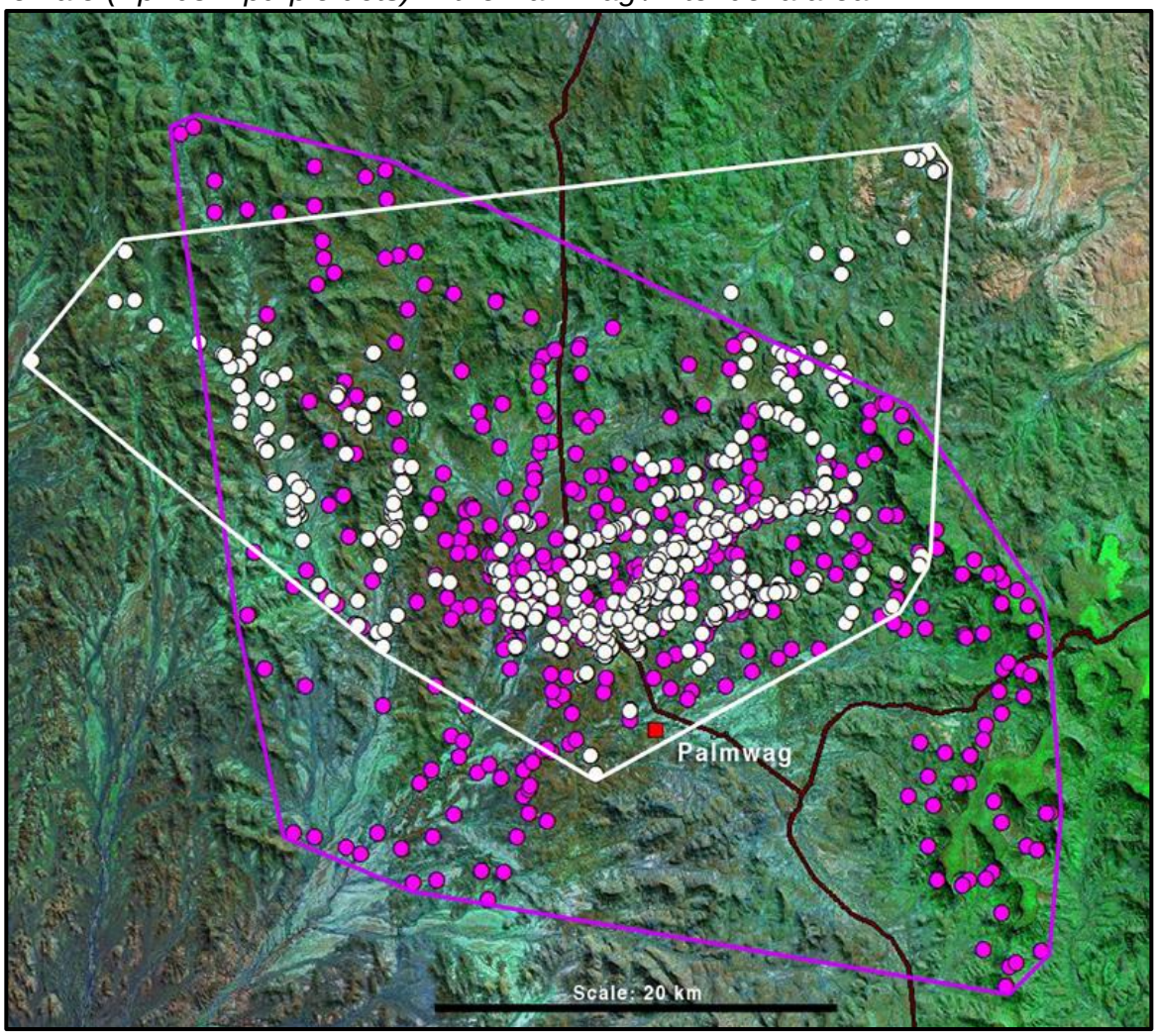


Figure 9. The home range area of an adult male (Xpl-94 – white dots) and an adult female (Xpl-65 – purple dots) in the Palmwag / Etendeka area.



- *Agab / Springbok River Pride*

The numbers of the Agab Pride increased substantially during the past two years and many of the sub-adult lions expanded to the Springbok River and into the Bergsig area. As a result the incidents of conflict with the local communities increased. After the pride male (Figure 10) and the Ugab male (Xpl-77) was shot whilst mating with Xpl-36 (Figure 11) the Pride spent more time between the Agab and Springbok Rivers. An adult male from the Obab Pride (Xpl-74) joined the lionesses.

Figure 10. The home range area of Xpl-50 (male).

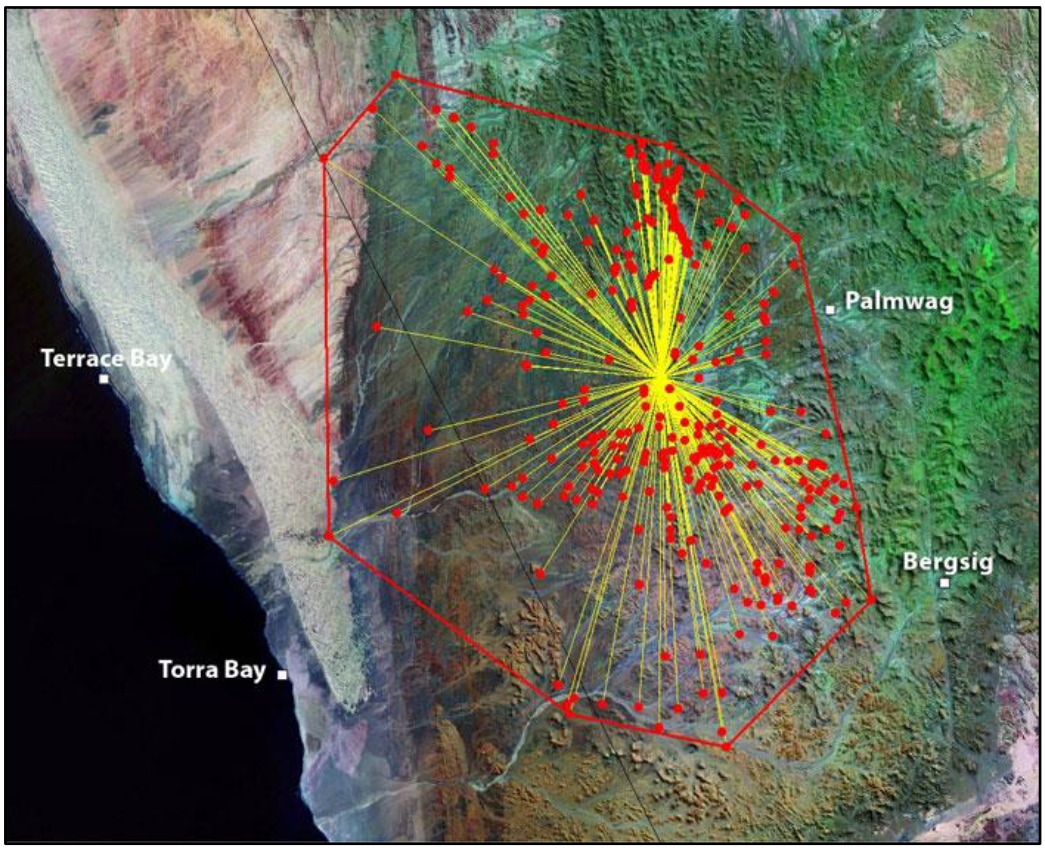
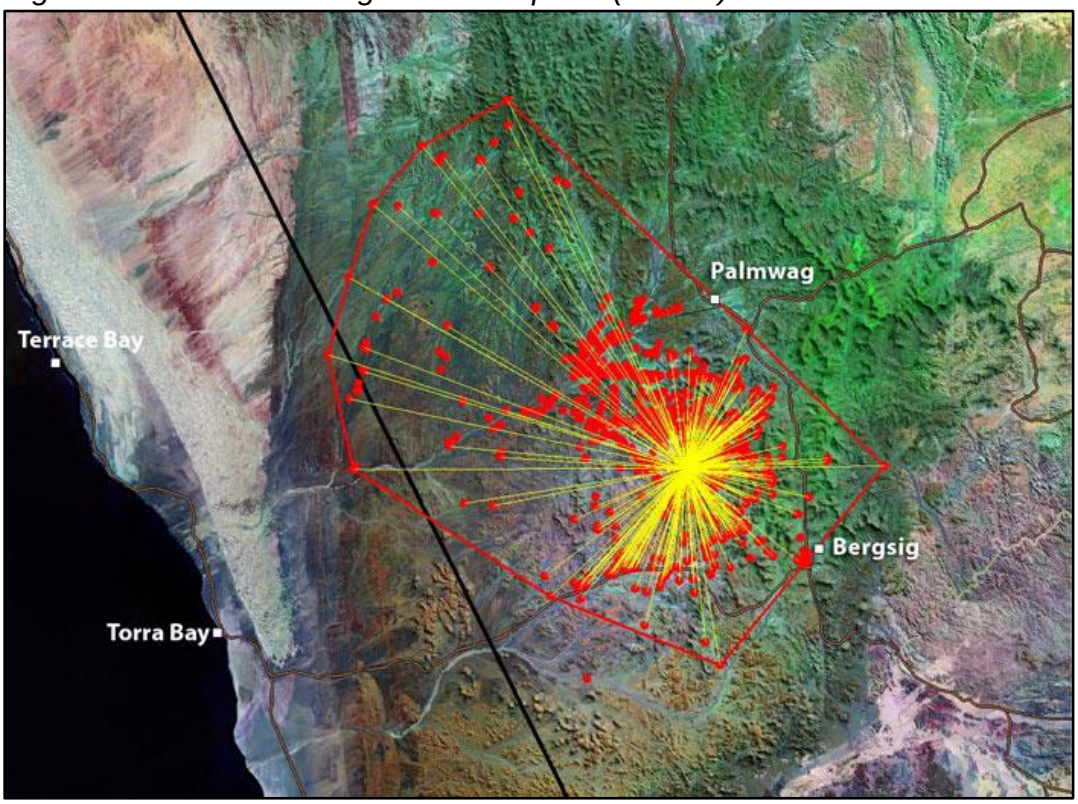


Figure 11. The home range area of Xpl-36 (female).



- *Huab Pride*

The Huab Pride expanded from 3 individuals (1 male Xpl-68 and two females Xpl-75 / Xpl-76) in 2012 to approximately 13 – 15 lions. Five sub-adults, from the first litter of Xpl-75 & Xpl-76 born early in 2012, dispersed and settled in the Ugab River. The home range of Xpl-75 expanded from 2013 (Figure 12) to a larger area that extended up to the Ugab River by the end of 2015 (Figure 13).

Figure 12. The home range area of Xpl-75 (female) up to the end of 2013.

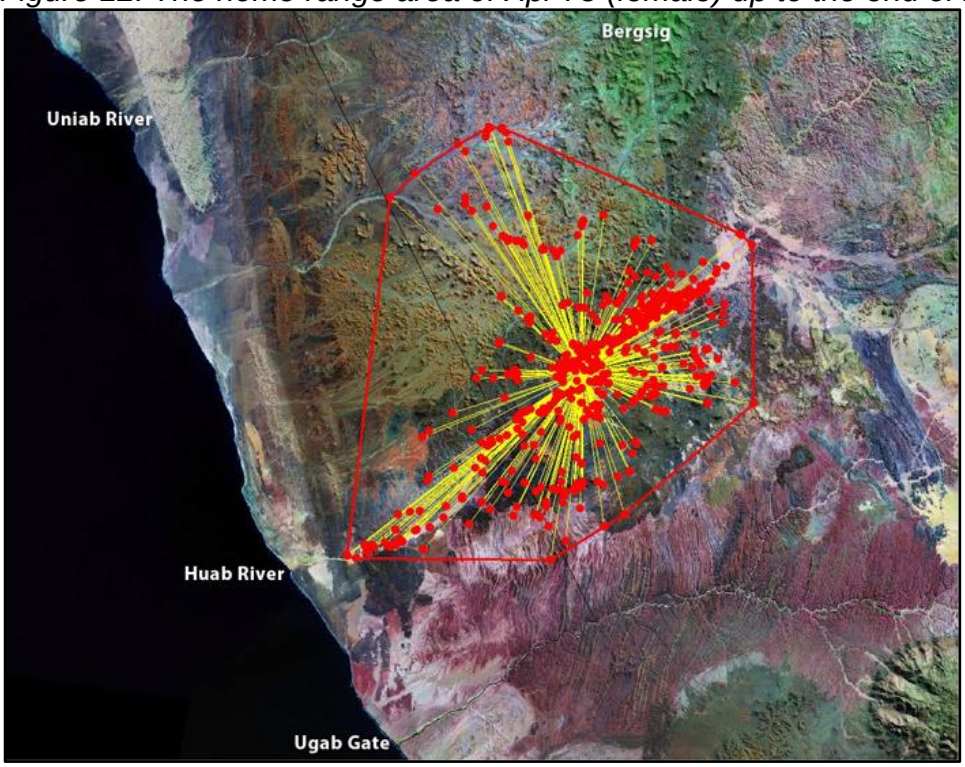
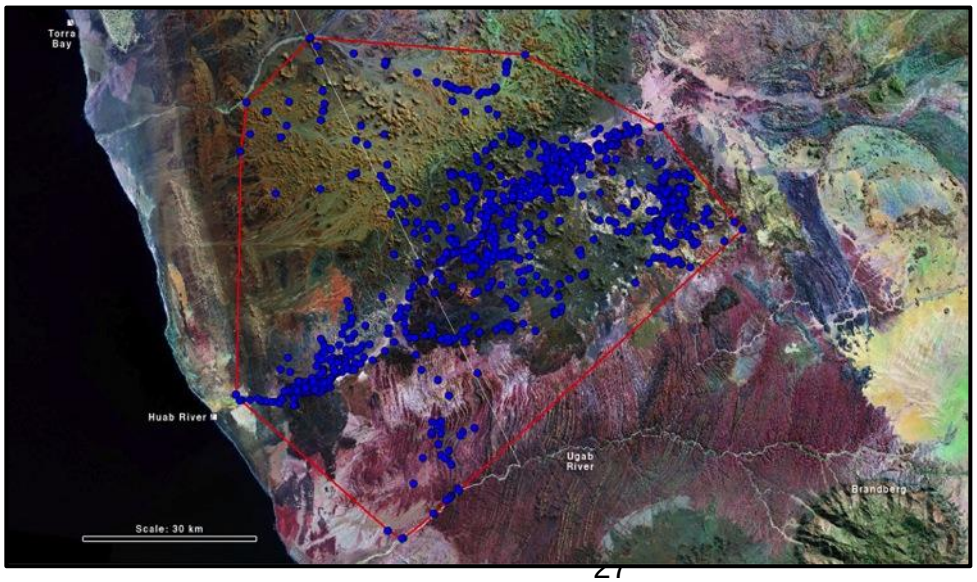


Figure 13. The home range area of Xpl-75 (female) up to the end of 2015.



- *Ugab Pride*

After the adult male (Xpl-77, Figure 14) was shot close to Bergsig on 27 Sep 2013, the Ugab River was vacant until five sub-adult lions from the Huab Pride dispersed and occupied the Ugab (Figure 15).

Figure 14. The home range area of Xpl-77 (male) up until September 2013.

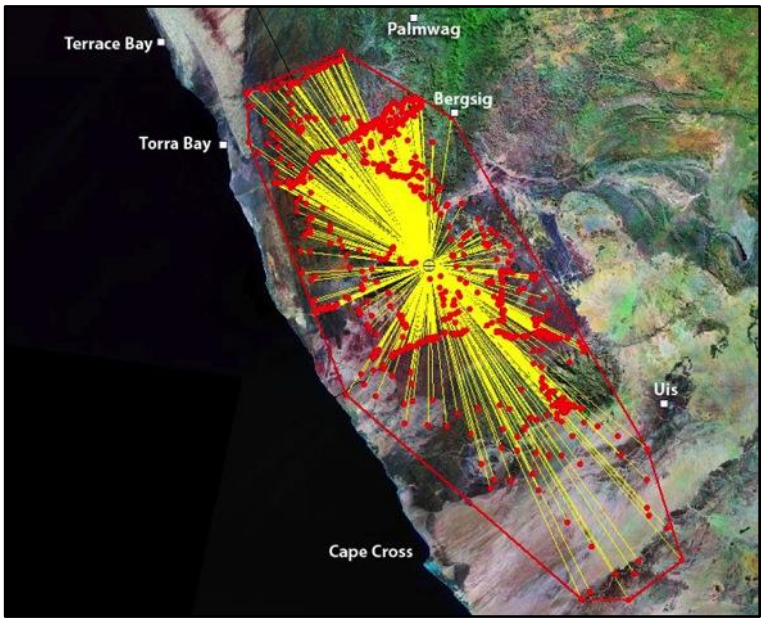
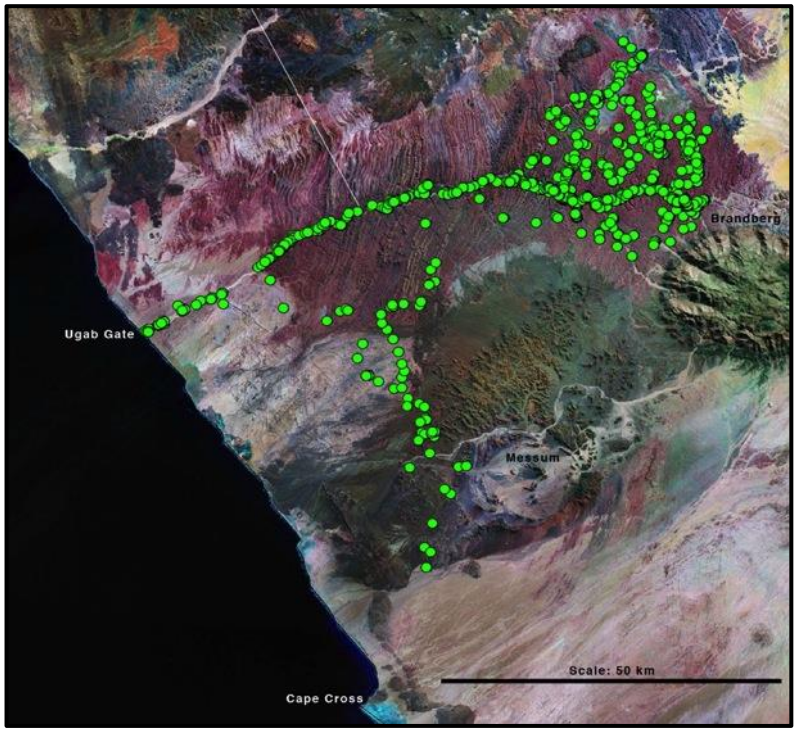


Figure 15. The current home range area of Xpl-98 (male).



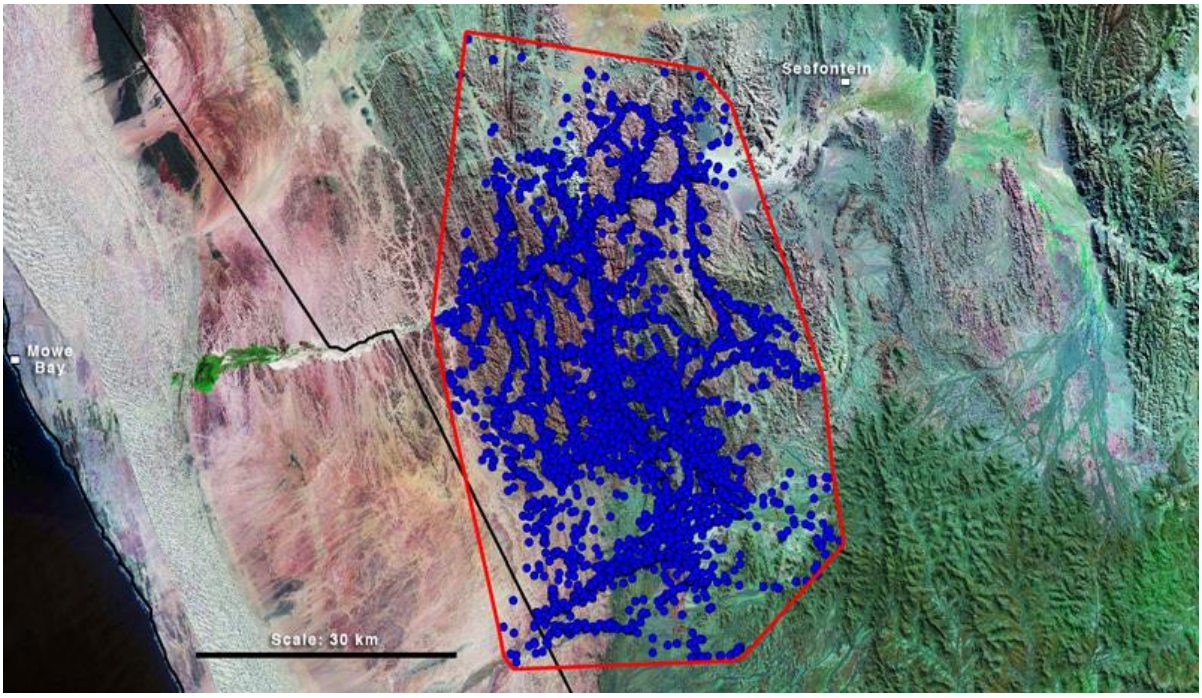
- Purros, Sesfontein & Anabeb Conservancies

The home ranges of desert-adapted lions are exceptionally large and there is extensive overlap between the home ranges of different prides. This is an important strategy in their adaptation to the harsh arid environment that is particularly relevant to understanding the frequency and patterns of Human-Lion-Conflict. The home ranges of lion prides in the northern section of the study area overlap with at least two, but sometimes with all three conservancies. As a result, each of these prides is generally responsible for incidents of Human-Lion-Conflict in two or all three conservancies over the course of a few years. More relevant to understanding and the managing Human-Lion-Conflict is the fact that lions from several different prides may be responsible for Human-Lion-Conflict at any one location over time.

- *Hoanib Pride*

The Hoanib Pride has occupied the Hoanib River between Elephant Song and Amp's Poort since 2006 (Figure 16). Their range extends up to the southern section of Okongwe and south to the Hunkap River. These lions have been responsible for Human-Lion-Conflict in both the Purros and Sesfontein Conservancies. The lioness Xpl-47 was fitted with a GPS collar in May 2008 and her movements were recorded until she was shot in the upper Obias River on 8 November 2015. A new satellite collar was fitted to the last surviving adult lioness (Xpl-59).

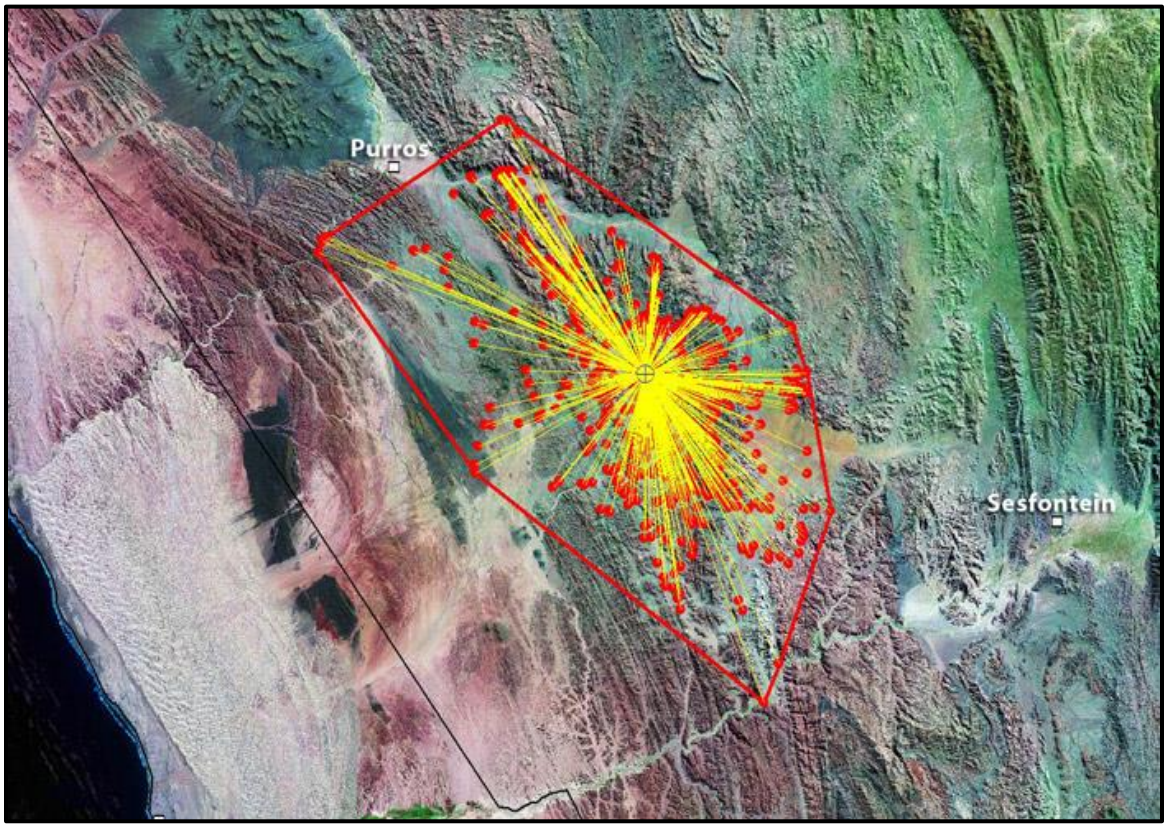
Figure 16. The home range area of Xpl-47 (female) until her death in November 2015.



- *Okongwe Pride*

Three lionesses dispersed from the Hoanib Pride in 2007 to form the Okongwe Pride. They were known as the “70s Lionesses” and occupied the mountainous terrain around Okongwe waterhole (Figure17). Conflict with local livestock farmers at Tomakas and along the Gamatum River in Purros Conservancy and at Ganamub and Elephant Song in the Sesfontein Conservancy has resulted in high mortality rates. At least 10 lions were shot or poisoned during the past three years. These included seven adult males (Xpl-56, Xpl-73, Xpl-68 “Terrace Male” & four of the “Five Musketeers”) and three adult females (Xpl-70, Xpl-72 & Xpl-96) that were fitted with satellite collars. The collars and all evidence of the lions were destroyed. The destruction of collars and other information by local communities undermines the process of managing and limiting Human-Lion-Conflict.

Figure 17. The home range area of Xpl-70 (female) of the Okongwe Pride.



- *Orowau / Hunkap Pride*

There are currently only two established adult pride males in the northern section of the population. The males (Xpl-81 & Xpl-87) are currently favouring the Orowau and Hunkap areas, but during the past two years they have regularly interacted with the Floodplain, Hoanib and Okongwe lionesses (Figure 18). The home range of Xpl-81 "Kebbel" indicates that there is extensive overlap with the five different groups of lionesses (Figs. 19 & 20). Both lionesses are responsible for Human-Lion-Conflict in Anabeb and Sesfontein Conservancies. The male lions have significantly larger home ranges and also cause Human-Lion-Conflict problems in the Purros Conservancy.

Figure 18. The home range area of the adult male Xpl-81 (red dots & polygon) in relation to the home ranges of five different groups of lionesses.

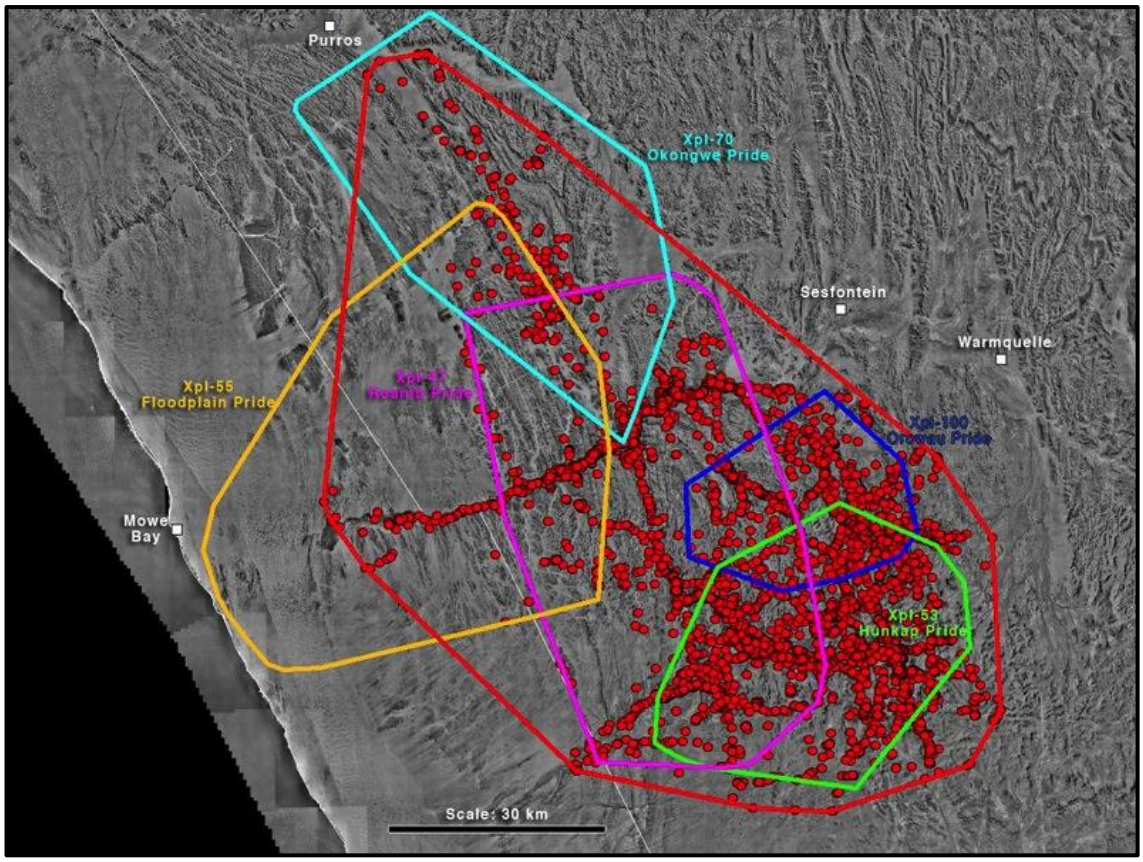


Figure 19. The home range area of Xpl-53 (female) of the Hunkap Pride.

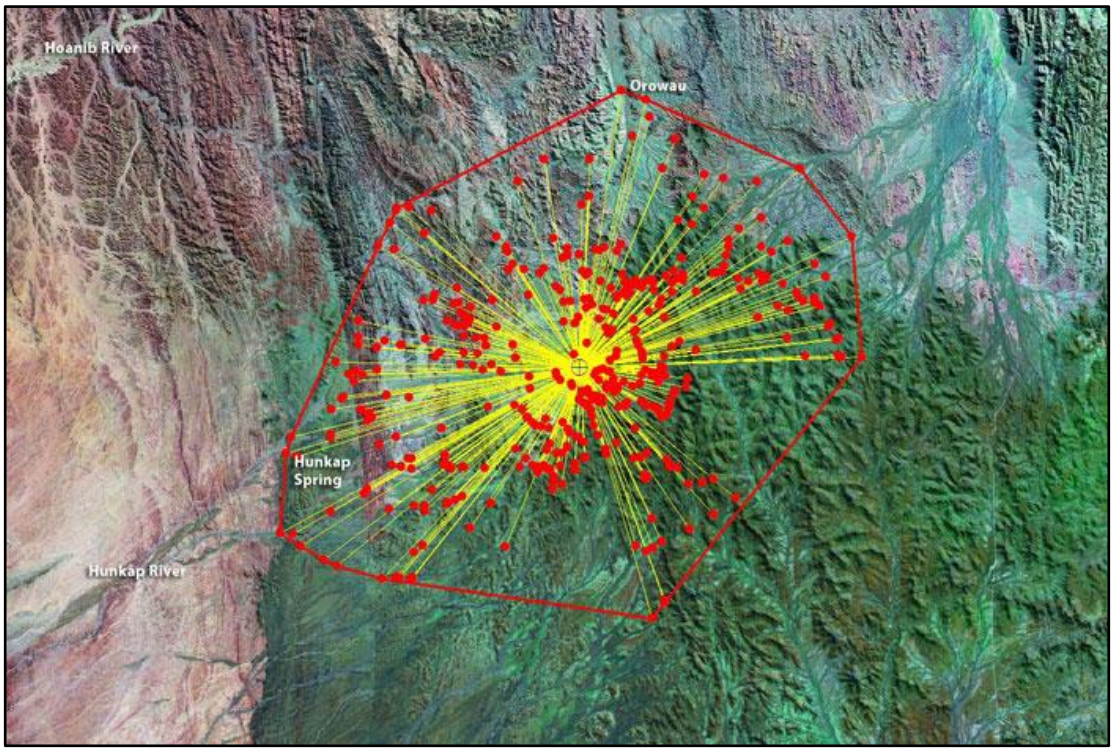
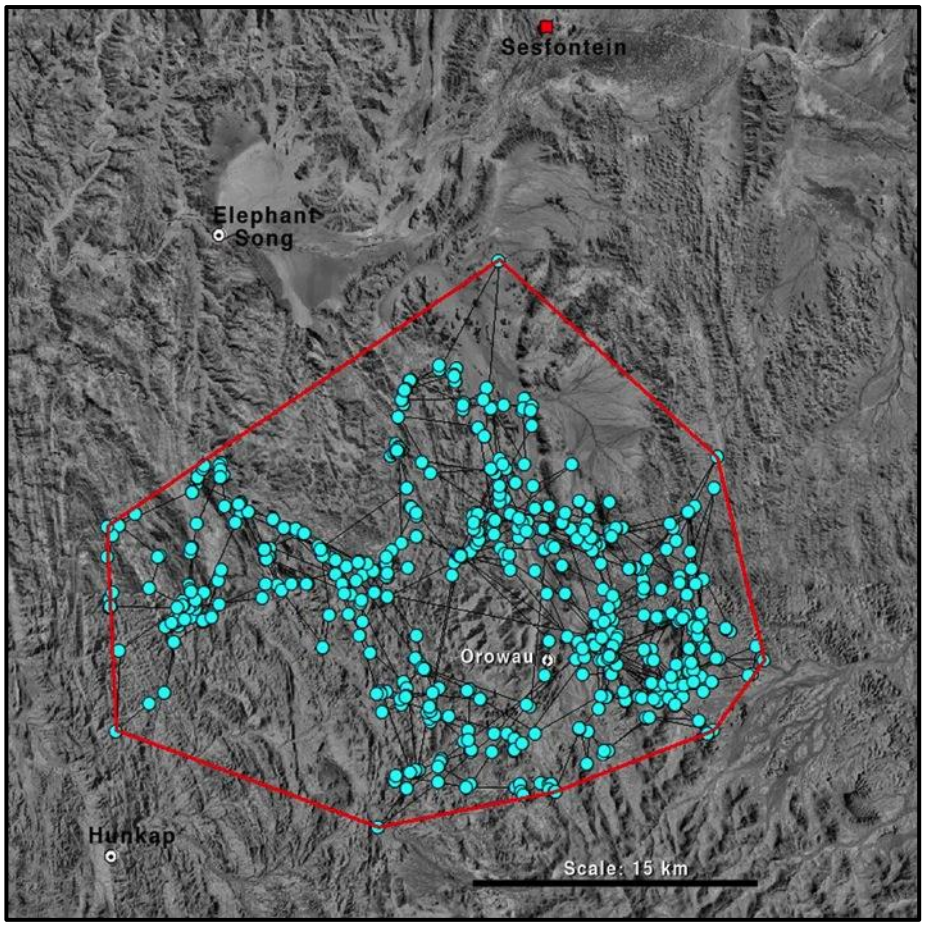


Figure 20. The home range area of Xpl-100 (female) of the Orowau Pride.



6.5.2.2 Understanding "Hotspots"

In order to survive in the harsh arid conditions these lion have developed particular skills and adapted behaviour. They have large overlapping home ranges and they move long distances of up 70 km per night. This is necessary because the sporadic and highly variable rainfall in the arid environment result in a heterogeneous and unpredictable distribution of prey animals. Detailed behavioural observations over the past 17 years suggest that the lions maintain and rely on a mental "map" (both spatial and temporal) of rich food patches. Rich food patches are areas where prey animals concentrate at certain times of the year, or after certain environmental conditions, and/or where the habitat (e.g. broken terrain or thick vegetation) result in higher hunting success. These rich food patches are therefore referred to as "hotspots" and lions regularly return to them to search for prey.

To demonstrate the significance of "hotspots", the movements and behaviour of the Uniab Delta Pride in relation to a "hotspot" are presented here.

The mouth of the Uniab River consists of a delta structure with numerous fresh water springs and thick reed beds that attract large numbers of Oryx, springboks and ostriches. Lions regularly visited the Uniab Delta before the population crash during the 1990s and the knowledge of the rich food source died with them. In December 2014 a sub-group of the Obab Pride discovered the Uniab Delta and feasted on the selection of prey that are vulnerable between the thick reeds and with strong coastal winds that aid their hunting success. The discovery of the rich food source resulted in the lions separating from their natal pride to form the Uniab Delta Pride (Figure 21). Between January and November 2015 the Uniab Delta Pride visited the mouth of the Uniab River on six occasions (Figure 22). On average they spent 23.3 days along the coastal habitat of the Uniab Delta (range: 7 – 60 days). In between these visits the four lionesses moved inland, up to 38.9 km from the mouth of the Uniab River, for an average of 20 days (range: 5 – 41 days, $N = 5$). When the lionesses were at the Uniab Delta they moved an average of 4.8 km/day, but when they moved inland their daily distances increased to 8.5 km/day.

Figure 21. The home range area of Xpl-45 (female) in relation to the Uniab Delta.

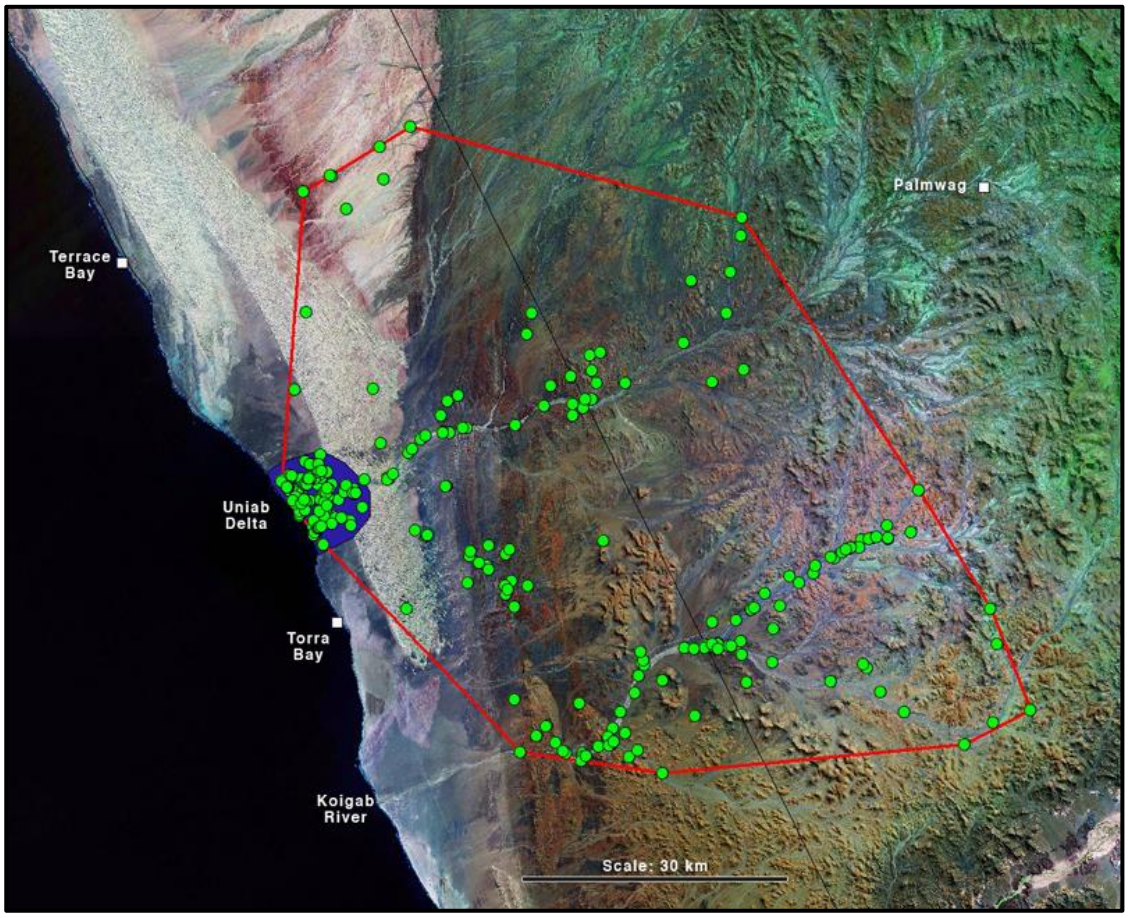
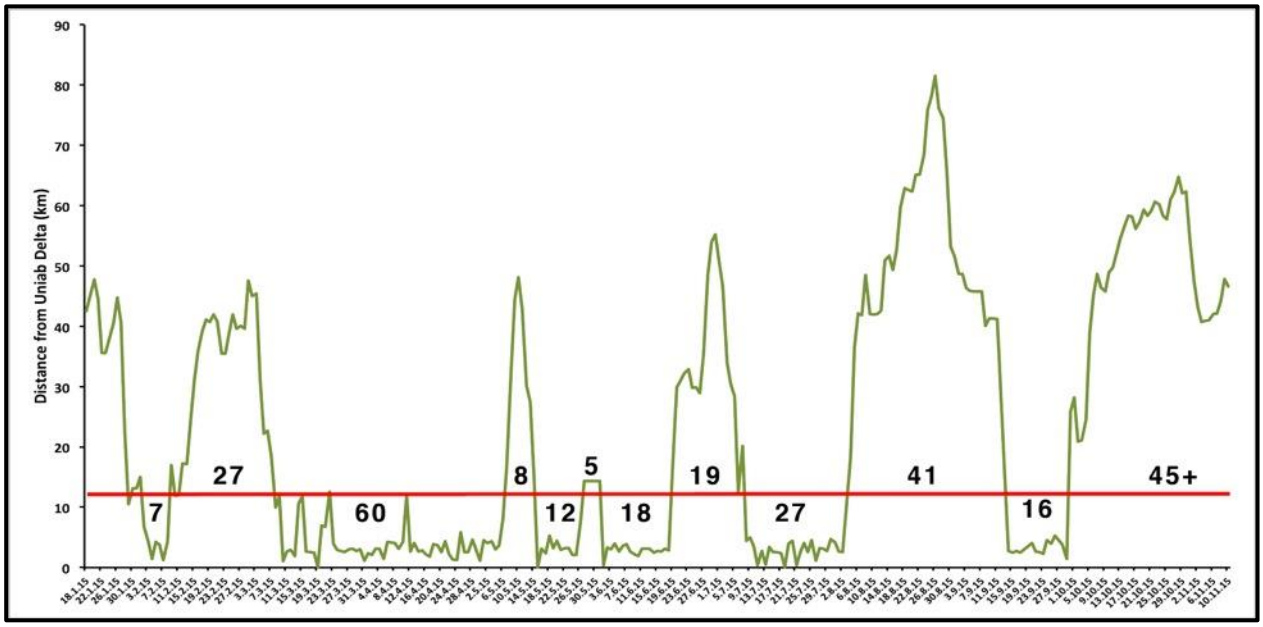


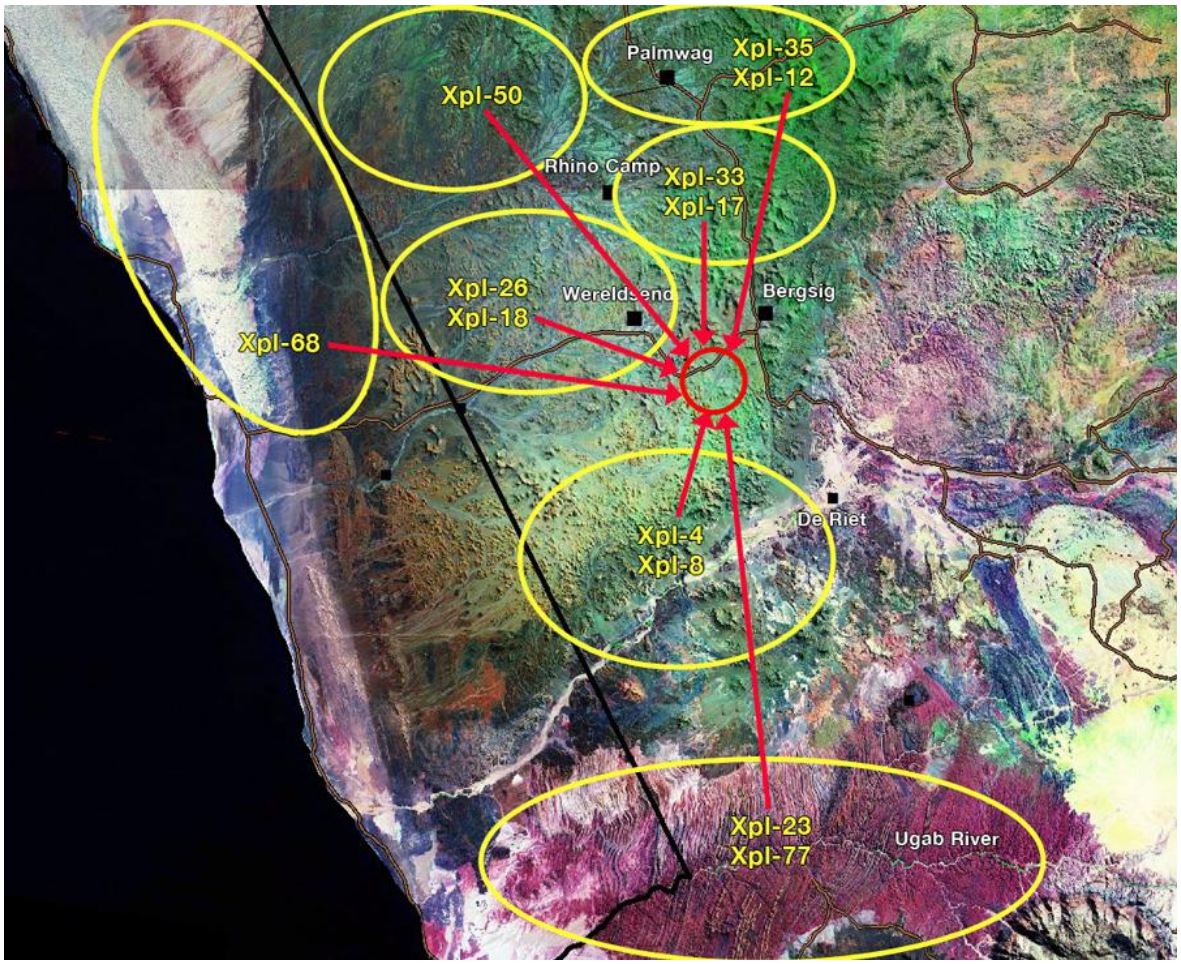
Figure 22. Sequential distances of the Floodplain Pride from the mouth of the Hoanib River between Aug 2014 and Nov 2015. The red line denotes the border of the coastal habitat and the numbers represent the number of days spent at the coast (below the red line) or further inland (above the red line).



Domesticated animals have been selectively bred over thousands of years to meet the needs of humans. As a result they have lost the ability to fend for themselves in nature and rely on humans to protect them. This is particularly pertinent at night when predators, such as lions, are active. Livestock, such as cattle, goats and donkeys are extremely vulnerable to predation by lions. The presence of livestock around a settlement that roam freely at night constitute all the hallmarks of a “hotspot”. Once lions become aware of the rich food source, they will return regularly.

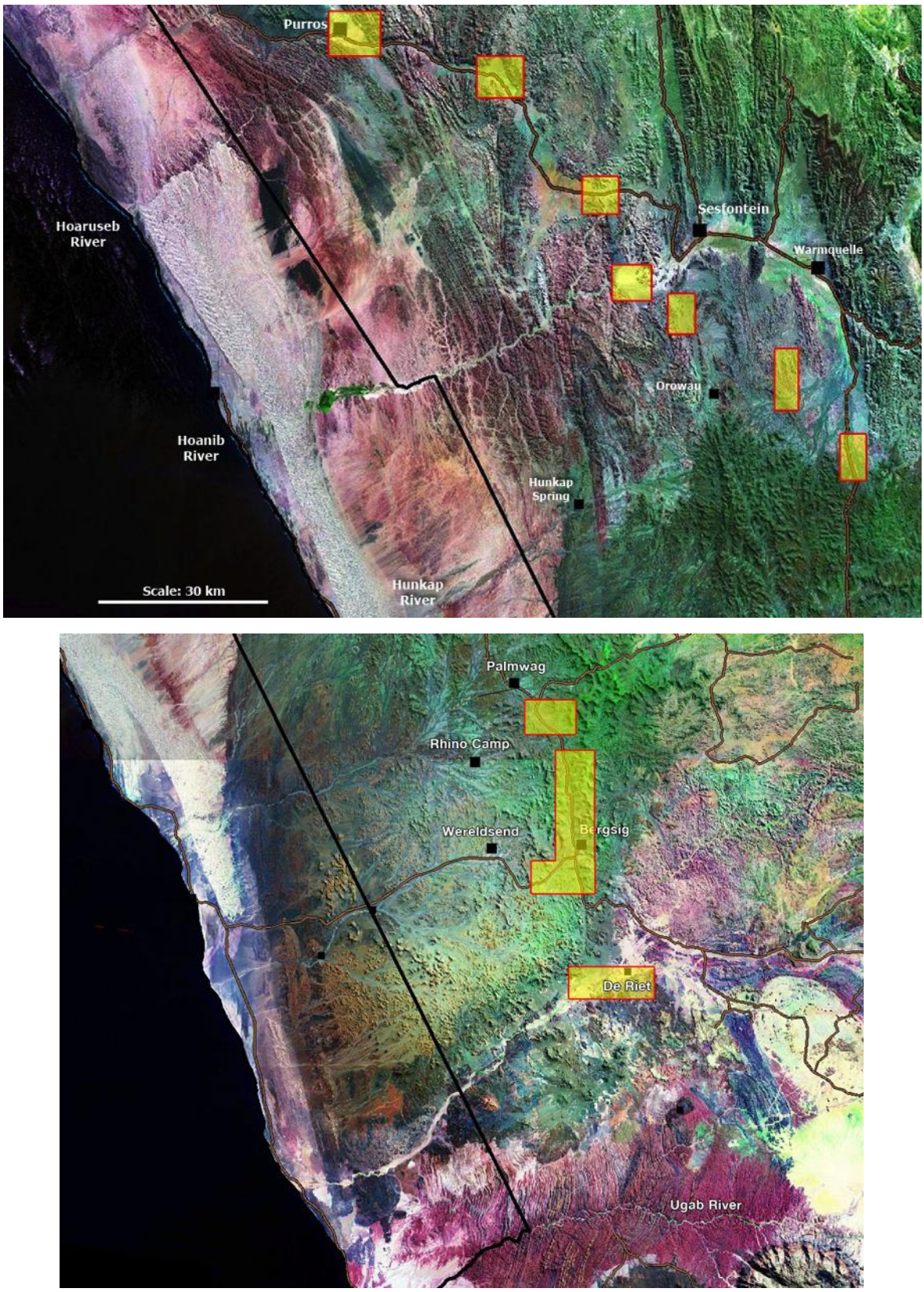
Over a seven-year period between 2006 and 2013 a total of 22 cases of human-lion conflict were recorded at Driefontein near Bergsig in the Torra Conservancy (Figure 23). Driefontein has all the characteristics of a “hotspot” and attracted 12 radio-collared lions from seven different prides with some individual returning to Driefontein several times. During this sample of human-lion conflict 16 lions were destroyed including 11 of the 12 radio-collared lions.

Figure 23. The origins of 12 radio-collared lions that caused human-lion conflict problems at Driefontein in the Torra Conservancy between 2006 and 2013.



Based on monitoring data collected since 2000 a total of ten “hotspots” were identified where lions have regularly been attracted to settlements and livestock (Figure 24). There are two “hotspots” in Purros Conservancy, three in Sesfontein Conservancy, two in Anabeb Conservancy and three in Torra Conservancy. These “hotspots” can be managed effectively for a marked reduction in human-lion conflict problems.

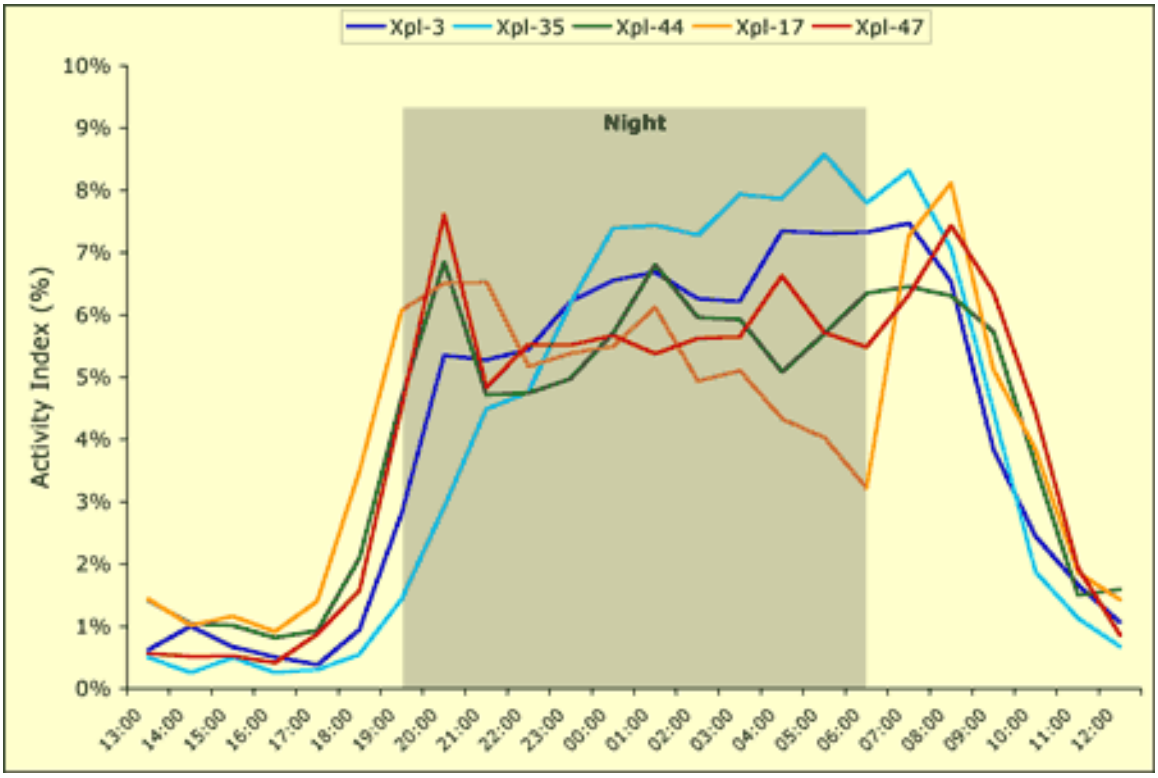
Figure 24. The locations of ten "hotspots" where lions are regularly attracted to settlements and livestock in the Purros, Sesfontein, Anabeb and Torra Conservancies.



6.5.2.3 Activity Patterns

Lions are active primarily at night. Data from five satellite collars, where the sampling frequency was ≥1 fix/hour, were included to assess patterns of activity. Distances moved per hour were used as an index of activity. To control for individual biases (e.g. mean distances moved by different lions per night) the distance moved per hour was expressed as a proportion of the total distance moved by the lion on that night. The patterns of activity are remarkably similar for all five lions (Figure 25). A sharp peak of activity occurred from between sunset and 20h00, followed by a drop in activity between 21h00 and 22h00. Activity increased again around midnight, but thereafter the pattern became less uniform although activity decreased towards daybreak, especially amongst the females. After sunrise activity increased and peaked between 07h00 and 08h00, followed by a uniformly sharp decline, and by 11h00 all five lions had stopped moving.

Figure 25. Activity patterns of five lions (males = blue/green, females = red/orange) in the northern Namib.



6.5.2.3 Population Dynamics

Aspects of the population dynamics of the Desert lion population, such as group structures, reproduction and mortality, have been monitored since 2000. Human-lion conflict and the related shooting or poisoning of lions is the main limiting factor of the population and amounts to 89 % of all adult and sub-adult mortalities.

The major cause of mortality in the lion population between 1999 and 2012 was the killing (by local people during Human-Lion-Conflict) and trophy hunting of adult and sub-adult lions. Male lions were particularly vulnerable and contribute to >80% of the recorded mortalities. The regularity, especially since 2004, at which male lions were shot, poisoned or hunted, and the selection of adult males for trophy hunting, has resulted in a significant reduction of males in the population. It also contributed to vastly different age-specific mortality rates between males and females (Figure 26), which serve to illustrate the negative impact on the population. Increasingly skewed sex ratios, favouring females (Figure 27), have reached critical levels (2010 - 1♀ : 0.18 ♂). Seven of the nine major prides are currently without a pride male.

The excessive killing of adult and sub-adult males has compromised the long-term viability of the Desert lion population. There is an urgent need to adapt the management and utilisation strategies relating to lions, if the long-term conservation of the species in the Kunene were to be secured.

Figure 27. Probability of age-specific mortality rates for females (red line) and males (blue line) in the Desert lion population (females: n = 277 lion-years; males: n = 225 lion-years).

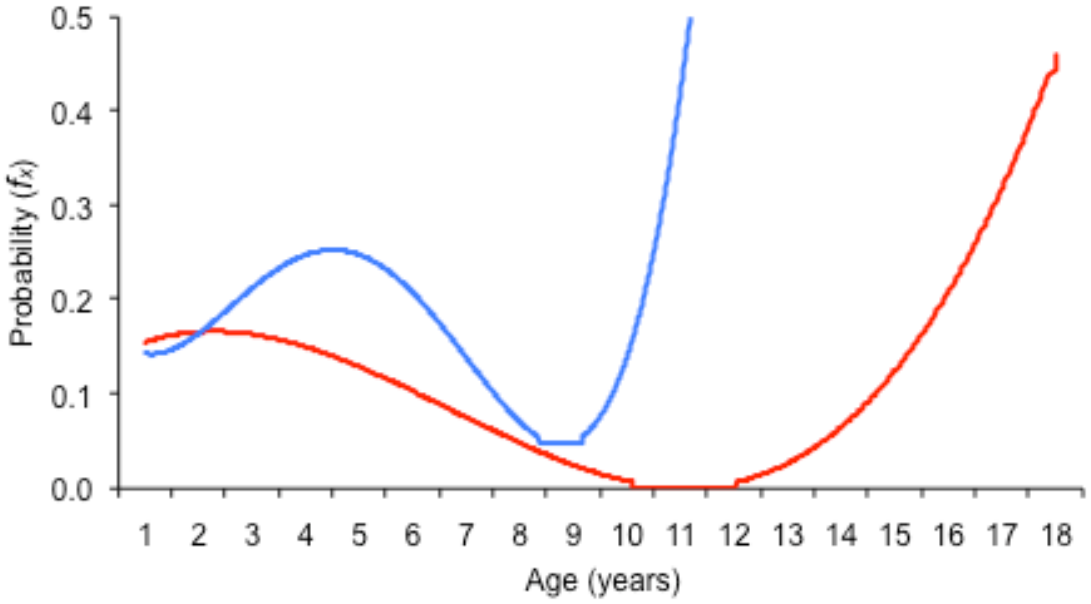
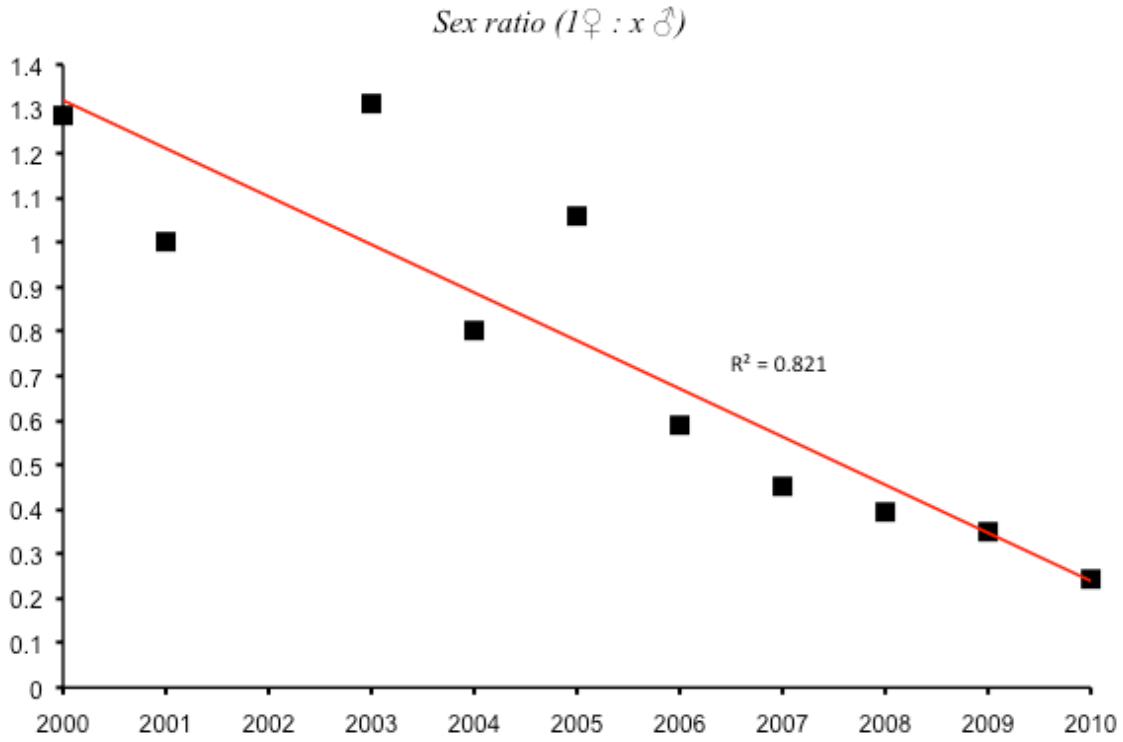


Figure 27. The decline of males in the sex ratio (1♀ : x ♂) of sub-adult and adult lions in the Desert lion population, between 2000 and 2010.



6.5.3 Developing & implementing appropriate technical solutions for mitigating HLC

The National Policy on Human-Wildlife Conflict Management states that the implantation of preventative measures is an effective and efficient way to manage Human-Lion Conflict. Local wildlife management units should carry out local level land-use planning as a means to reduce Human-Lion-Conflict. As part of zoning their area for different land-uses, such as exclusive wildlife and tourism zones, they should also identify wildlife corridors. In this case the establishment of a “high-risk lion corridor” that includes all the conflict “hotspots” will isolate the problem and facilitate an efficient management structure.

Effective and appropriate land use planning must be regulated and enforced by the elected committee for each conservancy and by the traditional leaders and Regional Councils. The exclusive wildlife zones, as per the gazetted registration of conservancies, and the “high-risk lion corridors” should be respected and implemented.

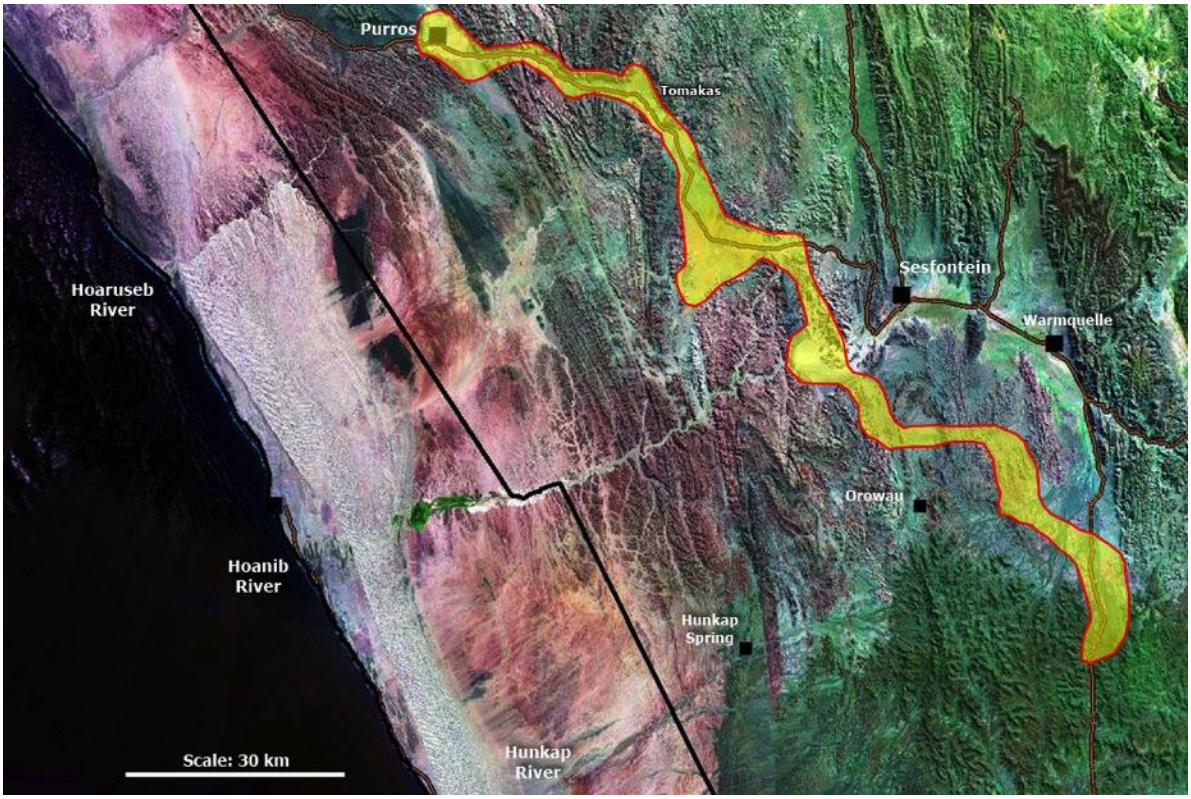
6.5.3.1 “High-Risk Lion Corridor”:

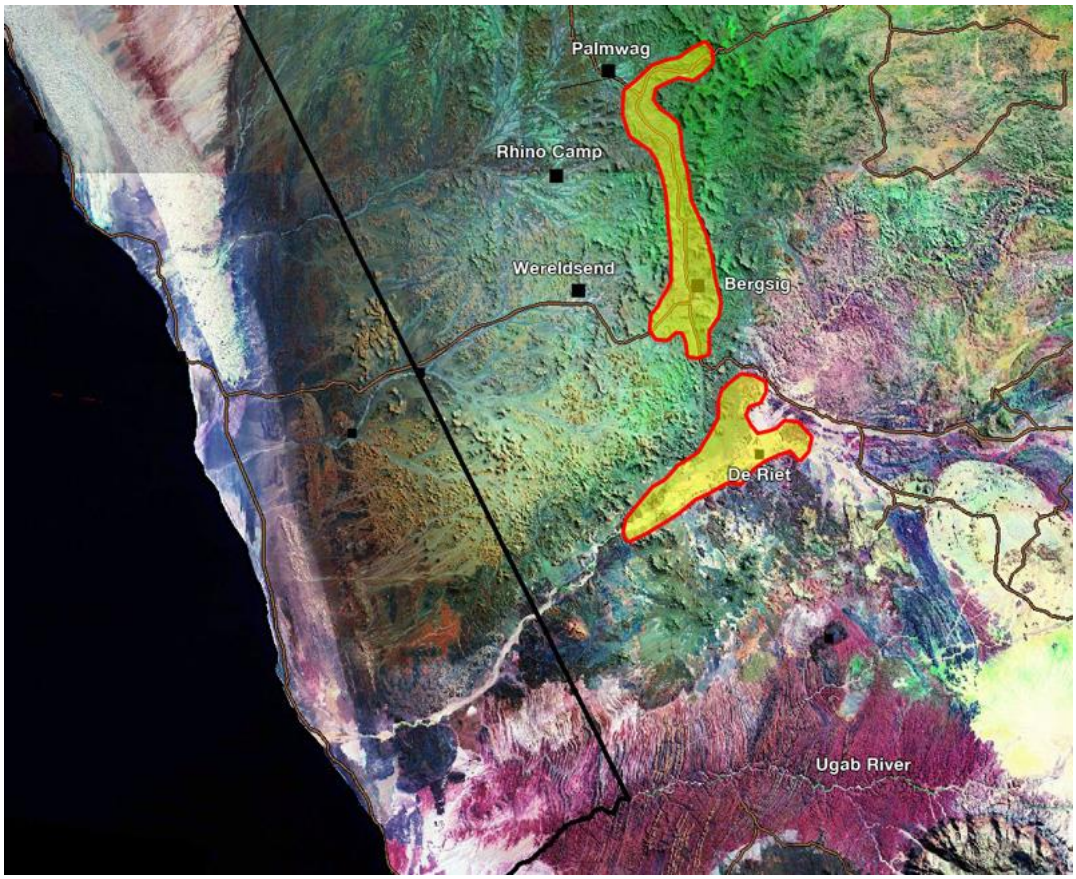
Research and monitoring of the Desert lion population and incidents of Human-Lion-Conflict over the past 15 years have produced reliable data indicating that lion problems occur repeatedly at the same locations. All previous management efforts, including the destruction of many lions, at these locations have failed for the following reasons:

a) Livestock that roam freely at night constitute all the characteristics of a rich food patch or “hotspot”.
b) Lions are quick to identify “hotspots” and will return regularly in search of prey.
c) Lions have large overlapping home ranges and as a result individual lions from several different prides will be attracted to these “hotspots”.

Establishing a “high-risk lion corridor” that includes all the known “hotspots” (Figure 27) and implementing stringent livestock management protocols, supplemented by various techniques to deter lions, within the corridor will effectively reduce Human-Lion-Conflict.

Figure 27. Proposed "High-Risk Lion Corridor" that includes all the major areas of HLC in the Puros, Sesfontein, Anabeb and Torra Conservancies.





6.5.3.2 Effective Livestock Management

Most conflict situations arise from livestock management practices that leave animals vulnerable to predators, such as allowing livestock to roam freely at night or untended during the day. The communities from all four conservancies have expressed their reluctance and disagreement to keep livestock inside protective corrals at night. Due to the low rainfall and lack of sufficient grazing in the region the communities prefer to allow their livestock to also feed at night. This is a key element to the success of Human-Lion-Conflict management that needs to be reconsidered. Based on the information presented here with regards to lion behavioural ecology, “hotspots” and on-going problems that occur at the same locations, the protection of livestock at night is paramount to the implementation and success of this Human-Lion-Conflict Management Plan.

6.5.3.2.1. Herding and guarding

The use of a person and/or dogs to walk with the livestock while grazing during the day can have a significant positive impact in reducing predator incidents. However care should be taken that guard dogs do not kill non-target predators or natural prey species.

6.5.3.2.2. Lion-proof Corrals

Keeping livestock inside protective corrals overnight will not only prevent lions from killing livestock, but it will also prevent the escalation of Human-Lion-Conflict problems in the area. Without free-roaming livestock (all species, including donkeys) at night lions will not identify the area as a “hotspot”, other methods of deterring lions from the area will be more effective and lions are likely to vacate the area. A compromise can be reached between the local livestock farmers, the conservancies and MET where only those farmers inside the proposed “high-risk lion corridor” (Figure 27) need to herd their livestock and place them inside corrals at night. Supplemented by the other preventative measures, such as early warning systems, discussed below the proposed “high-risk lion corridor” will essentially create a buffer zone that will deter lions from leaving the safety of their known home ranges. Without livestock grazing at night to attract them and low

numbers of wildlife (due to the livestock controlling the available grazing) lions are unlikely to move into areas utilised by people and livestock.

Lion-proof corrals are made from metal poles, wire mesh and other commercially available materials. The structure consists of short posts 2.5m apart, 1.8m high with an over-hang to the outside, mesh wire and shade netting surrounding the whole structure. There are two gates at opposite corners, thus allowing farmers to erect their own internal fencing. The following materials are required for a corral that is 30 x 40 metres in size:

- Tar (gum) poles: length = 3 metres x 49 poles
- Diamond mesh: height = 3 metres x 140metres.
- Steel wire x 1 roll (sufficient for several additional kraals).
- Medium thickness binding wire x 1 roll (sufficient for several additional kraals).
- Extra thin binding wire x 1 roll (sufficient for several additional kraals).
- Metal farm gates: length = 2.4 metres x 2 gates.
- Threaded rods (12-15mm x 1 metre) with nuts x 10.
- Wire-straining tool x 1 (to be used for the construction of all future kraals).
- Large-size Crescent fencing pliers x 4 (to be used for the construction of all future kraals).

6.5.3.3 Early Warning Systems and Scare Tactics

Since November 2012 a total of 16 lions from selected prides in areas where there is potential for high conflict were fitted with satellite collars and their movements monitored by the DLP. The daily positions of the lions were plotted on a map and posted on the Desert Lion website. Lion Rangers, appointed by conservancies, or other community organisations monitored the website and the information on lion movements was then given to farmers who could then take precautionary actions when lions moved towards their livestock. This initiative served as an early warning system where local farmers can monitor the locations of lions in their area and take precautionary actions when lions move towards their livestock. This approached, referred to as the Satellite Early Warning System, produced promising results, but lacked institutional support and did not reach its full potential. A central “Early Warning” unit in Windhoek controlled by MET, as described

in the National Policy on Human-Wildlife Conflict Management, will provide the necessary structure to support this approach.

A second more direct early warning system (the Logger Early Warning System) was developed in 2016. The Desert Lion Conservation Trust (DLCT) collaborated with a highly qualified electronic engineer in Swakopmund and they designed and built several units. The system produced favourable results during a dry-testing phase and now needs to be implemented in the field at settlements where regular problems with lions are experienced.

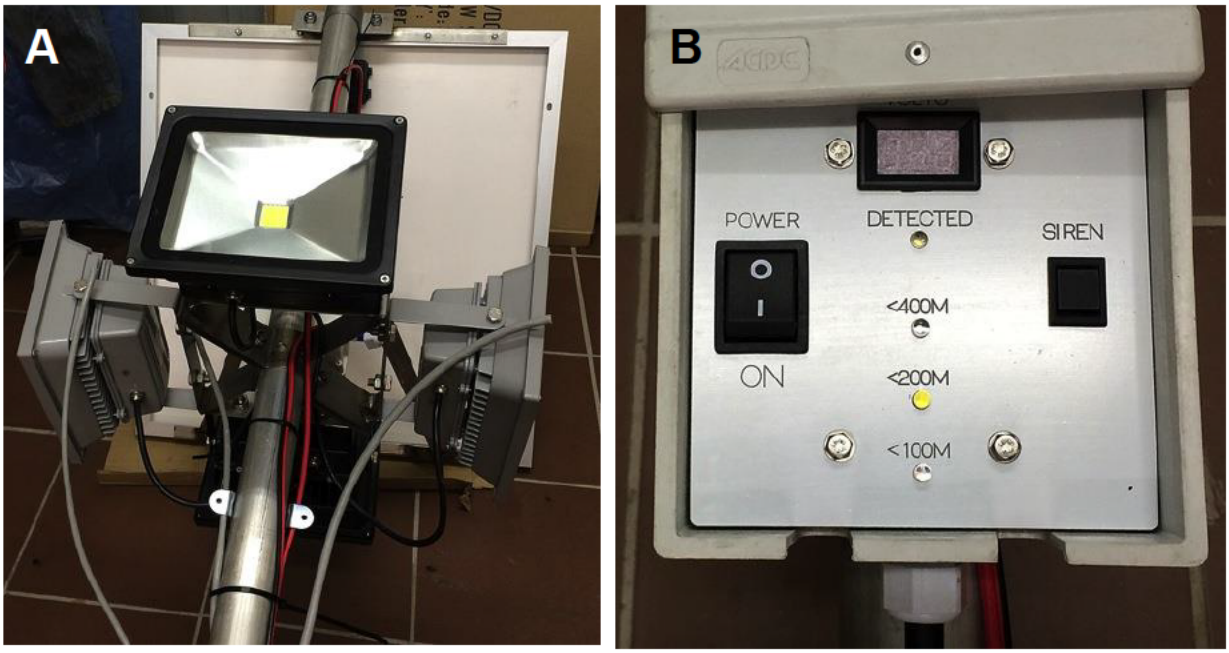
The Logger Early Warning System consists of several components (Figure 28) and a brief summary of the mechanisms is described here.

- Several lions from all the prides that border human settlements or that may be responsible for HLC are fitted with collars that contain GPS recorder and a special RFID Tag unit in addition to the normal VHF transmitter.
- The GPS unit will record accurate position coordinates every hour at night and every four hours during the day. The coordinates will be stored on a memory chip in the collar and can be downloaded remotely.
- An “Early Warning Logger” will then be mounted adjacent to a corral at settlements with high incidents of HLC.
- The “Early Warning Logger” consists of an antenna, an electronic circuit board that acts as a small computer processor, four powerful LED floodlights (Figure 28a) and a siren that are mounted on top of a 4 metre pole. The unit is also fitted with a solar panel and a 12 Volt battery to provide sufficient power throughout the night. The logger will be mounted so that each of the four LED floodlights point towards one of the four wind directions (North, East, South and West).
- The Logger will continuously transmit RFID signals to probe for any RFID Tags (fitted to the lion collars) that may be nearby.
- Preliminary results indicate that the Logger can detect the lion collars from a distance of 2 – 3 km.
- When the Logger detects a lion collar it will instruct the collar to record a GPS position every 5 minutes and relay the information to the Logger. Whereupon the Logger will calculate the direction and distance of the lion from the settlement and

trigger one or two of the LED floodlight to "point" in the direction of the lions. The floodlights are very powerful and will allow the people to see the lions as well as deter the lions from approaching the corral.

- A control/display unit that is mounted lower down on the Logger pole (Figure 28b) will display the distance of the lions from the settlement. When the lions reach a distance of 200 metres from the settlement a powerful siren will be triggered to deter the lions from approaching.

Figure 28. Elements of the "Logger Early Warning System" that will be mounted at settlements that experience HLC problems.



Generating disturbances associated with settlements, people & livestock is an effective way to scare lions away and prevent Human-Lion-Conflict. Whenever the lions come into contact with settlements and livestock they should be deterred & discouraged. However, it is vitally important for the lions to form a clear association between the disturbance and the settlement/livestock. Various scare tactics have been tested and the successful methods are addressed below:

- Sound playbacks. In recent years lions have successfully been deterred from approaching human settlements by playing modern music or recordings of human

voices, especially stand-up comedy shows with female or high-pitched male voices, at high amplitude.

- Loud Noises. The use of fireworks and especially rockets that explode overhead have been successful in scaring lions away from settlements. Air-horns and whistles can also be used but they are less effective than fireworks.
- Ultra-sound playbacks. A method of reproducing ultra-high frequencies (above human hearing) using electronic oscillators and frequency generators was designed in Swakopmund along with the Logger Early Warning System. The electronics were attached to an amplifier and a powerful speaker (Figure 29) and the system is currently being tested in the field. The preliminary results are exceptionally good. Lions immediately reacted to the sound playbacks and moved away. The same response was observed with several black-backed jackals and one brown hyaena.

Figure 29. Ultra-sound system developed to deter lions

- Vehicles. Lions can be chased-off and deterred by vehicles, but there are several important elements to consider. 1) Lions are capable of distinguishing between different types of vehicles based on engine type (petrol or diesel), appearance (e.g. came-drive vehicles or open pick-up vehicles with people on the back) and the manner of driving. 2) Some lions that live inside tourism areas are habituated to tourist vehicles and this leads to high quality sightings for tourists. 3) Care must be taken not to compromise this important tourism value by using game-drive vehicles to deter lions. 4) This can be

achieved by a) only using white open pick-up trucks, b) with people on the back, c) that are making a lot of noise and shouting, d) by driving fast and aggressively, and e) by ensuring that lions can easily associate these vehicles and the disturbance with human settlements and livestock.

6.5.3.4 Rapid Response Unit

Following the guidelines under the National Policy on Human-Wildlife Conflict Management two Rapid Response Teams need to be established. An initiative led by IRDNC with support from DLCT and DECP is underway to secure funding and implement the Rapid Response programme.

Objectives of the Rapid Response programme:

- Develop two teams, each comprising of trained local people, to monitor aspects of the lion population and to respond to potential or actual incidents of HLC. Critical is that these teams will liaise with conservancy management, lodges and traditional leaders. Develop systems of local community game guards and rangers to assist in this.
- Through these Teams, to mentor conservancies and farmers into taking rational and objective decisions about lions and the challenges of living with them. This goes right from managing threats and incidents to drawing up and adopting conservancy management plans for the species.
- Reduce HLC through a variety of means, for example, constructing lion-proof corrals, deploying and maintaining automated early warning systems at key villages
- Educate and train farmers, game guards, tourists, guides and residents on living with lions and promote the value of lions.
- Add value by providing information on individuals, movements and history of the lion population, and by encouraging tourism industry development and buy-in to the in-situ conservation of these animals.
- Mentorship of local qualified Namibians to run the program in the long term.
- Develop systems to monitor the progress and success of this program

The development of two teams to respond to human wildlife conflict incidents, facilitate in training farmers, communicate with Traditional Leaders, conservancy management and farmers and to gather information and data is essential. The procurement of 2 vehicles and recruitment of 4 suitable members is important and already underway. The appointment of a Project Co-ordinator and a Project Administrator to drive and manage the project is necessary. Training will be extensive and is to be provided by DLCT, DEP and IRDNC. These teams will be mobile, have satellite phones, radio communication (vehicle and hand held sets), spotlights and be equipped to respond to incidents and stay in the bush for several weeks at a time. The vehicles will also be monitored by commercial satellite fleet management systems. While the ideal is to have two operational independent teams, this will be phased in gradually to allow for developing efficient management and reporting structures. A system of Lion Rangers is already in place in three of the lion range conservancies. These rangers were nominated and appointed by their communities. However, it is only with the development of the Rapid Response Teams that they can become truly efficient. In year two a suitable UNAM conservation graduate will be sourced to join the program. Training and mentoring will be on site with focus on all aspects, research, HWC, logistics and admin with a view to this person eventually taking over management of the program.

Reducing Human-Lion-Conflict is a crucial aspect of the program. There have been extensive meetings with affected local communities to seek solutions to this problem. The main thrust of this aspect is to build structures and systems to reduce losses to farmers and to ensure human safety. Over and above the response teams and education this will entail constructing lion-proof corrals, providing early warning of the presence of animals using collaring and providing lights in key localities at farms/homesteads. While most conservancies have land use zonation plans in place, these are often not respected properly and some of these need to be changed to better accommodate lions and elephants.

The Rapid Response Teams will be trained in (excluding the skills they need for their daily tasks) living with elephants and lions, basic elephant and lion behaviour, basic biology and requirements of the two species. The Kunene Region Communal Conservancy

Association (KRCCA) is an influential organization with respected leadership. They will also be trained to pass on the information and to monitor peoples' reaction and attitudes to these efforts. A major part of the education effort is to build capacity within these communities to deal with living with wildlife and also to communicate to visitors to these areas. A concerted effort will be made to educate the tourism sector, local guides and visitors to the area about these unique animals. This will take the form of formal training for guides and the production and distribution (via key entrance points to the area and car hire firms) of pamphlets. This is already taking place, but does need to be increased. The ambition is to accommodate one Namibian University of Science and Technology student per year on their 6-month practical or internship. This will provide them with an opportunity to partake in meaningful and relevant surveys and actions.

Poaching at present is not a problem in the region. However, there is an increase in poaching of both elephants (for ivory) and lions (bones and body parts for the Asian traditional medicine market) in southern Africa. As anti-poaching efforts become more successful elsewhere, so we can expect poachers to target our area. This has already been evident with the free-ranging black rhino population in the Kunene Region. We urgently need to increase our efforts in this regard to make it as difficult as possible for poachers to operate in this area. Our Teams and Coordinator will work closely with the Ministry of Environment and Tourism, the Save The Rhino Trust and the Protected Resources Unit of the Namibian Police. A relationship has already been established with these stakeholders and will be maintained as a priority.

Adding value or increasing tangible benefits to farmers and residents affected by these animals is a priority. Employment and increased compensation rates are seen as crucial in this regard. Tour operators and Lodge or accommodation operators will be asked to encourage their guests to contribute to a "sightings fund". Whenever lions or elephants are seen, a small donation can be made. It is important that research provide information on individuals, group sizes, habits, personality etc. of lions and elephants. This makes the experience tourists might have more personal and meaningful. In the long-term, we will develop Lion and Elephant Rangers to the point where visitors can accompany them on their patrols, thus gaining an insight into local conservation first hand.

Systems will be developed to measure the success of the Rapid Response programme. This is not just about work completed, number of kraals built or number of patrol days, but also includes monitoring actual number of HWC incidents and very importantly, the attitude and buy-in by local farmers and residents.

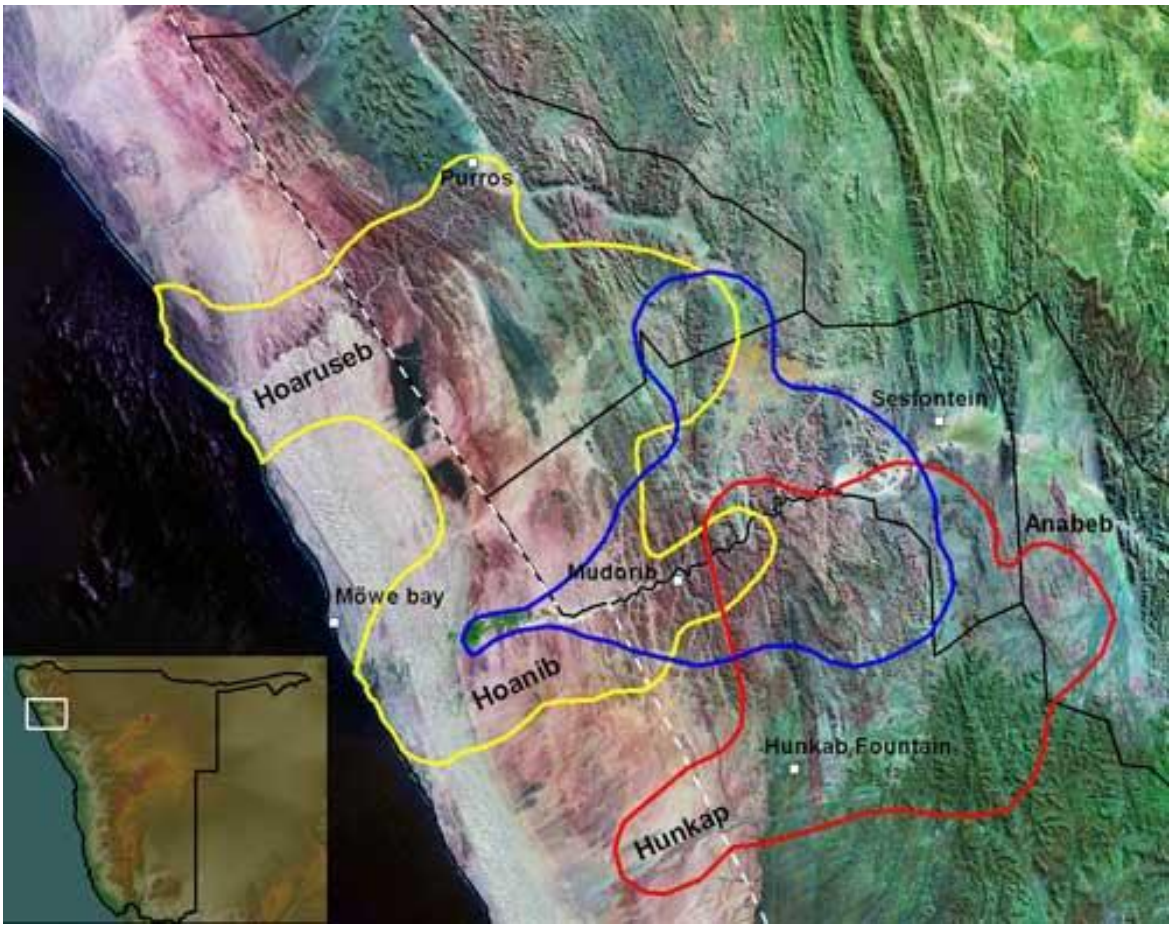
6.5.4 Lion Tourism

Tourism can play an important role in the conservation of lions and in the mitigation of Human-Lion Conflict. The simultaneous growth of wildlife populations, tourism, and community-based conservation efforts during recent years in NW Namibia is testimony to this. Under the current climate where local people benefit from wildlife and communal conservancies enter into contractual agreements with tour operators, the tourism industry's potential role in wildlife conservation is ever increasing. Along with black rhinos and elephants, lions are one of the most popular species among tourists. The value of lions and the benefits derived through tourism in the region, must arguably out-way the losses incurred as a result of Human-Lion Conflict.

Notwithstanding, people still pose the biggest threat to lions. Local communities suffer financial losses when lions prey on their livestock, upon which they often retaliate (legally) by killing lions. The tourism industry and related entities (including the communal conservancies) enjoy the benefits, but the local people that live close to lions (i.e. individual farmers) have to bear the costs. This discrepancy has been identified and according the National Policy on Human-Wildlife Conflict Management there is a need for preferential benefits to those local people.

Between 2007 and 2008 a detailed study was conducted in the Hoaruseb River (Purros Conservancy), the Hoanib River (Sesfontein Conservancy) & Hunkap River (Anabeb Conservancy; Figure 30). The objectives were: a) to evaluate the tourism potential of lions, and b) to propose a system where direct benefits derived from lions would reach the appropriate local people in order to offset the losses.

Figure 30. The home ranges of three lion prides that utilise the Hoanib River (Yellow - Hoaruseb pride 4584 km², Blue - Hoanib pride 2345 km², Red - Hunkap pride 2927 km².



There were a total of 35 individually known lions in three separate prides (Hoaruseb = 14, Hoanib = 14, Hunkap = 7) and they occupied a combined area of 6171 km² (Figure 30). There was overlap between the home ranges of all three groups, but they rarely interacted with each other.

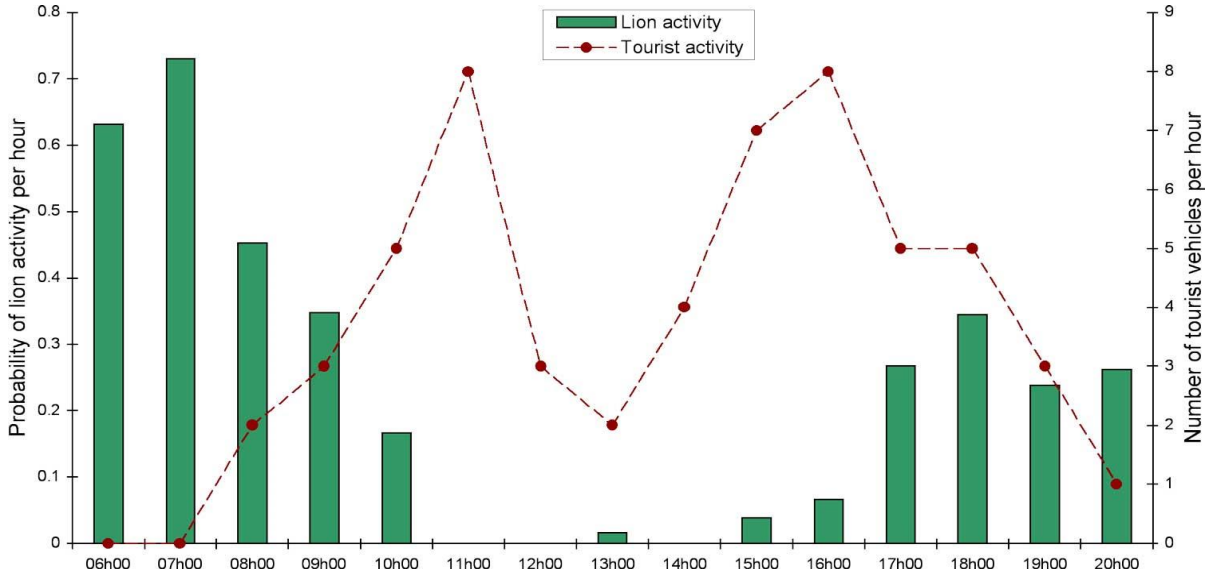
The lions were observed intensively for 2208 hours (92 x 24hrs) during which time they killed 51 prey animals of 12 different species. Oryx was the most important prey species and along with zebra, ostrich and springbok, formed 75% of the lion's food. Livestock (donkeys) represented only 5% of the kills.

Lions were inactive for 72 % of the 24-hour day (N = 92 days) and activity was highest at night and during the early morning up until. During the middle of the day (10h00 – 15h00)

they generally rested in thick vegetation and were not visible. Although lions were active mostly at night, the main peak of activity was around sunrise, followed by another increase in activity at sunset.

The Hoaruseb lions spent 85 % of their time in the riverbed and the remainder in rocky outcrops close to the river (5 – 10 km). The likelihood of finding and seeing the lions, during a sample of 82 attempts, was high (69 %). The average distance between passing vehicles and lions was 74 metres (range: 15-250 m). Despite this high probability of seeing lions, only 8 % of the 86 tourists vehicles that drove past the lions (average = 4.2 vehicles per day) actually saw them. The peak tourism traffic was between 09h00 and 18h00 when lions were inactive (Figure 31) and resting behind vegetation and other forms of cover. The lions were mostly relaxed when vehicles drove past them, but when vehicles were noisy or caused disturbance, they often walked or ran out of sight.

Figure 31. Daytime activity patterns of lions and tourist vehicles in the Hoaruseb River. Data were collected during 83 periods of 24-hour observations. Tourism activity represents the number of vehicles that drove past the lions per hour, during the 24-hour observations.



Because of their nocturnal habits, the movements and behaviour of lions are often poorly understood. Tour operators will benefit from accurate and current information on lions, and there is a need to provide such information to the industry, so as to increase the

potential benefit of tourism to wildlife conservation. Collaborating with the communal conservancies and involving them in the process is essential.

The Desert Lion Project has provided numerous training courses to conservancy members and local tour operators to improve the tourism potential of Desert lions. Such training has helped to increase the success rate of finding and approaching lions during game drives, and improve the quality and accuracy of information conveyed to tourists. In the Hoaruseb River the proportion of tourist vehicles spotting and observing lions increased to 52 % after such training courses.

The major tour operators and TOSCO should be approached to discuss the mechanisms of a establishing a “Lion Fund” where operators agree to donate a minimal fee (e.g. N$ 100 per vehicle) for every sighting of lions. A system of collecting and managing the funds must be developed and approved by MET. Each communal conservancy should establish a separate “Lion Fund” account where income derived from lions-related tourism and hunting can be used to off-set the losses and costs of Human-Lion Conflict. Options of securing matching or “gear-up” funds from other sources to supplement the “Lion Funds” at conservancy level should be investigated.

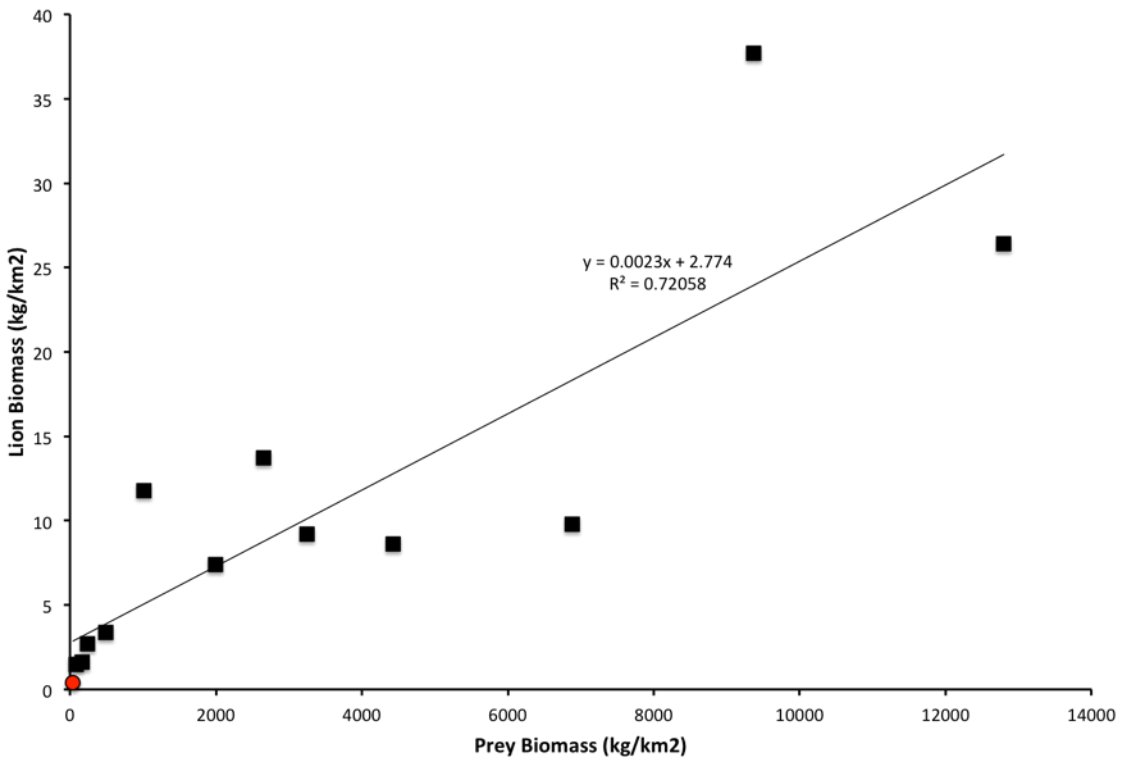
6.5.5 Lion Population Management

Some conservancies and local communities have raised concern that the Desert lion population have increased beyond the expected ecological carrying capacity and that their numbers may need to be reduced.

An analysis of the frequency of Human-Lion Conflict incidents (see Page 22) between conservancies and between years revealed that increased levels of Human-Lion Conflict occur randomly and are generally related to a localised abundance of particularly sub-adult males in one of two prides. The Hoanib Floodplain pride is currently the only pride that do not move into areas used for livestock farming and that are safe from human-related mortalities. The home ranges of all the other prides overlap to some extent with livestock areas (Figure 7).

The density of lions in the Desert population (0.48 – 0.62 / 100 km^{-2}) appears to be in balance with the arid environment and compares favourable with lion population densities in other semi-arid environments, such as Etosha National Park (1.8 – 2.4 / 100 km^{-2}) and Kalagadi Transfrontier Park (1.5 / 100 km^{-2}). Furthermore, to relationship between lion biomass and prey biomass (based on figures from the 2016 Aerial Survey in NW Namibia) compares favourably with similar data from 13 other lion populations in sub-Saharan Africa (Figure 32).

Figure 32. Lion biomass as a function of available prey biomass in 14 conservation areas in sub-Saharan Africa. The Desert lion population is indicated by a red dot.



The genetic heterozygosity of the Desert lion population is sufficiently diverse and similar to that of the Etosha lion population. However, due to the skewed adult sex ratio and shortage of adult pride males there is a need for regular monitoring. The genetic variability and viability of the Desert lion population should be measured at least once every ten years.

6.5.5.1 Trophy Hunting

Trophy hunting of lions can be a very lucrative and selective option for turning a problem into an asset. As with every form of utilisation there is always the fear of exploitation and greediness. Notwithstanding with good scientific data as backup and carefully designed control measures in place the selective use of trophy hunting can be valuable in managing Human-Lion Conflict, removing “problem” lions and generating income towards the “Lion Funds” at conservancy level.

Hunting quotas are generally allocated for each conservancy separately, but in NW Namibia it is, however, essential that sustainable off-take quotas are first calculated for the whole Desert lion population, and then divided between the relevant conservancies. This is necessary because lions move across several conservancies and the home ranges of all the prides overlap extensively.

Quota settings should be based on the CITES standard of 5% off-take and follow the import conditions of the US Fish and Wildlife Service under the Endangered Species Act, that require proof of sustainable and ethical hunting of free-ranging lions where trophy fees are used for the conservation of the species.

In the event of prolonged incidents of Human-Lion Conflict, the Ministry of Environment & Tourism could identify and declare a “problem” lion that can be utilized for trophy hunting. Clear and binding conditions must be stipulated and an MET staff member should accompany the PH to ensure that the actual “problem” lion is shot. On numerous occasions during the past 15 years hunters have misused such hunting permits by ignoring the “problem” lions and selecting unrelated adult male lions. Care must be taken that “problem” lion trophy hunting permits in addition to the allocated annual quotas do not amount to unsustainable off-takes. Due to the current skewed sex ratio in the population – the result, partly, of excessive numbers of adult males shot on quota and “problem” trophy hunting permits – adult male lions (> 4 years of age) may not be trophy hunted.

Funds generated through trophy hunting will provide a much need income to local communities and conservancies. Permit conditions issued by MET must stipulate the proportion of funds to be allocated to the relevant conservancy “Lion Funds” and to the Game Products Trust Fund (GPTF).

6.5.5 Research and Monitoring

In order to manage Human-Lion Conflict in NW Namibia conflict effectively and efficiently it is crucial to have adequate data that is available in a usable form for key decision-makers. There is a need for more comprehensive data that enables the Government and other stakeholders to understand better the nature and scale of the problems, to develop solutions and monitor the success of the solutions. Data gathering needs to be standardized so that results can be compared from area to area and over time. Data needs to be stored in a central database that all stakeholders can have access to.

The specific objectives of this strategy are:

6.5.5.1 To develop a standardized monitoring and reporting system on HLC that captures the most relevant data for use by all stakeholders

6.5.5.2 To monitor and evaluate the effectiveness of different HLC mitigation methods and to disseminate findings to all stakeholders

6.5.5.3 To determine the social and ecological carrying capacity for lions

Strategic approach

Establish National database with the MET that should include historical and current data from existing systems including the MET Permit Office.

Record data from each reported HLC incident capturing:

- Numbers, age and sex structure of lions
- Location of incident

- Date & time when incident occurred
- Damage caused
- Who was affected
- Action taken
- Was any mitigation in place (e.g. were animals in a corral?, etc.)
- Who recorded the data;
- Sex and age structure of the animal
- Any other information which may be appropriate

Provide data on the economic impact of HLC on households – this provides a better indication of the costs to citizens than simply recording the cost of damage as it takes into account the economic status of the household bearing the loss and other factors. For example, the impact of losing five cows to a lion is much higher on a household owning eight cows compared to a household owning 50 cows. Similarly the loss will be greater to a female-headed household with few other assets and little or no cash income.

Provide data on the effectiveness of HLC mitigation methods including type of method, features of the method (e.g. detailed description of the infrastructure, components, ingredients, position in relation to other important features such as other water points, houses, etc), aim of the method, extent to which the method has achieved its aims, reasons for success or failure, length of time over which monitoring has taken place, description of monitoring methodology, provide comparative data to improve our understanding of the factors influencing patterns of HLC, and designed to detect possible duplication of data.

Work with all other stakeholders to develop standardized data gathering and monitoring systems that are simple and cost-effective to implement. Disseminate data in appropriate forms to all stakeholders. Build capacity of stakeholders in collecting, recording and using data and ensure that there is systematic and consistent data recording in terms of level of effort and across temporal, spatial and numerical scales.

Develop various forms of “Early Warning Systems” to provide communities and farmers with sufficient and timely information in order to take appropriate measures to prevent livestock losses. The early warning system should provide information on a daily basis.

MET will coordinate a centrally-based Rapid Response structure which will coordinate with Rapid Response Units deployed in NW Namibia to address incidents of HLC and manage “problem” lions.

All efforts to monitor and manage HLC will be coordinated by MET. The general public, interested parties and individuals may not be involved in any form of HLC management without the written approval of MET and the conservancies.

6.5.6 Human Lion Conflict Insurance Scheme

It has not been Government policy to provide compensation to farmers for losses due to wild animals since compensation schemes implemented elsewhere have proved to be very problematic and open to abuse. However, there is a need to reduce the growing tension around HWC as losses of human lives, livestock, and crops as well as damage to infrastructure are highly emotional issues and affect livelihoods.

The National Policy on Human-Wildlife Conflict Management is addressing new approaches to insurance against HWC that will also cover the Human-Lion Conflict Management Plan for NW Namibia. Income generated from lion-related tourism and hunting in the NW should be applied to balance the losses at grass-route level.

7. IMPLEMENTATION FRAMEWORK

7.4 Monitoring and Evaluation

7.4.1 The impact of the implementation of this Management Plan and progress and constraints regarding its implementation will be periodically assessed by the Ministry of Environment and Tourism in consultation with other stakeholders.

7.4.2 The Event/Incident Book System and the Human-Wildlife Conflict Data form will be used for monitoring and evaluation of HLC.

7.5 Implementation Action Plan

Table 1: Land use planning and livestock management structures

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of livestock & HLC	On-going	Planning aimed at avoiding HLC	General operational funds	Conservancies MET, IRDNC DLCT

Table 2: Aspects of lion demography & behaviour ecology relevant to HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of lion population	On-going	Record population demography & ecology	General operational funds	MET, DLCT & IRDNC

Table 3: Developing & implementing appropriate technical solutions for mitigating HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Zoning of conservancies to avoid HLC	Wildlife zones & high-risk areas free of livestock	Implement "High-Risk Lion Corridor"	General operational funds	Conservancies, Traditional authorities, MET

Table 4: Effective Livestock Management & "High-Risk Lion Corridor"

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish protocols for livestock management inside "High-Risk Lion Corridor"	Erect several lion corrals inside "High-Risk Lion Corridor"	Ensure that no livestock, including donkeys, roam freely at night	N$ 250,000	Conservancies, IRDNC & MET

Table 5: *Early Warning Systems and Scare Tactics*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Satellite Early Warning System	Six key lions fitted with satellite collars	Provide early warning movement data to farmers	N$ 150,000	DLCT, MET
Logger Early Warning System	Establish 4 Logger Systems at key locations. Fit RFID collars to 15 key lions.	ID key lion prides & fit collars. Erect Loggers at 4 corrals.	N$ 285,000	DLCT, MET

Table 6: *Rapid Response Units*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Develop Rapid Response protocol	Establish 4 RRU teams	MET establish central control	N$751,920	MET, IRDNC, DLCT, Conservancies

Table 7: Lion Tourism

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish "Lion Funds" at conservancy level to manage lion-sighting fees	All major tour operators pay N$ 100 for every lion sighting	Involve tourism industry		TOSCO, Conservancies, MET & IRDNC

8. BIBLIOGRAPHY

8.1 Ministry of Environment and Tourism. 2005. National workshop on human-wildlife conflict management in Namibia. Safari Hotel, Windhoek.

8.2 Nature Conservation Amendment Act of 1996 (Act 5 of 1996).

8.3 Nature Conservation Ordinance of 1975 (Number 4 of 1975).

8.4 The National Policy on Human-Wildlife Conflict Management.

8.5 National Lion Conservation Strategy (Draft).

8.6 Human-Lion Conflict in the Northwest of Namibia. Regional workshop on managing lion conflict. Kamanjab - 11 May 2016.

From:	Richard Ruggiero
To:	laury_parramore@fws.gov
Cc:	Danielle Kessler
Subject:	Fwd: National Public Radio --- Interview Request
Date:	Thursday, November 16, 2017 12:10:49 PM

I think a negative response from me is in order. Would you like to recommend someone else?

Sent from my iPhone

Begin forwarded message:

> **From:** Fatma Tanis <FTanis@npr.org>
> **Date:** November 16, 2017 at 12:04:15 PM EST
> **To:** "Richard_ruggiero@fws.gov" <Richard_ruggiero@fws.gov>
> **Subject: National Public Radio --- Interview Request**
>
> Dear Mr. Ruggiero,
>
> I hope this finds you well. I am a producer with NPR in Washington. We would love to speak to you about elephants and reports that the Administration is planning to allow hunters in Zimbabwe and Zambia to import trophies of elephants to the United States.
>
> The interview would be pre-recorded and no longer than 20 mins. We would be delighted to share your knowledge and insights with our listeners. Would you be available to speak with us tomorrow, by any chance?
>
> I look forward to hearing from you.
>
> Many thanks,
>
> Fatma
>
> <image001.jpg> | Fatma Tanis | All Things Considered | ftanis@npr.org | 202-513-2128|@tanisNPR

From:	Cogliano, Mary
To:	Jones, Lisa
Cc:	Mike Moore; Tim Vannorman; Danielle Kessler
Subject:	Fwd: Questions on permits issued
Date:	Monday, November 20, 2017 12:06:40 PM

Hi Lisa,

The number of permits issued for import of hunted lions is as follows:

- SOUTH AFRICA: 14 PERMITS ISSUED
- ZAMBIA: 18 PERMITS ISSUED
- ZIMBABWE: 19 PERMITS ISSUED

Best,

Mary

---------- Forwarded message ----------
From: **Craig Hoover** <craig_hoover@fws.gov>
Date: Mon, Nov 20, 2017 at 11:56 AM
Subject: Re: Questions on permits issued
To: "Jones, Lisa" <lisa_m_jones@fws.gov>
Cc: Mike Moore <mike_moore@fws.gov>, Tim Vannorman <tim_vannorman@fws.gov>, "Kessler, Danielle" <danielle_kessler@fws.gov>, Mary Cogliano <mary_cogliano@fws.gov>

Adding Mary who generated relevant data over the weekend.

Sent from my iPhone

> On Nov 20, 2017, at 11:54 AM, Jones, Lisa <lisa_m_jones@fws.gov> wrote:
>
> Hi Mike,
>
> We're getting some questions from the Hill about how many permits have been issued for our recent lion findings, in addition to elephants. Danielle provided me with stats for elephants.
>
> Do you have stats handy on how many permits have been issued for lions for Zimbabwe, Zambia, and South Africa?
>
> Thanks so much!
>
> Lisa
>
> ----------
> Lisa Hummon-Jones
> Congressional and Legislative Affairs Specialist
> U.S. Fish and Wildlife Service
> 703-358-2536 (o)

> 202-365-7255 (c)
>

--

Mary Cogliano, Ph.D.
Supervisory Biologist & Policy Specialist
Division of Management Authority
U.S. Fish and Wildlife Service
5275 Leesburg Pike, MS: IA
Falls Church, VA 22041-3803
Phone: (703) 358-1991

From:	Craig Hoover
To:	Tim Van Norman; Mary Cogliano
Subject:	Fwd: Powerpoint for Secretary
Date:	Monday, November 20, 2017 9:50:01 AM
Attachments:	ATT00001.htm Presentation rev 4.pptx

Greg's current version.....

Sent from my iPhone

Begin forwarded message:

> **From:** Greg Sheehan <greg_j_sheehan@fws.gov>
> **Date:** November 20, 2017 at 12:13:40 AM EST
> **To:** Craig Hoover <craig_hoover@fws.gov>, Todd Willens <todd_willens@ios.doi.gov>, Jason Larrabee <jason_larrabee@ios.doi.gov>, zachariah_gambill@fws.gov, Barbara Wainman <barbara_wainman@fws.gov>
> **Subject: Fwd: Powerpoint for Secretary**
>
> Attached is a revised version that incorporates a variety of comments that I received today, Sunday.
> Some did not comment so there may be more discussion yet.
> You will notice that one slide was divided and moved to the tail end of the presentation after the conclusion segment. Those slides may serve on an as-needed basis.
> We may want to juggle a few things around to allow for a meeting on Monday morning prior to the meeting with the Secretary. I will make myself free at any time.
> Todd, there are few on this email so will let you decide how to coordinate with the Dep Sec and Chief of Staff.
> Thanks
> Greg
>
> Greg Sheehan
> Principal Deputy Director
> US Fish and Wildlife Service
> 202-208-4545 office
> 202-676-7675 cell

Importation of legally hunted African Elephants and Lions

Briefing for the Secretary of Interior

November 20, 2017

Importation into the United States

- African lions and African elephants are listed as Threatened under the U.S. Endangered Species Act (ESA).
- These species may be legally imported if they comply with the ESA, Convention on International Trade in Endangered Species (CITES) and additional U.S. laws and regulations.
- U.S. regulations require a permit to import hunted African elephants and lions
- The United States will only issue an import permit if the U.S. Fish and Wildlife Service (FWS) concludes that hunting the species "enhances" the survival of that species in the wild.
- This standard has been in place for elephants since 1992, and for lions since January 22, 2016.
- Factors that the FWS considers in their review include:
  - species status; population trends; poaching levels; wildlife management plans; amount and use of revenues generated by hunting and how they are used; local community benefits.

Country status for import of elephant trophies from 2014 to present*

	Approved for elephants hunted	Under Review	Not Approved for elephants hunted
Namibia	X		
South Africa	X		
Tanzania		January 1, 2016 and beyond	January 1, 2014 - December 31, 2015
Zambia	January 1, 2016 - December 31, 2018 *(Zambia closed its 2014-2015 hunting seasons)*		
Zimbabwe	January 21, 2016 - December 31, 2018		May 12, 2014 - January 20, 2016

What action for Elephants did FWS take on November 16th, 2017?

- African elephants hunted in Zambia and Zimbabwe during 2016 and 2017, may be imported into the United States after receiving a permit from the FWS.
- For African elephants hunted in Zambia and Zimbabwe in 2018, the FWS will accept import permit applications, unless the FWS changes the current findings.

	Estimated Population	CITES Quota CY 2017	% of Population
Zambia	21,760	80	0.37%
Zimbabwe	82,630	500	0.61%

Note: Zambia and Zimbabwe have not historically filled their quota

Country status for import of lion trophies*

	Approved	Under Review	Not Approved to Date	Applies to Lions Hunted
Mozambique		X		
Namibia		X		
South Africa: Wild Lions	X			January 1, 2016 to December 31, 2019
South Africa: Wild-Managed Lions	X			January 1, 2016 to December 31, 2019
South Africa: Captive Lions			X	until new information is received
Tanzania		X		
Zambia	X			January 1, 2016 to December 31, 2018
Zimbabwe	X			January 1, 2016 to December 31, 2018

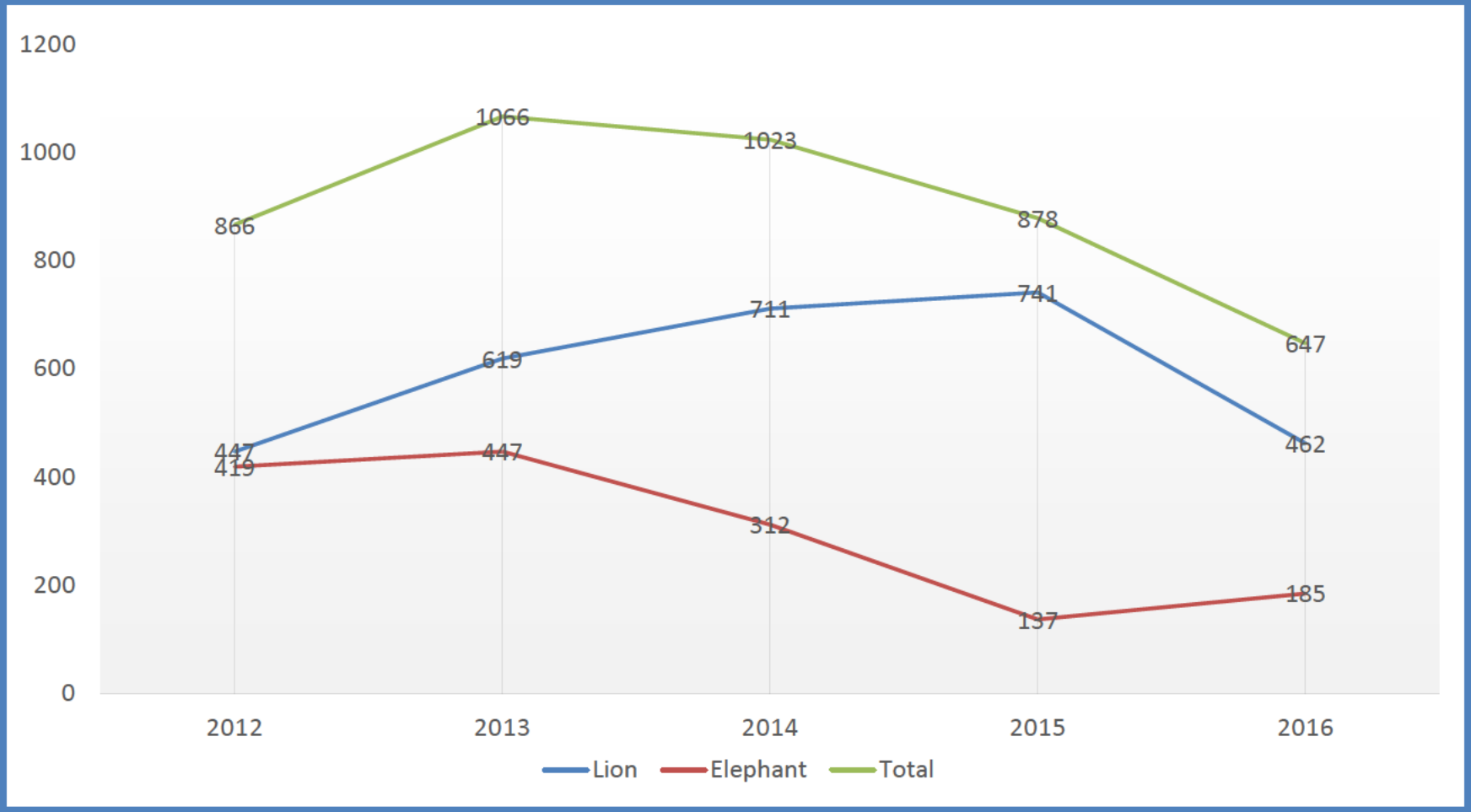
What do these Lion decisions allow?

- For Zambia and Zimbabwe, lions already taken in 2016 and 2017 may be imported after receiving a permit. Hunters may receive a U.S. permit to import lions taken through 2018 unless FWS changes the current findings.

	Estimated Population	Quota CY 2017	% of Population
Zambia	1,200	80	6.7%
Zimbabwe	1,900	50 (est.)	2.6%

Note: Zambia and Zimbabwe have not historically filled their quota

U.S. Lion and Elephant Trophy Imports



- Elephant decline due primarily to Botswana closure and Zimbabwe 2014 negative finding
- Lion decline due primarily to closure of imports for captive bred lions from South Africa

Benefits of Hunting in Africa

- Benefits to local communities – Anti-poaching Patrols (wildlife, & illegal timber, mining, grazing activities), employment, school/clinic construction, clean water development, habitat protection, etc.

- Estimated economic Impacts to the countries
  - Elephants - $174 million
  (580 Hunter/Gov't fees X $60,000 X 5 econ multiplier)
  - Lions - $22.8 Million
  (130 Hunter/Gov't fees X $35,000 X 5 econ multiplier)

African Elephant Facts

- There was never an Obama Administration "BAN" on Zimbabwe elephant
  - No import regulations or policies have changed under this Administration
  - In 2014 and 2015, Zimbabwe had a negative "enhancement" elephant finding that has been revised to a positive finding for 2016-2018
  - Enhancement determinations are made by career biologists

- African elephant population numbers across the African continent have declined from 508,000 in 2006 , to 418,000 in 2015, due primarily to poaching.

- Some countries have increased elephant populations or are stable, while others are down.

- Legal hunting has not contributed to population-level declines.

- Decisions about management strategies need to happen on a country-by-country basis, not a range wide basis. Much like wildlife is managed in the United States, on a state by state basis consistent with the North American Model of Wildlife Management

- Revenues generated from legal hunters fund the majority of anti-poaching and conservation efforts for elephants and in countries where hunting is closely regulated

Thank you

Elephant Permits Issued/Applications Pending (Since 2014)

- Namibia – 96 permits issued; 8 applications pending; positive finding
- Tanzania – 14 permits issued; 2 applications pending; 3 denied; no finding made for 2016+
- South Africa – 75 permits issued; 8 applications pending; positive finding
- Zambia – 7 permits issued; 1 pending; positive finding
- Zimbabwe – 20 permits issued (pre-2014 take); 31 applications pending; 9 permits denied; negative finding for 2014-15; positive finding for 2016-18

.

Lion Permits Issued/Applications Pending (Since January 2016)

- Mozambique – 3 applications pending; no finding made
- Namibia – 1 application pending; no finding made
- Tanzania – 19 applications pending; no finding made
- South Africa – 14 permits issued; 11 denied; 2 pending
- Zambia – 18 permits issued; 1 pending
- Zimbabwe – 19 permits issued; 4 pending

.

From:	Vannorman, Tim
To:	Kessler, Danielle
Subject:	Fwd: REQUEST FOR LION AND ELEPHANT INFO BY 2PM TODAY: Bullets for Secretary"s BiWeekly Check-in
Date:	Tuesday, October 24, 2017 3:21:32 PM

---------- Forwarded message ----------
From: **Hoover, Craig** <craig_hoover@fws.gov>
Date: Tue, Oct 24, 2017 at 12:42 PM
Subject: Re: REQUEST FOR LION AND ELEPHANT INFO BY 2PM TODAY: Bullets for Secretary's BiWeekly Check-in
To: "Morris, Charisa" <charisa_morris@fws.gov>
Cc: Gary Frazer <Gary_Frazer@fws.gov>, Gina Shultz <Gina_Shultz@fws.gov>, Gloria Bell <gloria_bell@fws.gov>, Tim Van Norman <tim_vannorman@fws.gov>

Charisa,

Thanks for the message. First, the bullet point is not accurate. Here's a more accurate rewrite of that text:

Enhancement Findings for Lions and Elephants: USFWS has determined that the hunting and management programs for lions (Panthera leo melanochaita) in Zambia and Zimbabwe will enhance the survival of the species in the wild, which is required prior to allowing import of these trophies under Endangered Species Act regulations. USFWS is now issuing permits to import these trophies. USFWS anticipates completing a positive finding for elephants (Loxodonta africana) in Zambia and will be able to issue permits once that finding is in place.

Regarding the additional information:

Lion and Elephant ESA Enhancement Findings

- *Date and Action: October 20: Zimbabwe and Zambia ESA enhancement findings completed for lions, covering trophies taken during 2016-2018; October 27: anticipated date that Zambia ESA enhancement finding for elephants will be completed.*
- *Controversy and media attention expected: These determinations are likely to be controversial with some animal rights and conservation groups opposed to lion hunting. USFWS has updated its website and created a Sport-hunted Trophies: Lions page to provide an updated status on ESA findings.*
- *Items of note: USFWS has already issued and mailed all 35 pending permit applications for Zimbabwe and Zambia lion sport-hunted trophies and key stakeholders have been notified. The Zambia elephant finding will not be rolled out until the already completed Zimbabwe elephant finding has been published in the Federal Register.*
- *Interested parties: Safari Club International, Conservation Force, National Rifle Association, individual sport hunters, Zimbabwe and Zambia governments, conservation and animal rights organizations.*

Let us know if you need anything else.

Best,

craig

On Tue, Oct 24, 2017 at 11:56 AM, Morris, Charisa <charisa_morris@fws.gov> wrote:

> Good morning, all-

Michael

--

Michael Gale

Deputy Chief of Staff (Acting), Director's Office
U.S. Fish and Wildlife Service

202.208.4923 (office)
571.982.2158 (cell)

--

Charisa_Morris@fws.gov | Chief of Staff, Office of the Director | U.S. Fish & Wildlife Service | 1849 C Street NW, Room 3348 | Washington, DC 20240 | (202) 208-3843 | For urgent matters, please dial cell: 301-875-8937

--

Craig Hoover
Chief, Division of Management Authority
International Affairs
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803
ph: 703-358-2162
www.fws.gov/international

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--

Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

Sign up for our e-newsletter to learn how we're working around the globe to protect species and their habitats!

From:	Harris, Tasha
To:	Tim Vannorman
Subject:	Fwd: Revised note to reviewer for Tanzania trip
Date:	Wednesday, October 25, 2017 6:55:51 AM
Attachments:	IA Note to Reviewer AWFC 2017 revised.docx

Hi Tim,

It looks good, Now please get Gloria, to sign and return to me.

Thanks,
Tasha
---------- Forwarded message ----------
From: **Vannorman, Tim** <tim_vannorman@fws.gov>
Date: Tue, Oct 24, 2017 at 1:53 PM
Subject: Revised note to reviewer for Tanzania trip
To: "Harris, Tasha" <tasha_harris@fws.gov>

Tasha,

Here is a revised note to reviewer.

Tim

--
Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

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NOTE TO REVIEWER

_____
AD/RD INITIALS

TODAY'S DATE: 10/1/2017

DTS NO.: **FT00XXXX**

WHO is traveling: **Timothy J. VAN NORMAN**

WHEN: **November 7 through November 18, 2017**

WHERE: **Arusha, TANZANIA**

WHAT: **On November 9 and 10, Tim Van Norman, Chief of the Branch of Permits, Division of Management Authority, U.S. Fish and Wildlife Service (Service) is scheduled to meet with representatives of the Tanzania Wildlife Department in Arusha, Tanzania, to discuss Tanzania's elephant and lion hunting programs and the findings that FWS must make to authorize imports of these trophies. Under the Endangered Species Act, the US Fish and Wildlife Service (Service), Division of Management Authority, must make a determination that the import of listed species would enhance the propagation or survival of the species. Both the lion and Africa elephant are listed as threatened under the ESA and would require the issuance of an import permit before trophies could be imported. In 2014 and 2015, the Service made a determination that we were unable to make the required findings in order to import elephant trophies taken during those years. The Service is currently working on a new finding for Tanzania elephants and, without additional information from the Tanzania government, will likely be unable to make a positive finding. As for lions, the species was listed in early 2016, and to date the Service has not received sufficient information from Tanzania to make a positive finding. Having the opportunity to conduct face-to-face meetings with Tanzania wildlife officials will improved communication channels with the Tanzanians and, hopefully, lead to the Service being able to make positive findings for both species.**

Mr. Van Norman will then attend the African Wildlife Consultative Forum (AWCF), an annual meeting sponsored by Safari Club International Foundation, being held in Arusha, Tanzania on November 12 - 17. AWCF provides an opportunity for the Directors of the wildlife departments from most of the southern and eastern Africa to meet to discuss overlapping issues. SCIF has requested that Mr. Van Norman provide a presentation during the International Policy session on Wednesday, November 15. SCIF has welcomed FWS participation at the AWCF for approximately 10 years, particularly due to our role in authorizing the importation of sport-hunted trophies.

WHY: The trip is necessary to facilitate the production of "enhancement findings", a requirement under the Endangered Species Act to authorize the importation of elephant and lion trophies. All of the countries that will be present at the AWCF are actively seeking approval from FWS to allow for the importation of trophies taken in their countries.

WHY Late: **The travel package is being submitted as soon as possible. The specific information on AWCF, such as travel dates and location of venue, was not received until Friday, September 29. Final arrangements for meeting with representatives of the Government of Tanzania to discuss elephant and lion imports on November 9 and 10 has not been completed, so these dates are still tentative.**

Funding: F**WS will pay all costs.**

Travel must be a cost effective means of accomplishing the mission. Consequences of not traveling should be documented when possible. Travel must be scheduled in a fiscally responsible manner and within approved annual budgets.

From:	Harris, Tasha
To:	Lillian Moore; Tim Vannorman
Subject:	Fwd: Revised note to reviewer for Tanzania trip
Date:	Thursday, October 26, 2017 6:41:50 AM
Attachments:	IA Note to Reviewer AWFC 2017 revised.docx

Hi Tim,

Please don't forget to get Richard to sign and Update Greg NTR and return to Lillian.

Thanks,
Tasha
---------- Forwarded message ----------
From: **Vannorman, Tim** <tim_vannorman@fws.gov>
Date: Tue, Oct 24, 2017 at 1:53 PM
Subject: Revised note to reviewer for Tanzania trip
To: "Harris, Tasha" <tasha_harris@fws.gov>

Tasha,

Here is a revised note to reviewer.

Tim

--
Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

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NOTE TO REVIEWER

_____
AD/RD INITIALS

TODAY'S DATE: 10/1/2017

DTS NO.: **FT00XXXX**

WHO is traveling: **Timothy J. VAN NORMAN**

WHEN: **November 7 through November 18, 2017**

WHERE: **Arusha, TANZANIA**

WHAT: **On November 9 and 10, Tim Van Norman, Chief of the Branch of Permits, Division of Management Authority, U.S. Fish and Wildlife Service (Service) is scheduled to meet with representatives of the Tanzania Wildlife Department in Arusha, Tanzania, to discuss Tanzania's elephant and lion hunting programs and the findings that FWS must make to authorize imports of these trophies. Under the Endangered Species Act, the US Fish and Wildlife Service (Service), Division of Management Authority, must make a determination that the import of listed species would enhance the propagation or survival of the species. Both the lion and Africa elephant are listed as threatened under the ESA and would require the issuance of an import permit before trophies could be imported. In 2014 and 2015, the Service made a determination that we were unable to make the required findings in order to import elephant trophies taken during those years. The Service is currently working on a new finding for Tanzania elephants and, without additional information from the Tanzania government, will likely be unable to make a positive finding. As for lions, the species was listed in early 2016, and to date the Service has not received sufficient information from Tanzania to make a positive finding. Having the opportunity to conduct face-to-face meetings with Tanzania wildlife officials will improved communication channels with the Tanzanians and, hopefully, lead to the Service being able to make positive findings for both species.**

Mr. Van Norman will then attend the African Wildlife Consultative Forum (AWCF), an annual meeting sponsored by Safari Club International Foundation, being held in Arusha, Tanzania on November 12 - 17. AWCF provides an opportunity for the Directors of the wildlife departments from most of the southern and eastern Africa to meet to discuss overlapping issues. SCIF has requested that Mr. Van Norman provide a presentation during the International Policy session on Wednesday, November 15. SCIF has welcomed FWS participation at the AWCF for approximately 10 years, particularly due to our role in authorizing the importation of sport-hunted trophies.

WHY: The trip is necessary to facilitate the production of "enhancement findings", a requirement under the Endangered Species Act to authorize the importation of elephant and lion trophies. All of the countries that will be present at the AWCF are actively seeking approval from FWS to allow for the importation of trophies taken in their countries.

WHY Late: **The travel package is being submitted as soon as possible. The specific information on AWCF, such as travel dates and location of venue, was not received until Friday, September 29. Final arrangements for meeting with representatives of the Government of Tanzania to discuss elephant and lion imports on November 9 and 10 has not been completed, so these dates are still tentative.**

Funding: F**WS will pay all costs.**

Travel must be a cost effective means of accomplishing the mission. Consequences of not traveling should be documented when possible. Travel must be scheduled in a fiscally responsible manner and within approved annual budgets.

From:	Hoover, Craig
To:	Tim Van Norman
Subject:	Fwd: Lion conservation in Namibia
Date:	Friday, August 18, 2017 8:11:46 AM
Attachments:	ATT00001.htm Namibia Lion Conservation Strategy_July 2017.pdf NW Lion Management Plan_July 2017.pdf ATT00002.htm

---

Second of two.
---------- Forwarded message ----------
From: **Gregory Sheehan** <gregory_sheehan@fws.gov>
Date: Fri, Aug 18, 2017 at 7:07 AM
Subject: Fwd: Lion conservation in Namibia
To: gloria_bell@fws.gov, Craig Hoover <craig_hoover@fws.gov>

Per the prior email.
Thanks
Greg

Greg Sheehan
Principal Deputy Director
US Fish and Wildlife Service
202-208-4545 office
202-676-7675 cell

Begin forwarded message:

> **From:** kenneth uiseb <kenneth.uiseb@met.gov.na>
> **To:** "Gregory_sheehan@fws.gov" <Gregory_sheehan@fws.gov>
> **Cc:** louisa mupetami <louisa.mupetami@met.gov.na>, colgar sikopo <colgar.sikopo@met.gov.na>, elly hamunyela <elly.hamunyela@met.gov.na>, Malan Lindeque <Malan.Lindeque@met.gov.na>
> **Subject: RE: Lion conservation in Namibia**
>
> Dear Mr. Sheehan,
>
> I refer to the email below sent to you by Dr. Lindeque on 12 July 2017. Please find herewith attached the copies of the approved Lion Conservation Strategy for Namibia, and Human-Lion Conflict Management Plan for the North Western Namibia.
>
> Yours sincerely,
>
> Kenneth Uiseb

Deputy Director, Wildlife Monitoring and Research

Ministry of Environment and Tourism

From: Malan Lindeque
Sent: Wednesday, July 12, 2017 8:12 AM
To: Gregory_sheehan@fws.gov
Cc: louisa mupetami <louisa.mupetami@met.gov.na>; colgar sikopo <colgar.sikopo@met.gov.na>; elly hamunyela <elly.hamunyela@met.gov.na>; kenneth uiseb <kenneth.uiseb@met.gov.na>
Subject: Lion conservation in Namibia

Dear Mr Sheehan

I am aware that the Fish and Wildlife Service is currently considering lion conservation issues in a number of countries, possibly including Namibia. I wish to inform you that we will shortly be able to send you two key documents that we have developed in this regard, namely a new Lion Conservation Strategy for Namibia and a Human-Lion Conflict Management Plan for Northwestern Namibia (which was approved only yesterday). The latter is the first of a series of sub-national plans to deal with conflict issues.

Yours sincerely

Malan Lindeque

Permanent Secretary

Ministry of Environment and Tourism

Namibia

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Craig Hoover
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ph: 703-358-2162
www.fws.gov/international

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Ministry of Environment and Tourism
Republic of Namibia

LION CONSERVATION STRATEGY FOR NAMIBIA

July 2017

Foreword

The lion *Panthera leo* is iconically African, and an important indicator of wilderness quality and integrity where it occurs. A key species for wildlife tourism, research and sports hunting, the lion is nevertheless, increasingly threatened.

Recent surveys indicated a suspected decline of 43% over the past 21 years of the African lion populations. With much of its former range now lost, and human-livestock densities increasing around core lion populations, the lion has become one of the major predators of livestock, presenting challenges and hardship to those who live amongst lions. Whilst an economic liability, and a threat to human safety, the lion is also a major source of economic benefit, being one of Africa's most important tourism attractions.

Compared to other Sub-Saharan lion range states, Namibia is home to only a small population of around 1000 lions, but, unlike the situation in most other countries, the lion population in Namibia has slowly increased over the past 20 years. This was mainly due to the expansion of lions into the Kunene Region. In other parts of Namibia, lion habitat is threatened through land use change and fragmentation resulting in human wildlife conflict and reduction in range available for lions.

The Ministry of Environment and Tourism has the constitutional mandate to safeguard and sustain the biological diversity of Namibia for the long-term benefits of current and future generations. It is the vision of this strategy to ensure the long-term conservation of the Namibian lion in a sustained environment.

The Ministry of Environment and Tourism acknowledges the contributions made by different stakeholders in the development of the Lion Conservation Strategy for Namibia. The Ministry is looking forward to join hands with all key stakeholders involved in wildlife and lion conservation to implement the Lion Conservation Strategy to ensure that our lion populations remain viable and are beneficial to the people who share their land and resources with lions.

Malan Lindeque
PERMANENT SECRETARY

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1. Introduction and background

The African lion (*Panthera leo*) is the largest African member of the genus *Panthera*, weighing up to about 230 kg, and is confined to the African continent. The lion is a highly charismatic member of the megafauna of Africa and is the only cat species that is conspicuously social (Schaller 1972).

The African lion plays a key role in the ecological functioning of the African ecosystems, but also provides key challenges when they come into conflict with other land uses like stock farming.

Three categories of lions are found in Namibia; wild free roaming lions in large and open protected areas and other land used for conservation purposes such as conservancies, managed lions free roaming in small fenced reserves, and captive lions that are entirely dependent on humans for their survival.

1.1 Lion Conservation status

The African lion is listed as Vulnerable on the IUCN Red List (Bauer *et al*. 2016) and the Namibian population is included in Appendix II of the Convention on the International Trade of Endangered Species (CITES). African lion is a Specially Protected Species under the Nature Conservation Ordinance, Ordinance 4 of 1975 of Namibia.

1.2. Distribution

Lions are found in most countries of sub-Saharan Africa (Bauer *et al.* 2016). Lions are largely found in the savanna biome of Africa, which includes areas that receive annual rainfall of between 300 and 1500 mm. Savannas encompass a wide variety of habitats including grasslands, wetlands, dry woodlands and mosaics of all of these. Lion distribution is represented in 67 lion areas comprising 3.4 million square kilometres, which is 17% of the former range or about 25% of the savannah (Riggio *et al*. 2013). Lions no longer occur in the desert parts of North Africa, but occur and are expanding in numbers and range in the Namib Desert in Namibia (Bauer & van der Merwe 2004; Stander 2007).

Lion populations are decreasing in west and east Africa and are only stable in the southern African region (Bauer *et al*., 2015). It is assumed that they are extinct in most of their historical range and may be surviving in as little as 8% of their former range (Bauer *et al.*2016) Absent from forests, lions otherwise have a wide habitat tolerance, penetrating deep into deserts, even where only ephemeral watercourses occur. Where water is available, lions will drink regularly, but are by no means water dependent, getting most of their water requirements from their prey (Smithers 1983, Skinner and Smithers 1990). The most important habitat requirement is that it provides an adequate food supply in the form of medium to large sized mammals.

Historically lions were distributed throughout Namibia with sightings recorded in the areas of Swakop River, south of Windhoek, Keetmanshoop and many other areas by the early travellers (Vedder, 1938). Lion populations where extirpated from most parts of Namibia by the turn of the 20th Century.

The Namibian lion population can be subdivided into 2 populations, the Etosha-Kunene population and the Khaudum-Zambezi population. It is unlikely that there is any significant exchange between these populations at present and it is unlikely that this will change in the near future. In addition there are a number of small populations on private game reserves, most notable is the population maintained in a private game reserve in the Kalahari, Ongava and Etosha Heights Safari Lodge on the edge of Etosha National Park. There are also possible genetic differences between the populations but the significance of this is still unclear but should be considered when making management decisions (Dubach et al., 2013).

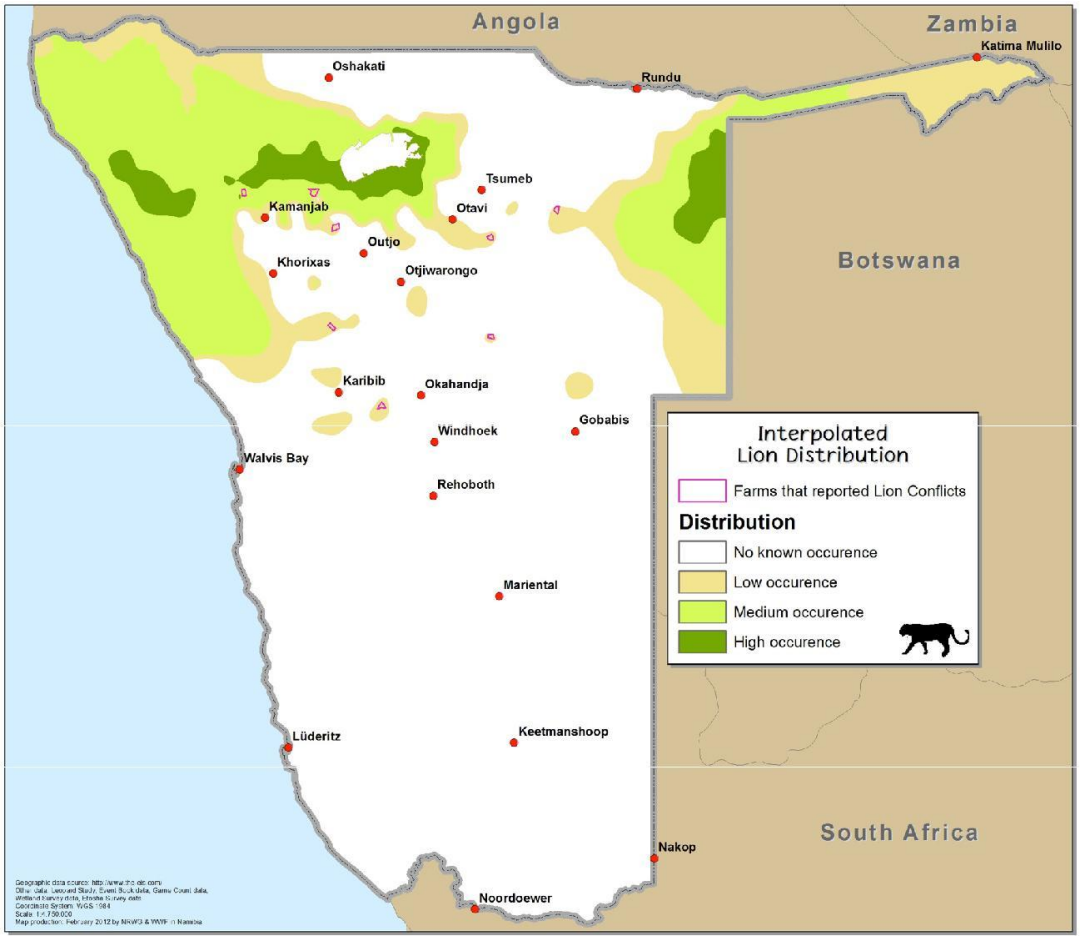

Fig.2. *Distribution of free ranging lions in Namibia (Large Carnivore Atlas, 2012)*

1.3. Habitat requirements

The Lion has a broad habitat tolerance; they are absent only from the tropical rainforest and interior of the Sahara desert (Nowell & Jackson 1996). Like most large carnivores, lions require areas with sufficient prey base and low human densities. Within their home ranges lions require habitats or locations that are suitable for hunting, resting and breeding. Although landscape features may vary from area to area, lions tend to select areas where prey is easier to catch, than areas where prey densities are highest (Hopcroft *et al*. 2005).

1.4. Biology:

Lions are the most social of the cats, with related females remaining together in prides, and related and unrelated males forming coalitions competing for tenure over prides. Average pride size (including males and females) is four to six adults; prides generally break into smaller groups when hunting (Bauer *et al.*2016). Lions live at higher densities than most felids with a variation from 1.5 adults per 100km2 in Southern African semi-deserts to 55 per 100 km2. (Sunquist & Sunquist 2002).

In most large protected areas, lion populations tend to be stable (Packer *et al*. 2005; Ferreira & Funston 2010a), but when introduced into a new reserve with naïve and high prey densities, lion populations increase very rapidly (Kilian & Bothma 2003; Miller & Funston 2014) requiring active management interventions to avoid undesired outcomes resulting from overpopulation.

1.5. Ecology

Lion prey consists of medium- to large-sized ungulates, including antelopes, zebra and wildebeest. However, lions feed on almost any animal, from rodents to a rhino and do at times also scavenge, displacing other predators from their kill (IUCN, 2016).

Lions respond to behavioural and physiological changes in prey in terms of what species, sex and age of prey they select (Owen-Smith 2008). Although lions hunt cooperatively (Stander 1992) no clear evidence was found that this benefits lions in terms of the amount of food they eat (Packer *et al*. 1988), and thus hunting success is not a driver of sociality in lions (Packer *et al*. 1990).

Lion home range size differs contrastingly between populations, ranging from as small as 20 km^2 in the Ngorongoro Crater (Elliot & Cowan 1978), to 400 km^2 in Etosha National Park (Stander 1991), and up to 4500 km^2 in the Kgalagadi system (Funston 2011).

1.6. Diseases

It is believed that disease risk for lions increases as populations become isolated, placing them at a higher risk when confined by fencing (Keet *et al*. 2009). In addition, their increasing proximity to people and domestic animals exposes them to new diseases (IUCN SSC Cat Specialist Group 2006).

Namibian lion are generally believe to be free from most of the diseases affecting African lions elsewhere. Therefore it is important that the disease free status of the lion populations, especially the populations in large protected areas such as Etosha National Park are protected against introduction of diseases.

2. Threats to the survival of lion

Surveys have indicated a suspected decline of 30-50% in the African lion population in recent decades. A decade ago estimates ranged from 23,000 to 39,000 wild lions (Chardonnet 2002; Bauer & van der Merwe 2004), with a current estimate of 30,000 (Riggio *et al*. 2013). The main threats to lions are indiscriminate killing (primarily as a result of human-lion conflict) and prey base depletion. Habitat loss and conversion have led to a number of subpopulations becoming small and isolated (Bauer *et al.* 2008).

The following are known threats to the long-term survival of lion in Namibia as well as their wider range:

- Persecution by livestock farmers (both commercial and communal)
- Habitat loss and degradation, as well as habitat fragmentation
- Decreasing wild prey populations
- Potential loss of connectivity with neighbouring countries
- Diseases

3. Background and Rationale for the Conservation Strategy

This is the first Namibian species management plan for the Lion and its development follows from and is guided through the National Policy on the Conservation and Management of Large Carnivores of 2014. The Policy outlined the following strategies:

- Targeted and sustained Research and Monitoring
- Species-specific Large Carnivore Conservation and Management Planning
- Sustainable Utilization of Large Carnivores
- Management of Human-Carnivore Conflict
- Stakeholder Engagement Platforms
- Standard Operational Procedures
- Large carnivore conservation at landscape level

4. Vision and Goal statements

Vision

Ensure the long-term conservation of the Namibian lion in a sustainable environment for the mutual benefit of present and future generations of people and lions

Goal

Viable free-ranging lion populations on formally protected land, conservation areas and in suitable game reserves providing social, cultural and economic benefits to all

4.1. Objectives

The following objectives are developed to meet the strategies set out in the National Policy on the Conservation and Management of Large Carnivores:

Objectives

1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that recognise and promote wildlife as an integral part of multiple land use systems and which provide conservation-related socio-economic benefits across current and potential lion range.

2. **Management**: To ensure effective conservation management of lions, their habitats and prey through identified needs including research and monitoring.

3. **Conflict mitigation**: To reduce and mitigate human/livestock conflicts with lions in a participatory, responsible and transparent manner.

4. **Socio-economics**: Analyze and distribute equitably the costs and benefits of lion conservation and management, whilst optimizing wildlife-related net benefits to affected communities.

5. **Trade and regulation**: To prevent illegal trade and to regulate consumptive use of lions and lion products.

6. Transboundary connectivity: Ensure connectivity with the neighbouring lion populations is maintained

4.2. Objectives and strategic actions

Objective	Strategic Actions	Intended 5-Year Outcomes	Indicators	Implementing Party	Estimated Cost
1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that promote wildlife as an integral part of multiple land use systems and which provide conservation related socio-economic benefits across current and potential lion range	1.1. Implement lion conservation strategy within existing wildlife and other relevant policies, and consistent with primary legislation	Enabling policy and legislative environment that promotes lion conservation established, and operational	Lion conservation strategy in place and implemented	MET and relevant Government agencies	100,000
	1.2. Develop and implement regulations prohibiting translocation of lions from other areas to Etosha National Park	Etosha NP lion population is protected, and its disease-free status and genetic integrity of lion populations is maintained through prevention of mixing of geographically separated lion populations	Regulations preventing introductions of lions from distant areas into Etosha National Park developed and in place	MET	50,000
	1.3. Develop and implement regulations for the keeping of lions on private game reserves, clarifying rights, responsibilities and ownership	Viable lion populations established in suitable areas, especially on private land mainly used for wildlife management.	(i) Regulations on establishment of lion populations in other suitable areas in place, (ii) Increase in number of new lion populations	MET, Private Game Reserves, Communal and freehold conservancies	500,000

			established in the historical range		
	1.4 Develop and implement mechanisms to regulate hunting of problem lions	(i) All legal hunting of problem lions ethically conducted, benefiting the areas most affected by lion problems (ii) Compliance with international rules on trade in lion products resulting from the lion hunts.	Regulation of all matters pertaining to hunting of problem lions, prohibiting leg-hold traps and regulating cage traps	MET	50,000
	1.5. Develop and implement regulations for the rehabilitation of lions, and lions kept in captivity.	(i) Lion rehabilitation process is regulated to ensure that it does not lead to socio-economically detrimental outcomes (ii) Numbers of lion kept in captivity remain stable	(i) Regulations in place for rehabilitation of lions (ii) All permit holders comply to conditions under the regulations or be closed down	MET, Large Carnivore Management of Association Namibia (LCMAN), registered large carnivore rehabilitation centres &	200,000

		or decrease over time.	permanently	captive facilities.	
2. **Lion Management:** lion populations, their habitats and prey base effectively managed in collaboration with local stakeholders	2.1. Continue long-term monitoring of lion populations and their prey throughout the lion range	Lion and their prey base remain stable or increase in the lion range	Regular monitoring of lions and prey species in lion range areas	MET, LCMAN and private game reserves, wildlife research and monitoring organisations, NGOs	1,500,000
	2.2. Maintain and strengthen capacity for lion conservation, management , monitoring and research within the MET and amongst the other key stakeholders	Capacity to manage lion in Namibia is established within MET, LCMAN and other key stakeholders.	(i) Large carnivore coordinator is appointed and capacitated (i) Large carnivore coordinator and LCMAN attends regular training workshops and capacity building initiatives	MET, LCMAN, Range wide Large Carnivore Programme	500,000
	2.3. Identify and implement best	(i) Hunting of lion is ethically conducted, and	(i) Regulations and guidelines on lion	MET, LCMAN,	100,000

	management standards and practices for all legally hunted lion populations, ensuring their viability and sustainable and adaptively managed hunting quotas	is not detrimental to the long-term survival of the species in Namibia (ii) Legal hunting of lion contributes meaningful and tangible benefits to the landholders, and communities sustaining and sharing their land with lion populations	hunting in place (ii) Records of benefit flows to landholders and communities from lion hunts	hunting operators, conservancies	
	2.4 Promote collaborative management of lion populations across landscapes	Lion conservation is practiced beyond the boundaries of the formally protected areas	Lion range expansion adjacent to formally protected areas and other suitable places.	MET, communal and freehold landholders, private sector, NGOs	200,000
	2.5. Maintain viable and sustainable populations of prey species in lion range areas to enhance lion conservation and to further reduce human-lion conflicts	(i) Stable or increasing wild prey populations in lion range (ii) Improved and predator friendly livestock husbandry	(i) Regularly conducted wildlife survey reports (ii) Number of projects supporting predator friendly	MET, LCMAN, NGOs	1,000,000

		practices in place (iii) Reduce lion predation on domestic livestock	livestock husbandry practices (iii) Acceptable community attitudes towards lions		
	2.6 Facilitate lion re-introduction programmes in the region informed by science	Namibia contributes to lion re-introduction programmes in southern Africa region	Number of lion re-introductions supported by Namibian Government (on request, opportunistic)	MET, SADC member states	500,000
3. **Conflict mitigation:** To reduce and minimise human-lion conflict in a participatory, responsible and accountable manner	3.1. Identify and implement strategies to reduce and mitigate livestock losses	(i) Reduction in lion caused livestock losses (ii) Increased level of tolerance of lions by livestock rearing communities	(i) Decrease in number of livestock killed by lions (ii) Continued co-existence of lions and cattle in dominantly livestock farming areas (iii) Reduction in	MET, NACSO, WWF Namibia	500,000

			number of lions destroyed as problem animals		
	3.2. Through partnership with civil society and private sector establish well trained and properly staffed problem animal response units to deal with lion-human conflicts	Capacity in place at various levels throughout the lion range to provide instant response to reported lion conflicts	Number of rapid response units established and operational in the lion range	MET, NACSO, NGOs & Private sector	2,000,000
	3.3. Implement and raise awareness on the National Human-Wildlife Conflict Management Policy	Human-wildlife conflict in Namibia managed according to the strategies of the National Policy on Human Wildlife Conflict Management	Level of implementation of the provisions of the National Policy on Human-Wildlife Conflict Management	MET, NACSO, CANAM, Farmers Unions	200,000
	3.4. Exchange information on best practices, working models to prevent human-lion conflict both nationally and internationally	Best practices and lessons learnt are shared with all stakeholders leading to reduction in incidences of human-lion conflicts	Reduction in incidences of human-lion conflicts	MET, NGOs, KAZA TFCA	500,000
	3.5. Work closely with traditional authorities to prevent new land	Traditional authorities support and respect areas zoned for wildlife	(i) Number of workshops conducted with Traditional	MET, MURD, NACSO, NGOs,	500,000

	allocations in areas zoned for wildlife and lion conservation on communal land	conservation when considering new land allocations	Authorities (ii) No new human-settlements in areas zoned for wildlife conservation except for emergency grazing during drought conditions	Traditional Authorities	
	3.6. Develop area-specific lion conflict management strategies adapted to local conditions	Area-specific management strategies for human- lion conflict considering the opportunities and challenges presented by different areas.	Area-specific human – lion conflict management strategies developed for the lions in Northwest and Northeast	MET	500,000
4. **Socio-economics:** The costs and benefits of long-term lion conservation and management equitably distributed	4.1. Strongly promote the concept of competitive advantage that African wildlife provides Namibia compared to other land uses types and industries	Wildlife, including lion, fully integrated in multi-species production systems in suitable areas in Namibia	(i) Contribution of the wildlife and tourism sector to the GDP of the country (ii) Expansion of the wildlife based production systems	MET, private sector, farmers unions	500,000

			inclusive of lions		
	4.2. Deliver appropriate training, education and capacity building to identified stakeholders	Capacity exists at community level to manage conflict with lions	Reduction in human-lion conflict incidences	MET, NACSO, NGOs, KAZA TFCA	300,000
	4.3. Agree, and implement collaboratively developed area-specific lion management plans with identified stakeholder groups in the lion range in Namibia	Lion management at area specific scale taking into consideration the opportunities and challenges unique to lion range areas	Separate local level lion management plans for key lion populations in the Northwest, Northeast and on small fenced reserves.	MET, LCMAN, KAZA TFCA, conservancies	500,000
	4.4. Implement transparent mechanisms to equitably distribute lion related/generated income to identified stakeholders	Communities and landholders supporting lion conservation on their land obtain direct and equitable benefits from the conservation of lions	Mechanisms developed to distribute benefits from lion to communities and landholders	MET, NACSO, tourism operators, hunting operators	200,000
	4.5. Engage more actively in the integrated landuse planning processes as well as the implementation and monitoring thereof	Land use planning is applied as a tool to secure lion conservation friendly land uses in lion range areas	Wildlife and lion conservation recognised and supported in integrated land use planning	MET, MURD, MLR, TA, NACSO, NGOs	100,000

			processes.		
5. **Trade and Regulation:** Effective regulation of consumptive, non-consumptive lion utilization and trade in lion products ensured	5.1. Implement approved policy and practice at national and local level regarding problem animal control and hunting of lions	(i) Problem animal control and hunting of lion adhere to approved policies and regulations governing such activities and is transparently conducted (ii) Potential loopholes in problem lion hunting by farmers and any associated fraudulent activities eliminated	No reported cases of fraudulent activities concerning problem lion hunts	MET, Hunting operators, Hunting Associations	50,000
	5.2. Ensure trophy hunting contributes directly to lion conservation by providing lion hunting quotas only to landholders that have well managed resident lion populations on their	(i) Benefits from lion accrue to communities and landholders supporting viable resident populations of lion	Lion utilization quotas granted to landholders and communities with viable resident lion populations	MET, conservancies, farmers, NACSO, NGOs	100,000

	land	(ii) Communities and landholders supporting resident lion population are more organised and support lion conservation at larger landscape level			
6. **Transboundary connectivity** – lion conservation across transboundary landscape in the KAZA TFCA	6.1. Develop and implement transboundary collaborative research and management projects	New knowledge and information is generated on lion conservation at transboundary scale that is used to influence management interventions for shared lion populations	Number of collaborative research projects in the KAZA TFCA	MET, KAZA, Angola, Botswana and Zambia	500,000
	6.2. Ensure and maintain connectivity between regional lion populations through, and in line with the transboundary conservation programmes	(i) Regional lion populations are connected and remain viable and stable over time (ii) Protected, and respected lion and other wildlife dispersal areas in	(i) Number of collaborative research projects in the KAZA TFCA (ii) Research and Monitoring results	MET, KAZA, Angola, Botswana and Zambia	500,000

		place ensuring unhindered movement of lion and other wildlife between and across international boundaries	demonstrating connectivity between regional lion populations		
	6.3. Where possible, promote compatible land uses on both sides of national boundaries through existing transboundary conservation programmes	Land uses incompatible with lion conservation across national boundaries are reduced over time, creating viable environment for lion dispersal without negative outcomes for both lion and human activities.	(i) Studies conducted to assess level incompatible land uses across international boundaries (ii) Stable or decline in incompatible land uses	MET, Traditional Authorities, KAZA, Angola, Botswana and Zambia	500,000

5. Implementation and revision of the Strategy

The Lion Conservation Strategy is structured so that the activities identified that will contribute to the achievement of the strategic objectives, can be used more effectively in the development of annual action plans and work plans by MET, private partners, conservancies and NGOs. It is intended that the strategy would provide the main foundation for an annual planning cycle, which in the process of implementation of annual action plans will provide input and lessons learnt for revision of the strategy after five years.

Within MET this process will be guided through the Large Carnivore Advisory Group (LCTAG) and MET will give input to the stakeholder meetings of private sector through stakeholder meetings like the Large Carnivore Management Association (LCMAN) of Namibia.

The strategy will be revised after 5 years or earlier should the need arise due to unforeseen circumstances. This will be determined through a mid-term review after two years.

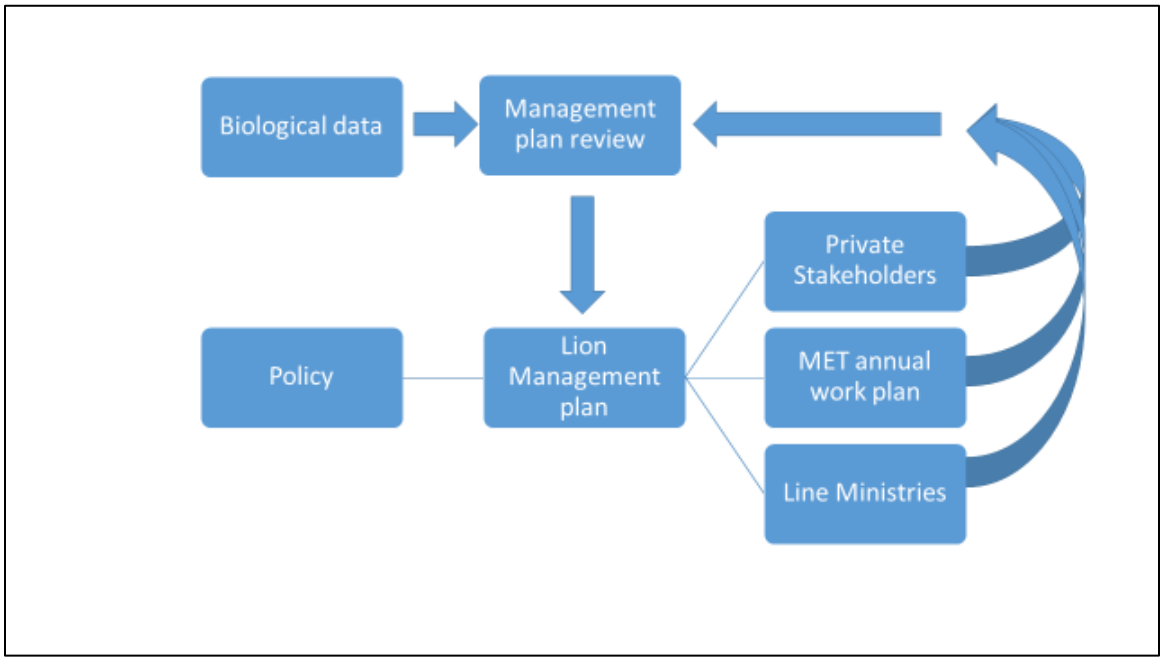

Fig. 2 *Flow diagram showing the implementation and review process*

6. List of sources consulted

Chardonnet, P. (Ed.). (2002). *Conservation of the African Lion: Contribution to a Status Survey*. France: International Foundation for the Conservation of Wildlife, USA: Conservation Force.

Bauer, H., Packer, C., Funston, P, F., Henschel, P & Nowell, K. (2016). Panthera leo. The IUCN Red List of Threatened Species 2016:e.T15951A7162455.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Dloniak, S.M., Packer, C., (2016), Reply to Riggio et al.: Ongoing lion declines across most of Africa warrant urgent action. Proceedings of the National Academy of Sciences 113, E109.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Packer, C., (2015), Lion (Panthera leo) populations are declining rapidly across Africa, except in intensively managed areas. Proceedings of the National Academy of Sciences 112, 14894-14899.

Bauer, H. & Van Der Merwe, S. (2004). Inventory of free-ranging lions (*Panthera leo*) in Africa. *Oryx* 38: 26-31.

Dubach, J.M., Briggs, M.B., White, P.A., Ament, B.A., Patterson, B.D., (2013), Genetic perspectives on "Lion Conservation Units" in Eastern and Southern Africa. Conservation Genetics 14, 741-755.

Elliot, J.P. & Cowan, I. Mc T. (1978). Territoriality, density and prey of the lion in Ngorongoro Crater, Tanzania. *Canadian Journal of Zoology* 56: 1726-1734.

Funston, P.J. (2011). Population characteristics of lions (*Panthera leo*) in the Kgalagadi Transfrontier Park. *South African Journal of Wildlife Research* 41: 1-12.

Hopcraft, J. G. C., Sinclair, A. R. E. & Packer, C. (2005). Planning for success: Serengeti lions seek prey accessibility rather than abundance. *Journal of Animal Ecology* 74: 559–566.

Keet, D.F., Davies-Mostert, H., Bengis, R.G., Funston, P., Buss, P., *et al*. (Eds.). (2009). *Lion (Panthera leo) Bovine tuberculosis disease risk assessment* (Workshop report). Skukuza, South Africa: Conservation Breeding Specialist Group (CBSG SSC / IUCN), CBSG Southern Africa, Endangered Wildlife Trust.

Kilian, P.J. & Bothma, J. Du P. (2003). Notes on the social dynamics and behaviour of reintroduced wild lions in the Welgevonden Private Game Reserve. *South African Journal of Wildlife Research* 33: 119-124

Miller, S.M. & Funston, P.J. (2014). Population growth rates of lions (*Panthera leo*) on small fenced reserves in South Africa: a management dilemma. *South African Journal of Wildlife Research* 44: 43-55.

Minin, E.D., Leader-williams, N., Bradshaw, C.J.A., (2016), Banning Trophy Hunting Will Exacerbate Biodiversity loss. Trends in Ecology & Evolution 31, 4.

Nowell, K. & Jackson, P. (1996). Status Survey and Conservation Action Plan Wild Cats. IUCN, Gland, Switzerland.

Owen-Smith, N. (2008). Changing vulnerability to predation related to season and sex in an African ungulate assemblage. *Oikos* 117: 602-610.

Packer, C., Scheel, D. & Pusey, A. E. (1990). Why lions from groups: food is not enough. American Naturalist 136: 1–19.

Packer, C., Herbst, L., Pusey, A. E., Bygott, J. D., Hanby, J. P., Cairns, S. J. & Borgerhoff-Mulder, M. (1988). Reproductive success in lions. In: Reproductive Success (Ed. by T. H. Clutton-Brock), pp. 363–383. Chicago: University of Chicago Press.

Packer, C., Pusey, A.E., Rowley, H., Gilbert, D.A., Martenson, J. & O'Brian, S.J. (1991). Case study of a population bottleneck: lions of the Ngorongoro crater. Conservation Biology 5: 219–230.

Packer, C., Gilbert, A., Pusey, A.E. & O'Brien, S. J. (1991). A molecular genetic analysis of kinship and cooperation in African lions. *Nature* 351: 562–565.

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Dickman, A., Funston, P., Henschel, P., de Iongh, H., Lichtenfeld, L., Packer, C. and Pimm, S. (2013). The size of savannah Africa: a lion's view. *Biodiversity and Conservation* 22(1): 17-35

Riggio, J., Caro, T., Dollar, L., Durant, S.M., Jacobson, A.P., Kiffner, C., Pimm, S.L., van Aarde, R.J., (2016), Lion populations may be declining in Africa but not as Bauer et al. suggest. Proceedings of the National Academy of Sciences 113, E107-E108.

Schaller, G.B. (1972). The Serengeti Lion: A Study of Predator Prey Relations. University of Chicago Press, Chicago.

Stander, P. E. (1992). Cooperative hunting in lions: the role of the individual. *Behavioral Ecology and Sociobiology* 29: 445–454.

Stander, P. (2007). Behaviour-ecology and Conservation of desert-adapted Lions. *2007 Progress Report of the Kunene Lion Project. Desert Lions Conservation. Namibia*, 17.

Sunquist, M., and F. Sunquist. 2002. Wild Cats of the World. University of Chicago Press, Chicago and London

Trinkel, M., Angelici, F.M., 2016, The Decline in the Lion Population in Africa and Possible Mitigation Measures, In: Angelici, M.F. (Ed.) Problematic Wildlife: A Cross-Disciplinary Approach. Springer International Publishing, Cham, pp. 45-68.

Vedder, H. 1938. South West Africa in Early Times. Thomas Nelson Printers Ltd. London & Edinburgh

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

HUMAN-LION CONFLICT MANAGEMENT PLAN FOR NORTH WEST NAMIBIA

July 2017

FOREWORD

Managing Human-Lion Conflict in the arid environment of the Kunene Region is complex. Sporadic and variable rainfall patterns, typical of arid environments, result in large overlapping home ranges amongst the lions that often clash with local farmers in search of suitable grazing for their livestock. Lions are important to the growing tourism industry and there is an urgent need to manage Human-Lion Conflict in the region.

Long-term data collected on the ecology of the lion population provide a sound basis to develop and implement a management strategy to address the conflict. The Human-Lion Conflict Management Plan is subject to the National Policy on Human-Wildlife Conflict Management and relies on full collaboration by the various stakeholders under the guidance of the Ministry of Environment and Tourism.

Malan Lindeque
PERMANENT SECRETARY

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ABBREVIATIONS

CBNRM	Community-based Natural Resource Management
DECP	Desert Elephant Conservation Project
DLCT	Desert Lion Conservation Trust
DWNP	Directorate of Wildlife and National Parks
DSS	Directorate of Scientific Services
GPTF	Game Products Trust Fund
IRDNC	Integrated Rural Development and Nature Conservation
HWC	Human-Wildlife conflict
HLC	Human-Lion conflict
KRCCA	Kunene Region Communal Conservancy Association
MET	Ministry of Environment and Tourism
MLR	Ministry of Land Reform
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
PH	Professional Hunter
UNAM	University of Namibia

GLOSSARY

For the purposes of this management plan, the words or phrases set out below have the following meanings:

Authorized staff member	Regional heads of the Ministry authorized by the Minister to carry such duties, functions and responsibilities.
Capacity building	Transfer of knowledge, information, skills and understanding.
Conservancy	Communal area conservancy Gazetted in terms of the Nature Conservation Amendment Act (No.5 of 1996).
Culling	Lethal removal of wild animals to reduce their numbers.
Director	Director of Wildlife and National Parks
Human-Wildlife Conflict	Any event in which wild animals harm, destroy or damage human life or property (including damage to or destruction of crops), or in which wild animals are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Human-Lion Conflict	Any event in which lions harm or destroy human life or their domestic livestock, or in which wild lions are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Government	Government of the Republic of Namibia.
Ministry	The Ministry of Environment and Tourism.

Problem-causing animal	An identified individual wild animal that at any point in time harms, destroys or damages human life or property.
Professional Hunter	A professional hunter approved by MET.
Protected Area	Formal protected area proclaimed in the Government Gazette according to legislation.
Staff member	Person appointed in terms of the Public Service Act (13 of 1995).
Stakeholder	Any individual, group of individuals, organization or government department or agency that is affected by HWC or is involved in research on HWC or implementation of measures to mitigate HWC.
Wild animal	Any wild animal that is included in Schedules 3, 4 and 5 of the Nature Conservation Ordinance (Ordinance 4 of 1975, as amended) or any similar schedules contained in legislation that replaces the Ordinance.

1. INTRODUCTION

Addressing Human-Wildlife Conflict requires striking a balance between conservation priorities and the needs of people who live with wildlife. Most Namibians depend on the land for their subsistence. But the presence of many species of large mammals, combined with settlement patterns of people, leads to conflict between people and wildlife. It is therefore necessary that mechanisms are created for rural communities and farmers to manage and benefit from wildlife and other natural resources.

A variety of approaches can be implemented in order to manage the conflict efficiently and effectively, and that are in line with the strategies set out in the policy. These include prevention strategies which endeavour to avoid the conflict occurring in the first place and take action towards addressing its root causes, and protection strategies that are implemented when the conflict is certain to happen or has already occurred, as well as mitigation strategies that attempt to reduce the level of impact and lessen the problem.

2. BACKGROUND

Successful conservation efforts and the growth of communal conservancies in the North West of Namibia during the past 20 years have resulted in an increase of wildlife populations.

Along the borders of the Skeleton Coast Park a small population of lions survives in extreme desert conditions. These lions exhibit unique adaptation to their environment and live in a harsh habitat of sand dunes, gravel plains and barren mountains, and occasionally forage along the beaches of the Skeleton Coast. This has resulted in the growth in tourism because nowhere else in the world can free-ranging lions be seen amongst sand dunes or on a beach. These lions should be viewed as a National asset to Namibia that needs to be managed wisely to the optimum benefit of the Namibian people.

However, the increase in wildlife numbers, has led to heightened conflict between lions and the local people. While income-generating enterprises such as tourism, trophy hunting and crafts have thrived at conservancy level; considerably less attention has been

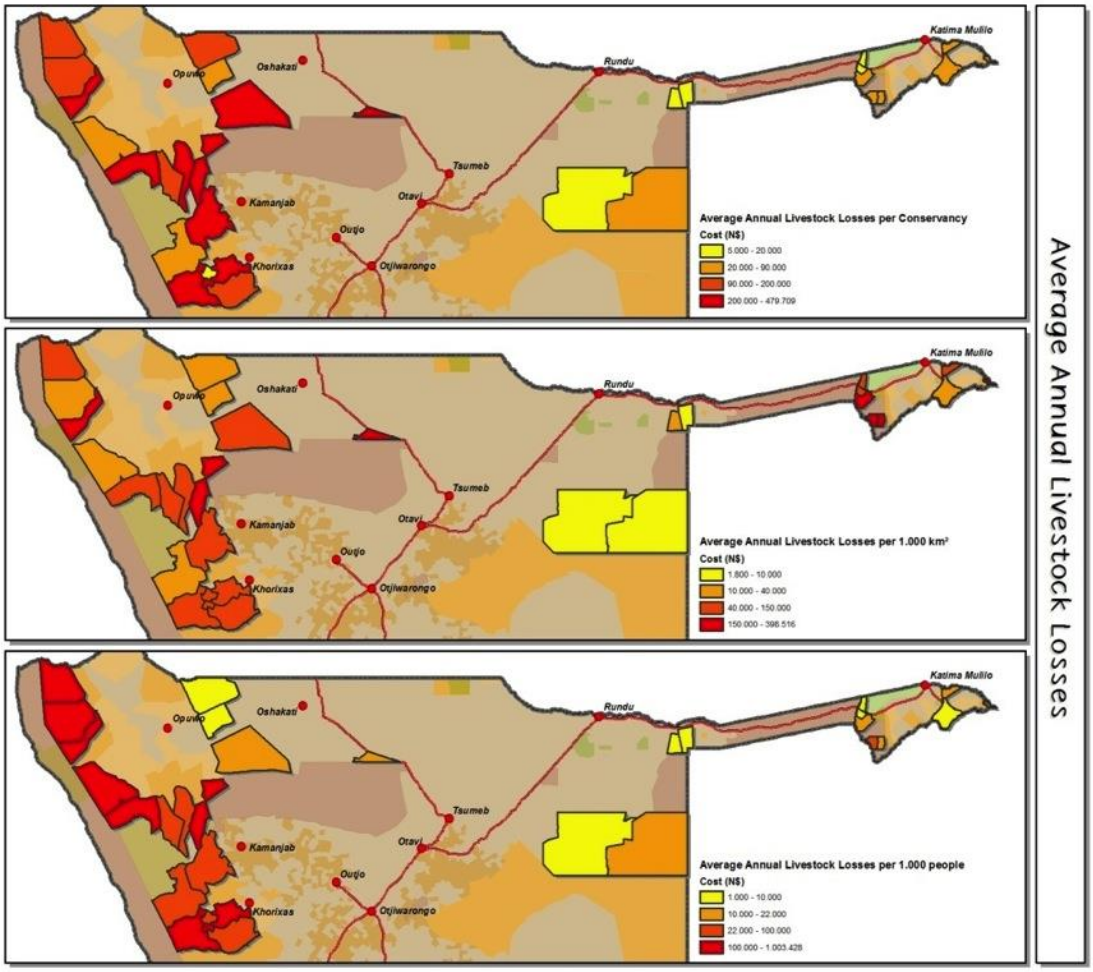
paid to reducing human-wildlife conflict. In most conservancies the costs experienced by conservancy members that suffer livestock losses from lions exceeds the selected income they earned from their respective conservancies. Table 1 shows the annual costs of livestock losses in some of the key conservancies across northern Namibia. Conservancies in the North West (NW) of Namibia suffer significantly higher losses when compared to conservancies across northern Namibia (Table 1).

Conservancies with the highest incidents of human-wildlife conflict are those on or near to national parks and tourism concession areas (Figure 1) with conservancies along the borders of Etosha National Park and Skeleton Coast Park, and around Palmwag concession areas suffering most livestock losses. Lions prey on domestic livestock, and farmers respond by shooting lions to protect their livelihood. Local communities have to bear the costs of living with lions but do not always share equally in the benefits. As a result, members of those conservancies are often least sympathetic to the presence of the park and are less inclined to support conservation practices. These attitudes can be turned around by providing communal farmers with information, support, management skills and infrastructure to protect livestock, as part of the implementation of conservancy and/or regional HWC management plans.

Table 1: The estimated costs of Human-Wildlife Conflict through livestock losses (N$) per conservancy and per 1,000 people for each conservancy.

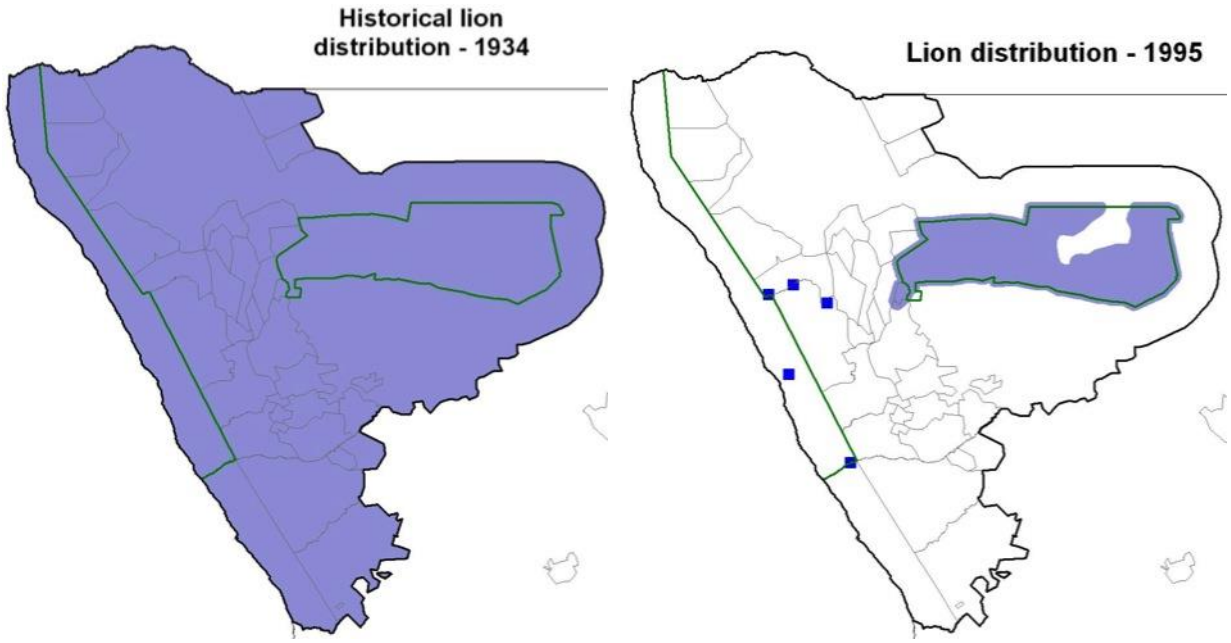
Average annual livestock losses per conservancy			Average annual livestock losses per 1,000 people per conservancy	
Conservancy	**Cost (N$)**		**Conservancy**	**Cost (N$)**
Muduva Nyangana	5,868		Uukwaluudhi	1,185
Mayuni	9,976		N=/a Jaqna	2,473
Uibasen Twyfelfontein	16,063		Muduva Nyangana	2,934
N=/a Jaqna	17,311		Uukolonkadhi/Ruacana	3,603
George Mukoya	18,044		Mayuni	4,157
Kwandu	18,484		Kwandu	4,299
Sikunga	22,445		Salambala	4,801
Impalila	27,873		George Mukoya	9,022
Uukwaluudhi	29,633		King Nehale	10,122
Salambala	36,968		Sikunga	11,223
Balyerwa	37,849		Sheya Uushona	13,566
Wuparo	40,196		Impalila	18,582
Nyae Nyae	48,998		Wuparo	19,141
Puros	50,508		Mashi	20,500
Mashi	79,952		Nyae Nyae	21,303
Torra	88,596		Balyerwa	25,232
Uukolonkadhi/Ruacana	90,074		Anabeb	45,126
Anabeb	90,252		Uibasen Twyfelfontein	69,840
Orupembe	100,636		Torra	73,830
Sorris Sorris	123,372		#Khoadi//hoas	74,261
Marienfluss	165,771		Omatendeka	85,673
King Nehale	202,446		Sorris Sorris	94,902
Doro !Nawas	207,000		Sesfontein	106,211
Omatendeka	214,182		Ehirovipuka	131,443
#Khoadi//hoas	237,636		Doro !Nawas	138,000
Sanitatas	250,857		Puros	194,262
Sesfontein	265,527		Orupembe	251,591
Ehirovipuka	328,608		Marienfluss	552,570
Sheya Uushona	479,709		Sanitatas	1,003,428

Figure 1. Livestock losses recorded in conservancies across northern Namibia.



Historically lions occurred throughout the Kunene Region, but with autocratic political structures, land reform (such as the Odendaal Commission in 1970) and the growth of agriculture post 1970, the population declined dramatically (Figure 2). Lions that inhabited the Skeleton Coast Park and the bordering arid habitat of the northern Namib Desert were all but wiped out leaving only the Etosha population.

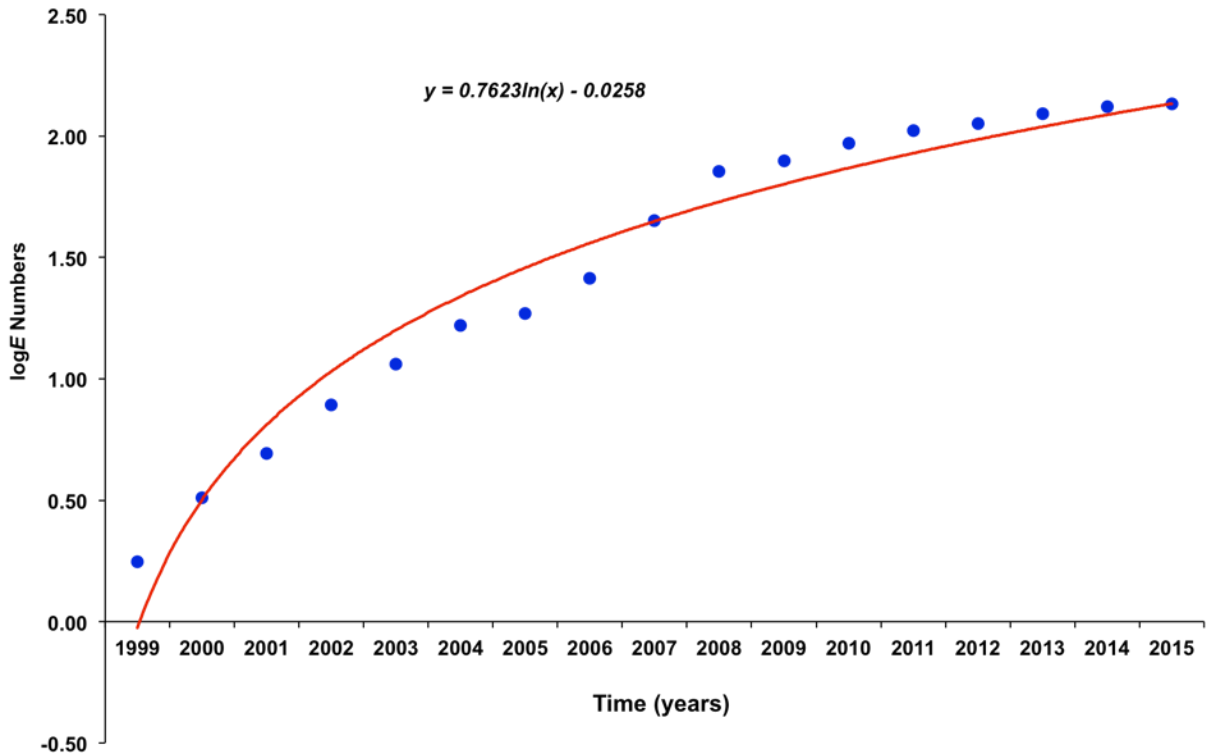
Figure 2. Historical distribution of lions in the North West of Namibia (1934 – 1995).



Following the independence of Namibia in 1990 that led to the establishment of communal conservancies, the development of CBNRM programmes, and the rapid growth of tourism, as well as above average rainfall in the region the few surviving desert-adapted lions increased and expanded to parts of its former range (Figure 4).

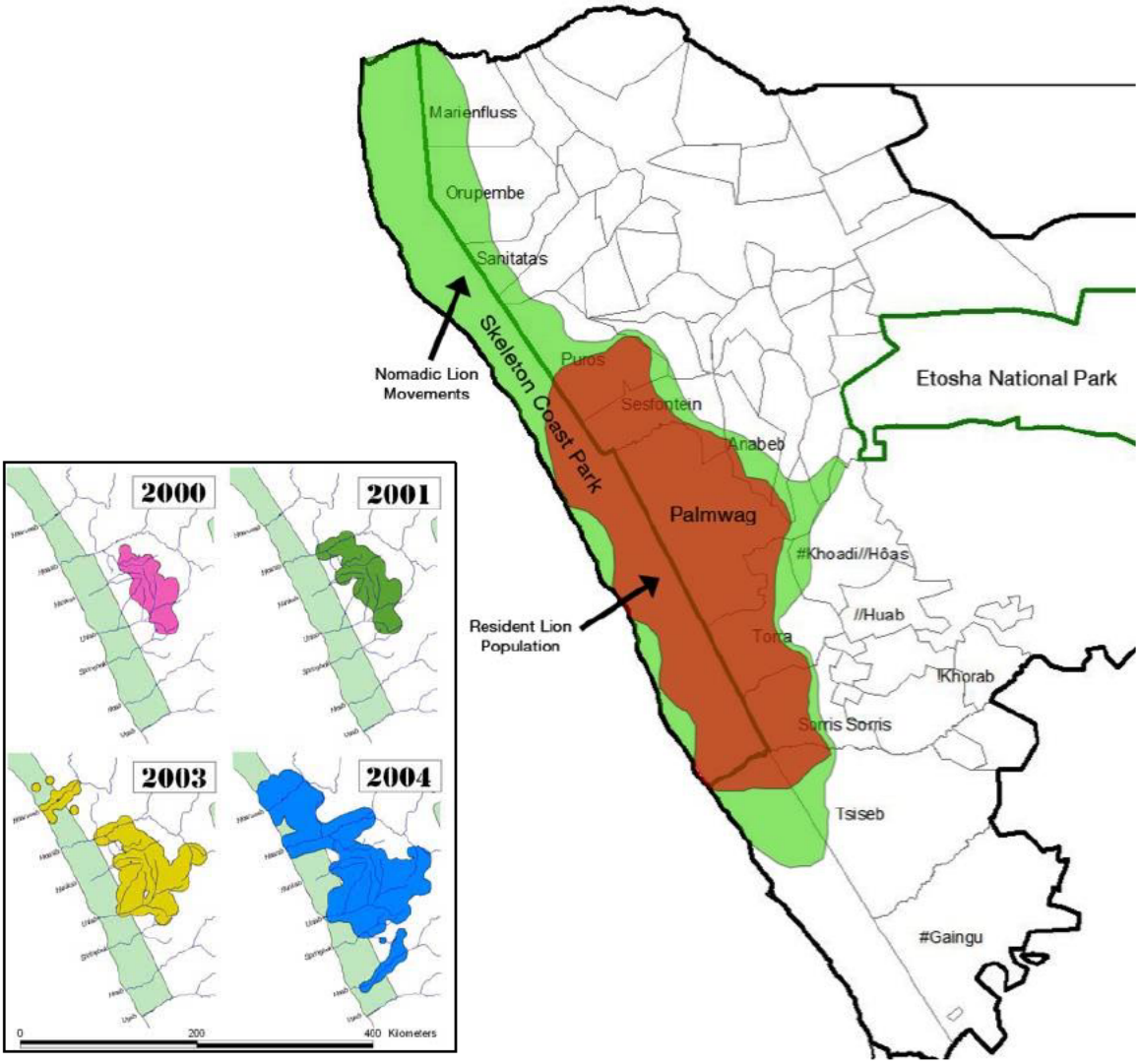
The lions have been the subject of intensive long-term research and monitoring since 1998. During this period the population displayed a positive growth rate (Figure 3) and the number of lions increased from approximately 20 individuals in 2000 to an estimated 180 in 2015.

Figure 3. Growth rate of the desert-adapted lion population between 1999 and 2015.



Lions may occasionally still move between Etosha and the arid areas bordering the Skeleton Coast Park, but the increase in livestock farming east of the Grootberg escarpment has essentially created an effective barrier. The lions inhabiting the Skeleton Coast Park and bordering areas exhibit unique adaptation to the arid environment and are treated as a separate sub-population, referred to as the "Desert" population. Between 1999 and 2015 the "Desert" lion population expanded from the core area northwest of Palmwag to occupy ephemeral river systems and suitable habitats between the Hoaruseb and Ugab Rivers (Figure 4).

Figure 4. The distribution of desert-adapted lions in the North West of Namibia in 2015 with indications of the recorded expansion between 2000 and 2004.



The “Desert” lion sub-population is important to the conservation of the species in Namibia. Their range (Figure 4) contributes to 51% of the total area inhabited by lions in Namibia, but only 16% of this range falls inside a protected area. Nevertheless, the conservation prospects are favourable, since the area has a rapid-growing tourism industry and forms the hub of CBNRM and Communal Conservancy programmes.

3. RATIONALE

In 2009, Cabinet approved the National Policy on Human Wildlife Conflict Management. The Policy provided a framework for addressing human-wildlife conflict efficiently and effectively in order to promote both biodiversity conservation as well as human development.

Due to human population growth, wildlife population growth, unplanned agricultural activities, and the expansion of agricultural and industrial activities, which together have led to increased human encroachment on previously wild and uninhabited areas the incidents of human-wildlife conflict have increased. With the current challenges and new innovative ideas on how to address the conflict, the National Policy on Human Wildlife Conflict Policy has been reviewed. The new policy is more focused and specific on affected areas and the specific conflict that should be addressed. The policy also contains an implementation plan that outlines the required human and financial resources requirements to deal with the problem. This human-lion conflict management plan contributes to the revised National Policy on Human Wildlife Conflict Management.

4. ALIGNMENT

The Human-Lion Conflict Management Plan is aligned with both the National Policy on Human Wildlife Conflict Management and the Lion Conservation Strategy (Draft). The legislative basis for control of problem causing animals, hunting and the rights on the utilisation of wildlife is currently covered by the Nature Conservation Ordinance 4 of 1975 as amended by the Nature Conservation Amendment Act (Act 5 of 1996).

5. PRINCIPLES

The Human-Lion Conflict Management Plan is based on a number of fundamental principles outlined in the National Policy on Human Wildlife Conflict Management.

6. POLICY DIRECTION

6.1 Vision

To manage human wildlife conflict in a way that recognizes the rights and development needs of local communities, recognizes the need to promote biodiversity conservation, promotes self-reliance and ensures that decision-making is quick, efficient and based on the best available information.

In order to achieve this, the Government will devolve decision-making to the lowest appropriate institutional levels, develop appropriate mitigation and monitoring methods and develop the capacity of all stakeholders to manage human wildlife conflict.

6.2 Mission

To provide a framework for addressing Human-Lion conflict efficiently and effectively in NW Namibia following the guidelines of the revised National Policy on Human Wildlife Conflict Management.

6.3 Goal

To provide measures and approaches to manage and reduce human lion conflict in NW Namibia according to the revised National Policy on Human Wildlife Conflict Management.

6.4 Objectives

The objectives of the Management Plan are:

6.4.2 To contribute to a standardised monitoring system for human-lion conflict Management.

6.4.3 To establish best practice mitigation measures for human-lion conflict management.

6.4.4 To develop innovative mechanisms to reduce the level of human-lion conflict.

6.4.5 To provide clarity on the question of compensation with regard to damages caused by wildlife, especially the lion.

6.5 Strategies

Human-Lion Conflict (HLC) is a multi-faceted problem. In order to address its impacts, a number of different strategies are required to address the following key issues:

- The economic impacts of HLC on local communities.

- The appropriate level of decision-making power for managing HLC, particularly in a case where an animal that persistently causes problems needs to be destroyed.

- Accurate information on the scale, the costs and impacts of conflict, and the success of mitigation methods and approaches.

- The skills of all stakeholders to manage HLC efficiently and effectively.

In order to address these key issues the Government has developed the following strategies:

6.5.1 Land use planning and livestock management structures

Understanding the patterns and extent of human-lion conflict experienced by communities farming with livestock in NW Namibia is important to the development of effective management options. Data collected by conservancies through the Event Book procedures and other monitoring systems provide valuable information. Between 2003 and 2015 the five conservancies that share their land with the Desert lion population recorded 5,863 incidents of livestock attacks caused by lions and other carnivores. On average 451 incidents were recorded per year (range: 205 in 2003 to 713 in 2013) with Sesfontein Conservancy recording the highest number of attacks (N = 2293) followed by Anabeb (N = 1393), Torra (N = 1303) and Purros Conservancies (N = 873). The pattern and frequency of livestock attacks varied between years and between conservancies (Figure 5).

Between 2005 and 2015 a total of 343 incidents of human-lion conflict were recorded by the five conservancies at an average of 32 incidents per year (range: 15 in 2011 to 54 in 2015). Torra Conservancy recorded the highest number of incidents (N = 121) followed by Purros (N = 85), Sesfontein (N = 77) and Anabeb Conservancies (N = 60). Although Torra Conservancy recorded a dramatic increase between 2011 and 2015, the pattern and frequency of human-lion conflict incidents between years and between conservancies appears to be random (Figure 6).

A total of 37 lions were destroyed between 2005 and 2015 (Figure 7). Torra Conservancy reported the highest number of lions destroyed during human-lion conflict (N = 18) followed by Sesfontein (N = 9), Anabeb (N = 7) and Purros Conservancies (N = 3). There was no statistical relationship between the recorded incidents of human-lion conflict and the number of lions destroyed. However, the number of lions destroyed increased dramatically between 2013 and 2015 when 27 of the 37 lions (73 %) were killed. During the same period the five conservancies only recorded 36 % of the total recorded human-lion incidents and 26 % of the recorded attacks on livestock.

Figure 5. Number of livestock damage incidents caused by lions and other carnivores per year between 2003 and 2015 as recorded by five conservancies.

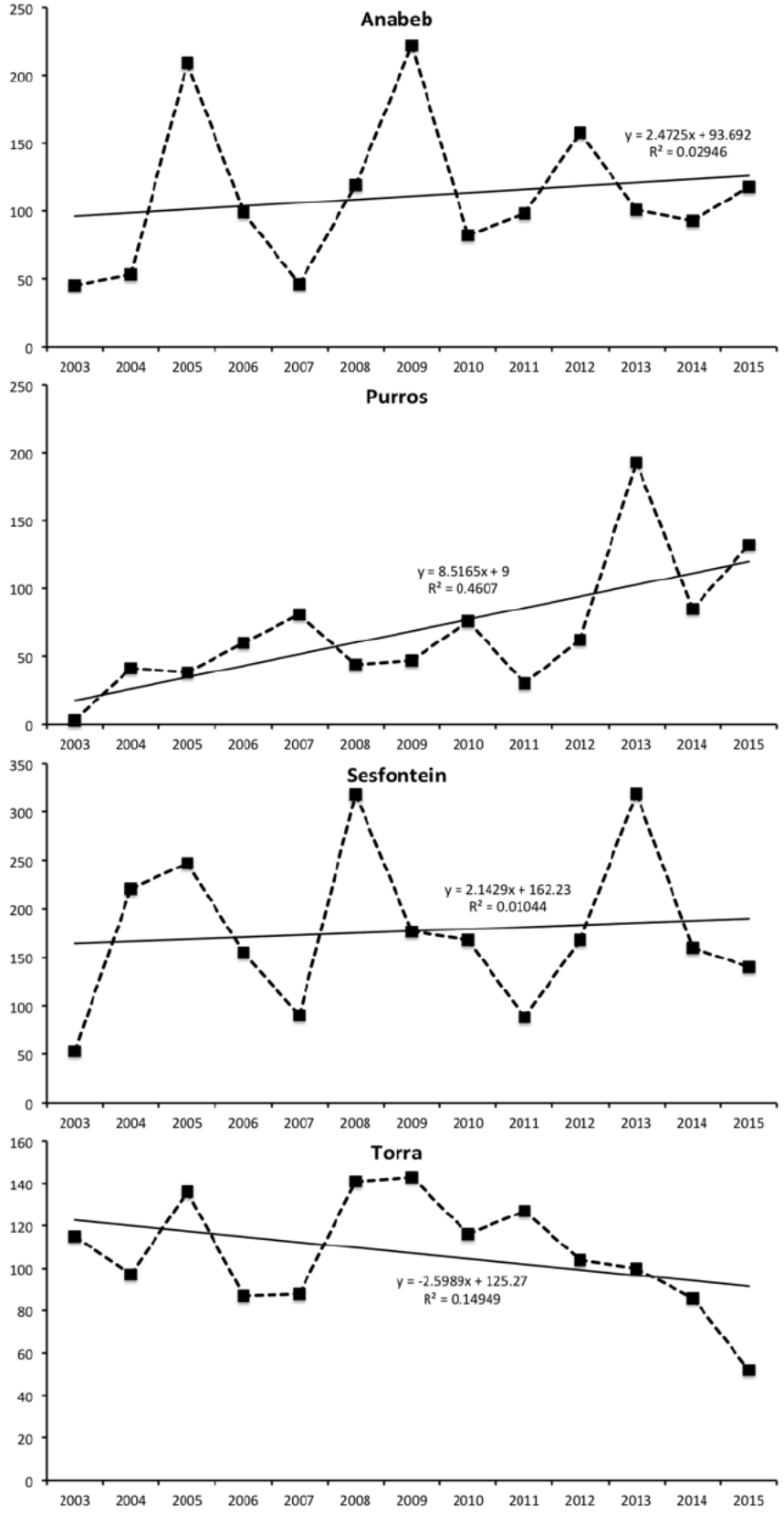
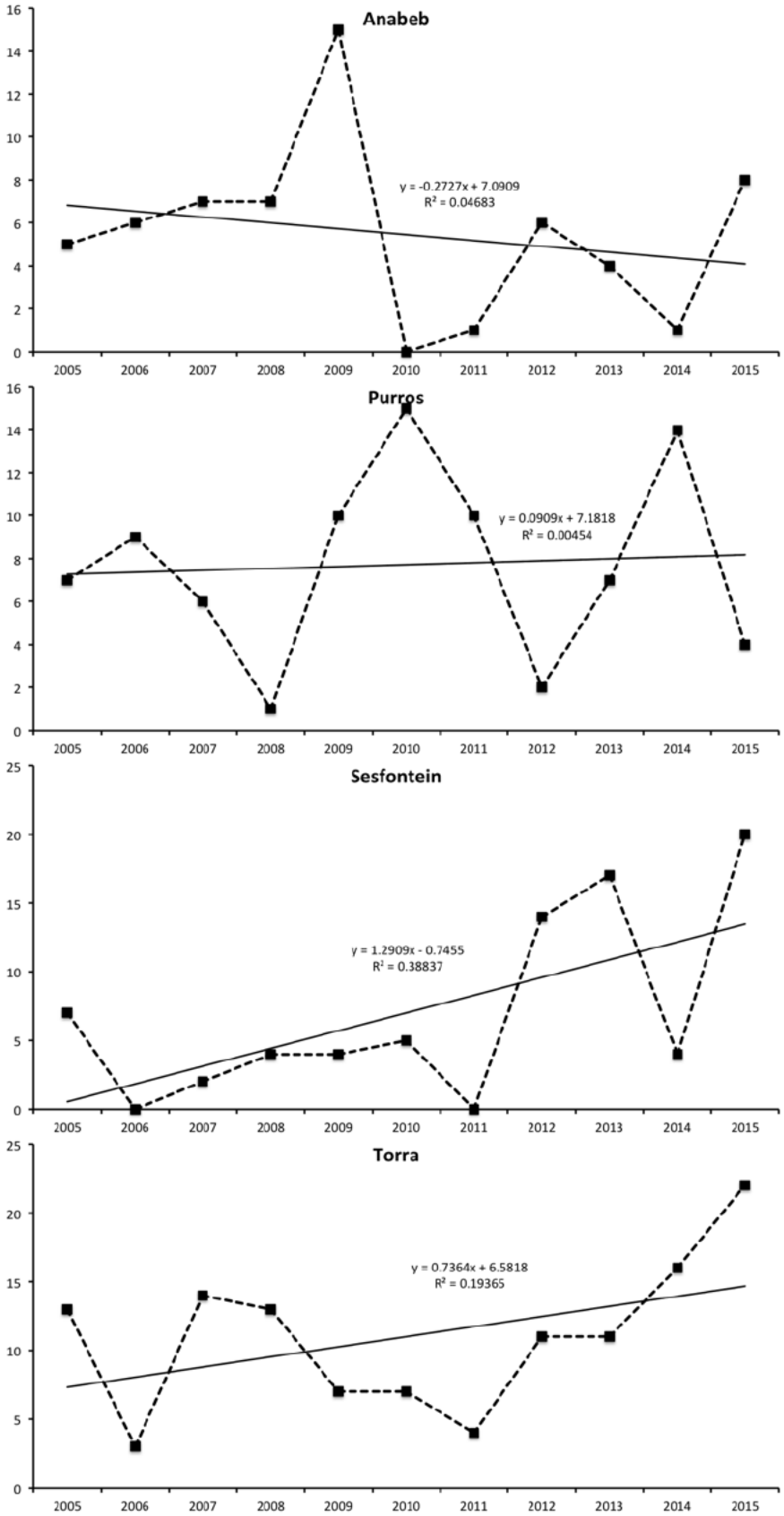


Figure 6. Number of human-lion conflict incidents per year between 2003 and 2015 as recorded by five conservancies.



6.5.2 Aspects of lion demography & behaviour ecology relevant to HLC

A sound understanding of the population dynamics, demography and behaviour ecology of the Desert lion population is essential to the process of conserving the species and managing human-lion conflict. This can only be achieved through the systematic collection of long-term data on the key aspects of their ecology. These include habitat utilisation, home ranges, movement patterns, hunting behaviour, activity patterns, group/pride structures and limiting factors.

6.5.2.1 Movements and habitat use

Over the past seven years (2008 – 2015) satellite and GPS radio-collars were fitted to 19 different lions that represent all the current prides in the population. In total 196,849 data points were recorded that contain accurate movement patterns and habitat utilisation of all the major prides/groups of lions that represent data over 43.5 lion-years (Table 2 & Figure 7).

Table 2. Sample sizes and status of 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	N^{-1} (points)	N^{-2} (nights)	Duration	Status
Hoanib Floodplain	Xpl-10,	♀	38,438	2,365	16.5 yrs	Dead***
	Xpl-55	♀				On-going**
Hoanib River	Xpl-47	♀	29,017	2,741	7.6 yrs	Dead
	Xpl-59	♀				On-going
Okongwe	Xpl-70	♀	11,298	1,142	2.8 yrs	Malfunction*
Orowau / Hunkap	Xpl-81	♂	9,226	1,169	3.4 yrs	On-going
	Xpl-53	♀	10,051	794	2.2 yrs	Malfunction
	Xpl-100	♀	861	164	8 mo	On-going
Uniab Delta	Xpl-45	♀	32,277	2,033	5.8 yrs	On-going
Barab / Obab	Xpl-54	♂	5,868	533	1.5 yrs	Malfunction
	Xpl-49	♀	30,253	1,447	4 yrs	Malfunction
Aub - Etendeka	Xpl-79	♂	420	210	7 mo	Dead
	Xpl-65	♀	3,281	402	1.1 yrs	Malfunction
	Xpl-94	♂	811	139	6 mo	On-going
Agab River	Xpl-50	♂	6,892	329	1 yr	Dead
	Xpl-36	♀	4,567	515	3.2 yrs	Dead

Huab River	Xpl-75	♀	8,998	1,338	3.9 yrs	On-going
Ugab River	Xpl-77	♂	2,799	247	9 mo	Dead
	Xpl-98	♂	1,792	305	11 mo	On-going
Totals			196,849	15,873	**or 43.5 Lion years**	

Key:
Dead*** = Lion was shot, trophy hunted or died of natural causes during the past year.
On-going** = Lion is alive and collecting of movement data continues.
Malfunction* = Satellite radio collar failed.

The distance that a lion moves per night is a function of home range size and habitat use. Accurate information on this is important to the conservation process and essential for the management of Human-Lion-Conflict. The home ranges of male lions are larger than those of females and on average the 19 lions moved 8.2 km per night (Table 6). Male lions, however, moved further per night (9.3 ± 1.2 km) than did lionesses (7.3 ± 0.9, t = 3.963, $P < 0.01$).

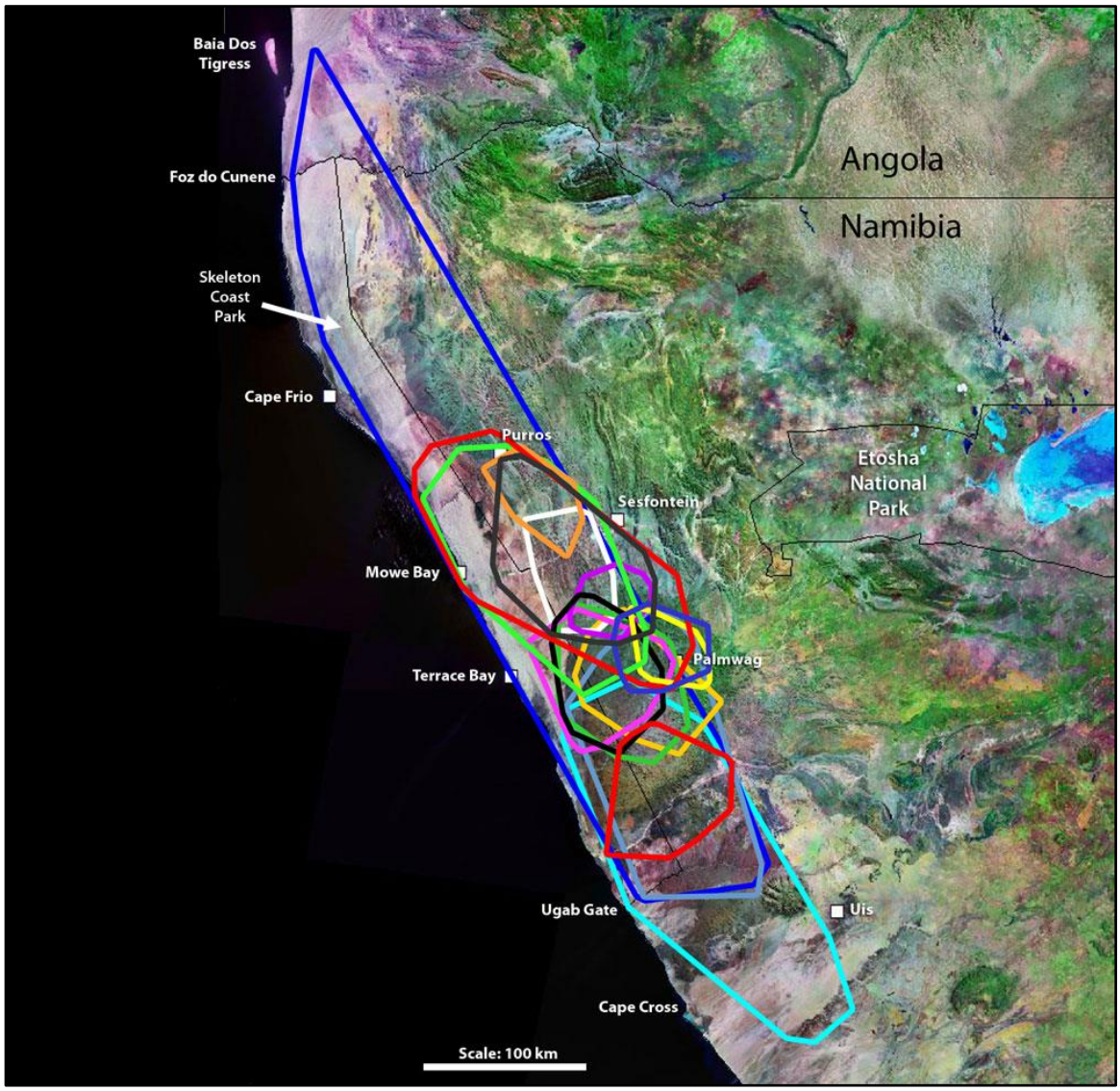
Table 6. Home range estimates (km^{-2}), using the Minimum Convex Polygon (MCP) technique, and distances moved by 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	Home Range MCP* (km^2)	Total distance moved (km)	Average distance moved per	Range of distance per night (km)
Floodplain	Xpl-10	♀	12,642	17,334	9.8	0 – 62.1
	Xpl-55	♀	2,550	11,410	9.5	0 – 36.4
Hoanib	Xpl-47	♀	2,471	14,136	7.9	0 – 36.3
	Xpl-59	♀				
Okongwe	Xpl-70	♀	1,668	4,922	6.1	0 –37.7
Orowau / Hunkap	Xpl-81	♂	6,405	11,437	11.4	0 – 52.0
	Xpl-53	♀	1,236	4,328	5.5	0 –22.8
	Xpl-100	♀	618	1,032	6.3	0 – 26.3
Uniab Delta	Xpl-45	♀	3,997	2,135	6.9	0 – 38.9
Barab / Obab	Xpl-54	♂	3,978	4,911	9.5	0 – 63.2
	Xpl-49	♀	4,161	13,219	7.9	0 – 40.1
Aub / Etendeka	Xpl-79	♂	1,923	1,115	7.7	0 – 27.7
	Xpl-65	♀	1,258	984	7.1	0 – 21.5
	Xpl-94	♂	915	1,329	9.6	0 – 24.8
Agab River	Xpl-50	♂	4,881	1,108	8.1	0 – 31.9
	Xpl-36	♀	3,882	3,454	6.9	0 – 32.0
Huab River	Xpl-75	♀	4,865	8,137	7.1	0 – 46.5

Ugab River	Xpl-77	♂	16,872	2,544	10.3	0 – 54.1
	Xpl-98	♂	3,878	2,517	8.3	0 – 30.8

The spatial and temporal patterns of movements and how lions utilise their home ranges are important parameters for all aspects of conservation, mitigation of human/lion conflict and tourism development. There are many different statistical methods to calculate home range sizes. Depending on the movement patterns of animals and the habitat, some methods are more suitable than others. In this analysis the home range size of lions marked with satellite radio collars were calculated using the universal Minimum Convex Polygon (MCP) method. In some cases Spider Distance techniques were used as an additional assessment of habitat use. The movement data from the 19 collared lions provide an essential base-line understanding of the demography of the population.

Figure 7. Layout of the areas utilised by 19 lions fitted with satellite radio collars in the northern Namib between 2008 and 2015.



Conflict between lions and people occur essentially all along the eastern edge of the distribution of the lion population. However, the long-term data collected on lion movements indicate that there are particular “hotspots” where incidents of Human-Lion-Conflict occur repeatedly over the years regardless of the individual lions. These “hotspots” coincide with reports of Human-Lion-Conflict recorded by the communities. Data are presented on lion movements in relation to these “hotspots” with a focus on the past three years due to heightened levels of Human-Lion-Conflict.

- *Torra Conservancy*

Human-lion conflict has been particularly problematic in parts of the Torra Conservancy due to an abundance of sub-adult lions that have dispersed from their natal prides. Data collected on the demography and movements of the established lion prides since 2008 provide a base-line understanding of habitat utilisation by these lions (see Figs. 6 – 10).

- *Aub / Etendeka Pride*

During the past three years the original Aub Pride have expanded extensively into the Etendeka and Klip River area. The adult male Xpl-79 that was fitted with a satellite collar was unfortunately shot and the collar destroyed (Figure 8). A young adult male (Xpl-94) from the Hunkap Pride moved into the area and was fitted with a new satellite collar (Figure 9). Unfortunately this lion was also shot a few months later and the collar was destroyed.

Figure 8. The home range area of Xpl-79 (male).

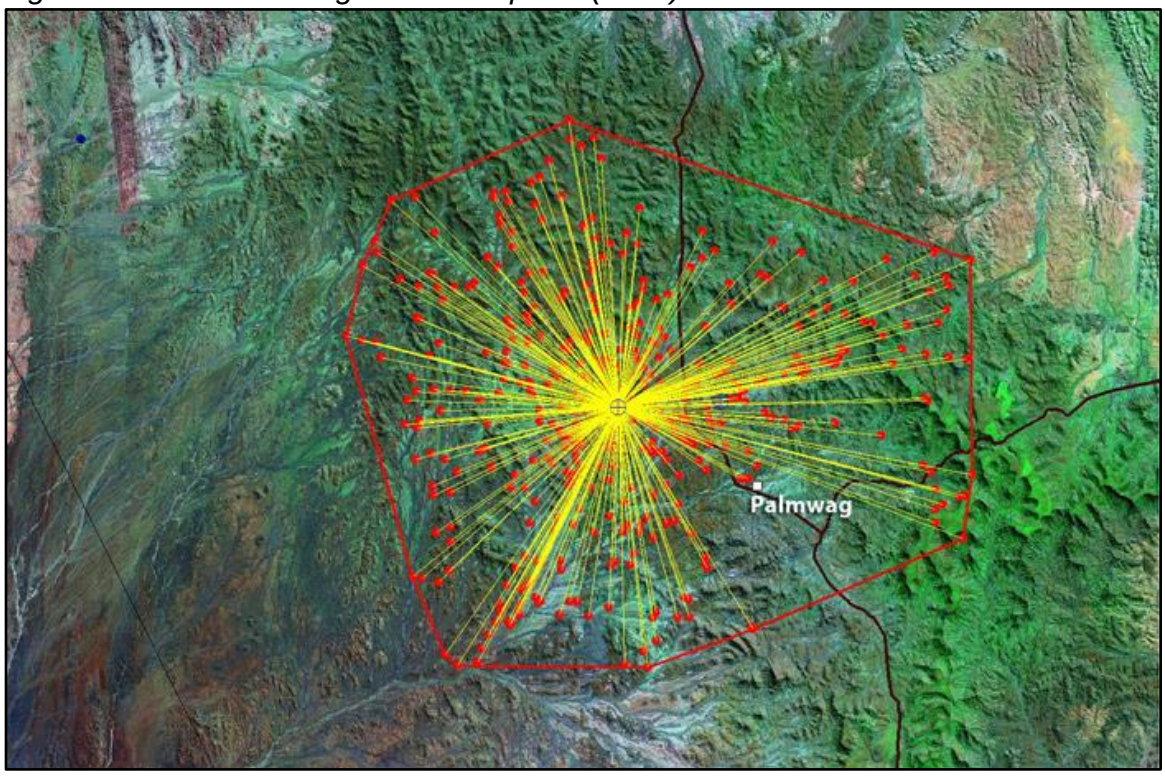
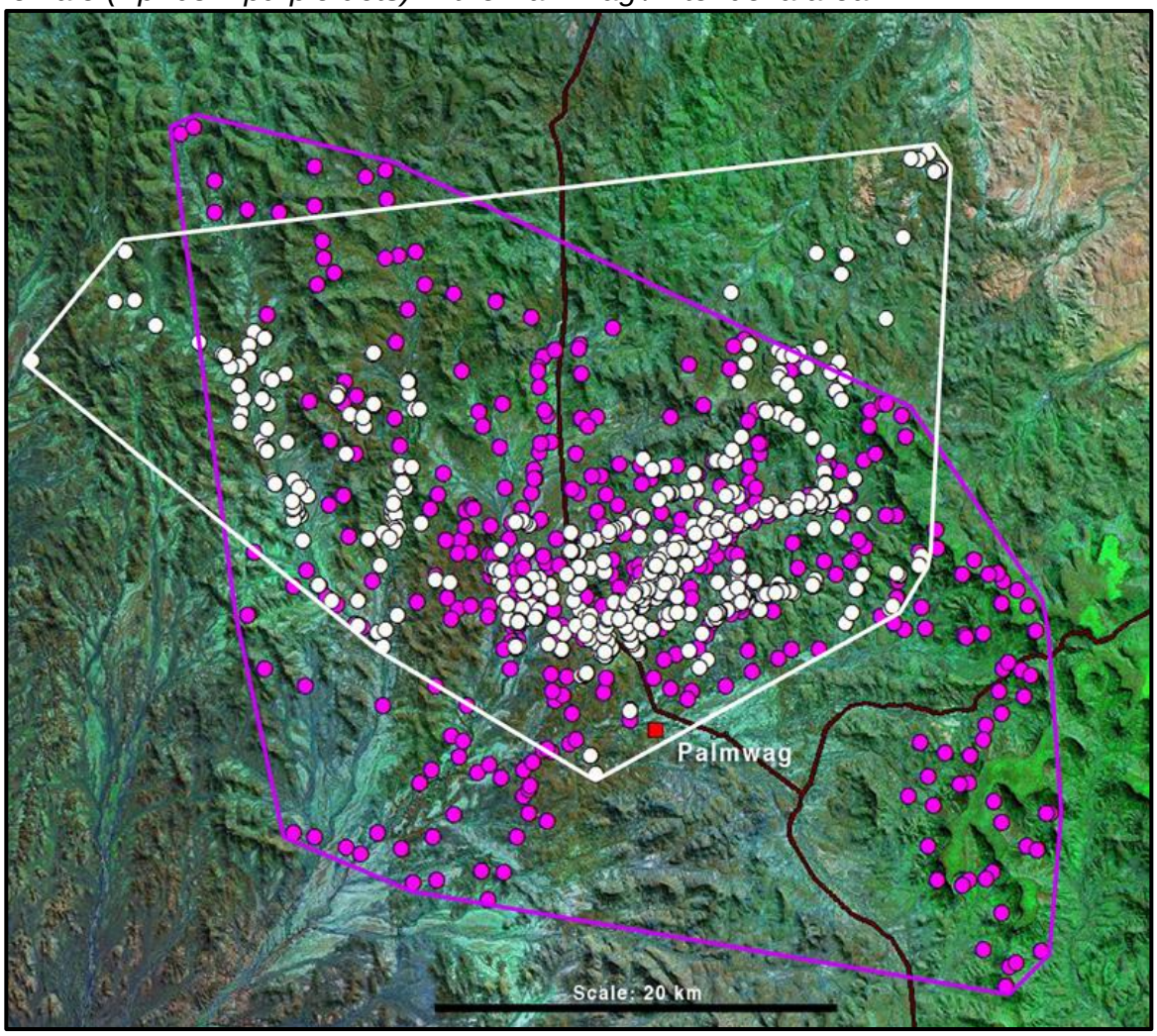


Figure 9. The home range area of an adult male (Xpl-94 – white dots) and an adult female (Xpl-65 – purple dots) in the Palmwag / Etendeka area.



- *Agab / Springbok River Pride*

The numbers of the Agab Pride increased substantially during the past two years and many of the sub-adult lions expanded to the Springbok River and into the Bergsig area. As a result the incidents of conflict with the local communities increased. After the pride male (Figure 10) and the Ugab male (Xpl-77) was shot whilst mating with Xpl-36 (Figure 11) the Pride spent more time between the Agab and Springbok Rivers. An adult male from the Obab Pride (Xpl-74) joined the lionesses.

Figure 10. The home range area of Xpl-50 (male).

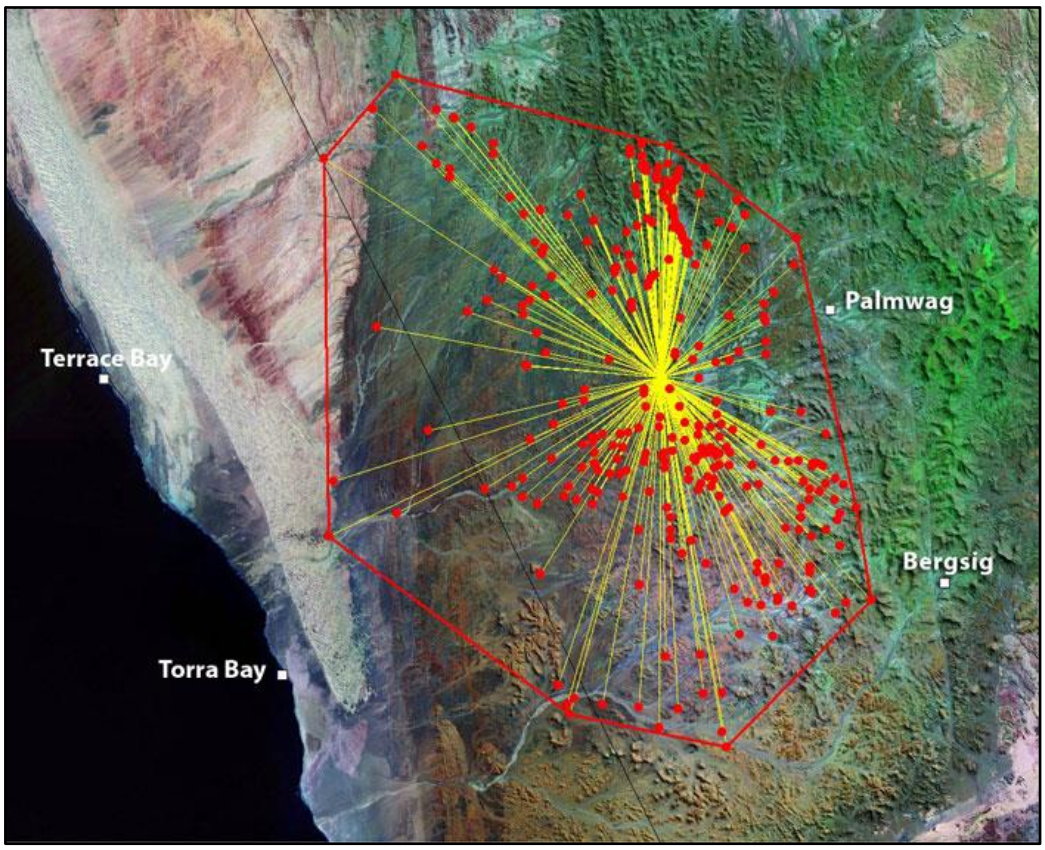
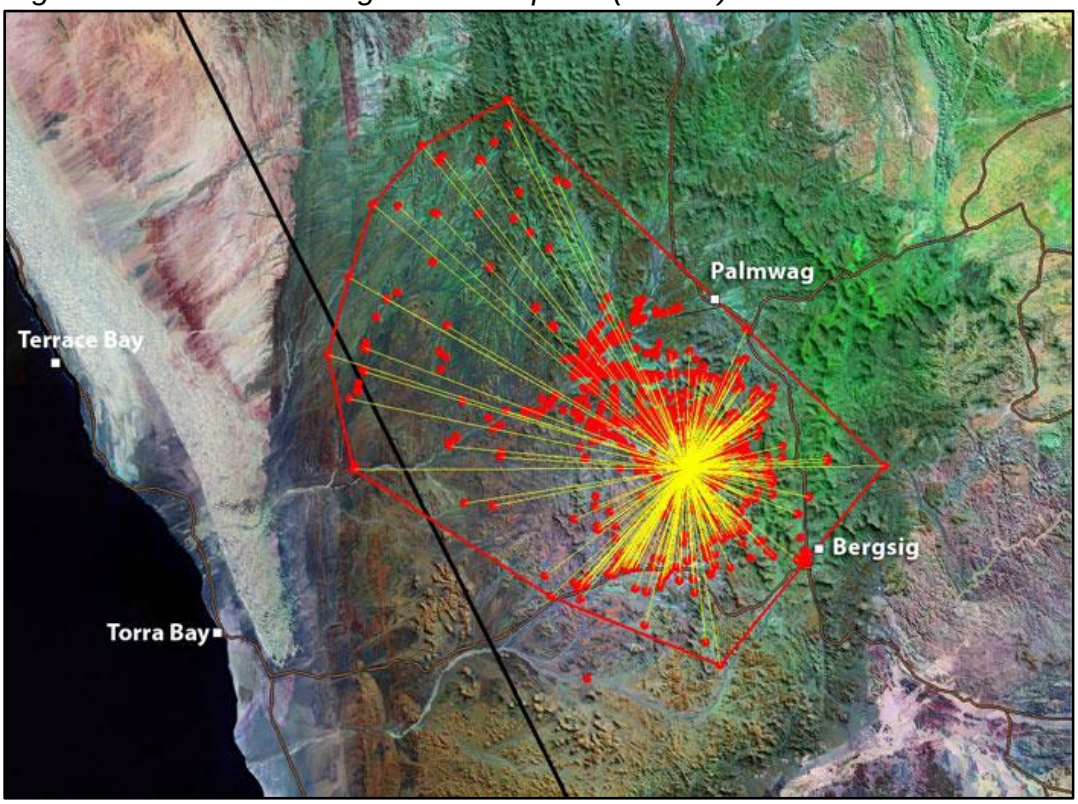


Figure 11. The home range area of Xpl-36 (female).



- *Huab Pride*

The Huab Pride expanded from 3 individuals (1 male Xpl-68 and two females Xpl-75 / Xpl-76) in 2012 to approximately 13 – 15 lions. Five sub-adults, from the first litter of Xpl-75 & Xpl-76 born early in 2012, dispersed and settled in the Ugab River. The home range of Xpl-75 expanded from 2013 (Figure 12) to a larger area that extended up to the Ugab River by the end of 2015 (Figure 13).

Figure 12. The home range area of Xpl-75 (female) up to the end of 2013.

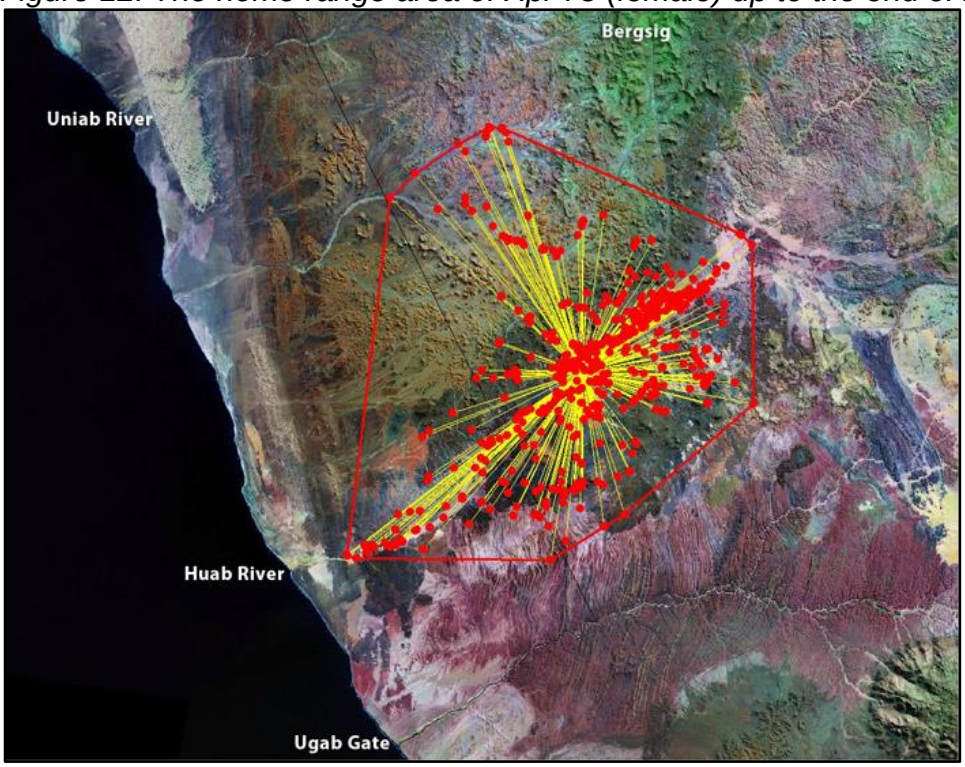
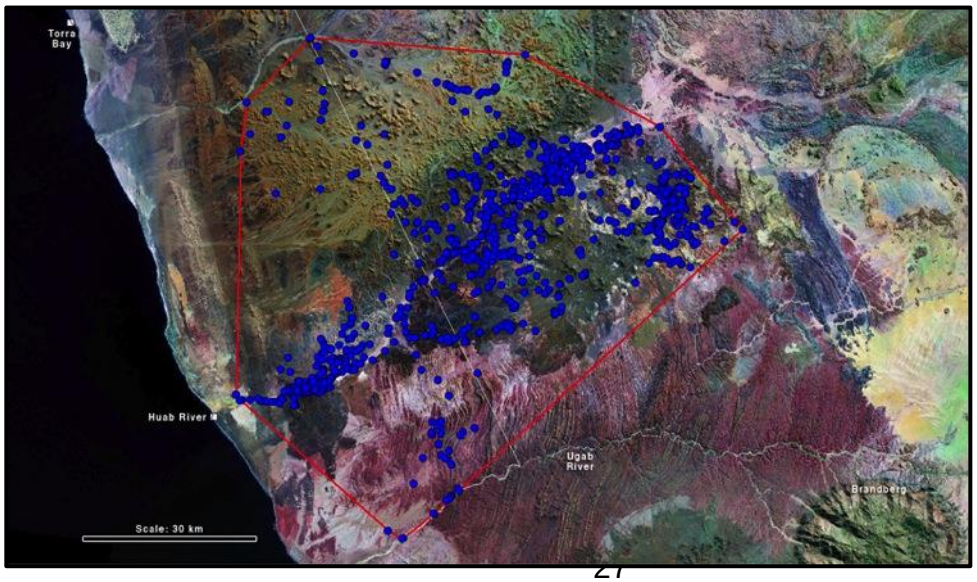


Figure 13. The home range area of Xpl-75 (female) up to the end of 2015.



- *Ugab Pride*

After the adult male (Xpl-77, Figure 14) was shot close to Bergsig on 27 Sep 2013, the Ugab River was vacant until five sub-adult lions from the Huab Pride dispersed and occupied the Ugab (Figure 15).

Figure 14. The home range area of Xpl-77 (male) up until September 2013.

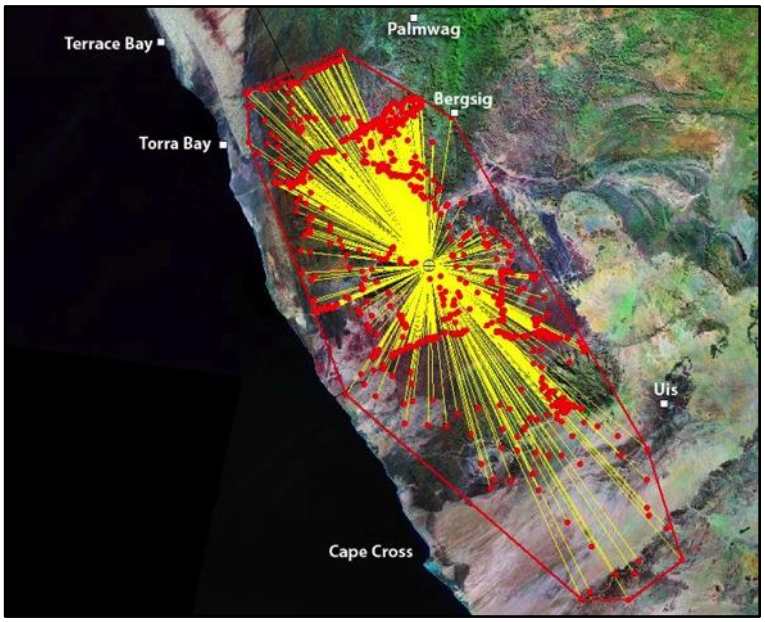
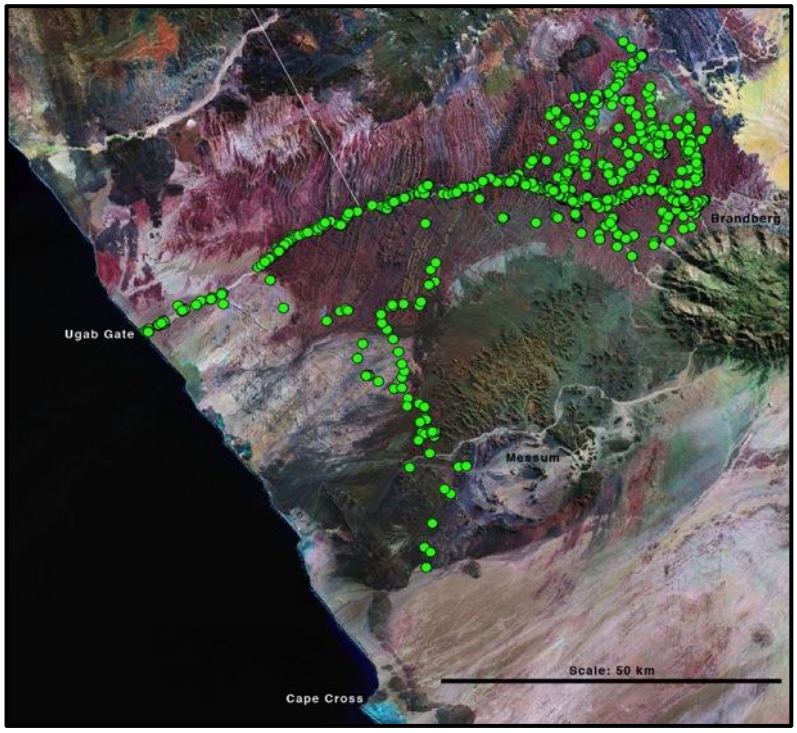


Figure 15. The current home range area of Xpl-98 (male).



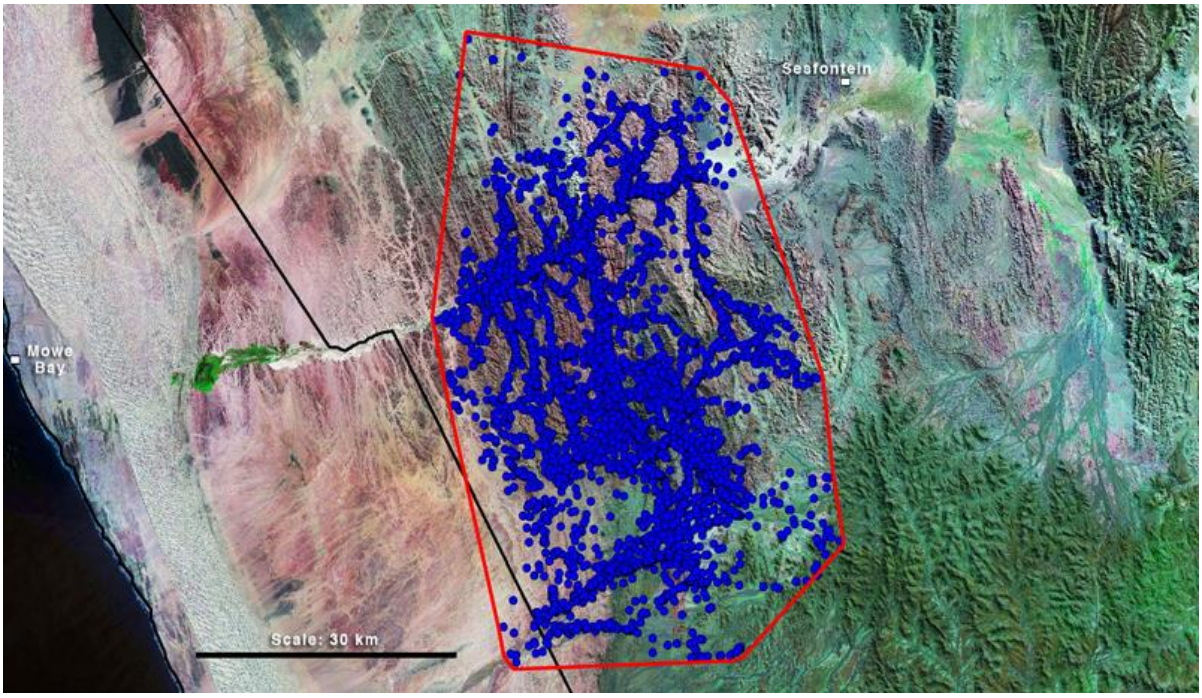
- Purros, Sesfontein & Anabeb Conservancies

The home ranges of desert-adapted lions are exceptionally large and there is extensive overlap between the home ranges of different prides. This is an important strategy in their adaptation to the harsh arid environment that is particularly relevant to understanding the frequency and patterns of Human-Lion-Conflict. The home ranges of lion prides in the northern section of the study area overlap with at least two, but sometimes with all three conservancies. As a result, each of these prides is generally responsible for incidents of Human-Lion-Conflict in two or all three conservancies over the course of a few years. More relevant to understanding and the managing Human-Lion-Conflict is the fact that lions from several different prides may be responsible for Human-Lion-Conflict at any one location over time.

- *Hoanib Pride*

The Hoanib Pride has occupied the Hoanib River between Elephant Song and Amp's Poort since 2006 (Figure 16). Their range extends up to the southern section of Okongwe and south to the Hunkap River. These lions have been responsible for Human-Lion-Conflict in both the Purros and Sesfontein Conservancies. The lioness Xpl-47 was fitted with a GPS collar in May 2008 and her movements were recorded until she was shot in the upper Obias River on 8 November 2015. A new satellite collar was fitted to the last surviving adult lioness (Xpl-59).

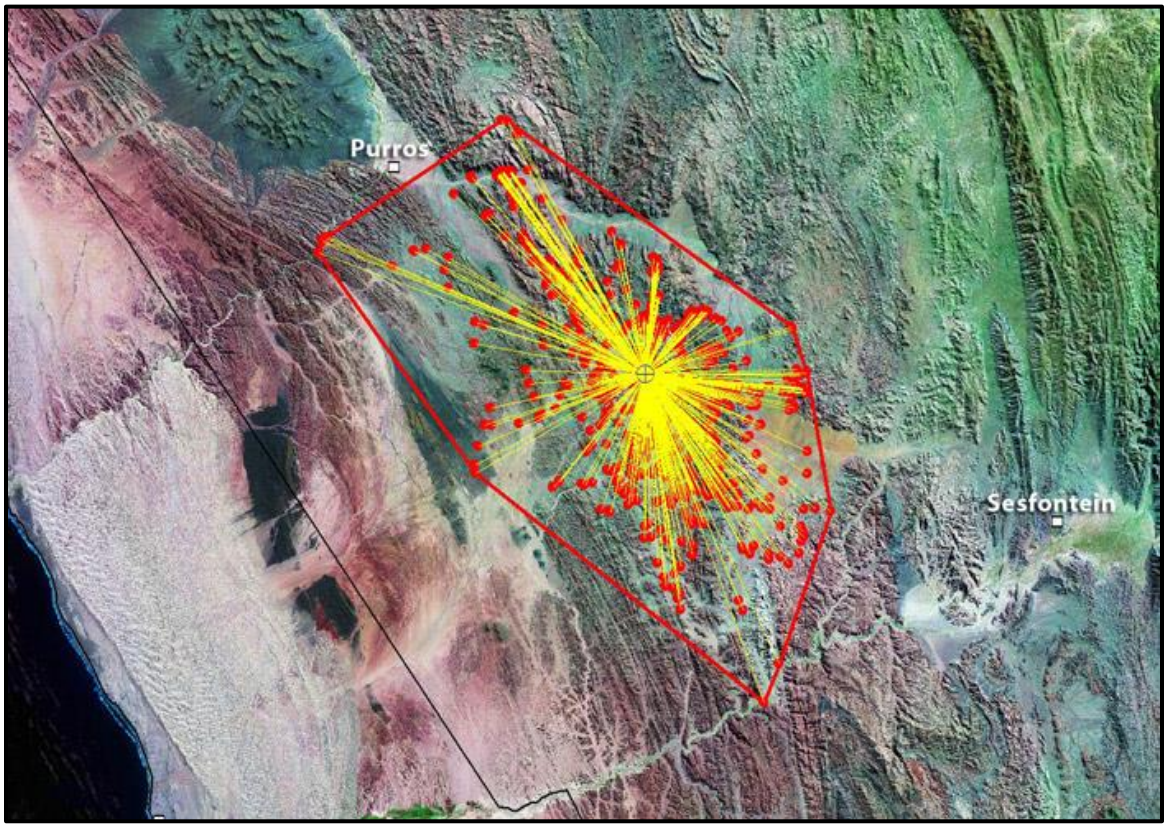
Figure 16. The home range area of Xpl-47 (female) until her death in November 2015.



- *Okongwe Pride*

Three lionesses dispersed from the Hoanib Pride in 2007 to form the Okongwe Pride. They were known as the “70s Lionesses” and occupied the mountainous terrain around Okongwe waterhole (Figure17). Conflict with local livestock farmers at Tomakas and along the Gamatum River in Purros Conservancy and at Ganamub and Elephant Song in the Sesfontein Conservancy has resulted in high mortality rates. At least 10 lions were shot or poisoned during the past three years. These included seven adult males (Xpl-56, Xpl-73, Xpl-68 “Terrace Male” & four of the “Five Musketeers”) and three adult females (Xpl-70, Xpl-72 & Xpl-96) that were fitted with satellite collars. The collars and all evidence of the lions were destroyed. The destruction of collars and other information by local communities undermines the process of managing and limiting Human-Lion-Conflict.

Figure 17. The home range area of Xpl-70 (female) of the Okongwe Pride.



- *Orowau / Hunkap Pride*

There are currently only two established adult pride males in the northern section of the population. The males (Xpl-81 & Xpl-87) are currently favouring the Orowau and Hunkap areas, but during the past two years they have regularly interacted with the Floodplain, Hoanib and Okongwe lionesses (Figure 18). The home range of Xpl-81 "Kebbel" indicates that there is extensive overlap with the five different groups of lionesses (Figs. 19 & 20). Both lionesses are responsible for Human-Lion-Conflict in Anabeb and Sesfontein Conservancies. The male lions have significantly larger home ranges and also cause Human-Lion-Conflict problems in the Purros Conservancy.

Figure 18. The home range area of the adult male Xpl-81 (red dots & polygon) in relation to the home ranges of five different groups of lionesses.

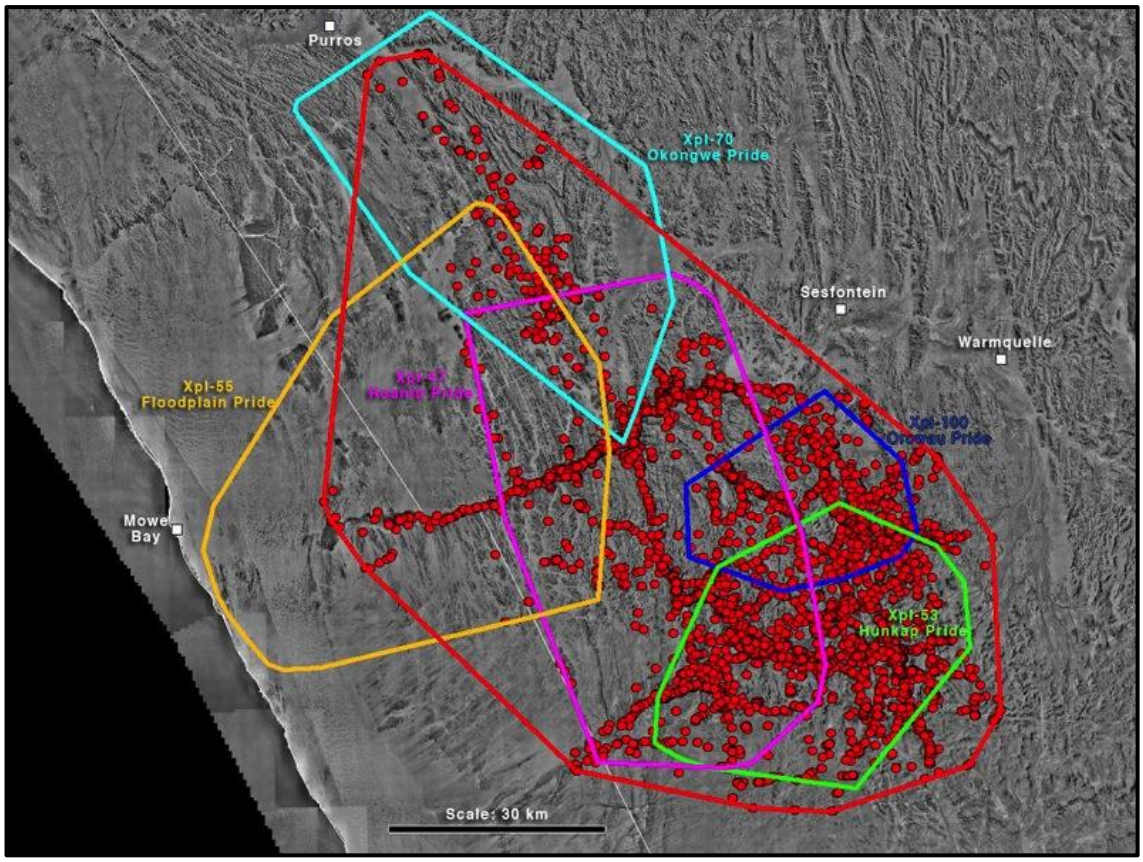


Figure 19. The home range area of Xpl-53 (female) of the Hunkap Pride.

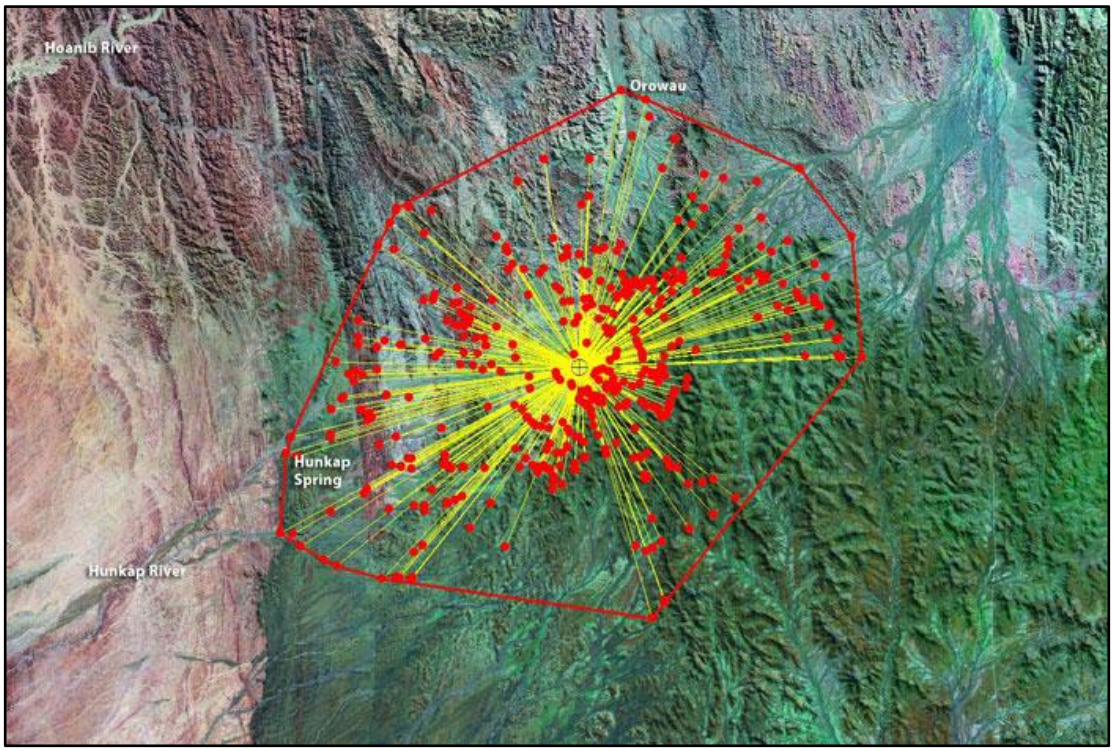
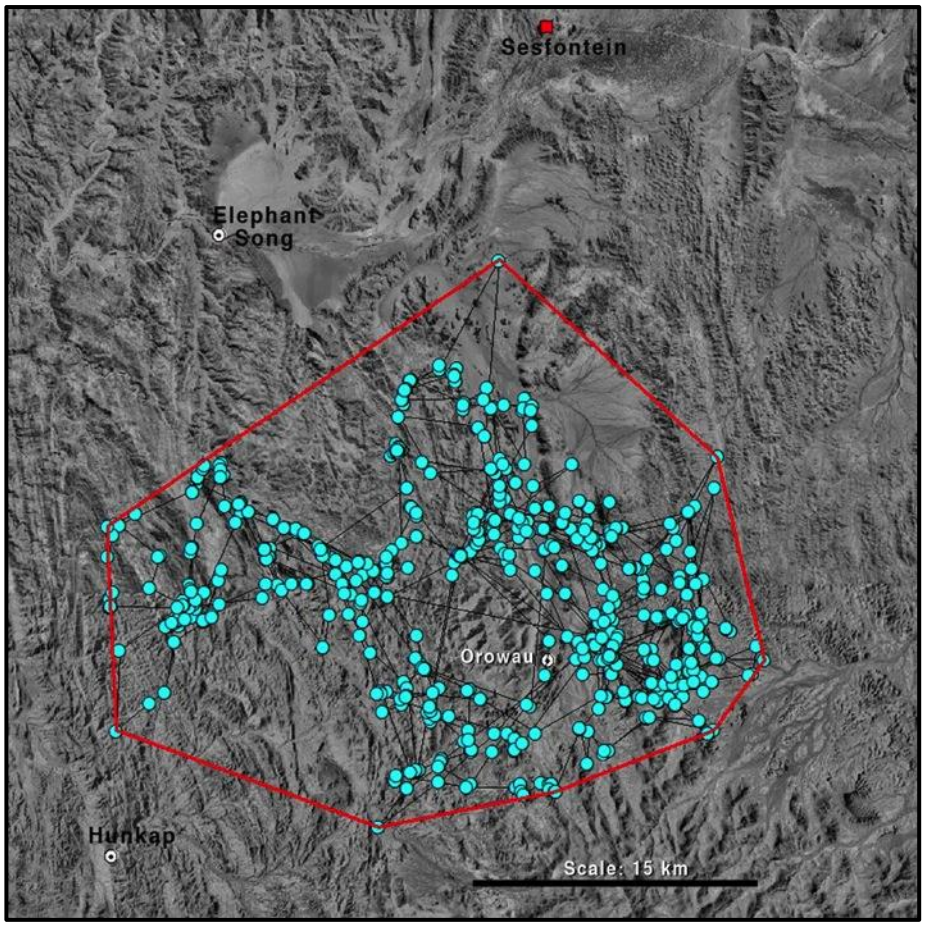


Figure 20. The home range area of Xpl-100 (female) of the Orowau Pride.



6.5.2.2 Understanding "Hotspots"

In order to survive in the harsh arid conditions these lion have developed particular skills and adapted behaviour. They have large overlapping home ranges and they move long distances of up 70 km per night. This is necessary because the sporadic and highly variable rainfall in the arid environment result in a heterogeneous and unpredictable distribution of prey animals. Detailed behavioural observations over the past 17 years suggest that the lions maintain and rely on a mental "map" (both spatial and temporal) of rich food patches. Rich food patches are areas where prey animals concentrate at certain times of the year, or after certain environmental conditions, and/or where the habitat (e.g. broken terrain or thick vegetation) result in higher hunting success. These rich food patches are therefore referred to as "hotspots" and lions regularly return to them to search for prey.

To demonstrate the significance of "hotspots", the movements and behaviour of the Uniab Delta Pride in relation to a "hotspot" are presented here.

The mouth of the Uniab River consists of a delta structure with numerous fresh water springs and thick reed beds that attract large numbers of Oryx, springboks and ostriches. Lions regularly visited the Uniab Delta before the population crash during the 1990s and the knowledge of the rich food source died with them. In December 2014 a sub-group of the Obab Pride discovered the Uniab Delta and feasted on the selection of prey that are vulnerable between the thick reeds and with strong coastal winds that aid their hunting success. The discovery of the rich food source resulted in the lions separating from their natal pride to form the Uniab Delta Pride (Figure 21). Between January and November 2015 the Uniab Delta Pride visited the mouth of the Uniab River on six occasions (Figure 22). On average they spent 23.3 days along the coastal habitat of the Uniab Delta (range: 7 – 60 days). In between these visits the four lionesses moved inland, up to 38.9 km from the mouth of the Uniab River, for an average of 20 days (range: 5 – 41 days, $N = 5$). When the lionesses were at the Uniab Delta they moved an average of 4.8 km/day, but when they moved inland their daily distances increased to 8.5 km/day.

Figure 21. The home range area of Xpl-45 (female) in relation to the Uniab Delta.

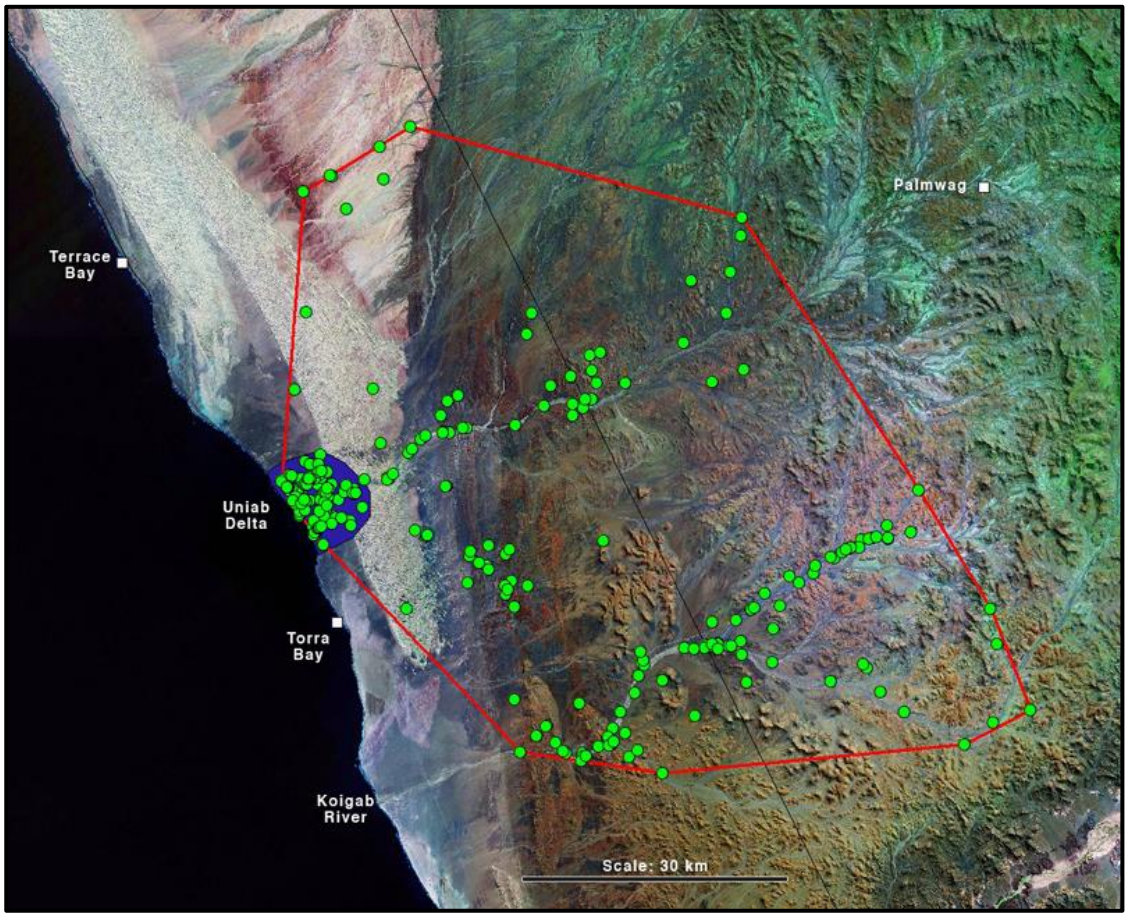
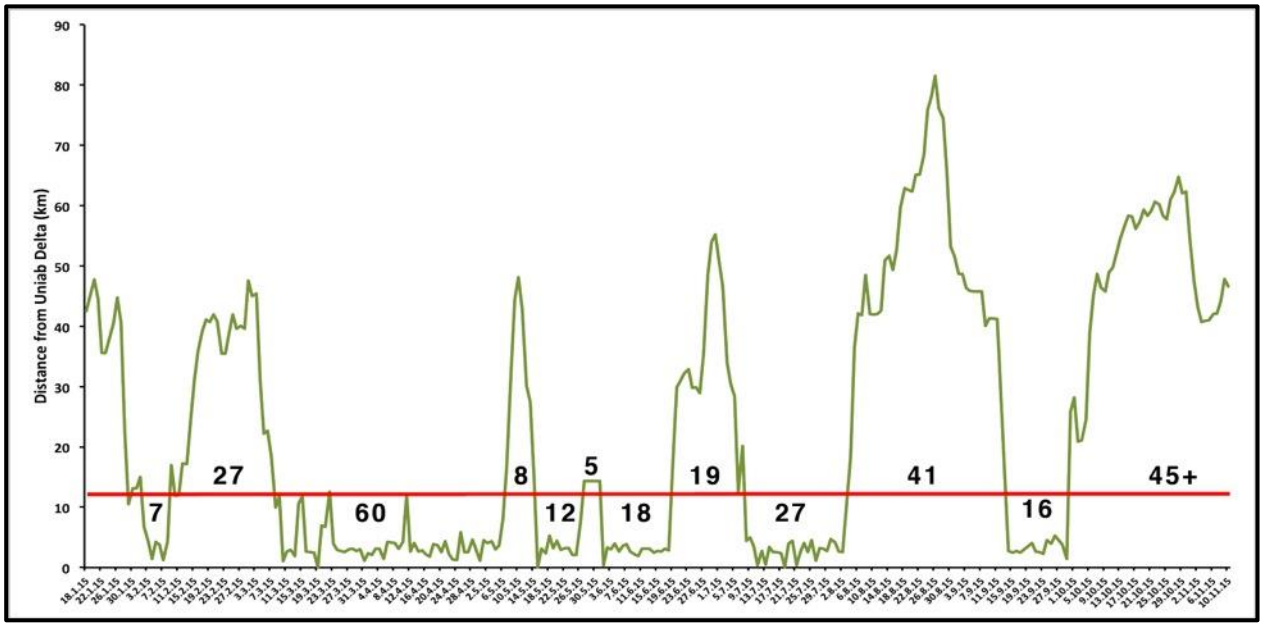


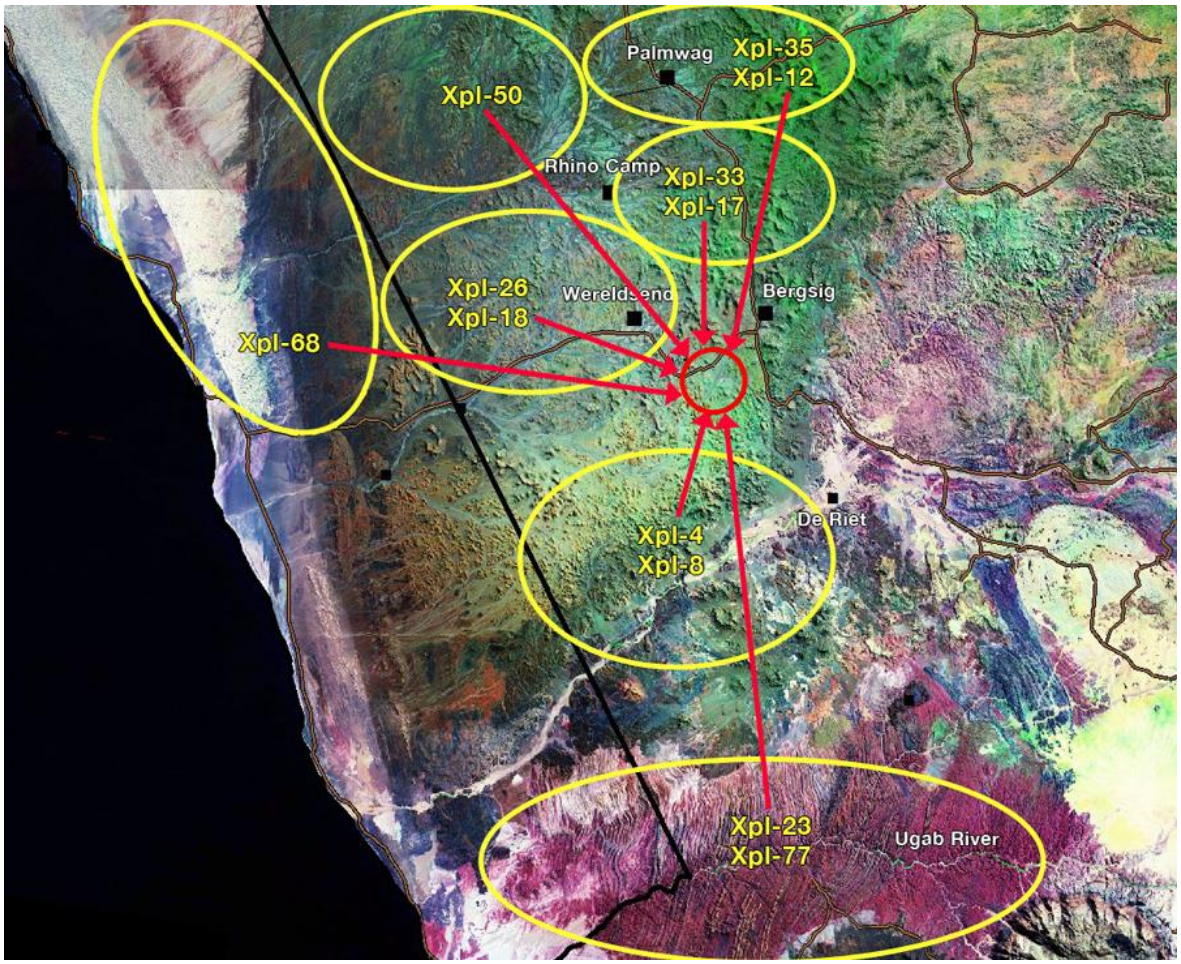
Figure 22. Sequential distances of the Floodplain Pride from the mouth of the Hoanib River between Aug 2014 and Nov 2015. The red line denotes the border of the coastal habitat and the numbers represent the number of days spent at the coast (below the red line) or further inland (above the red line).



Domesticated animals have been selectively bred over thousands of years to meet the needs of humans. As a result they have lost the ability to fend for themselves in nature and rely on humans to protect them. This is particularly pertinent at night when predators, such as lions, are active. Livestock, such as cattle, goats and donkeys are extremely vulnerable to predation by lions. The presence of livestock around a settlement that roam freely at night constitute all the hallmarks of a “hotspot”. Once lions become aware of the rich food source, they will return regularly.

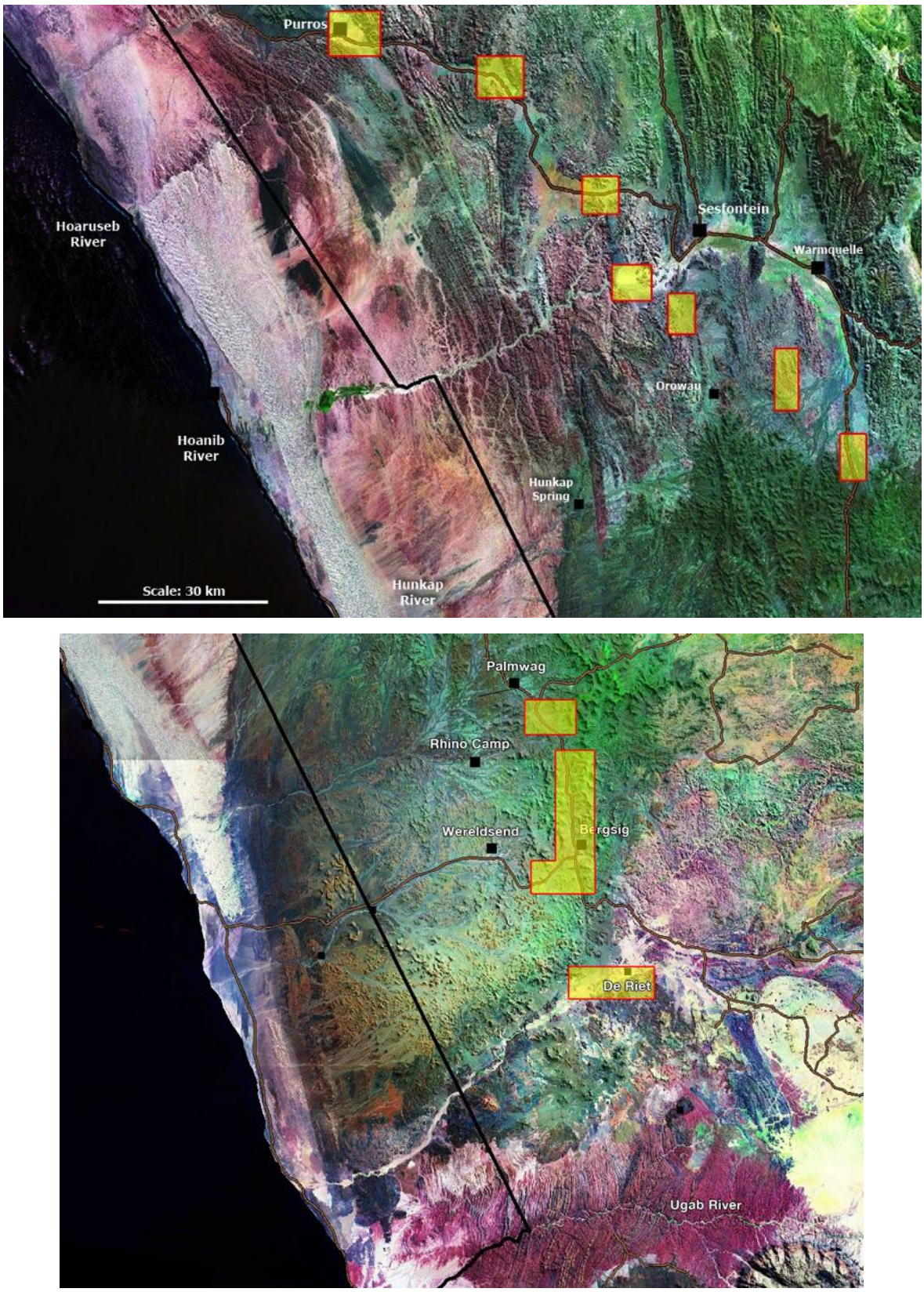
Over a seven-year period between 2006 and 2013 a total of 22 cases of human-lion conflict were recorded at Driefontein near Bergsig in the Torra Conservancy (Figure 23). Driefontein has all the characteristics of a “hotspot” and attracted 12 radio-collared lions from seven different prides with some individual returning to Driefontein several times. During this sample of human-lion conflict 16 lions were destroyed including 11 of the 12 radio-collared lions.

Figure 23. The origins of 12 radio-collared lions that caused human-lion conflict problems at Driefontein in the Torra Conservancy between 2006 and 2013.



Based on monitoring data collected since 2000 a total of ten “hotspots” were identified where lions have regularly been attracted to settlements and livestock (Figure 24). There are two “hotspots” in Purros Conservancy, three in Sesfontein Conservancy, two in Anabeb Conservancy and three in Torra Conservancy. These “hotspots” can be managed effectively for a marked reduction in human-lion conflict problems.

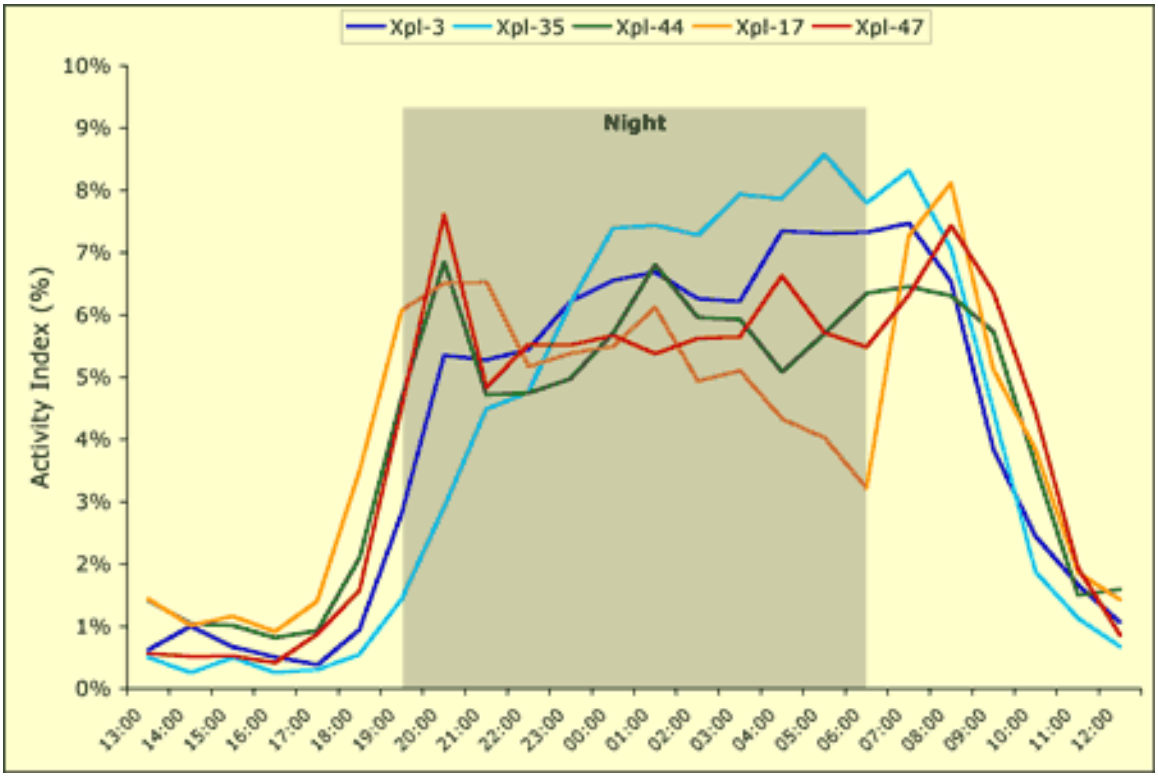
Figure 24. The locations of ten "hotspots" where lions are regularly attracted to settlements and livestock in the Purros, Sesfontein, Anabeb and Torra Conservancies.



6.5.2.3 Activity Patterns

Lions are active primarily at night. Data from five satellite collars, where the sampling frequency was ≥1 fix/hour, were included to assess patterns of activity. Distances moved per hour were used as an index of activity. To control for individual biases (e.g. mean distances moved by different lions per night) the distance moved per hour was expressed as a proportion of the total distance moved by the lion on that night. The patterns of activity are remarkably similar for all five lions (Figure 25). A sharp peak of activity occurred from between sunset and 20h00, followed by a drop in activity between 21h00 and 22h00. Activity increased again around midnight, but thereafter the pattern became less uniform although activity decreased towards daybreak, especially amongst the females. After sunrise activity increased and peaked between 07h00 and 08h00, followed by a uniformly sharp decline, and by 11h00 all five lions had stopped moving.

Figure 25. Activity patterns of five lions (males = blue/green, females = red/orange) in the northern Namib.



6.5.2.3 Population Dynamics

Aspects of the population dynamics of the Desert lion population, such as group structures, reproduction and mortality, have been monitored since 2000. Human-lion conflict and the related shooting or poisoning of lions is the main limiting factor of the population and amounts to 89 % of all adult and sub-adult mortalities.

The major cause of mortality in the lion population between 1999 and 2012 was the killing (by local people during Human-Lion-Conflict) and trophy hunting of adult and sub-adult lions. Male lions were particularly vulnerable and contribute to >80% of the recorded mortalities. The regularity, especially since 2004, at which male lions were shot, poisoned or hunted, and the selection of adult males for trophy hunting, has resulted in a significant reduction of males in the population. It also contributed to vastly different age-specific mortality rates between males and females (Figure 26), which serve to illustrate the negative impact on the population. Increasingly skewed sex ratios, favouring females (Figure 27), have reached critical levels (2010 - 1♀ : 0.18 ♂). Seven of the nine major prides are currently without a pride male.

The excessive killing of adult and sub-adult males has compromised the long-term viability of the Desert lion population. There is an urgent need to adapt the management and utilisation strategies relating to lions, if the long-term conservation of the species in the Kunene were to be secured.

Figure 27. Probability of age-specific mortality rates for females (red line) and males (blue line) in the Desert lion population (females: n = 277 lion-years; males: n = 225 lion-years).

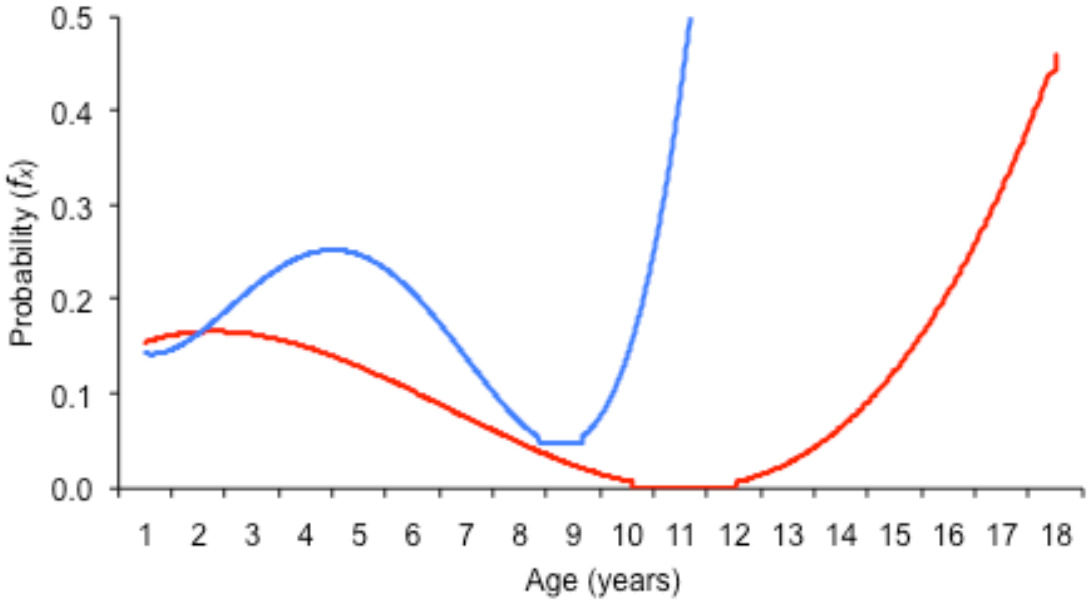
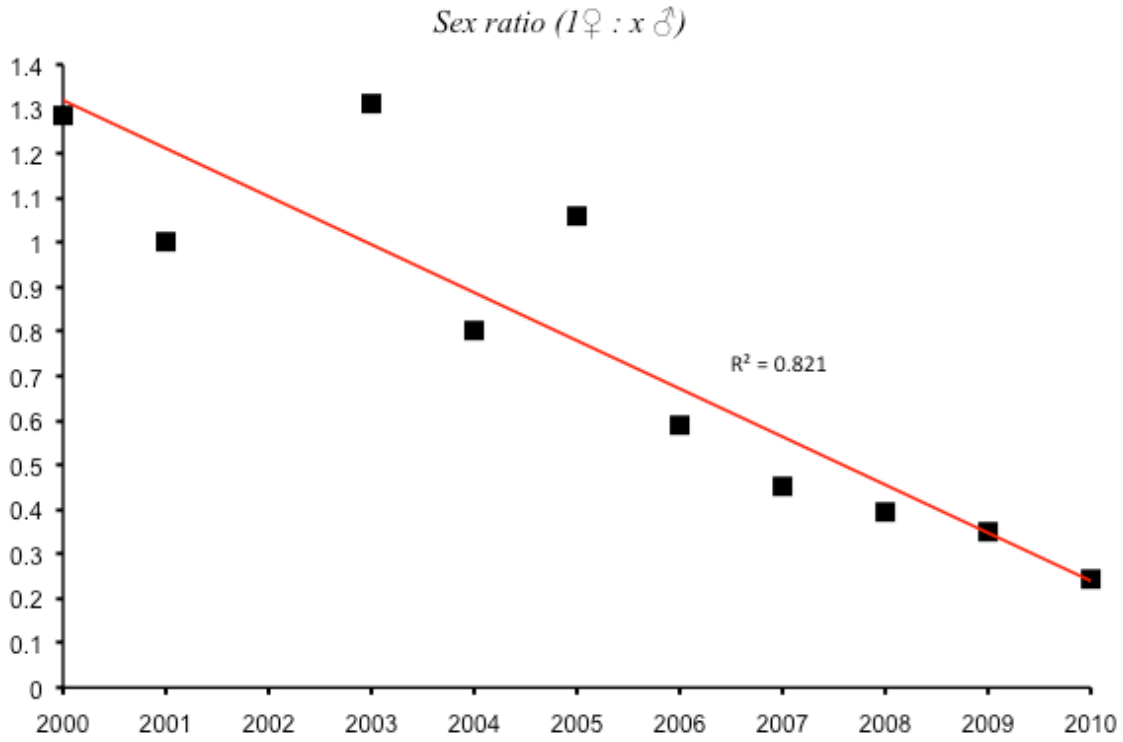


Figure 27. The decline of males in the sex ratio (1♀ : x ♂) of sub-adult and adult lions in the Desert lion population, between 2000 and 2010.



6.5.3 Developing & implementing appropriate technical solutions for mitigating HLC

The National Policy on Human-Wildlife Conflict Management states that the implantation of preventative measures is an effective and efficient way to manage Human-Lion Conflict. Local wildlife management units should carry out local level land-use planning as a means to reduce Human-Lion-Conflict. As part of zoning their area for different land-uses, such as exclusive wildlife and tourism zones, they should also identify wildlife corridors. In this case the establishment of a “high-risk lion corridor” that includes all the conflict “hotspots” will isolate the problem and facilitate an efficient management structure.

Effective and appropriate land use planning must be regulated and enforced by the elected committee for each conservancy and by the traditional leaders and Regional Councils. The exclusive wildlife zones, as per the gazetted registration of conservancies, and the “high-risk lion corridors” should be respected and implemented.

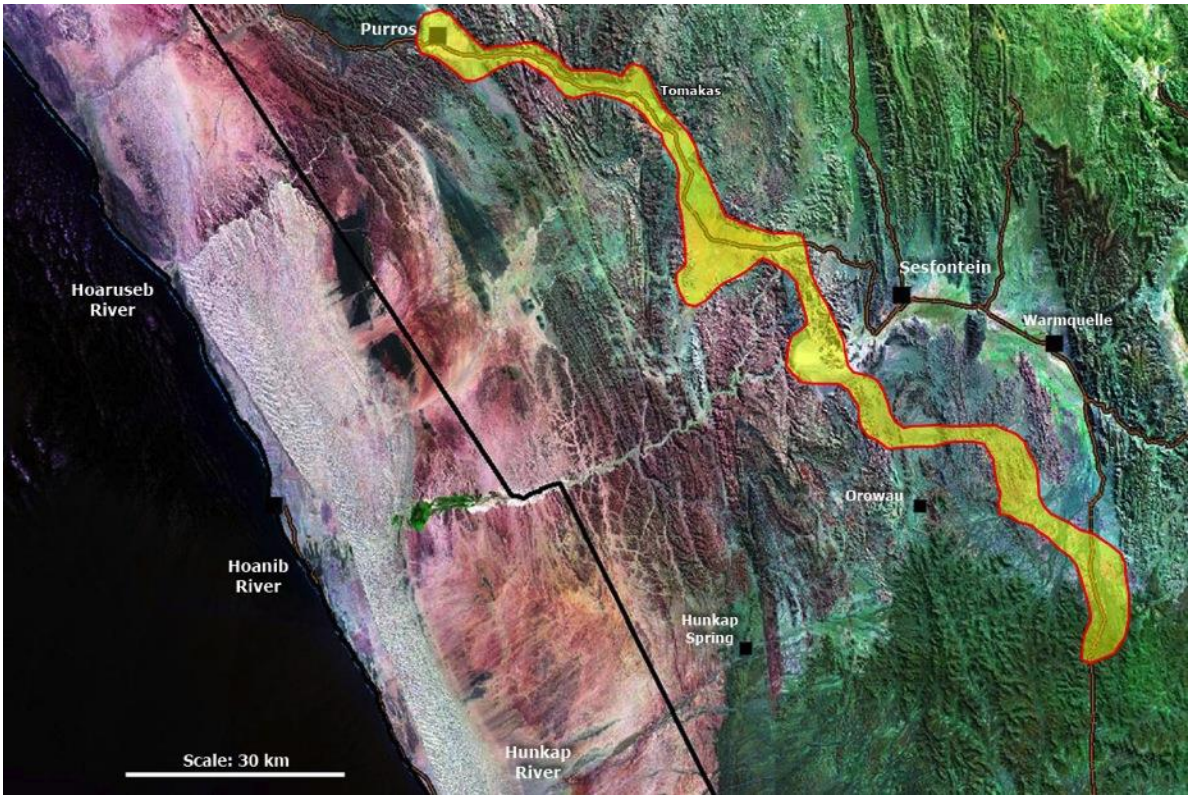
6.5.3.1 “High-Risk Lion Corridor”:

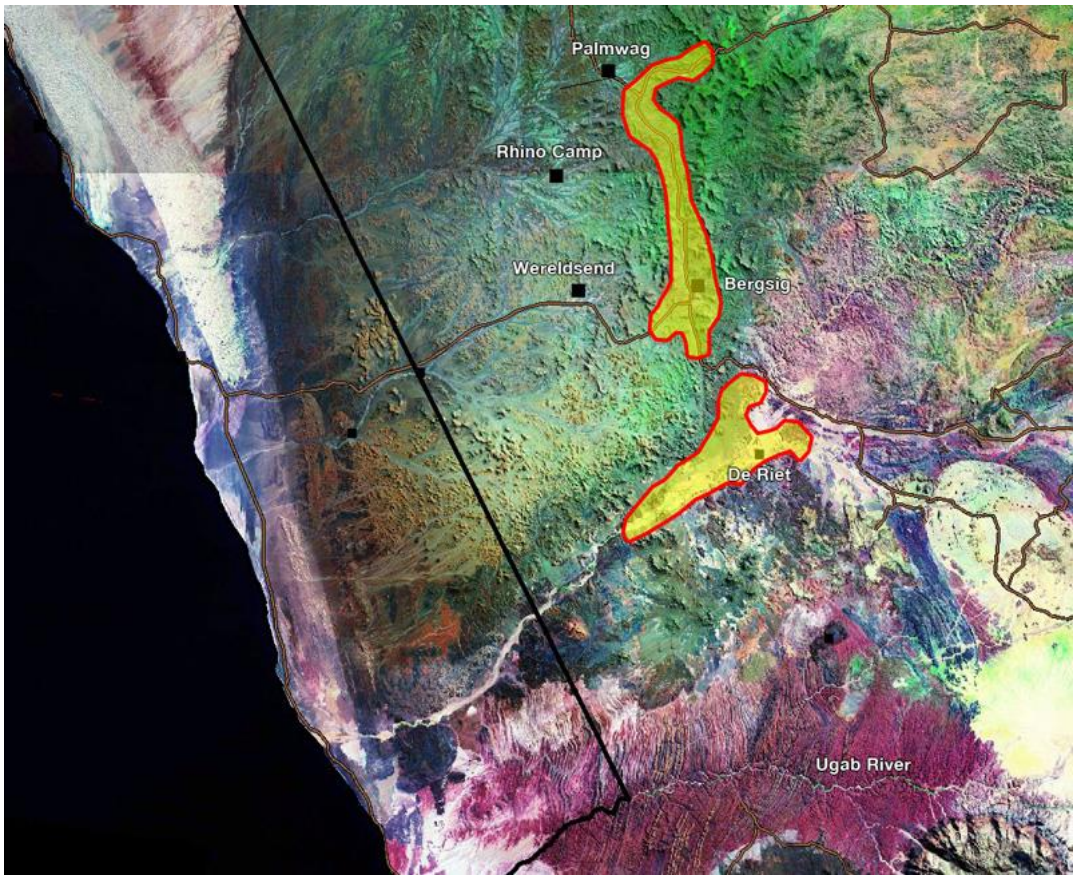
Research and monitoring of the Desert lion population and incidents of Human-Lion-Conflict over the past 15 years have produced reliable data indicating that lion problems occur repeatedly at the same locations. All previous management efforts, including the destruction of many lions, at these locations have failed for the following reasons:

a) Livestock that roam freely at night constitute all the characteristics of a rich food patch or “hotspot”.
b) Lions are quick to identify “hotspots” and will return regularly in search of prey.
c) Lions have large overlapping home ranges and as a result individual lions from several different prides will be attracted to these “hotspots”.

Establishing a “high-risk lion corridor” that includes all the known “hotspots” (Figure 27) and implementing stringent livestock management protocols, supplemented by various techniques to deter lions, within the corridor will effectively reduce Human-Lion-Conflict.

Figure 27. Proposed "High-Risk Lion Corridor" that includes all the major areas of HLC in the Puros, Sesfontein, Anabeb and Torra Conservancies.





6.5.3.2 Effective Livestock Management

Most conflict situations arise from livestock management practices that leave animals vulnerable to predators, such as allowing livestock to roam freely at night or untended during the day. The communities from all four conservancies have expressed their reluctance and disagreement to keep livestock inside protective corrals at night. Due to the low rainfall and lack of sufficient grazing in the region the communities prefer to allow their livestock to also feed at night. This is a key element to the success of Human-Lion-Conflict management that needs to be reconsidered. Based on the information presented here with regards to lion behavioural ecology, “hotspots” and on-going problems that occur at the same locations, the protection of livestock at night is paramount to the implementation and success of this Human-Lion-Conflict Management Plan.

6.5.3.2.1. Herding and guarding

The use of a person and/or dogs to walk with the livestock while grazing during the day can have a significant positive impact in reducing predator incidents. However care should be taken that guard dogs do not kill non-target predators or natural prey species.

6.5.3.2.2. Lion-proof Corrals

Keeping livestock inside protective corrals overnight will not only prevent lions from killing livestock, but it will also prevent the escalation of Human-Lion-Conflict problems in the area. Without free-roaming livestock (all species, including donkeys) at night lions will not identify the area as a “hotspot”, other methods of deterring lions from the area will be more effective and lions are likely to vacate the area. A compromise can be reached between the local livestock farmers, the conservancies and MET where only those farmers inside the proposed “high-risk lion corridor” (Figure 27) need to herd their livestock and place them inside corrals at night. Supplemented by the other preventative measures, such as early warning systems, discussed below the proposed “high-risk lion corridor” will essentially create a buffer zone that will deter lions from leaving the safety of their known home ranges. Without livestock grazing at night to attract them and low

numbers of wildlife (due to the livestock controlling the available grazing) lions are unlikely to move into areas utilised by people and livestock.

Lion-proof corrals are made from metal poles, wire mesh and other commercially available materials. The structure consists of short posts 2.5m apart, 1.8m high with an over-hang to the outside, mesh wire and shade netting surrounding the whole structure. There are two gates at opposite corners, thus allowing farmers to erect their own internal fencing. The following materials are required for a corral that is 30 x 40 metres in size:

- Tar (gum) poles: length = 3 metres x 49 poles
- Diamond mesh: height = 3 metres x 140metres.
- Steel wire x 1 roll (sufficient for several additional kraals).
- Medium thickness binding wire x 1 roll (sufficient for several additional kraals).
- Extra thin binding wire x 1 roll (sufficient for several additional kraals).
- Metal farm gates: length = 2.4 metres x 2 gates.
- Threaded rods (12-15mm x 1 metre) with nuts x 10.
- Wire-straining tool x 1 (to be used for the construction of all future kraals).
- Large-size Crescent fencing pliers x 4 (to be used for the construction of all future kraals).

6.5.3.3 Early Warning Systems and Scare Tactics

Since November 2012 a total of 16 lions from selected prides in areas where there is potential for high conflict were fitted with satellite collars and their movements monitored by the DLP. The daily positions of the lions were plotted on a map and posted on the Desert Lion website. Lion Rangers, appointed by conservancies, or other community organisations monitored the website and the information on lion movements was then given to farmers who could then take precautionary actions when lions moved towards their livestock. This initiative served as an early warning system where local farmers can monitor the locations of lions in their area and take precautionary actions when lions move towards their livestock. This approached, referred to as the Satellite Early Warning System, produced promising results, but lacked institutional support and did not reach its full potential. A central “Early Warning” unit in Windhoek controlled by MET, as described

in the National Policy on Human-Wildlife Conflict Management, will provide the necessary structure to support this approach.

A second more direct early warning system (the Logger Early Warning System) was developed in 2016. The Desert Lion Conservation Trust (DLCT) collaborated with a highly qualified electronic engineer in Swakopmund and they designed and built several units. The system produced favourable results during a dry-testing phase and now needs to be implemented in the field at settlements where regular problems with lions are experienced.

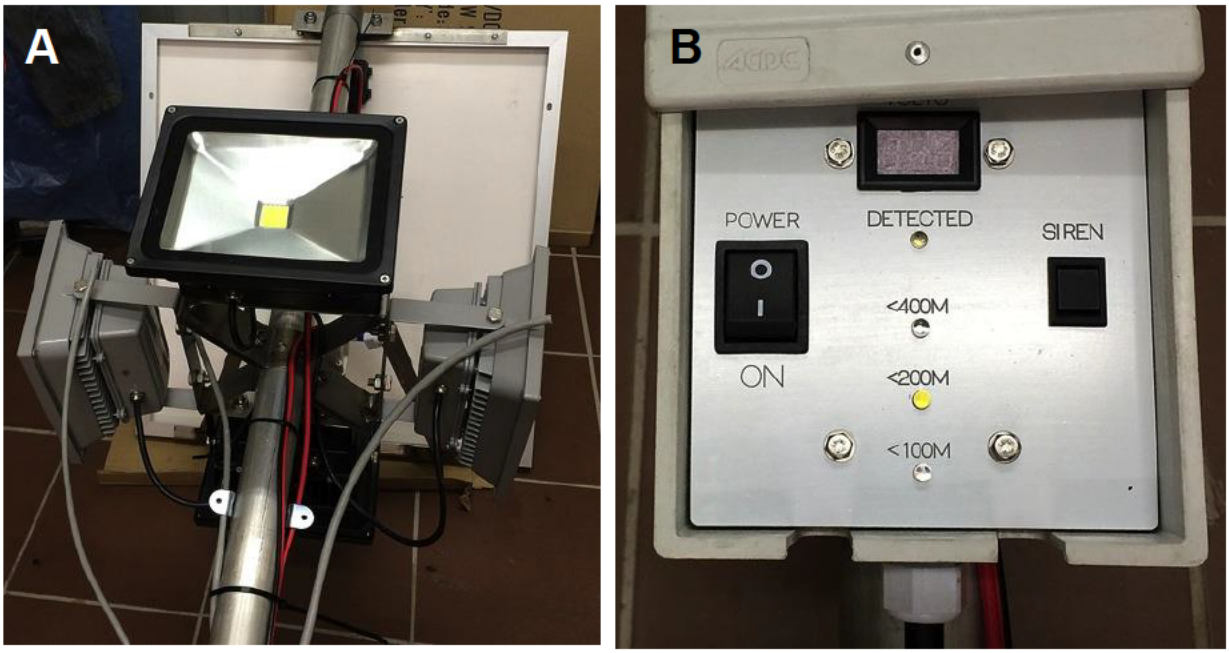
The Logger Early Warning System consists of several components (Figure 28) and a brief summary of the mechanisms is described here.

- Several lions from all the prides that border human settlements or that may be responsible for HLC are fitted with collars that contain GPS recorder and a special RFID Tag unit in addition to the normal VHF transmitter.
- The GPS unit will record accurate position coordinates every hour at night and every four hours during the day. The coordinates will be stored on a memory chip in the collar and can be downloaded remotely.
- An “Early Warning Logger” will then be mounted adjacent to a corral at settlements with high incidents of HLC.
- The “Early Warning Logger” consists of an antenna, an electronic circuit board that acts as a small computer processor, four powerful LED floodlights (Figure 28a) and a siren that are mounted on top of a 4 metre pole. The unit is also fitted with a solar panel and a 12 Volt battery to provide sufficient power throughout the night. The logger will be mounted so that each of the four LED floodlights point towards one of the four wind directions (North, East, South and West).
- The Logger will continuously transmit RFID signals to probe for any RFID Tags (fitted to the lion collars) that may be nearby.
- Preliminary results indicate that the Logger can detect the lion collars from a distance of 2 – 3 km.
- When the Logger detects a lion collar it will instruct the collar to record a GPS position every 5 minutes and relay the information to the Logger. Whereupon the Logger will calculate the direction and distance of the lion from the settlement and

trigger one or two of the LED floodlight to "point" in the direction of the lions. The floodlights are very powerful and will allow the people to see the lions as well as deter the lions from approaching the corral.

- A control/display unit that is mounted lower down on the Logger pole (Figure 28b) will display the distance of the lions from the settlement. When the lions reach a distance of 200 metres from the settlement a powerful siren will be triggered to deter the lions from approaching.

Figure 28. Elements of the "Logger Early Warning System" that will be mounted at settlements that experience HLC problems.



Generating disturbances associated with settlements, people & livestock is an effective way to scare lions away and prevent Human-Lion-Conflict. Whenever the lions come into contact with settlements and livestock they should be deterred & discouraged. However, it is vitally important for the lions to form a clear association between the disturbance and the settlement/livestock. Various scare tactics have been tested and the successful methods are addressed below:

- Sound playbacks. In recent years lions have successfully been deterred from approaching human settlements by playing modern music or recordings of human

voices, especially stand-up comedy shows with female or high-pitched male voices, at high amplitude.

- Loud Noises. The use of fireworks and especially rockets that explode overhead have been successful in scaring lions away from settlements. Air-horns and whistles can also be used but they are less effective than fireworks.
- Ultra-sound playbacks. A method of reproducing ultra-high frequencies (above human hearing) using electronic oscillators and frequency generators was designed in Swakopmund along with the Logger Early Warning System. The electronics were attached to an amplifier and a powerful speaker (Figure 29) and the system is currently being tested in the field. The preliminary results are exceptionally good. Lions immediately reacted to the sound playbacks and moved away. The same response was observed with several black-backed jackals and one brown hyaena.

Figure 29. Ultra-sound system developed to deter lions

- Vehicles. Lions can be chased-off and deterred by vehicles, but there are several important elements to consider. 1) Lions are capable of distinguishing between different types of vehicles based on engine type (petrol or diesel), appearance (e.g. came-drive vehicles or open pick-up vehicles with people on the back) and the manner of driving. 2) Some lions that live inside tourism areas are habituated to tourist vehicles and this leads to high quality sightings for tourists. 3) Care must be taken not to compromise this important tourism value by using game-drive vehicles to deter lions. 4) This can be

achieved by a) only using white open pick-up trucks, b) with people on the back, c) that are making a lot of noise and shouting, d) by driving fast and aggressively, and e) by ensuring that lions can easily associate these vehicles and the disturbance with human settlements and livestock.

6.5.3.4 Rapid Response Unit

Following the guidelines under the National Policy on Human-Wildlife Conflict Management two Rapid Response Teams need to be established. An initiative led by IRDNC with support from DLCT and DECP is underway to secure funding and implement the Rapid Response programme.

Objectives of the Rapid Response programme:

- Develop two teams, each comprising of trained local people, to monitor aspects of the lion population and to respond to potential or actual incidents of HLC. Critical is that these teams will liaise with conservancy management, lodges and traditional leaders. Develop systems of local community game guards and rangers to assist in this.
- Through these Teams, to mentor conservancies and farmers into taking rational and objective decisions about lions and the challenges of living with them. This goes right from managing threats and incidents to drawing up and adopting conservancy management plans for the species.
- Reduce HLC through a variety of means, for example, constructing lion-proof corrals, deploying and maintaining automated early warning systems at key villages
- Educate and train farmers, game guards, tourists, guides and residents on living with lions and promote the value of lions.
- Add value by providing information on individuals, movements and history of the lion population, and by encouraging tourism industry development and buy-in to the in-situ conservation of these animals.
- Mentorship of local qualified Namibians to run the program in the long term.
- Develop systems to monitor the progress and success of this program

The development of two teams to respond to human wildlife conflict incidents, facilitate in training farmers, communicate with Traditional Leaders, conservancy management and farmers and to gather information and data is essential. The procurement of 2 vehicles and recruitment of 4 suitable members is important and already underway. The appointment of a Project Co-ordinator and a Project Administrator to drive and manage the project is necessary. Training will be extensive and is to be provided by DLCT, DEP and IRDNC. These teams will be mobile, have satellite phones, radio communication (vehicle and hand held sets), spotlights and be equipped to respond to incidents and stay in the bush for several weeks at a time. The vehicles will also be monitored by commercial satellite fleet management systems. While the ideal is to have two operational independent teams, this will be phased in gradually to allow for developing efficient management and reporting structures. A system of Lion Rangers is already in place in three of the lion range conservancies. These rangers were nominated and appointed by their communities. However, it is only with the development of the Rapid Response Teams that they can become truly efficient. In year two a suitable UNAM conservation graduate will be sourced to join the program. Training and mentoring will be on site with focus on all aspects, research, HWC, logistics and admin with a view to this person eventually taking over management of the program.

Reducing Human-Lion-Conflict is a crucial aspect of the program. There have been extensive meetings with affected local communities to seek solutions to this problem. The main thrust of this aspect is to build structures and systems to reduce losses to farmers and to ensure human safety. Over and above the response teams and education this will entail constructing lion-proof corrals, providing early warning of the presence of animals using collaring and providing lights in key localities at farms/homesteads. While most conservancies have land use zonation plans in place, these are often not respected properly and some of these need to be changed to better accommodate lions and elephants.

The Rapid Response Teams will be trained in (excluding the skills they need for their daily tasks) living with elephants and lions, basic elephant and lion behaviour, basic biology and requirements of the two species. The Kunene Region Communal Conservancy

Association (KRCCA) is an influential organization with respected leadership. They will also be trained to pass on the information and to monitor peoples' reaction and attitudes to these efforts. A major part of the education effort is to build capacity within these communities to deal with living with wildlife and also to communicate to visitors to these areas. A concerted effort will be made to educate the tourism sector, local guides and visitors to the area about these unique animals. This will take the form of formal training for guides and the production and distribution (via key entrance points to the area and car hire firms) of pamphlets. This is already taking place, but does need to be increased. The ambition is to accommodate one Namibian University of Science and Technology student per year on their 6-month practical or internship. This will provide them with an opportunity to partake in meaningful and relevant surveys and actions.

Poaching at present is not a problem in the region. However, there is an increase in poaching of both elephants (for ivory) and lions (bones and body parts for the Asian traditional medicine market) in southern Africa. As anti-poaching efforts become more successful elsewhere, so we can expect poachers to target our area. This has already been evident with the free-ranging black rhino population in the Kunene Region. We urgently need to increase our efforts in this regard to make it as difficult as possible for poachers to operate in this area. Our Teams and Coordinator will work closely with the Ministry of Environment and Tourism, the Save The Rhino Trust and the Protected Resources Unit of the Namibian Police. A relationship has already been established with these stakeholders and will be maintained as a priority.

Adding value or increasing tangible benefits to farmers and residents affected by these animals is a priority. Employment and increased compensation rates are seen as crucial in this regard. Tour operators and Lodge or accommodation operators will be asked to encourage their guests to contribute to a "sightings fund". Whenever lions or elephants are seen, a small donation can be made. It is important that research provide information on individuals, group sizes, habits, personality etc. of lions and elephants. This makes the experience tourists might have more personal and meaningful. In the long-term, we will develop Lion and Elephant Rangers to the point where visitors can accompany them on their patrols, thus gaining an insight into local conservation first hand.

Systems will be developed to measure the success of the Rapid Response programme. This is not just about work completed, number of kraals built or number of patrol days, but also includes monitoring actual number of HWC incidents and very importantly, the attitude and buy-in by local farmers and residents.

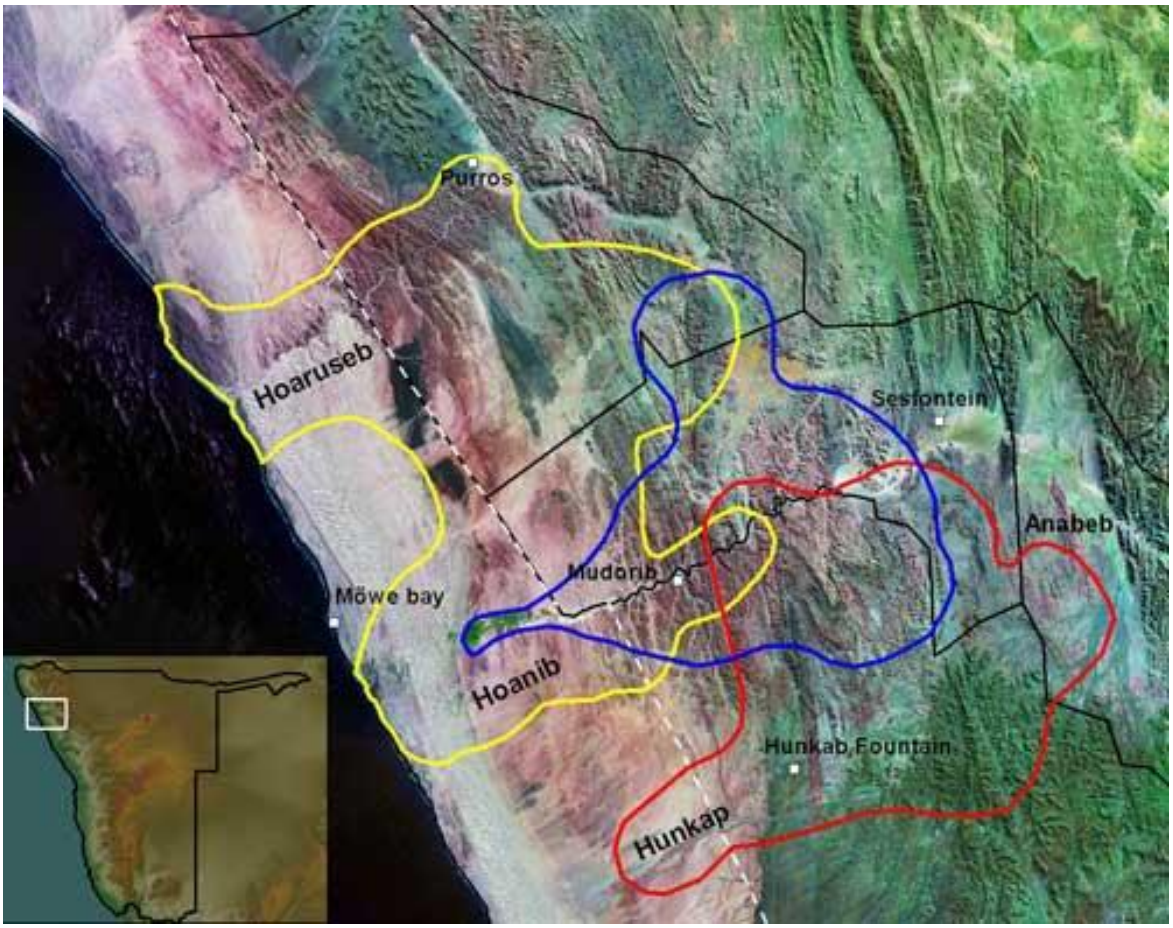
6.5.4 Lion Tourism

Tourism can play an important role in the conservation of lions and in the mitigation of Human-Lion Conflict. The simultaneous growth of wildlife populations, tourism, and community-based conservation efforts during recent years in NW Namibia is testimony to this. Under the current climate where local people benefit from wildlife and communal conservancies enter into contractual agreements with tour operators, the tourism industry's potential role in wildlife conservation is ever increasing. Along with black rhinos and elephants, lions are one of the most popular species among tourists. The value of lions and the benefits derived through tourism in the region, must arguably out-way the losses incurred as a result of Human-Lion Conflict.

Notwithstanding, people still pose the biggest threat to lions. Local communities suffer financial losses when lions prey on their livestock, upon which they often retaliate (legally) by killing lions. The tourism industry and related entities (including the communal conservancies) enjoy the benefits, but the local people that live close to lions (i.e. individual farmers) have to bear the costs. This discrepancy has been identified and according the National Policy on Human-Wildlife Conflict Management there is a need for preferential benefits to those local people.

Between 2007 and 2008 a detailed study was conducted in the Hoaruseb River (Purros Conservancy), the Hoanib River (Sesfontein Conservancy) & Hunkap River (Anabeb Conservancy; Figure 30). The objectives were: a) to evaluate the tourism potential of lions, and b) to propose a system where direct benefits derived from lions would reach the appropriate local people in order to offset the losses.

Figure 30. The home ranges of three lion prides that utilise the Hoanib River (Yellow - Hoaruseb pride 4584 km², Blue - Hoanib pride 2345 km², Red - Hunkap pride 2927 km².



There were a total of 35 individually known lions in three separate prides (Hoaruseb = 14, Hoanib = 14, Hunkap = 7) and they occupied a combined area of 6171 km² (Figure 30). There was overlap between the home ranges of all three groups, but they rarely interacted with each other.

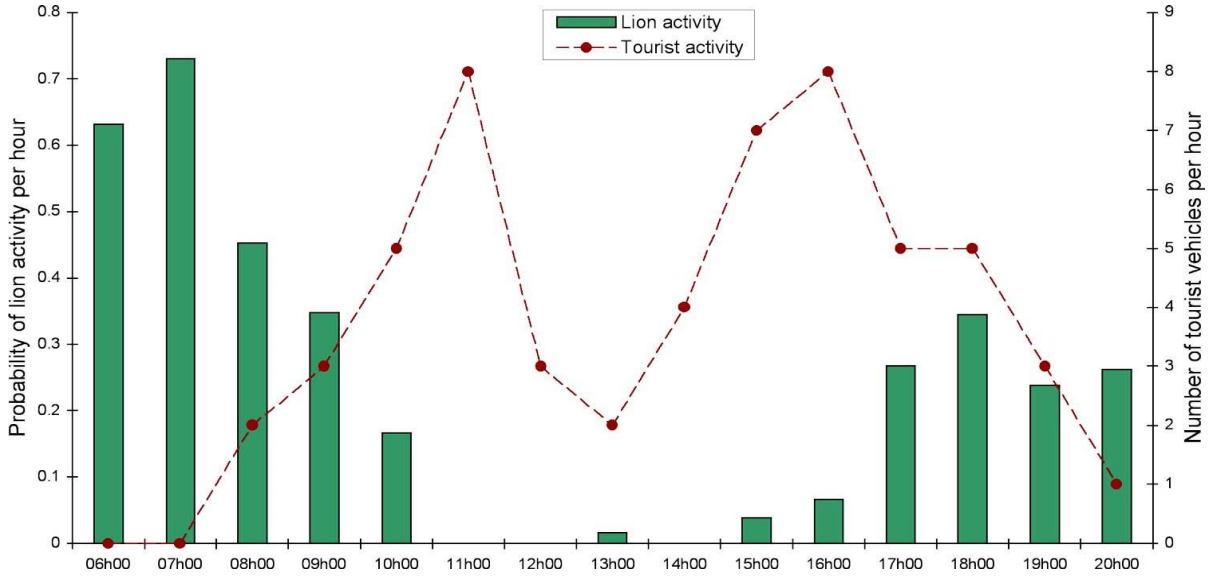
The lions were observed intensively for 2208 hours (92 x 24hrs) during which time they killed 51 prey animals of 12 different species. Oryx was the most important prey species and along with zebra, ostrich and springbok, formed 75% of the lion's food. Livestock (donkeys) represented only 5% of the kills.

Lions were inactive for 72 % of the 24-hour day (N = 92 days) and activity was highest at night and during the early morning up until. During the middle of the day (10h00 – 15h00)

they generally rested in thick vegetation and were not visible. Although lions were active mostly at night, the main peak of activity was around sunrise, followed by another increase in activity at sunset.

The Hoaruseb lions spent 85 % of their time in the riverbed and the remainder in rocky outcrops close to the river (5 – 10 km). The likelihood of finding and seeing the lions, during a sample of 82 attempts, was high (69 %). The average distance between passing vehicles and lions was 74 metres (range: 15-250 m). Despite this high probability of seeing lions, only 8 % of the 86 tourists vehicles that drove past the lions (average = 4.2 vehicles per day) actually saw them. The peak tourism traffic was between 09h00 and 18h00 when lions were inactive (Figure 31) and resting behind vegetation and other forms of cover. The lions were mostly relaxed when vehicles drove past them, but when vehicles were noisy or caused disturbance, they often walked or ran out of sight.

Figure 31. Daytime activity patterns of lions and tourist vehicles in the Hoaruseb River. Data were collected during 83 periods of 24-hour observations. Tourism activity represents the number of vehicles that drove past the lions per hour, during the 24-hour observations.



Because of their nocturnal habits, the movements and behaviour of lions are often poorly understood. Tour operators will benefit from accurate and current information on lions, and there is a need to provide such information to the industry, so as to increase the

potential benefit of tourism to wildlife conservation. Collaborating with the communal conservancies and involving them in the process is essential.

The Desert Lion Project has provided numerous training courses to conservancy members and local tour operators to improve the tourism potential of Desert lions. Such training has helped to increase the success rate of finding and approaching lions during game drives, and improve the quality and accuracy of information conveyed to tourists. In the Hoaruseb River the proportion of tourist vehicles spotting and observing lions increased to 52 % after such training courses.

The major tour operators and TOSCO should be approached to discuss the mechanisms of a establishing a “Lion Fund” where operators agree to donate a minimal fee (e.g. N$ 100 per vehicle) for every sighting of lions. A system of collecting and managing the funds must be developed and approved by MET. Each communal conservancy should establish a separate “Lion Fund” account where income derived from lions-related tourism and hunting can be used to off-set the losses and costs of Human-Lion Conflict. Options of securing matching or “gear-up” funds from other sources to supplement the “Lion Funds” at conservancy level should be investigated.

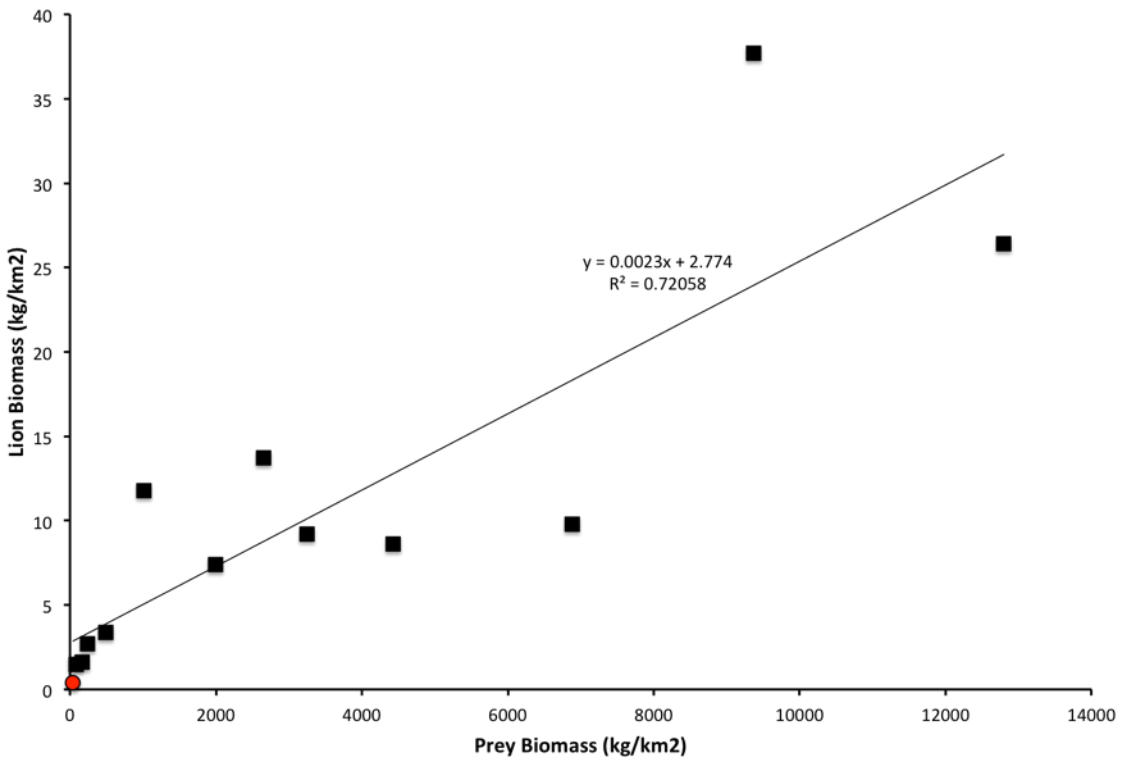
6.5.5 Lion Population Management

Some conservancies and local communities have raised concern that the Desert lion population have increased beyond the expected ecological carrying capacity and that their numbers may need to be reduced.

An analysis of the frequency of Human-Lion Conflict incidents (see Page 22) between conservancies and between years revealed that increased levels of Human-Lion Conflict occur randomly and are generally related to a localised abundance of particularly sub-adult males in one of two prides. The Hoanib Floodplain pride is currently the only pride that do not move into areas used for livestock farming and that are safe from human-related mortalities. The home ranges of all the other prides overlap to some extent with livestock areas (Figure 7).

The density of lions in the Desert population (0.48 – 0.62 / 100 km^{-2}) appears to be in balance with the arid environment and compares favourable with lion population densities in other semi-arid environments, such as Etosha National Park (1.8 – 2.4 / 100 km^{-2}) and Kalagadi Transfrontier Park (1.5 / 100 km^{-2}). Furthermore, to relationship between lion biomass and prey biomass (based on figures from the 2016 Aerial Survey in NW Namibia) compares favourably with similar data from 13 other lion populations in sub-Saharan Africa (Figure 32).

Figure 32. Lion biomass as a function of available prey biomass in 14 conservation areas in sub-Saharan Africa. The Desert lion population is indicated by a red dot.



The genetic heterozygosity of the Desert lion population is sufficiently diverse and similar to that of the Etosha lion population. However, due to the skewed adult sex ratio and shortage of adult pride males there is a need for regular monitoring. The genetic variability and viability of the Desert lion population should be measured at least once every ten years.

6.5.5.1 Trophy Hunting

Trophy hunting of lions can be a very lucrative and selective option for turning a problem into an asset. As with every form of utilisation there is always the fear of exploitation and greediness. Notwithstanding with good scientific data as backup and carefully designed control measures in place the selective use of trophy hunting can be valuable in managing Human-Lion Conflict, removing “problem” lions and generating income towards the “Lion Funds” at conservancy level.

Hunting quotas are generally allocated for each conservancy separately, but in NW Namibia it is, however, essential that sustainable off-take quotas are first calculated for the whole Desert lion population, and then divided between the relevant conservancies. This is necessary because lions move across several conservancies and the home ranges of all the prides overlap extensively.

Quota settings should be based on the CITES standard of 5% off-take and follow the import conditions of the US Fish and Wildlife Service under the Endangered Species Act, that require proof of sustainable and ethical hunting of free-ranging lions where trophy fees are used for the conservation of the species.

In the event of prolonged incidents of Human-Lion Conflict, the Ministry of Environment & Tourism could identify and declare a “problem” lion that can be utilized for trophy hunting. Clear and binding conditions must be stipulated and an MET staff member should accompany the PH to ensure that the actual “problem” lion is shot. On numerous occasions during the past 15 years hunters have misused such hunting permits by ignoring the “problem” lions and selecting unrelated adult male lions. Care must be taken that “problem” lion trophy hunting permits in addition to the allocated annual quotas do not amount to unsustainable off-takes. Due to the current skewed sex ratio in the population – the result, partly, of excessive numbers of adult males shot on quota and “problem” trophy hunting permits – adult male lions (> 4 years of age) may not be trophy hunted.

Funds generated through trophy hunting will provide a much need income to local communities and conservancies. Permit conditions issued by MET must stipulate the proportion of funds to be allocated to the relevant conservancy “Lion Funds” and to the Game Products Trust Fund (GPTF).

6.5.5 Research and Monitoring

In order to manage Human-Lion Conflict in NW Namibia conflict effectively and efficiently it is crucial to have adequate data that is available in a usable form for key decision-makers. There is a need for more comprehensive data that enables the Government and other stakeholders to understand better the nature and scale of the problems, to develop solutions and monitor the success of the solutions. Data gathering needs to be standardized so that results can be compared from area to area and over time. Data needs to be stored in a central database that all stakeholders can have access to.

The specific objectives of this strategy are:

6.5.5.1 To develop a standardized monitoring and reporting system on HLC that captures the most relevant data for use by all stakeholders

6.5.5.2 To monitor and evaluate the effectiveness of different HLC mitigation methods and to disseminate findings to all stakeholders

6.5.5.3 To determine the social and ecological carrying capacity for lions

Strategic approach

Establish National database with the MET that should include historical and current data from existing systems including the MET Permit Office.

Record data from each reported HLC incident capturing:

- Numbers, age and sex structure of lions
- Location of incident

- Date & time when incident occurred
- Damage caused
- Who was affected
- Action taken
- Was any mitigation in place (e.g. were animals in a corral?, etc.)
- Who recorded the data;
- Sex and age structure of the animal
- Any other information which may be appropriate

Provide data on the economic impact of HLC on households – this provides a better indication of the costs to citizens than simply recording the cost of damage as it takes into account the economic status of the household bearing the loss and other factors. For example, the impact of losing five cows to a lion is much higher on a household owning eight cows compared to a household owning 50 cows. Similarly the loss will be greater to a female-headed household with few other assets and little or no cash income.

Provide data on the effectiveness of HLC mitigation methods including type of method, features of the method (e.g. detailed description of the infrastructure, components, ingredients, position in relation to other important features such as other water points, houses, etc), aim of the method, extent to which the method has achieved its aims, reasons for success or failure, length of time over which monitoring has taken place, description of monitoring methodology, provide comparative data to improve our understanding of the factors influencing patterns of HLC, and designed to detect possible duplication of data.

Work with all other stakeholders to develop standardized data gathering and monitoring systems that are simple and cost-effective to implement. Disseminate data in appropriate forms to all stakeholders. Build capacity of stakeholders in collecting, recording and using data and ensure that there is systematic and consistent data recording in terms of level of effort and across temporal, spatial and numerical scales.

Develop various forms of “Early Warning Systems” to provide communities and farmers with sufficient and timely information in order to take appropriate measures to prevent livestock losses. The early warning system should provide information on a daily basis.

MET will coordinate a centrally-based Rapid Response structure which will coordinate with Rapid Response Units deployed in NW Namibia to address incidents of HLC and manage “problem” lions.

All efforts to monitor and manage HLC will be coordinated by MET. The general public, interested parties and individuals may not be involved in any form of HLC management without the written approval of MET and the conservancies.

6.5.6 Human Lion Conflict Insurance Scheme

It has not been Government policy to provide compensation to farmers for losses due to wild animals since compensation schemes implemented elsewhere have proved to be very problematic and open to abuse. However, there is a need to reduce the growing tension around HWC as losses of human lives, livestock, and crops as well as damage to infrastructure are highly emotional issues and affect livelihoods.

The National Policy on Human-Wildlife Conflict Management is addressing new approaches to insurance against HWC that will also cover the Human-Lion Conflict Management Plan for NW Namibia. Income generated from lion-related tourism and hunting in the NW should be applied to balance the losses at grass-route level.

7. IMPLEMENTATION FRAMEWORK

7.4 Monitoring and Evaluation

7.4.1 The impact of the implementation of this Management Plan and progress and constraints regarding its implementation will be periodically assessed by the Ministry of Environment and Tourism in consultation with other stakeholders.

7.4.2 The Event/Incident Book System and the Human-Wildlife Conflict Data form will be used for monitoring and evaluation of HLC.

7.5 Implementation Action Plan

Table 1: Land use planning and livestock management structures

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of livestock & HLC	On-going	Planning aimed at avoiding HLC	General operational funds	Conservancies MET, IRDNC DLCT

Table 2: Aspects of lion demography & behaviour ecology relevant to HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of lion population	On-going	Record population demography & ecology	General operational funds	MET, DLCT & IRDNC

Table 3: Developing & implementing appropriate technical solutions for mitigating HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Zoning of conservancies to avoid HLC	Wildlife zones & high-risk areas free of livestock	Implement "High-Risk Lion Corridor"	General operational funds	Conservancies, Traditional authorities, MET

Table 4: Effective Livestock Management & "High-Risk Lion Corridor"

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish protocols for livestock management inside "High-Risk Lion Corridor"	Erect several lion corrals inside "High-Risk Lion Corridor"	Ensure that no livestock, including donkeys, roam freely at night	N$ 250,000	Conservancies, IRDNC & MET

Table 5: *Early Warning Systems and Scare Tactics*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Satellite Early Warning System	Six key lions fitted with satellite collars	Provide early warning movement data to farmers	N$ 150,000	DLCT, MET
Logger Early Warning System	Establish 4 Logger Systems at key locations. Fit RFID collars to 15 key lions.	ID key lion prides & fit collars. Erect Loggers at 4 corrals.	N$ 285,000	DLCT, MET

Table 6: *Rapid Response Units*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Develop Rapid Response protocol	Establish 4 RRU teams	MET establish central control	N$751,920	MET, IRDNC, DLCT, Conservancies

Table 7: Lion Tourism

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish "Lion Funds" at conservancy level to manage lion-sighting fees	All major tour operators pay N$ 100 for every lion sighting	Involve tourism industry		TOSCO, Conservancies, MET & IRDNC

8. BIBLIOGRAPHY

8.1 Ministry of Environment and Tourism. 2005. National workshop on human-wildlife conflict management in Namibia. Safari Hotel, Windhoek.

8.2 Nature Conservation Amendment Act of 1996 (Act 5 of 1996).

8.3 Nature Conservation Ordinance of 1975 (Number 4 of 1975).

8.4 The National Policy on Human-Wildlife Conflict Management.

8.5 National Lion Conservation Strategy (Draft).

8.6 Human-Lion Conflict in the Northwest of Namibia. Regional workshop on managing lion conflict. Kamanjab - 11 May 2016.

From:	Vannorman, Tim
To:	Farkas, Sandra
Subject:	Fwd: Lion conservation in Namibia
Date:	Tuesday, September 26, 2017 1:43:05 PM
Attachments:	ATT00001.htm Namibia Lion Conservation Strategy_July 2017.pdf NW Lion Management Plan_July 2017.pdf ATT00002.htm

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---------- Forwarded message ----------
From: **Hoover, Craig** <craig_hoover@fws.gov>
Date: Fri, Aug 18, 2017 at 8:11 AM
Subject: Fwd: Lion conservation in Namibia
To: Tim Van Norman <tim_vannorman@fws.gov>

Second of two.
---------- Forwarded message ----------
From: **Gregory Sheehan** <gregory_sheehan@fws.gov>
Date: Fri, Aug 18, 2017 at 7:07 AM
Subject: Fwd: Lion conservation in Namibia
To: gloria_bell@fws.gov, Craig Hoover <craig_hoover@fws.gov>

Per the prior email.
Thanks
Greg

Greg Sheehan
Principal Deputy Director
US Fish and Wildlife Service
202-208-4545 office
202-676-7675 cell

Begin forwarded message:

> **From:** kenneth uiseb <kenneth.uiseb@met.gov.na>
> **To:** "Gregory_sheehan@fws.gov" <Gregory_sheehan@fws.gov>
> **Cc:** louisa mupetami <louisa.mupetami@met.gov.na>, colgar sikopo <colgar.sikopo@met.gov.na>, elly hamunyela <elly.hamunyela@met.gov.na>, Malan Lindeque <Malan.Lindeque@met.gov.na>
> **Subject: RE: Lion conservation in Namibia**
>
> Dear Mr. Sheehan,
>
> I refer to the email below sent to you by Dr. Lindeque on 12 July 2017. Please find herewith attached the copies of the approved Lion Conservation Strategy for Namibia,

and Human-Lion Conflict Management Plan for the North Western Namibia.

Yours sincerely,

Kenneth Uiseb

Deputy Director, Wildlife Monitoring and Research

Ministry of Environment and Tourism

From: Malan Lindeque
Sent: Wednesday, July 12, 2017 8:12 AM
To: Gregory_sheehan@fws.gov
Cc: louisa mupetami <louisa.mupetami@met.gov.na>; colgar sikopo <colgar.sikopo@met.gov.na>; elly hamunyela <elly.hamunyela@met.gov.na>; kenneth uiseb <kenneth.uiseb@met.gov.na>
Subject: Lion conservation in Namibia

Dear Mr Sheehan

I am aware that the Fish and Wildlife Service is currently considering lion conservation issues in a number of countries, possibly including Namibia. I wish to inform you that we will shortly be able to send you two key documents that we have developed in this regard, namely a new Lion Conservation Strategy for Namibia and a Human-Lion Conflict Management Plan for Northwestern Namibia (which was approved only yesterday). The latter is the first of a series of sub-national plans to deal with conflict issues.

Yours sincerely

Malan Lindeque

Permanent Secretary

Ministry of Environment and Tourism

Namibia

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--
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Ministry of Environment and Tourism
Republic of Namibia

LION CONSERVATION STRATEGY FOR NAMIBIA

July 2017

Foreword

The lion *Panthera leo* is iconically African, and an important indicator of wilderness quality and integrity where it occurs. A key species for wildlife tourism, research and sports hunting, the lion is nevertheless, increasingly threatened.

Recent surveys indicated a suspected decline of 43% over the past 21 years of the African lion populations. With much of its former range now lost, and human-livestock densities increasing around core lion populations, the lion has become one of the major predators of livestock, presenting challenges and hardship to those who live amongst lions. Whilst an economic liability, and a threat to human safety, the lion is also a major source of economic benefit, being one of Africa's most important tourism attractions.

Compared to other Sub-Saharan lion range states, Namibia is home to only a small population of around 1000 lions, but, unlike the situation in most other countries, the lion population in Namibia has slowly increased over the past 20 years. This was mainly due to the expansion of lions into the Kunene Region. In other parts of Namibia, lion habitat is threatened through land use change and fragmentation resulting in human wildlife conflict and reduction in range available for lions.

The Ministry of Environment and Tourism has the constitutional mandate to safeguard and sustain the biological diversity of Namibia for the long-term benefits of current and future generations. It is the vision of this strategy to ensure the long-term conservation of the Namibian lion in a sustained environment.

The Ministry of Environment and Tourism acknowledges the contributions made by different stakeholders in the development of the Lion Conservation Strategy for Namibia. The Ministry is looking forward to join hands with all key stakeholders involved in wildlife and lion conservation to implement the Lion Conservation Strategy to ensure that our lion populations remain viable and are beneficial to the people who share their land and resources with lions.

Malan Lindeque
PERMANENT SECRETARY

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1. Introduction and background

The African lion (*Panthera leo*) is the largest African member of the genus *Panthera*, weighing up to about 230 kg, and is confined to the African continent. The lion is a highly charismatic member of the megafauna of Africa and is the only cat species that is conspicuously social (Schaller 1972).

The African lion plays a key role in the ecological functioning of the African ecosystems, but also provides key challenges when they come into conflict with other land uses like stock farming.

Three categories of lions are found in Namibia; wild free roaming lions in large and open protected areas and other land used for conservation purposes such as conservancies, managed lions free roaming in small fenced reserves, and captive lions that are entirely dependent on humans for their survival.

1.1 Lion Conservation status

The African lion is listed as Vulnerable on the IUCN Red List (Bauer *et al*. 2016) and the Namibian population is included in Appendix II of the Convention on the International Trade of Endangered Species (CITES). African lion is a Specially Protected Species under the Nature Conservation Ordinance, Ordinance 4 of 1975 of Namibia.

1.2. Distribution

Lions are found in most countries of sub-Saharan Africa (Bauer *et al.* 2016). Lions are largely found in the savanna biome of Africa, which includes areas that receive annual rainfall of between 300 and 1500 mm. Savannas encompass a wide variety of habitats including grasslands, wetlands, dry woodlands and mosaics of all of these. Lion distribution is represented in 67 lion areas comprising 3.4 million square kilometres, which is 17% of the former range or about 25% of the savannah (Riggio *et al*. 2013). Lions no longer occur in the desert parts of North Africa, but occur and are expanding in numbers and range in the Namib Desert in Namibia (Bauer & van der Merwe 2004; Stander 2007).

Lion populations are decreasing in west and east Africa and are only stable in the southern African region (Bauer *et al*., 2015). It is assumed that they are extinct in most of their historical range and may be surviving in as little as 8% of their former range (Bauer *et al.*2016) Absent from forests, lions otherwise have a wide habitat tolerance, penetrating deep into deserts, even where only ephemeral watercourses occur. Where water is available, lions will drink regularly, but are by no means water dependent, getting most of their water requirements from their prey (Smithers 1983, Skinner and Smithers 1990). The most important habitat requirement is that it provides an adequate food supply in the form of medium to large sized mammals.

Historically lions were distributed throughout Namibia with sightings recorded in the areas of Swakop River, south of Windhoek, Keetmanshoop and many other areas by the early travellers (Vedder, 1938). Lion populations where extirpated from most parts of Namibia by the turn of the 20th Century.

The Namibian lion population can be subdivided into 2 populations, the Etosha-Kunene population and the Khaudum-Zambezi population. It is unlikely that there is any significant exchange between these populations at present and it is unlikely that this will change in the near future. In addition there are a number of small populations on private game reserves, most notable is the population maintained in a private game reserve in the Kalahari, Ongava and Etosha Heights Safari Lodge on the edge of Etosha National Park. There are also possible genetic differences between the populations but the significance of this is still unclear but should be considered when making management decisions (Dubach et al., 2013).

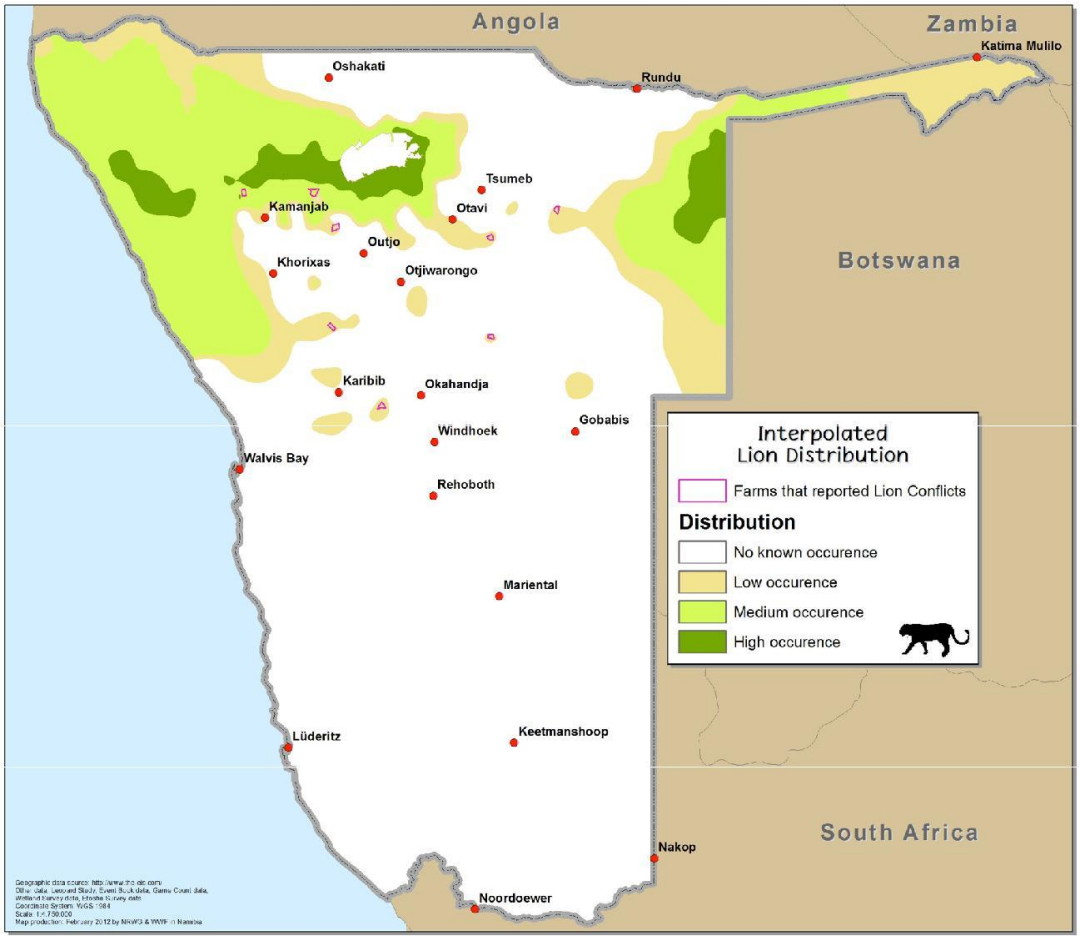

Fig.2. *Distribution of free ranging lions in Namibia (Large Carnivore Atlas, 2012)*

1.3. Habitat requirements

The Lion has a broad habitat tolerance; they are absent only from the tropical rainforest and interior of the Sahara desert (Nowell & Jackson 1996). Like most large carnivores, lions require areas with sufficient prey base and low human densities. Within their home ranges lions require habitats or locations that are suitable for hunting, resting and breeding. Although landscape features may vary from area to area, lions tend to select areas where prey is easier to catch, than areas where prey densities are highest (Hopcroft *et al*. 2005).

1.4. Biology:

Lions are the most social of the cats, with related females remaining together in prides, and related and unrelated males forming coalitions competing for tenure over prides. Average pride size (including males and females) is four to six adults; prides generally break into smaller groups when hunting (Bauer *et al.*2016). Lions live at higher densities than most felids with a variation from 1.5 adults per 100km2 in Southern African semi-deserts to 55 per 100 km2. (Sunquist & Sunquist 2002).

In most large protected areas, lion populations tend to be stable (Packer *et al*. 2005; Ferreira & Funston 2010a), but when introduced into a new reserve with naïve and high prey densities, lion populations increase very rapidly (Kilian & Bothma 2003; Miller & Funston 2014) requiring active management interventions to avoid undesired outcomes resulting from overpopulation.

1.5. Ecology

Lion prey consists of medium- to large-sized ungulates, including antelopes, zebra and wildebeest. However, lions feed on almost any animal, from rodents to a rhino and do at times also scavenge, displacing other predators from their kill (IUCN, 2016).

Lions respond to behavioural and physiological changes in prey in terms of what species, sex and age of prey they select (Owen-Smith 2008). Although lions hunt cooperatively (Stander 1992) no clear evidence was found that this benefits lions in terms of the amount of food they eat (Packer *et al*. 1988), and thus hunting success is not a driver of sociality in lions (Packer *et al*. 1990).

Lion home range size differs contrastingly between populations, ranging from as small as 20 km^2 in the Ngorongoro Crater (Elliot & Cowan 1978), to 400 km^2 in Etosha National Park (Stander 1991), and up to 4500 km^2 in the Kgalagadi system (Funston 2011).

1.6. Diseases

It is believed that disease risk for lions increases as populations become isolated, placing them at a higher risk when confined by fencing (Keet *et al*. 2009). In addition, their increasing proximity to people and domestic animals exposes them to new diseases (IUCN SSC Cat Specialist Group 2006).

Namibian lion are generally believe to be free from most of the diseases affecting African lions elsewhere. Therefore it is important that the disease free status of the lion populations, especially the populations in large protected areas such as Etosha National Park are protected against introduction of diseases.

2. Threats to the survival of lion

Surveys have indicated a suspected decline of 30-50% in the African lion population in recent decades. A decade ago estimates ranged from 23,000 to 39,000 wild lions (Chardonnet 2002; Bauer & van der Merwe 2004), with a current estimate of 30,000 (Riggio *et al*. 2013). The main threats to lions are indiscriminate killing (primarily as a result of human-lion conflict) and prey base depletion. Habitat loss and conversion have led to a number of subpopulations becoming small and isolated (Bauer *et al.* 2008).

The following are known threats to the long-term survival of lion in Namibia as well as their wider range:

- Persecution by livestock farmers (both commercial and communal)
- Habitat loss and degradation, as well as habitat fragmentation
- Decreasing wild prey populations
- Potential loss of connectivity with neighbouring countries
- Diseases

3. Background and Rationale for the Conservation Strategy

This is the first Namibian species management plan for the Lion and its development follows from and is guided through the National Policy on the Conservation and Management of Large Carnivores of 2014. The Policy outlined the following strategies:

- Targeted and sustained Research and Monitoring
- Species-specific Large Carnivore Conservation and Management Planning
- Sustainable Utilization of Large Carnivores
- Management of Human-Carnivore Conflict
- Stakeholder Engagement Platforms
- Standard Operational Procedures
- Large carnivore conservation at landscape level

4. Vision and Goal statements

Vision

Ensure the long-term conservation of the Namibian lion in a sustainable environment for the mutual benefit of present and future generations of people and lions

Goal

Viable free-ranging lion populations on formally protected land, conservation areas and in suitable game reserves providing social, cultural and economic benefits to all

4.1. Objectives

The following objectives are developed to meet the strategies set out in the National Policy on the Conservation and Management of Large Carnivores:

Objectives

1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that recognise and promote wildlife as an integral part of multiple land use systems and which provide conservation-related socio-economic benefits across current and potential lion range.

2. **Management**: To ensure effective conservation management of lions, their habitats and prey through identified needs including research and monitoring.

3. **Conflict mitigation**: To reduce and mitigate human/livestock conflicts with lions in a participatory, responsible and transparent manner.

4. **Socio-economics**: Analyze and distribute equitably the costs and benefits of lion conservation and management, whilst optimizing wildlife-related net benefits to affected communities.

5. **Trade and regulation**: To prevent illegal trade and to regulate consumptive use of lions and lion products.

6. Transboundary connectivity: Ensure connectivity with the neighbouring lion populations is maintained

4.2. Objectives and strategic actions

Objective	Strategic Actions	Intended 5-Year Outcomes	Indicators	Implementing Party	Estimated Cost
1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that promote wildlife as an integral part of multiple land use systems and which provide conservation related socio-economic benefits across current and potential lion range	1.1. Implement lion conservation strategy within existing wildlife and other relevant policies, and consistent with primary legislation	Enabling policy and legislative environment that promotes lion conservation established, and operational	Lion conservation strategy in place and implemented	MET and relevant Government agencies	100,000
	1.2. Develop and implement regulations prohibiting translocation of lions from other areas to Etosha National Park	Etosha NP lion population is protected, and its disease-free status and genetic integrity of lion populations is maintained through prevention of mixing of geographically separated lion populations	Regulations preventing introductions of lions from distant areas into Etosha National Park developed and in place	MET	50,000
	1.3. Develop and implement regulations for the keeping of lions on private game reserves, clarifying rights, responsibilities and ownership	Viable lion populations established in suitable areas, especially on private land mainly used for wildlife management.	(i) Regulations on establishment of lion populations in other suitable areas in place, (ii) Increase in number of new lion populations	MET, Private Game Reserves, Communal and freehold conservancies	500,000

			established in the historical range		
	1.4 Develop and implement mechanisms to regulate hunting of problem lions	(i) All legal hunting of problem lions ethically conducted, benefiting the areas most affected by lion problems (ii) Compliance with international rules on trade in lion products resulting from the lion hunts.	Regulation of all matters pertaining to hunting of problem lions, prohibiting leg-hold traps and regulating cage traps	MET	50,000
	1.5. Develop and implement regulations for the rehabilitation of lions, and lions kept in captivity.	(i) Lion rehabilitation process is regulated to ensure that it does not lead to socio-economically detrimental outcomes (ii) Numbers of lion kept in captivity remain stable	(i) Regulations in place for rehabilitation of lions (ii) All permit holders comply to conditions under the regulations or be closed down	MET, Large Carnivore Management of Association Namibia (LCMAN), registered large carnivore rehabilitation centres &	200,000

		or decrease over time.	permanently	captive facilities.	
2. **Lion Management:** lion populations, their habitats and prey base effectively managed in collaboration with local stakeholders	2.1. Continue long-term monitoring of lion populations and their prey throughout the lion range	Lion and their prey base remain stable or increase in the lion range	Regular monitoring of lions and prey species in lion range areas	MET, LCMAN and private game reserves, wildlife research and monitoring organisations, NGOs	1,500,000
	2.2. Maintain and strengthen capacity for lion conservation, management , monitoring and research within the MET and amongst the other key stakeholders	Capacity to manage lion in Namibia is established within MET, LCMAN and other key stakeholders.	(i) Large carnivore coordinator is appointed and capacitated (i) Large carnivore coordinator and LCMAN attends regular training workshops and capacity building initiatives	MET, LCMAN, Range wide Large Carnivore Programme	500,000
	2.3. Identify and implement best	(i) Hunting of lion is ethically conducted, and	(i) Regulations and guidelines on lion	MET, LCMAN,	100,000

	management standards and practices for all legally hunted lion populations, ensuring their viability and sustainable and adaptively managed hunting quotas	is not detrimental to the long-term survival of the species in Namibia (ii) Legal hunting of lion contributes meaningful and tangible benefits to the landholders, and communities sustaining and sharing their land with lion populations	hunting in place (ii) Records of benefit flows to landholders and communities from lion hunts	hunting operators, conservancies	
	2.4 Promote collaborative management of lion populations across landscapes	Lion conservation is practiced beyond the boundaries of the formally protected areas	Lion range expansion adjacent to formally protected areas and other suitable places.	MET, communal and freehold landholders, private sector, NGOs	200,000
	2.5. Maintain viable and sustainable populations of prey species in lion range areas to enhance lion conservation and to further reduce human-lion conflicts	(i) Stable or increasing wild prey populations in lion range (ii) Improved and predator friendly livestock husbandry	(i) Regularly conducted wildlife survey reports (ii) Number of projects supporting predator friendly	MET, LCMAN, NGOs	1,000,000

		practices in place (iii) Reduce lion predation on domestic livestock	livestock husbandry practices (iii) Acceptable community attitudes towards lions		
	2.6 Facilitate lion re-introduction programmes in the region informed by science	Namibia contributes to lion re-introduction programmes in southern Africa region	Number of lion re-introductions supported by Namibian Government (on request, opportunistic)	MET, SADC member states	500,000
3. **Conflict mitigation:** To reduce and minimise human-lion conflict in a participatory, responsible and accountable manner	3.1. Identify and implement strategies to reduce and mitigate livestock losses	(i) Reduction in lion caused livestock losses (ii) Increased level of tolerance of lions by livestock rearing communities	(i) Decrease in number of livestock killed by lions (ii) Continued co-existence of lions and cattle in dominantly livestock farming areas (iii) Reduction in	MET, NACSO, WWF Namibia	500,000

			number of lions destroyed as problem animals		
	3.2. Through partnership with civil society and private sector establish well trained and properly staffed problem animal response units to deal with lion-human conflicts	Capacity in place at various levels throughout the lion range to provide instant response to reported lion conflicts	Number of rapid response units established and operational in the lion range	MET, NACSO, NGOs & Private sector	2,000,000
	3.3. Implement and raise awareness on the National Human-Wildlife Conflict Management Policy	Human-wildlife conflict in Namibia managed according to the strategies of the National Policy on Human Wildlife Conflict Management	Level of implementation of the provisions of the National Policy on Human-Wildlife Conflict Management	MET, NACSO, CANAM, Farmers Unions	200,000
	3.4. Exchange information on best practices, working models to prevent human-lion conflict both nationally and internationally	Best practices and lessons learnt are shared with all stakeholders leading to reduction in incidences of human-lion conflicts	Reduction in incidences of human-lion conflicts	MET, NGOs, KAZA TFCA	500,000
	3.5. Work closely with traditional authorities to prevent new land	Traditional authorities support and respect areas zoned for wildlife	(i) Number of workshops conducted with Traditional	MET, MURD, NACSO, NGOs,	500,000

	allocations in areas zoned for wildlife and lion conservation on communal land	conservation when considering new land allocations	Authorities (ii) No new human-settlements in areas zoned for wildlife conservation except for emergency grazing during drought conditions	Traditional Authorities	
	3.6. Develop area-specific lion conflict management strategies adapted to local conditions	Area-specific management strategies for human- lion conflict considering the opportunities and challenges presented by different areas.	Area-specific human – lion conflict management strategies developed for the lions in Northwest and Northeast	MET	500,000
4. **Socio-economics:** The costs and benefits of long-term lion conservation and management equitably distributed	4.1. Strongly promote the concept of competitive advantage that African wildlife provides Namibia compared to other land uses types and industries	Wildlife, including lion, fully integrated in multi-species production systems in suitable areas in Namibia	(i) Contribution of the wildlife and tourism sector to the GDP of the country (ii) Expansion of the wildlife based production systems	MET, private sector, farmers unions	500,000

			inclusive of lions		
	4.2. Deliver appropriate training, education and capacity building to identified stakeholders	Capacity exists at community level to manage conflict with lions	Reduction in human-lion conflict incidences	MET, NACSO, NGOs, KAZA TFCA	300,000
	4.3. Agree, and implement collaboratively developed area-specific lion management plans with identified stakeholder groups in the lion range in Namibia	Lion management at area specific scale taking into consideration the opportunities and challenges unique to lion range areas	Separate local level lion management plans for key lion populations in the Northwest, Northeast and on small fenced reserves.	MET, LCMAN, KAZA TFCA, conservancies	500,000
	4.4. Implement transparent mechanisms to equitably distribute lion related/generated income to identified stakeholders	Communities and landholders supporting lion conservation on their land obtain direct and equitable benefits from the conservation of lions	Mechanisms developed to distribute benefits from lion to communities and landholders	MET, NACSO, tourism operators, hunting operators	200,000
	4.5. Engage more actively in the integrated landuse planning processes as well as the implementation and monitoring thereof	Land use planning is applied as a tool to secure lion conservation friendly land uses in lion range areas	Wildlife and lion conservation recognised and supported in integrated land use planning	MET, MURD, MLR, TA, NACSO, NGOs	100,000

			processes.		
5. **Trade and Regulation:** Effective regulation of consumptive, non-consumptive lion utilization and trade in lion products ensured	5.1. Implement approved policy and practice at national and local level regarding problem animal control and hunting of lions	(i) Problem animal control and hunting of lion adhere to approved policies and regulations governing such activities and is transparently conducted (ii) Potential loopholes in problem lion hunting by farmers and any associated fraudulent activities eliminated	No reported cases of fraudulent activities concerning problem lion hunts	MET, Hunting operators, Hunting Associations	50,000
	5.2. Ensure trophy hunting contributes directly to lion conservation by providing lion hunting quotas only to landholders that have well managed resident lion populations on their	(i) Benefits from lion accrue to communities and landholders supporting viable resident populations of lion	Lion utilization quotas granted to landholders and communities with viable resident lion populations	MET, conservancies, farmers, NACSO, NGOs	100,000

	land	(ii) Communities and landholders supporting resident lion population are more organised and support lion conservation at larger landscape level			
6. **Transboundary connectivity** – lion conservation across transboundary landscape in the KAZA TFCA	6.1. Develop and implement transboundary collaborative research and management projects	New knowledge and information is generated on lion conservation at transboundary scale that is used to influence management interventions for shared lion populations	Number of collaborative research projects in the KAZA TFCA	MET, KAZA, Angola, Botswana and Zambia	500,000
	6.2. Ensure and maintain connectivity between regional lion populations through, and in line with the transboundary conservation programmes	(i) Regional lion populations are connected and remain viable and stable over time (ii) Protected, and respected lion and other wildlife dispersal areas in	(i) Number of collaborative research projects in the KAZA TFCA (ii) Research and Monitoring results	MET, KAZA, Angola, Botswana and Zambia	500,000

		place ensuring unhindered movement of lion and other wildlife between and across international boundaries	demonstrating connectivity between regional lion populations		
	6.3. Where possible, promote compatible land uses on both sides of national boundaries through existing transboundary conservation programmes	Land uses incompatible with lion conservation across national boundaries are reduced over time, creating viable environment for lion dispersal without negative outcomes for both lion and human activities.	(i) Studies conducted to assess level incompatible land uses across international boundaries (ii) Stable or decline in incompatible land uses	MET, Traditional Authorities, KAZA, Angola, Botswana and Zambia	500,000

5. Implementation and revision of the Strategy

The Lion Conservation Strategy is structured so that the activities identified that will contribute to the achievement of the strategic objectives, can be used more effectively in the development of annual action plans and work plans by MET, private partners, conservancies and NGOs. It is intended that the strategy would provide the main foundation for an annual planning cycle, which in the process of implementation of annual action plans will provide input and lessons learnt for revision of the strategy after five years.

Within MET this process will be guided through the Large Carnivore Advisory Group (LCTAG) and MET will give input to the stakeholder meetings of private sector through stakeholder meetings like the Large Carnivore Management Association (LCMAN) of Namibia.

The strategy will be revised after 5 years or earlier should the need arise due to unforeseen circumstances. This will be determined through a mid-term review after two years.

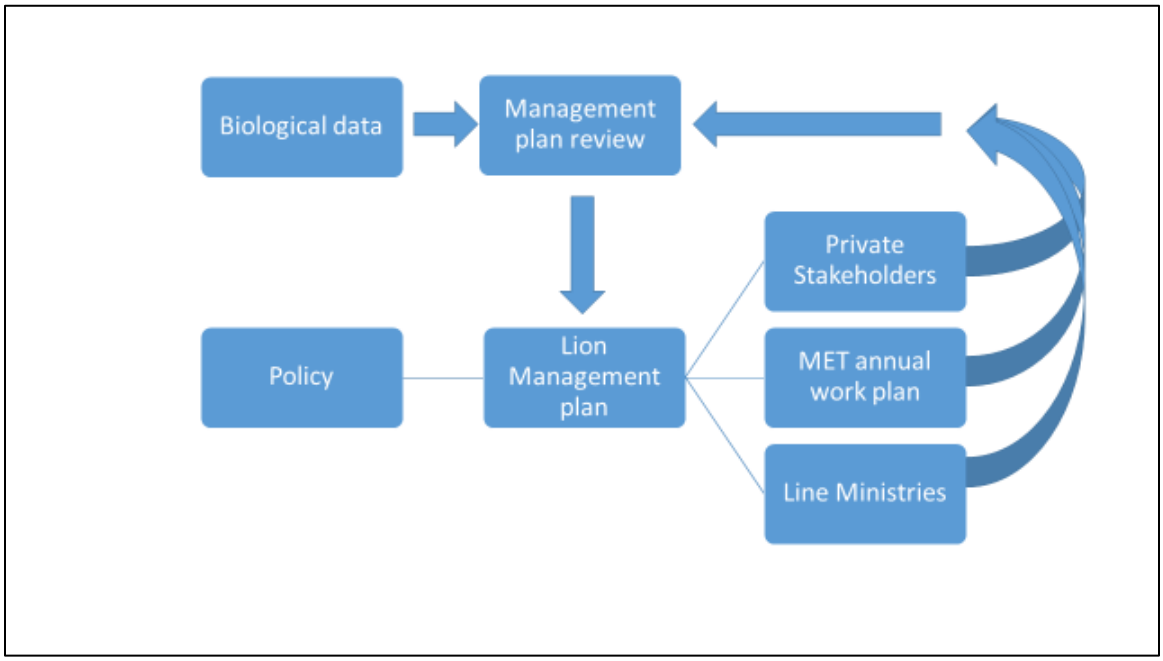

Fig. 2 *Flow diagram showing the implementation and review process*

6. List of sources consulted

Chardonnet, P. (Ed.). (2002). *Conservation of the African Lion: Contribution to a Status Survey*. France: International Foundation for the Conservation of Wildlife, USA: Conservation Force.

Bauer, H., Packer, C., Funston, P, F., Henschel, P & Nowell, K. (2016). Panthera leo. The IUCN Red List of Threatened Species 2016:e.T15951A7162455.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Dloniak, S.M., Packer, C., (2016), Reply to Riggio et al.: Ongoing lion declines across most of Africa warrant urgent action. Proceedings of the National Academy of Sciences 113, E109.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Packer, C., (2015), Lion (Panthera leo) populations are declining rapidly across Africa, except in intensively managed areas. Proceedings of the National Academy of Sciences 112, 14894-14899.

Bauer, H. & Van Der Merwe, S. (2004). Inventory of free-ranging lions (*Panthera leo*) in Africa. *Oryx* 38: 26-31.

Dubach, J.M., Briggs, M.B., White, P.A., Ament, B.A., Patterson, B.D., (2013), Genetic perspectives on "Lion Conservation Units" in Eastern and Southern Africa. Conservation Genetics 14, 741-755.

Elliot, J.P. & Cowan, I. Mc T. (1978). Territoriality, density and prey of the lion in Ngorongoro Crater, Tanzania. *Canadian Journal of Zoology* 56: 1726-1734.

Funston, P.J. (2011). Population characteristics of lions (*Panthera leo*) in the Kgalagadi Transfrontier Park. *South African Journal of Wildlife Research* 41: 1-12.

Hopcraft, J. G. C., Sinclair, A. R. E. & Packer, C. (2005). Planning for success: Serengeti lions seek prey accessibility rather than abundance. *Journal of Animal Ecology* 74: 559–566.

Keet, D.F., Davies-Mostert, H., Bengis, R.G., Funston, P., Buss, P., *et al*. (Eds.). (2009). *Lion (Panthera leo) Bovine tuberculosis disease risk assessment* (Workshop report). Skukuza, South Africa: Conservation Breeding Specialist Group (CBSG SSC / IUCN), CBSG Southern Africa, Endangered Wildlife Trust.

Kilian, P.J. & Bothma, J. Du P. (2003). Notes on the social dynamics and behaviour of reintroduced wild lions in the Welgevonden Private Game Reserve. *South African Journal of Wildlife Research* 33: 119-124

Miller, S.M. & Funston, P.J. (2014). Population growth rates of lions (*Panthera leo*) on small fenced reserves in South Africa: a management dilemma. *South African Journal of Wildlife Research* 44: 43-55.

Minin, E.D., Leader-williams, N., Bradshaw, C.J.A., (2016), Banning Trophy Hunting Will Exacerbate Biodiversity loss. Trends in Ecology & Evolution 31, 4.

Nowell, K. & Jackson, P. (1996). Status Survey and Conservation Action Plan Wild Cats. IUCN, Gland, Switzerland.

Owen-Smith, N. (2008). Changing vulnerability to predation related to season and sex in an African ungulate assemblage. *Oikos* 117: 602-610.

Packer, C., Scheel, D. & Pusey, A. E. (1990). Why lions from groups: food is not enough. American Naturalist 136: 1–19.

Packer, C., Herbst, L., Pusey, A. E., Bygott, J. D., Hanby, J. P., Cairns, S. J. & Borgerhoff-Mulder, M. (1988). Reproductive success in lions. In: Reproductive Success (Ed. by T. H. Clutton-Brock), pp. 363–383. Chicago: University of Chicago Press.

Packer, C., Pusey, A.E., Rowley, H., Gilbert, D.A., Martenson, J. & O'Brian, S.J. (1991). Case study of a population bottleneck: lions of the Ngorongoro crater. Conservation Biology 5: 219–230.

Packer, C., Gilbert, A., Pusey, A.E. & O'Brien, S. J. (1991). A molecular genetic analysis of kinship and cooperation in African lions. *Nature* 351: 562–565.

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Dickman, A., Funston, P., Henschel, P., de Iongh, H., Lichtenfeld, L., Packer, C. and Pimm, S. (2013). The size of savannah Africa: a lion's view. *Biodiversity and Conservation* 22(1): 17-35

Riggio, J., Caro, T., Dollar, L., Durant, S.M., Jacobson, A.P., Kiffner, C., Pimm, S.L., van Aarde, R.J., (2016), Lion populations may be declining in Africa but not as Bauer et al. suggest. Proceedings of the National Academy of Sciences 113, E107-E108.

Schaller, G.B. (1972). The Serengeti Lion: A Study of Predator Prey Relations. University of Chicago Press, Chicago.

Stander, P. E. (1992). Cooperative hunting in lions: the role of the individual. *Behavioral Ecology and Sociobiology* 29: 445–454.

Stander, P. (2007). Behaviour-ecology and Conservation of desert-adapted Lions. *2007 Progress Report of the Kunene Lion Project. Desert Lions Conservation. Namibia*, 17.

Sunquist, M., and F. Sunquist. 2002. Wild Cats of the World. University of Chicago Press, Chicago and London

Trinkel, M., Angelici, F.M., 2016, The Decline in the Lion Population in Africa and Possible Mitigation Measures, In: Angelici, M.F. (Ed.) Problematic Wildlife: A Cross-Disciplinary Approach. Springer International Publishing, Cham, pp. 45-68.

Vedder, H. 1938. South West Africa in Early Times. Thomas Nelson Printers Ltd. London & Edinburgh

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

HUMAN-LION CONFLICT MANAGEMENT PLAN FOR NORTH WEST NAMIBIA

July 2017

FOREWORD

Managing Human-Lion Conflict in the arid environment of the Kunene Region is complex. Sporadic and variable rainfall patterns, typical of arid environments, result in large overlapping home ranges amongst the lions that often clash with local farmers in search of suitable grazing for their livestock. Lions are important to the growing tourism industry and there is an urgent need to manage Human-Lion Conflict in the region.

Long-term data collected on the ecology of the lion population provide a sound basis to develop and implement a management strategy to address the conflict. The Human-Lion Conflict Management Plan is subject to the National Policy on Human-Wildlife Conflict Management and relies on full collaboration by the various stakeholders under the guidance of the Ministry of Environment and Tourism.

Malan Lindeque
PERMANENT SECRETARY

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ABBREVIATIONS

CBNRM	Community-based Natural Resource Management
DECP	Desert Elephant Conservation Project
DLCT	Desert Lion Conservation Trust
DWNP	Directorate of Wildlife and National Parks
DSS	Directorate of Scientific Services
GPTF	Game Products Trust Fund
IRDNC	Integrated Rural Development and Nature Conservation
HWC	Human-Wildlife conflict
HLC	Human-Lion conflict
KRCCA	Kunene Region Communal Conservancy Association
MET	Ministry of Environment and Tourism
MLR	Ministry of Land Reform
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
PH	Professional Hunter
UNAM	University of Namibia

GLOSSARY

For the purposes of this management plan, the words or phrases set out below have the following meanings:

Authorized staff member	Regional heads of the Ministry authorized by the Minister to carry such duties, functions and responsibilities.
Capacity building	Transfer of knowledge, information, skills and understanding.
Conservancy	Communal area conservancy Gazetted in terms of the Nature Conservation Amendment Act (No.5 of 1996).
Culling	Lethal removal of wild animals to reduce their numbers.
Director	Director of Wildlife and National Parks
Human-Wildlife Conflict	Any event in which wild animals harm, destroy or damage human life or property (including damage to or destruction of crops), or in which wild animals are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Human-Lion Conflict	Any event in which lions harm or destroy human life or their domestic livestock, or in which wild lions are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Government	Government of the Republic of Namibia.
Ministry	The Ministry of Environment and Tourism.

Problem-causing animal	An identified individual wild animal that at any point in time harms, destroys or damages human life or property.
Professional Hunter	A professional hunter approved by MET.
Protected Area	Formal protected area proclaimed in the Government Gazette according to legislation.
Staff member	Person appointed in terms of the Public Service Act (13 of 1995).
Stakeholder	Any individual, group of individuals, organization or government department or agency that is affected by HWC or is involved in research on HWC or implementation of measures to mitigate HWC.
Wild animal	Any wild animal that is included in Schedules 3, 4 and 5 of the Nature Conservation Ordinance (Ordinance 4 of 1975, as amended) or any similar schedules contained in legislation that replaces the Ordinance.

1. INTRODUCTION

Addressing Human-Wildlife Conflict requires striking a balance between conservation priorities and the needs of people who live with wildlife. Most Namibians depend on the land for their subsistence. But the presence of many species of large mammals, combined with settlement patterns of people, leads to conflict between people and wildlife. It is therefore necessary that mechanisms are created for rural communities and farmers to manage and benefit from wildlife and other natural resources.

A variety of approaches can be implemented in order to manage the conflict efficiently and effectively, and that are in line with the strategies set out in the policy. These include prevention strategies which endeavour to avoid the conflict occurring in the first place and take action towards addressing its root causes, and protection strategies that are implemented when the conflict is certain to happen or has already occurred, as well as mitigation strategies that attempt to reduce the level of impact and lessen the problem.

2. BACKGROUND

Successful conservation efforts and the growth of communal conservancies in the North West of Namibia during the past 20 years have resulted in an increase of wildlife populations.

Along the borders of the Skeleton Coast Park a small population of lions survives in extreme desert conditions. These lions exhibit unique adaptation to their environment and live in a harsh habitat of sand dunes, gravel plains and barren mountains, and occasionally forage along the beaches of the Skeleton Coast. This has resulted in the growth in tourism because nowhere else in the world can free-ranging lions be seen amongst sand dunes or on a beach. These lions should be viewed as a National asset to Namibia that needs to be managed wisely to the optimum benefit of the Namibian people.

However, the increase in wildlife numbers, has led to heightened conflict between lions and the local people. While income-generating enterprises such as tourism, trophy hunting and crafts have thrived at conservancy level; considerably less attention has been

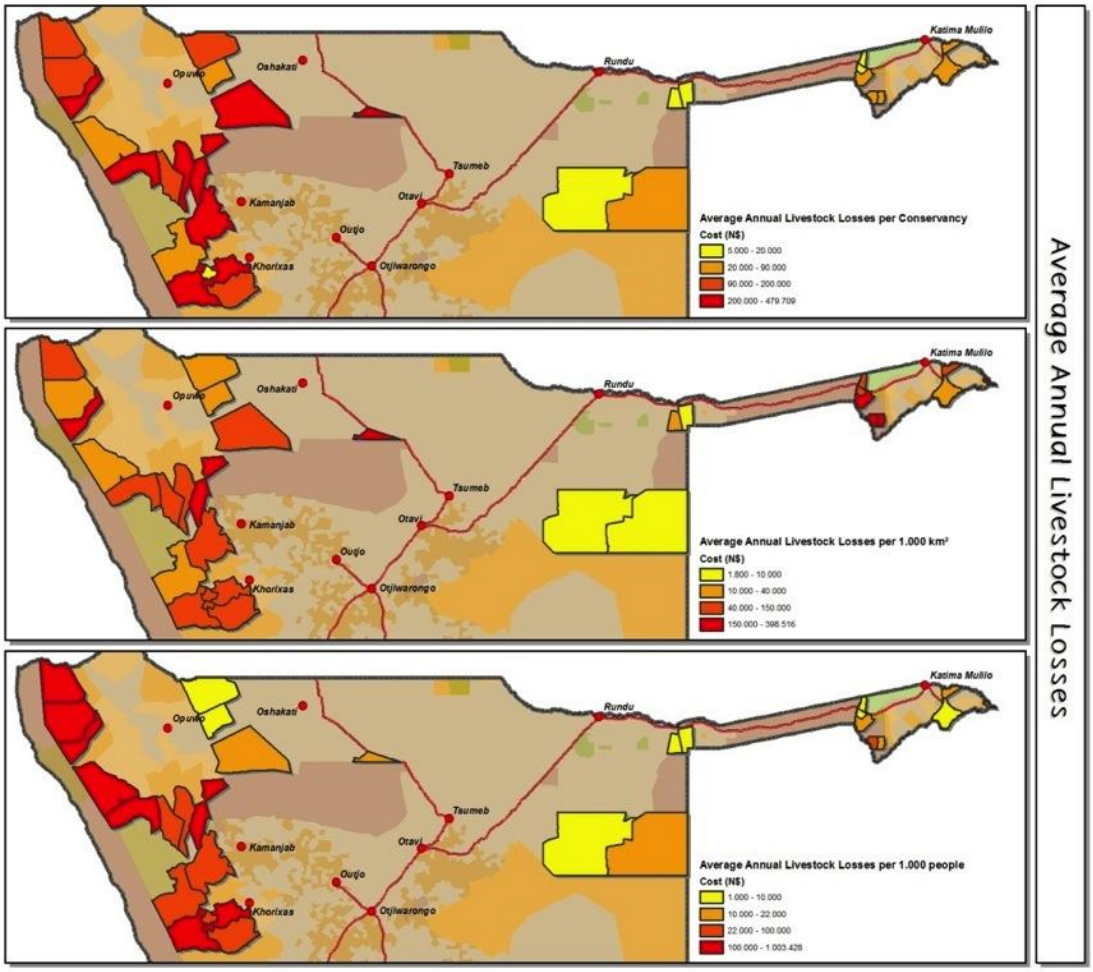
paid to reducing human-wildlife conflict. In most conservancies the costs experienced by conservancy members that suffer livestock losses from lions exceeds the selected income they earned from their respective conservancies. Table 1 shows the annual costs of livestock losses in some of the key conservancies across northern Namibia. Conservancies in the North West (NW) of Namibia suffer significantly higher losses when compared to conservancies across northern Namibia (Table 1).

Conservancies with the highest incidents of human-wildlife conflict are those on or near to national parks and tourism concession areas (Figure 1) with conservancies along the borders of Etosha National Park and Skeleton Coast Park, and around Palmwag concession areas suffering most livestock losses. Lions prey on domestic livestock, and farmers respond by shooting lions to protect their livelihood. Local communities have to bear the costs of living with lions but do not always share equally in the benefits. As a result, members of those conservancies are often least sympathetic to the presence of the park and are less inclined to support conservation practices. These attitudes can be turned around by providing communal farmers with information, support, management skills and infrastructure to protect livestock, as part of the implementation of conservancy and/or regional HWC management plans.

Table 1: The estimated costs of Human-Wildlife Conflict through livestock losses (N$) per conservancy and per 1,000 people for each conservancy.

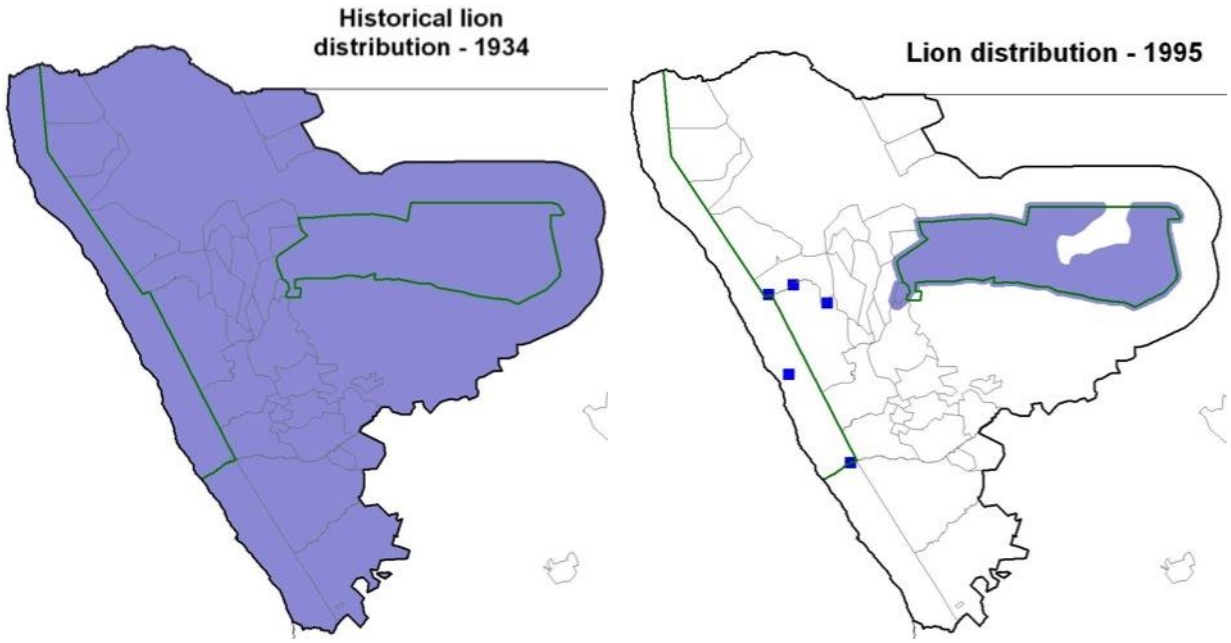
Average annual livestock losses per conservancy			Average annual livestock losses per 1,000 people per conservancy	
Conservancy	**Cost (N$)**		**Conservancy**	**Cost (N$)**
Muduva Nyangana	5,868		Uukwaluudhi	1,185
Mayuni	9,976		N=/a Jaqna	2,473
Uibasen Twyfelfontein	16,063		Muduva Nyangana	2,934
N=/a Jaqna	17,311		Uukolonkadhi/Ruacana	3,603
George Mukoya	18,044		Mayuni	4,157
Kwandu	18,484		Kwandu	4,299
Sikunga	22,445		Salambala	4,801
Impalila	27,873		George Mukoya	9,022
Uukwaluudhi	29,633		King Nehale	10,122
Salambala	36,968		Sikunga	11,223
Balyerwa	37,849		Sheya Uushona	13,566
Wuparo	40,196		Impalila	18,582
Nyae Nyae	48,998		Wuparo	19,141
Puros	50,508		Mashi	20,500
Mashi	79,952		Nyae Nyae	21,303
Torra	88,596		Balyerwa	25,232
Uukolonkadhi/Ruacana	90,074		Anabeb	45,126
Anabeb	90,252		Uibasen Twyfelfontein	69,840
Orupembe	100,636		Torra	73,830
Sorris Sorris	123,372		#Khoadi//hoas	74,261
Marienfluss	165,771		Omatendeka	85,673
King Nehale	202,446		Sorris Sorris	94,902
Doro !Nawas	207,000		Sesfontein	106,211
Omatendeka	214,182		Ehirovipuka	131,443
#Khoadi//hoas	237,636		Doro !Nawas	138,000
Sanitatas	250,857		Puros	194,262
Sesfontein	265,527		Orupembe	251,591
Ehirovipuka	328,608		Marienfluss	552,570
Sheya Uushona	479,709		Sanitatas	1,003,428

Figure 1. Livestock losses recorded in conservancies across northern Namibia.



Historically lions occurred throughout the Kunene Region, but with autocratic political structures, land reform (such as the Odendaal Commission in 1970) and the growth of agriculture post 1970, the population declined dramatically (Figure 2). Lions that inhabited the Skeleton Coast Park and the bordering arid habitat of the northern Namib Desert were all but wiped out leaving only the Etosha population.

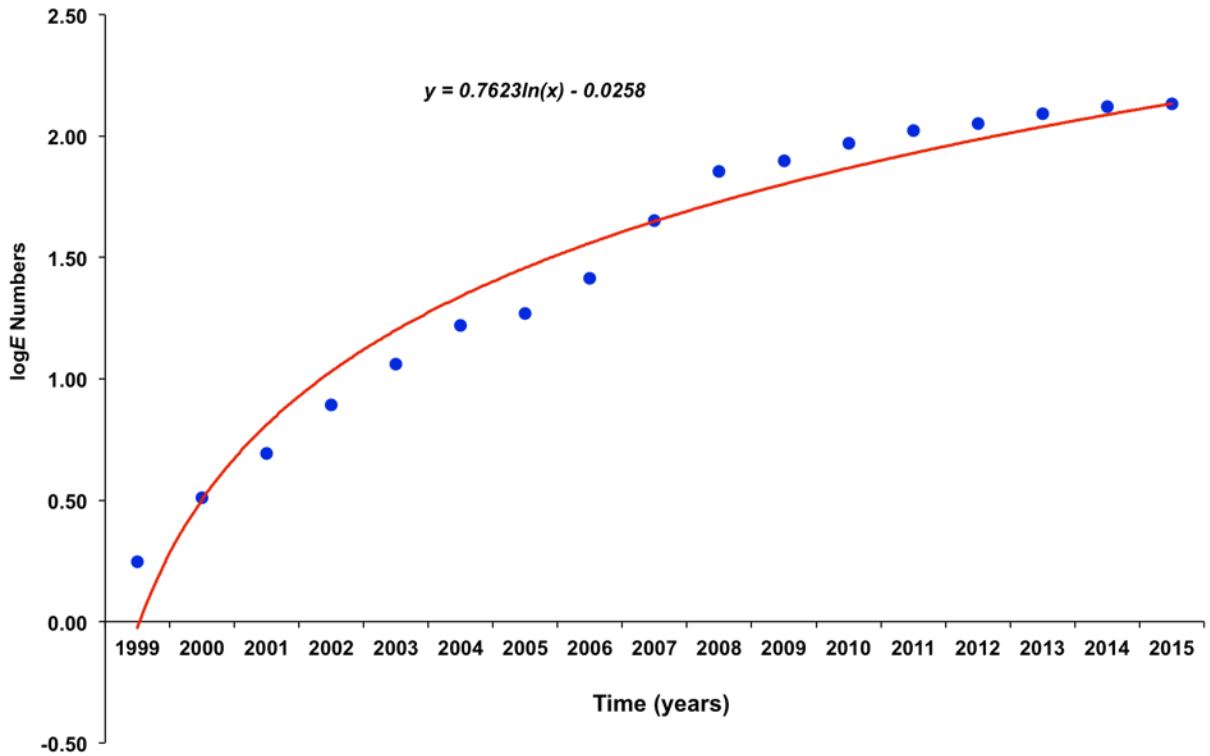
Figure 2. Historical distribution of lions in the North West of Namibia (1934 – 1995).



Following the independence of Namibia in 1990 that led to the establishment of communal conservancies, the development of CBNRM programmes, and the rapid growth of tourism, as well as above average rainfall in the region the few surviving desert-adapted lions increased and expanded to parts of its former range (Figure 4).

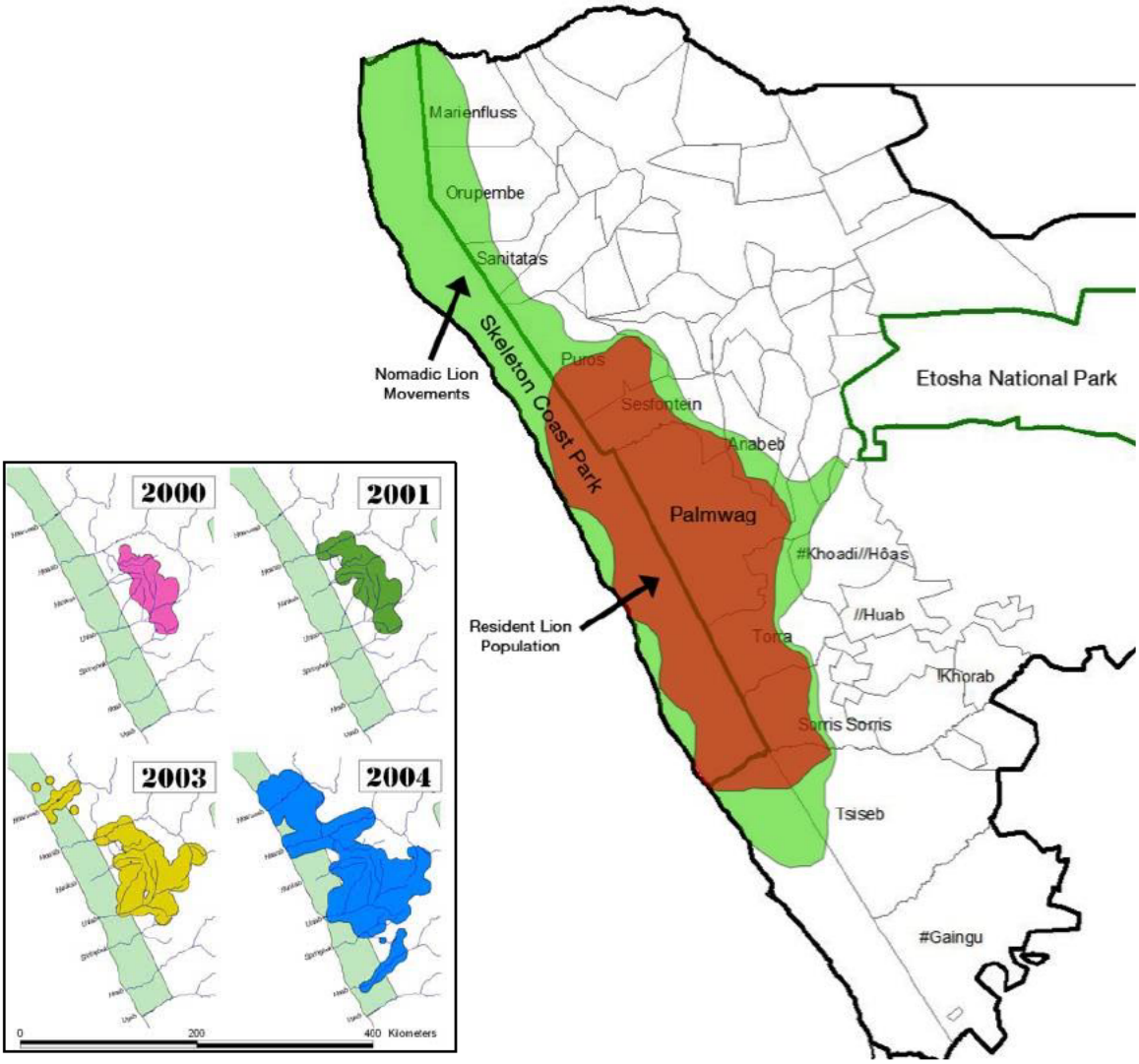
The lions have been the subject of intensive long-term research and monitoring since 1998. During this period the population displayed a positive growth rate (Figure 3) and the number of lions increased from approximately 20 individuals in 2000 to an estimated 180 in 2015.

Figure 3. Growth rate of the desert-adapted lion population between 1999 and 2015.



Lions may occasionally still move between Etosha and the arid areas bordering the Skeleton Coast Park, but the increase in livestock farming east of the Grootberg escarpment has essentially created an effective barrier. The lions inhabiting the Skeleton Coast Park and bordering areas exhibit unique adaptation to the arid environment and are treated as a separate sub-population, referred to as the "Desert" population. Between 1999 and 2015 the "Desert" lion population expanded from the core area northwest of Palmwag to occupy ephemeral river systems and suitable habitats between the Hoaruseb and Ugab Rivers (Figure 4).

Figure 4. The distribution of desert-adapted lions in the North West of Namibia in 2015 with indications of the recorded expansion between 2000 and 2004.



The “Desert” lion sub-population is important to the conservation of the species in Namibia. Their range (Figure 4) contributes to 51% of the total area inhabited by lions in Namibia, but only 16% of this range falls inside a protected area. Nevertheless, the conservation prospects are favourable, since the area has a rapid-growing tourism industry and forms the hub of CBNRM and Communal Conservancy programmes.

3. RATIONALE

In 2009, Cabinet approved the National Policy on Human Wildlife Conflict Management. The Policy provided a framework for addressing human-wildlife conflict efficiently and effectively in order to promote both biodiversity conservation as well as human development.

Due to human population growth, wildlife population growth, unplanned agricultural activities, and the expansion of agricultural and industrial activities, which together have led to increased human encroachment on previously wild and uninhabited areas the incidents of human-wildlife conflict have increased. With the current challenges and new innovative ideas on how to address the conflict, the National Policy on Human Wildlife Conflict Policy has been reviewed. The new policy is more focused and specific on affected areas and the specific conflict that should be addressed. The policy also contains an implementation plan that outlines the required human and financial resources requirements to deal with the problem. This human-lion conflict management plan contributes to the revised National Policy on Human Wildlife Conflict Management.

4. ALIGNMENT

The Human-Lion Conflict Management Plan is aligned with both the National Policy on Human Wildlife Conflict Management and the Lion Conservation Strategy (Draft). The legislative basis for control of problem causing animals, hunting and the rights on the utilisation of wildlife is currently covered by the Nature Conservation Ordinance 4 of 1975 as amended by the Nature Conservation Amendment Act (Act 5 of 1996).

5. PRINCIPLES

The Human-Lion Conflict Management Plan is based on a number of fundamental principles outlined in the National Policy on Human Wildlife Conflict Management.

6. POLICY DIRECTION

6.1 Vision

To manage human wildlife conflict in a way that recognizes the rights and development needs of local communities, recognizes the need to promote biodiversity conservation, promotes self-reliance and ensures that decision-making is quick, efficient and based on the best available information.

In order to achieve this, the Government will devolve decision-making to the lowest appropriate institutional levels, develop appropriate mitigation and monitoring methods and develop the capacity of all stakeholders to manage human wildlife conflict.

6.2 Mission

To provide a framework for addressing Human-Lion conflict efficiently and effectively in NW Namibia following the guidelines of the revised National Policy on Human Wildlife Conflict Management.

6.3 Goal

To provide measures and approaches to manage and reduce human lion conflict in NW Namibia according to the revised National Policy on Human Wildlife Conflict Management.

6.4 Objectives

The objectives of the Management Plan are:

6.4.2 To contribute to a standardised monitoring system for human-lion conflict Management.

6.4.3 To establish best practice mitigation measures for human-lion conflict management.

6.4.4 To develop innovative mechanisms to reduce the level of human-lion conflict.

6.4.5 To provide clarity on the question of compensation with regard to damages caused by wildlife, especially the lion.

6.5 Strategies

Human-Lion Conflict (HLC) is a multi-faceted problem. In order to address its impacts, a number of different strategies are required to address the following key issues:

- The economic impacts of HLC on local communities.

- The appropriate level of decision-making power for managing HLC, particularly in a case where an animal that persistently causes problems needs to be destroyed.

- Accurate information on the scale, the costs and impacts of conflict, and the success of mitigation methods and approaches.

- The skills of all stakeholders to manage HLC efficiently and effectively.

In order to address these key issues the Government has developed the following strategies:

6.5.1 Land use planning and livestock management structures

Understanding the patterns and extent of human-lion conflict experienced by communities farming with livestock in NW Namibia is important to the development of effective management options. Data collected by conservancies through the Event Book procedures and other monitoring systems provide valuable information. Between 2003 and 2015 the five conservancies that share their land with the Desert lion population recorded 5,863 incidents of livestock attacks caused by lions and other carnivores. On average 451 incidents were recorded per year (range: 205 in 2003 to 713 in 2013) with Sesfontein Conservancy recording the highest number of attacks (N = 2293) followed by Anabeb (N = 1393), Torra (N = 1303) and Purros Conservancies (N = 873). The pattern and frequency of livestock attacks varied between years and between conservancies (Figure 5).

Between 2005 and 2015 a total of 343 incidents of human-lion conflict were recorded by the five conservancies at an average of 32 incidents per year (range: 15 in 2011 to 54 in 2015). Torra Conservancy recorded the highest number of incidents (N = 121) followed by Purros (N = 85), Sesfontein (N = 77) and Anabeb Conservancies (N = 60). Although Torra Conservancy recorded a dramatic increase between 2011 and 2015, the pattern and frequency of human-lion conflict incidents between years and between conservancies appears to be random (Figure 6).

A total of 37 lions were destroyed between 2005 and 2015 (Figure 7). Torra Conservancy reported the highest number of lions destroyed during human-lion conflict (N = 18) followed by Sesfontein (N = 9), Anabeb (N = 7) and Purros Conservancies (N = 3). There was no statistical relationship between the recorded incidents of human-lion conflict and the number of lions destroyed. However, the number of lions destroyed increased dramatically between 2013 and 2015 when 27 of the 37 lions (73 %) were killed. During the same period the five conservancies only recorded 36 % of the total recorded human-lion incidents and 26 % of the recorded attacks on livestock.

Figure 5. Number of livestock damage incidents caused by lions and other carnivores per year between 2003 and 2015 as recorded by five conservancies.

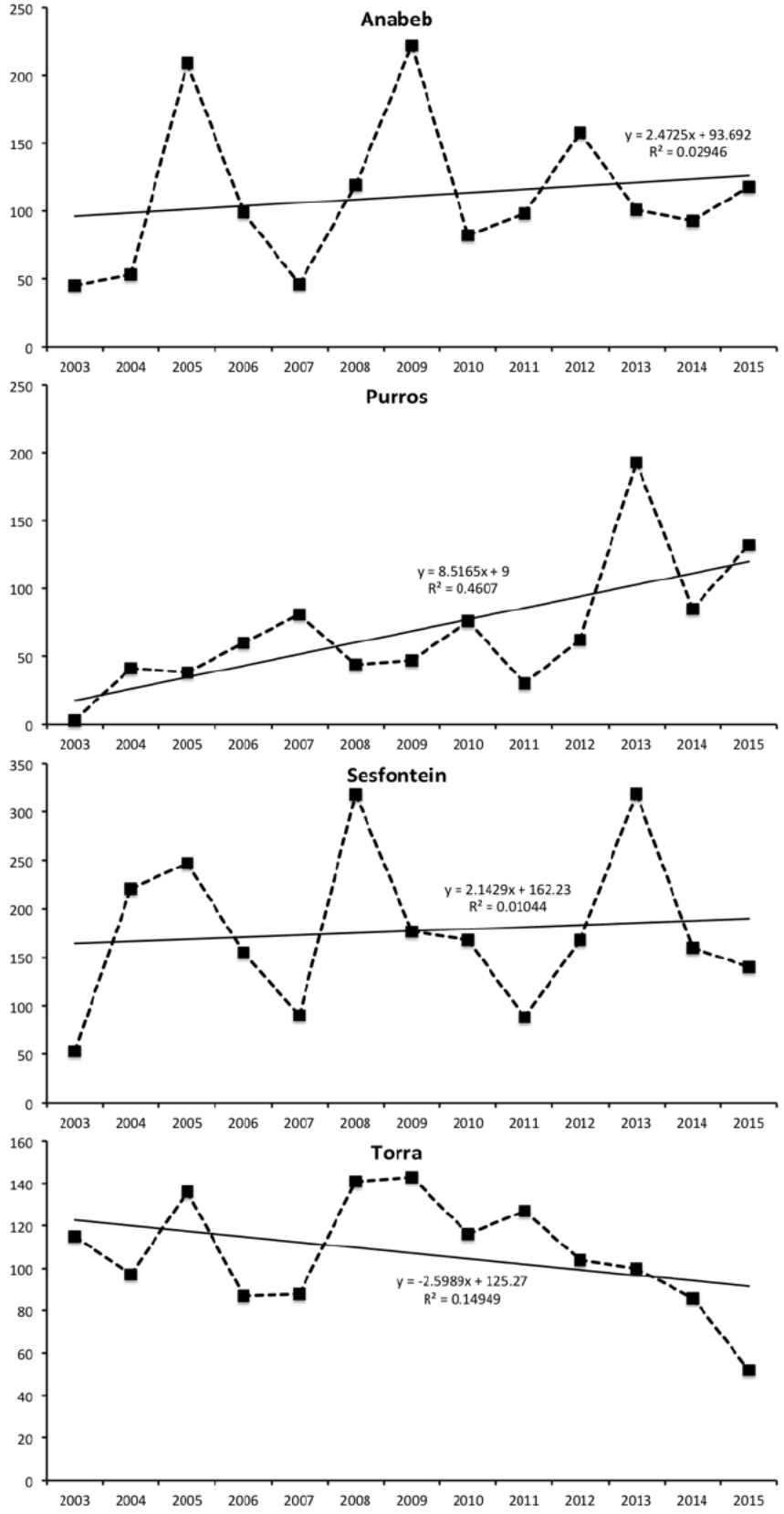
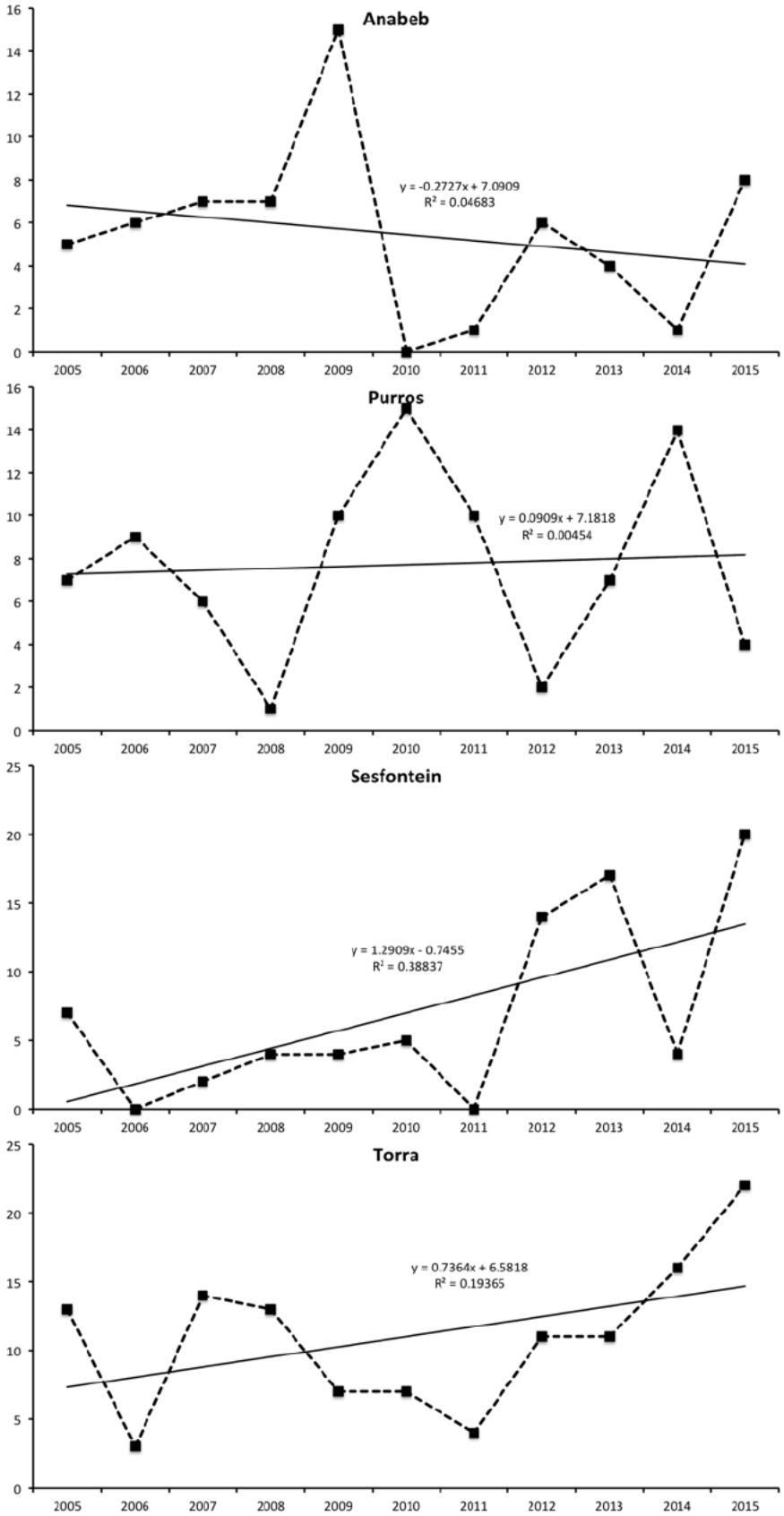


Figure 6. Number of human-lion conflict incidents per year between 2003 and 2015 as recorded by five conservancies.



6.5.2 Aspects of lion demography & behaviour ecology relevant to HLC

A sound understanding of the population dynamics, demography and behaviour ecology of the Desert lion population is essential to the process of conserving the species and managing human-lion conflict. This can only be achieved through the systematic collection of long-term data on the key aspects of their ecology. These include habitat utilisation, home ranges, movement patterns, hunting behaviour, activity patterns, group/pride structures and limiting factors.

6.5.2.1 Movements and habitat use

Over the past seven years (2008 – 2015) satellite and GPS radio-collars were fitted to 19 different lions that represent all the current prides in the population. In total 196,849 data points were recorded that contain accurate movement patterns and habitat utilisation of all the major prides/groups of lions that represent data over 43.5 lion-years (Table 2 & Figure 7).

Table 2. Sample sizes and status of 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	N^{-1} (points)	N^{-2} (nights)	Duration	Status
Hoanib Floodplain	Xpl-10,	♀	38,438	2,365	16.5 yrs	Dead***
	Xpl-55	♀				On-going**
Hoanib River	Xpl-47	♀	29,017	2,741	7.6 yrs	Dead
	Xpl-59	♀				On-going
Okongwe	Xpl-70	♀	11,298	1,142	2.8 yrs	Malfunction*
Orowau / Hunkap	Xpl-81	♂	9,226	1,169	3.4 yrs	On-going
	Xpl-53	♀	10,051	794	2.2 yrs	Malfunction
	Xpl-100	♀	861	164	8 mo	On-going
Uniab Delta	Xpl-45	♀	32,277	2,033	5.8 yrs	On-going
Barab / Obab	Xpl-54	♂	5,868	533	1.5 yrs	Malfunction
	Xpl-49	♀	30,253	1,447	4 yrs	Malfunction
Aub - Etendeka	Xpl-79	♂	420	210	7 mo	Dead
	Xpl-65	♀	3,281	402	1.1 yrs	Malfunction
	Xpl-94	♂	811	139	6 mo	On-going
Agab River	Xpl-50	♂	6,892	329	1 yr	Dead
	Xpl-36	♀	4,567	515	3.2 yrs	Dead

Huab River	Xpl-75	♀	8,998	1,338	3.9 yrs	On-going
Ugab River	Xpl-77	♂	2,799	247	9 mo	Dead
	Xpl-98	♂	1,792	305	11 mo	On-going
Totals			196,849	15,873	**or 43.5 Lion years**	

Key:
Dead*** = Lion was shot, trophy hunted or died of natural causes during the past year.
On-going** = Lion is alive and collecting of movement data continues.
Malfunction* = Satellite radio collar failed.

The distance that a lion moves per night is a function of home range size and habitat use. Accurate information on this is important to the conservation process and essential for the management of Human-Lion-Conflict. The home ranges of male lions are larger than those of females and on average the 19 lions moved 8.2 km per night (Table 6). Male lions, however, moved further per night (9.3 ± 1.2 km) than did lionesses (7.3 ± 0.9, t = 3.963, $P < 0.01$).

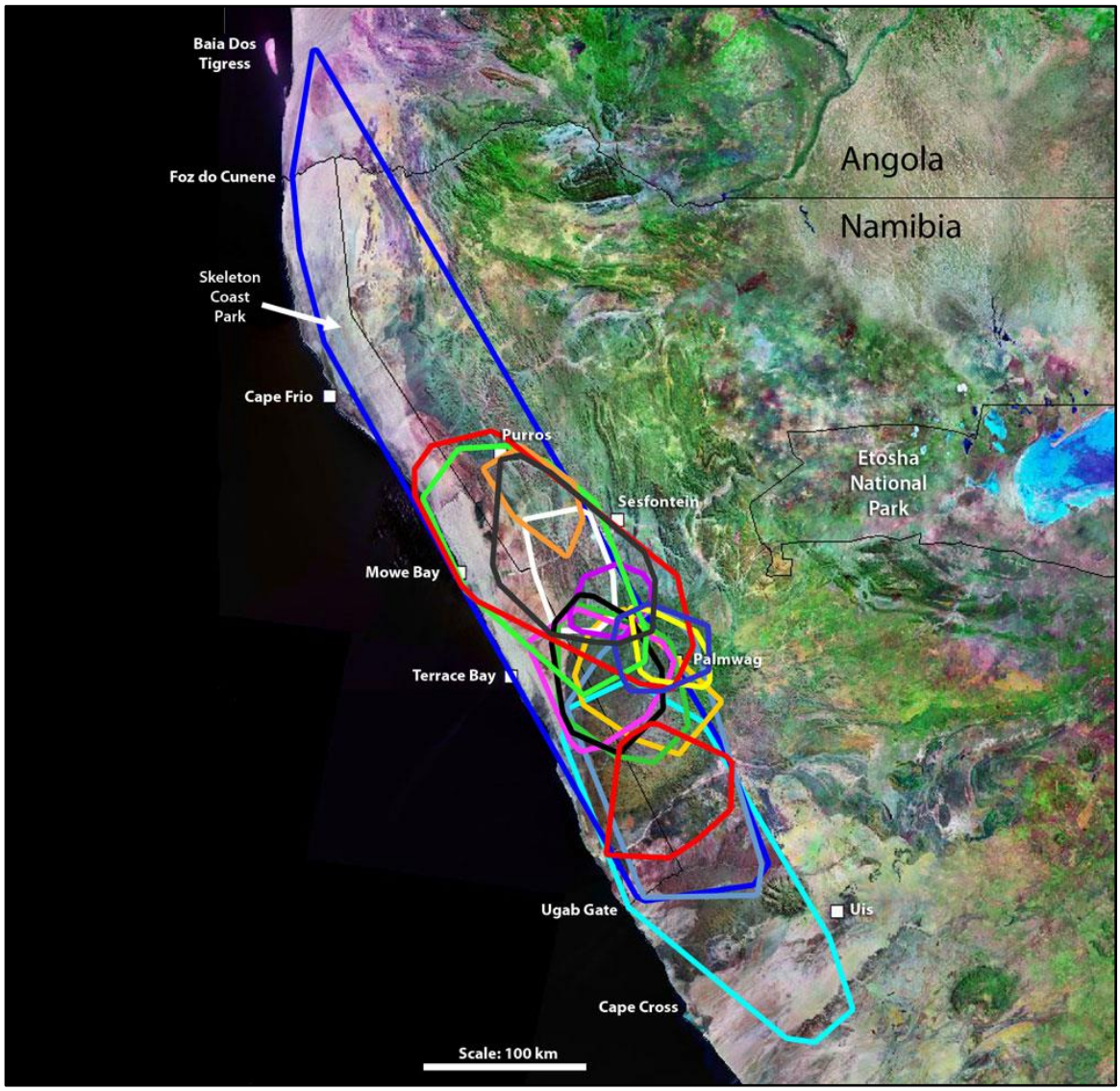
Table 6. Home range estimates (km^{-2}), using the Minimum Convex Polygon (MCP) technique, and distances moved by 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	Home Range MCP* (km^2)	Total distance moved (km)	Average distance moved per	Range of distance per night (km)
Floodplain	Xpl-10	♀	12,642	17,334	9.8	0 – 62.1
	Xpl-55	♀	2,550	11,410	9.5	0 – 36.4
Hoanib	Xpl-47	♀	2,471	14,136	7.9	0 – 36.3
	Xpl-59	♀				
Okongwe	Xpl-70	♀	1,668	4,922	6.1	0 –37.7
Orowau / Hunkap	Xpl-81	♂	6,405	11,437	11.4	0 – 52.0
	Xpl-53	♀	1,236	4,328	5.5	0 –22.8
	Xpl-100	♀	618	1,032	6.3	0 – 26.3
Uniab Delta	Xpl-45	♀	3,997	2,135	6.9	0 – 38.9
Barab / Obab	Xpl-54	♂	3,978	4,911	9.5	0 – 63.2
	Xpl-49	♀	4,161	13,219	7.9	0 – 40.1
Aub / Etendeka	Xpl-79	♂	1,923	1,115	7.7	0 – 27.7
	Xpl-65	♀	1,258	984	7.1	0 – 21.5
	Xpl-94	♂	915	1,329	9.6	0 – 24.8
Agab River	Xpl-50	♂	4,881	1,108	8.1	0 – 31.9
	Xpl-36	♀	3,882	3,454	6.9	0 – 32.0
Huab River	Xpl-75	♀	4,865	8,137	7.1	0 – 46.5

Ugab River	Xpl-77	♂	16,872	2,544	10.3	0 – 54.1
	Xpl-98	♂	3,878	2,517	8.3	0 – 30.8

The spatial and temporal patterns of movements and how lions utilise their home ranges are important parameters for all aspects of conservation, mitigation of human/lion conflict and tourism development. There are many different statistical methods to calculate home range sizes. Depending on the movement patterns of animals and the habitat, some methods are more suitable than others. In this analysis the home range size of lions marked with satellite radio collars were calculated using the universal Minimum Convex Polygon (MCP) method. In some cases Spider Distance techniques were used as an additional assessment of habitat use. The movement data from the 19 collared lions provide an essential base-line understanding of the demography of the population.

Figure 7. Layout of the areas utilised by 19 lions fitted with satellite radio collars in the northern Namib between 2008 and 2015.



Conflict between lions and people occur essentially all along the eastern edge of the distribution of the lion population. However, the long-term data collected on lion movements indicate that there are particular “hotspots” where incidents of Human-Lion-Conflict occur repeatedly over the years regardless of the individual lions. These “hotspots” coincide with reports of Human-Lion-Conflict recorded by the communities. Data are presented on lion movements in relation to these “hotspots” with a focus on the past three years due to heightened levels of Human-Lion-Conflict.

- *Torra Conservancy*

Human-lion conflict has been particularly problematic in parts of the Torra Conservancy due to an abundance of sub-adult lions that have dispersed from their natal prides. Data collected on the demography and movements of the established lion prides since 2008 provide a base-line understanding of habitat utilisation by these lions (see Figs. 6 – 10).

- *Aub / Etendeka Pride*

During the past three years the original Aub Pride have expanded extensively into the Etendeka and Klip River area. The adult male Xpl-79 that was fitted with a satellite collar was unfortunately shot and the collar destroyed (Figure 8). A young adult male (Xpl-94) from the Hunkap Pride moved into the area and was fitted with a new satellite collar (Figure 9). Unfortunately this lion was also shot a few months later and the collar was destroyed.

Figure 8. The home range area of Xpl-79 (male).

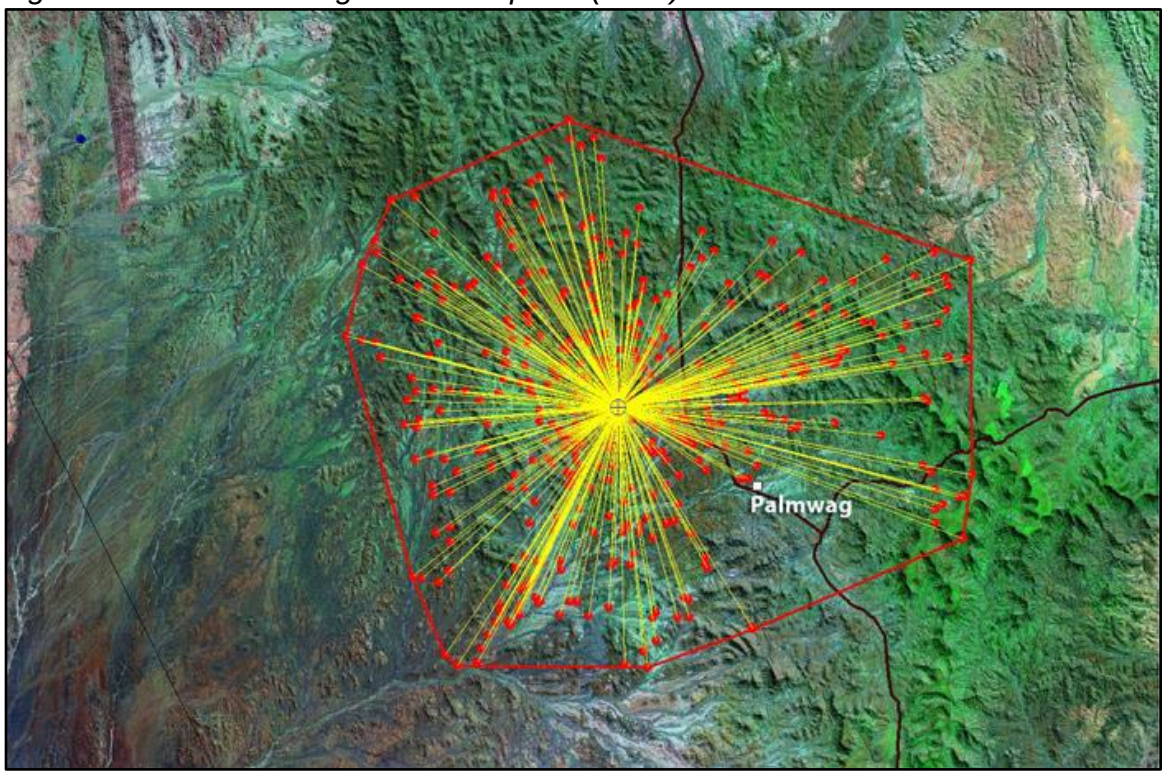
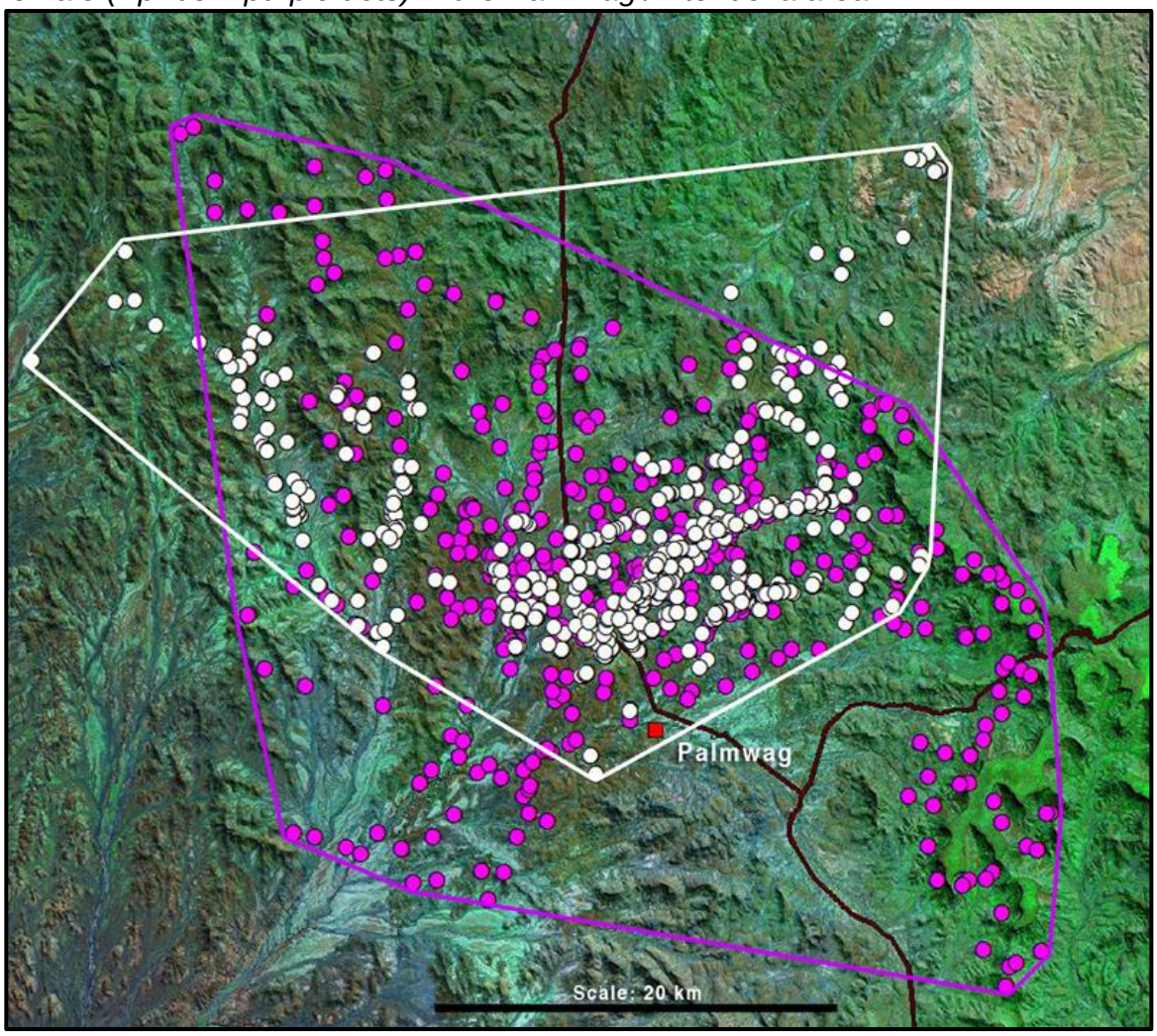


Figure 9. The home range area of an adult male (Xpl-94 – white dots) and an adult female (Xpl-65 – purple dots) in the Palmwag / Etendeka area.



- *Agab / Springbok River Pride*

The numbers of the Agab Pride increased substantially during the past two years and many of the sub-adult lions expanded to the Springbok River and into the Bergsig area. As a result the incidents of conflict with the local communities increased. After the pride male (Figure 10) and the Ugab male (Xpl-77) was shot whilst mating with Xpl-36 (Figure 11) the Pride spent more time between the Agab and Springbok Rivers. An adult male from the Obab Pride (Xpl-74) joined the lionesses.

Figure 10. The home range area of Xpl-50 (male).

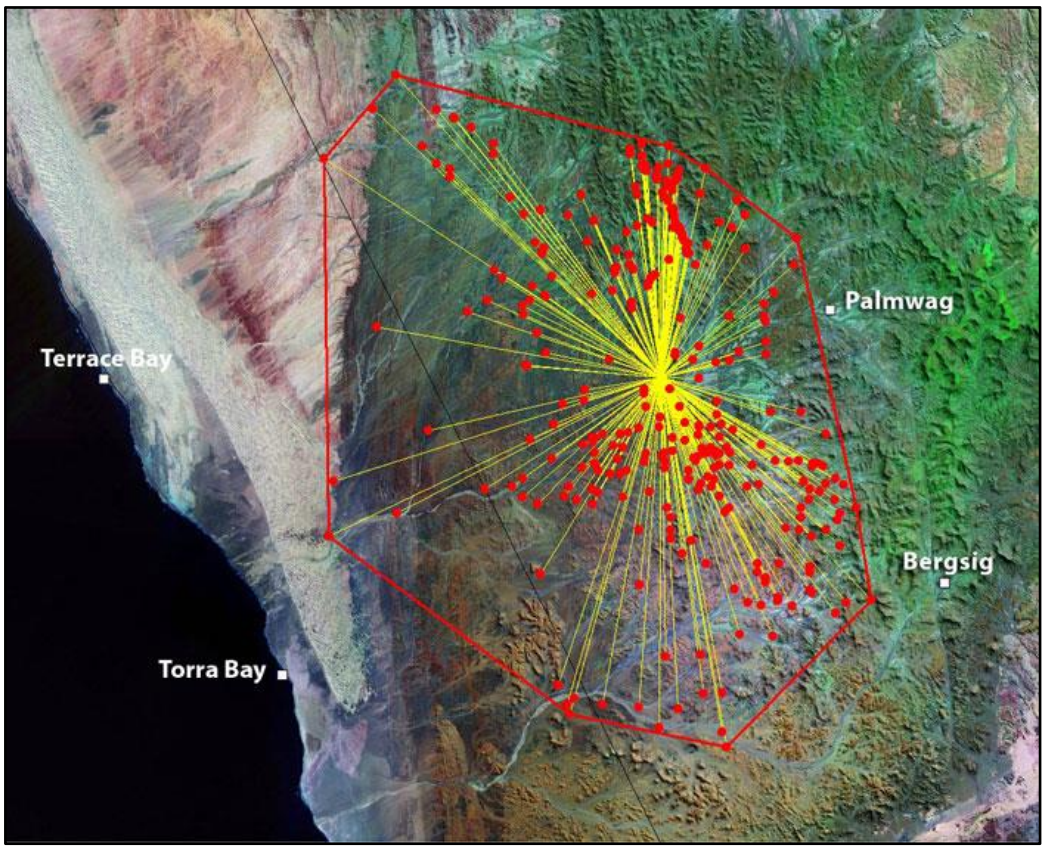
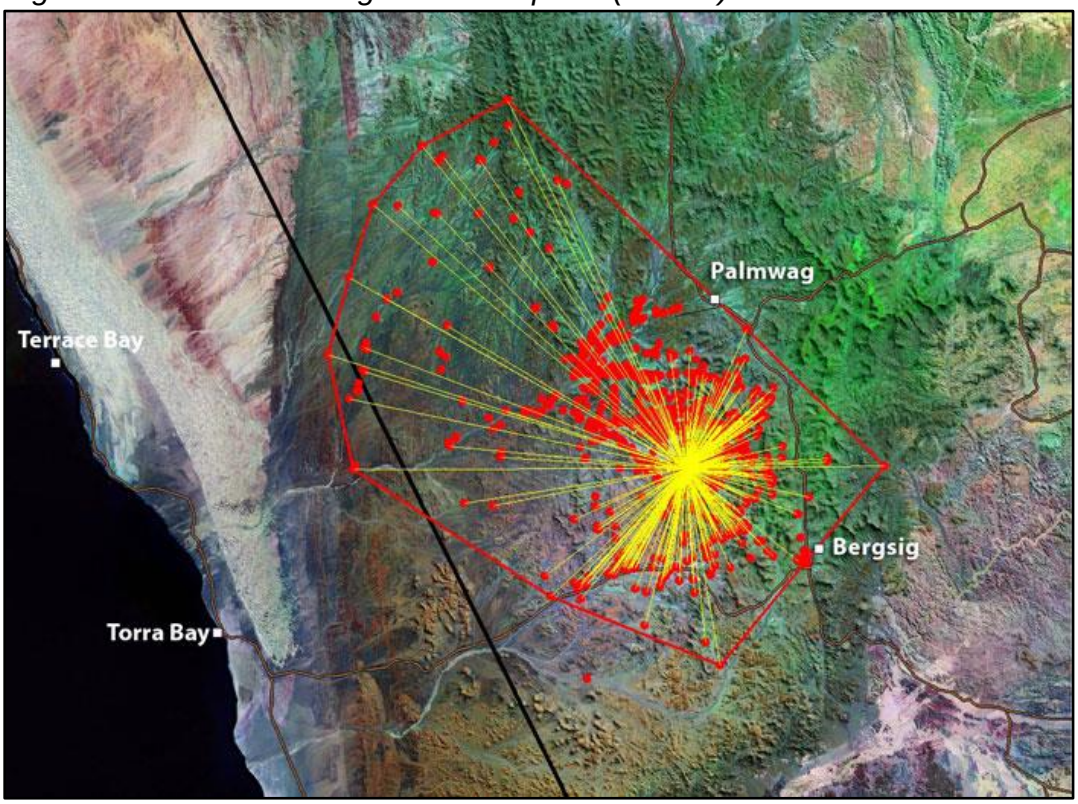


Figure 11. The home range area of Xpl-36 (female).



- *Huab Pride*

The Huab Pride expanded from 3 individuals (1 male Xpl-68 and two females Xpl-75 / Xpl-76) in 2012 to approximately 13 – 15 lions. Five sub-adults, from the first litter of Xpl-75 & Xpl-76 born early in 2012, dispersed and settled in the Ugab River. The home range of Xpl-75 expanded from 2013 (Figure 12) to a larger area that extended up to the Ugab River by the end of 2015 (Figure 13).

Figure 12. The home range area of Xpl-75 (female) up to the end of 2013.

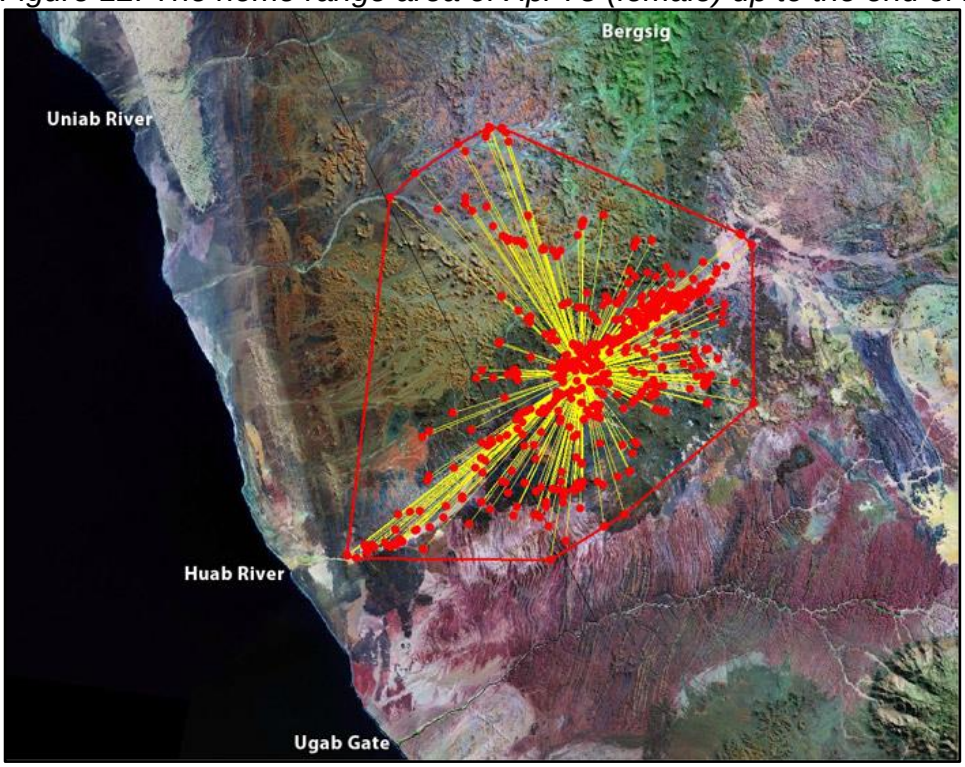
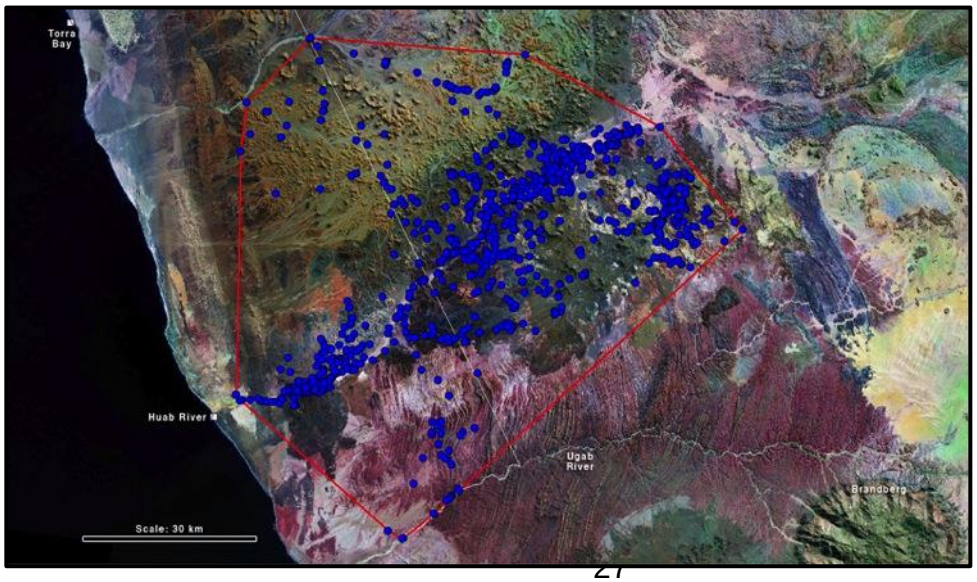


Figure 13. The home range area of Xpl-75 (female) up to the end of 2015.



- *Ugab Pride*

After the adult male (Xpl-77, Figure 14) was shot close to Bergsig on 27 Sep 2013, the Ugab River was vacant until five sub-adult lions from the Huab Pride dispersed and occupied the Ugab (Figure 15).

Figure 14. The home range area of Xpl-77 (male) up until September 2013.

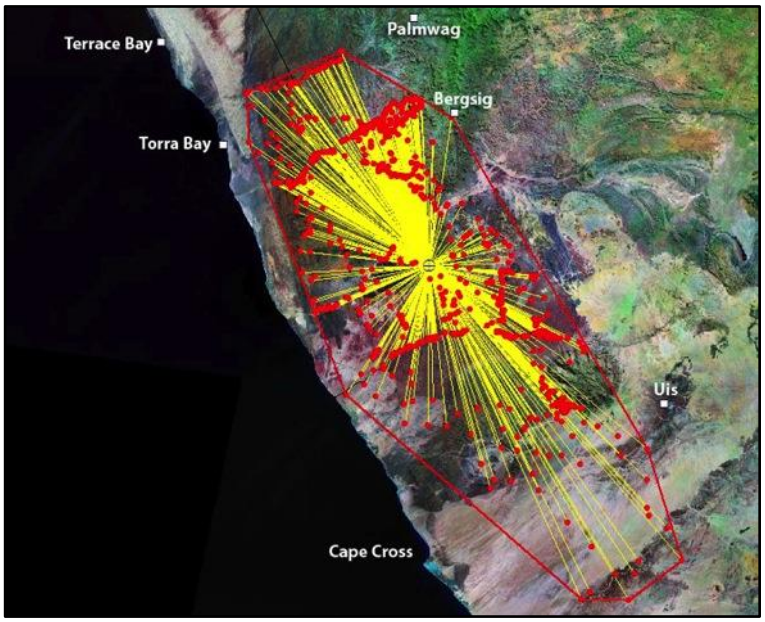
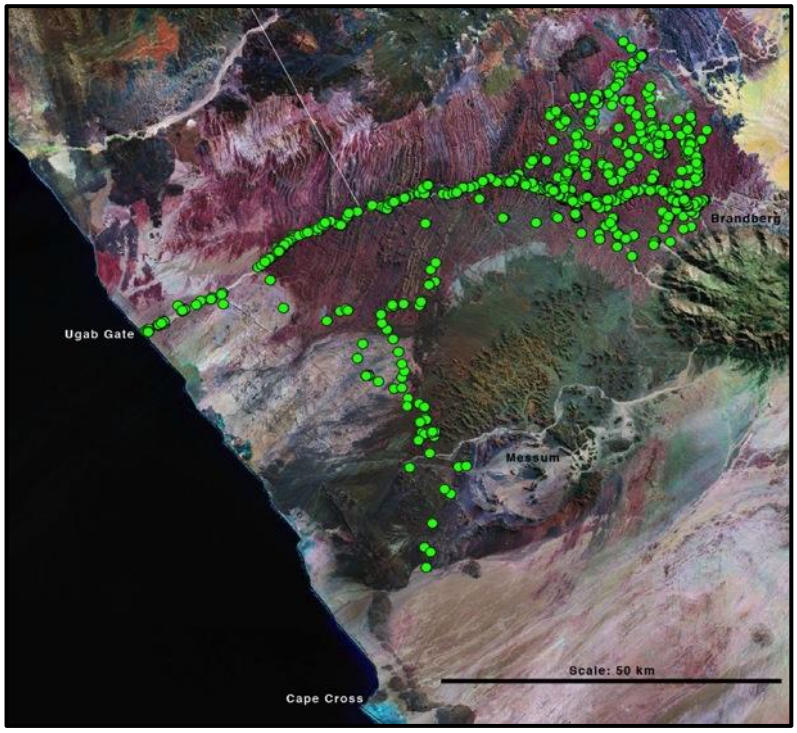


Figure 15. The current home range area of Xpl-98 (male).



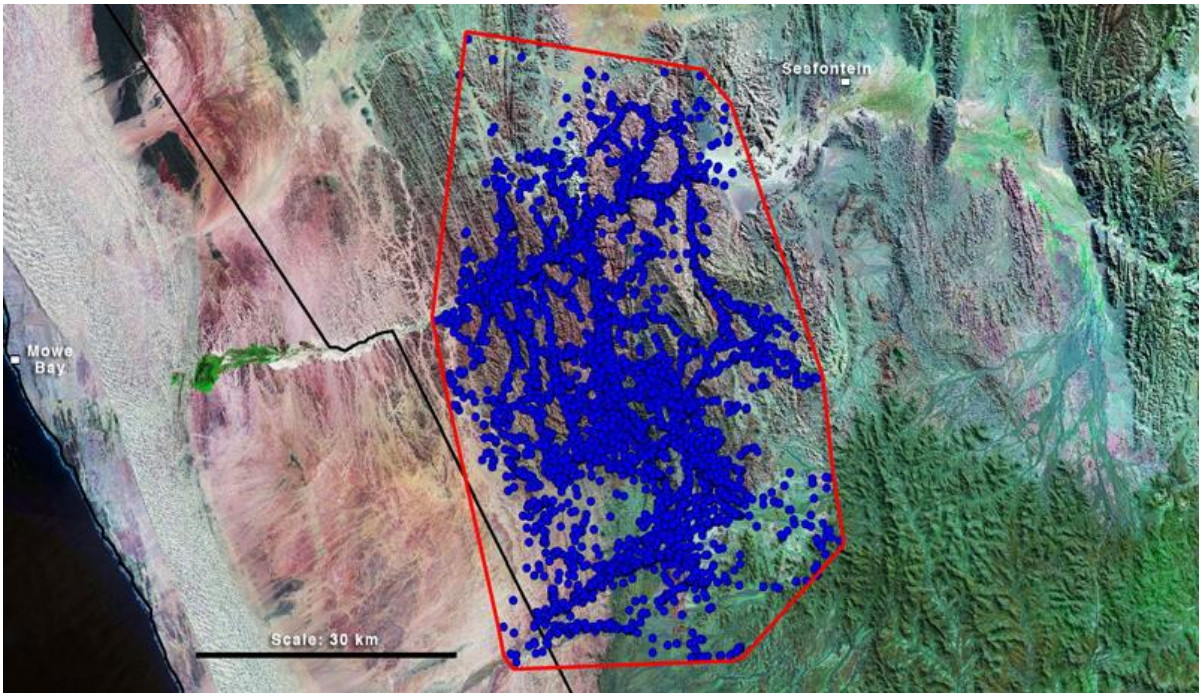
- Purros, Sesfontein & Anabeb Conservancies

The home ranges of desert-adapted lions are exceptionally large and there is extensive overlap between the home ranges of different prides. This is an important strategy in their adaptation to the harsh arid environment that is particularly relevant to understanding the frequency and patterns of Human-Lion-Conflict. The home ranges of lion prides in the northern section of the study area overlap with at least two, but sometimes with all three conservancies. As a result, each of these prides is generally responsible for incidents of Human-Lion-Conflict in two or all three conservancies over the course of a few years. More relevant to understanding and the managing Human-Lion-Conflict is the fact that lions from several different prides may be responsible for Human-Lion-Conflict at any one location over time.

- *Hoanib Pride*

The Hoanib Pride has occupied the Hoanib River between Elephant Song and Amp's Poort since 2006 (Figure 16). Their range extends up to the southern section of Okongwe and south to the Hunkap River. These lions have been responsible for Human-Lion-Conflict in both the Purros and Sesfontein Conservancies. The lioness Xpl-47 was fitted with a GPS collar in May 2008 and her movements were recorded until she was shot in the upper Obias River on 8 November 2015. A new satellite collar was fitted to the last surviving adult lioness (Xpl-59).

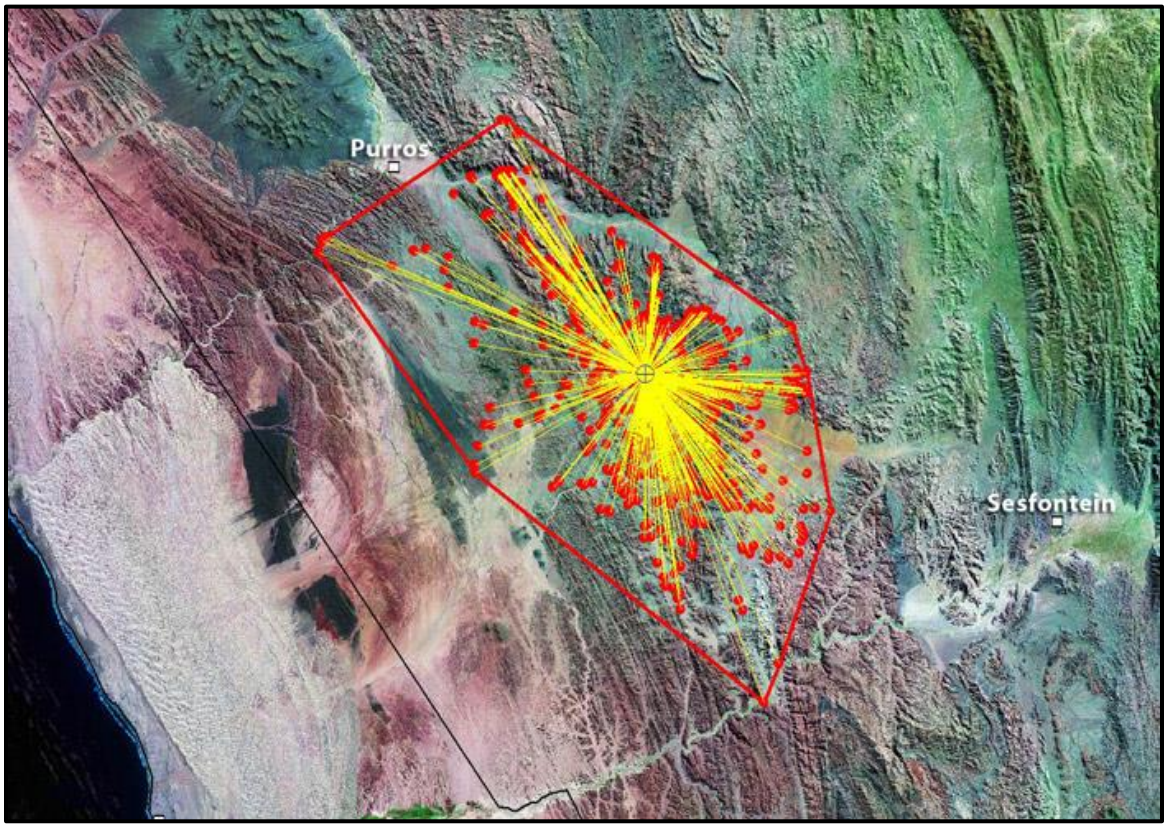
Figure 16. The home range area of Xpl-47 (female) until her death in November 2015.



- *Okongwe Pride*

Three lionesses dispersed from the Hoanib Pride in 2007 to form the Okongwe Pride. They were known as the “70s Lionesses” and occupied the mountainous terrain around Okongwe waterhole (Figure17). Conflict with local livestock farmers at Tomakas and along the Gamatum River in Purros Conservancy and at Ganamub and Elephant Song in the Sesfontein Conservancy has resulted in high mortality rates. At least 10 lions were shot or poisoned during the past three years. These included seven adult males (Xpl-56, Xpl-73, Xpl-68 “Terrace Male” & four of the “Five Musketeers”) and three adult females (Xpl-70, Xpl-72 & Xpl-96) that were fitted with satellite collars. The collars and all evidence of the lions were destroyed. The destruction of collars and other information by local communities undermines the process of managing and limiting Human-Lion-Conflict.

Figure 17. The home range area of Xpl-70 (female) of the Okongwe Pride.



- *Orowau / Hunkap Pride*

There are currently only two established adult pride males in the northern section of the population. The males (Xpl-81 & Xpl-87) are currently favouring the Orowau and Hunkap areas, but during the past two years they have regularly interacted with the Floodplain, Hoanib and Okongwe lionesses (Figure 18). The home range of Xpl-81 "Kebbel" indicates that there is extensive overlap with the five different groups of lionesses (Figs. 19 & 20). Both lionesses are responsible for Human-Lion-Conflict in Anabeb and Sesfontein Conservancies. The male lions have significantly larger home ranges and also cause Human-Lion-Conflict problems in the Purros Conservancy.

Figure 18. The home range area of the adult male Xpl-81 (red dots & polygon) in relation to the home ranges of five different groups of lionesses.

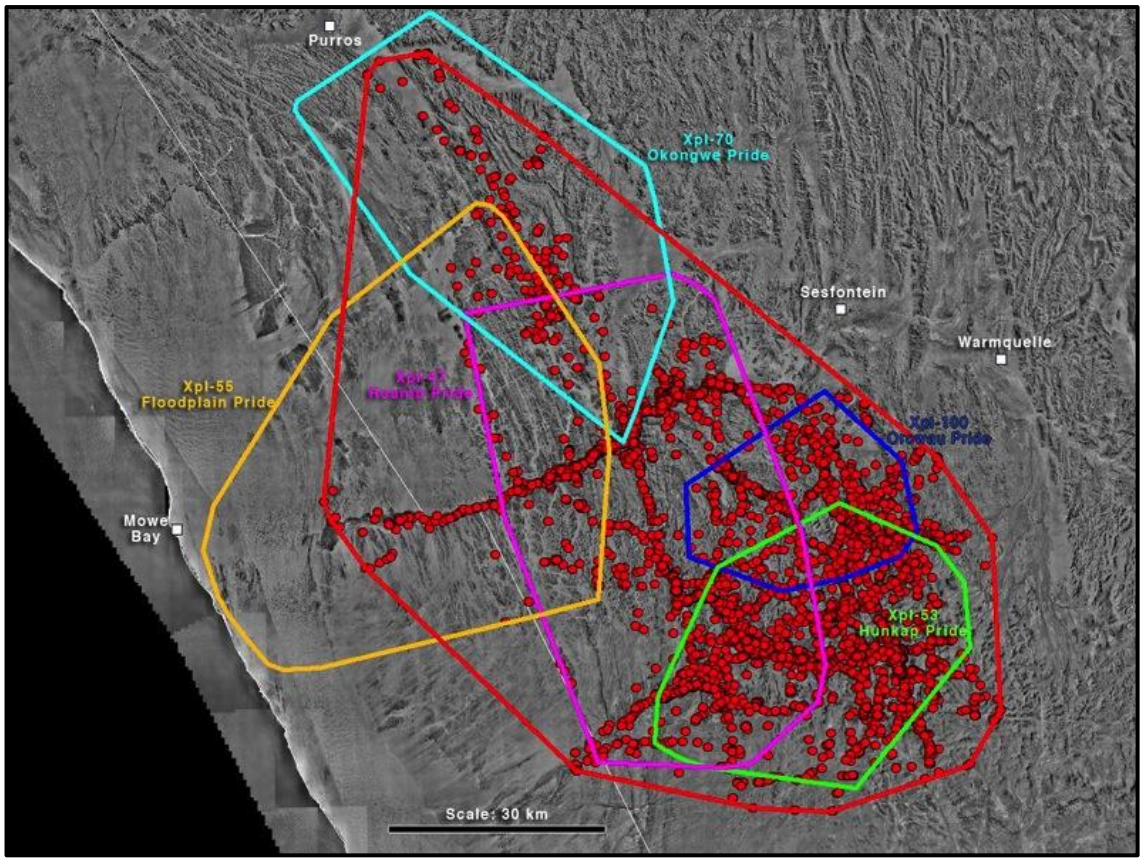


Figure 19. The home range area of Xpl-53 (female) of the Hunkap Pride.

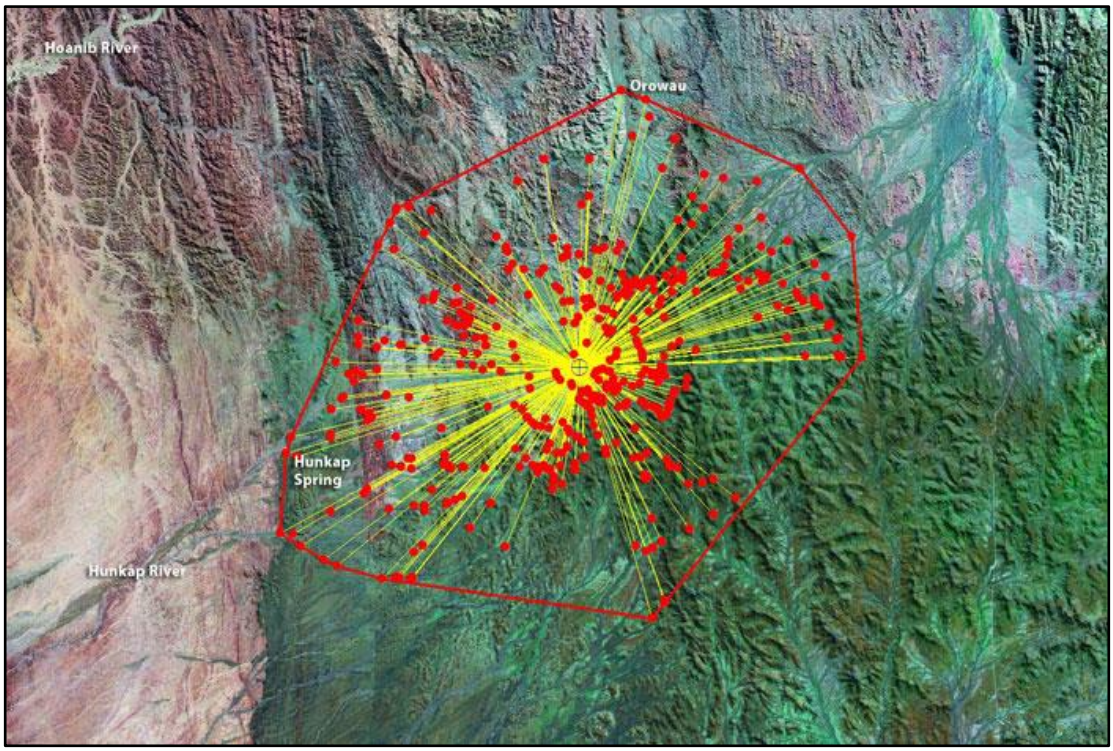
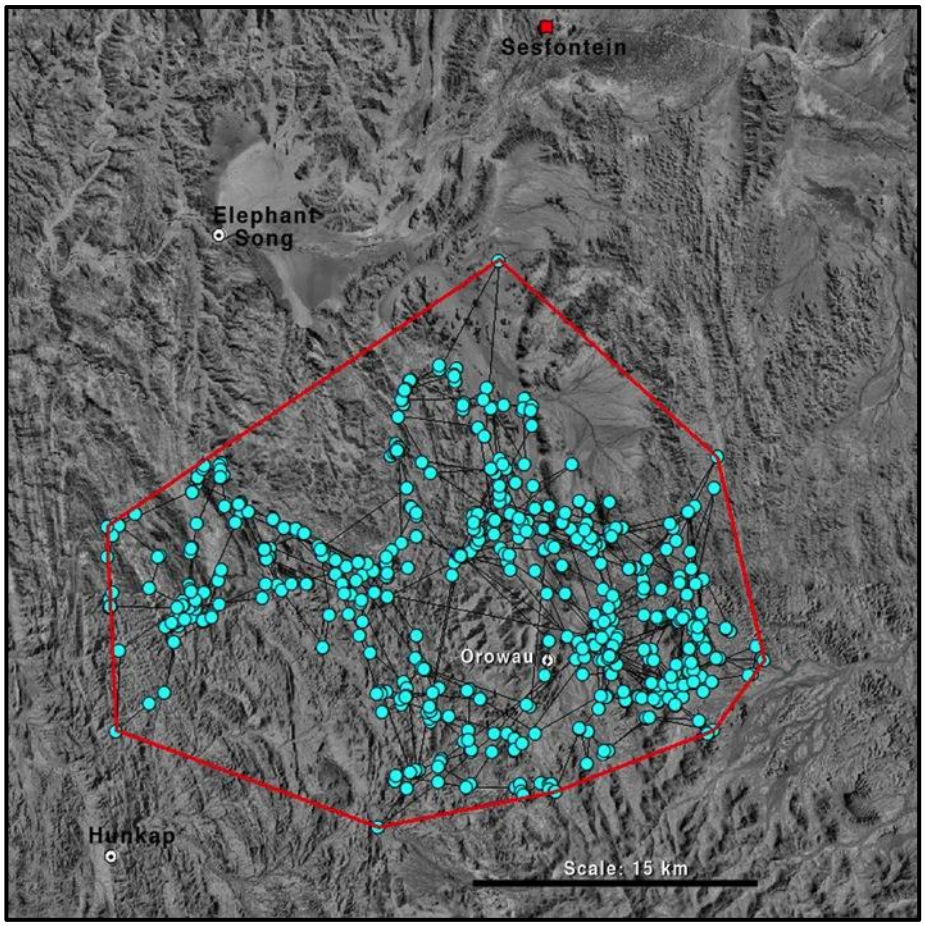


Figure 20. The home range area of Xpl-100 (female) of the Orowau Pride.



6.5.2.2 Understanding "Hotspots"

In order to survive in the harsh arid conditions these lion have developed particular skills and adapted behaviour. They have large overlapping home ranges and they move long distances of up 70 km per night. This is necessary because the sporadic and highly variable rainfall in the arid environment result in a heterogeneous and unpredictable distribution of prey animals. Detailed behavioural observations over the past 17 years suggest that the lions maintain and rely on a mental "map" (both spatial and temporal) of rich food patches. Rich food patches are areas where prey animals concentrate at certain times of the year, or after certain environmental conditions, and/or where the habitat (e.g. broken terrain or thick vegetation) result in higher hunting success. These rich food patches are therefore referred to as "hotspots" and lions regularly return to them to search for prey.

To demonstrate the significance of "hotspots", the movements and behaviour of the Uniab Delta Pride in relation to a "hotspot" are presented here.

The mouth of the Uniab River consists of a delta structure with numerous fresh water springs and thick reed beds that attract large numbers of Oryx, springboks and ostriches. Lions regularly visited the Uniab Delta before the population crash during the 1990s and the knowledge of the rich food source died with them. In December 2014 a sub-group of the Obab Pride discovered the Uniab Delta and feasted on the selection of prey that are vulnerable between the thick reeds and with strong coastal winds that aid their hunting success. The discovery of the rich food source resulted in the lions separating from their natal pride to form the Uniab Delta Pride (Figure 21). Between January and November 2015 the Uniab Delta Pride visited the mouth of the Uniab River on six occasions (Figure 22). On average they spent 23.3 days along the coastal habitat of the Uniab Delta (range: 7 – 60 days). In between these visits the four lionesses moved inland, up to 38.9 km from the mouth of the Uniab River, for an average of 20 days (range: 5 – 41 days, $N = 5$). When the lionesses were at the Uniab Delta they moved an average of 4.8 km/day, but when they moved inland their daily distances increased to 8.5 km/day.

Figure 21. The home range area of Xpl-45 (female) in relation to the Uniab Delta.

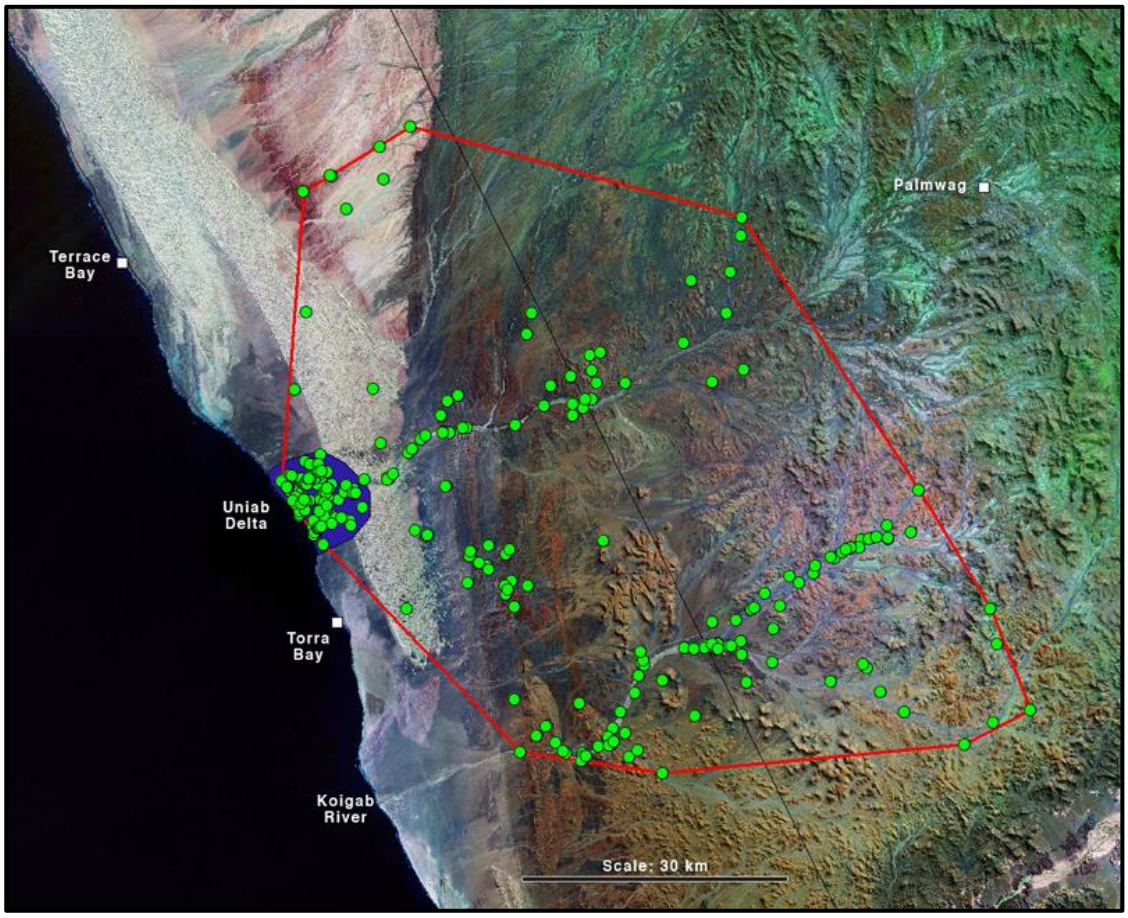
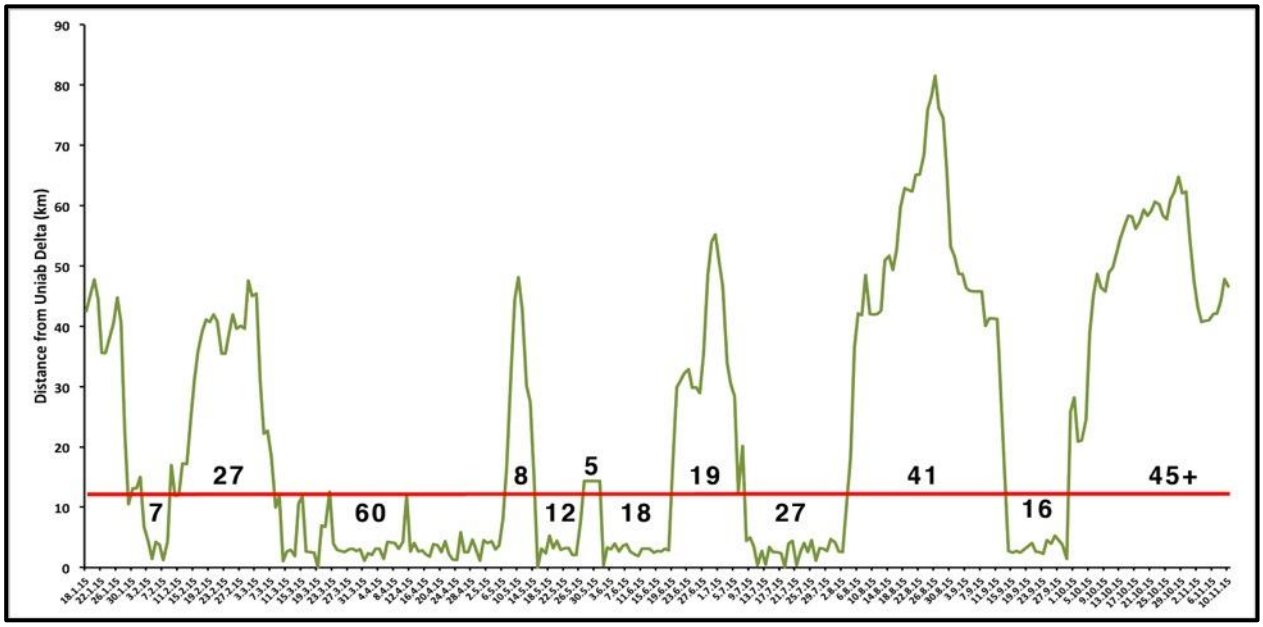


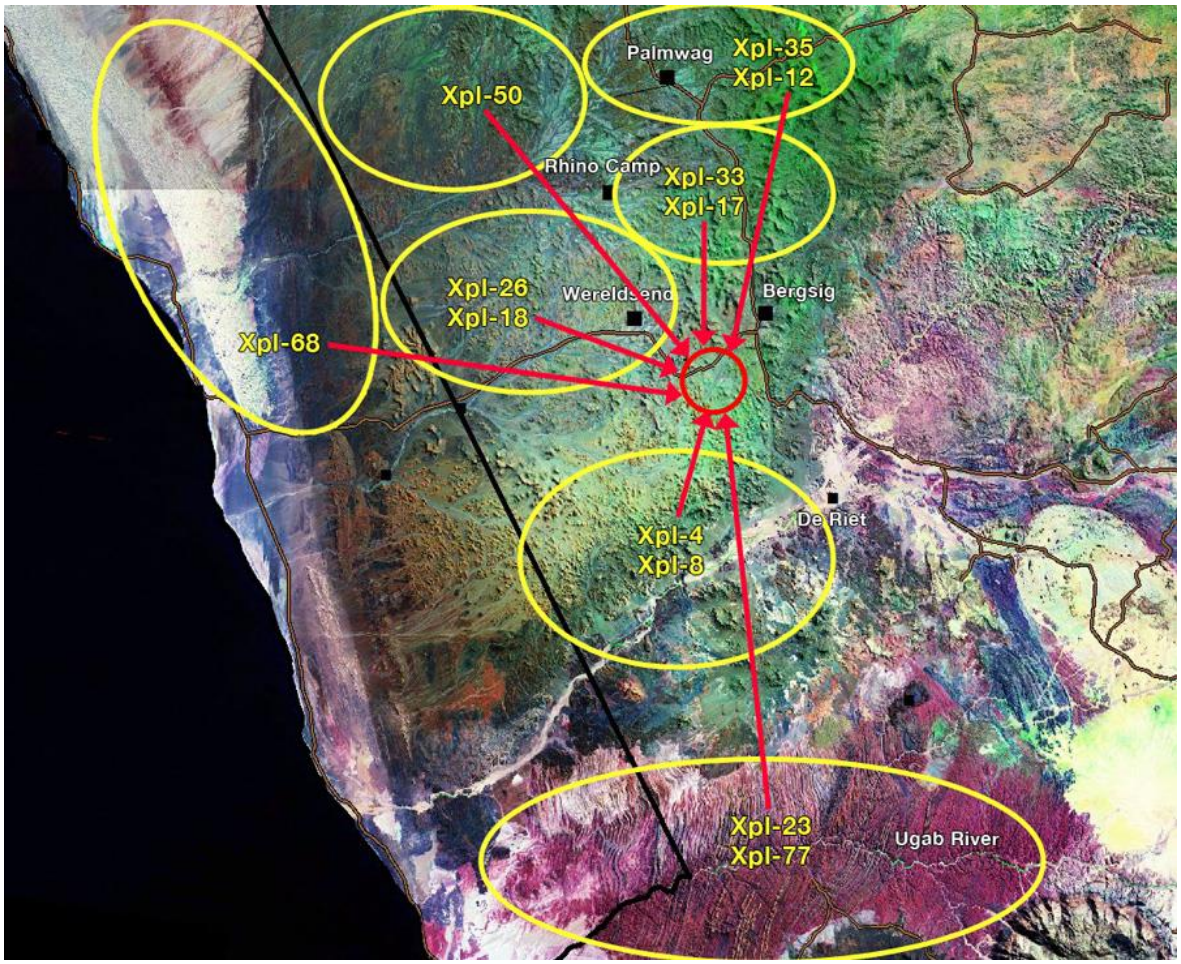
Figure 22. Sequential distances of the Floodplain Pride from the mouth of the Hoanib River between Aug 2014 and Nov 2015. The red line denotes the border of the coastal habitat and the numbers represent the number of days spent at the coast (below the red line) or further inland (above the red line).



Domesticated animals have been selectively bred over thousands of years to meet the needs of humans. As a result they have lost the ability to fend for themselves in nature and rely on humans to protect them. This is particularly pertinent at night when predators, such as lions, are active. Livestock, such as cattle, goats and donkeys are extremely vulnerable to predation by lions. The presence of livestock around a settlement that roam freely at night constitute all the hallmarks of a “hotspot”. Once lions become aware of the rich food source, they will return regularly.

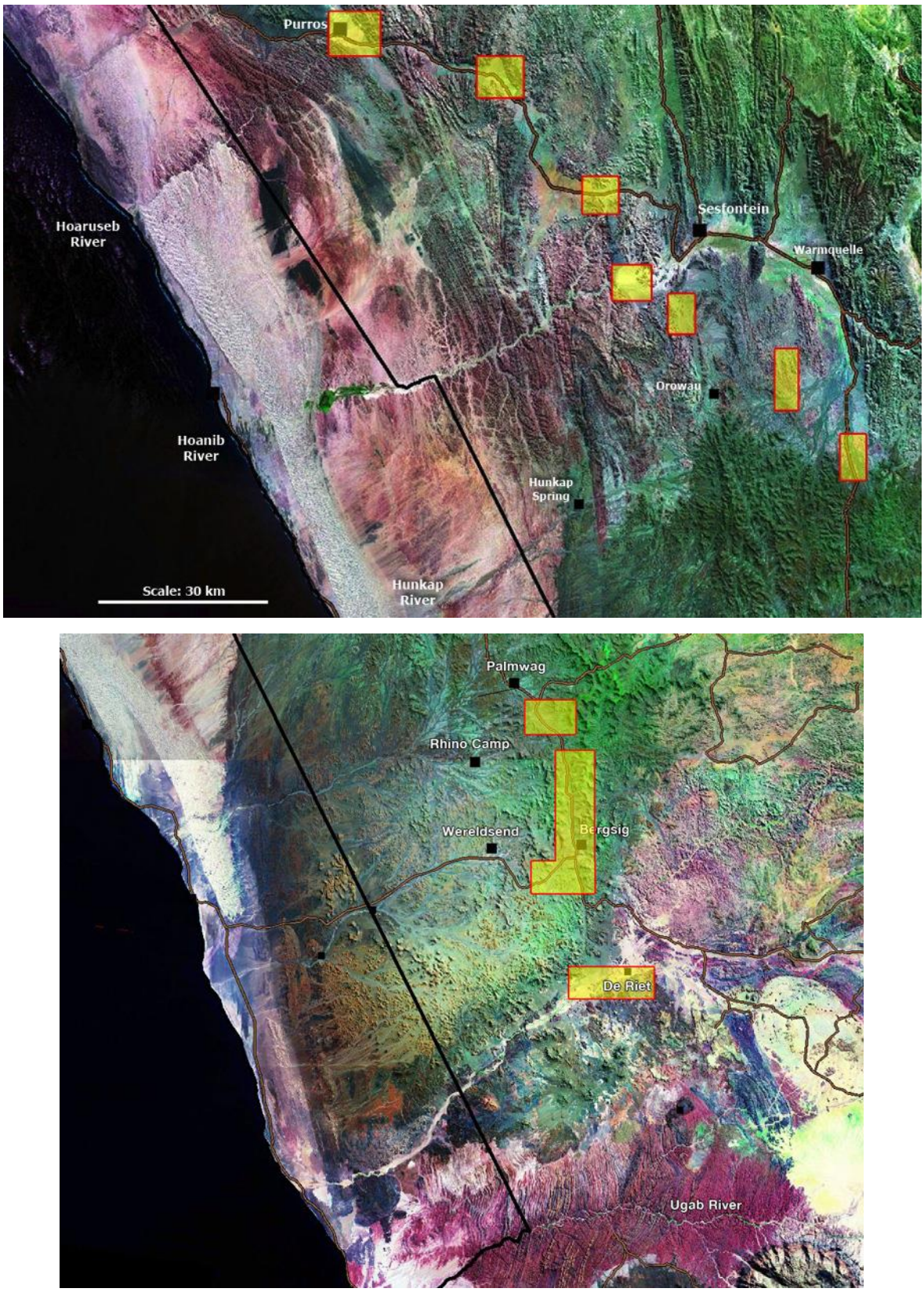
Over a seven-year period between 2006 and 2013 a total of 22 cases of human-lion conflict were recorded at Driefontein near Bergsig in the Torra Conservancy (Figure 23). Driefontein has all the characteristics of a “hotspot” and attracted 12 radio-collared lions from seven different prides with some individual returning to Driefontein several times. During this sample of human-lion conflict 16 lions were destroyed including 11 of the 12 radio-collared lions.

Figure 23. The origins of 12 radio-collared lions that caused human-lion conflict problems at Driefontein in the Torra Conservancy between 2006 and 2013.



Based on monitoring data collected since 2000 a total of ten “hotspots” were identified where lions have regularly been attracted to settlements and livestock (Figure 24). There are two “hotspots” in Purros Conservancy, three in Sesfontein Conservancy, two in Anabeb Conservancy and three in Torra Conservancy. These “hotspots” can be managed effectively for a marked reduction in human-lion conflict problems.

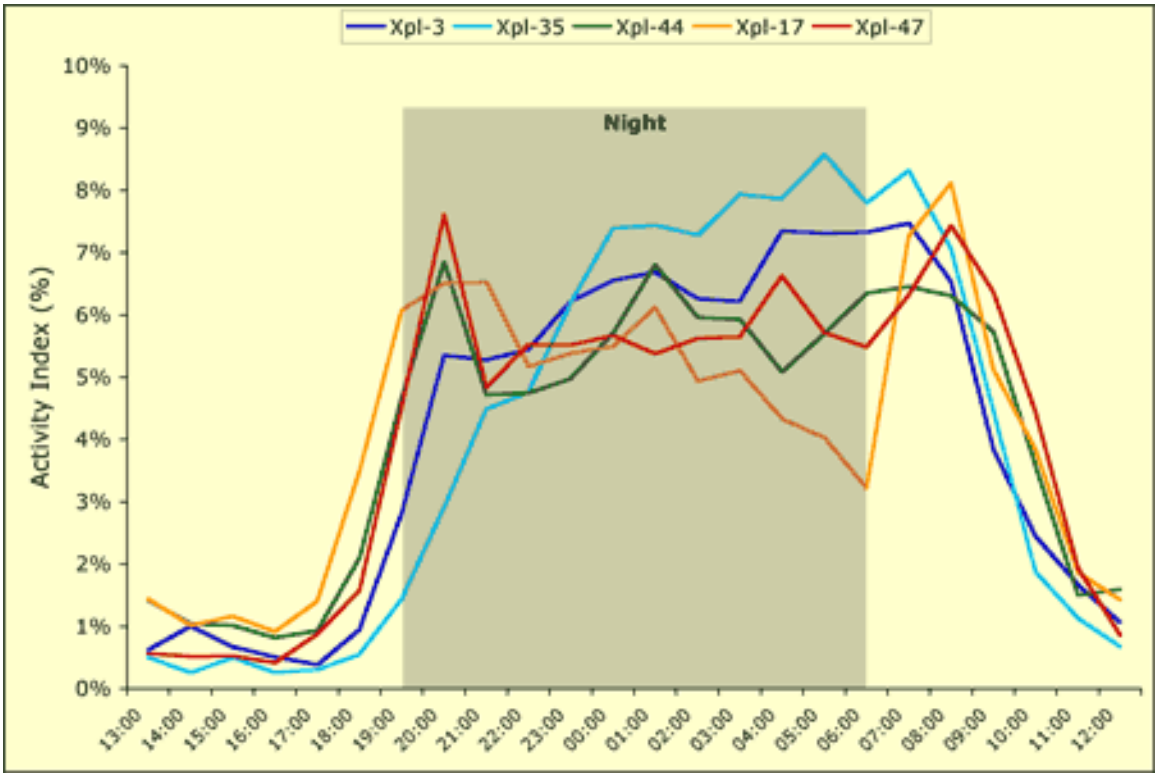
Figure 24. The locations of ten "hotspots" where lions are regularly attracted to settlements and livestock in the Purros, Sesfontein, Anabeb and Torra Conservancies.



6.5.2.3 Activity Patterns

Lions are active primarily at night. Data from five satellite collars, where the sampling frequency was ≥1 fix/hour, were included to assess patterns of activity. Distances moved per hour were used as an index of activity. To control for individual biases (e.g. mean distances moved by different lions per night) the distance moved per hour was expressed as a proportion of the total distance moved by the lion on that night. The patterns of activity are remarkably similar for all five lions (Figure 25). A sharp peak of activity occurred from between sunset and 20h00, followed by a drop in activity between 21h00 and 22h00. Activity increased again around midnight, but thereafter the pattern became less uniform although activity decreased towards daybreak, especially amongst the females. After sunrise activity increased and peaked between 07h00 and 08h00, followed by a uniformly sharp decline, and by 11h00 all five lions had stopped moving.

Figure 25. Activity patterns of five lions (males = blue/green, females = red/orange) in the northern Namib.



6.5.2.3 Population Dynamics

Aspects of the population dynamics of the Desert lion population, such as group structures, reproduction and mortality, have been monitored since 2000. Human-lion conflict and the related shooting or poisoning of lions is the main limiting factor of the population and amounts to 89 % of all adult and sub-adult mortalities.

The major cause of mortality in the lion population between 1999 and 2012 was the killing (by local people during Human-Lion-Conflict) and trophy hunting of adult and sub-adult lions. Male lions were particularly vulnerable and contribute to >80% of the recorded mortalities. The regularity, especially since 2004, at which male lions were shot, poisoned or hunted, and the selection of adult males for trophy hunting, has resulted in a significant reduction of males in the population. It also contributed to vastly different age-specific mortality rates between males and females (Figure 26), which serve to illustrate the negative impact on the population. Increasingly skewed sex ratios, favouring females (Figure 27), have reached critical levels (2010 - 1♀ : 0.18 ♂). Seven of the nine major prides are currently without a pride male.

The excessive killing of adult and sub-adult males has compromised the long-term viability of the Desert lion population. There is an urgent need to adapt the management and utilisation strategies relating to lions, if the long-term conservation of the species in the Kunene were to be secured.

Figure 27. Probability of age-specific mortality rates for females (red line) and males (blue line) in the Desert lion population (females: n = 277 lion-years; males: n = 225 lion-years).

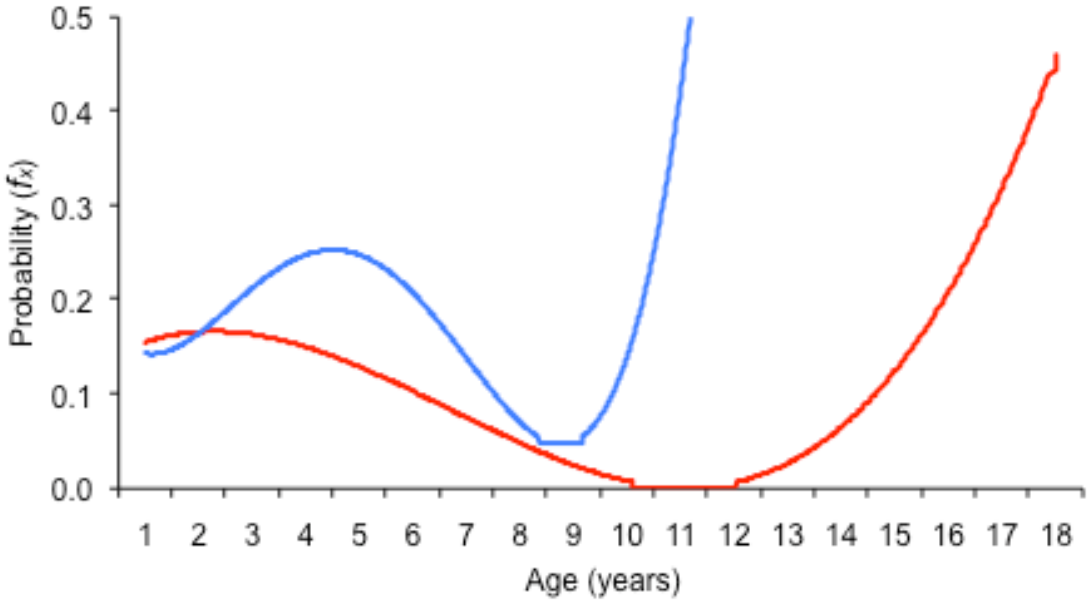
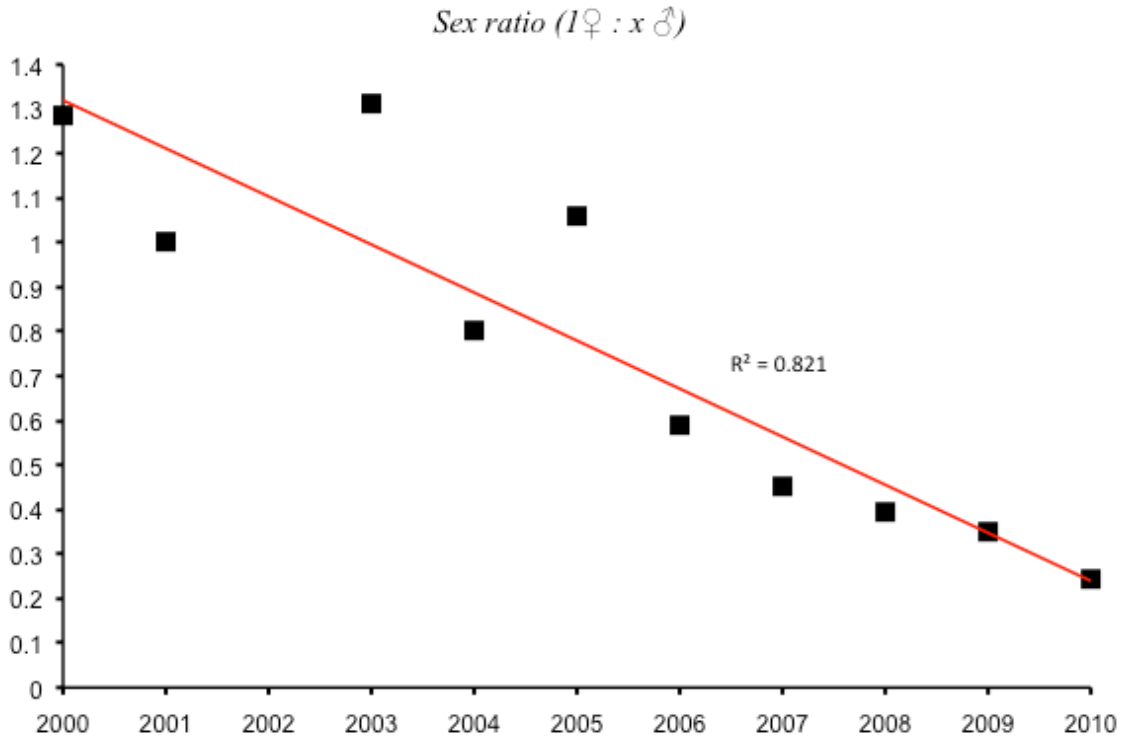


Figure 27. The decline of males in the sex ratio (1♀ : x ♂) of sub-adult and adult lions in the Desert lion population, between 2000 and 2010.



6.5.3 Developing & implementing appropriate technical solutions for mitigating HLC

The National Policy on Human-Wildlife Conflict Management states that the implantation of preventative measures is an effective and efficient way to manage Human-Lion Conflict. Local wildlife management units should carry out local level land-use planning as a means to reduce Human-Lion-Conflict. As part of zoning their area for different land-uses, such as exclusive wildlife and tourism zones, they should also identify wildlife corridors. In this case the establishment of a “high-risk lion corridor” that includes all the conflict “hotspots” will isolate the problem and facilitate an efficient management structure.

Effective and appropriate land use planning must be regulated and enforced by the elected committee for each conservancy and by the traditional leaders and Regional Councils. The exclusive wildlife zones, as per the gazetted registration of conservancies, and the “high-risk lion corridors” should be respected and implemented.

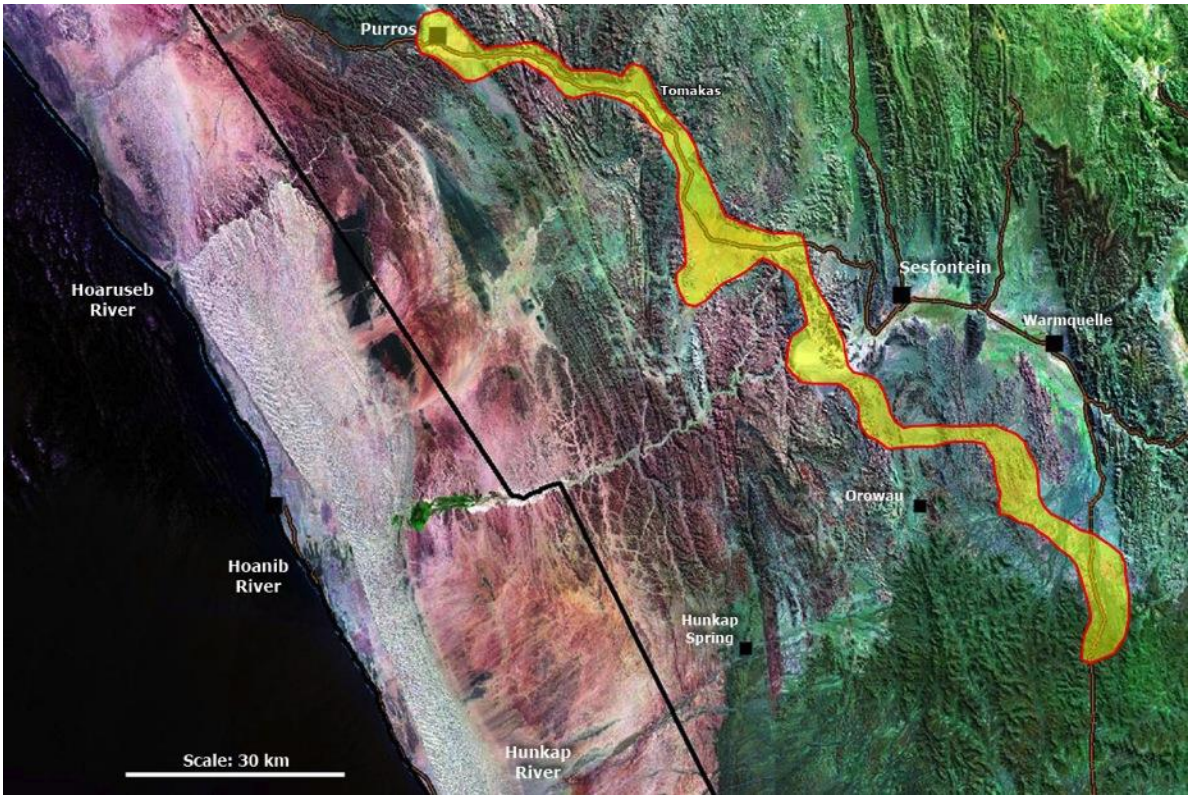
6.5.3.1 “High-Risk Lion Corridor”:

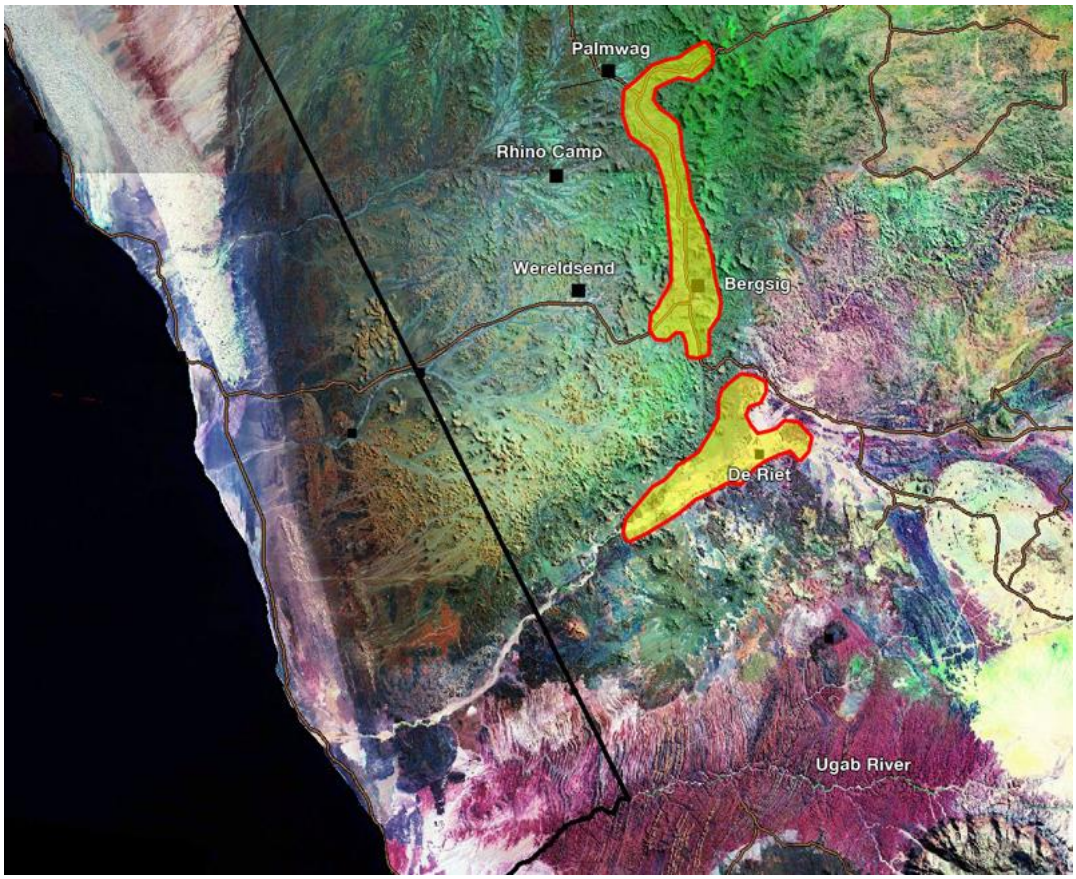
Research and monitoring of the Desert lion population and incidents of Human-Lion-Conflict over the past 15 years have produced reliable data indicating that lion problems occur repeatedly at the same locations. All previous management efforts, including the destruction of many lions, at these locations have failed for the following reasons:

a) Livestock that roam freely at night constitute all the characteristics of a rich food patch or “hotspot”.
b) Lions are quick to identify “hotspots” and will return regularly in search of prey.
c) Lions have large overlapping home ranges and as a result individual lions from several different prides will be attracted to these “hotspots”.

Establishing a “high-risk lion corridor” that includes all the known “hotspots” (Figure 27) and implementing stringent livestock management protocols, supplemented by various techniques to deter lions, within the corridor will effectively reduce Human-Lion-Conflict.

Figure 27. Proposed "High-Risk Lion Corridor" that includes all the major areas of HLC in the Puros, Sesfontein, Anabeb and Torra Conservancies.





6.5.3.2 Effective Livestock Management

Most conflict situations arise from livestock management practices that leave animals vulnerable to predators, such as allowing livestock to roam freely at night or untended during the day. The communities from all four conservancies have expressed their reluctance and disagreement to keep livestock inside protective corrals at night. Due to the low rainfall and lack of sufficient grazing in the region the communities prefer to allow their livestock to also feed at night. This is a key element to the success of Human-Lion-Conflict management that needs to be reconsidered. Based on the information presented here with regards to lion behavioural ecology, “hotspots” and on-going problems that occur at the same locations, the protection of livestock at night is paramount to the implementation and success of this Human-Lion-Conflict Management Plan.

6.5.3.2.1. Herding and guarding

The use of a person and/or dogs to walk with the livestock while grazing during the day can have a significant positive impact in reducing predator incidents. However care should be taken that guard dogs do not kill non-target predators or natural prey species.

6.5.3.2.2. Lion-proof Corrals

Keeping livestock inside protective corrals overnight will not only prevent lions from killing livestock, but it will also prevent the escalation of Human-Lion-Conflict problems in the area. Without free-roaming livestock (all species, including donkeys) at night lions will not identify the area as a “hotspot”, other methods of deterring lions from the area will be more effective and lions are likely to vacate the area. A compromise can be reached between the local livestock farmers, the conservancies and MET where only those farmers inside the proposed “high-risk lion corridor” (Figure 27) need to herd their livestock and place them inside corrals at night. Supplemented by the other preventative measures, such as early warning systems, discussed below the proposed “high-risk lion corridor” will essentially create a buffer zone that will deter lions from leaving the safety of their known home ranges. Without livestock grazing at night to attract them and low

numbers of wildlife (due to the livestock controlling the available grazing) lions are unlikely to move into areas utilised by people and livestock.

Lion-proof corrals are made from metal poles, wire mesh and other commercially available materials. The structure consists of short posts 2.5m apart, 1.8m high with an over-hang to the outside, mesh wire and shade netting surrounding the whole structure. There are two gates at opposite corners, thus allowing farmers to erect their own internal fencing. The following materials are required for a corral that is 30 x 40 metres in size:

- Tar (gum) poles: length = 3 metres x 49 poles
- Diamond mesh: height = 3 metres x 140metres.
- Steel wire x 1 roll (sufficient for several additional kraals).
- Medium thickness binding wire x 1 roll (sufficient for several additional kraals).
- Extra thin binding wire x 1 roll (sufficient for several additional kraals).
- Metal farm gates: length = 2.4 metres x 2 gates.
- Threaded rods (12-15mm x 1 metre) with nuts x 10.
- Wire-straining tool x 1 (to be used for the construction of all future kraals).
- Large-size Crescent fencing pliers x 4 (to be used for the construction of all future kraals).

6.5.3.3 Early Warning Systems and Scare Tactics

Since November 2012 a total of 16 lions from selected prides in areas where there is potential for high conflict were fitted with satellite collars and their movements monitored by the DLP. The daily positions of the lions were plotted on a map and posted on the Desert Lion website. Lion Rangers, appointed by conservancies, or other community organisations monitored the website and the information on lion movements was then given to farmers who could then take precautionary actions when lions moved towards their livestock. This initiative served as an early warning system where local farmers can monitor the locations of lions in their area and take precautionary actions when lions move towards their livestock. This approached, referred to as the Satellite Early Warning System, produced promising results, but lacked institutional support and did not reach its full potential. A central “Early Warning” unit in Windhoek controlled by MET, as described

in the National Policy on Human-Wildlife Conflict Management, will provide the necessary structure to support this approach.

A second more direct early warning system (the Logger Early Warning System) was developed in 2016. The Desert Lion Conservation Trust (DLCT) collaborated with a highly qualified electronic engineer in Swakopmund and they designed and built several units. The system produced favourable results during a dry-testing phase and now needs to be implemented in the field at settlements where regular problems with lions are experienced.

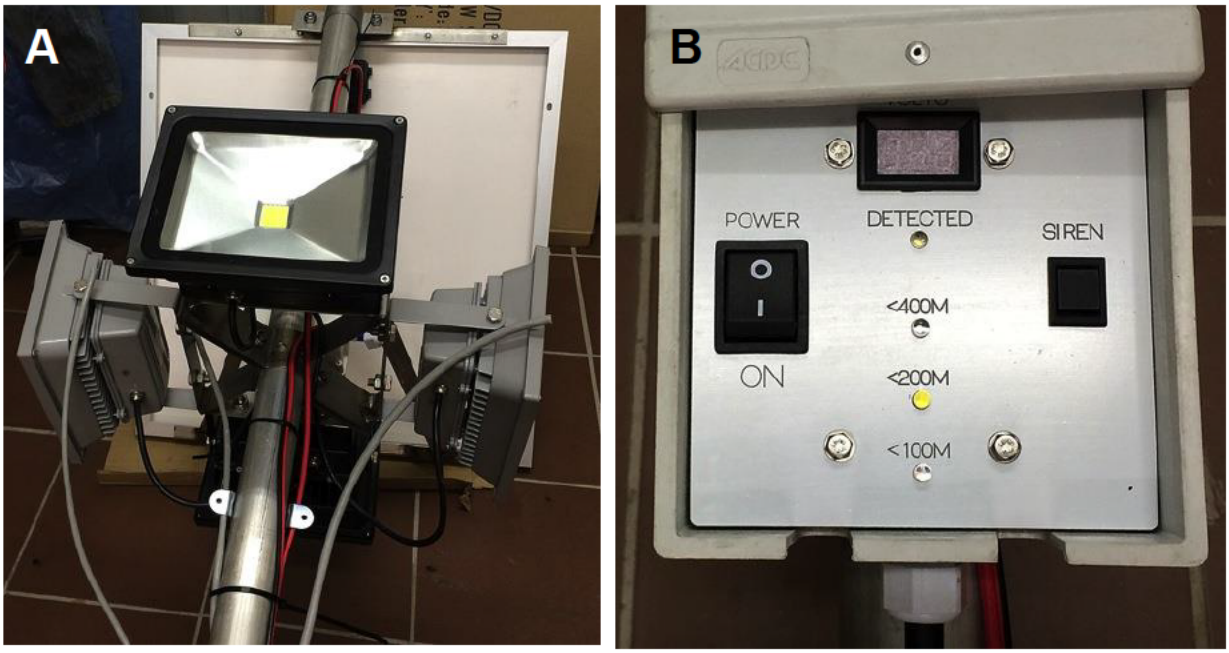
The Logger Early Warning System consists of several components (Figure 28) and a brief summary of the mechanisms is described here.

- Several lions from all the prides that border human settlements or that may be responsible for HLC are fitted with collars that contain GPS recorder and a special RFID Tag unit in addition to the normal VHF transmitter.
- The GPS unit will record accurate position coordinates every hour at night and every four hours during the day. The coordinates will be stored on a memory chip in the collar and can be downloaded remotely.
- An “Early Warning Logger” will then be mounted adjacent to a corral at settlements with high incidents of HLC.
- The “Early Warning Logger” consists of an antenna, an electronic circuit board that acts as a small computer processor, four powerful LED floodlights (Figure 28a) and a siren that are mounted on top of a 4 metre pole. The unit is also fitted with a solar panel and a 12 Volt battery to provide sufficient power throughout the night. The logger will be mounted so that each of the four LED floodlights point towards one of the four wind directions (North, East, South and West).
- The Logger will continuously transmit RFID signals to probe for any RFID Tags (fitted to the lion collars) that may be nearby.
- Preliminary results indicate that the Logger can detect the lion collars from a distance of 2 – 3 km.
- When the Logger detects a lion collar it will instruct the collar to record a GPS position every 5 minutes and relay the information to the Logger. Whereupon the Logger will calculate the direction and distance of the lion from the settlement and

trigger one or two of the LED floodlight to "point" in the direction of the lions. The floodlights are very powerful and will allow the people to see the lions as well as deter the lions from approaching the corral.

- A control/display unit that is mounted lower down on the Logger pole (Figure 28b) will display the distance of the lions from the settlement. When the lions reach a distance of 200 metres from the settlement a powerful siren will be triggered to deter the lions from approaching.

Figure 28. Elements of the "Logger Early Warning System" that will be mounted at settlements that experience HLC problems.



Generating disturbances associated with settlements, people & livestock is an effective way to scare lions away and prevent Human-Lion-Conflict. Whenever the lions come into contact with settlements and livestock they should be deterred & discouraged. However, it is vitally important for the lions to form a clear association between the disturbance and the settlement/livestock. Various scare tactics have been tested and the successful methods are addressed below:

- Sound playbacks. In recent years lions have successfully been deterred from approaching human settlements by playing modern music or recordings of human

voices, especially stand-up comedy shows with female or high-pitched male voices, at high amplitude.

- Loud Noises. The use of fireworks and especially rockets that explode overhead have been successful in scaring lions away from settlements. Air-horns and whistles can also be used but they are less effective than fireworks.
- Ultra-sound playbacks. A method of reproducing ultra-high frequencies (above human hearing) using electronic oscillators and frequency generators was designed in Swakopmund along with the Logger Early Warning System. The electronics were attached to an amplifier and a powerful speaker (Figure 29) and the system is currently being tested in the field. The preliminary results are exceptionally good. Lions immediately reacted to the sound playbacks and moved away. The same response was observed with several black-backed jackals and one brown hyaena.

Figure 29. Ultra-sound system developed to deter lions

- Vehicles. Lions can be chased-off and deterred by vehicles, but there are several important elements to consider. 1) Lions are capable of distinguishing between different types of vehicles based on engine type (petrol or diesel), appearance (e.g. came-drive vehicles or open pick-up vehicles with people on the back) and the manner of driving. 2) Some lions that live inside tourism areas are habituated to tourist vehicles and this leads to high quality sightings for tourists. 3) Care must be taken not to compromise this important tourism value by using game-drive vehicles to deter lions. 4) This can be

achieved by a) only using white open pick-up trucks, b) with people on the back, c) that are making a lot of noise and shouting, d) by driving fast and aggressively, and e) by ensuring that lions can easily associate these vehicles and the disturbance with human settlements and livestock.

6.5.3.4 Rapid Response Unit

Following the guidelines under the National Policy on Human-Wildlife Conflict Management two Rapid Response Teams need to be established. An initiative led by IRDNC with support from DLCT and DECP is underway to secure funding and implement the Rapid Response programme.

Objectives of the Rapid Response programme:

- Develop two teams, each comprising of trained local people, to monitor aspects of the lion population and to respond to potential or actual incidents of HLC. Critical is that these teams will liaise with conservancy management, lodges and traditional leaders. Develop systems of local community game guards and rangers to assist in this.
- Through these Teams, to mentor conservancies and farmers into taking rational and objective decisions about lions and the challenges of living with them. This goes right from managing threats and incidents to drawing up and adopting conservancy management plans for the species.
- Reduce HLC through a variety of means, for example, constructing lion-proof corrals, deploying and maintaining automated early warning systems at key villages
- Educate and train farmers, game guards, tourists, guides and residents on living with lions and promote the value of lions.
- Add value by providing information on individuals, movements and history of the lion population, and by encouraging tourism industry development and buy-in to the in-situ conservation of these animals.
- Mentorship of local qualified Namibians to run the program in the long term.
- Develop systems to monitor the progress and success of this program

The development of two teams to respond to human wildlife conflict incidents, facilitate in training farmers, communicate with Traditional Leaders, conservancy management and farmers and to gather information and data is essential. The procurement of 2 vehicles and recruitment of 4 suitable members is important and already underway. The appointment of a Project Co-ordinator and a Project Administrator to drive and manage the project is necessary. Training will be extensive and is to be provided by DLCT, DEP and IRDNC. These teams will be mobile, have satellite phones, radio communication (vehicle and hand held sets), spotlights and be equipped to respond to incidents and stay in the bush for several weeks at a time. The vehicles will also be monitored by commercial satellite fleet management systems. While the ideal is to have two operational independent teams, this will be phased in gradually to allow for developing efficient management and reporting structures. A system of Lion Rangers is already in place in three of the lion range conservancies. These rangers were nominated and appointed by their communities. However, it is only with the development of the Rapid Response Teams that they can become truly efficient. In year two a suitable UNAM conservation graduate will be sourced to join the program. Training and mentoring will be on site with focus on all aspects, research, HWC, logistics and admin with a view to this person eventually taking over management of the program.

Reducing Human-Lion-Conflict is a crucial aspect of the program. There have been extensive meetings with affected local communities to seek solutions to this problem. The main thrust of this aspect is to build structures and systems to reduce losses to farmers and to ensure human safety. Over and above the response teams and education this will entail constructing lion-proof corrals, providing early warning of the presence of animals using collaring and providing lights in key localities at farms/homesteads. While most conservancies have land use zonation plans in place, these are often not respected properly and some of these need to be changed to better accommodate lions and elephants.

The Rapid Response Teams will be trained in (excluding the skills they need for their daily tasks) living with elephants and lions, basic elephant and lion behaviour, basic biology and requirements of the two species. The Kunene Region Communal Conservancy

Association (KRCCA) is an influential organization with respected leadership. They will also be trained to pass on the information and to monitor peoples' reaction and attitudes to these efforts. A major part of the education effort is to build capacity within these communities to deal with living with wildlife and also to communicate to visitors to these areas. A concerted effort will be made to educate the tourism sector, local guides and visitors to the area about these unique animals. This will take the form of formal training for guides and the production and distribution (via key entrance points to the area and car hire firms) of pamphlets. This is already taking place, but does need to be increased. The ambition is to accommodate one Namibian University of Science and Technology student per year on their 6-month practical or internship. This will provide them with an opportunity to partake in meaningful and relevant surveys and actions.

Poaching at present is not a problem in the region. However, there is an increase in poaching of both elephants (for ivory) and lions (bones and body parts for the Asian traditional medicine market) in southern Africa. As anti-poaching efforts become more successful elsewhere, so we can expect poachers to target our area. This has already been evident with the free-ranging black rhino population in the Kunene Region. We urgently need to increase our efforts in this regard to make it as difficult as possible for poachers to operate in this area. Our Teams and Coordinator will work closely with the Ministry of Environment and Tourism, the Save The Rhino Trust and the Protected Resources Unit of the Namibian Police. A relationship has already been established with these stakeholders and will be maintained as a priority.

Adding value or increasing tangible benefits to farmers and residents affected by these animals is a priority. Employment and increased compensation rates are seen as crucial in this regard. Tour operators and Lodge or accommodation operators will be asked to encourage their guests to contribute to a "sightings fund". Whenever lions or elephants are seen, a small donation can be made. It is important that research provide information on individuals, group sizes, habits, personality etc. of lions and elephants. This makes the experience tourists might have more personal and meaningful. In the long-term, we will develop Lion and Elephant Rangers to the point where visitors can accompany them on their patrols, thus gaining an insight into local conservation first hand.

Systems will be developed to measure the success of the Rapid Response programme. This is not just about work completed, number of kraals built or number of patrol days, but also includes monitoring actual number of HWC incidents and very importantly, the attitude and buy-in by local farmers and residents.

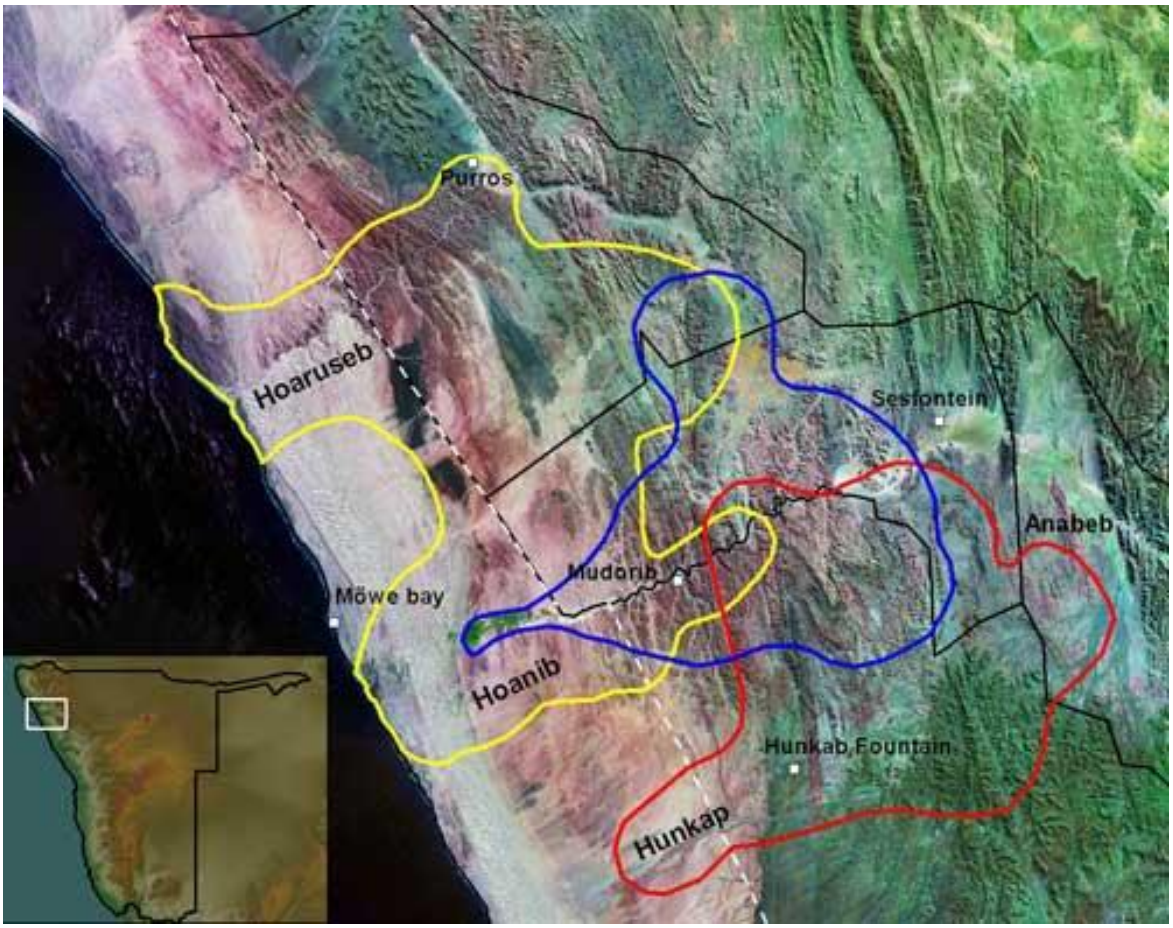
6.5.4 Lion Tourism

Tourism can play an important role in the conservation of lions and in the mitigation of Human-Lion Conflict. The simultaneous growth of wildlife populations, tourism, and community-based conservation efforts during recent years in NW Namibia is testimony to this. Under the current climate where local people benefit from wildlife and communal conservancies enter into contractual agreements with tour operators, the tourism industry's potential role in wildlife conservation is ever increasing. Along with black rhinos and elephants, lions are one of the most popular species among tourists. The value of lions and the benefits derived through tourism in the region, must arguably out-way the losses incurred as a result of Human-Lion Conflict.

Notwithstanding, people still pose the biggest threat to lions. Local communities suffer financial losses when lions prey on their livestock, upon which they often retaliate (legally) by killing lions. The tourism industry and related entities (including the communal conservancies) enjoy the benefits, but the local people that live close to lions (i.e. individual farmers) have to bear the costs. This discrepancy has been identified and according the National Policy on Human-Wildlife Conflict Management there is a need for preferential benefits to those local people.

Between 2007 and 2008 a detailed study was conducted in the Hoaruseb River (Purros Conservancy), the Hoanib River (Sesfontein Conservancy) & Hunkap River (Anabeb Conservancy; Figure 30). The objectives were: a) to evaluate the tourism potential of lions, and b) to propose a system where direct benefits derived from lions would reach the appropriate local people in order to offset the losses.

Figure 30. The home ranges of three lion prides that utilise the Hoanib River (Yellow - Hoaruseb pride 4584 km², Blue - Hoanib pride 2345 km², Red - Hunkap pride 2927 km².



There were a total of 35 individually known lions in three separate prides (Hoaruseb = 14, Hoanib = 14, Hunkap = 7) and they occupied a combined area of 6171 km² (Figure 30). There was overlap between the home ranges of all three groups, but they rarely interacted with each other.

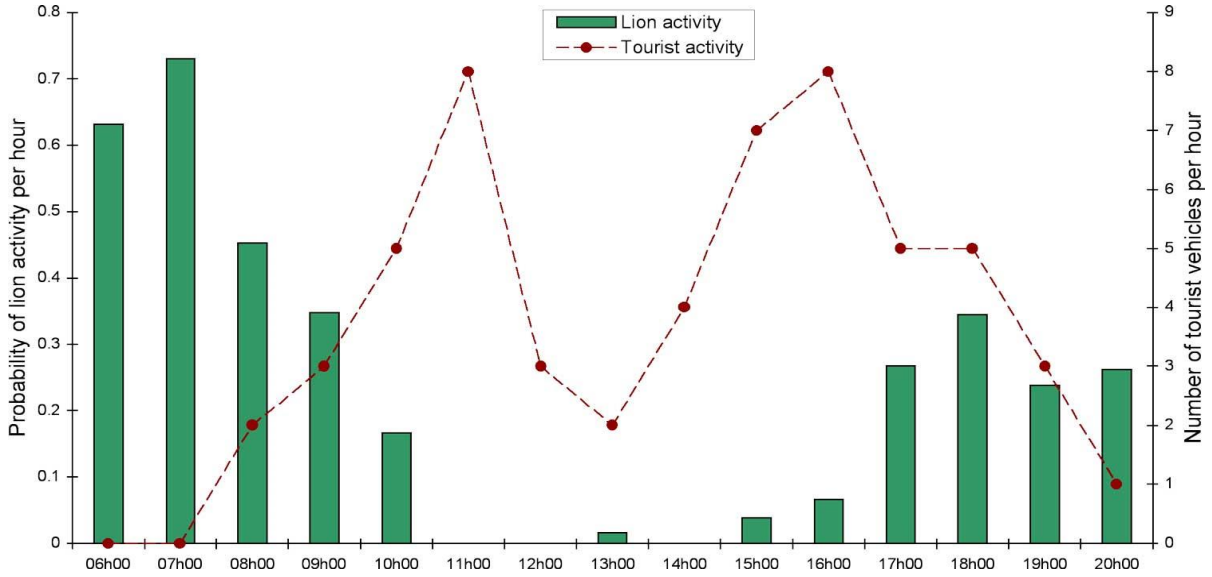
The lions were observed intensively for 2208 hours (92 x 24hrs) during which time they killed 51 prey animals of 12 different species. Oryx was the most important prey species and along with zebra, ostrich and springbok, formed 75% of the lion's food. Livestock (donkeys) represented only 5% of the kills.

Lions were inactive for 72 % of the 24-hour day (N = 92 days) and activity was highest at night and during the early morning up until. During the middle of the day (10h00 – 15h00)

they generally rested in thick vegetation and were not visible. Although lions were active mostly at night, the main peak of activity was around sunrise, followed by another increase in activity at sunset.

The Hoaruseb lions spent 85 % of their time in the riverbed and the remainder in rocky outcrops close to the river (5 – 10 km). The likelihood of finding and seeing the lions, during a sample of 82 attempts, was high (69 %). The average distance between passing vehicles and lions was 74 metres (range: 15-250 m). Despite this high probability of seeing lions, only 8 % of the 86 tourists vehicles that drove past the lions (average = 4.2 vehicles per day) actually saw them. The peak tourism traffic was between 09h00 and 18h00 when lions were inactive (Figure 31) and resting behind vegetation and other forms of cover. The lions were mostly relaxed when vehicles drove past them, but when vehicles were noisy or caused disturbance, they often walked or ran out of sight.

Figure 31. Daytime activity patterns of lions and tourist vehicles in the Hoaruseb River. Data were collected during 83 periods of 24-hour observations. Tourism activity represents the number of vehicles that drove past the lions per hour, during the 24-hour observations.



Because of their nocturnal habits, the movements and behaviour of lions are often poorly understood. Tour operators will benefit from accurate and current information on lions, and there is a need to provide such information to the industry, so as to increase the

potential benefit of tourism to wildlife conservation. Collaborating with the communal conservancies and involving them in the process is essential.

The Desert Lion Project has provided numerous training courses to conservancy members and local tour operators to improve the tourism potential of Desert lions. Such training has helped to increase the success rate of finding and approaching lions during game drives, and improve the quality and accuracy of information conveyed to tourists. In the Hoaruseb River the proportion of tourist vehicles spotting and observing lions increased to 52 % after such training courses.

The major tour operators and TOSCO should be approached to discuss the mechanisms of a establishing a “Lion Fund” where operators agree to donate a minimal fee (e.g. N$ 100 per vehicle) for every sighting of lions. A system of collecting and managing the funds must be developed and approved by MET. Each communal conservancy should establish a separate “Lion Fund” account where income derived from lions-related tourism and hunting can be used to off-set the losses and costs of Human-Lion Conflict. Options of securing matching or “gear-up” funds from other sources to supplement the “Lion Funds” at conservancy level should be investigated.

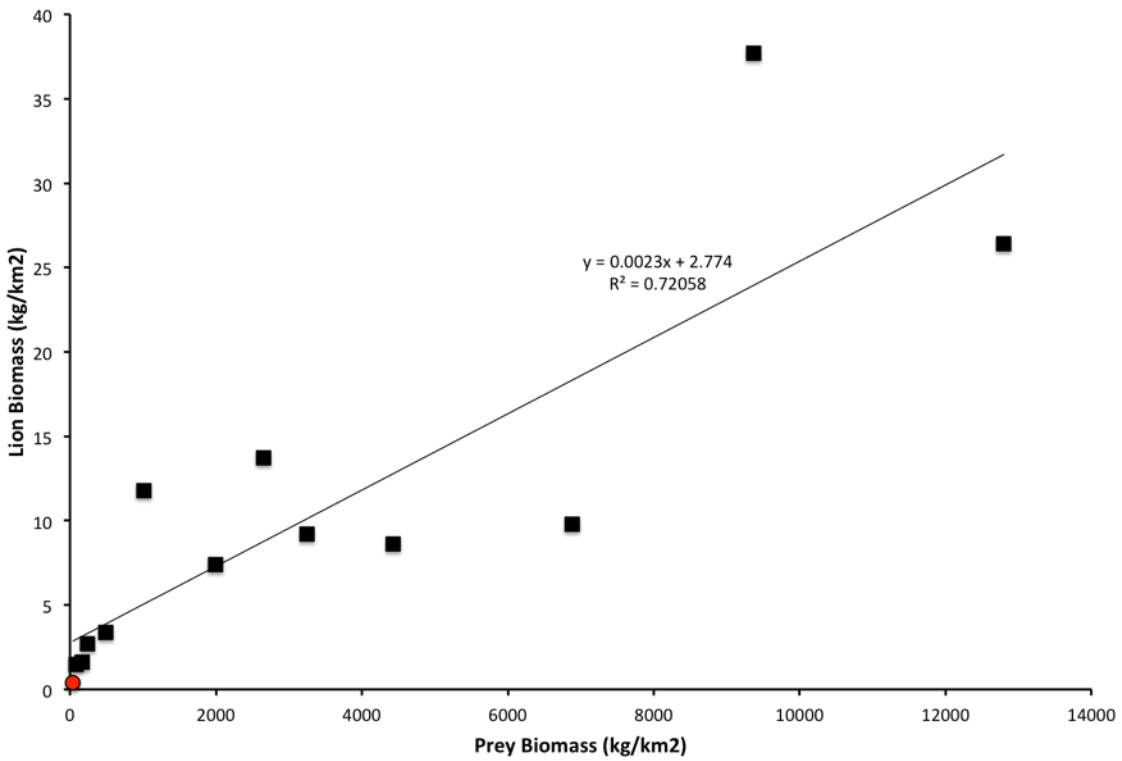
6.5.5 Lion Population Management

Some conservancies and local communities have raised concern that the Desert lion population have increased beyond the expected ecological carrying capacity and that their numbers may need to be reduced.

An analysis of the frequency of Human-Lion Conflict incidents (see Page 22) between conservancies and between years revealed that increased levels of Human-Lion Conflict occur randomly and are generally related to a localised abundance of particularly sub-adult males in one of two prides. The Hoanib Floodplain pride is currently the only pride that do not move into areas used for livestock farming and that are safe from human-related mortalities. The home ranges of all the other prides overlap to some extent with livestock areas (Figure 7).

The density of lions in the Desert population (0.48 – 0.62 / 100 km^{-2}) appears to be in balance with the arid environment and compares favourable with lion population densities in other semi-arid environments, such as Etosha National Park (1.8 – 2.4 / 100 km^{-2}) and Kalagadi Transfrontier Park (1.5 / 100 km^{-2}). Furthermore, to relationship between lion biomass and prey biomass (based on figures from the 2016 Aerial Survey in NW Namibia) compares favourably with similar data from 13 other lion populations in sub-Saharan Africa (Figure 32).

Figure 32. Lion biomass as a function of available prey biomass in 14 conservation areas in sub-Saharan Africa. The Desert lion population is indicated by a red dot.



The genetic heterozygosity of the Desert lion population is sufficiently diverse and similar to that of the Etosha lion population. However, due to the skewed adult sex ratio and shortage of adult pride males there is a need for regular monitoring. The genetic variability and viability of the Desert lion population should be measured at least once every ten years.

6.5.5.1 Trophy Hunting

Trophy hunting of lions can be a very lucrative and selective option for turning a problem into an asset. As with every form of utilisation there is always the fear of exploitation and greediness. Notwithstanding with good scientific data as backup and carefully designed control measures in place the selective use of trophy hunting can be valuable in managing Human-Lion Conflict, removing “problem” lions and generating income towards the “Lion Funds” at conservancy level.

Hunting quotas are generally allocated for each conservancy separately, but in NW Namibia it is, however, essential that sustainable off-take quotas are first calculated for the whole Desert lion population, and then divided between the relevant conservancies. This is necessary because lions move across several conservancies and the home ranges of all the prides overlap extensively.

Quota settings should be based on the CITES standard of 5% off-take and follow the import conditions of the US Fish and Wildlife Service under the Endangered Species Act, that require proof of sustainable and ethical hunting of free-ranging lions where trophy fees are used for the conservation of the species.

In the event of prolonged incidents of Human-Lion Conflict, the Ministry of Environment & Tourism could identify and declare a “problem” lion that can be utilized for trophy hunting. Clear and binding conditions must be stipulated and an MET staff member should accompany the PH to ensure that the actual “problem” lion is shot. On numerous occasions during the past 15 years hunters have misused such hunting permits by ignoring the “problem” lions and selecting unrelated adult male lions. Care must be taken that “problem” lion trophy hunting permits in addition to the allocated annual quotas do not amount to unsustainable off-takes. Due to the current skewed sex ratio in the population – the result, partly, of excessive numbers of adult males shot on quota and “problem” trophy hunting permits – adult male lions (> 4 years of age) may not be trophy hunted.

Funds generated through trophy hunting will provide a much need income to local communities and conservancies. Permit conditions issued by MET must stipulate the proportion of funds to be allocated to the relevant conservancy “Lion Funds” and to the Game Products Trust Fund (GPTF).

6.5.5 Research and Monitoring

In order to manage Human-Lion Conflict in NW Namibia conflict effectively and efficiently it is crucial to have adequate data that is available in a usable form for key decision-makers. There is a need for more comprehensive data that enables the Government and other stakeholders to understand better the nature and scale of the problems, to develop solutions and monitor the success of the solutions. Data gathering needs to be standardized so that results can be compared from area to area and over time. Data needs to be stored in a central database that all stakeholders can have access to.

The specific objectives of this strategy are:

6.5.5.1 To develop a standardized monitoring and reporting system on HLC that captures the most relevant data for use by all stakeholders

6.5.5.2 To monitor and evaluate the effectiveness of different HLC mitigation methods and to disseminate findings to all stakeholders

6.5.5.3 To determine the social and ecological carrying capacity for lions

Strategic approach

Establish National database with the MET that should include historical and current data from existing systems including the MET Permit Office.

Record data from each reported HLC incident capturing:

- Numbers, age and sex structure of lions
- Location of incident

- Date & time when incident occurred
- Damage caused
- Who was affected
- Action taken
- Was any mitigation in place (e.g. were animals in a corral?, etc.)
- Who recorded the data;
- Sex and age structure of the animal
- Any other information which may be appropriate

Provide data on the economic impact of HLC on households – this provides a better indication of the costs to citizens than simply recording the cost of damage as it takes into account the economic status of the household bearing the loss and other factors. For example, the impact of losing five cows to a lion is much higher on a household owning eight cows compared to a household owning 50 cows. Similarly the loss will be greater to a female-headed household with few other assets and little or no cash income.

Provide data on the effectiveness of HLC mitigation methods including type of method, features of the method (e.g. detailed description of the infrastructure, components, ingredients, position in relation to other important features such as other water points, houses, etc), aim of the method, extent to which the method has achieved its aims, reasons for success or failure, length of time over which monitoring has taken place, description of monitoring methodology, provide comparative data to improve our understanding of the factors influencing patterns of HLC, and designed to detect possible duplication of data.

Work with all other stakeholders to develop standardized data gathering and monitoring systems that are simple and cost-effective to implement. Disseminate data in appropriate forms to all stakeholders. Build capacity of stakeholders in collecting, recording and using data and ensure that there is systematic and consistent data recording in terms of level of effort and across temporal, spatial and numerical scales.

Develop various forms of “Early Warning Systems” to provide communities and farmers with sufficient and timely information in order to take appropriate measures to prevent livestock losses. The early warning system should provide information on a daily basis.

MET will coordinate a centrally-based Rapid Response structure which will coordinate with Rapid Response Units deployed in NW Namibia to address incidents of HLC and manage “problem” lions.

All efforts to monitor and manage HLC will be coordinated by MET. The general public, interested parties and individuals may not be involved in any form of HLC management without the written approval of MET and the conservancies.

6.5.6 Human Lion Conflict Insurance Scheme

It has not been Government policy to provide compensation to farmers for losses due to wild animals since compensation schemes implemented elsewhere have proved to be very problematic and open to abuse. However, there is a need to reduce the growing tension around HWC as losses of human lives, livestock, and crops as well as damage to infrastructure are highly emotional issues and affect livelihoods.

The National Policy on Human-Wildlife Conflict Management is addressing new approaches to insurance against HWC that will also cover the Human-Lion Conflict Management Plan for NW Namibia. Income generated from lion-related tourism and hunting in the NW should be applied to balance the losses at grass-route level.

7. IMPLEMENTATION FRAMEWORK

7.4 Monitoring and Evaluation

7.4.1 The impact of the implementation of this Management Plan and progress and constraints regarding its implementation will be periodically assessed by the Ministry of Environment and Tourism in consultation with other stakeholders.

7.4.2 The Event/Incident Book System and the Human-Wildlife Conflict Data form will be used for monitoring and evaluation of HLC.

7.5 Implementation Action Plan

Table 1: Land use planning and livestock management structures

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of livestock & HLC	On-going	Planning aimed at avoiding HLC	General operational funds	Conservancies MET, IRDNC DLCT

Table 2: Aspects of lion demography & behaviour ecology relevant to HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of lion population	On-going	Record population demography & ecology	General operational funds	MET, DLCT & IRDNC

Table 3: Developing & implementing appropriate technical solutions for mitigating HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Zoning of conservancies to avoid HLC	Wildlife zones & high-risk areas free of livestock	Implement "High-Risk Lion Corridor"	General operational funds	Conservancies, Traditional authorities, MET

Table 4: Effective Livestock Management & "High-Risk Lion Corridor"

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish protocols for livestock management inside "High-Risk Lion Corridor"	Erect several lion corrals inside "High-Risk Lion Corridor"	Ensure that no livestock, including donkeys, roam freely at night	N$ 250,000	Conservancies, IRDNC & MET

Table 5: *Early Warning Systems and Scare Tactics*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Satellite Early Warning System	Six key lions fitted with satellite collars	Provide early warning movement data to farmers	N$ 150,000	DLCT, MET
Logger Early Warning System	Establish 4 Logger Systems at key locations. Fit RFID collars to 15 key lions.	ID key lion prides & fit collars. Erect Loggers at 4 corrals.	N$ 285,000	DLCT, MET

Table 6: *Rapid Response Units*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Develop Rapid Response protocol	Establish 4 RRU teams	MET establish central control	N$751,920	MET, IRDNC, DLCT, Conservancies

Table 7: Lion Tourism

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish "Lion Funds" at conservancy level to manage lion-sighting fees	All major tour operators pay N$ 100 for every lion sighting	Involve tourism industry		TOSCO, Conservancies, MET & IRDNC

8. BIBLIOGRAPHY

8.1 Ministry of Environment and Tourism. 2005. National workshop on human-wildlife conflict management in Namibia. Safari Hotel, Windhoek.

8.2 Nature Conservation Amendment Act of 1996 (Act 5 of 1996).

8.3 Nature Conservation Ordinance of 1975 (Number 4 of 1975).

8.4 The National Policy on Human-Wildlife Conflict Management.

8.5 National Lion Conservation Strategy (Draft).

8.6 Human-Lion Conflict in the Northwest of Namibia. Regional workshop on managing lion conflict. Kamanjab - 11 May 2016.

From:	Ruggiero, Richard
To:	Ronald Ulrich
Subject:	Fwd: LRA Crisis Tracker July Brief: Kony orders elephant poaching, LRA leaders spotted near Kafia Kingi
Date:	Tuesday, August 15, 2017 9:17:21 AM

Hi Ron, I thought you would like to see the below. Sobering news, indeed. Garamba and other areas in that landscape have enough pressure. Plus ca change....

Also, I wanted to give you a heads-up that I am getting resistance by my Ethics Office to accept the invitation to the gala. I will catch you up by phone if you would like some background; I will have a meeting later this week to discuss their position. I regret this complication. Lots of changes around here and we are trying our best to adapt in a positive way.

Best, richard

---------- Forwarded message ----------
From: **Paul Ronan** <paul@invisiblechildren.com>
Date: Tue, Aug 15, 2017 at 9:11 AM
Subject: LRA Crisis Tracker July Brief: Kony orders elephant poaching, LRA leaders spotted near Kafia Kingi
To: richard_ruggiero@fws.gov

Pour lire la version française de ce rapport, cliquez ici.

Monthly Brief: July 2017

Overview

Armed group violence in eastern Central African Republic (CAR) continued in July, with violent clashes involving ex-Seleka, anti-balaka, and armed Peuhl civilians breaking out in the towns of Bangassou, Bria, and other hotspots. Intercommunal violence reached into the far southeastern corner of CAR for the first time in 2017 with the murder of five Peuhl civilians, including two women and a young girl, near Obo on July 14.

LRA violence dropped in July compared to the previous two months, a seasonal trend consistent with historical patterns of reduced LRA activity between July–November. LRA attacks in Democratic Republic of Congo (DRC) were concentrated east of Garamba National Park, where LRA groups have been operating following recent orders from Joseph Kony to poach elephants. In eastern CAR, an LRA group entered the town of Kotto 3 on July 5 and asked community leaders for food. Photos taken during the meeting confirm

that the LRA group was led by Aligac, a former bodyguard to Kony and now one of his most trusted officers.

--

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Armed group activity in eastern CAR and northeastern DRC, July 2017

Senior LRA commander makes contact with community near Kafia Kingi

LRA groups have been active in CAR's Haute Kotto prefecture since 2010, committing 45 attacks and abducting 195 civilians there in 2016 alone. LRA attacks in Haute Kotto have often served as an indicator that senior LRA leaders are operating in the neighboring Kafia Kingi enclave on the border of Sudan and South Sudan. Since 2010, Kony and other senior LRA leaders operating in Kafia Kingi have frequently dispatched fighters into Haute Kotto to loot food, gold, and diamonds.

Only four LRA attacks were recorded in Haute Kotto in the first six months of 2017, raising questions about whether Kony and other senior LRA commanders had left the Kafia Kingi area. However, the presence of Aligac's group in Kotto 3 on July 5 indicates that senior LRA leaders are still active in the area. Community leaders from the Kotto 3 area reported that Aligac requested food and information about how his group could defect, and then later left the community. LRA fighters then attacked Kotto 3 on July 17, though it is unclear if the attack was launched on orders from Aligac or another LRA officer. Aligac's actions—requesting food from a community, expressing interest in defecting, and then disappearing—are similar to

tactics used by LRA officer Otto Ladere near the town of Nzako in late 2013, which sparked misperceptions that Kony was in "surrender talks" with former Central African president Michel Djotodia.

LRA violence in Haute Kotto prefecture, 2010–2017

Armed group attacks, intercommunal violence continues throughout eastern CAR

Ex-Seleka factions, anti-balaka groups, and armed Peuhl civilians continued to target civilians in eastern CAR in July, maintaining a trend of elevated violence that began in March 2017. In early July, ex-Seleka and anti-balaka fighters clashed in Bria, vying for control over the city. From July 21–25, presumed anti-balaka fighters killed three Moroccan soldiers from the UN mission in CAR (MINUSCA) in Bangassou, bringing the total number of peacekeepers killed in the east in 2017 to 11.

In Haut Mbomou, where intercommunal tensions escalated more recently than in Haute Kotto and Mbomou, several incidents highlighted the danger armed groups pose to vulnerable populations, particularly women and children. Armed men attacked a hospital in Zemio on July 11, firing their weapons and killing a baby girl. Three days later, five Peuhl civilians, including two women and a young girl, were found murdered near Obo. On July 18, armed Peuhl men shot at two women near Zemio, wounding one in the chest.

“This child was shot in her mother’s arms, and in a medical facility: the two places where a child should be safest. Now her family is in mourning for the future she will never have.

“The callousness of this attack highlights both the indiscriminate nature and disturbing escalation in violence in CAR against civilians.

“It demonstrates a complete lack of respect by armed groups in the area for medical care, and civilians, and signals the diminishing space for aid organisations in CAR, as the security situation deteriorates."

—Excerpt from statement issued by Médecins Sans Frontières (MSF) following July 11 armed group attack on hospital in Zemio, CAR

LRA attacks continue near Garamba following Kony's orders to poach elephants

Two recent LRA defectors reported that, in May 2017, Joseph Kony gave orders to an LRA group led by Owila and Ladere to return to Garamba National Park to poach elephants and collect ivory. Soon after, LRA attacks near the park spiked for the first time in nearly ten months. In May and June 2017, LRA groups abducted 28 people in communities within 50 km of the park and its surrounding protected conservation areas, followed by 13 abductions in July. A majority of these attacks were aimed at looting food and other supplies. On June 18, an LRA group also looted diamonds and gold from an artisanal mining camp south of the park.

The recent elevated level of LRA attacks on communities near Garamba during an LRA poaching mission repeats similar patterns seen in the area in 2014 and 2015, highlighting the intersection of human and wildlife security in northeastern DRC. LRA attacks in neighboring Bas Uele province, such as the July 5 LRA raid near Banda, are also often indicators of LRA movements between Garamba and eastern CAR.

LRA violence in communities near Garamba, correlated with periods of LRA poaching missions

Programmatic updates

Following clashes between armed men from the Peuhl community and Central African armed forces (FACA) on June 26, the population of Mboki, CAR, fled towards Obo, where they found refuge near the Catholic church in the center of town. To assist the newly displaced population, the Invisible Children team in Obo compiled emergency care packages, offering food and sleeping mats to families affected by the displacement. There are reportedly 3,800 internally displaced persons currently in Obo.

In DRC, the Invisible Children team supported the training of a Local Protection Committee in Ngilima, which lies in the area east of Garamba National Park recently targeted by LRA violence. The newly elected Committee was trained on how to securely participate in the HF radio early warning system (EWS), the role community leaders can play to encourage defections from the LRA, and the role of the EWS in reducing the threat of armed groups to civilians and wildlife.

The LRA Crisis Tracker is a project of Invisible Children that incorporates data on armed group activity in the Mbomou-Uele border region, a geographic area that includes the prefectures of Haute Kotto, Mbomou, and Haut Mbomou in eastern CAR and areas of Haut Uele and Bas Uele provinces in northeastern DRC north of the Uele River. Information on armed group activity from neighboring areas of CAR, DRC, South

Sudan, and Sudan is incorporated into our analysis of conflict dynamics in the Mbomou-Uele border region. Visit the LRA Crisis Tracker website at www.LRAcrisistracker.com

Please notify Paul Ronan (paul@invisiblechildren.com) if you would like to share or receive additional information about armed group activity in the Mbomou-Uele border region.

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From: Ruggiero, Richard
To: Dirck Byler; Matt Muir; Matthew Luizza
Subject: Fwd: LRA Crisis Tracker Quarter 3 Brief: Persistent violence in eastern CAR, LRA traffics ivory in DRC
Date: Friday, October 20, 2017 9:52:27 AM

Any note of elephants or ivory in these tracker reports is worth keeping in mind. Also, relevant information on the role of some Peuhl in the area. See below.

---------- Forwarded message ----------
From: **Paul Ronan** <paul@invisiblechildren.com>
Date: Fri, Oct 20, 2017 at 9:41 AM
Subject: LRA Crisis Tracker Quarter 3 Brief: Persistent violence in eastern CAR, LRA traffics ivory in DRC
To: richard_ruggiero@fws.gov

Pour lire la version française de ce rapport, cliquez ici.

Quarter 3 Brief: July–September 2017

Overview

Clashes between armed groups and attacks on civilians continued to dominate the security landscape in the Mbomou-Uele border region* in Quarter 3 (July–September) 2017. In eastern Central African Republic (CAR), fighting involving ex-Seleka factions, anti-balaka militias, and other armed actors was concentrated in towns such as Bria (Haute Kotto prefecture) and Zemio (Haut Mbomou prefecture), while security improved in other locations, such as Bangassou (Mbomou prefecture).

Though the overall number of attacks and abductions by the Lord's Resistance Army (LRA) declined in Quarter 3, LRA activity did spike in areas of Haute Kotto near the border with the Sudanese-controlled Kafia Kingi enclave. In northeastern Democratic Republic of Congo (DRC), the LRA was responsible for most armed group activity, committing a series of abductions and attacks west of Garamba National Park during and following operations to collect ivory.

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Overall violence decreases in eastern CAR, with pockets of continued attacks

Overall levels of armed group attacks and killings in Haute Kotto, Mbomou, and Haut Mbomou prefectures decreased in Quarter 3 compared to Quarter 2 (April–June) 2017, but remained far above levels in previous years. Most violence against civilians has been perpetrated by "anti-balaka" militias, whose allegiances and level of organization vary widely across the region, or factions within the Front Populaire pour la Renaissance de la Centrafrique (FPRC), the Union pour la Paix en Centrafrique (UPC), and other groups associated with the ex-Seleka.

In Haute Kotto, the regional capital of Bria remained a hotspot, with sporadic clashes involving warring FPRC factions, anti-balaka militias, and other armed groups. In late September, civil society leaders helped to mediate a ceasefire between several armed armed groups operating in Bria, leading to a reduction in violence. On October 6, leaders from FPRC, UPC, and anti-balaka factions were among those that signed a ceasefire in Ippy, 89 km west of Bria in Ouaka prefecture. However, shifting political alliances and continued jockeying for control over natural resources and other sources of revenue will likely test the viability of these initiatives in the coming weeks.

In Mbomou prefecture, sporadic clashes were also reported, highlighted by fighting between UPC and anti-balaka combatants in Gambo in early August that killed six Red Cross volunteers. In Bangassou, where anti-balaka groups targeted Muslim neighborhoods and MINUSCA peacekeepers in May 2017, efforts by MINUSCA helped prevent major atrocities by armed groups in Quarter 3, though tensions remained high and there were sporadic incidents of violence.

Further east, in Haut Mbomou prefecture, armed group violence in Quarter 3 was concentrated in and near the town of Zemio. There were at least nine attacks within a 25km radius of the town, displacing tens of thousands of Central Africans and Congolese refugees. Many Central Africans and Congolese fled from Zemio into areas of DRC's Bas Uele province from which Congolese refugees in Zemio had originally fled to avoid attacks by the LRA. Though LRA activity in these areas of Bas Uele has been infrequent in 2017, the group was very active there in 2015 and 2016 and could return to attack newly arrived displaced people.

The complicated role of the Peuhl ethnic group in violence in eastern CAR

People from the minority Peuhl ethnic group were involved in much of the violence in Haut Mbomou prefecture in Quarter 3 2017, either as perpetrators or victims. In and near Zemio, Peuhl men were identified as among the combatants in seven attacks involving violence against civilians and/or clashes with anti-balaka groups. On July 14, an unidentified armed group murdered five Peuhls, including two men, two women, and a young girl, near Obo. Peuhl leaders in Obo played an important role in conflict mediation and reconciliation efforts facilitated by local authorities and civil society groups, which reduced subsequent tensions and helped prevent the incident from sparking further violence in Obo.

In many of the incidents in Zemio, it remains unclear whether armed Peuhl were associated with the Peuhl-dominated UPC or acting independently. The UPC was one of the factions that splintered from the Muslim-majority Seleka movement when it collapsed in 2014. It is led by Ali Darassa, a Peuhl who has links with a Chadian Peuhl rebel leader who previously operated in CAR, Abdel Kader Baba Ladde. In February, Ali Darassa and the UPC were expelled from Bambari (Ouaka prefecture) by MINUSCA peacekeepers, leading to expanded UPC activity in Basse Kotto, Haute Kotto, Mbomou, and Haut Mbomou prefectures.

Attacks on civilians by the UPC, as well as by anti-balaka and other armed groups, have heightened tensions between civilians from different ethnic and religious groups, sometimes forcing them to seek safety or protection from armed groups dominated by combatants with similar identities. However, armed groups have most often acted in their own self-interest, rather than that of the ethnic and/or religious groups they often claim to represent. Armed group alliances are often shifting and based on attempts to consolidate control over territory or sources of revenue. In mid-2017, members of the FPRC, which, like the UPC, emerged from Seleka's dissolution, collaborated with predominantly Christian anti-balaka militias to target the UPC and Peuhl civilians. Such alliances highlight that, while armed groups often target civilians based on their religious or ethnic

identities, such differences are not intrinsic to the violence.

LRA commanders attack, engage Central African communities near Kafia Kingi

On July 5, an LRA group abruptly entered the town of Kotto 3, a small community in CAR's Haute Kotto prefecture that lies just 45km from the border with Sudanese-controlled Kafia Kingi enclave. Aligac and Otim Larwedo, the commanders of the LRA group, asked to meet with local ex-Seleka and community leaders, requesting food and expressing an interest in defecting. The group left the next day, never following up on their claims to desert the LRA. Two weeks later, an LRA group, possibly the same one, returned to attack and loot supplies from Kotto 3.

In August and September, LRA fighters continued to operate around Kotto 3 and the neighboring community of Sam Ouandja. In one incident, LRA combatants stopped a hunter in the bush, gave him cash, and requested that he purchase supplies for them in local markets. LRA forces also periodically looted farmers and mining communities near Sam Ouandja and Kotto 3. On September 26, LRA forces attacked a field near Ouanda Djalle in neighboring Vakaga prefecture, the first reported LRA activity there since October 2010.

Very little information has emerged about Kony's whereabouts since the end of US and Ugandan counter-LRA operations in April 2017, in part because few LRA combatants have escaped the rebel group since then. However, the spike in LRA activity in Haute Kotto and Vakaga in Quarter 3 could be an indication that the LRA leader continues to operate along the border of CAR, the Kafia Kingi enclave, and South Darfur. In the past, analysis comparing LRA attack patterns in Haute Kotto and Vakaga with testimonies from LRA defectors of Kony's movements has demonstrated links between spikes in attacks there with Kony's presence in Kafia Kingi.

1. July 5: LRA group led by Aligac meets with community leaders in Kotto 3
2. July 8: Congolese abductee escapes Aligac's LRA group
3. July 17: LRA group attacks, loots Kotto 3
4. August 16: LRA group attacks Yangou Dacko, an artisanal mining site

5. September 20: LRA group asks hunter to purchase supplies
6. September 25: LRA forces loot food
7. September 26: LRA forces abduct three men to porter looted food

LRA group attacks communities as it traffics ivory in DRC

In DRC, LRA activity in Quarter 3 was concentrated west of Garamba National Park and surrounding protected areas in Haut Uele province. Following orders from Kony in May 2017, an LRA group led by Owila attacked communities there for several weeks, abducting 35 people in 17 attacks between May and July 2017. Simultaneously, Owila's group sought to gather ivory, though it remains unclear if they poached elephants in Garamba or unearthed ivory caches buried during LRA poaching missions in previous years.

By mid-August, Owila's group had started to move west and north, towards the border with CAR. His group was likely responsible for attacks near Bangadi, Zigbi, and Mbangana from August 14–

24 in which a total of more than 30 people were temporarily abducted to porter looted goods. The survivors abducted near Bambangana later released reported that Owila's group possessed 16 pieces of ivory. As Owila's group moved towards CAR, LRA violence in communities surrounding Garamba dropped, with no LRA attacks reported near Garamba (i.e. east of Ngilima) since August 4.

** The LRA Crisis Tracker is a project of Invisible Children that incorporates data on armed group activity in the Mbomou-Uele border region, a geographic area that includes the prefectures of Haute Kotto, Mbomou, and Haut Mbomou in eastern CAR and areas of Haut Uele and Bas Uele provinces in northeastern DRC north of the Uele River. Information on armed group activity from neighboring areas of CAR, DRC, South Sudan, and Sudan is incorporated into our analysis of conflict dynamics in the Mbomou-Uele border region. Visit the LRA Crisis Tracker website at www.LRAcrisistracker.com*

Please notify Paul Ronan (paul@invisiblechildren.com) if you would like to share or receive additional information about armed group activity in the Mbomou-Uele border region.

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From:	Craig Hoover
To:	Tim Van Norman; Mary Cogliano
Subject:	Fwd: Powerpoint for Secretary
Date:	Monday, November 20, 2017 9:50:01 AM
Attachments:	ATT00001.htm Presentation rev 4.pptx

Greg's current version.....

Sent from my iPhone

Begin forwarded message:

> **From:** Greg Sheehan <greg_j_sheehan@fws.gov>
> **Date:** November 20, 2017 at 12:13:40 AM EST
> **To:** Craig Hoover <craig_hoover@fws.gov>, Todd Willens <todd_willens@ios.doi.gov>, Jason Larrabee <jason_larrabee@ios.doi.gov>, zachariah_gambill@fws.gov, Barbara Wainman <barbara_wainman@fws.gov>
> **Subject: Fwd: Powerpoint for Secretary**
>
> Attached is a revised version that incorporates a variety of comments that I received today, Sunday.
> Some did not comment so there may be more discussion yet.
> You will notice that one slide was divided and moved to the tail end of the presentation after the conclusion segment. Those slides may serve on an as-needed basis.
> We may want to juggle a few things around to allow for a meeting on Monday morning prior to the meeting with the Secretary. I will make myself free at any time.
> Todd, there are few on this email so will let you decide how to coordinate with the Dep Sec and Chief of Staff.
> Thanks
> Greg
>
> Greg Sheehan
> Principal Deputy Director
> US Fish and Wildlife Service
> 202-208-4545 office
> 202-676-7675 cell

Importation of legally hunted African Elephants and Lions

Briefing for the Secretary of Interior

November 20, 2017

Importation into the United States

- African lions and African elephants are listed as Threatened under the U.S. Endangered Species Act (ESA).
- These species may be legally imported if they comply with the ESA, Convention on International Trade in Endangered Species (CITES) and additional U.S. laws and regulations.
- U.S. regulations require a permit to import hunted African elephants and lions
- The United States will only issue an import permit if the U.S. Fish and Wildlife Service (FWS) concludes that hunting the species "enhances" the survival of that species in the wild.
- This standard has been in place for elephants since 1992, and for lions since January 22, 2016.
- Factors that the FWS considers in their review include:
  - species status; population trends; poaching levels; wildlife management plans; amount and use of revenues generated by hunting and how they are used; local community benefits.

Country status for import of elephant trophies from 2014 to present*

	Approved for elephants hunted	Under Review	Not Approved for elephants hunted
Namibia	X		
South Africa	X		
Tanzania		January 1, 2016 and beyond	January 1, 2014 - December 31, 2015
Zambia	January 1, 2016 - December 31, 2018 *(Zambia closed its 2014-2015 hunting seasons)*		
Zimbabwe	January 21, 2016 - December 31, 2018		May 12, 2014 - January 20, 2016

What action for Elephants did FWS take on November 16th, 2017?

- African elephants hunted in Zambia and Zimbabwe during 2016 and 2017, may be imported into the United States after receiving a permit from the FWS.
- For African elephants hunted in Zambia and Zimbabwe in 2018, the FWS will accept import permit applications, unless the FWS changes the current findings.

	Estimated Population	CITES Quota CY 2017	% of Population
Zambia	21,760	80	0.37%
Zimbabwe	82,630	500	0.61%

Note: Zambia and Zimbabwe have not historically filled their quota

Country status for import of lion trophies*

	Approved	Under Review	Not Approved to Date	Applies to Lions Hunted
Mozambique		X		
Namibia		X		
South Africa: Wild Lions	X			January 1, 2016 to December 31, 2019
South Africa: Wild-Managed Lions	X			January 1, 2016 to December 31, 2019
South Africa: Captive Lions			X	until new information is received
Tanzania		X		
Zambia	X			January 1, 2016 to December 31, 2018
Zimbabwe	X			January 1, 2016 to December 31, 2018

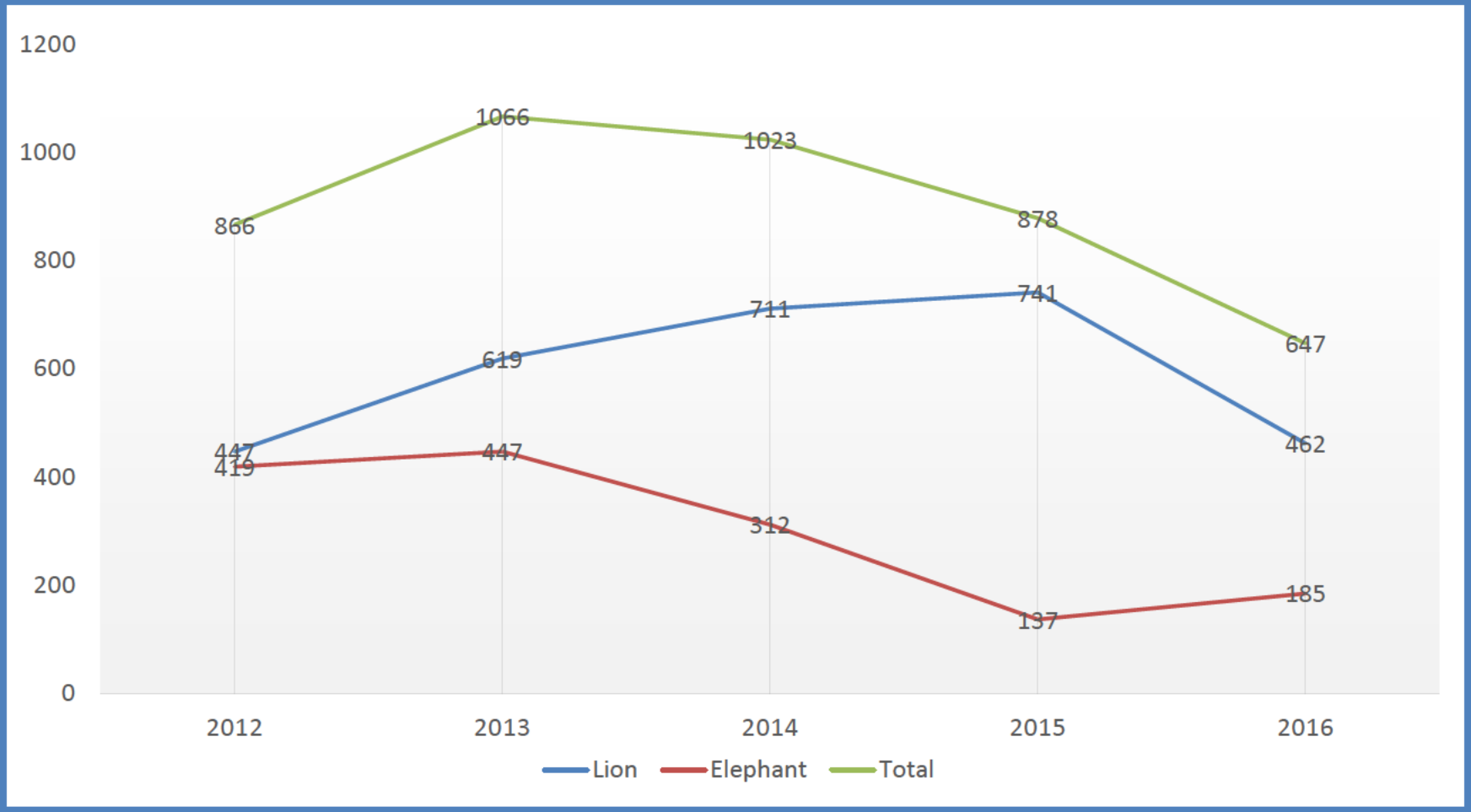
What do these Lion decisions allow?

- For Zambia and Zimbabwe, lions already taken in 2016 and 2017 may be imported after receiving a permit. Hunters may receive a U.S. permit to import lions taken through 2018 unless FWS changes the current findings.

	Estimated Population	Quota CY 2017	% of Population
Zambia	1,200	80	6.7%
Zimbabwe	1,900	50 (est.)	2.6%

Note: Zambia and Zimbabwe have not historically filled their quota

U.S. Lion and Elephant Trophy Imports



- Elephant decline due primarily to Botswana closure and Zimbabwe 2014 negative finding
- Lion decline due primarily to closure of imports for captive bred lions from South Africa

Benefits of Hunting in Africa

- Benefits to local communities – Anti-poaching Patrols (wildlife, & illegal timber, mining, grazing activities), employment, school/clinic construction, clean water development, habitat protection, etc.

- Estimated economic Impacts to the countries
  - Elephants - $174 million
  (580 Hunter/Gov't fees X $60,000 X 5 econ multiplier)
  - Lions - $22.8 Million
  (130 Hunter/Gov't fees X $35,000 X 5 econ multiplier)

African Elephant Facts

- There was never an Obama Administration "BAN" on Zimbabwe elephant
  - No import regulations or policies have changed under this Administration
  - In 2014 and 2015, Zimbabwe had a negative "enhancement" elephant finding that has been revised to a positive finding for 2016-2018
  - Enhancement determinations are made by career biologists

- African elephant population numbers across the African continent have declined from 508,000 in 2006 , to 418,000 in 2015, due primarily to poaching.

- Some countries have increased elephant populations or are stable, while others are down.

- Legal hunting has not contributed to population-level declines.

- Decisions about management strategies need to happen on a country-by-country basis, not a range wide basis. Much like wildlife is managed in the United States, on a state by state basis consistent with the North American Model of Wildlife Management

- Revenues generated from legal hunters fund the majority of anti-poaching and conservation efforts for elephants and in countries where hunting is closely regulated

Thank you

Elephant Permits Issued/Applications Pending (Since 2014)

- Namibia – 96 permits issued; 8 applications pending; positive finding
- Tanzania – 14 permits issued; 2 applications pending; 3 denied; no finding made for 2016+
- South Africa – 75 permits issued; 8 applications pending; positive finding
- Zambia – 7 permits issued; 1 pending; positive finding
- Zimbabwe – 20 permits issued (pre-2014 take); 31 applications pending; 9 permits denied; negative finding for 2014-15; positive finding for 2016-18

.

Lion Permits Issued/Applications Pending (Since January 2016)

- Mozambique – 3 applications pending; no finding made
- Namibia – 1 application pending; no finding made
- Tanzania – 19 applications pending; no finding made
- South Africa – 14 permits issued; 11 denied; 2 pending
- Zambia – 18 permits issued; 1 pending
- Zimbabwe – 19 permits issued; 4 pending

.

From:	Cogliano, Mary
To:	Jones, Lisa
Cc:	Mike Moore; Tim Vannorman; Danielle Kessler
Subject:	Fwd: Questions on permits issued
Date:	Monday, November 20, 2017 12:06:40 PM

Hi Lisa,

The number of permits issued for import of hunted lions is as follows:

- SOUTH AFRICA: 14 PERMITS ISSUED
- ZAMBIA: 18 PERMITS ISSUED
- ZIMBABWE: 19 PERMITS ISSUED

Best,

Mary

---------- Forwarded message ----------
From: **Craig Hoover** <craig_hoover@fws.gov>
Date: Mon, Nov 20, 2017 at 11:56 AM
Subject: Re: Questions on permits issued
To: "Jones, Lisa" <lisa_m_jones@fws.gov>
Cc: Mike Moore <mike_moore@fws.gov>, Tim Vannorman <tim_vannorman@fws.gov>, "Kessler, Danielle" <danielle_kessler@fws.gov>, Mary Cogliano <mary_cogliano@fws.gov>

Adding Mary who generated relevant data over the weekend.

Sent from my iPhone

> On Nov 20, 2017, at 11:54 AM, Jones, Lisa <lisa_m_jones@fws.gov> wrote:
>
> Hi Mike,
>
> We're getting some questions from the Hill about how many permits have been issued for our recent lion findings, in addition to elephants. Danielle provided me with stats for elephants.
>
> Do you have stats handy on how many permits have been issued for lions for Zimbabwe, Zambia, and South Africa?
>
> Thanks so much!
>
> Lisa
>
> ----------
> Lisa Hummon-Jones
> Congressional and Legislative Affairs Specialist
> U.S. Fish and Wildlife Service
> 703-358-2536 (o)

> 202-365-7255 (c)
>

--

Mary Cogliano, Ph.D.
Supervisory Biologist & Policy Specialist
Division of Management Authority
U.S. Fish and Wildlife Service
5275 Leesburg Pike, MS: IA
Falls Church, VA 22041-3803
Phone: (703) 358-1991

From:	Vannorman, Tim
To:	Kessler, Danielle
Subject:	Fwd: REQUEST FOR LION AND ELEPHANT INFO BY 2PM TODAY: Bullets for Secretary"s BiWeekly Check-in
Date:	Tuesday, October 24, 2017 3:21:32 PM

---------- Forwarded message ----------
From: **Hoover, Craig** <craig_hoover@fws.gov>
Date: Tue, Oct 24, 2017 at 12:42 PM
Subject: Re: REQUEST FOR LION AND ELEPHANT INFO BY 2PM TODAY: Bullets for Secretary's BiWeekly Check-in
To: "Morris, Charisa" <charisa_morris@fws.gov>
Cc: Gary Frazer <Gary_Frazer@fws.gov>, Gina Shultz <Gina_Shultz@fws.gov>, Gloria Bell <gloria_bell@fws.gov>, Tim Van Norman <tim_vannorman@fws.gov>

Charisa,

Thanks for the message. First, the bullet point is not accurate. Here's a more accurate rewrite of that text:

Enhancement Findings for Lions and Elephants: USFWS has determined that the hunting and management programs for lions (Panthera leo melanochaita) in Zambia and Zimbabwe will enhance the survival of the species in the wild, which is required prior to allowing import of these trophies under Endangered Species Act regulations. USFWS is now issuing permits to import these trophies. USFWS anticipates completing a positive finding for elephants (Loxodonta africana) in Zambia and will be able to issue permits once that finding is in place.

Regarding the additional information:

Lion and Elephant ESA Enhancement Findings

- *Date and Action: October 20: Zimbabwe and Zambia ESA enhancement findings completed for lions, covering trophies taken during 2016-2018; October 27: anticipated date that Zambia ESA enhancement finding for elephants will be completed.*
- *Controversy and media attention expected: These determinations are likely to be controversial with some animal rights and conservation groups opposed to lion hunting. USFWS has updated its website and created a Sport-hunted Trophies: Lions page to provide an updated status on ESA findings.*
- *Items of note: USFWS has already issued and mailed all 35 pending permit applications for Zimbabwe and Zambia lion sport-hunted trophies and key stakeholders have been notified. The Zambia elephant finding will not be rolled out until the already completed Zimbabwe elephant finding has been published in the Federal Register.*
- *Interested parties: Safari Club International, Conservation Force, National Rifle Association, individual sport hunters, Zimbabwe and Zambia governments, conservation and animal rights organizations.*

Let us know if you need anything else.

Best,

craig

On Tue, Oct 24, 2017 at 11:56 AM, Morris, Charisa <charisa_morris@fws.gov> wrote:

> Good morning, all-

Michael

--

Michael Gale

Deputy Chief of Staff (Acting), Director's Office
U.S. Fish and Wildlife Service

202.208.4923 (office)
571.982.2158 (cell)

--

Charisa_Morris@fws.gov | Chief of Staff, Office of the Director | U.S. Fish & Wildlife Service | 1849 C Street NW, Room 3348 | Washington, DC 20240 | (202) 208-3843 | For urgent matters, please dial cell: 301-875-8937

--

Craig Hoover
Chief, Division of Management Authority
International Affairs
U.S. Fish and Wildlife Service
5275 Leesburg Pike
Falls Church, VA 22041-3803
ph: 703-358-2162
www.fws.gov/international

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--

Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

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From:	Harris, Tasha
To:	Tim Vannorman
Subject:	Fwd: Revised note to reviewer for Tanzania trip
Date:	Wednesday, October 25, 2017 6:55:51 AM
Attachments:	IA Note to Reviewer AWFC 2017 revised.docx

Hi Tim,

It looks good, Now please get Gloria, to sign and return to me.

Thanks,
Tasha
---------- Forwarded message ----------
From: **Vannorman, Tim** <tim_vannorman@fws.gov>
Date: Tue, Oct 24, 2017 at 1:53 PM
Subject: Revised note to reviewer for Tanzania trip
To: "Harris, Tasha" <tasha_harris@fws.gov>

Tasha,

Here is a revised note to reviewer.

Tim

--
Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

***Sign up** for our e-newsletter to learn how we're working around the globe to protect species and their habitats!*

NOTE TO REVIEWER

_____
AD/RD INITIALS

TODAY'S DATE: 10/1/2017

DTS NO.: **FT00XXXX**

WHO is traveling: **Timothy J. VAN NORMAN**

WHEN: **November 7 through November 18, 2017**

WHERE: **Arusha, TANZANIA**

WHAT: **On November 9 and 10, Tim Van Norman, Chief of the Branch of Permits, Division of Management Authority, U.S. Fish and Wildlife Service (Service) is scheduled to meet with representatives of the Tanzania Wildlife Department in Arusha, Tanzania, to discuss Tanzania's elephant and lion hunting programs and the findings that FWS must make to authorize imports of these trophies. Under the Endangered Species Act, the US Fish and Wildlife Service (Service), Division of Management Authority, must make a determination that the import of listed species would enhance the propagation or survival of the species. Both the lion and Africa elephant are listed as threatened under the ESA and would require the issuance of an import permit before trophies could be imported. In 2014 and 2015, the Service made a determination that we were unable to make the required findings in order to import elephant trophies taken during those years. The Service is currently working on a new finding for Tanzania elephants and, without additional information from the Tanzania government, will likely be unable to make a positive finding. As for lions, the species was listed in early 2016, and to date the Service has not received sufficient information from Tanzania to make a positive finding. Having the opportunity to conduct face-to-face meetings with Tanzania wildlife officials will improved communication channels with the Tanzanians and, hopefully, lead to the Service being able to make positive findings for both species.**

Mr. Van Norman will then attend the African Wildlife Consultative Forum (AWCF), an annual meeting sponsored by Safari Club International Foundation, being held in Arusha, Tanzania on November 12 - 17. AWCF provides an opportunity for the Directors of the wildlife departments from most of the southern and eastern Africa to meet to discuss overlapping issues. SCIF has requested that Mr. Van Norman provide a presentation during the International Policy session on Wednesday, November 15. SCIF has welcomed FWS participation at the AWCF for approximately 10 years, particularly due to our role in authorizing the importation of sport-hunted trophies.

WHY: The trip is necessary to facilitate the production of "enhancement findings", a requirement under the Endangered Species Act to authorize the importation of elephant and lion trophies. All of the countries that will be present at the AWCF are actively seeking approval from FWS to allow for the importation of trophies taken in their countries.

WHY Late: **The travel package is being submitted as soon as possible. The specific information on AWCF, such as travel dates and location of venue, was not received until Friday, September 29. Final arrangements for meeting with representatives of the Government of Tanzania to discuss elephant and lion imports on November 9 and 10 has not been completed, so these dates are still tentative.**

Funding: F**WS will pay all costs.**

Travel must be a cost effective means of accomplishing the mission. Consequences of not traveling should be documented when possible. Travel must be scheduled in a fiscally responsible manner and within approved annual budgets.

From:	Harris, Tasha
To:	Lillian Moore; Tim Vannorman
Subject:	Fwd: Revised note to reviewer for Tanzania trip
Date:	Thursday, October 26, 2017 6:41:50 AM
Attachments:	IA Note to Reviewer AWFC 2017 revised.docx

Hi Tim,

Please don't forget to get Richard to sign and Update Greg NTR and return to Lillian.

Thanks,
Tasha
---------- Forwarded message ----------
From: **Vannorman, Tim** <tim_vannorman@fws.gov>
Date: Tue, Oct 24, 2017 at 1:53 PM
Subject: Revised note to reviewer for Tanzania trip
To: "Harris, Tasha" <tasha_harris@fws.gov>

Tasha,

Here is a revised note to reviewer.

Tim

--
Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service
(703) 358-2350

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AD/RD INITIALS

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From: Sandra Farkas
To: Tim_Vannorman@fws.gov
Subject: Fwd: This bobcat brings in $308,000 a year
Date: Thursday, July 20, 2017 8:56:35 PM

We're mentioned in the next to the last paragraph. Just thinking about the son of Cecil and the lion findings. Not sure how or if the economic value of viewing opportunities are considered in our findings.

Date: Thu, Jul 20, 2017 at 7:24 AM
Subject: This bobcat brings in $308,000 a year

This bobcat brings in $308,000 a year

By Jason Bittel By Jason Bittel
Animalia
July 13

A very valuable bobcat rests by the Madison River in Yellowstone National Park in 2016. (Neal Herbert/National Park Service)

Somewhere in Yellowstone National Park, a wildcat is walking around with a little extra swagger in its step today. That's because a new study estimates the value of one specific bobcat there at a whopping $308,105 a year.

How does just one aloof floof generate more cash than the median American home is worth? Not by trading stocks or reinventing the juicer, of course, but by doing what bobcats do best — prowling about the boulders in pursuit of small creatures to devour.

Bobcats are pretty rare in Yellowstone, you see, and even in areas where the cats are common they can be difficult to spot. But in recent years, at least one cat has managed to make a living along the Madison River by ambushing ducks and other birds that ply these waters year-round. What's more, the bobcat's exploits have caught the attention of wildlife outfitters and photographers who now schedule entire expeditions around observing and capturing the feline on film.

To get a better idea of just how much money this one animal was generating for the local community, Mark Elbroch, the puma program lead scientist for the global wild cat conservation organization Panthera, started contacting outfitters and photographers to tally up their expenditures and earnings. By crunching costs, from filling up a gas tank and guide fees to gear purchases and revenue earned from photo sales, Elbroch and his colleagues found that the Madison River bobcat brings in well over a quarter of a million dollars each year. Their findings were published last week in the journal Biodiversity and Conservation.

Elbroch and his colleagues note that wildlife tours and photography royalties are not the only way to make money off bobcats. Wyoming is one of 39 states where you can purchase a license to hunt or trap the animals, which makes money for the state. Those pelts can then be sold into the global fur trade, which makes money for the hunters and trappers. In this alternative reality in which the Madison River bobcat winds up dead, the researchers determined, a single bobcat is worth approximately $315.17.

Translation: A bobcat's economic value depreciates almost 1,000 times the moment you put a bullet in it.

Elbroch admits that there are some caveats to consider. Obviously, a high-profile, somewhat easily accessible bobcat in one of America's largest and most heavily trafficked national parks will be worth more than the average kitty doing its best to stay hidden in the woods.

It's also not necessarily an either/or scenario. In the 2015-2016 season, close to 3,500 people bought trapping licenses in Wyoming, yielding $151,954 for the state, the study says. Just 284 of these licenses yielded bobcat pelts, none of which interfered with the ecotourism revenue created by the Madison River cat. (There may be as many as 3.5 million bobcats in the United States.)

Still, Elbroch said, we're seeing more and more of these scenarios pop up in places less well-known than

Yellowstone.
"Photographers flock to the Marin Headlands in California to photograph raccoons, because they are easy to see there. They flock to Island Beach State Park in New Jersey to photograph approachable red foxes," Elbroch said.
So if there's a place where people regularly see bobcats, then there's opportunity for people to invest time to learn their routines, do a little advertising and create a source of ecotourism revenue. "The tourists will come," Elbroch said.

A mini-economy has been built around bobcat-viewing along the Madison River. (Neal Herbert/National Park Service)

This is not the first study to come to the conclusion that living, breathing wildlife is worth more than steaks, pelts and trophies. A study conducted in the Great Bear Rainforest of British Columbia found that in 2012, bear viewing out-earned bear hunting by a margin of nearly $14 million. And there have been similar findings about sharks in the Caribbean, elephants across Africa and sea turtles found all over the world.
But isn't it kind of icky to assign dollar figures to a living thing? Elbroch said he's not particularly fond of the practice, because it seems counter to the notion of an animal's intrinsic worth. But in the end, money talks.
"Bobcats fly under the radar almost everywhere," said Elbroch. "People rarely think about them at all, so an economic comparison seemed an appropriate strategy to call attention to them, especially given the disparity in the numbers between the Madison cat and a trapped cat."
Renowned biologist Stuart Pimm also sees value in these sorts of estimations. Pimm said there's been a tendency on the part of some politicians to view the environment as an inconvenient hindrance to the success of American commerce. To which he says, and this is a direct quote: "Poppycock."
To put it into economic terms, you need look no further than the 330 million people who visited national parks in the United States last year, said Pimm, who is currently the Doris Duke Professor of Conservation Ecology at Duke University. Think about how much money all those visitors spent on entrance fees, picnic lunches, binoculars and hotels.
"Do they all see bobcats in Yellowstone? No, but the notion that there are wild things out there inspires them," Pimm said.
Lisa Robertson, co-author of the new study and president of Wyoming Untrapped, an organization seeking to modernize the state's trapping regulations, embarked on several bobcat-watching expeditions recently to see what all the fuss was about.
"I've lived in Wyoming for 25 years and have never seen the elusive bobcat," Robertson said.
But when she finally saw the Madison River bobcat? Robertson says she could hardly breathe.
"There is a special 'high' in the rare experience of seeing a free-roaming bobcat," Robertson said in an email. "The filmmakers are focused primarily on the big animals in Yellowstone, but this little 'big' cat is just as magnificent."
For his part, Elbroch said the study should not be viewed as a call to end hunting and trapping altogether, but instead an opportunity for further conversation about reforming hunting and trapping regulations based on the best science available.
Such decisions may have particularly heavy impacts for states like Wyoming, where tourism brings in more money than any industry save mining. And bobcats are only one species of concern.
Earlier this summer, the Interior Department announced its decision to remove Yellowstone area grizzly bears from the endangered species list, which could open the door to hunting seasons — a reality that Yellowstone National Park Superintendent Dan Wenk has said he worries could affect visitor experiences. And already this year, members of Congress have proposed three separate pieces of legislation that would strip gray wolves of Endangered Species Act protections across their remaining range.
So, yes, it may feel a little strange to calculate how many greenbacks a bobcat's worth. But according to Pimm, "This isn't the time to be squeamish about protecting our nation's heritage."

Read more:

Yellowstone grizzly bears to lose protections after 42 years on endangered species list
Now we know why a beloved Yellowstone grizzly was killed
A man freed a whale from a fishing net. Then it killed him, friends say.
Prep school teens were accused of massacring protected birds. Did they get off too easy?

From:	Van Norman, Janine
To:	Tim Vannorman
Cc:	Craig Hoover; Bell, Gloria
Subject:	Leopard petition
Date:	Tuesday, October 10, 2017 1:31:18 PM
Attachments:	African Leopard Petition (7.25.16) FINAL.pdf

It makes sense to send Greg one email with his requests. Here is the leopard petition if you want to add it to those items he has requested from you.

Janine

Janine Van Norman
Chief, Branch of Foreign Species
Ecological Services Program
U.S. Fish and Wildlife Service
MS: ES
5275 Leesburg Pike
Falls Church, VA 22041-3803
(703) 358-2370 (work)
(703) 358-1735 (fax)
Janine_VanNorman@fws.gov

NOTE: All email correspondence and attachments received from or sent to me are subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

BEFORE THE UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

THE HUMANE SOCIETY OF THE UNITED STATES,

HUMANE SOCIETY INTERNATIONAL,

CENTER FOR BIOLOGICAL DIVERSITY,

INTERNATIONAL FUND FOR ANIMAL WELFARE, AND

THE FUND FOR ANIMALS

– PETITIONERS –

PETITION TO LIST ALL *PANTHERA PARDUS* AS ENDANGERED AND TO IMMEDIATELY RESTRICT LEOPARD TROPHY IMPORTS

July 25, 2016

Drafted by:

Anna Frostic (D.C. Bar No. 977732)
Senior Attorney, Wildlife Litigation
The Humane Society of the United States

Teresa Telecky, Ph.D. & Adam Peyman
Wildlife Department
Humane Society International

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NOTICE OF PETITION

Honorable Sally Jewell, Secretary
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240

Daniel M. Ashe, Director
Fish and Wildlife Service
1849 C Street NW
Washington, DC 20240

Brian Arroyo, Assistant Director
International Affairs
Fish and Wildlife Service
1849 C Street NW
Washington, DC 20240

Gary Frazer, Assistant Director
Ecological Services
Fish and Wildlife Service
1849 C Street NW
Washington, DC 20240

Dear Secretary Jewell, Director Ashe, Assistant Director Arroyo, and Assistant Director Frazer:

Pursuant to Section 4(b) of the Endangered Species Act ("ESA"), 16 U.S.C. § 1533(b), Section 553(e) of the Administrative Procedure Act ("APA"), 5 U.S.C. § 553(e), and 50 C.F.R. § 424.14, Petitioners (The Humane Society of the United States, Humane Society International, Center for Biological Diversity, International Fund for Animal Welfare, and The Fund for Animals), hereby petition the Secretary of the Interior and the Director of the Fish and Wildlife Service ("FWS" or "the Service") to list all leopards (*Panthera pardus*) as Endangered.

Additionally, pursuant to the First Amendment of the United States Constitution[1] and the APA (5 U.S.C. § 553(e)), Petitioners hereby petition the Service to take immediate action to restrict imports of African leopards, by (1) suspending the issuance of CITES import permits for *Panthera pardus* trophies until the FWS non-detriment advice memorandum is reevaluated for each range country where trophy hunting occurs; and (2) rescinding the special rule pertaining to leopards from "southern Africa" (50 C.F.R. § 17.40(f)) to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a).

[1] "Congress shall make no law ... abridging ... the right of the people ... to petition Government for a redress of grievances." U.S. CONST., amend. I. The Supreme Court has recognized that the right to petition is logically implicit in, and fundamental to, the very idea of a republican form of government. *United States v. Cruikshank*, 92 U.S. 542, 552 (1875); *United Mine Workers of America, Dist. 12 v. Illinois State Bar Ass'n*, 389 U.S. 217, 222 (1967); *Thomas v. Collins*, 323 U.S. 516, 530 (1945).

This petition presents substantial scientific and commercial information that leopards in Africa "south of and including…Gabon, Congo, Zaire, Uganda, Kenya" should be included in an Endangered listing for all *Panthera pardus*. 50 C.F.R. § 17.11 (listing leopards as Endangered in Asia and North and West Africa, but listing as Threatened leopards in Central, East, and Southern Africa).[2] *See also* 50 C.F.R. § 424.14(b)(1) ("substantial information" is "that amount of information that would lead a reasonable person to believe that the measure proposed in the Petition may be warranted"); 16 U.S.C. §1533(b)(3)(A) (The Secretary must make an initial finding on the petition "[t]o the maximum extent practicable, within 90 days after receiving the Petition"); *HSUS v. Pritzker*, 2014 WL 6946022 (D.D.C. 2014) (holding that conclusive evidence is not required to make a positive 90-day finding). Petitioners are confident that a status review of the species, as required by 16 U.S.C. § 1533(b)-(c), will support a finding that listing all *Panthera pardus* as Endangered is in fact warranted.

Further, as demonstrated herein, the Service must take immediate action to restrict the import of leopard hunting trophies to ensure that its regulations and practice comply with the ESA's statutory mandate to provide for the conservation of Endangered and Threatened species. *See* 16 U.S.C. § 1531(b), (c) (providing that federal agencies "shall utilize their authorities in furtherance of" the conservation purpose of the ESA); *Sierra Club v. Clark*, 755 F.2d 608 (8th Cir. 1985) (special rules must be designed and implemented to actually promote the conservation of the Threatened species).

This Petition is supported by expert declarations from renowned wildlife experts Dr. Jane Goodall and Dereck Joubert, and enclosed is a disc of the scientific references cited.

Respectfully submitted by:

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[2] This listing does not account for the fact that Zaire became the Democratic Republic of the Congo in 1997.

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EXECUTIVE SUMMARY

This Petition – submitted by The Humane Society of the United States, Humane Society International, Center for Biological Diversity, International Fund for Animal Welfare, and The Fund for Animals and supported by expert declarations from Dr. Jane Goodall and Dereck Joubert – demonstrates that the leopard (*Panthera pardus*) meets the statutory criteria for an Endangered listing under the ESA across its geographic range and requests reclassification for leopard populations listed as Threatened in 1982.

The ESA considers a species (including subspecies or distinct population segment) to be "Endangered" when it "is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6). The ESA requires the Service to list a species as either "Endangered" or "Threatened" based on the following five factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) "other natural or manmade factors affecting its continued existence." *Id.* § 1533(a)(1)(A-E). The ESA requires the Secretary to determine within 90 days of receiving the Petition whether the Petition "presents substantial scientific or commercial information indicating that the petitioned action may be warranted." *Id.* § 1533(b)(3)(A). Such determination must be made solely on the basis of the "best scientific and commercial data available." *Id.* § 1533(b)(1)(A).

When a foreign species is listed as Endangered, protection under the ESA occurs by, *inter alia*, prohibiting imports unless they enhance the propagation or survival of the species or are for scientific purposes. *Id.* § 1533(b)(1)(A). Furthermore, Section 8 of the ESA provides for "International Cooperation" in the conservation of foreign, listed species, and listing a foreign species heightens global awareness about the importance of conserving the species.

This Petition seeks to increase protection for leopards in southern Africa, while maintaining the Endangered listing for leopards in all other areas of the species' range. Thus, this Petition describes the natural history and biology of the African leopard (*Panthera pardus pardus*) and the current status and distribution of this subspecies; it clearly shows that its range is in alarming and precipitous decline, including in southern Africa where leopards are currently listed as Threatened. The Petition reviews the threats to the continued existence of the African leopard, including loss of habitat and prey, excessive and unsustainable offtake for recreational purposes, high levels of poaching for commercial purposes, indiscriminant killing such as through snaring, and retaliatory killing by poison or firearms due to a perceived or actual treat to livestock and people. The Petition also demonstrates how Americans engaging in unsustainable trophy hunting and international trade of African leopards and their parts for hunting purposes are significantly and negatively impacting the conservation status of the African leopard. It then explains how existing laws and regulations are inadequate to address the numerous and interacting threats to the African leopard today.

The Petition requests that as FWS considers an uplisting of Threatened leopards to Endangered, the agency immediately take action to strictly scrutinize the import of leopard trophies by (1) suspending the issuance of CITES import permits for *Panthera pardus* trophies until the FWS non-detriment advice memorandum is reevaluated for each range country where trophy hunting occurs; and (2) rescinding the

special rule pertaining to leopards from southern Africa (50 C.F.R. § 17.40(f)) to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a).

Status and Distribution

The IUCN Red List status of the leopard demonstrates the precipitous deterioration of the status of the leopard over the past 15 years: in 2002, the species was considered Least Concern; in 2008, Near Threatened; and in 2016, Vulnerable (Stein et al. 2016). The most recent IUCN Red List assessment lists persecution, habitat fragmentation, an increase in illegal wildlife trade, excessive take for ceremonial use of skins, prey base declines, and poorly managed trophy hunting as major threats to the survival of the species (Stein et al. 2016). Regarding African leopard populations specifically, the subpopulation of North Africa (which is currently listed as Endangered under the ESA) potentially qualifies as Critically Endangered due to very small and declining number of mature individuals; since the previous IUCN assessment in 2008, leopards likely have become extinct in Morocco and Algeria (Stein et al. 2016). In sub-Saharan Africa, the leopard population has declined by >30% in the past three generations, potentially qualifying the sub-Saharan population of the subspecies as Vulnerable (Stein et al. 2016); this decline was caused by a 21% loss of leopard habitat in sub-Saharan Africa over the past 25 years, and 59% decline in prey loss in protected areas. At the regional level within sub-Saharan Africa, Stein et al. (2016) infer a >50% loss of leopard populations in East and West Africa, due to leopard prey reduction by 52% and 85% in those regions, respectively. In southern Africa, populations in Angola, Zambia, Mozambique, Zimbabwe and South Africa appear to be decreasing (Stein et al. 2016). In addition to habitat loss and loss of prey base, Stein et al. (2016) recognize two other major threats to leopards in sub-Saharan Africa: conflict with farmers over actual or potential killing of domesticated livestock or farmed wild animals (game farming or game ranching); and poorly managed trophy hunting, especially when it is concentrated geographically and when it targets individuals in their prime, who are territorial and reproductively active.

Regarding the total population size for the African leopard subspecies across its range, according to the 2008 IUCN assessment (Henschel et al.), "there are no reliable continent-wide estimates of population size in Africa, and the most commonly cited estimate of over 700,000 leopards in Africa (Martin and de Meulenaer 1988) *is flawed*" (emphasis added). The most recent publication on leopard status and distribution (Jacobson et al. 2016) stated, "Earlier Africa-wide assessments of population size (Myers, 1976; Eaton, 1977; Martin & De Meulenaer, 1988; Shoemaker, 1993) employed questionable population models based on scant field data and were widely criticized as being unrealistic (Hamilton, 1981; Jackson, 1989; Norton,1990; Bailey, 1993)" (p. 2). The current ESA Threatened listing – which dates to 1982 – is based on outdated information and must be reviewed in light of the substantial evidence indicating a significant decline in populations over the last three decades.

Present and Threatened Destruction, Modification, Curtailment of Habitat or Range

African populations of the leopard have experienced significant and ongoing loss of habitat. The most recently published scientific assessment of the status and distribution of the species (Jacobson et al. 2016a) found that *P. pardus pardus*, the African leopard, has lost 48-67% of its historical range. In North Africa, *P. pardus pardus* has lost 93.9-99% of its historic range; in West Africa, the range loss is 86-95%;

in Central Africa, the range loss is 45-66%; in East Africa, the range loss is 40-60%; and in Southern Africa, the range loss is 28-51% (Jacobson et al. 2016a). Jacobson et al. (2016a) state, "even for this relatively widespread subspecies, there is still substantial cause for concern across large portions of its range." The subspecies existed historically in 47 range States, but exists in only 38 today, and thus has been extirpated from nine countries: Mauritania, Togo, and Tunisia; Gambia, Lesotho, and Morocco (possibly extinct); and Algeria, Burundi, and Mali (possibly present) (Jacobson et al. 2016a).

The most recent IUCN assessment of the leopard (Stein et al. 2016) agrees largely with the findings of Jacobson et al. (2016a) with regard to range loss over the past three leopard generations (22.3 years); they estimated a 61% range loss for the species across its range (from 21,953,435 km^2 in the 2008 IUCN assessment to 8,515,935 km^2 in the 2016 assessment); a 21% range loss in sub-Saharan Africa; a 97% range loss in North Africa; a "dramatically reduced" range in West Africa; "substantial range declines" in West, Central, and East Africa; and a 21% range loss in southern Africa. Stein et al. (2016) attributes the range declines in West, Central, and East Africa to habitat loss and fragmentation which threaten the survival of leopards because they "require large, contiguous habitats with low human impacts to reproduce successfully" (Stein et al. 2016). Other factors contributing to range loss in Africa are prey reductions due to the illegal and unsustainable bushmeat trade, illegal harvest of skins, and human-leopard conflict and retaliation for livestock depredation.

Overutilization for Commercial, Recreational, or Scientific Purposes

The original analysis presented in this petition shows that between 2005 and 2014 (the most recent years for which complete data are available), 35,421 leopard specimens (leopards, dead or alive, and their parts and derivatives, the equivalent of at least 12,791 leopards), were traded internationally. Of these 12,791 leopards traded internationally, 10,191 of these specimens were hunting trophies.

The U.S. is the top importer of leopard specimens sourced from the wild (accounting for 45% of the total trade), and the vast majority of leopard specimens imported to the U.S. are hunting trophies. From 2005-2014, Americans imported African leopards and their products equivalent to 5,575 individuals, including bodies (14), live specimens (26), skins (741), and trophies (4,794). This amount is equivalent to approximately 44% of the global imports in leopards during this period.

Most leopards imported into the U.S. were exported from Zimbabwe (1,745 total: 1,489 trophies and 256 skins, 31% of total imports) and the United Republic of Tanzania (1,270 total: 1,118 trophies and 152 skins, 23% of total imports), with South Africa (900 total: 729 trophies, 163 skins and 8 bodies, 16% of total imports), Namibia (654 total: 646 trophies, 5 skins, 3 bodies, 12% of total imports), Zambia (468 total: 466 trophies and two skins, 8% of total imports), Mozambique (238 total: 133 trophies and 105 skins, 4% of total imports), and Botswana (196 total: 191 trophies and 5 skins, 4% of total imports) also playing major roles in exports.

Since the 1982 Threatened listing was put in place relaxing requirements for leopard trophy imports from southern Africa, there has been a dramatic increase in the number of leopard trophies imported, with numbers steadily rising throughout the 1990's and peaking in 2009, when 657 trophies were imported. The number of leopard trophy imports has remained over 300 per year since 1999, despite prior commitments from FWS to only allow "very few" leopard trophies into the country.

Poorly managed trophy hunting is considered a major threat to the survival of leopards in sub-Saharan Africa, especially when it is geographically concentrated and targets individuals in their prime, who are territorial and reproductively active (Stein et al. 2016). Recent studies have demonstrated that trophy hunting caused leopard population declines in South Africa (Balme et al. 2009, Pitman et al. 2015), Mozambique (Jorge 2012), Tanzania (Packer et al. 2009), and Zambia (Packer et al. 2010). Concern about unsustainable leopard trophy hunting has resulted in South Africa banning the export of leopard trophies in 2016; Botswana banning all trophy hunting, including of leopard, beginning in 2014; and Zambia banning leopard hunting in 2013 (Stein et al. 2016).

Leopards also continue to be poached for commercial trade, and a trend can be seen in China exporting for commercial purposes an average of 413 leopard "derivatives" to the U.S. each year during 2006-2010, which abruptly ceased in 2011, and then the trend reappeared under a different but similar wildlife term: "medicine"; an average of 110 "medicine" products derived from leopards being exported for commercial purposes from China (2012-2013) and then Hong Kong (2014).

There is a large-scale illegal trade in leopard skins for "cultural regalia" in southern Africa, with an estimated 4,500-7,000 leopards killed annually to fulfill demand for skins by followers of one church alone (the Nazareth Baptist (Shembe) Church) (Stein et al. 2016, citing to Balme unpublished data).

Inadequacy of Existing Regulatory Mechanisms

Pursuant to Fish and Wildlife Service regulations, *Panthera pardus* is currently listed as Endangered across its range, with the exception of 18 countries in southern Africa where the species is listed as Threatened. 50 C.F.R. § 17.11. This differential geographic listing does not comport with FWS policy or statutory mandate, and the best available science – presented in this Petition – demonstrates that leopards in southern Africa, like leopards in Asia and northern Africa, are "in danger of extinction" in this significant portion of the species' range. 16 U.S.C. § 1532(6).

All leopards were originally listed as Endangered, initially to restrict the leopard fur trade (with over 17,000 leopard hides imported into the United States from 1968-1969). 45 Fed. Reg. 19007 (March 24, 1980). But in 1980, at the urging of trophy hunters, FWS proposed to reduce protections for leopards in most of Africa (even though the agency did not explain whether or why it thought that leopards in southern Africa were both "distinct" and "significant" such that the region constitutes a listable distinct population segment). *See* 61 Fed. Reg. 4722 (Feb. 7, 1996); 16 U.S.C. § 1532(16). And today, FWS still has not conducted an analysis of whether leopards in southern Africa can lawfully be listed as a distinct population segment. Similarly, since 1982 when it finalized the Threatened listing for African leopards, FWS has not conducted the mandatory five-year review for such listing, resulting in an antiquated listing that is not based on the best available science.

In addition to the lack of scientific support for the original listing, the implementation of this listing is woefully inadequate to promote leopard conservation, endangering the survival of leopards in southern Africa. Currently, leopard trophies can be imported into the U.S. without an ESA permit, provided that the requirements of the Convention on International Trade in Endangered Species (CITES) are met.

Currently, CITES has established export quotas for twelve African countries for leopard skins traded for personal and hunting trophy purposes, totalling 2,648 leopards per year. These quotas have dramatically

increased over time, with the number of leopards rising five-fold – from 460 in 1983 to 2,648 in 2016 – and the number of countries with export quotas rose from seven in 1983 to twelve in 2016.

These quotas have no scientific basis and are not routinely reviewed to ensure that are not detrimental to the survival of the species. Indeed, the basis for the original and subsequent CITES export quotas for leopards is a model by Martin and de Meulenar (1988) that has been dismissed by modern leopard scientists as over-simplified as it was based on a correlation between rainfall and leopard numbers in savannah habitats of East Africa and used to predict leopard numbers across their entire sub-Saharan Africa range (Braczkowski et al. 2015b).

Other Natural or Manmade Factors Affecting the Survival of the African Leopard in the Wild

African leopards are also in danger of extinction due to other manmade factors. Leopard population densities are directly related to biomass of medium and large-sized wild herbivores, the main leopard prey (Stein et al. 2016). However, populations of such herbivores have been severely depleted by the unsustainable bushmeat trade which is considered to be a major threat to the survival of the African leopard (Stein et al. 2016). According to Stein et al. (2016), Craigie et al. (2010) found an estimated 59% average decline in leopard prey populations in 78 protected areas in West, East, and Southern Africa between 1970 and 2005 due to commercialized bushmeat trade. Bushmeat hunting in the Congo Basin for local and commercial use has reduced the wild prey base, resulting in lower leopard densities and even the disappearance of leopards from some places (Henschel 2008, 2009). Leopard range is largely reduced in human-populated areas in the Democratic Republic of the Congo due illegal hunting and bushmeat trade (Stein et al. 2016). Bushmeat poaching in Mozambique and Zambia has severely reduced leopard prey inside and outside of protected areas (Stein et al. 2016).

Conflict with farmers who own domestic or wild game (game ranching) is a major threat to the survival of the African leopard (Ray et al. 2005, Henschel 2008, Stein et al. 2016). About 60-70% of Africa's human population relies on agriculture and livestock for their livelihoods, and the human population of Africa is expected to more than double by 2050 (Stein et al. 2016); thus, the future will likely see increasing numbers of people using increasing amounts of land in conflict with decreasing numbers of leopards. Currently, many sub-Saharan African countries allow farmers to kill predators considered to be a threat to life or property without first obtaining a permit; it is likely that a large number of leopards are killed but not reported; and the total number of leopards killed due to conflict is unknown (Stein et al. 2016). And indiscriminate killing, such as the poisoning of carcasses aimed at attracting and killing carnivores of any and all types, and the use of snares to kill other species, is also a threat to the survival of leopards (Henschel 2008, Jorge 2012).

Conclusion

This Petition demonstrates that leopards in southern Africa are in danger of extinction and must be listed as Endangered along with leopards across the remainder of the species' range. Given the precarious plight of the African leopard, and due to the legal deficiencies in existing law, the Petition also asks FWS to take immediate action to restrict the import of African leopard hunting trophies to the U.S.

I. Introduction

Pursuant to Fish and Wildlife Service ("FWS" or "the Service") regulations, *Panthera pardus* is currently listed as Endangered across its range, with the exception of 18 countries in southern Africa where the species is listed as Threatened. 50 C.F.R. § 17.11. This differential geographic listing does not comport with FWS policy or the Endangered Species Act's (ESA) statutory mandate, and the best available science – presented in this Petition – demonstrates that leopards in southern Africa are "in danger of extinction" in this significant portion of the species' range. 16 U.S.C. § 1532(6).

Leopards in Asia and northern Africa are in danger of extinction and clearly meet the statutory definition of Endangered, as acknowledged by FWS; however, the Service's decades old regulation listing leopards in southern Africa as a Threatened species is not supported by science – indeed, such listing and the management decisions flowing therefrom are based almost entirely on unpublished reports from biased sources that have been discredited by the scientific community (as detailed in Section IV(D), *infra*). *See* 50 C.F.R. § 17.11.

This Petition describes the natural history and biology of the African leopard (*Panthera pardus pardus*) and the current status and distribution of this subspecies (with a particular focus on the sub-Saharan African countries where leopards are currently listed as Threatened).[3] The evidence clearly shows that leopards in this part of the species' range are in alarming and precipitous decline. The Petition evaluates the threats to the continued existence of the African leopard, including loss of habitat and prey, excessive and unsustainable offtake for recreational purposes, high levels of poaching and illegal trade for commercial and ceremonial purposes, indiscriminant killing such as through snaring, and retaliatory killing by poison or firearms due to a perceived or actual treat to livestock and people. The Petition also demonstrates how Americans engaging in unsustainable trophy hunting and international trade of African leopards and their parts for hunting trophies are significantly and negatively impacting the conservation status of the African leopard. It then explains how existing laws and regulations are inadequate to address the numerous and interacting threats to the African leopard today, all of which requires FWS to expand the Endangered listing of *Panthera pardus* to include all animals throughout the entirety of the species' range.

The Petition also requests that as the Service evaluates an uplisting of Threatened leopards, the Service immediately take action to restrict the import of leopard specimens by (1) suspending the issuance of CITES import permits for *Panthera pardus* trophies until the FWS non-detriment advice memorandum is reevaluated for each range country where trophy hunting occurs; and (2) rescinding the special rule pertaining to leopards from southern Africa (50 C.F.R. § 17.40(f)) to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a).

[3] Notably, because the boundary line that FWS drew "south of and including…Gabon, Congo, Zaire, Uganda, Kenya" does not have any biological basis, much of the published literature refers to the African leopard subspecies as a whole or to specific countries within the subspecies' continental range. To the extent possible, this Petition focuses on the science pertaining to leopards in the range countries where the Threatened listing applies (which encompass the vast majority of the species' range on the African continent).

II. Status and Distribution

The leopard is the most wide-ranging species of wild cats. The species' historic range extended from the Cape of Good Hope in South Africa through the Middle East and Southeast Asia to the Amur Peninsula in Russia (Nowell and Jackson 1996). According to the International Union for Conservation of Nature (IUCN), there are nine extant leopard subspecies, though the species' taxonomy is currently under review by the IUCN SSC Cat Specialist Group: *Panthera pardus pardus* (Africa), *Panthera pardus nimr* (Arabia), *Panthera pardus saxicolor* (Central Asia), *Panthera pardus melas* (Java), *Panthera pardus kotiya* (Sri Lanka), *Panthera pardus fusca* (Indian sub-continent), *Panthera pardus delacourii* (southeast Asia into southern China), *Panthera pardus japonensis* (northern China), and *Panthera pardus orientalis* (Russian Far East, Korean peninsula and north-eastern China).

A new IUCN status review of *Panthera pardus* was just released (Stein et al. 2016) and classifies the species as Vulnerable (demonstrating that the species is more imperilled than it was in 2008, when the last IUCN assessment classified the species as Near Threatened, Henschel et al. 2008). The 2016 status review also continues to recognize that three Asian subspecies of leopards are Critically Endangered (*P. p. orientalis*, *P. p. nimr*, and *P. p. melas*), and two subspecies are Endangered (*P. p. kotiya* and *P. p. saxicolor*).

The IUCN Red List status of the leopard demonstrates the precipitous deterioration of the status of the leopard over the past 15 years: in 2002, the species was considered Least Concern; in 2008, Near Threatened; and in 2016, Vulnerable (Stein et al. 2016). The most recent IUCN Red List assessment lists persecution, habitat fragmentation, an increase in illegal wildlife trade, excessive take for ceremonial use of skins, prey base declines, and poorly managed trophy hunting as major threats to the survival of the species (Stein et al. 2016).

Regarding African leopard populations specifically, the subpopulation of North Africa potentially qualifies as Critically Endangered due to very small and declining number of mature individuals; since the previous IUCN assessment in 2008, leopards likely have become extinct in Morocco and Algeria (Stein et al. 2016). In sub-Saharan Africa, the leopard population has declined by >30% in the past three generations, potentially qualifying the sub-Saharan population of the subspecies as Vulnerable (Stein et al. 2016); this decline was caused by a 21% loss of leopard habitat in sub-Saharan Africa over the past 25 years, and 59% decline in prey loss in protected areas. At the regional level within sub-Saharan Africa, Stein et al. (2016) infer a >50% loss of leopard populations in East and West Africa, due to leopard prey reduction by 52% and 85% in those regions, respectively. In southern Africa, populations in Angola, Zambia, Mozambique, Zimbabwe, and South Africa appear to be decreasing (Stein et al. 2016). In addition to habitat loss and loss of prey base, Stein et al. (2016) recognize two other major threats to leopards in sub-Saharan Africa: conflict with farmers over real or potential killing of domesticated livestock or farmed wild animals (game farming or game ranching); and poorly managed trophy hunting especially when it is concentrated geographically and when it targets individuals in their prime, who are territorial and reproductively active.

Regarding the total population size for the African leopard subspecies, according to the 2008 IUCN assessment (Henschel et al. 2008), "there are no reliable continent-wide estimates of population size in

Africa, and the most commonly cited estimate of over 700,000 leopards in Africa (Martin and de Meulenaer 1988) *is flawed*" (emphasis added). Similarly, the 2016 IUCN assessment states that "reliable data on Leopard population trends are missing from large portions of their range" but that "Leopards are declining throughout most of their range" and "populations have become reduced and isolated, and they are now extirpated from large portions of their historic range." (Stein et al. 2016).

The most recent scientific publication on leopard status and distribution (Jacobson et al. 2016a) stated, "Earlier Africa-wide assessments of population size (Myers, 1976; Eaton, 1977; Martin & De Meulenaer, 1988; Shoemaker, 1993) employed questionable population models based on scant field data and were widely criticized as being unrealistic (Hamilton, 1981; Jackson, 1989; Norton,1990; Bailey, 1993)" (p. 2). Jacobson et al. (2016a) did not provide an African leopard population size estimate saying, "Lack of empirical field data on distribution status and population size has prevented a range-wide population estimate" (p. 2).

However, recent estimates and trends are available (**Table 1**) for some of the 18 range countries where leopards are currently listed as Threatened, an area that encompasses the vast majority of the species' current range on the African continent (**Figure 1**).

Table 1. Recent estimates of leopard population sizes and trends in countries where the population is listed as ESA Threatened.

Country	Recent Estimated Leopard Population Size, Status and/or Trend
Angola	Stein et al. (2016) state that Angola has declining but healthy leopard populations outside of areas with increased human development and intensive conflict with humans. However, Jacobson et al. (2016b) state that there are no recent publications regarding the presence of leopards in Angola and, while there are likely many leopards, there are no scientific data.
Botswana	Botswana's 2003 Predator Strategy estimated between 4,404 and 6,830 leopards existed in the country (Jacobson et al. 2016b) where there is a continuous leopard population in the North and West" (Stein et al. 2016).
Burundi	Jacobson et al. (2016b) consider the leopard to be "possibly present" in Burundi but much of the country is converted to agriculture with high human population densities and low wild prey densities.
Republic of the Congo	Leopards are present in many protected areas but they are threatened by the illegal leopard skin trade which is supplied by specialized leopard hunters, particularly in northeast Congo (Jacobson et al. 2016b).
Democratic Republic of the Congo	The leopard is "likely still widespread" in the Democratic Republic of the Congo but there is little recent information on leopards and densities are unknown (Jacobson et al. 2016b). A large and growing human population has diminished leopard prey populations through excessive and unsustainable bushmeat harvesting practices (Jacobson et al. 2016b). Stein et al. (2016) state that leopard range has already been reduced due to bushmeat hunting.
Gabon	Henschel (2010) estimated Gabon's leopard population to be 5,910 animals. Leopards are "found throughout the country with small absent pockets in the southeast and southwest" (Stein et al. 2016). Jacobson et al. (2016b) said that the country likely still supports significant leopard populations, with populations in virtually all protected areas; however, intensive bushmeat hunting has caused leopards to disappear from some areas (Jacobson et al. 2016b).

Country	Recent Estimated Leopard Population Size, Status and/or Trend
Kenya	Jacobson et al. (2016b) consider the leopard to be widely distributed in Kenya, but threats include poisoning by local herders near Amboseli, human-wildlife conflict near Hell's Gate and Ruma, and some isolated cases of "trophy poaching." Stein et al. (2016) considers the distribution of leopards in East Africa, including Kenya, to have been reduced; however, leopards are found throughout the west, central and southern portions of Kenya (Stein et al. 2016).
Lesotho	Jacobson et al. (2016b) and Stein et al. (2016) consider the leopard in Lesotho to be "possibly extinct."
Malawi	Jacobson et al. (2016b) consider the leopard in Malawi to be present in some areas; however, no recent scientific publications on the size and trend of the population are available.
Mozambique	Stein et al. (2016) state that Mozambique has a declining but healthy leopard populations outside of areas with increased human development and intensive human-leopard conflict. Jacobson et al. (2016b) note that the Mozambican Civil War (1977 to 1992) depleted wildlife around the country; however, while leopards are found in many places, their populations are poorly monitored and largely unknown. Jorge (2012) studied the leopard population of Niassa National Reserve and found leopard densities there were comparable with those in Central and Southern Africa; however, trophy hunting offtake combined with illegal offtake was unsustainable.
Namibia	Stein et al. (2016) stated that leopards inhabit most of the country with the exception of the highly populated northern region, the arid southeast farmlands and the desert coast. According to Jacobson et al. (2016b), the Ministry of Environment and Tourism updated their Large Carnivore Atlas in 2010 with the results indicating that leopards are the most widely distributed large carnivore in Namibia, although absent from 30% of their historic range in the country, with a population size of 14,154 (range of 13,356 - 22,706) (according to Stein et al. 2011), which is an increase of 110% from 2004 when the previous Atlas was conducted. Leopard-human conflict and poorly managed trophy hunting are threats to the species in Namibia (Jacobson et al. 2016b).
Rwanda	Jacobson et al. (2016b) state that there are no recent publications regarding the status or presence of leopards in Rwanda and that a lot of the country has been converted to agriculture and has high human population densities.
South Africa	Leopards are found on borders with Namibia, Botswana, Zimbabwe and Mozambique, with dense populations in the Limpopo region, and they are also found in the Cape provinces (Stein et al. 2016). The population is decreasing from previous estimates especially in areas with human development and intensive human-leopard conflict (Stein et al. 2016). Swanepoel et al. (2014) estimated that there were 4,476 leopards in South Africa. According to Jacobson et al. (2016b), there is no national monitoring program for leopards and current trade and trophy hunting quotas may lead to population decline and possible extinction in certain areas. Indeed, recently Pitman et al. (2015) studied leopard offtake in Limpopo Province and found it to exceed that which is considered sustainable. South Africa banned export of leopards for 2016 as they did not have enough information to make a finding of non-detriment required under CITES for leopard exports.
Swaziland	There are no recent publications on the size or trend of the leopard population in Swaziland (Jacobson et al. 2016b).
Tanzania	Leopards remain widely distributed in Tanzania although only a few studies have established scientifically-based leopard densities or population trends (Jacobson et al. 2016b). The leopard population is declining and has been reduced in Tanzania

Country	Recent Estimated Leopard Population Size, Status and/or Trend
	(Jacobson et al. 2016b, Stein et al. 2016) driven, in part, by excessive offtake for trophy hunting (Packer et al. 2009, Jacobson et al. 2016b).
Uganda	Although apparently present in many areas (Jacobson et al. 2016b, Stein et al. 2016), the Uganda Wildlife Authority reported in 2010 that leopards are 'likely to have declined even more drastically [relative to other species of concern] because of their widespread presence outside protected areas' and estimated that the population may be lower than 150-200 individuals (Jacobson et al. 2016b).
Zambia	Zambia's leopard population has declined with leopards disappearing from areas with increased human development and in areas with high human-leopard conflict (Stein et al. 2016). Leopards are present in some National Parks and game management areas, but absent in others (Jacobson et al. 2016b). Zambia banned leopard hunting in 2013 and 2014, but reinstated it in 2015 and 2016 (Jacobson et al. 2016, supplemental document 1, country profiles).
Zimbabwe	Leopards exist in many conservation areas but no assessment of the national population exists (Jacobson et al. 2016b). Populations are declining and leopards are disappearing in areas with high human impact and human-leopard conflict (Stein et al. 2016). Williams et al. (2016b) extrapolated the results of a study of the impact of government land reform policies on the leopard population of Save Valley Conservancy to the remainder of the country, estimating Zimbabwe's leopard population size to be 626 at minimum and 6,716 at maximum in 2008, a decrease of 69% and 58%, respectively, compared to minimum and maximum population estimates from 2000.

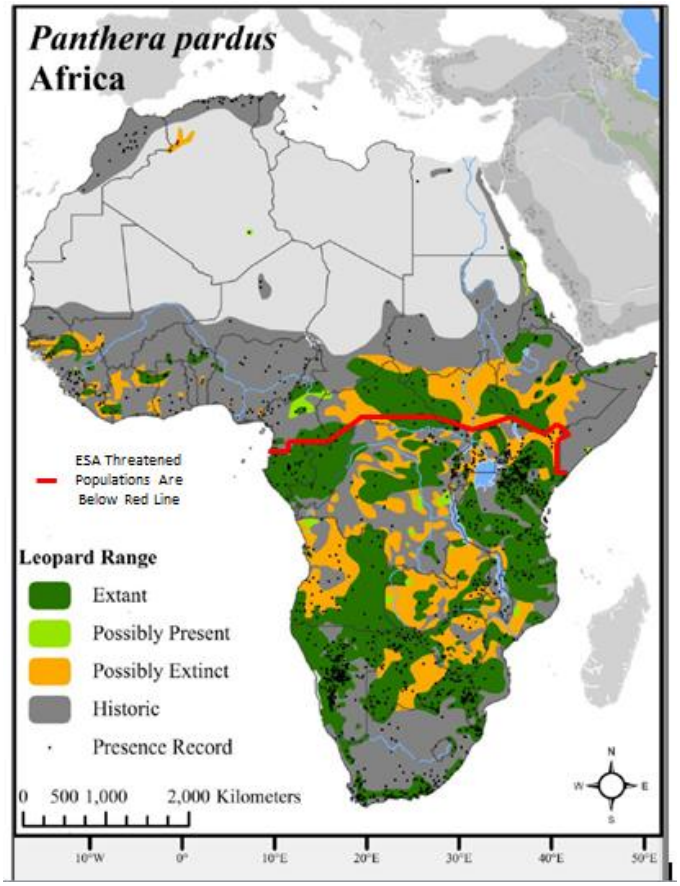
The most recently published scientific paper containing an assessment of the status and distribution of the species (Jacobson et al. 2016a) found that *P. pardus pardus*, the African leopard, has lost 48-67% of its range, from a historical range of 19,751,400 km^2 to between 6,613,000-10,219,200 km^2 today (Jacobson et al. 2016b) (**Figure 1**). Jacobson et al. (2016a) state, "even for this relatively widespread subspecies, there is still substantial cause for concern across large portions of its range." The African leopard subspecies existed historically in 47 range States, but exists in only 38 today, and thus has been extirpated from nine countries (Jacobson et al. 2016c): Mauritania, Togo, and Tunisia; Gambia, Lesotho, and Morocco (possibly extinct); and Algeria, Burundi, and Mali (possibly present) (Jacobson et al. 2016c). Regarding *Panthera pardus* as a whole, Jacobson et al. (2016a) state, "Contrary to the pervasive impression of the leopard as being one of the most widespread, adaptable and resilient carnivores, our calculated range loss of 63–75% exceeds the average range loss documented for the world's largest carnivores (53% for 17 species; Ripple et al., 2014)."

See also Declaration of Dr. Jane Goodall, ¶ 8 ("It is absolutely clear that leopards – like most wildlife in Africa – are at greater risk of extinction today than they were in 1982 when the U.S. Fish and Wildlife Service listed southern African leopards as Threatened. In the nearly six decades during which I have learned a great deal about wildlife in Tanzania and other African countries, the human population has more than doubled, resulting in rapidly vanishing wildlife habitat, wiping out forests and grasslands essential to sustain leopards and their prey. Large mammals – like leopards and chimpanzees – play essential roles in their ecosystems, and in order to preserve these magnificent animals in perpetuity it will require all nations to exercise their full power to promote the conservation of imperiled species."); Declaration of Dereck Joubert, ¶ 9 ("There is no reason to believe that the population trend for leopards is significantly different to those of other big cats in Africa, all of which indicate a 95% decline over the

past 50 years. Our own findings coincide with that hypothesis and in many areas I have surveyed, in particular where there is hunting, leopard have declined significantly. Territories have been disrupted and breeding has been suppressed. It is unlikely that there are more than 50,000 leopards in Africa today. Indeed, based on my experience over the last 30 years working with leopards, the population has significantly decreased in that time.”).

The most recent IUCN assessment of the leopard (Stein et al. 2016) agrees largely with the findings of Jacobson et al. (2016a) with regard to range loss over the past three leopard generations (22.3 years); they estimated a 61% range loss for the species across its range (from 21,953,435 km^2 in the 2008 IUCN assessment to 8,515,935 km^2 in the 2016 assessment); a 21% range loss in sub-Saharan Africa; a 97% range loss in North Africa; a “dramatically reduced” range in West Africa; “substantial range declines” in West, Central, and East Africa; and a 21% range loss in southern Africa. Stein et al. (2016) attributes the range declines in West, Central, and East Africa to habitat loss and fragmentation which threaten the survival of leopards because they “require large, contiguous habitats with low human impacts to reproduce successfully” (Stein et al. 2016). Other factors contributing to range loss in Africa are prey reductions due to the illegal and unsustainable bushmeat trade, illegal harvest of skins, and human-leopard conflict and retaliation for livestock depredation.

Figure 1. Historic and present distribution of the leopard in Africa with red line demarcation between ESA Endangered and ESA Threatened populations.



Source Jacobson et al. 2016d (ESA demarcation added).

III. Natural History and Biology

A. Species Description

The following account of the species is sourced from Stein and Hayssen (2013). The leopard is the smallest of the large cats in the genus *Panthera*, though there are variations in sizes of leopards across their range. Males are generally larger than females – for example, mean length of head and body for males in Namibia is 132 cm, and females 106.5 cm (based on two samples of each sex); weight of 47 males from India, Ivory Coast, Namibia and South Africa was 30.9-62.6 kg, and for 34 females 21.2-54.0 kg. Fur color varies from yellow to black and is soft and thick and leopards living in colder climates have longer hair. Spots occur on the muzzle and forehead and the whisker spots can be used to identify individuals. The spots become a rosette pattern from the neck and shoulders to the rump and tail. Irregular spots are found from the elbow and knee to the feet and along the ventral side of the torso. Eye color varies from yellow to blue. Leopards have well-developed musculature on the neck, forelimbs and chest and can drag a carcass more than double the leopard's body weight up a tree. They have five toes on the front feet and four on the back, with the first toe on the inside of the front used only for bringing down prey. Leopards can reach a maximum speed of 60 km per hour, make horizontal leaps of 6 m, and vertical leaps of 3 m.

B. Reproduction and Mortality

Leopards have a polygynous mating system; both sexes are territorial; males have a territory that includes territories of several females; both sexes defend their territories against individuals of the same sex although there is some overlap (Balme and Hunter 2013).

According to Stein and Hayssen (2013)'s description of *Panthera pardus* across its entire range, some populations have a distinctive mating season (e.g. November-December in Nepal) but leopards mate year-round in South Africa. Females attract males through scent marks and vocalizations. When mating, males associate with females for 1-4 days. Mean length of estrus is 5-13 days, gestation is 88-112 days, lactation occurs for 114-130 days, den emergence happens in 42 days, independence occurs at 13 months. The interbirth interval is 3.5-45 months, with most intervals 8-12 months. Females have four mammae and litter size is 1-6 with a mode of 2. Females first mate at 23-32 months, first births occur at 27-52 months, and males can first sire young at 1.5 years. Infanticide can occur when territorial males that likely sired the young are removed before cubs reach independence. Juveniles remain with their mothers for 12-18 months. Female young take over a portion of their mother's range, while young males disperse.

Lindsey and Chikerema-Mandisodza (2012) describes the reproduction of African leopard specifically (*Panthera pardus pardus*). The African leopard has a low reproductive rate and is long-lived. They reach sexual maturity at 3-4 years, have on average two cubs per litter, have a mean lifetime reproduction of 4.1 cubs/female, have an inter-birth interval of 25 months for successful litters, have a lifespan of 19 years for females and 14 years for males, have a generation time of 7 years, and have an adult sex ratio of 1.6 females/males. There is a 63% mortality of cubs prior to independence.

As described Braczkowski et al. (2015a), the African leopard subspecies (*Panthera pardus pardus*) is considered to be a solitary species (except for mothers and their cubs and males and females when

mating), but they live in a social system that is highly dependent on long-term relationships. When individuals are removed from a population and new immigrants enter the population this destabilizes the social system and leads to fighting and infanticide by new males. In populations where fathers remain present, cub survival and reproductive output of the population are higher than in populations where this is not the case. In addition, in stable populations female leopards give birth at a younger age, spend more time with dependent young, and produce more litters.

Longevity is 10-15 years in the wild; annual adult mortality averaged 19% in Kruger National Park of which 30% were old males, 17% old females, 17% prime males, 10% prime females; 64% died of starvation (Nowell and Jackson 1996).

C. Hunting and Feeding

According to Stein and Hayssen (2013), *Panthera pardus* consume a wide variety of animals of all types and sizes, from beetles to large antelopes. Preferred prey are 10-40 kg but they can feed on larger prey (>150 kg). In Africa, leopards prey on impala, springbok, duiker, nyala, and warthogs, and rodents. Females and cubs tend to prey on smaller animals. Leopards attack prey by stalking and pouncing – smaller prey are killed by a bite on the head or nape of the neck; larger prey by a bite on the throat. Once prey animals are killed, they are eaten on the spot, or dragged to trees, bushes or caves where they are cached. Leopards can be active at night or during the day (*i.e.*, in Kenya and South Africa, 66% of activity is nocturnal). Generally, leopard home range size varies according to prey availability with larger home ranges where prey availability is low. Females have smaller home range sizes than males (*e.g.*, in Tai National Park, Ivory Coast, males had a home range size of 32-46 km^2 and females 14-26 km^2).

IV. *Panthera pardus* is Endangered Across its Range Pursuant to the ESA Listing Criteria

The main threats to the survival of leopards across their range are habitat loss and fragmentation, conflict with humans, loss of prey, killing for the illegal trade in skins and parts and, for *P. pardus pardus*, unsustainable trophy hunting (Jacobson et al. 2016a). *See also* Stein et al. 2016 ("Evidence suggests that Leopard populations have been dramatically reduced due to continued persecution with increased human populations (Thorn et al. 2013, Selvan et al. 2014), habitat fragmentation (UN 2014), increased illegal wildlife trade (Datta et al. 2008), excessive harvesting for ceremonial use of skins (G. Balme pers. comm. 2015), prey base declines (Hatton et al. 2001, du Toit 2004, Fusari and Carpaneto 2006, Datta et al. 2008, Lindsey et al. 2014, Selvan et al. 2014) and poorly managed trophy hunting (Balme et al. 2009)"). Based on these threats, leopards in southern Africa must be included in the Endangered listing for *Panthera pardus*.

Notably, the IUCN concludes that "[m]ost of the factors driving Lion population declines (e.g., habitat loss and fragmentation, retaliatory killing due to conflict, poorly managed trophy hunting) also affect Leopards." (Stein et al. 2016). Just as the Service has recently taken action to prohibit the import of African lion trophies unless the ESA's enhancement standard is met (50 C.F.R. § 17.40(r)), the Service must take action to address the impact that Americans are having on the decline of the leopard.

A. Present or Threatened Destruction, Modification, or Curtailment of Habitat

African populations of the leopard have experienced significant and ongoing curtailment of range. As noted above, the most recently published assessment of the status and distribution of the species (Jacobson et al. 2016a) found that *P. pardus pardus*, the African leopard, has lost 48-67% of its range, from a historical range of 19,751,400 km^2 to between 6,613,000-10,219,200 km^2 today (Jacobson et al. 2016b) (**Figure 1**). In North Africa, *P. pardus pardus* has lost 93.9-99% of its historic range (from 605,300 km^2 historically to 5,800-37,000 km^2 today); in West Africa, the range loss is 86-95% (3,505,000 km^2 to 196,000-483,100 km^2); in Central Africa, the range loss is 45-66% (6,101,100 km^2 to 2,081,900-3,379,700 km^2); in East Africa, the range loss is 40-60% (3,626,300 km^2 to 1,457,200-2,003,300 km^2); and in Southern Africa, the range loss is 28-51% (5,913,800 km^2 to 2,872,200-4,270,800 km^2) (Jacobson et al. 2016b). Jacobson et al. (2016a) state, "even for this relatively widespread subspecies, there is still substantial cause for concern across large portions of its range." The subspecies existed historically in 47 range States, but exists in only 38 today, and thus has been extirpated from nine countries (Jacobson et al. 2016c): Mauritania, Togo, and Tunisia; Gambia, Lesotho, and Morocco (possibly extinct); and Algeria, Burundi, and Mali (possibly present) (Jacobson et al. 2016c).

The most recent IUCN assessment of the leopard (Stein et al. 2016) agrees largely with the findings of Jacobson et al. (2016) with regard to range loss over the past three leopard generations (22.3 years); they estimated a 61% range loss for the species across its range (from 21,953,435 km^2 in the 2008 IUCN assessment to 8,515,935 km^2 in the 2016 assessment); a 21% range loss in sub-Saharan Africa; a 97% range loss in North Africa; a "dramatically reduced" range in West Africa; "substantial range declines" in West, Central, and East Africa; and a 21% range loss in southern Africa. Stein et al. (2016) attributes the range declines in West, Central, and East Africa to habitat loss and fragmentation which threaten the survival of leopards because they "require large, contiguous habitats with low human impacts to reproduce successfully" (Stein et al. 2016). Other factors contributing to range loss in Africa are prey reductions due to the illegal and unsustainable bushmeat trade, illegal harvest of skins, and human-leopard conflict and retaliation for livestock depredation.

Contributing to this immense and ongoing loss of range is the collapse in prey species' populations due to commercial bushmeat harvest of herbivores which, in addition to outright habitat destruction, destroys the suitability of habitats for leopards whose density is dependent on the availability of prey (Stein et al. 2016). Thus, the African leopard is in danger of extinction due to habitat loss.

B. Overutilization for Commercial, Recreational, or Scientific Purposes

A valuable source of information on the utilization of leopards for commercial, recreational or scientific purposes is the Convention on International Trade in Endangered Species (CITES) Trade Database. The 182 CITES Parties are required to file annual reports with the CITES Secretariat on the import, export, re-export, and introduction from the sea of CITES-listed species. These reports are compiled into an electronic, searchable trade database, known as the CITES Trade Database, which is available to the public on the CITES website (www.cites.org).

This database can be used to determine the level of currently-legal international trade as well as the types and sources of leopards and their parts that are involved. In the context of CITES, international trade includes commercial trade as well as trade associated with breeding, circus or travelling exhibition, education, enforcement, trophy hunting, medicinal, personal use, reintroduction, scientific research, and for zoological exhibition. By examining the documented purposes of trade, the CITES trade database can be used to evaluate the reasons behind the movement of leopards and their parts across international borders by humans. The database also includes the source of African leopards and their parts in international trade, whether captive-bred, captive-born, illegal, pre-Convention, ranch-raised, or wild. While the CITES trade database is the principal source of information on international trade in leopards and their parts, it does not contain information on domestic use of leopards or their parts for commercial, recreational, or scientific purposes; nor does it account for poaching and illegal trade, except where illicit international trade has resulted in a seizure.

The leopard is clearly over-utilized for commercial and recreational purposes and must be listed as Endangered based on this criterion. The original analysis presented in this petition shows that between 2005 and 2014 (the most recent years for which complete data are available), 35,421 leopard specimens (leopards, dead or alive, and their parts and derivatives, the equivalent of at least 12,791 leopards), were traded internationally for all purposes (Annex 4, Table 1). This figure was derived by adding the figures for four types of specimens that likely represent one leopard each: bodies, skins, live, and trophies. Skulls and bones were not included in this calculation because after leopards are hunted, their skin is usually removed, leaving the skull and other bones and body parts; in this analysis, the skin or trophy is used to represent a leopard, not the skull or bones. The most commonly-traded items were derivatives (13,968), trophies (10,211), specimens (4,352), skulls (2,045) and skins (1,928) (Annex 4, Table 1). Other leopard specimens in trade include live animals (550), medicine (538), bones (405), claws (381), small leather products (287), and hair (238), as well as smaller numbers of bodies, bone pieces, carvings, cloth, feet, garments, hair products, large leather products, plates, skeletons, skin pieces, tails, and teeth (Annex 4, Table 1).

Global gross imports of African leopards reported as bodies, trophies, skins and live for the period of 2005 to 2014 total 12,791, including imports of 134 bodies, 549 live leopards, 1,916 skins, and 10,191 trophies (see **Table 2**).

Table 2. Gross Imports of *Panthera pardus* Bodies, Live, Skins, And Trophies, All Purposes, All Sources, 2005-2014.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
Bodies	7	0	9	10	22	19	24	24	9	11	**135**
Live	37	44	45	42	48	75	79	68	67	44	**549**
Skins	73	162	61	75	234	236	353	467	226	29	**1,916**
Trophies	1235	1134	1064	1291	1405	993	769	984	718	598	**10,191**
Totals	**1,352**	**1,340**	**1,179**	**1,418**	**1,709**	**1,323**	**1,225**	**1,543**	**1,020**	**682**	**12,791**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus*, all countries, all sources, all purposes, on 03/23/2016.

Of this trade from all sources, 19,909 leopard specimens, reported as being from a wild source – the equivalent of at least 11,959 leopards (adding bodies, live, skins, trophies) – were traded internationally for all purposes (Annex 4, Table 2). Wild sourced specimens accounted for 56.2% of specimens in trade (19,909 of 35,421) and 93.5% of leopards in trade (11,959 of 12,791). Of this trade, the U.S. imported 8,553 wild leopard specimens, the equivalent of at least 5,382 leopards (Annex 4, Table 3), which is 45% of wild leopards traded during the period. Indeed, the U.S. is the top importer of wild leopard specimens with other leading importers being France (1188 specimens representing at least 1,055 leopards), South Africa (1,224 specimens representing at least 839 leopards), Spain (823 specimens representing at least 614 leopards) and Germany (3,411 specimens representing at least 527 leopards) (Annex 4, Table 3). The top countries export of wild leopards and their parts were Zimbabwe (3,568 specimens representing at least 2,898 leopards), Tanzania (3,355 specimens representing at least 2,877 leopards), Namibia (4,308 specimens representing at least 1,796 leopards), and South Africa (2,805 specimens representing at least 1,601 leopards) (Annex 4, Table 5).

From 2005 through 2014, leopards and their parts from the following additional sources were traded internationally:

- 1,064 captive-bred[4] leopards and their parts, the equivalent of at least 510 leopards, including 8 bodies, 473 live, 18 skins, 554 specimens, and 11 trophies (Annex 4, Tables 6 and 7).
- 32 captive-born[5] leopards and their parts, the equivalent of at least 31 leopards, including 25 live, 1 skull, and 6 trophies (Annex 4, Table 8).
- 217 pre-convention[6] leopards and their parts, the equivalent of at least 127 leopards, including 101 skins, 13 skin pieces, 5 bodies, and 21 trophies (Annex 4, Table 9).
- 16 ranched[7] leopards and their parts, the equivalent of at least 10 leopards, including 8 live, 1 skin and 1 trophy (Annex 4, Table 10).
- 14,169.5 confiscated/seized[8] leopards and their parts, the equivalent of at least 219 leopards, including 180 trophies, 38 skins, 74 skin pieces, 28 teeth, 538 medicines, 12,906.5 derivatives, 269 small leather products, 14 claws, and 50 bones (Annex 4, Table 11).
- 91 unknown source[9] leopards and their parts, the equivalent of at least 15 leopards, including 25 derivatives, 35 specimens, 1 body, 6 live, and 18 skins (Annex 4, Table 12).

1. Trade for Commercial Purposes

Panthera pardus is listed on CITES Appendix I and international trade for primarily commercial purposes is not allowed under the treaty. Nonetheless, from 2005 to 2014, 3,522 African leopard specimens, the equivalent of at least 135 individual leopards, were traded internationally for commercial purposes (Annex 4, Table 13); this equates to 9.9% of the leopard specimens traded over this period (3,522 of 35,421) and 1% of leopards (135 of 12,791). The vast majority of these specimens were derivatives (2,683); others included medicine (331), and small leather products (266); but bodies (11),

[4] CITES source code C; none were traded under source code D. Information on the CITES Source Codes is in CoP16 Conf. 12.3 § I(i) (2002), *available at* https://cites.org/eng/res/12/12-03R16.php.
[5] CITES source code F.
[6] CITES source code O.
[7] CITES source code R.
[8] CITES source code I.
[9] CITES source code U.

skins (72), live specimens (39), trophies (13) and also skin pieces (69), feet (29), garments (14), teeth (14), skulls (8), carvings (7), claws (7), specimens (2), large leather products (1), and cloth (1) were also reported in trade (Annex 4, Table 13).

Of the leopard specimens internationally traded for commercial purposes, 3,358 (95%) were imported by the U.S (Annex 4, Table 14). However, upon closer inspection of FWS records, many of these were seized by the U.S. and reported in their annual report to the CITES Secretariat which is why they appear in the CITES Trade Database (Annex 4, Table 15). For example, from 2005-2014, a total of 2,482 leopard derivatives (2,151 or 80% of the total exported to the U.S. for commercial purposes) and medicine (331 or 100% of the total exported to the U.S. for commercial purposes) products were seized upon import into the U.S. These data further show that China exported, on average, 413 leopard "derivatives" to the U.S. each year during 2006-2010 for commercial purposes. This trade abruptly ceased in 2011, and then the trend reappeared under a different but similar wildlife term: "medicine"; an average of 110 "medicine" products derived from leopards being exported for commercial purposes from China (2012-2013) and then Hong Kong (2014) (Annex 4, Table 16).

However, substantial trade in leopard specimens for commercial purposes did not result in confiscations or seizures. For example, while 72 skins were internationally traded 2005-2014 (Annex 4, Table 13), only 9 were confiscated or seized as illegal imports during this period (Annex 4, Table 15). Similarly, of 8 bodies and 7 carvings so traded, none were seized; of 14 garments, 5 were seized; of 8 skulls, 1 was seized; of 14 teeth, 4 were seized; and of 13 trophies, none were seized.

Most leopard specimens traded internationally for commercial purposes and confiscated or seized globally, originated in China (Annex 4, Table 17). China is, by far, the country that exported the most leopard specimens for commercial purposes 2005-2014 (Annex 4, Table 18); as noted previously, most of these were derivatives and medicines that were imported by the U.S. and confiscated or seized.

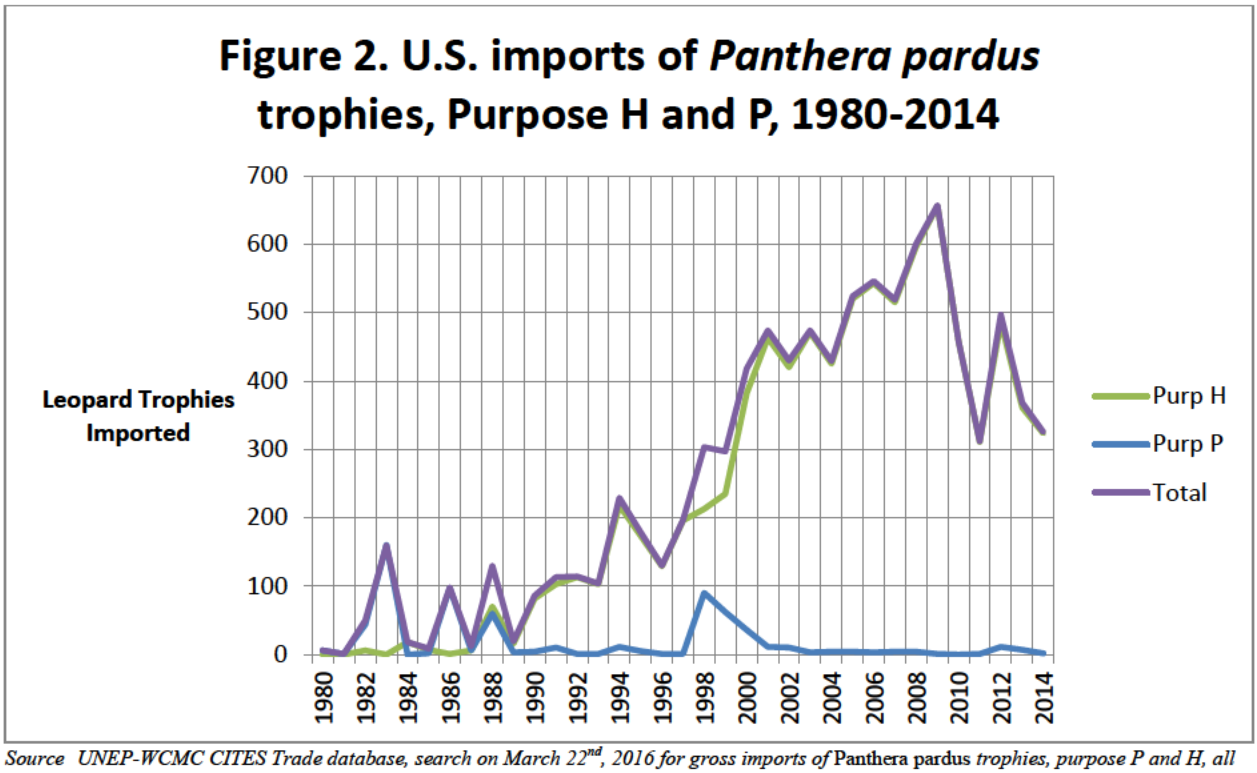
Leopards continue to be poached for commercial trade. Both skins and canine teeth are widely traded domestically in some Central and West African countries, and these are sold openly in villages and cities (Henschel 2008). Chapman and Balme (2010) found that leopard poaching occurs in the Zululand Rhino Reserve in northern KwaZulu-Natal province of South Africa and is increasing. They said, "There is evidence that targeted poaching for leopards is increasing in the region; the skins of 58 individuals were seized in the nearby Mkhuze district in 2004 and a further 91 skins were seized in the same area in 2009 (Hunter et al., in press)." (p. 119). According to Stein et al. (2016, citing to Balme unpublished data), "preliminary data suggest that the illegal trade in Leopard skins for cultural regalia is rampant in southern Africa. It is suggested that 4,500-7,000 Leopards area harvested annually to fuel the demand for Leopards skins by followers of the Nazareth Babtist (Shembe) Church only." Jorge (2012) found that the illegal off-take of leopards in Niassa National Reserve, Mozambique, was unsustainable and, when combined with off-take for trophy hunting, was negatively affecting leopard populations; skins are illegally traded locally for USD 83, an amount equivalent to one month's salary; poaching is driven by economic value of skins rather than human-leopard conflict which is low in the area; poachers killed an estimated 6-22% of the adult female population which may also have resulted in the death of cubs; poaching is a serious threat to conservation of leopards in the Reserve.

2. Trade for Recreational Purposes

Most leopards in trade are traded for hunting trophy purposes and leopards are clearly over-utilized for this purpose. From 2005 to 2014, 13,721 leopard specimens, representing at least 11,145 individual leopards, were traded for hunting trophy purposes (Annex 4, Table 19); this equates to 38.7% of the leopard specimens traded over this period (13,721 of 35,421) and 87.1% of individual leopards (11,145 of 12,791). The most common type of specimen traded for hunting trophy purposes was "trophies" (9,495) followed by "skulls" (1,974) and "skins" (1,564) (Annex 4, Table 19). Most leopard specimens traded internationally for hunting trophy purposes were imported by the U.S. (6,695 or 48.8%); no other country comes near to being as large an importer as the U.S.; the next nearest country is South Africa (1,113 or 8.1%) (Annex 4, Table 20). The top countries of export of leopard specimens for hunting trophy purposes were Zimbabwe (3,535 or 25.8%), Tanzania (3,088 or 22.5%), South Africa (2,291 or 16.7%), Namibia (1,917 or 14%) and Mozambique (1,009 or 7.4%) (Annex 4, Table 21); together these five countries export 60.5% of leopard specimens for hunting trophy purposes.

Leopard trophies are also traded internationally for personal purposes with 773 so traded from 2005 through 2014 (Annex 4, Table 22). France is, by far, the largest importer of leopard trophies for personal purposes, having imported 458 or 59.2%. Tanzania is, by far, the largest exporter of leopard trophies for personal purposes, having exported 303 or 39.1% (Annex 4, Table 23).

Regarding leopard trophy imports to the U.S., since 1982 there has been a dramatic increase in the number of leopard trophies imported, with numbers steadily rising throughout the 1990's and peaking in 2009, when 657 trophies were imported according to data from CITES trade database (see **Figure 2** below). The number of leopard trophy imports has remained over 300 per year since 1999, indicating the continuing trend of the U.S. being a major importer of leopard hunting trophies in this decade.



Source UNEP-WCMC CITES Trade database, search on March 22nd, 2016 for gross imports of Panthera pardus *trophies, purpose P and H, all sources, between 1980 and 2014.*

Leopard trophy hunting has increased exponentially over the past thirty years (Palazy et al. 2011). African leopards are highly sought after by trophy hunters (Braczkowski et al 2015b). Trophy hunting organizations, such as Safari Club International, offer awards to members who kill leopards, such as the Africa Big Five Grand Slam award, the Dangerous Game of Africa Grand Slam award, or the Cats of the World Grand Slam award (Shield Political Research et al. 2015). Trophy hunters routinely target the biggest and strongest males, but removing these animals from the breeding pool unnaturally selects for smaller and weaker animals (Allendorf and Hard 2009). Further, a new study demonstrates that when trophy hunting is sanctioned, poaching activity increases, likely due to the perception that species authorized for hunting are of diminished value and the perception that legal killing increases the acceptability of poaching (Chapron and Treves 2016).

Generally, trophy hunting poses a threat to carnivores because their populations are difficult to monitor and for some species, like the African leopard, infanticide is exacerbated by removing males (Packer et al. 2009). Simulation models predict population declines from moderate levels of trophy hunting of infanticidal species (Packer et al. 2009), such as leopards. Balme et al. (2010) demonstrated the impact of trophy hunting on infanticide in a population of leopards in South Africa; high trophy hunting offtake resulted in particularly high male leopard mortality and high levels of male turnover; females cannot successfully raise cubs because of immigration into the population of new males; the consequences were low cub survival rates, delayed age at first parturition, reduced conception rates, and low annual litter production; the combined impact of high mortality and low reproductive output led to a negative population growth rate.

Trophy hunting of leopards contributes to substantial declines in populations across southern African range states, and therefore puts the African leopard in danger of extinction. Indeed, the 2016 IUCN

assessment specifically notes that "concern about unsustainable trophy hunting has lately increased" and cites studies concretely demonstrating that "trophy hunting was a key driver of Leopard population decline" (Stein et al. 2016).

a. Biological factors render leopards sensitive to over-harvesting

High male leopard turnover causes high rates of infanticide which are already naturally high in leopard populations (Braczkowski et al. 2015b). This, in turn, can cause rapid population declines (Balme et al. 2009, Braczkowski et al. 2015a). A review of eighteen studies of leopards in southern Africa found that adult and subadult leopards outside of protected areas experienced significantly lower survival rates (55% on average) than those in protected areas (88% on average) (Swanepoel et al. 2015). In protected areas, adult males had a 94% survival rate, compared to 59% outside of protected areas; for adult females, 86% versus 57%; for subadult males, 80% vs 48%; and subadult females 93% vs 18% (Swanepoel et al. 2015). The main causes of mortality outside of protected areas were trophy hunting, problem animal control and poaching for leopard skins (Swanepoel et al. 2015). Even in protected areas, juveniles 12 months old and younger had a significantly lower survival rate (39%) than adults and 52% of mortalities were due to infanticide (Swanepoel et al. 2015). Swanepoel et al. (2015) stated that sustainability of leopard populations in southern Africa is of concern because mortality rates exceeding 30% for solitary carnivores, like leopards, could lead to population declines. Furthermore, the high female mortality rates outside of protected areas, where a large proportion of suitable leopard habitat exists, may have severe demographic effects (Swanepoel et al. 2015).

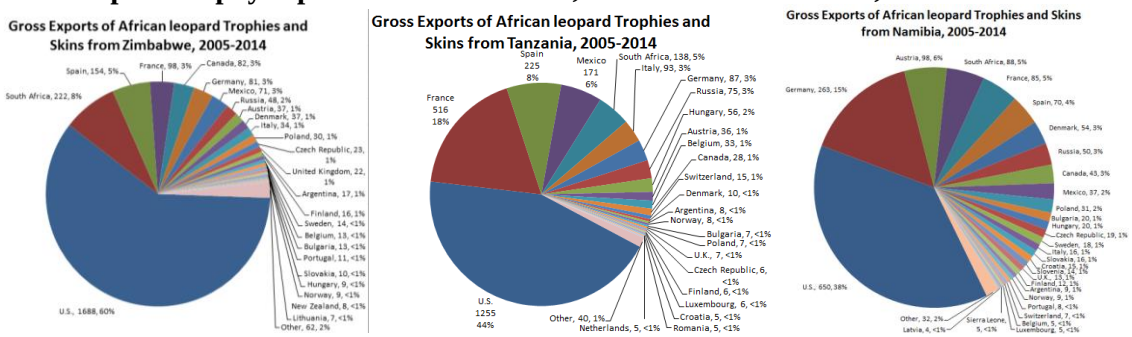
b. Lack of a scientific basis for export and hunting quotas

Leopard trophy hunting quotas have never been based on rigorous quantitative analysis in any African range country (Packer et al. 2010). Management of leopard hunting is hampered by lack of reliable population data and leopard hunting quotas are set arbitrarily and not based on science, which has led to population declines (Braczkowski et al. 2015b). Poorly managed trophy hunting is a significant cause of mortality in leopard populations (Braczkowski et al. 2015a).

While South Africa took action to protect leopards from export by trophy hunters in 2016, it is the only country with a CITES-established export quota that has issued a negative non-detriment finding assessment for the African leopard to date. Moreover, South Africa is not the main exporter of leopard trophies; Zimbabwe, Tanzania and Namibia are the top exporters. During 2005-2014, the U.S. imported 60% of gross leopard trophy exports from Zimbabwe, 44% of Tanzania's exports, and 38% of Namibia's exports (**Figure 3**).[10] Therefore, the U.S. has an important role to play in ensuring that international trade is not detrimental to the survival of *Panthera pardus*, in accordance with CITES.

[10] CITES, Trade Database,, *available at* http://trade.cites.org/ (gross export of leopard trophies for hunting trophy and personal purposes, and trophies for personal purpose).

Figure 3. Leopard trophy exports from Zimbabwe, Tanzania and Namibia, 2005-2014.



Given the fact that leopard trophy hunting quotas have never been based on rigorous quantitative analysis in any country (Packer et al. 2010), these and other leopard exporting countries cannot be said to be enhancing the survival of leopards through trophy hunting – indeed, in Tanzania (Packer et al. 2009), Mozambique (Jorge 2012) Zambia (Packer et al. 2010) and South Africa (Balme et al. 2009, Pitman et al. 2015), there are clear indications that leopard trophy hunting is unsustainable.

c. Female leopards are hunted

One of the most egregious practices associated with leopard trophy hunting – perhaps due to a relative lack in sexual dimorphism in the species – is the killing of female leopards. Killing of females is highly problematic as they are the key reproductive unit; also, killing of females with cubs means that those cubs will not reach adulthood. Trophy hunters may prefer male leopards because they are up to 60% larger than female leopards (Braczkowski et al. 2015b). Nonetheless, one study found that 87% of trophy hunters surveyed said they were willing to shoot females in order to get a trophy even though hunting females is illegal in most countries (Braczkowski et al. 2015b). For example, until this year, South Africa had no restrictions on leopard hunting by sex, age or size and was the only country allocated a CITES export quota that allows hunting of females; this is particularly concerning as a population viability analysis conducted for the South African leopard population demonstrated that the risk of extinction almost doubled when females were hunted (South Africa Department of Environmental Affairs 2015). Another study found that 28.6% of leopard trophies taken in the United Republic of Tanzania were females, even though only males could be legally hunted there and quotas are based on the assumption that only males are hunted (Spong et al. 2000). Since females most commonly die from starvation or due to old age or injuries, and when females are killed their cubs will die, offtake of females by trophy hunters is additive and more likely to adversely affect the population (Spong et al. 2000). Researchers have recommended that trophy hunting should be allowed only for males and that this should be strictly enforced (Braczkowski et al. 2015b). But even where such practice is prohibited, the prevalence of trophy hunting has led to illegal trophy hunting of females, such as in Mozambique (Jorge 2012).

d. Young males are removed from the population

Researchers have further recommended that trophy hunting should only be allowed for males over the age of seven as to allow them to reproduce successfully at least once and contribute their genes to the population (Braczkowski et al. 2015b). However, a study of photos on trophy hunting outfitters websites revealed a high frequency of animals killed between two and six years of age, who have territorial tenure and thus whose removal is likely to have cascading impacts (Braczkowski et al. 2015a). This is below the

recommended age minimum of seven years (Packer et al 2009), and it is likely that many younger animals or even females are killed each year (Braczkowski et al. 2015a). Jorge (2012) found that a high percentage of leopards killed for trophies in Niassa National Reserve, Mozambique, were under the recommended age of seven. Given that trophy hunters are highly motivated to obtain a kill, it is unreasonable to expect that an age limit will routinely be honored in the field.

e. Other factors making leopard hunting unsustainable

A study in Mozambique found that trophy hunting takes place in areas where leopard poaching also occurs and that the offtake from both combined were unsustainable and caused a decrease in leopard population density (Jorge 2012). Furthermore, in some areas of South Africa, especially in areas where leopard density is low, more leopards are killed by illegal retaliatory killing than by trophy hunting and offtake for this purpose should therefore be included in setting trophy hunting quotas (Swanepoel et al. 2015). Pitman et al. (2015) found that legal offtake for trophy hunting and legal offtake for problem animal control added together exceeded a sustainable level of offtake of the leopard population in Limpopo Province, South Africa, the most important habitat for leopard conservation in the country; although offtake for problem animal control exceed offtake for trophy hunting, the authorities do not take the former into account when issuing trophy hunting permits; in addition, illegal offtake is considered to be higher than these forms of legal offtake.

The use of dogs to hunt leopards in Zimbabwe, and a declining number of leopards killed by trophy hunters in Zimbabwe and Zambia (suggesting less availability in spite of insatiable demand), also raise concerns about management of trophy hunting (Packer et al. 2010). Hunting leopards with dogs masks continued population declines because the dogs increase the ability of the hunter to locate and kill leopards (Packer et al. 2009).

Therefore, leopard trophy hunting is a serious threat to the existence of the species in Africa, necessitating an uplisting to Endangered status of leopards in southern Africa (where the vast majority of leopard trophy hunting occurs). *See also* Declaration of Dr. Jane Goodall, ¶ 9-11 ("Given the precipitous decline of African leopards in recent decades, and because the threats to the continued existence of *Panthera pardus* and its habitat are significant, the United States must ensure that it is not contributing to the imperilment of this species and do all it can to promote the conservation of leopards in Africa. Trophy hunters sometimes defend this malicious slaughter by claiming that the money they pay for the pleasure of killing is what enables impoverished countries to pay for conservation of wildlife, but this argument has many flaws. The money paid to hunt a leopard or other trophy animal is often counted as profit by a hunting outfitter and does not usually end up in a conservation program. And as the founder of an organization that has worked for decades on community-based conservation in Africa, I can say confidently that putting a bounty on the heads of individual animals is counter-productive to promoting their protection."); Declaration of Dereck Joubert, ¶ 12-20 ("In my expert opinion, trophy hunting is a dire threat to the continued survival of the African leopard…. the activity undermines conservation, fuels corruption at the local levels in particular and often higher up, and causes the loss of the healthiest animals in the populations, animals that are key for reproduction and social cohesion of those species…. Each leopard that is shot as a trophy cannot be considered in isolation but as just the tip of the iceberg in a trickle down effect of destruction to the family and society of leopards he influences….[L]eopards across their African range are in danger of extinction and the U.S. Fish and Wildlife Service should strictly

regulate the import of hunting trophies and other leopard parts in order to not continue to contribute to the decline of this endangered species.”).

3. Trade for Scientific Purposes

From 2005 through 2014, 4,813 leopard specimens (including bones, derivatives, hair, specimens and teeth), the equivalent of at least 12 leopards (bodies, live and skins), were traded internationally for scientific purposes (Annex 4, Table 24). In addition, several types of leopard specimens were traded for scientific purposes in units including weight, fluid volume and “flasks” (Annex 4, Table 24). Germany, U.K., U.S., and South Africa were major importers (Annex 4, Table 25) and Namibia and Russia were major exporters (Annex 4, Table 26) of leopard specimens for scientific purposes.

4. Trade for Other Purposes

From 2005 through 2014, leopards and their parts and products were traded internationally for other purposes including:

- 43 live leopards for “breeding in captivity”[11] (Annex 4, Table 26); South Africa (8), United Arab Emirates (7), Belgium (6), and Yemen (6) were the main exporters. The main importing countries were United Arab Emirates (16), Armenia (6), and Saudi Arabia (4) (Annex 4, Table 27).
- 712 leopards and their parts for “educational”[12] purposes (Annex 4, Table 27).
- 12 leopard parts for “law enforcement/judicial/forensic”[13] purposes (Annex 4, Table 28).
- 29 specimens for “medical”[14] purposes (Annex 4, Table 29).
- 14 live leopards for “reintroduction or introduction into the wild”[15] purposes (Annex 4, Table 30).
- 9,920.5 leopards and their parts, totaling at least 997 leopards, plus 2,435 g and 28.4082 kg of leopards and their parts, for “personal”[16] purposes including 773 trophies, 191 skins, 207 medicines, 26 bodies, 50 bones, and 8476 derivatives (Annex 4, Table 31). Export of trophies for personal purposes was discussed in Subsection 2) above. Most skins were exported by South Africa, Namibia and Zimbabwe; medicines were exported from China and Hong Kong; most derivatives were exported by China, Hong Kong, Cambodia, Malaysia, Singapore and Viet Nam; most bones were exported by China (Annex 4, Table 32). Most skins were imported by Austria, the U.S., and Australia; most medicines were imported by U.S. (and seized as noted earlier); most derivatives were imported to the U.S. (and seized as noted earlier) and New Zealand (Annex 4, Table 33).
- 168 leopards and their parts, totaling at least 129 leopards, for “circus and travelling exhibition” purposes including six bodies, 113 live, nine skins and one trophy; Russia (28) and Mexico (23) exported the largest number of live leopards for this purpose (Annex 4, Table 34).

[11] CITES Purpose Code B.
[12] CITES Purpose Code E.
[13] CITES Purpose Code L.
[14] CITES Purpose Code M.
[15] CITES Purpose Code N.
[16] CITES Purpose Code P.

- 181 live leopards and one trophy for "zoo" purposes; South Africa (18), France (15), Czech Republic (12) and Namibia (12) exported the largest numbers of live leopards for this purpose (Annex 4, Table 35).

5. International Trade from Sub-Saharan Africa Leopard Range States

This section provides details about the export of leopards and their parts and products by sub-Saharan Africa range States from 2005 through 2014 (including the 18 range states where leopards are listed as Threatened). The following sub-Saharan Africa leopard range States did not export leopards or their parts or products during this period:[17] **Angola**, Burkina Faso, Benin, Chad, Gambia, Guinea, Guinea-Bissau, Niger, **Rwanda**, and Somalia. Between 2005 and 2014, 25 sub-Saharan African countries exported leopards and their parts and products; the top ten countries of export are in **Table 3** – notably, only two countries where leopards are listed as Endangered are on this list (Central African Republic (CAR) and Ethiopia). Thus, given the major role that the U.S. plays as an importer of leopard parts, it is clear that the Threatened listing is facilitating trade in leopards from southern Africa, without appropriate scrutiny.

Table 3. Top Ten Countries of Export of *Panthera pardus*, 2005-2014.

Country of Export	Individual Leopards Exported (bodies, live, skins, trophies)	% of Global Exports (rounded to nearest whole percent)
Zimbabwe	2,947	23
Tanzania	2,923	23
Namibia	1,785	14
South Africa	1,579	12
Zambia	866	7
Mozambique	770	6
Botswana	394	3
CAR	330	3
Ethiopia	24	<1
DRC and Swaziland (tied)	12	<1

a. Botswana

Botswana exported African leopards and their products equivalent to 394 individuals between 2005 and 2014, including bodies (1), live (4), skins (16), and trophies (373) (Annex 4, Table 36). This amount is equivalent to 3% of the global exports in leopards during this period (394 of 12,791). All of these skins and the vast majority of the trophies (334 of 373) were wild-sourced and exported for hunting trophy purposes, 5 of the hunting trophy purpose trophies were reported as having been seized by the U.S. upon import, one of which originated in Mozambique. More than half (191 of 373) of the trophies and 5 of the skins were exported to the U.S. One trophy was reported as having been exported to South Africa for trophy hunting purposes but the source was reported as ranched. The remainder of the hunting trophies (33) were reported as wild-sourced and exported for personal purposes. Botswana also exported 4 live

[17] CITES Trade Database searched on 23 March 2016. As indicated in bold in the text, only two countries where leopards are listed as Threatened – Angola and Rwanda – did not export leopards or their parts from 2005-2014.

leopards that were reported as having been captive-bred to South Africa in 2010 for "circus and travelling exhibitions" purposes.

b. Cameroon

Cameroon exported one African leopard skin between 2005 and 2014, the equivalent of one individual (Annex 4, Table 37). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skin was wild-sourced and exported to Germany for personal purposes.

c. Central African Republic

Central African Republic exported African leopards and their products equivalent to 330 individuals between 2005 and 2014, including skins (4), and trophies (326) (Annex 4, Table 38). This amount is equivalent to approximately 3% of the global exports in leopards during this period (330 of 12,791). All of these skins and the vast majority of the trophies (284 of 326) were wild-sourced and exported for hunting trophy purposes, with the remainder of the trophies (42) being wild-sourced but imported for personal purposes. 60% of the trophy exports (196) went to France, while two of the trophies were exported to the U.S.

d. Congo

Congo exported two African leopard skins between 2005 and 2014, the equivalent of two individuals (Annex 4, Table 39). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skins were seized upon import to the U.K. and there was no purpose recorded.

e. Côte d'Ivoire

Côte d'Ivoire exported two African leopard skins between 2005 and 2014, the equivalent of two individuals (Annex 4, Table 40). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skins were marked as being pre-convention and imported into France for personal purposes.

f. Democratic Republic of the Congo

The Democratic Republic of the Congo exported twelve leopard skins between 2005 and 2014, the equivalent of twelve individuals (Annex 4, Table 41). This amount is equivalent to less than 1% of the global exports in leopards during this period. Ten of the skins were reported as having been exported for personal purposes, with all except one of those wild-sourced. The remaining skin exported for personal purposes was seized upon import to the U.S. Another skin exported for commercial purposes to the U.S. was seized upon import to the U.S., while another skin was exported to an unknown country and no purpose or source was recorded.

g. Ethiopia

Ethiopia exported African leopards and their products equivalent to 24 individuals between 2005 and 2014, including skins (6), trophies (18), as well as skulls (4) (Annex 4, Table 42). This amount is equivalent to less than 1% of the global exports in leopards during this period. Five of the skins and 12 of the trophies were wild-sourced and exported for hunting trophy purposes, while another two trophies

were wild-sourced but one was exported for personal purposes and the other for commercial purposes. The remaining skin was seized upon import to Norway in 2014, and no purpose was recorded. The four remaining trophies were exported for personal purposes but were seized upon import into the United Arab Emirates (2) and Bahrain (2) in 2006. The four skulls were all wild-sourced and exported to Canada (3) and South Africa (1) for hunting trophy purposes.

h. Gabon

Gabon exported African leopards and their products equivalent to 10 individuals between 2005 and 2014, including live specimens (8) and skins (2) (Annex 4, Table 43). This amount is equivalent to less than 1% of the global exports in leopards during this period. The two skins were seized upon import to Hungary and had no purpose data, while the 8 live specimens were reported as having been captive-bred and imported into Tunisia for zoo purposes.

i. Ghana

Ghana exported one African leopard skin between 2005 and 2014, the equivalent of one individual (Annex 4, Table 44). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skin was exported for personal purposes in 2005 but seized upon import to the U.S., with the origin of the specimen marked as unknown.

j. Kenya

Kenya exported African leopards and their products equivalent to 6 individuals between 2005 and 2014, including skins (4) and trophies (2) (Annex 4, Table 45). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skins and trophies were all wild-sourced and exported for personal purposes, with one skin and two trophies exported to Australia, one skin exported to the U.K., and two skins exported to an unknown country.

k. Liberia

Liberia exported African leopards and their products equivalent to one individual between 2005 and 2014, as one skin (Annex 4, Table 46). This amount is equivalent to less than 1% of the global exports in leopards during this period.

l. Malawi

Malawi exported three African leopard skins between 2005 and 2014, the equivalent of three individuals (Annex 4, Table 47). This amount is equivalent to less than 1% of the global exports in leopards during this period. The skins were all wild-sourced and exported for personal purposes, with two skins exported to Sri Lanka, and one to the Netherlands.

m. Mali

Mali exported two live leopards and one skin between 2005 and 2014, the equivalent of three individuals (Annex 4, Table 48). This amount is equivalent to less than 1% of the global exports in leopards during this period.

n. Mozambique

Mozambique exported African leopards and their products equivalent to 770 individuals between 2005 and 2014, including bodies (1), skins (257), and trophies (512) (Annex 4, Table 49). This amount is equivalent to approximately 6% (770 of 12,791) of the global exports in leopards during this period. The one body as well as the vast majority of the skins (245) and trophies (461) were wild-sourced and exported for hunting trophy purposes. Major export destinations for trophies included the U.S. (133), South Africa (119), Spain (59), Portugal (43), and France (41). Major export destination countries for skins included the U.S. (105), South Africa (62), Spain (13), France (12), and Zimbabwe (11). Eight of the trophies exported for hunting trophy purposes were seized upon import into the U.S. between 2007 and 2012. Further, one skin with no purpose reported was seized upon import to Portugal. Six skins and 38 trophies, all wild-sourced, were exported for personal purposes, while two skins were marked as captive-bred and were exported for personal purposes. One skin and two trophies, all wild-sourced, were exported for commercial purposes; the skin was imported into the U.S. in 2013 and the trophies into South Africa and Zimbabwe.

o. Namibia

Namibia exported African leopards and their products equivalent to 1,785 individuals between 2005 and 2014, including bodies (25), live specimens (12), skins (83), and trophies (1,810) (Annex 4, Table 50). This amount is equivalent to approximately 14% of the global exports in leopards during this period (1,810 of 12,791). Major trophy export destination countries included the U.S. (645), Germany (259), Austria (92), France (84), South Africa (79), Spain (68), Russia (47), and Mexico (41). Twenty-three of the bodies, 58 of the skins, and 1,600 of the trophies exported were wild-sourced for hunting trophy purposes. One trophy exported for hunting trophy purposes to the U.S. was captive-bred, while another trophy exported for personal purposes to Germany was marked as pre-convention. Two of the bodies, 24 of the skins, and 94 of the trophies exported were wild-sourced for personal purposes. 645 (~39%) of the total number of trophies were exported to the U.S., 622 for hunting trophy purposes and wild-sourced and 23 that were seized upon import. In addition, one wild-sourced trophy was exported for commercial purposes to the U.S., while one skin exported for commercial purposes was seized upon import to the U.S. and another with no purpose recorded was seized upon import to the U.K. The 12 live specimens were wild-sourced leopards exported to Cuba for zoo purposes.

p. Nigeria

Nigeria exported 6 leopard skins between 2005 and 2014, the equivalent of six individuals (Annex 4, Table 51). This amount is equivalent to less than 1% of the global exports in leopards during this period. All of the skins exported were for personal purposes, and all of the exports were seized upon import to the U.S. (5) and Hungary (1).

q. Senegal

Senegal exported 18 specimens between 2005 and 2014 (Annex 4, Table 52).

r. Sierra Leone

Sierra Leone exported five derivatives between 2005 and 2014 (Annex 4, Table 53).

s. South Africa

South Africa exported African leopards and their products equivalent to 1,579 individuals between 2005 and 2014, including bodies (44), live specimens (56), skins (290), and trophies (1,189) (Annex 4, Table 54). This amount is equivalent to approximately 12% of the global exports in leopards during this period (1,579 of 12,791). Major trophy export destination countries included the U.S. (729), Spain (63), Mexico (53), Philippines (46), Russia (45), and France (35). Major skin export destination countries included the U.S. (163), Spain (29), and Canada (19). Major bodies export destination countries included Canada (11) and the U.S. (8), while major live specimen export destination countries included Egypt (12), Malawi (12), Gabon (10), and the United Arab Emirates (8). In total, the U.S. imported more than half (900) of the total African leopards and their products that are equivalent to individual animals exported from South Africa during the period examined.

South Africa exported 5 live leopards for breeding in captivity purposes that were captive-bred sourced during this period, as well as one live leopard, one skin and one trophy for educational purposes that were captive-bred. 17 wild-sourced leopards (8 trophies and 9 bodies) were exported from South Africa for educational purposes. For hunting trophy purposes, 1,532 leopards were exported (two captive-bred leopard trophies; two F1 (born in captivity F1 and subsequent) leopard trophies; 36 leopard trophies were seized upon import; two trophies marked as pre-convention specimens; one marked as having been sourced from a ranching operation; and of wild-source specimens, 30 bodies, 260 skins, and 1,199 trophies) from South Africa between 2005 and 2014. For purposes of reintroduction to the wild, 12 leopards were exported (4 live leopards sourced from a ranching operation and 8 live wild-sourced leopards) during the period examined. For personal purposes, 117 leopards were exported (2 captive-bred trophies, 19 pre-convention skins, 5 pre-convention trophies, 6 wild-source bodies, 15 wild-sourced skins, and 80 wild-sourced trophies) from South Africa during the period examined. For commercial purposes, 7 live leopards were exported for commercial purposes. For zoo purposes, 30 leopards were exported (22 captive-bred live leopards, one captive-bred trophy, 5 live leopards sourced from a ranching operation, and two live wild-sourced leopards) from South Africa during the period examined.

t. Sudan

Sudan exported African leopards and their products equivalent to 8 individuals between 2005 and 2014, including live specimens (7) and skins (1) (Annex 4, Table 55). This amount is equivalent to less than 1% of the global exports in leopards during this period. Six of the live leopards exported were wild-sourced and exported for zoo purposes (4 were exported to Syria and 2 to South Africa), and the remaining live specimen was wild-sourced and exported for personal purposes (to Saudi Arabia). The one skin exported was wild-sourced and exported for personal purposes.

u. Swaziland

Swaziland exported African leopards and their products equivalent to 12 individuals between 2005 and 2014, including live specimens (1) and skins (11) (Annex 4, Table 56). This amount is equivalent to less than 1% of the global exports in leopards during this period.

v. Togo

Togo exported one leopard skin that was seized upon import to Spain, with no purpose recorded, during the period examined, the equivalent of one individual (Annex 4, Table 57). This amount is equivalent to less than 1% of the global exports in leopards during this period.

w. The United Republic of Tanzania

The United Republic of Tanzania exported African leopards and their products equivalent to 2,923 individuals between 2005 and 2014, including bodies (5), live specimens (1), skins (462), and trophies (2,455) (Annex 4, Table 58). This amount is equivalent to approximately 23% of the global exports in leopards during this period (2,923 of 12,791). The leopard bodies were exported to Denmark (3), the U.K. (1) and Russia (1), while the one live specimen was exported to Nicaragua. Major skin export destination countries included the U.S. (152), France (79), South Africa (55), Spain (37), and Canada (27). Major trophy export destination countries included the U.S. (1,118), France (439), Spain (189), Mexico (181), South Africa (96), Italy (79), and Germany (73). In total, the U.S. imported approximately 43% (1,270) of the total African leopards and their products that are equivalent to individual animals exported from the United Republic of Tanzania during the period examined. Exports to France (518) comprised 17% of the total.

The United Republic of Tanzania exported one wild-sourced leopard skin for educational purposes during this period. For hunting trophy purposes, 2,609 leopards were exported (two captive-bred leopard trophies; 43 leopard trophies were seized upon import; 3 trophies marked as pre-convention specimens; and of wild-source specimens, 5 bodies, 447 skins, and 2,109 trophies) from the United Republic of Tanzania between 2005 and 2014. For personal purposes, 309 leopards were exported (6 wild-source skins and 303 wild-sourced trophies) from the United Republic of Tanzania during the period examined. For commercial purposes, 7 leopards were exported (4 skins and 3 leopard trophies) during the period examined.

x. Zambia

Zambia exported African leopards and their products equivalent to 866 individuals between 2005 and 2014, including bodies (1), skins (52), and trophies (813) (Annex 4, Table 59). This amount is equivalent to approximately 7% of the global exports in leopards during this period (866 of 12,791). The leopard body was exported to Denmark (1). Major skin export destination countries included South Africa (18), Canada (12), and the U.K. (9). Major trophy export destination countries included the U.S. (466), South Africa (55), Mexico (40), Spain (38), and France (25). In total, the U.S. imported approximately 54% (468) of the total African leopards and their products that are equivalent to individual animals exported from Zambia during the period examined. Exports to South Africa (73) comprised 8% of the total. For hunting trophy purposes, 823 leopards were exported (18 leopard trophies were seized upon import; of wild-source specimens, 1 body, 45 skins, and 777 trophies) from Zambia between 2005 and 2014. For personal purposes, 36 leopards were exported (11 wild-source skins and 25 wild-sourced trophies) from Zambia during the period examined.

y. Zimbabwe

Zimbabwe exported African leopards and their products equivalent to 2,947 individuals between 2005 and 2014, including bodies (12), live specimens (3), skins (490), and trophies (2,442) (Annex 4, Table 60). This amount is equivalent to approximately 23% of the global exports in leopards during this period (2,947 of 12,791). The leopard bodies were exported to Canada (6), South Korea (3), Hong Kong (1) and Sweden (1), while the three live leopards were exported to South Africa. Major skin export destination countries included the U.S. (256), South Africa (52) and Canada (43). Major trophy export destination countries included the U.S. (1,489), South Africa (170), Spain (138), France (86), Mexico (71) and Germany (67). In total, approximately 60% (1,745) of the total African leopards and their products that are equivalent to individual animals from Zimbabwe during the period examined were exported to the U.S. Exports to South Africa (225) comprised 8% of the total, while exports to Spain (138) comprised approximately 5% of the total.

Zimbabwe exported 5 leopard products equivalent to individual leopards for educational purposes (one wild-sourced leopard skin and 4 wild-sourced trophies) during this period. For hunting trophy purposes, a total of 2,840 leopards were exported (one captive-bred leopard trophy; two F1 (born in captivity F1 and subsequent) leopard trophies; 40 leopard trophies were seized upon import; 2 trophies marked as pre-convention specimens; and 2,795 wild-source specimens (8 bodies, 457 skins, and 2,330 trophies) from Zimbabwe between 2005 and 2014. For personal purposes, 111 leopards were exported (one body, 16 skins and 6 trophies were seized upon import from Zimbabwe; 4 pre-convention skins; 19 wild-source skins and 65 wild-sourced trophies) from Zimbabwe during the period examined. For circus and travelling exhibition purposes, 3 wild-sourced leopard bodies were exported, and for commercial purposes, a total of 8 leopards were exported (7 captive-source live specimens and one wild-source skin) during the period examined.

6. Countries of Import of African Leopards and Their Parts

The U.S., France, South Africa, Spain, Germany, Mexico, Russia, Canada, Austria, and Italy were the top ten importers of leopards and their products from 2005-2014, with the U.S. accounting for nearly half of all leopard imports (see **Table 4**). This underscores the major role the U.S. plays in the international trade in leopards, and the importance of ensuring that U.S. law stringently regulates leopard imports to ensure that such imports only occur if the import enhances the survival of the species.

Table 4. Top Ten Countries of Import of African Leopards and their Products, 2005-2014, all sources, all purposes.

Country of Import	Individual Leopards Exported (bodies, live, skins, trophies)	% of Global Exports (rounded to nearest whole percent)
United States	5,575	44%
France	1,072	8%
South Africa	878	7%
Spain	709	6%
Germany	539	4%
Mexico	510	4%
Russia	386	3%
Canada	318	3%
Austria	230	2%
Italy	192	2%

The following examines gross import data from the top ten leopard importer countries.

a. Austria

Austria imported African leopards and their products equivalent to 230 individuals between 2005 and 2014, including bodies (1), skins (56), and trophies (173) (Annex 4, Table 61). This amount is equivalent to approximately 2% of the global imports in leopards during this period. Most leopards imported into Austria were exported from Namibia (120 total: 93 trophies, 27 skins and one body, 52% of total imports), with Zimbabwe (44 total: 29 trophies and 15 skins, 20% of total imports), the United Republic of Tanzania (40 total: 12 skins and 28 trophies, 17% of total imports) and Zambia (11 trophies, 5% of total imports) also playing major roles in exports. For hunting trophy purposes, a total of 164 leopards were imported, all wild-source specimens (one body, 21 skins, and 142 trophies) into Austria between 2005 and 2014. For personal purposes, 65 leopards were imported (one pre-convention skin; 33 wild-source skins and 31 wild-sourced trophies) into Austria during the period examined. For circus and travelling exhibition purposes, one pre-convention skin was imported during the period examined.

b. Canada

Canada imported African leopards and their products equivalent to 318 individuals between 2005 and 2014, including bodies (33), live specimens (10), skins (134), and trophies (141) (Annex 4, Table 62). This amount is equivalent to approximately 2% of the global imports in leopards during this period. Most leopards imported into Canada were exported from Zimbabwe (97 total: 48 trophies, 43 skins and 6 bodies, 30% of total imports), with South Africa (53 total: 21 trophies, 19 skins, two live specimens and 11 bodies, 17% of total imports), Namibia (44 total: 25 trophies and 19 skins, 14% of total imports), the United Republic of Tanzania (36 total: 9 trophies and 27 skins, 11% of total imports), Zambia (36 total: 23 trophies and 12 skins, 11% of total imports), and the U.S. (25 total: 9 trophies, 3 skins, 6 live specimens and 7 bodies, 8% of total imports) also playing major roles in exports. For educational purposes, 3 leopards were imported (two wild-sourced leopard bodies and one wild-sourced leopard skin) into Canada between 2005 and 2014. For hunting trophy purposes, a total of 279 leopards were imported (two captive-bred leopard trophies; two F1 (born in captivity F1 and subsequent) leopard trophies; and

275 wild-source specimens (27 bodies, 119 skins, and 129 trophies) imported into Canada during this period. For personal purposes, 22 leopards were imported (one trophy was seized upon import; 6 pre-convention skins; 3 wild-source skins and 6 wild-sourced trophies) into Canada during the period examined. For commercial purposes, a total of 3 leopards were imported (one pre-convention body and two wild-source skins) during the period examined. For zoological purposes, 10 live leopards were imported into Canada between 2005 and 2014.

c. France

France imported African leopards and their products equivalent to 1,072 individuals between 2005 and 2014, including bodies (3), live specimens (13), skins (124), and trophies (932) (Annex 4, Table 63). This amount is equivalent to approximately 8% of the global imports in leopards during this period. Most leopards imported into France were exported from the United Republic of Tanzania (518 total: 439 trophies and 79 skins, 48% of total imports) and Central African Republic (198 total: 196 trophies and two skins, 18% of total imports), with Zimbabwe (98 total: 86 trophies and 12 skins, 9% of total imports), Namibia (86 total: 84 trophies and two skins, 8% of total imports), Mozambique (54 total: 41 trophies and 12 skins, 5% of total imports) and South Africa (45 total: 35 trophies, 8 skins, and two bodies, 4% of total imports) also playing major roles in exports to France. For hunting trophy purposes, a total of 584 leopards were imported into France during this period, all of which were wild-sourced (one body, 110 skins, and 473 trophies). For personal purposes, 475 leopards were imported (two pre-convention bodies, 9 wild-sourced skins and 459 wild-sourced trophies) into France during the period examined. For circus and travelling exhibition purposes, 4 wild-sourced leopard bodies were imported, and for zoological purposes, a total of 7 live leopards were imported into France during the period examined.

d. Germany

Germany imported African leopards and their products equivalent to 539 individuals between 2005 and 2014, including bodies (3), live specimens (10), skins (63), and trophies (463) (Annex 4, Table 64). This amount is equivalent to approximately 4% of the global imports in leopards during this period. Most leopards imported into Germany were exported from Namibia (266 total: 259 trophies, 5 skins and two bodies, 49% of total imports), with the United Republic of Tanzania (87 total: 73 trophies and 14 skins, 16% of total imports), Zimbabwe (81 total: 67 trophies and 14 skins, 15% of total imports), and South Africa (33 total: 25 trophies, 8 skins, 6% of total imports) also playing major roles in exports. For captive breeding purposes, Germany imported two live captive-bred leopards between 2005 and 2014. For hunting trophy purposes, a total of 486 leopards were imported, all wild-source specimens (one body, 42 skins, and 443 trophies). For personal purposes, 26 leopards were imported (one pre-convention body, two pre-convention skins and one pre-convention trophy, one wild-source body, 3 wild-source skins and 18 wild-sourced trophies) into Germany during the period examined. For circus and travelling exhibition purposes, one live captive-bred leopard and one pre-convention trophy was imported during the period examined. For commercial purposes, a total of 16 leopards were imported (one pre-convention skin, 8 skins of unknown source and 8 wild-source skins) during the period examined.

e. Italy

Italy imported African leopards and their products equivalent to 192 individuals between 2005 and 2014, including a body (1), a live specimen (1), skins (21), and trophies (169) (Annex 4, Table 65). This amount

is equivalent to approximately 2% of the global imports in leopards during this period. Most leopards imported into Italy were exported from the United Republic of Tanzania (93 total: 79 trophies and 14 skins, 48% of total imports), with Zimbabwe (38 total: 34 trophies and 4 skins, 20% of total imports), South Africa (22 total: 21 trophies, one skin, 11% of total imports) and Namibia (17 total: 16 trophies, one body, 9% of total imports) also playing major roles in exports. For hunting trophy purposes, a total of 186 leopards were imported (one ranched leopard trophy and 185 wild-source specimens: one body, 19 skins, and 165 trophies) into Italy during this period. For personal purposes, 4 leopards were imported (one pre-convention skins and 3 wild-source trophies) into Italy during the period examined. For circus and travelling exhibition purposes, one wild-sourced leopard skin was imported, and for zoological purposes, one live, captive-bred leopard was imported during the period examined.

f. Mexico

Mexico imported African leopards and their products equivalent to 510 individuals between 2005 and 2014, including a body (1), live specimens (8), skins (20), and trophies (481) (Annex 4, Table 66). This amount is equivalent to approximately 4% of the global imports in leopards during this period. Most leopards imported into Mexico were exported from the United Republic of Tanzania (186 total: 181 trophies and 5 skins, 36% of total imports), with Zimbabwe (76 total: 71 trophies and 5 skins, 15% of total imports), South Africa (60 total: 53 trophies, 6 skins and one body, 12% of total imports), Namibia (41 trophies, 8% of total imports), and the U.S. (34 total: 31 trophies and 3 live specimens, 7% of total imports) also playing major roles in exports. For hunting trophy purposes, a total of 487 leopards were imported (two captive-bred leopard trophies; two F1 (born in captivity F1 and subsequent) leopard trophies; two leopard trophies were seized upon import; 6 trophies marked as pre-convention specimens; and 475 wild-source specimens (one body, 19 skins, and 455 trophies) into Mexico between 2005 and 2014. For personal purposes, 5 wild-source leopard trophies were imported into Mexico during the period examined. For circus and travelling exhibition purposes, 3 live, captive-bred leopards were imported; while for commercial purposes, 3 wild-source leopard trophies were imported during the period examined. For zoological purposes, 5 live, captive-bred leopards were imported between 2005 and 2014.

g. Russia

Russia imported African leopards and their products equivalent to 386 individuals between 2005 and 2014, including bodies (9), live specimens (41), skins (36), and trophies (300) (Annex 4, Table 67). This amount is equivalent to approximately 3% of the global imports in leopards during this period. Most leopards imported into Russia were exported from the United Republic of Tanzania (73 total: 58 trophies and 17 skins, 19% of total imports), with Namibia (53 total: 47 trophies, 3 skins and 3 bodies, 14% of total imports), South Africa (50 total: 45 trophies and 5 skins, 13% of total imports), Zimbabwe (48 total: 42 trophies, 6 skins, 12% of total imports), and France (45 total: 35 trophies, 9 live specimens, and one body, 12% of total imports) also playing major roles in exports. For captive breeding purposes, a total of two leopards were imported (two live, captive-bred leopards) into Russia between 2005 and 2014. For hunting trophy purposes, a total of 303 leopards were imported, all wild-source (8 bodies, two live leopards, 30 skins, and 263 trophies) into Russia during this period. For purposes of reintroduction to the wild, 4 live, wild-source leopards were imported in Russia between 2004 and 2015. For personal purposes, 38 leopards were imported (one body and 37 trophies), while for circus and travelling exhibition purposes, 4 live, wild-source leopards and 4 live leopards whose source was unknown were

imported into Russia during this period. For commercial purposes, 4 pre-convention skins were imported, and for zoological purposes, one live, F1 leopard was imported in Russia during the period examined.

h. South Africa

South Africa imported African leopards and their products equivalent to 878 individuals between 2005 and 2014, including live specimens (36), skins (229), and trophies (613) (Annex 4, Table 68). This amount is equivalent to approximately 7% of the global imports in leopards during this period. Most leopards imported into South Africa were exported from Zimbabwe (225 total: 170 trophies, 52 skins, 3 live specimens, 26% of total imports) and Mozambique (181 total: 119 trophies and 62 skins, 21% of total imports), and the United Republic of Tanzania (151 total: 96 trophies and 55 skins, 17% of total imports), with Namibia (89 total: 78 trophies and 11 skins, 10% of total imports), Botswana (82 total: 73 trophies, 5 skins, and 4 live specimens, 9% of total imports), and Zambia (73 total: 55 trophies and 18 skins, 8% of total imports) also playing major roles in exports. For captive breeding purposes, a total of 8 live leopards were imports (5 captive-bred, two F1, and one wild-source). For educational purposes, 3 live, captive-bred leopards were imported into South Africa between 2005 and 2014. For hunting trophy purposes, a total of 798 leopards were imported (one captive-bred leopard trophy; two F1 (born in captivity F1 and subsequent) leopard trophies; one ranched leopard trophy; and 794 wild-source specimens (207 skins and 587 trophies) imported (one wild-sourced leopard skin and 4 wild-sourced trophies)) into South Africa during this period. For law enforcement purposes, two wild-source skins were imported into South Africa between 2005 and 2014. For personal purposes, 40 leopards were imported (7 captive-bred skins, 3 pre-convention skins; 10 wild-source skins and 20 wild-sourced trophies) into South Africa during the period examined. For circus and travelling exhibition purposes, 4 live, wild-sourced leopards were imported, and for commercial purposes, a total of 12 leopards were imported (8 captive-source live specimens, two live specimens, and two wild-source trophies during the period examined. For zoological purposes, 9 live, captive-bred leopards and two wild-source leopards were imported.

i. Spain

Spain imported African leopards and their products equivalent to 709 individuals between 2005 and 2014, including bodies (3), live specimens (3), skins (101), and trophies (602) (Annex 4, Table 69). This amount is equivalent to approximately 6% of the global imports in leopards during this period. Most leopards imported into Spain were exported from the United Republic of Tanzania (226 total: 189 trophies, 37 skins, 32% of total imports) and Zimbabwe (154 total: 138 trophies and 16 skins, 22% of total imports), with South Africa (92 total: 63 trophies and 29 skins, 13% of total imports), Mozambique (77 total: 64 trophies and 13 skins, 11% of total imports), Namibia (70 total: 68 trophies and two skins, 10% of total imports), Zambia (40 total: 38 trophies and two skins, 6% of total imports) and Botswana (39 total: 38 trophies and one skin, 6% of total imports) also playing major roles in exports. For hunting trophy purposes, a total of 690 leopards were imported, all wild-sourced (3 bodies, 99 skins, and 588 trophies) imported (one wild-sourced leopard skin and 4 wild-sourced trophies) into Spain during this period. For personal purposes, 15 wild-source leopard trophies were imported while for circus and travelling exhibition purposes, two captive-bred live leopards were imported between 2005 and 2014. For commercial purposes, a total of two leopards were imported (one captive-source live specimen and one wild-source skin) during the period examined.

j. United States of America

The U.S. imported African leopards and their products equivalent to 5,575 individuals between 2005 and 2014, including bodies (14), live specimens (26), skins (741), and trophies (4,794) (Annex 4, Table 70). This amount is equivalent to approximately 44% of the global imports in leopards during this period. Most leopards imported into the U.S. were exported from Zimbabwe (1,745 total: 1,489 trophies and 256 skins, 31% of total imports) and the United Republic of Tanzania (1,270 total: 1,118 trophies and 152 skins, 23% of total imports), with South Africa (900 total: 729 trophies, 163 skins and 8 bodies, 16% of total imports), Namibia (654 total: 646 trophies, 5 skins, 3 bodies, 12% of total imports), Zambia (468 total: 466 trophies and two skins, 8% of total imports) Mozambique (238 total: 133 trophies and 105 skins, 4% of total imports) and Botswana (196 total: 191 trophies and 5 skins, 4% of total imports) also playing major roles in exports. For educational purposes, two wild-source leopard trophies were imported into the U.S. between 2005 and 2014. For hunting trophy purposes, a total of 5,447 leopards were imported (two captive-bred leopard trophies; 175 leopard trophies were seized upon import; one ranched leopard skin and 5,269 wild-source specimens (12 bodies, 683 skins, and 4,573 trophies) into the U.S. during this period. For law enforcement purposes, 3 wild-source skins were imported into the U.S. between 2005 and 2014. For personal purposes, 67 leopards were imported (one trophy was seized upon import, while 15 pre-convention skins, one pre-convention trophy, two skins of unknown origin, two wild-source bodies, 11 wild-source skins, and 35 wild-sourced trophies) into the U.S. during the period examined. For circus and travelling exhibition purposes, 7 live captive-bred leopards, 3 pre-convention skins, and one wild-sourced leopard skin were imported between 2005 and 2014. For scientific purposes, 7 skins of unknown origin were imported, while for commercial purposes, a total of 19 leopards were imported (5 skins were seized upon import, while 6 pre-convention skins, one skin and one trophy of unknown origin, 3 wild-source skins and 3 wild-source trophies were imported between 2005 and 2014. For zoological purposes, two live F1 leopards were imported during the period examined.

Therefore, as demonstrated in this section, the African leopard is Endangered by overutilization for recreational and commercial purposes, and the U.S. plays a major role in this unsustainable international trade.

C. Disease or Predation

Wild leopards have been found to have at least nine infectious agents including viruses (rabies, feline leukemia, feline immunodeficiency), bacteria (*Anthrax*), and protozoa (*Toxoplasma*, *Sarcocystis*, *Hepatozoon*, *Giardia*, *Isospora*) (Murray et al. 1999). While there is evidence of a negative conservation impact of disease on wild populations of other large carnivores (i.e. *Canis lupis*, *Lycaon pictus*, *Canis latrans*, *Panthera leo*), there is no such evidence with respect to leopards (Murray et al. 1999).

The leopard is an apex predator in Africa and is not typically predated by animals other than humans. Lions do kill and eat leopards (Palomares and Caro 1999) but leopards are not among the typical prey of lions and such killing is not known to have a conservation impact on leopard populations.

The most significant non-human predator of leopards is leopards themselves. In a study of leopards in a reserve in South Africa, Balme and Hunter (2013) found high rates of infanticide by adult males which

accounted for almost half of cub mortality and caused the death of nearly a third of all leopard offspring; most of these adult males were immigrants; cubs are vulnerable to infanticide until at least 15 months of age; sometimes females defending their cubs were killed; males frequently consumed the cubs they killed; females also sometimes ate their dead cubs; females never killed cubs. Balme and Hunter (2013) consider infanticide in leopards to be primarily motivated by sexual selection: as females whose cubs were killed came into heat sooner, infanticide allows males to improve their fitness by accelerating their opportunity to father offspring. Despite such high levels of infanticide in the population studied by Balme and Hunter (2013), the population remained stable over the period studied; the authors warn against activities that would artificially elevate male turnover – such as trophy hunting – as this may increase infanticide levels.

D. Inadequacy of Existing Regulatory Mechanisms

1. U.S. Endangered Species Act and CITES

Statutory Background of the ESA

The U.S. has long recognized the need to protect wildlife, and, toward this end, has enacted multiple laws to prohibit human actions that contribute to species extinction. With the promulgation of the Lacey Act in 1900 (16 U.S.C. §§ 3371 *et seq*.), it became a federal offense to engage in commerce of protected species. In 1940, the U.S. signed the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere "to protect and preserve [species] in their natural habitat…in sufficient numbers and over areas extensive enough to assure them from becoming extinct through any agency within man's control." 56 Stat. 1534, T.S. No. 981, U.N.T.S. No. 193. These laws recognized that extinction knows no political boundaries, and that both national action and international cooperation are essential to effectively protect endangered species.

In 1966, Congress enacted the Endangered Species Preservation Act (Public Law No. 89-669), which created "a program in the United States of conserving, protecting, restoring, and propagating selected species of native fish and wildlife that are threatened with extinction." Because this statute extended protection only to native species, Congress found that it did not adequately protect foreign species that suffered from overexploitation, often because of the demands of the American marketplace. Therefore, in 1969, Congress enacted the Endangered Species Conservation Act (Public Law No. 91-135), which authorized the Secretary of the Interior to promulgate a list of species, native <u>or non-native</u>, that were "threatened with worldwide extinction." This Act also called for an "international ministerial meeting" to create a "binding international convention on the conservation of endangered species," ultimately leading to the passage of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (27 U.S.T. 1087, "CITES"). Thus, five decades ago the U.S. led the way to ensure that all countries act to save species from both local and global threats.

Recognizing that prior laws did not sufficiently protect endangered species, in 1973 Congress passed the Endangered Species Act. The purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions" to which the United States is committed. 16 U.S.C. § 1531(b). "It is further declared to be the policy of Congress that all Federal

departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act." *Id.* § 1531(c). Thus, as the Supreme Court has declared, the goal of the ESA is to "reverse the trend toward extinction, whatever the cost." *TVA v. Hill*, 437 U.S. 153, 184 (1978).

The ESA defines the term "conserve" to mean "to use all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to [the ESA] are no longer necessary." *Id.* § 1532(3). Such measures may even include a "regulated taking" of the species, but only in the "extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved." *Id.*

Pursuant to Section 4 of the Act, the Service must "list" species as either "Endangered" or "Threatened," depending on the extent of the threats to their existence. *Id.* § 1533. The term "species" includes "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." *Id.* § 1532(16). The Service adopted a policy 20 years ago that defines the term "distinct population segment," under which the agency must conclude that a particular population of a species is both "distinct" and "significant" before it can be determined to be a separate listable entity. 61 Fed. Reg. 4722 (Feb. 7, 1996).

An "Endangered" species is one that the Service has determined is already "in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6). A "Threatened" species is one that "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." *Id.* § 1532(20). The Act requires the Service to list a species as either "Endangered" or "Threatened" based on the following five factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; and (5) "other natural or manmade factors affecting its continued existence." *Id.* § 1533(a)(1)(A-E). The Service is required to list a species if any one of these criteria is present. *Southwest Center for Biological Diversity v. Babbitt*, 215 F.3d 58, 60 (D.C. Cir. 2000).

The Service is required to base listing decisions "solely" on the "best available scientific and commercial data available." 16 U.S.C. § 1533(b)(1)(A). In imposing this requirement, Congress expressly intended to "ensure that decisions . . . pertaining to listing . . . are based solely upon biological criteria and to prevent nonbiological considerations from affecting such decisions." H.R. Conf. Rep. No. 835, 97th Cong. 2d Sess. 19-20 (1982). Thus, Congress made it clear that "economic considerations have no relevance to determinations regarding the status of species." *Id.*; *see also* S. Rep. No. 418, 97th Cong., 2d Sess. 12 (1982) ("This amendment would preclude the Secretary from considering economic or other non-biological factors in determining whether a species should be listed…Only in this way will the endangered and threatened species lists accurately reflect those species that are or are likely to be in danger of extinction"). Therefore, as the Supreme Court observed in *TVA v. Hill* "the language, history, and structure of the [ESA]…indicates beyond doubt that Congress intended endangered species to be afforded the highest priorities." 437 U.S. at 174. Moreover, in keeping with the overall purposes of the statute, even where the best available scientific evidence leaves some doubt as to the status of a species, the Service is required to "give the benefit of the doubt" to the species. *Conner v. Burford*, 848 F.2d 1441,

1454 (9th Cir. 1988); *see also San Luis & Delta-Mendoza Water Auth.*, 2000 U.S. Dist. LEXIS 1779 at *9 (E.D. Cal. 2000)).

Once a species is listed, it is entitled to various protections under the agency's implementing regulations, depending on whether it is listed as Endangered or Threatened. Per Section 9 of the statute, it is unlawful to "import any [Endangered] species into, or export any such species from the United States;" to "deliver, receive, carry, transport, or ship in interstate or foreign commerce . . . in the course of a commercial activity, any such species;" and to "sell or offer for sale in interstate or foreign commerce any such species." 16 U.S.C. § 1538(a)(1). It is also unlawful to "take" a member of an Endangered species within the United States or on the high seas, *id.* § 1538(a)(1)(B)-(C) – a term that includes "harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect." *Id.* § 1532(19).

Section 10 of the ESA provides the FWS authority to issue permits for otherwise unlawful activities "for scientific purposes or to enhance the propagation or survival of the affected species…" 16 U.S.C. § 1539(a)(1)(A). The statute further provides that the FWS "shall publish notice in the Federal Register of each application for an exemption or permit," that each such notice "shall invite the submission from interested parties…of written data, views, or arguments with respect to the application," and that "[i]nformation received by the [FWS] as a part of any application shall be available to the public as a matter of public record at every stage of the proceeding." *Id.* § 1539(c). FWS may only grant a permit if it finds "and publishes in the Federal Register" that the permit (1) "was applied for in good faith," (2) if granted and exercised "will not operate to the disadvantage of such endangered species," and (3) will be "consistent with the purposes and policy" of the ESA – *i.e.*, to "conserve" Endangered and Threatened species. *Id.* § 1539(d). These procedures are mandatory. *See Gerber v. Norton*, 293 F.3d 173, 179-82 (D.C. Cir. 2002).

Whenever a species is listed as Threatened, FWS "shall issue such regulations as [it] deems necessary and advisable to provide for the conservation of such species." 16 U.S.C. § 1533(d). FWS has issued a regulation providing that all of the prohibitions that apply to Endangered species also apply to Threatened species, unless the agency (a) otherwise permits those activities pursuant to its general regulations governing permits for Threatened species, 50 C.F.R. § 17.32, or (b) has issued a special rule that governs a particular Threatened species. 50 C.F.R. § 17.31. However, pursuant to the plain language of the ESA, any such special rule must also "provide for the conservation" of the species – *i.e.*, positively benefit its recovery in the wild. 16 U.S.C. § 1533(d); *Sierra Club v. Clark*, 577 F. Supp. 783 (D. Minn. 1984), *aff'd*, 755 F.2d 608 (8th Cir. 1985); *Fund for Animals v. Turner*, 1991 WL 206232 (D.D.C. 1991)).

The ESA also requires FWS to "encourage…foreign countries to provide for the conservation" of listed species and implements the United States' international obligations with regard to worldwide Endangered and Threatened species. 16 U.S.C. § 1537. For example, CITES was drafted by representatives of countries participating in the International Union for the Conservation of Nature – including the United States – to ensure that international trade in specimens of wild animals and plants does not threaten their survival. CITES was first implemented on July 1, 1975, and today there are over 180 countries that are party to the agreement.

CITES classifies species in Appendices with varying levels of protection – those included on Appendix I are "species threatened with extinction." International commercial trade in these species is prohibited unless the Scientific Authority for the state of export has advised that the export will "not be detrimental

to the survival of the species," and the Management Authority for that country is satisfied that (a) the wildlife "was not obtained in contravention of the laws of the State for the protection of fauna and flora;" (b) "any living specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment;" and (c) an "import permit has been granted" for the wildlife. *See* CITES Article III. An import permit may only be granted when the Scientific Authority for the state of import has advised that the import of the wildlife "will be for purposes which are not detrimental to the survival of the species," and that the "recipient of a living specimen is suitably equipped to house and care" for the wildlife, and the Management Authority for the state of import is satisfied that the specimen is "not to be used for primarily commercial purposes." *Id.*

FWS' 1982 Listing of African Leopards under the ESA Did Not Comport with the Best Available Science

In 1968 and 1969 alone, over 17,000 leopard hides were imported into the United States to supply a burgeoning and unsustainable leopard fur trade. 45 Fed. Reg. 19007 (March 24, 1980). In 1970, FWS listed three subspecies of leopard under the Endangered Species Conservation Act, requiring a permit for import of specimens of: the Sinai leopard (*Panthera pardus jarvisi*) (found in Sinai and Saudi Arabia), the Barbary leopard (*P. p. panthera*) (found in Morocco, Algeria, and Tunisia), and the Anatolian leopard (*P. p. tulliana*) (found in Lebanon, Israel, Jordan, Turkey, and Syria). 35 Fed. Reg. 8491 (June 2, 1970).

In 1972, FWS amended that Endangered listing to include all *Panthera pardus* (whether found in Africa, Asia Minor, India, Southeast Asia or Korea). 37 Fed. Reg. 2589 (Feb. 3, 1972); 37 Fed. Reg. 6476 (March 30, 1972). As explained in a subsequent Federal Register notice, FWS listed the species in1972 because it "was being drastically overutilized in the commercial fur trade" and "nearly every country contacted, in which the leopard was resident, expressed fears for the leopard's future if the fur trade was not brought under control," leading FWS to determine that the species could not "tolerate this enormous drain from its wild populations." 45 Fed. Reg. at 19008.

The species continued to be recognized as Endangered across its Asian and African range until 1982, when FWS reclassified the leopard in certain African range states to Threatened. 47 Fed. Reg. 4201 (January 28, 1982). In its proposed rule, FWS proposed to downlist African populations of the leopard occurring to the south of a line running along the borders of Senegal/Mauritania; Mali/Mauritania; Mali/Algeria; Niger/Algeria; Niger/Libya; Chad/Libya; Sudan/Libya; and Sudan/Egypt (see map below). (45 Fed. Reg. 19007 (March 24, 1980))

Figure 4. Map of Africa with red line denoting the proposed scope of the Threatened listing

In proposing to decrease protection for leopards in nearly all of their African range, FWS stated that it "has broad discretion in developing a management strategy that will effectively conserve Threatened species." 45 Fed. Reg. 19009. FWS stated that "data from each specific political entity within Sub-Saharan Africa are lacking" yet "enough are available from representative entities within the region to warrant action representing the region as a whole." *Id.* FWS further stated that reclassification on a country-by-country basis would be "biologically unsound." *Id.*

In its 1980 proposed rule, FWS relied on only three sources of information in determining that African leopards in most countries should be listed as Threatened rather than Endangered: "The Status and Conservation of the Leopard in Sub-Saharan Africa" by Randall L. Eaton (Safari Club International, January 1977); "The Leopard *Panthera pardus* in Africa" by Norman Myers (IUCN Monograph No. 5 1976); and "Status of the Leopard in Africa South of the Sahara" by James G. Teer and Wendell G. Swank (unpublished study financed by FWS in 1978). 45 Fed. Reg. at 19008.

Regarding the available data from these sources, FWS stated that it considered the leopard to be Threatened in most of its African range because, "A careful analysis of area/habitat type, maximum estimated density and minimum estimated density of leopard in this region by Eaton (loc. cit.) shows that an absolute minimum of 233,050 leopards may occur over the entire area; a conservative estimate of numbers would be 546,076 leopards, while a realistic estimate would place the number at 1,155,500 animals." *Id.* The following table from Eaton appears in the 1980 proposed rule:

Country	Absolute minimum	Conservative estimate	Realistic estimate
Kenya	6,379	25,640	35,000
Uganda	1,547	3,413	20,000
Tanzania	14,740	36,100	70,000
Senegal	1,435	2,870	6,000
Mali	3,088	6,175	15,000
Upper Volta	1,633	3,265	10,000
Niger	1,527	3,055	5,000
Chad	4,325	8,650	15,000
C.A.R.	5,450	10,900	20,000
Gambia	528	1,055	2,500
Guinea	2,250	4,500	10,000
Sierra Leone	700	1,400	3,000
Libera	2,500	5,000	20,000
Ivory Coast	5,625	11,250	30,000
Ghana	2,975	5,950	20,000
Nigeria	4,653	9,305	20,000
Cameroon	4,583	10,705	30,000
Angola	17,369	42,340	87,000
Zambia	18,500	46,250	70,000
Mozambique	16,190	32,378	67,000
Malawi	1,918	3,835	10,000
Botswana	3,165	8,846	20,000
Rhodesia	2,288	6,876	20,000
South West A.	3,477	6,544	20,000
South Africa	3,800	7,150	15,000
Sudan	6,900	22,900	80,000
Ethiopia	6,907	12,814	30,000
Congo	13,200	27,500	65,000
Gabon	13,400	26,800	50,000
Zaire	70,000	155,000	300,000

Table from USFWS 1980 proposed rule. 45 Fed. Reg. at 19009, from Eaton (1977).

Eaton's analysis – which was commissioned by Safari Club International, a group with a vested interest in inflating leopard numbers to decrease regulation of leopards to facilitate hunting trophy imports – was never published. The methodology Eaton – who is not a felid biologist – used to derive these population estimates is dubious at best, as he appears to have based his population numbers solely on the area of leopard habitat in each country and the rationale behind the leopard density applied to the available habitat is not disclosed. *Id.* at 19009. However, it is well established that availability of leopard habitat does not mean that leopards necessarily reside there, and that leopard density is dependent on available prey, not available habitat (Stein et al. 2016).

The 1980 proposed rule also states that Eaton conducted a study of leopards in 11 Sub-Saharan African countries and combined those results with Myers to determine the status of leopards in countries throughout Africa. 45 Fed. Reg. at 19009. In forming its conclusions about the status of leopards in

Africa, FWS relied on Eaton's views of Myers's study, which (as detailed below) do not accurately reflect the conclusions of Myers's study.

The purpose of Myers's 1976 study was to determine the leopard's distribution in sub-Saharan Africa, and to ascertain if numbers were being depleted by the fur trade or habitat modification. The author noted that the leopard existed in 40 countries and that his study would attempt to make assessments in at least one country in each of five biomes (Sahel, Sudano-Guinean woodland, rainforest, miombo woodland, and East African savannah grasslands). Myers visited 22 countries and corresponded with 10 others. Myers did not make detailed population estimates but rather focused on whether a population exists, and whether the population was expanding, declining, or stable. To draw his conclusions, Myers consulted with over 700 people, including "Wildlife and park officials at national and local level, private wildlife organisations, field scientists, anti-poaching teams, professional hunters, trappers, poachers, wildlife cropping units, fur-trade dealers, indeed anyone with specialist knowledge of wildlife." Myers (1976), at 12. Over 850 additional people were also interviewed, including "ranchers, veterinarians, livestock officials, forestry personnel, road gangs, customs officials, police and army personnel, anti-malarial teams, Peace Corps and other volunteers, and local chiefs and headmen," as well as "representatives of the fur trade in Europe and North America". *Id.* at 13. Myers recognized that these interviewees brought bias in terms of subjectivity to the study. *Id.* at 13.

Myers noted that the international fur trade had depressed leopard populations in several parts of Africa and cited habitat destruction and loss as a key threat to the survival of leopards. *Id.* at 21. Myers considered the use of poison to be a major threat, which leopards are more susceptible to because of their scavenging behavior, as well as killing due to livestock predation. Yet, he concluded that the leopard "shows more capacity to recover from over-exploitation that the other main spotted-fur species of Africa, the cheetah." *Id.* at 9. Myers claimed that there was no "bio-ecological grounds for permanently banning exploitation of the leopard by the fur trade," and recommended a limited offtake with a "rigorous system of controls." *Id.* at 9. Myers noted that "rainforest biotopes are reputed to present optimal habitats for leopard" and suggested that a leopard density of 1/km^2 is appropriate in some cases.[18] *Id.* at 13. Myers states that this leopard density is based on habitat type, prey distributions and predator competition, but more recent scientific evidence rebuts this figure (Jackson et al. 1989, Bailey 1993, Henschel 2008, Henschel 2009).

[18] Illogically, Myers (p. 14) used a figure by Schaller (1972) of "total predator biomass" in three areas in Kenya, none of which were rainforest habitat, which ranged as high as 95.7 kg/km^2 in Ngorongoro, to support the contention that rainforests might hold one 30 kg leopard / km^2. Myers cites to Schaller (1972) who estimated leopard density in Serengeti National Park as 1 / 22-26.5 km^2 (equivalent of a very low leopard density of about 0.05 leopards/km^2). After considering other density estimates, Myers states, "the leopard seems able to maintain a density of 1 to 10 km^2 in moderately suitable habitats, and 1 to 5 km^2 in favourable ones, with perhaps even 1 to 1 km^2 in exceptionally suitable conditions." *Id.* at 18.

The 1980 proposed rule apparently relied on Eaton's inaccurate characterizations of Myers' study – for example:

FWS Quoting Eaton's Interpretation of Myers	Myers's Actual Text
"The leopard in Kenya has a satisfactory status"	"leopard have declined in numbers and distribution in Kenya during the last decade."
"the leopard is satisfactory and probably abundant in Mozambique"	Myers did not comment that the leopard was probably abundant in Mozambique. Myers noted that the leopard was depleted in some areas.
"There may well be over 20,000 (leopards) in Rhodesia. The leopard has a satisfactory status in Rhodesia"	"its numbers have been significantly reduced in the face of recent agricultural expansion."
"Overall in South Africa the present status should be rated between rare and satisfactory with present trends being stable."	"Its stock-raisers have long tried to eliminate wild carnivores"; "the leopard in South Africa is officially classified as vermin"; "Numbers.... are disturbingly low, although the position is fairly stable"; "There are no grounds however for complacency, as the situation could easily become critical if any of the existing adverse factors were enhanced"; "Its numbers have long been thought to be very low."
"Myers says that leopards may have stabilized or increased recently in the Sudano-Guinean zone, including parts or portions of Sierra Leone, Guinea, Liberia, and northern Ivory Coast. In all of Sub-Saharan Africa, the West African region probably has the least satisfactory leopard populations; however, in much of the region it appears that the species' status is relatively satisfactory and probably does not deserve Endangered status except locally. Moreover, the regional trend may even be improving due to the encroachment of bush from overgrazing and burning, end or the drought in the Sahel portion, increased edge effect in forests from patchy agriculture and so on, all of which favor leopards."	Senegal: "Leopards are said to persist in much of Senegal, in fair though reduced numbers." Mali: "The overall trend, as elsewhere in West Africa, points toward a gradual elimination of leopard in all but a very few rugged hill tracts." Upper Volta: "The leopard is still widely found in Upper Volta. The leopard looks likely to decline steadily in distribution and status." Niger: "Until recently, however, leopard stocks in Niger were moderately sound." Chad: "Nothing better can be expected than very low densities." CAR: "The leopard's status is fairly satisfactory." Gambia: No leopard status information given. Guinea: "No recent information could be obtained about the status of leopard in Guinea." Sierra Leone: No leopard status information given. Liberia: "The leopard is believed to be evenly distributed throughout the country, except in farming and mining areas." Ivory coast: "Nothing was learned during the survey of the status of the leopard in Ivory Coast." Ghana: "Asibey (1971) considers the leopard very rare in many areas; by the 1980s it may hardly

FWS Quoting Eaton's Interpretation of Myers	Myers's Actual Text
	survive at all except in the most remote localities." Togo and Dahomey: "No specific information was obtained during the Survey. Nigeria: No leopard status information given. Cameroon: "leopards are reported in fair numbers in the south-east and in scattered relict populations elsewhere."

Based on this alleged abundance, FWS concluded that "the leopard in Sub-Saharan Africa can hardly be in danger of extinction." 45 Fed. Reg. at 19009.

FWS did recognize that the loss of habitat to agricultural land conversion "could present a long-term threat to the leopard" and that poaching for the fur trade (especially in European countries that had not yet become party to CITES) continued to threaten the species, and expressed concern about the increasing use of poison and its impacts on scavengers like leopards. *Id.* at 19010. Thus, FWS proposed to list leopards in sub-Saharan Africa as Threatened, leaving in place ESA and CITES Appendix I permitting requirements for the import of leopard fur and other parts. However, at the apparent urging of the trophy hunting industry, FWS proposed to adopt a special rule eliminating the requirement for ESA permits for the import of leopard trophies from sub-Saharan Africa, asserting that "there may be cases in which permitting the importation of leopard trophies taken under a strictly controlled management program will benefit the species by giving it an economic value which would in turn stimulate conservation measures." *Id.* FWS based this pro-trophy hunting position on an unpublished report from Teer and Swank (1977) containing interviews with wildlife officials in Kenya and Botswana who supported trophy hunting (but notably, Kenya prohibited trophy hunting in 1977 – prior to FWS' reliance on the Teer and Swank report – and Botswana prohibited trophy hunting in 2014 (Stein et al. 2016)).

Although the proposed special rule would not have required an ESA permit for the import of leopard trophies from sub-Saharan Africa, FWS stated that, "<u>sport trophy imports into the United States will only be permitted when it is found to enhance the survival of the species</u>." 45 Fed. Reg. at 19010 (emphasis added).

In 1982, FWS finalized the Threatened listing, but with a different geographic scope. 47 Fed. Reg. 4204 (Jan. 28, 1982). The final rule listed as Threatened "leopard populations occurring to the south of a line running along the borders of" Gabon/Rio Muni, Gabon/Cameroon, Congo/Cameroon, Congo/Central African Republic, Zaire/Central African Republic, Zaire/Sudan, Uganda/Sudan, Kenya/Sudan, Kenya/Ethiopia, and Kenya/Somalia. Despite having acknowledged in 1980 that reclassification on a country-by-country basis would be "biologically unsound," the Service narrowed this listing from the proposed sub-Saharan region to this "southern Africa"[19] region after learning that Senegal, Liberia, and Ghana considered their leopard populations to be endangered and since that there was "less substantial

[19] Notably, the 1982 final rule refers to the range of the listed entity as "southern Africa" – however, today, the phrase "southern Africa" commonly refers only to the southernmost region in sub-Saharan Africa, distinct from West, Central, and East Africa. This Petition will use the phrase "southern Africa" to refer to full range of the listed entity (**Figure 5**), even though that entity is neither scientifically nor geographically justifiable.

evidence" of leopard abundance from West Africa and the northern tier of countries in sub-Saharan Africa. *Id.* at 4207.

Figure 5. Map of Africa with red line denoting the current scope of the final Threatened listing

At the time, FWS had not yet adopted its policy regarding evaluation of distinct population segments ("DPS") and did not explain whether or why it thought that leopards in southern Africa were both "distinct" and "significant" such that the region forms a listable entity (since the area does not coincide with the full range of the subspecies or species). *See* 61 Fed. Reg. 4722 (Feb. 7, 1996); 16 U.S.C. § 1532(16). And today, twenty years since adopting the DPS policy, FWS still has not conducted an analysis of whether leopards in southern Africa can lawfully be listed as a DPS.

In addition to the three sources relied on in the 1980 proposed rule (discussed above), the 1982 final rule relied on "The Leopard *Panthera pardus* and Cheetah *Acinonyx jubatus* in Kenya" by P.H. Hamilton (unpublished study financed by FWS). 46 Fed. Reg. 44960 (Sept. 8, 1981). Relying on information from Safari Club International (gathered from interviews with hunters, game wardens, field biologists, and local people, but not hard data), FWS said there were an "absolute minimum" of 186,034 in southern Africa. 47 Fed. Reg. at 4205. The FWS stated that it "is reasonable to believe that the absolute minimum figures have validity and that there are probably well over 180,000 leopards in the area under consideration" and points to the fact that the minimum figure of Eaton for Kenya corresponds with P.H. Hamilton's minimum figure for that country. *Id.*

The 1981 Hamilton report, also based on questionnaires and personal observations, asserted that despite a decline in Kenya's leopard population since the 1960s, Hamilton believed that "a recovery of the leopard is underway in Kenya" and that "the lessons of Kenya are widely applicable." 47 Fed. Reg. at 4206. Notably missing is any acknowledgment that this asserted recovery took place in the years following Kenya's 1977 decision to prohibit trophy hunting of leopards. Further, as acknowledged – but not heeded

– in the final rule, even "Hamilton reports that leopards have declined generally in Kenya since the 1960s" and Hamilton said that the virtual elimination of leopards from North Africa "should serve as a warning to any who believe that this species can always survive no matter what the impact of man." 47 Fed. Reg. at 4206.

FWS stated that Hamilton "supports reclassification and controlled sport hunting of the species." *Id.* According to FWS, Hamilton supported lifting the ban on the importation of leopard trophies because "it has not served any useful purpose. The number involved has been relatively small and the ban runs counter to the concept of giving the leopard monetary value that will help to justify its continued existence in Africa." *Id*. This is not entirely surprising considering that Hamilton obtained his information by talking to 21 professional hunters. *Id.* at 4206. Unjustifiably, FWS characterized these biased sources (the professional hunters) as "the most valuable single source of information." *Id.* at 4206.

In the 1982 final rule, FWS continued to rely on the "expert opinion" of Eaton on the status of leopards in the relevant countries, even though FWS acknowledged that Hamilton "considers Eaton's estimates and judgements as invalid". *Id.* Further, FWS did <u>not</u> acknowledge that Eaton's conclusions conflict with Myers's conclusions in some cases, as noted above.

Further demonstrating that this 1982 downlisting was not based on the best available science – as required by law – FWS conceded the "primary reason" that it changed the geographic scope of the downlisting was due to opposition from range States in the northern portion of the sub-Saharan region (i.e., Liberia, Senegal, and Sudan opposed the proposal, and Benin, Ethiopia, and Ghana reported that the leopard was endangered in those countries). *Id.* at 4207.

Aside from this change in geographic scope and the addition of one report regarding population status in one country, the final rule does not include any new information regarding the threats to the species that was not included in the proposed rule. FWS acknowledged that "more than 90 percent" of the over 1,000 comments received on the proposed rule <u>opposed</u> the Threatened listing and special rule (*id.* at 4208), yet it finalized the Threatened listing and adopted the proposed special rule to allow the import of leopard trophies without requiring an ESA permit.

In relaxing its oversight of leopard trophy hunting, FWS baldly concluded that "Experts agree that the economic value that would develop for the species through sporthunting will encourage some of the countries [which may consider leopards as vermin] to develop management and conservation programs and will discourage indiscriminate killings by local landowners." *Id.* at 4209. Further, FWS stated that "hunting is already going on in Africa, and any increase caused by the participation of U.S. residents should not have significant adverse impacts." *Id.* Both of these statements are entirely unsupported and baseless, further proving that the current leopard listing is based on a woefully outdated foundation that was not even valid at the time the listing was finalized.

Thus, the 1982 listing for *Panthera pardus* cannot be said to be in compliance with the ESA's mandate that listing decisions be made solely on the basis of the best available science. In finalizing the listing, FWS relied on biased sources, misrepresented material scientific conclusions, and patently conceded that the scope of the listing was based on political – and not biological – considerations. The egregious flaws

in this listing are exacerbated by the decades that have passed without further review of the listing, the basis of which has been firmly rejected by a consensus of current leopard experts. Therefore, the current ESA protections for leopards in southern Africa are inadequate, endangering the entire species across a significant portion of its range.

Leopard Listing Under CITES

Panthera pardus has been listed on CITES Appendix I since the first meeting of the Conference of the Parties,[20] a listing that became effective on 4 February 1977. Trade in specimens of species listed on Appendix I "must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances." CITES Art. II.[21] Specimens of Appendix I species cannot be exported or imported unless authorized by permit by both exporting and importing countries. CITES Art. III.[22] An import permit can be granted only if the specimen is not to be used in the importing country for primarily commercial purposes. CITES, Art. III.

While Appendix I affords the highest level of protection under CITES, *Panthera pardus* does not enjoy the full extent of these protections, due to the unsustainable and not scientifically-based export quotas for hunting trophies and skins for personal purposes that are currently in place. Leopard export quotas have been set by CITES Resolutions since 1983 (CITES Resolution Conf. 4.13,[23] replaced today by Resolution Conf. 10.14 (Rev. CoP16)[24],[25] and FWS has long expressed support for this quota system. *See, e.g.*, Fed. Reg. Vol 59, Doc. No: 94-20050 (August 16, 1994).

As detailed in this section, the Service's implementation of the CITES and ESA listings for *Panthera pardus* is not based on science and fails to provide sufficient oversight of the trophy hunting industry to ensure that Americans are not contributing to unsustainable offtake of leopard populations, and therefore are not adequate regulatory mechanism to protect the species.

FWS Regulations for Leopard Trophy Imports to the U.S. Are Inadequate

In the 1982 rule finalizing the Threatened listing for southern African leopards under the ESA, FWS averred that even though no ESA import permit would be required for trophies, a CITES import permit for leopard trophies will only be issued if "it is determined that the country of origin for the trophy has a management program for the leopard, and can show that its populations can sustain a sport hunting harvest, *and that sport hunting enhances the survival of the species*." 47 Fed. Reg. at 4205 (emphasis added).

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[20] CITES, Appendices I-II, *available at* https://cites.org/sites/default/files/eng/cop/01/E01-Appendices.pdf.
[21] CITES, art. II, *available at* https://cites.org/eng/disc/text.php#II.
[22] CITES, art. III, *available at* https://cites.org/eng/disc/text.php#III.
[23] *See* Annex 1, CITES, CoP5 Doc. 5.23 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[24] CITES, CoP16 Conf. 10.4 (2002), *available at* https://cites.org/eng/res/10/10-14R16.php.
[25] *See also* CITES, CoP10 Doc. 10.42 (1997), *available at* https://cites.org/sites/default/files/eng/cop/10/doc/E10-41to43.pdf.

Further, the final rule provided that FWS will evaluate CITES import permit applications consistent with CITES Conference Report 2.11 [referring to then-valid Resolution Conf. 2.11], which – at that time – "indicate[d] that import permit decisions for sport-hunting trophies should be made on the basis of the following considerations: (1) Whether the importation will serve a purpose not-detrimental to the survival of the species; and (2) whether the killing of animals whose trophies are intended for import will *enhance the survival of the species*." *Id.* (emphasis added).

Moreover, FWS asserted that "very few leopard trophies will be imported into the United States" and that the "number is expected to be considerably less than the high of two hundred leopard trophy imports recorded in 1969." 47 Fed. Reg. at 4211. The final rule stated that FWS had "reviewed the adequacy of the leopard conservation program in a specific case for Botswana and has determined in that case that the country currently meets the criteria." *Id.* at 4205.

However, since finalizing this regulation, FWS has not upheld these commitments, instead allowing well over 300 leopard trophy imports per year since 1999 and not conducting a rigorous analysis of whether the source country manages leopard populations in a way that enhances the survival of the species. Indeed, by its own admission, the Service's practice does not include making enhancement findings for the import of African leopard trophies.

While FWS regulations provide that hunting trophies[26] can only be imported as personal items and cannot be sold after import, and that each hunter is limited to importing two leopards per calendar year, these limits are inadequate to protect leopards from unsustainable take by U.S. hunters seeking to import their body parts as trophies. *See* 65 Fed. Reg. 26664, 26679 (May 8, 2000); 72 Fed. Reg. 48402 (Aug. 23, 2007); 50 C.F.R. §§ 23.55, 23.74. Indeed, on their face these regulations would allow for unlimited numbers of U.S. citizens to kill two leopards per year, a concept that is anathema to providing for the conservation of the species, as required by law. 16 U.S.C. § 1531(c)(1) ("It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of" the conservation purpose of the ESA).

Thus, in addition to the lack of scientific support for the original listing, the implementation of this listing is woefully inadequate to promote leopard conservation, endangering the survival of leopards in southern Africa.

- FWS Is Not Applying the Enhancement Standard to Trophy Imports

Although FWS committed in 1982 to only issue CITES import permits for leopard trophies after making an enhancement finding, 47 Fed. Reg. at 4205, the 1994 CITES Conference Report 2.11 [now known as Resolution Conf. 2.11] that FWS said it would use to evaluate the issuance of import permits was amended (based on a proposal from Namibia) to eliminate scientific scrutiny of trade in leopard parts, as indicated by the redline below:

[26] FWS defines "sport-hunted trophy" as "a whole dead animal or a readily recognizable part or derivative of an animal" that, inter alia, "[w]as legally obtained by the hunter through hunting for his or her personal use." 50 C.F.R. § 23.74(b).

> "CONSIDERING the need of uniform interpretation of the Convention with regard to hunting trophies;
>
> THE CONFERENCE OF THE PARTIES TO THE CONVENTION RECOMMENDS
>
> a) that with the exception of the rare case of exemptions granted under paragraph 3 of Article VII of the Convention, trade in hunting trophies of animals of the species listed in Appendix I be permitted only in accordance with Article III, i.e. accompanied by import and export permits;
>
> ~~b) that the scientific opinions under paragraphs 2 (a) and 3 (a) of Article III of the Convention cover the trade in dead specimens, too;~~
>
> ~~c) that in order to achieve the envisaged double control (also in the scientific field) by the importing and the exporting country of the trade in Appendix- I specimens, the Scientific Authority have the possibility of comprehensive examination concerning the question of whether the importation is serving a purpose which is not detrimental to the survival of the species. This examination should, if possible, also cover the question of whether the killing of the animals whose trophies are intended for import would ***enhance the survival of the species***;~~
>
> b) in order to achieve the envisaged complementary control of trade in Appendix-I species by the importing and exporting countries in the most effective and comprehensive manner, the Scientific Authority of the importing country accept the finding of the Scientific Authority of the exporting country that the exportation of the hunting trophy is not detrimental to the survival of the species, unless there are scientific or management data to indicate otherwise;
>
> …

CITES Resolution Conf. 2.11, on *Trade in Hunting Trophies of Species Listed in Appendix I* (emphasis added).[27]

The impact of these amendments was to eliminate the independent examination of detriment by the importing country, directing that "the importing country accept the finding of the Scientific Authority of the exporting country that the exportation of the hunting trophy is not detrimental to the survival of the species, unless there are scientific or management data to indicate otherwise." *Id.* The amendment also eliminated the CITES requirement to make an enhancement finding. Therefore, the CITES protections that FWS relied on in relaxing ESA protections for southern African leopards have since been amended, necessitating a status review of the species and increased federal protections.

Further, even though CITES Resolution Conf. 2.11 no longer required an enhancement finding after 1994, the Service was nevertheless bound to its commitment from 1982 that it would apply the enhancement standard to leopard trophy imports, a duty that FWS has failed to meet.

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[27] *Compare* CITES, CoP9 Doc. 9.50 (1994), *available at* https://cites.org/sites/default/files/eng/cop/09/doc/E9-Doc-50.pdf, *with* CITES, Com. 9.13 (Rev.), *available at* https://cites.org/sites/default/files/eng/cop/09/E9-in-session.pdf.

- <u>FWS Non-Detriment Advice Is Outdated and Not Scientifically Defensible</u>

The final rule listing certain sub-Saharan national leopard populations as Threatened was published on January 28, 1982 and became effective on March 1, 1982. In the final rule, FWS acknowledged that it had reviewed the adequacy of the leopard conservation program in Botswana and determined that the country meets the criteria for issuance of CITES import permits, but that it had not yet reviewed any other African range state's leopard program. 47 Fed. Reg. at 4205.

Shortly thereafter, on March 25, 1982 the FWS's Office of the Scientific Authority sent a memorandum to wildlife authorities in relevant countries explaining the new Threatened status and how the FWS will determine, on a country-by-country basis, whether imports of leopard trophies will be for purposes that are not detrimental to the survival of the species (FWS 1982a). This memorandum states, "information now available to us is too incomplete for us to say with assurance that leopard trophy imports from any particular country can generally be approved under CITES" and states that the only countries that FWS might allow imports from were Botswana, Namibia, South Africa, Tanzania, Zambia and Zimbabwe (*Id.* at 1). The memorandum lists the factors that the Scientific Authority will consider when advising on leopard trophy imports and states, "We will advise in favor of trophy imports from a particular country only when the best available information shows that sport-hunting of leopards can reasonably be expected to enhance the survival of the species in that country." (*Id.* at 2). This memorandum makes clear that the FWS intended, at the time, to make findings of both non-detriment and enhancement, both of which were required by CITES at the time through the convention language and Resolution Conf. 2.11.

Per this 1982 memorandum, the factors to be considered in evaluating imports were divided into four main issues:

1) legal authority for sport-hunting (Does the country allow sport-hunting of leopards under national law or under laws of any smaller units of government (e.g., provinces or States)? Do any such laws provide sufficient authority to regulate the take of leopards? Is any such authority being exercised to effectively limit take? Is any take allowed by smaller units of government reviewed and coordinated at the national level?);

2) take for other purposes (Does the country allow a commercial trade of leopards or allow the removal of leopards for livestock predator control? Is any such trade effectively regulated and monitored?);

3) basis for limiting take (Does the country limit the quantity and spatial or seasonal distribution of the take of leopards? Are any such limits based on: Reliable information on leopard population trends and mortality estimates (including sport, commercial, predator control or other natural or man-caused mortality)? The relationship of leopard populations to available habitat? The goal of managing leopards to sustain their populations?); and

4) controls on the taking and trading in leopards (Does the country maintain a licensing system for persons who take or process leopards or parts thereof? Is there a standardized, mandatory system under which all lawfully taken leopards are tagged or otherwise made reliably identifiable? Does any such marking system effectively prohibit the transport, in any way, of marked leopards or parts thereof? Does a standardized, mandatory export permit system exist? If so, is the export permit system linked directly to the standardized marking system, and is approval required from the country of import before permits are issued? Is the country of export a Party to CITES?). (*Id.* at 2, 3).

If provided, answers to these questions would allow the FWS to determine if sport-hunting of leopards could reasonably be expected to be both not-detrimental to, and to enhance, the survival of the species in that country.

Only 2.5 months later, on June 10, 1982, the FWS Office of the Scientific Authority issued a memorandum to the FWS Federal Wildlife Permit Office advising that the import of leopard hunting trophies taken from Botswana, Tanzania, Zambia, Zimbabwe, or the Transvaal region in South Africa[28] after July 1, 1975[29] will not be detrimental to the survival of the species (FWS 1982b). FWS found that each of these countries, or in the case of South Africa, a portion of the country, "(a) has laws under which the regulated sport-hunting of leopards is allowed, (b) limits the quantity, or spatial or seasonal distribution of the take of leopards, (c) bases these limits on the goal of managing leopards to sustain their populations, (d) maintains a licensing system for persons who take or process leopards (except in South Africa), and (e) implements a permitting system to regulate trade in accordance with CITES." *Id*. At the same time, FWS noted that (1) leopard hunting was not allowed in Angola, Burundi, Gabon, Kenya, Lesotho, Malawi, Rwanda, Swaziland, and Uganda, (2) FWS did not have enough information to advise on Namibia, and (3) the "available information indicates that it would not be appropriate to allow leopard trophy imports from Congo, Mozambique, or Zaire." *Id*.

It is unclear what information FWS used to draw these conclusions in its non-detriment advice. However, recent events and information call into question whether any of the approved countries had at the time, or even have today, science-based wildlife management in place that uses reliable information on leopard population trends and that takes into account mortality from all sources, including sport, commercial, predator control or other natural or man-caused mortality. For example, South Africa banned the export of leopard trophies during 2016 after the South Africa Department of Environmental Affairs advised that it could not make a non-detriment finding for such exports due to: "no rigorous estimate for the size of the South African leopard population, nor reliable estimates of leopard population trends at national or provincial scales"; "excessive offtakes"; "poorly managed trophy hunting"; "almost no reliable estimates for the extend of illegal off-take of leopards, though data from a few intensive studies in South Africa suggest that levels of illegal off-take exceed levels of legal off-take"; national and provincial trophy hunting quotas are "arbitrary, based on speculative population estimates"; and "harvests of leopards is not managed consistently throughout the country; some provinces implement effective controls, others do not. Legal off-takes are poorly documented in many provinces. There is an urgent need for a coordinated national strategy which provides standardized guidelines to all provinces for the management of leopards" (South Africa Department of Environmental Affairs 2015, p. 16). The Department concludes, "legal local and international trade in live animals and the export of hunting trophies at present poses a high risk to the survival of this species in South Africa." This has most likely been the case since at least 1982 when the FWS approved imports from South Africa.

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[28] Transvaal was a province of South Africa from 1910 until the end of apartheid in 1994, when a new constitution subdivided it and it was succeeded by the provinces of Gauteng, Limpopo, Mpumalanga and the eastern part of North West province. *See* Edgar Sanderson, Great Britain in Africa: The History of Colonial Expansion, 149 (Simon Publications LLC 2001).

[29] Thus, in another example of how this listing was designed to cater to the trophy hunting industry, FWS grandfathered in trophies of leopards killed in the previous seven years when trophy imports were banned due to the Endangered status of the leopard.

Furthermore, according to South Africa, "recent research suggests that trophy hunting may be unsustainable in Limpopo, KwaZulu-Natal and possibly North West [provinces]" – yet the Limpopo and North West provinces were once part of the Transvaal region in South Africa from which FWS approved imports. It is deeply concerning that, although this information has been available publicly for nearly a year (it was published on September 10, 2015), the FWS has not rescinded its 1982 approval of imports from the Transvaal region in South Africa.

While we do not have information provided to FWS by the aforementioned countries approved for imports, in an undated letter to the FWS Office of Scientific Authority from Namibia's (then called South West Africa) Department of Agriculture and Nature Conservation (apparently sent in response to the letter from FWS to leopard range states), Namibia explains that exports of leopard trophies had been prohibited by legislation since July 15, 1977 and trophy hunting of leopards was not allowed (South West Africa undated). Based on a survey of farmers, there were an estimated 3,000 leopards in the country; in 1980, 123 leopards were killed by farmers to protect their livestock; in 1981, 201 were killed for this purpose. The letter also explained that the South West Africa Hunter's and Guides' Association recently petitioned the government to allow leopard hunting, and this is evidence that the Service's decision to downlist African leopards to facilitate trophy hunting by Americans also encouraged foreign countries like Namibia to permit leopard trophy hunting.

Namibia approved the petition and opened leopard hunting under certain conditions for two hunting seasons beginning February 1, 1983. The conditions included: landowners must apply to the Department of Nature Conservation to qualify as potential trophy hunting ranches; smaller farms (< 5,000 ha.) would be allocated one leopard hunt per year, and larger farms two hunts per year; each trophy would be tagged with a metal tag bearing a unique number and the Department's emblem; dogs, horses, and bait may be used for hunting leopard but leopards may not be caged, trapped or confined for the purpose of trophy hunting; if it is found that the number of leopards killed for trophy plus the number killed for protection of livestock exceeds the number killed yearly in the past just for the protection of livestock, then trophy hunting would be stopped immediately; and farms would be inspected for leopard occurrence before hunting permits are issued. The letter said that the Department will keep records of permits issued, successful hunts, and measurements of trophies; no permits will be issued for export of leopard trophies killed before February 1, 1983; and all revenue received from trophy hunting will be deposited with the treasury which allocates money for research.

However, notably absent from these conditions is the establishment of a science-based wildlife management program that uses reliable information on leopard population trends and that takes into account mortality from all sources, including sport, commercial, predator control or other natural or man-caused mortality. The establishment of an annual quota of one leopard for small farms and two for large farms is completely arbitrary and is not based on knowledge of the leopard population in the area. The requirement that the number of leopards hunted legally must not out-number the number of leopards killed in previous years for stock protection is not science-based management: there is no information to allow the conclusion that offtakes for stock protection were biologically sustainable.

Nonetheless, on March 10, 1983, FWS issued an internal memorandum advising that the import of leopard trophies taken in Namibia on or after February 1, 1983 will be for purposes that are not detrimental to the survival of the species, referring back to the rationale included in the 1982 memorandum (FWS 1983). This memorandum provides no rationale for the decision or any comment on the information provided by Namibia.

These 1982 and 1983 non-detriment advice memoranda are completely outdated and scientifically indefensible today and cannot be said to qualify as adequate conservation measures. Pursuant to these internal memoranda – and in direct conflict with the commitments it made in the 1982 listing rule – FWS authorized the import of up to 657 leopard trophies per year from 1980 through 2014 (**Figure 2**). *See* 71 Fed. Reg. 20168, 20208 (April 19, 2006) ("From 2001 to 2003, there were between … 420 and 450 leopard trophies imported into the United States annually."); *see* Section IV(B), *supra*.

Then in September 2015 – in direct conflict with the decision it made in 1982 – FWS issued another internal memorandum, advising that the import of leopard trophies from Mozambique during calendar year 2015 will be for purposes that are not detrimental to the survival of the species. FWS, Non-Detriment Advice (Sept. 28, 2015) ("FWS 2015"). In that memorandum, FWS concedes that "there are no reliable, widely-accepted, continent-wide estimates of leopard population sizes in Africa" (*id*. at ¶ 9) and that "the impact of trophy hunting on leopard populations is unclear, but this activity may have negative impacts at the demographic and population levels, especially when females are shot and any dependent off-spring also perish" (*id*. at ¶ 13). There is no evidence that this advice has been reviewed or renewed for calendar year 2016, but there are critical flaws in this non-detriment advice.

First, the 2015 Mozambique non-detriment advice astoundingly relies on the findings of Martin and de Meulenaer (1988), asserting that the current population size of the leopard in Africa is more than 714,000. As detailed below, this report's methodology has been completely discredited, and the best available science makes clear that there are nowhere near this many African leopards left today. While FWS acknowledged some criticism, it wrongly concluded that the Martin and de Meulenaer (1988) findings "are still largely valid today." FWS, Non-Detriment Advice (Sept. 28, 2015) ("FWS 2015").

The FWS further stated, without identifying the source of the information, that, "Leopard densities vary from 1-30 individuals per 100 km^2 according to habitat, prey availability, and degree of threat. The lowest densities correspond to arid areas (for example, 1.25 adults per 100 km^2 in arid areas in South Africa), while the highest leopard densities correspond to mesic woodland savannas that occur in protected areas in East and South Africa (for example, 30.3 individuals per 100 km^2 in riparian areas with high prey density)." However, this general information is misleading and instead the FWS should have considered readily available information specific to Mozambique – for example, a 2008-2010 study in Niassa National Reserve, Mozambique, using camera traps found that leopard density was 2.18 – 12.65 leopard/100 km^2 (Jorge 2012), much lower than the 30.3 cited by FWS. Furhter, a more recent study using camera traps in Xonghile Game Reserve, a protected area in Mozambique, found leopard density to be only 1.53 leopard/100km^2 (Strampelli 2015); the author also studied leopards in another area, Limpopo National Park, and although he was not able to estimate leopard density there, he thought it would be on par with, or less than, that in Xonghile.

The FWS stated, "The impact of trophy hunting on leopard populations is unclear, but this activity may have negative impacts at the demographic and population levels, especially when females are shot and any dependent off-spring also perish (Barnett and Patterson 2005; Caro et al. 2009; Daly et al. 2005); Lindsey et al. 2007; Packer et al. 2009). An additional matter of potential concern is that female leopards have been taken as trophies despite national regulations that specify male-only harvests (e.g., Tanzania; Spong et al. 2000)." But according to Jorge (2012), females are not allowed to be trophy hunted in Niassa National Reserve, Mozambique; however, offtake for trophy hunting combined with illegal offtake resulted in an unsustainable overall offtake. The Service's failure to take this readily available information into account was arbitrary and capricious.

Further, in 2007, Mozambique successfully proposed to double its leopard CITES export quota from 60 to 120. The U.S. preliminary negotiating position was to oppose this proposal, a fact not mentioned in the 2015 Mozambique non-detriment advice, and the U.S. ultimately supported the proposal.

The 2015 FWS Mozambique memo outlines the claims made in Mozambique's 2007 CITES proposal including: "little research had been conducted into the status, distribution, or ecology of the leopard in Mozambique" but the proposal indicated that, based on Martin and de Meulenaer (1988) the leopard population was 37,542; a harvest rate of 5% is 1,779; three field studies characterized the leopard population as "widely distributed" and "common" (citing to Smithers and Tello 1976; Tello 1986; and Begg and Begg 2004); 82% of Mozambique is suitable leopard habitat that could support 3-10 leopards per 100km^2 (according to Mozambique's 2007 CITES proposal); Mozambique's protected areas comprise 130,537km^2 and 90% of these areas have good or prime leopard habitat (*id*); even if Mozambique's leopard population is 50% of that estimated by Martin and de Meulenaer (1988) or 20,000, this population size could sustain an annual harvest of 1000; therefore, according to Mozambique's proposal, the population estimated suggest that there is scope for increase in annual offtake without any danger of significant threat to the species. But even at the time this memorandum was issued, the Martin and de Meulenaer (2008) report had already been completely discredited and it was arbitrary for the Service to rely on that information in issuing its non-detriment advice.

The DSA acknowledges that Mozambique is a Category 3 country under the CITES national legislation project, meaning that "legislation does not meet the requirements for implementing CITES" and that the country is identified as in need of "priority attention". Indeed, in 2014, the Environmental Investigation Agency and the International Rhino Foundation (EIA and IRF) submitted a petition to the U.S. government to have Mozambique certified under the Pelly Amendment for diminishing the effectiveness of CITES (Environmental Investigation Agency and International Rhino Foundation 2014). This petition, which focusses on poaching and trafficking in elephants and rhinos, states, "Mozambique has failed to adopt adequate CITES implementing legislation, lacks adequate penalties to deter poaching and illegal trade and suffers from rampant corruption." (*Id*. at 1). DSA notes several recent developments such as the passage of a new law designed to reduce poaching and illegal wildlife trade and the development of a "national rhino and ivory plan." However, EIA and IRF state that, while the new law is a step in the right direction, it's not clear to what extent it will systemically improve CITES implementation. (*Id*. at 15). DSA also notes that "government corruption remains a serious problem." The EIA and IRF petition

documents rampant corruption in the wildlife sector. Transparency International gives Mozambique a score of 31 out of 100, with 0 being highly corrupt.[30]

In conclusion, DSA wrongly states that Mozambique has improved its CITES implementation in recent years; that the leopard population of Mozambique is sufficiently large enough to support sport-hunting quotas, despite relying the outdated and discredited figures by Martin and de Meulenaer (1988); and there are potential benefits to leopards deriving from concessionaires' management activities in Mozambique with regard to this species, despite the existence of evidence that offtake for trophy hunting and illegal offtake combined are not sustainable in Niassa Game Reserve, Mozambique. On this last point, the DSA notes that sport hunting in Mozambique is subject to a "Strategic Plan for the Development of Tourism in Mozambique (2004-2013)"[31] which "incorporates economic incentives to communities and the private sector through increased income and employment opportunities via leopard sport hunting"; however, the Plan offers no details on how hunting will be managed and regulated to ensure that it is not detrimental to the survival of the species.

Finally, the Mozambique non-detriment advice fails to take into consideration multiple relevant leopard studies that were available prior to September 2015:

- Braczkowski, A.R., Balme, G.A., Dickman, A., Macdonald, D.W., Johnson, P.J., Lindsey, P.A. and Hunter, L.T.B. 2015a. Rosettes, Remingtons and Reputation: Establishing potential determinants of leopard (*Panthera pardus*) trophy prices across Africa. *African Journal of Wildlife Research* 45(2): 158–168.

- Braczkowski, A.R., Balme, G.A., Dickman, A., Macdonald, D.W., Fattebert, J., Dickerson, T., Johnson, P. and Hunter, L. 2015b. Who bites the bullet first? The susceptibility of leopards *Panthera pardus* to trophy hunting. *PloS one*, 10(4): e0123100.

- Du Preez, B.D., Loveridge, A.J. and Macdonald, D.W. 2014. To bait or not to bait: A comparison of camera-trapping methods for estimating leopard *Panthera pardus* density. *Biological Conservation* 176: 153-161.

- Grey, J.C. 2011. *Leopard population dynamics, trophy hunting and conservation in the Soutpansberg Mountains, South Africa*. Doctoral thesis. Durham University, Old Elvet, Durham, South Africa.

- Henschel, P. 2008. *The conservation biology of the leopard Panthera pardus in Gabon: Status, threats and strategies for conservation*. Dissertation zur Erlangung des Doktorgrades der Mathematisch-Naturwissenschaftlichen Fakultäten der Georg-August-Universität zu Göttingen, *available at* http://d-nb.info/99732676X/34.

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[30] Transparency International, *Corruption by Country: Mozambique*, *available at* https://www.transparency.org/country/#MOZ (last visited Jul. 20, 2016).

[31] Republic of Mozambique Ministry of Tourism, *Strategic Plan for the Development of Tourism in Mozambique (2004 – 2013)*, Volume I (Feb. 2004), *available at* http://www.tartarugabay.com/Mozambique%20Tourism%20Strategic%20Plan.pdf.

- Henschel, P. 2010. *The status of the leopard in Gabon and lessons learned for leopard research and management in W/C Africa*. Powerpoint presentation. Large Carnivore Workshop, 3-4 November 2010, *available at* http://www.largecarnivoresafrica.com/wp-content/uploads/philiph-henschel2.pdf.

- Jackson, P., Bell, R., Borner, M., Bothma, J.du P., Caughley, G., Hestbeck, J.B., Leyhausen, P., Mendelssohn, H., Norton, P.M., Ranjitsinh, M.K., Shoemaker, A.H., Singh, A., Swank, W., Walker, C., Wilson, V.J. and Martin, R.B. 1989. *A review by leopard specialists of The Status of Leopard in Sub-Saharan Africa by Martin and de Meulenaer*. Information document No. 3 submitted to the seventh meeting of the Conference of the Parties to CITES (Lausanne, 1989).

- Jorge, A.A. 2012. *The sustainability of leopard Panthera pardus sport hunting in Niassa National Reserve, Mozambique*. Master's thesis. School of Life Sciences, University of KwaZulu-Natal, Westville, South Africa. March 2012.

- Palazy L., Bonenfant C., Gaillard J-M, and Courchamp F. 2011. Cat Dilemma: Too Protected To Escape Trophy Hunting? *PloS one* 6(7): e22424.

- Pinnock, D. 2016. South Africa bans leopard trophy hunting for 2016. Africa Geographic blog, 25 January 2016.

- South Africa Department of Environmental Affairs. 2015. Non-detriment Findings. Government Gazette No. 39185, 10 September 2015, Department of Environmental Affairs Notice 897 of 2015.

- Swanepoel, L.H., Somers, M.J. and Dalerum, F. 2015. Functional responses of retaliatory killing versus recreational sport hunting of leopards in South Africa. *PloS one* 10(4): e0125539.

Therefore, this non-detriment advice – which relies on thoroughly discredited and outdated science and ignores the non-existence of a leopard management plan in Mozambique – is arbitrary, capricious, and a completely inadequate regulatory mechanism to protect the species from overexploitation.

Given that 2016 has seen the publication of the most comprehensive study on the status of this species (Jacobson et al. 2016a), as well as an updated IUCN assessment of the species (Stein et al. 2016), none of the three non-detriment advice memoranda can be said to be based on the best available science. Thus, current U.S. CITES regulations for leopards are insufficient to ensure that the U.S. impacts on this species are not detrimental, as required by law.

CITES Export Quotas Are Not Based on Science

Currently, CITES has established export quotas for twelve African countries for leopard skins traded for personal and hunting trophy purposes, totalling 2,648 leopard skins per year (CITES Resolution Conf. 10.14 (Rev. CoP16)) (see **Table 5**). Notably, two of these countries – Central African Republic and

Ethiopia – have populations that FWS recognizes are Endangered, highlighting the lack of scientific basis for these quotas.

Table 5: CITES African leopard export quotas 1983-2016.

Countries	Quota 1983	Quota 1985	Quota 1987	Quota 1989	Quota 1992	Quota 1994 - 2001	Quota 2002	Quota 2004	Quota 2007 - 2016
Botswana	80	80	80	100	100	130	130	130	130
Central African Republic	0	0	40	40	40	40	40	40	40
Ethiopia	0	0	500	500	500	500	500	500	500
Kenya	80	80	80	80	80	80	80	80	80
Malawi	20	20	20	20	50	50	50	50	50
Mozambique	60	60	60	60	60	60	60	60	120
Namibia	0	0	0	0	100	100	100	250	250
South Africa	0	0	0	50	75	75	75	150	150
Uganda	0	0	0	0	0	0	0	0	28
United Republic of Tanzania	60	250	250	250	250	250	500	500	500
Zambia	80	300	300	300	300	300	300	300	300
Zimbabwe	80	350	500	500	500	500	500	500	500
Total	**460**	**1140**	**1830**	**1900**	**2055**	**2085**	**2335**	**2560**	**2648**

Sources: CITES CoP5 Doc. 5.23, CITES CoP6 Doc. 6.27, CITES CoP7 Doc. 7.28, CITES Cop8 Doc. 8.20, CITES Resolution Conf. 8.10 and 8.10 (Rev.), CITES CoP9 Doc. 9.26, CITES CoP10 Doc. 10.42, CITES Resolution Conf. 10.4 and 10.4 (Rev. CoP13), CITES CoP12 Doc. 12.23.1, CITES CoP13 Com. 1 Rep. 1 (Rev. 1), CITES CoP13 Plen. 4, CITES CoP14 Com. 1.6, CITES CoP14 Plen. 4, and CITES Resolution Conf. 10.14 (Rev. CoP16).

CITES export quotas have grown substantially since the U.S. downlisted certain populations of sub-Saharan African leopards (**Table 5**). The total number of leopards that can be exported annually rose five-fold from 460 in 1983 to 2,648 in 2016; and the number of countries with export quotas rose from seven in 1983 to twelve in 2016.

However, these quotas have no scientific basis and are not routinely reviewed to ensure that are not detrimental to the survival of the species. Indeed, the basis for the original and subsequent CITES export quotas for leopards is a model by Martin and de Meulenaer (1988) that has been dismissed by modern leopard scientists – as discussed further below – as over-simplified since it was based on a correlation between rainfall and leopard numbers in savannah habitats of East Africa and used to predict leopard numbers across their entire sub-Saharan Africa range (Braczkowski et al. 2015b). Martin and de Meulenar's model was reviewed by specialists from the IUCN SSC Cat Specialist Group and was rejected because the methodology used was highly flawed resulting in exaggerated and inaccurate population figures (Jackson et al. 1989, Balme et al. 2010, Grey 2011). Yet, the model remains as the sole basis for the existing CITES leopard export quotas.

Botswana:

Botswana was one of the first countries to receive a CITES-approved leopard export quota in 1983, of 80 animals;[32] the working documents discussed at the 1983 meeting are not readily available, so it is not possible to evaluate the information used by the Parties when approving this quota. The quota was increased in 1987 to 100,[33] and then increased again in 1994 (effective in 1995) to 130, the latter with the support of the U.S.[34] Demonstrating the lack of an effective system to evaluate proposals to increase CITES leopard export quotas, the two most recent increases occurred without Botswana providing a supporting statement; there was no written proposal submitted for consideration by the Parties; Botswana simply requested the increases and the CITES Parties granted the request. Botswana then banned all trophy hunting, including of leopard, beginning in 2014 (Stein et al. 2016) due to declining wildlife populations, according to the Ministry of Wildlife, Environment and Tourism.[35] It is worth noting that 1987 is when the draft report of Martin and de Meulenaer (1987) was also presented to the Parties and this report was apparently used to establish or increase a number of CITES leopard quotas, including that of Botswana, where the authors estimated the population to be 7,729. (*Id.* at 647). However, in 1992, Botswana (and Malawi, Namibia, Zambia and Zimbabwe) proposed to transfer its population to CITES Appendix II with an export quota of 100; this proposal, which was not approved, estimated Botswana's leopard population to be 5,822 animals.

Central African Republic:

Central African Republic received a CITES leopard export quota in 1987, for 40 animals,[36] and this has remained the same until today. The supporting statement by Central African Republic in which this quota was requested did not provide a population estimate, explain how the figure of 40 was derived, or any provide other information about how they would ensure this offtake would not detrimental to the survival of the leopard.[37] Nonetheless, the CITES Parties approved the quota. It is worth noting that 1987 is when the draft report of Martin and de Meulenaer (1987) was presented to the Parties and this report was apparently used to establish or increase a number of CITES leopard quotas, including that of Central African Republic, where the authors estimated the population to be 41,546. (*Id.* at 647).

Ethiopia:

Ethiopia received a CITES leopard export quota in 1987 of 500.[38] However, there is no record of Ethiopia having submitted a supporting statement to the meeting where this quota was established.[39] No summary record of this meeting is readily available to the public. However, 1987 is when the draft report of Martin and de Meulenaer (1987) was presented to the Parties and this report was apparently used to establish or increase a number of CITES leopard quotas, including that of Ethiopia, where the authors

[32] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[33] CITES, CoP8 Doc. 8.20, p. 1 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/doc/E-20.pdf.
[34] CITES, CoP9 Com. I Summary Report, p. 172 (1994), *available at* https://cites.org/sites/default/files/eng/cop/09/E9-ComI.pdf.
[35] Press Release, Hunting Ban in Botswana, Message from Permanent Secretary (August 20, 2013), *available at* https://www.facebook.com/permalink.php?story_fbid=500849569997706&id=148228411926492.
[36] CITES, CoP7 Doc. 7.28, p. 791 (1989), *available at* https://cites.org/sites/default/files/eng/cop/07/doc/E07-28.pdf.
[37] CITES, CoP6 Doc. 6.28, p. 671 (1987), *available at* https://cites.org/sites/default/files/eng/cop/06/doc/E06-28.pdf.
[38] CITES, CoP7 Doc. 7.28, p. 791 (1989), *available at* https://cites.org/sites/default/files/eng/cop/07/doc/E07-28.pdf.
[39] CITES, CoP6 Doc. 6.1 (1987), *available at* https://cites.org/eng/cop/06/doc/index.php.

estimated the population to be 9,782. (*Id.* at 647). Therefore, the export quota would allow the offtake of 5.1% of the population annually, which is wholly unsustainable.

Kenya:

Kenya was one of the first countries to receive a CITES leopard export quota in 1983, of 80;[40] the working documents discussed at the 1983 meeting are not readily available to facilitate the evaluation of the information used by the Parties when approving this quota. This quota has remained unchanged from 1983 to the present, although Kenya banned trophy hunting in 1977 (further demonstrating that the CITES export quotas are not based on the best available information).

Malawi:

Malawi was one of the first countries to receive a CITES leopard export quota in 1983, of 20 animals;[41] the working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this quota. The quota was increased to 50 in 1992[42] when Malawi (and Botswana, Namibia, Zambia and Zimbabwe) proposed to transfer its population to CITES Appendix II with an export quota of 50; this proposal estimated Malawi's leopard population to be only 541 animals;[43] this means that the offtake for international trade could comprise as much as 9.2% of the population annually which is well beyond the reproductive capacity of the species. Nonetheless, while the Parties did not approve the proposed transfer, they did approve the increased export quota.

Mozambique:

Mozambique was one of the first countries to receive a CITES leopard export quota in 1983, of 60 animals;[44] the working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this quota. In 2007, Mozambique proposed to the CITES Parties to increase their annual leopard export quota from 60 to 120.[45] The proposal cited the Martin and de Meulenaer (2008) estimate of 37,542 leopards in Mozambique in justifying the quota increase. (*Id.* at 2). The FWS stated that their tentative U.S. negotiating position was to oppose this proposal (FWS 2007):

> "In this document, Mozambique proposes to increase its export quota for leopard hunting trophies and skins for personal use from 60 to 120. The United States, as reflected in the document we submitted for CoP12 on establishing scientifically based quotas, and in accordance with Resolution Conf. 9.21 (Rev. CoP13), which calls for establishment of a scientific basis for proposed quotas, is very interested in ensuring that annual export quotas are established on strong

[40] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[41] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[42] CITES, CoP8 Resolutions Adopted, p. 26 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/E-Resolutions.pdf.
[43] CITES, CoP8, Amendments to Appendices (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.
[44] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[45] CITES, CoP14 Doc. 14.37.1 (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/doc/E14-37-1.pdf.

biological data. Mozambique's request does not provide enough biological information about the population of leopards or their prey in Mozambique to determine whether the population can be sustained under the proposed quota figure."

However, the U.S. opposition to this proposal was not noted for the record and the proposal was accepted.[46] Israel opposed the proposal due to lack of scientific rigor and that there was little recent information on population status, distribution and ecology.[47]

Namibia:

In 1992, Namibia (and Botswana, Malawi, Zambia and Zimbabwe) proposed to transfer its leopard population to CITES Appendix II with an export quota of 100.[48] The CITES Parties did not approve the change in status but did approve the quota. This quota was increased in 2004 to 250 based on a population estimated by Martin and de Meulenaer (1988) of 7,745 (which, it was said, could support a "safe harvest" of 332 animals,[49] or 4.2% of the population annually). The U.S. expressed support for this increased quota.[50]

South Africa:

South Africa was first granted a CITES leopard export quota in 1989, of 50 animals;[51] the working documents discussed at this meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this quota. However, according to Grey (2011) the proposal was based on a 1.5% offtake of the 23,472 leopards estimated to be in South Africa according to Martin and de Meulenaer (1988). South Africa's quota was increased to 75 in 1992[52] based on a verbal request from the country during a CITES meeting and with no documentation or reasoning provided. Then South Africa's quota was increased from 75 to 150 in 2004 based on information in a document submitted by the country that did not provide a population estimate but claimed that the leopard population was increasing;[53] the U.S. supported the increased quota despite the poor science.[54]

The increase in the CITES quota for South Africa meant that the number of permits issued in Limpopo Province of South Africa, where most leopard trophy hunting occurs, increased from 35 to 50 in 2006 even though there were no accurate population data for leopards in the province and no assessments

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[46] CITES, CoP14 Com. I Rep. 2 (Rev. 1) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Com-I-Rep-02.pdf ; CITES CoP14 Plen. 4 (Rev. 2) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Plen-4.pdf.
[47] CITES, CoP14 Com. I Rep. 2 (Rev. 1), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Com-I-Rep-02.pdf
[48] CITES, CoP 8 Amendments to Appendices (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.
[49] CITES, CoP13 Doc. 19.1, p. 2 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/doc/E13-19-1.pdf.
[50] CITES, CoP13 Com. 1 Rep. 1 (Rev. 1), p. 1 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/rep/E13-ComIRep1.pdf.
[51] CITES, CoP8 Doc. 8.20, p. 1 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/doc/E-20.pdf.
[52] CITES, CoP8 Doc. 8.45.1, p. 1 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/doc/E-45-45_1.pdf
[53] CITES, CoP 13 Doc. 19.2 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/doc/E13-19-2.pdf.
[54] CITES, CoP13 Com. 1 Rep. 1 (Rev. 1), p. 1 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/rep/E13-ComIRep1.pdf.

were undertaken to determine whether offtake is sustainable (Grey 2011). However, Pitman et al. (2015) found that, in Limpopo Province, legal leopard offtake for trophy hunting and as problem animals combined was not sustainable. In 2015, the South Africa Department of Environmental Affairs similarly concluded that: national and provincial leopard hunting quotas are arbitrary; there is no rigorous estimate of the leopard population size, nor are there reliable estimates of trends at the national or provincial level; poorly managed trophy hunting and excessive offtakes were major threats; trophy hunting is poorly managed and not effectively controlled in many areas, and is not managed consistently throughout the country; and there are indications that trophy hunting is unsustainable in several provinces due to excessive hunting quotas, focused hunting efforts, and the additive impact of leopard poaching and problem animal control (South Africa Department of Environmental Affairs 2015). The Department concluded that export of hunting trophies poses a high risk to the survival of the species in South Africa (South Africa Department of Environmental Affairs 2015), and announced that it would suspend issuance of leopard export permits for 2016 (Pinnock 2016).

Uganda:

In 2007, Uganda proposed to the CITES Parties to transfer its population from CITES Appendix I to II, with an annual export quota of 50 of skins for personal purposes and trophies.[55] The proposal contained no information on the size or trend of the leopard population in Uganda, and provided no scientific basis for the quota of 50, although it did cite the Martin and de Meulenaer (1988) estimate of 700,000 leopards in Africa. (*Id.* at 2). The FWS stated that their tentative U.S. negotiating position was to oppose this proposal to transfer the population to Appendix II and to oppose the export quota of 50 leopards per year (FWS 2007):

> "The proposal is not written in accordance with the format for proposals to amend the Appendices as per Annex 6 to Resolution Conf. 9.24 (Rev. CoP13). As a result, it does not demonstrate that the population in Uganda no longer meets the biological criteria for inclusion in Appendix I or which precautionary measure will be in place. The CITES Secretariat has suggested that Uganda request consideration of this proposal under agenda item 37 (Appendix-I species subject to export quotas) rather than item 68 (Proposals to amend the Appendices).
>
> "Uganda asserts that the proposed export quota of 50 leopards per year is a precautionary figure that will account for both animal control and sport hunting. The United States, as reflected in the document we submitted for CoP12 on establishing scientifically based quotas and in accordance with Resolution Conf. 9.21 (Rev. CoP13), which calls for establishment of a scientific basis for proposed quotas, is keen to ensure that annual export quotas are established on strong biological data. Although a quota of 50 is considered by Uganda as precautionary, the proposal does not provide any supporting biological information for this figure. Therefore, it cannot be determined whether the population can be sustained under the proposed quota figure."

At CITES CoP14, Uganda followed the suggestion of the CITES Secretariat and requested during the CoP14 plenary that the Parties grant a quota under Resolution Conf. 10.14 and it would withdraw its

[55] CITES, CoP14 Prop. 3 (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/prop/E14-P03.pdf.

proposal to transfer its population to Appendix II.[56] This request was agreed and the Parties established a leopard export quota for Uganda of 28.[57] However, the U.S. opposition to this proposal was not noted for the record. Democratic Republic of the Congo (DRC) supported the proposal but expressed concern for the cross-border leopard populations it shared with Uganda, noting that the quota might create tension or foster poaching in the DRC.[58] Israel opposed the proposal on the basis of lack of recent population data.

United Republic of Tanzania:

The United Republic of Tanzania's CITES-established export quota increased from 60 in 1983[59], to 250 in 1985,[60] to 500 in 2002,[61] which remains in effect today. The working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this initial quota. The 1985 quota was approved based on a document submitted by the United Republic of Tanzania that admitted "there are no scientific data to provide a background for evaluation of this proposal;"[62] the document provided no estimate of the size of the leopard population in the country and no information on how the quota would not be detrimental to the survival of the species; the document stated that the reason for the increased quota was the large number of leopards killed each year by the government to protect lives and property, which numbered 406 in 1983. Despite this lack of information, as admitted by the proponent itself, the CITES Parties approved the export quota increase. In 2002, the United Republic of Tanzania requested to double its CITES leopard export quota to 500 on the basis of the Martin and de Meulenaer (1988) estimate of 39,000 leopards in Tanzania which would allow a "safe harvest" of 5% or 1,827 leopard annually.[63] The U.S. negotiating position on the 2002 proposal was undecided;[64] the record of the CITES meeting does not indicate that the U.S. expressed any view on the proposal; this proposal was approved. In Tanzania, rising leopard hunting quotas drove a large-scale declines in leopard abundance particularly in populations outside of Selous; 400 leopards were trophy hunted annually at an average rate of 1.33 leopards/1000km^2 (Packer et al. 2010). A hunting quota of no more than 1 leopard/1000km^2 has been recommended in general and 3 leopards/1000km^2 in the Selous Game Reserve (Packer et al. 2010).

Zambia:

Zambia was one of the first countries to receive a CITES leopard export quota in 1983, of 80;[65] the working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of

[56] CITES CoP14 Plen. 2. https://cites.org/sites/default/files/eng/cop/14/rep/E14-Plen-2.pdf
[57] CITES, CoP14 Com. I Rep. 2 (Rev. 1) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Com-I-Rep-02.pdf ; CITES CoP14 Plen. 4 (Rev. 2) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Plen-4.pdf ; CITES CoP14 Com. I. 6. (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/com/E14-Com-I-06.pdf.
[58] CITES, CoP14 Com. I Rep. 2 (Rev. 1) (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/rep/E14-Com-I-Rep-02.pdf.
[59] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[60] CITES, CoP6 Doc. 6.27 (1987), *available at* https://cites.org/sites/default/files/eng/cop/06/doc/E06-27.pdf.
[61] CITES, CoP12 Com. I Rep. 1 (Rev.), p. 2 (2002), *available at* https://cites.org/sites/default/files/eng/cop/12/rep/ComI_1.PDF.
[62] CITES, CoP5 Doc. 5.23, p. 421 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[63] CITES, CoP12 Doc. 12.23.1.2 (2002), *available at* https://cites.org/sites/default/files/eng/cop/12/doc/E12-23-1-2.pdf.
[64] 67 Fed. Reg. 66464 (Oct. 31, 2002).
[65] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.

the information used by the Parties when approving this quota. Zambia (and Botswana, Malawi, Namibia, and Zimbabwe) proposed to transfer its population to CITES Appendix II with an export quota of 300; this proposal estimated Zambia's leopard population to be 3,332 animals;[66] therefore, the offtake is approximately 9% of the population annually, which is excessive. The CITES Parties did not approve the transfer of the population to Appendix II, but did approve the quota increase which remains in effect today.

In May 2015, the Tourism and Arts Minister of Zambia announced that hunting of leopards (and lions) would be reinstated in 2016 after a moratorium that started in January 2013 (Zambia DNPW 2015a). The Minister stated that the ban on leopard hunting was based on "lapses in monitoring" that have been rectified and that the leopard population was and still is "healthy". Leopard hunting was to resume in 2015/2016 but with cautionary – though unspecified – quotas. Following the Minister's announcement, in May 2015, the Zambia Wildlife Authority (ZAWA) stated that there were, at minimum, an estimated 4,000 leopards in Zambia and that, according to surveys conducted by ZAWA, big cats are found in three ecosystems in the country: Luangwa Valley, Kafui and Lower Zambezi (Zambia DNPW 2015b).

Additionally, Ray (2011) conducted the first-ever population survey of leopards in Zambia, in Luambe National Park and a portion of an adjacent Game Management Area (GMA), located within the Luangwa Valley, in 2006-2008, when trophy hunting was permitted. Ray noted that it was the opinion of park managers and professional hunters in the area that the leopard was found in "very high abundance". Using camera traps, Ray found that only 12 leopards lived in the National Park in 2008 and 10 in the portion of the GMA studied, with densities of 3.36/100 km^2 in the former and 4.79/100 km^2 in the latter. Ray stated that only one other leopard study, in South Africa, had found a lower density than that she found in the Park and this other study was not in a protected area. The offtake of leopards in the GMA was 8-12 leopards per year, and considered by Ray to be unsustainable. Ray recommended an offtake of 2 leopards / 1000 km^2 in the area (instead of 12 / 2,555 km^2, among other measures. Ray recommended that loss of income from hunting could be addressed by increasing the price of trophies.

Ray explicitly notes, "Until the 1980s, the leopard was one of the most threatened species listed by IUCN. This changed with the study of MARTIN & DE MEULENAR (1988), who suggested a population of leopards of about 700,000 in Africa, which was criticized and largely discredited from the scientific community (MARTIN & DE MEULENAR 1989). Members of the IUCN Cat specialist group mentioned their doubts of the estimates from this habitat model (MARTIN & DE MEULENAR 1989). Nevertheless, the result was that CITES increased the international hunting quotas for the African leopard, despite the lack of reliable continent-wide estimates of its population size."

Zimbabwe:

Zimbabwe received its first CITES-established export quota of 80 leopards in 1983;[67] the working documents discussed at the 1983 meeting are not readily available to facilitate evaluation of the information used by the Parties when approving this quota. This quota was increased to 350 in 1985 based on information provided by Zimbabwe that there were an estimated 38,000 leopards in the

[66] CITES, CoP8 Amendments to Appendices (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.
[67] CITES, CoP5 Doc. 5.23, p. 414 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.

country.[68] The quota was increased to 500 in 1987; however, there is no record of Zimbabwe having submitted a supporting statement to the meeting where this quota was established.[69] No summary record of this meeting is available on the CITES website. However, 1987 is when the draft report of Martin and de Meulenaer (1987) was also presented to the Parties and this report was apparently used to establish or increase a number of CITES leopard quotas, including that of Zimbabwe, where the authors estimated the population to be 16,064. (*Id.* at 647). (It is of interest to note that, in 1992, Zimbabwe (and Botswana, Malawi, Namibia, and Zambia) proposed to transfer its population to CITES Appendix II with an export quota of 500; this proposal estimated Zimbabwe's leopard population to be only 1,379 animals).[70]

Du Preez et al. (2014) confirmed that the 500 figure was the result of using the flawed Martin and de Meulenaer model as a basis which over-estimated the number of leopards in Zimbabwe at 16,064. Today, as then, there is no reliable estimate of Zimbabwe's national leopard population and leopard numbers are not monitored in most of the areas where they are hunted (Du Preez et al. 2014). Yet, more leopards are hunted in Zimbabwe than any other country with up to 882 leopard hunting permits issued annually (although the average number of successful hunts each year, 261, does not fill the allocation (Du Preez et al. 2014)). Leopard trophy hunting offtakes have repeatedly failed to fill the allocation, possibly indicating that there are not enough leopards remaining and that leopard hunting in Zimbabwe is unsustainable, especially combined with other threats such as habitat loss (Du Preez et al. 2014). The large leopard quota in Zimbabwe is unjustified because there has been no rigorous scientific research undertaken to estimate the national leopard population (Du Preez et al. 2014). Hunting of female leopards is prohibited in Zimbabwe and there is a skull size minimum that must be met for exports to be allowed (Lindsey and Chikerema-Mandisodza 2012). In Zimbabwe, leopard hunting occurs without a national leopard management plan and leopard hunting quotas exceed the CITES export quota (Lindsey and Chikerema-Mandisodza 2012).

CITES Export Quotas Are Not Subject to Review

There has never been a rigorous review of the scientific basis of the CITES-established leopard export quotas, nor are these quotas reviewed on an on-going basis to determine if changes are necessary to protect leopards. Given the increasing imperilment of the species given the recent IUCN Red List assessment, it is high time for a review to be conducted and for a process of routine review to be established, and in the absences of such review the Service must exercise the precautionary principle when evaluating import permit applications for leopard parts.

In its 2015 non-detriment advice for Mozambique, the Service asserts that "CITES Resolution Conf. 10.14 was revised at CoP16. It directed Parties to report on their implementation of this resolution (Decision 16.76; CITES 2013c) and the Secretariat was directed to compile and present to the Standing Committee a summary of those reports (Decision 16.77; CITES 2013d). These decisions will enable Parties to monitor more effectively the implementation of quotas for leopard hunting trophies and skins for personal use. By Notification to the Parties No. 2015/042 (dated 30 July 2015), the Secretariat invited

[68] CITES, CoP5 Doc. 5.23, p. 16 (1985), *available at* https://cites.org/sites/default/files/eng/cop/05/doc/E05-23.pdf.
[69] CITES, CoP6 Doc. 6.1 (1987), *available at* https://cites.org/eng/cop/06/doc/index.php.
[70] CITES, Cop8 Prop. EQ5, p. 11 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.

Parties to submit their leopard report for compilation and submission by the CITES Secretariat to SC66 (CITES 2015c)."

However, Resolution Conf. 10.14, as amended, does not direct Parties to report on implementation of the resolution. And the related Decisions refer only to the tagging and tracking of leopard skins in trade, and not to the scientific basis of export quotas or issues related to the non-detriment finding. Decision 16.76 states, "Parties shall, by the 66th meeting of the Standing Committee, submit a report to the Secretariat on the implementation of the system as set out in paragraphs c) to j) of Resolution Conf. 10.14 (Rev. CoP16), including details of any problems with the processing of CITES documents, the management and tracking system in general, and the system in place to replace lost or damaged tags." Decision 16.77 states, "The Secretariat shall, at the 66th meeting of the Standing Committee, and subject to the availability of funds: a) provide a summary report to the Standing Committee based on the reports supplied by the Parties concerned in the implementation of Resolution Conf. 10.14 (Rev. CoP16); and b) on the basis of experience gained with the operation of the tagging system set out in paragraphs c) to j) of Resolution Conf. 10.14 (Rev. CoP16), make recommendations, as appropriate, to the Standing Committee regarding the feasibility and appropriateness of extending the system for use with other CITES-listed species."

At the 66th meeting of the CITES Standing Committee, the Secretariat reported that only three countries, South Africa, Slovakia, the U.S., had submitted comments in response to the Notification to the Parties, and none reported any problems with implementation.[71] South Africa advised that it would not allow females to be hunted beginning in 2015; that hunting reports containing details relating to the hunt, including information relating to body measurements, have to be submitted to the issuing authority immediately after the hunt; and that they have initiated the development of national guidelines for the allocation, management and monitoring of leopard trophy quotas, in order to promote a more uniform approach across the nine provinces in the country.

The Enduring Problem of the Martin and de Meulenaer Study

It is important to elaborate on the Martin and de Meulenaer (1987, 1988) study and criticisms of it because, from 1987 to the present, the FWS and authorities in other countries have used the results of this study to make non-detriment findings required for issuance of leopard export and import permits in accordance with CITES, as well as to provide the basis for CITES-established leopard export quotas. The following are some of the regulatory decisions based on the results of this study (see also Annex 1 to this petition):

- **2015**: FWS issued a non-detriment finding for the import to the U.S. of sport-hunted leopard trophies from Mozambique (FWS 2015).
- **2007**: CITES CoP14 increased the leopard export quota for Mozambique from 60-120.[72]
- **2004**: CITES CoP13 increased the leopard export quota for Namibia from 100 to 250 and South Africa from 75 to 150.[73]

[71] CITES, SC66 Doc. 40, *available at* https://cites.org/sites/default/files/eng/com/sc/66/E-SC66-40.pdf.
[72] CITES CoP 14 Doc. 37.1 (2007), *available at* https://cites.org/sites/default/files/eng/cop/14/doc/E14-37-1.pdf.

- **2002**: CITES CoP12 increased the leopard export quota for Tanzania from 250 to 500.[74]
- **1994**: CITES CoP9 increased the leopard export quota for Botswana from 100 to130, and that of South Africa from 50 to 75.[75]
- **1992**: At CITES CoP8, Botswana, Malawi, Namibia, Zambia and Zimbabwe proposed to transfer *Panthera pardus* from CITES Appendix I to Appendix II and to establish export quotas for eleven countries.[76] The proposals were rejected by vote, but the quotas in the proposals were approved. CoP8 adopted a new leopard quota of 100 for Namibia and increased the quota for Malawi from 20 to 50.[77]
- **1989**: CITES CoP7 adopted a new leopard export quota of 50 for South Africa and increased the quota for Botswana from 80 to 100.[78] There is no documentation from CoP7 to support the establishment of the quota for South Africa or the increase of the quota for Botswana.
- **1987**: CITES CoP6 adopted a new leopard export quota of 40 for Central African Republic, 500 for Ethiopia, and increased the quota for Zimbabwe from 350 to 500.[79] It should be noted that Ethiopia was not a CITES Party in 1987 when the leopard export quota was adopted and there is no documentation from CoP6 to support the establishment of this quota.

An abbreviated version of Martin and de Meulenaer's study, a *Survey of the Status of the Leopard* (Panthera pardus) *in Sub-Saharan Africa*, appeared first as an Annex to Document 6.26,[80] on *Trade in Leopard Skins*, discussed at the 6th meeting of the Conference of the Parties to CITES (CoP6), in 1987 (Martin and de Meulenaer 1987). The full study was subsequently published in 1988 (Martin and de Meulenaer 1988).

It must be noted at the outset that, as is explained in CITES CoP6 Document 6.26, the study was funded by Safari Club International and the American Fur Institute, which should immediately raise suspicions of potential bias, given the funders' economic interests in the outcome of the study. And, as noted above, in 1992 the document was used to support a proposal to transfer *Panthera pardus* from CITES Appendix I to Appendix II, in order to allow international commercial trade in leopard skins; the proposal was not approved.

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[73] CITES, CoP13 Doc. 19.1 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/doc/E13-19-1.pdf; CITES, CoP13 Doc. 19.2 (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/doc/E13-19-2.pdf ; CITES, CoP13 Com. I Rep. 1 (Rev. 1) (2004), *available at* https://cites.org/sites/default/files/eng/cop/13/rep/E13-ComIRep1.pdf.
[74] CITES, CoP12 Com. I. Rep. (Rev.) (2002), *available at* https://cites.org/sites/default/files/eng/cop/12/rep/ComI_1.PDF; CITES, CoP12 Doc. 23.1.2 (2002), *available at* https://cites.org/sites/default/files/eng/cop/12/doc/E12-23-1-2.pdf.
[75] CITES, CoP10 Doc. 10.41 (1997), *available at* https://cites.org/sites/default/files/eng/cop/10/doc/E10-41to43.pdf.
[76] CITES, CoP8 Amendments to Appendices (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF.
[77] CITES, CoP8 Com.I 8.1 (Rev.) (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/E-Com-I.pdf.
[78] CITES, CoP8 Doc. 8.20 (1992), *available at* https://cites.org/sites/default/files/eng/cop/08/doc/E-20.pdf.
[79] CITES, CoP6 Doc. 6.28 (1987), *available at* https://cites.org/sites/default/files/eng/cop/06/doc/E06-28.pdf; CITES, CoP Doc. 7.27 (1989), *available at* https://cites.org/sites/default/files/eng/cop/07/doc/E07-27.pdf.
[80] CITES, CoP6 Doc. 6.26 (1987), *available at* https://cites.org/sites/default/files/eng/cop/06/doc/E06-26.pdf.

Martin and de Meulenaer used a computer modelling exercise, which correlated leopard density with rainfall, to derive estimates of the leopard population in 41 sub-Saharan African countries and a total African leopard population of 714,000 animals (**Figure 6**).

Figure 6. Martin and de Meulenaer leopard population estimates.

#	COUNTRY	PREDICTED POPULATION	FACTOR	FINAL POPULATION
1	ANGOLA	62,486		62,486
2	BENIN	4,915	0.1	492
3	BOTSWANA	7,729		7,729
4	BURKINA FASO	1,693		1,693
5	BURUNDI	495		495
6	CAMEROUN	41,896		41,896
7	CENTRAL AFRICAN REPUBLIC	41,546		41,546
8	CHAD	3,125		3,125
9	CONGO	32,394		32,394
10	DJIBOUTI	25		25
11	EQUATORIAL GUINEA	5,040		5,040
12	ETHIOPIA	9,782		9,782
13	GABON	38,463		38,463
14	GAMBIA	33		33
15	GHANA	5,990	0.1	599
16	GUINEA	15,689	0.1	1,569
17	GUINEA BISSAU	682	0.5	341
18	IVORY COAST	9,522		9,522
19	KENYA	10,207		10,207
20	LESOTHO	420		420
21	LIBERIA	5,031	0.1	503
22	MALAWI	4,530		4,530
23	MALI	3,365		3,365
24	MAURITANIA	230		230
25	MOZAMBIQUE	37,542		37,542
26	NAMIBIA	7,745		7,745
27	NIGER	454		454
28	NIGERIA	18,963	0.5	9,481
29	RWANDA	388		388
30	SENEGAL	781		781
31	SIERRA LEONE	2,803	0.1	280
32	SOMALIA	2,123		2,123
33	SOUTH AFRICA	23,472		23,472
34	SUDAN	22,035		22,035
35	SWAZILAND	805		805
36	TANZANIA	39,343		39,343
37	TOGO	2,537	0.1	254
38	UGANDA	4,292		4,292
39	ZAIRE	226,192		226,192
40	ZAMBIA	46,369		46,369
41	ZIMBABWE	16,064		16,064
	TOTALS	757,196		714,105

Source Martin and de Muelenaer (1988), p. 8.

Importantly, since 2008, the IUCN has found that "there are no reliable continent-wide estimates of population size in Africa, and the most commonly cited estimate of over 700,000 leopards in Africa (Martin and de Meulenaer 1988) *is flawed*" (Henschel et. al. 2008) (emphasis added). This opinion of the world's foremost leopard experts alone should be reason enough for regulators to avoid using the results of the Martin and de Meulenaer report as the biological basis for decision-making regarding leopards. Leopard scientists continue to point out the shortcomings of Martin and de Meulenaer today: as noted above, the most recent publication on leopard status and distribution (Jacobson et al. 2016a) stated,

"Earlier Africa-wide assessments of population size (Myers, 1976; Eaton, 1977; Martin & De Meulenaer, 1988; Shoemaker, 1993) employed questionable population models based on scant field data and were widely criticized as being unrealistic (Hamilton, 1981; Jackson, 1989; Norton,1990; Bailey, 1993)" (p. 2).

Additionally, soon after the study by Martin and de Meulenaer became available, it was criticized by leopard experts in the IUCN/SSC Cat Specialist Group (Jackson et al. 1989) who rejected the estimates of leopard numbers in Africa given in the study. This paper was included as an information document at CITES CoP7[81] held in 1989 which put regulators on notice that the Martin and de Meulenaer study should not be used as a scientific basis for making regulatory decisions. A summary of this paper states:

> "Leading leopard specialist members of the IUCN/SSC Cat Specialist Group and other experts have reviewed the SURVEY OF THE STATUS OF THE LEOPARD IN SUB-SAHARAN AFRICA by Martin and de Meulenaer. They *reject the computer estimates of leopard numbers in Africa*, although they generally agree that there are still many leopards, especially in certain areas. Most reviewers felt they lacked competence to criticize the computer model as such, but, in common with those who are expert, *they challenged the data input*. The *basic relationship claimed between rainfall and prey and, therefore, leopard populations, was discounted for several specific types of habitat and areas*. Reviewers with extensive field experience in leopard habitat declared that no leopard survive in many areas assumed to be suitable in the model. *Where estimates of leopard numbers in specific places have been made by the reviewers they are generally less than half those predicted by the computer model*" (emphasis added).

Jackson et al. (1989) contains comments of individual co-authors, including:

- Dr. Marcus Borner, Regional Represenative, Frankfurt Zoological Society, Arusha, Tanzania who said, "The computer model has not produced an accurate estimate of the existing or potential leopard population because the data are either guesswork, hearsay or otherwise imprecise…Unscientific data have been fed through very complex scientific methods to make the outcome look serious…A short and superficial survey like this one could not have produced anything more precise than informed guesswork."
- Professor J. du P Bothma, Chair of Wildlife Management, University of Pretoria, South Africa who said, "The database upon which the assumptions are made…is often non-existent. Thus no matter how complicated or good the model the raw data simply do not allow the type of conclusions reached. In South Africa there are many areas suitable as leopard habitat which are simply not occupied by leopards any more."
- Professor Dr. Paul Leyhausen, formerly of the Max Planck Institut fur Verhaltensphysiologie, Germany, who said, "A model, however loosely it seems to fit reality, it is not itself biological reality…The computer model depends on just one variable: prey availability…If prey availability were the sole yardstick, lion numbers in the Serengeti should be much higher in average years than they actually are…The model in question is a theoretically interesting exercise. But it would be hazardous to the extreme to assume that actual leopard numbers conform with it even remotely, let alone to make it the basis of practical policy."

[81] CITES, CoP7 Doc. 3 (1989).

- Dr Peter Norton, Chief Directorate Nature and Environmental Conservation, Kimberley, South Africa, who said, "Much of the report is based on so-called "estimates" of population numbers which I find highly questionable, if not misleading. The model is based on a number of assumptions that are not substantiated by the results of my research work on leopards in the Cape Province of South Africa." Norton specifically criticized four of these assumptions: 1) "If natural habitats are relatively unaltered, leopards will be found there": Norton states that leopards have been "completely eradicated" from certain areas despite the fact that none of the areas have been substantially altered, but leopards had been hunted out. 2) "If leopard are reported they will be at a rainfall-related "carrying capacity": Norton states that adult male leopards make "forays" some distance out of their normal home range but he doubts that their transient presence in these areas indicates that the population in these areas is at "carrying capacity." 3) "Leopard densities are closely correlated with rainfall, irrespective of prey densities": Norton notes that most of the data points used in the Martin and De Meulenaer model are from reserves or hunting areas in savannah habitats where suitable leopard prey may exist; however, he provides examples from his own studies of other types of habitats (fynbos and forests) where suitable leopard prey densities are extremely low. Norton also notes that low biomass of leopard prey animals is likely to occur in high rainfall tropical forests. Critically, Norton notes that the Martin and De Meulenaer study uses a study by Coe et al. (1976) on the relationship between large herbivore biomass and rainfall to support their contention that there is a relationship between leopard density and rainfall; however, Norton notes that this is based on large herbivores, not the small mammals that leopards prey upon. Norton also notes that bushmeat hunting has nearly eliminated small animals preferred as prey by leopards and that although Martin and De Meulenaer recognize this they modified only some of the figures used in their calculations. 4) "Rainfall figures used in the correlation are representative of the study areas": Norton thought that the rainfall figures may be accurate for flatter areas but said, "I seriously question the accuracy of the rainfall figures used in the regression for areas with more varied topography, such as mountains" and provided an example from his study area to demonstrate the fact that the model's predictions do not hold up against field study evidence. Regarding the total number of leopards Martin and De Meulenaer estimated for South Africa (23,472), Norton said it is "totally unrealistic." Norton also stated, "I seriously doubt the regression's validity in mountain or forest habitats, or even in savanna habitats outside of reserves that have a high human population. The regression is just too good to be true. With all the variability in different habitat types, plus the fact that some of the rainfall figures are suspect, I just cannot accept that a wide range of biological systems spread throughout Africa will react so predictably." Regarding the confidence limits in Martin and De Meulenaer, Norton states they "have no biological reality at all. In fact they are dangerous in that they give an aura of scientific respectability that they do not deserve." Norton compared estimates of Martin and De Meulenaer for habitats in South Africa with his best guesses and found that the estimates far exceeded, by ten-fold, the number of leopards he thought existed: 23,470 versus 2,390 (**Figure 7**).

Figure 7. Norton's leopard population estimates.

Table Norton's guesses of the possible numbers of leopards in the different vegetation types (White 1983) in South Africa, compared to Martin & de Meulenaer's (1988) 'estimates'

White's vegetation type number	Description	Norton's guess	M & de M's 'estimate'
16c	Coastal forest transition	200	3 002
19a	Afromontane	50	5 733
20	Highveld grassland transition	20	1 307
24	Scrub forest	50	2 105
28	Mopane woodland	200	771
29d	Woodland	500	3 459
29e	Tongaland bush	200	555
34	Scrub/highveld transition	50	374
35a	Acacia savanna	10	77
39	Evergreen bush & thicket	50	1 417
44	Kalahari Acacia	20	1 335
48	Tongaland bush	20	206
50	Fynbos	600	1 489
51	Karoo/Namib	20	291
52	Succulent karoo	20	67
53	Dwarf karoo	0	161
56	Kalahari/karoo	300	337
57a	Grassy karoo	0	37
57b	Karoo/highveld transition	10	390
58	Highveld	50	331
66	Altimontane	0	17
74	Namib	20	7
77	Mangrove swamp	0	5
	TOTAL	2390	23 470

Source Jackson et al. 1989, p. 7.

- Dr. M.K. Ranjitsinh, Director of Wildlife Conservation, Government of India who said, “To work out a population based on an arithmetical calculation in one place and then extrapolating it elsewhere has posed many a problem, and the figure can be totally wrong because of so many factors. And when you are extrapolating it for a continent as large as Africa with its diverse climatic, geomorphical, demographic and other considerations, I would be extremely wary of the result … if the figures are accepted and a harvest quota based upon them is adopted, it will become an accepted guideline and parameter for future harvest and one will not know the results until the population of the leopard nose-dives, in places perhaps beyond redemption.”
- Vivian Wilson, Director, Chipangali Wildlife Trust, Zimbabwe questioned if the number of leopards can be estimated based on habitat and rainfall stating, “There are vast areas in Africa where there is a lot of suitable habitat, a good food supply and also high rainfall, and yet leopards are either absent or occur in low numbers.” Wilson described her experience in Central African Republic where rainfall is high, and there are large areas of ideal leopard habitat and large numbers of leopard prey, but low numbers of leopards due to them having been killed by people many years previously. Wilson provided two other examples to support her conclusion. Wilson said that there are fewer than 10,000 leopards in Zimbabwe compared to 16,064 estimated by Martin and De Meulenaer. Wilson guessed at population sizes in eight countries, based on her experience, and compared them to the estimates of Martin and De Meulenaer, and found that her total population figure was three times less than theirs (**Figure 8**).

Figure 8. **Wilson’s leopard population estimates.**

Country	Wilson's guess	Martin & de Meulenaer		
		Predicted Pop.	Lower limit	Upper limit
South Africa	± 10 000	23 472	12 910	42 954
Zimbabwe	± 10 000	16 064	8 335	29 236
Botswana	5 000 ?	7 729	4 251	14 144
Malawi	± 2 000	4 530	2 492	8 290
Zambia	15 000 ?	46 369	25 503	84 855
C.A.R.	± 10 000	41 546	22 435	76 445
Ivory Coast	± 7 000	9 522	5 142	17 520
Sierra Leone	± 100	2 805	1 402	5 382
T O T A L :	59 100	152 035	82 470	278 826

Source Jackson et al. (1989), p. 10.

- An anonymous co-author stated, "there seems to be a conceptual flaw in the model" in that there is "abundant wildlife literature" that indicates that even if habitat is suitable one cannot expect to find a species there. This author further states that there are "very many and very extensive areas where they would fully expect, according to their model, to find abundant leopards, in fact there would be zero leopards … I can think of more than a dozen extensive areas in each of many countries…where the model would postulate sizable numbers of leopard, but none has been seen, or surmised to exist, since the late 1960s." Anonymous goes on to state that many other factors besides habitat need to be taken into account including activities and density of human communities, types of livelihoods of such communities, availability of poison, size and scope of the skin market, degree of known poaching, conservation capacity, corruption, official ineptitude, public awareness, and conservation commitment.

In another early review of the study of Martin and de Meulenaer, one of the co-authors of Jackson et al. (1989), Norton (1990), published his full analysis, which stated,

> "Results of ecological studies on leopards in the Cape Province, South Africa, carried out by the Chief Directorate: Nature and Environmental Conservation, suggest that some of the assumptions on which the population estimates are based are highly suspect, and that the population figures may be unrealistically high. The recommendations for leopard conservation and management should therefore be viewed with caution, *especially hunting quotas based on a proportional offtake from the 'estimated total' population*" (p. 218) (*emphasis added*).

Norton further states, similar to his comments in Jackson et al. (1989):

> "As I interpret it, the model is largely based on the following questionable assumptions: 1) that if natural habitats are unaltered, leopards will be found there; 2) that if leopards are reported, they will be at a rainfall-related 'carrying capacity'; 3) that all leopard densities are closely correlated with rainfall, irrespective of prey densities; 4) that the rainfall figures used in the correlation are representative of the study areas."

Norton studied each of these assumptions and found that in South Africa: 1) leopards have been extirpated—"hunted out"—from areas where habitat has not been substantially altered; 2) individual leopards, especially male leopards, may journey over 100 km from the nearest known leopard population but one leopard is not indicative of the presence of a population of leopards at 'carrying capacity'; 3) most of the data points in Martin and de Meulenaer's regression are from savanna habitats, but in other habitats (forests, including rain forests) the density of prey animals available for leopards is low to extremely low. Norton also questions the use by Martin and de Meulenaer of Coe et al. (1976) study of the relationship between large herbivore biomass and rainfall because it is based on large herbivore numbers mostly in savanna habitats, whereas leopard prey consists of small mammals. Norton notes that in some areas bushmeat hunting has eliminated small mammals making it difficult for leopards to survive; and 4) Norton questions the accuracy of the rainfall figures used in the Martin and de Meulenaer for all areas and provides a specific example from one of his study areas.

Norton states that he has been reluctant to provide leopard estimates for the region of South Africa in which he works, or for the country as a whole, because these would be more likely to be "a misleading guess" (p. 219). After closely examining Martin and de Meulenaer's estimates for South Africa, Norton found them to be "far too optimistic!" (p. 219, punctuation as in original). In one area Norton estimated to hold "no more than a hundred or so leopards", Martin and de Meulenaer estimated a population of 4,419. In another area where Norton estimated there to be one or two hundred leopards at the most, Martin and de Meulenaer estimated a population of 9,000. In a final area, Norton thought there were no more than "a handful" of leopards but Martin and de Meulenaer estimated a population of 1,335 leopards. In summation, Norton states, "I should be very surprised if there are more than two or three thousand leopards in South Africa at the most. As far as I am concerned, an estimate of over 20 000 is just plain nonsense!" (p. 219, punctuation as in original). Norton concludes, "I therefore suggest that the 'estimates' of leopard populations in the different countries in Africa be rejected, and all recommendations involving these estimates be viewed with extreme caution."

Thus, by 1990, it should have been explicitly clear to FWS that leopard experts – including one of the original authors (Martin) – found the original Martin and de Meulenaer report to be flawed. Yet, from 1989 through 2015, FWS and the CITES Parties have used the report by Martin and de Meulenaer as the scientific basis for establishing CITES export quotas and issuing CITES export and import permits.

More recently, Henschel (2008, 2009) criticized Martin and de Muelenaer for assuming that the Congo Basin[82] was a leopard stronghold based on unaltered habitat and supposedly prey-rich habitat. Henschel said that although the Congo Basin comprised only 12% of the leopard's range in Africa, Martin and de Meulenar estimated that it contained 40% of the leopard population of Africa. Henschel (2008, 2009) noted that other authors, Jackson et al. (1989) and Bailey (1993), also criticized Martin and de Meulenaer because the biomass of potential prey is actually lower in forests as compared to savannah. Henschel (2008) writes,

> "While it is widely accepted that in savannas ungulate biomass is positively correlated with rainfall (Coe et al., 1976, East, 1984) and that in these open habitats leopard density is linked with prey biomass (Marker and Dickman, 2005, Hayward et al., 2007), it has to be understood that although ungulate biomass increases with rainfall it decreases with forest cover, as a high proportion of the primary productivity is in the canopy and only available to relatively small arboreal mammals (Robinson and Bennett, 2004). Yet it is rainforest habitat that was considered optimal leopard habitat by Martin & de Meulenaer in their 1988 status survey, who considered the forests of the Congo Basin an absolute stronghold for the species that would harbour and estimated 40% of Africa's leopards, and predicted extremely high population densities for this habitat type of up to 40 individuals/100 km^2 (Martin and de Meulenaer, 1988). These population density estimates have since been used to produce population size estimates for central African countries, but the results were widely considered to be exaggerated (e.g. Jackson, 1989, Norton, 1990). Bailey (1993) and Jenny (1996) are among several authorities who have argued that since terrestrial mammalian prey biomass is lower in rainforest than in savannah environments, leopard densities should be correspondingly lower. Perhaps most importantly, Martin and de Meulenaer's

[82] The Congo Basin spans across six countries—Cameroon, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Equatorial Guinea and Gabon.

> model failed to account adequately for reduction of wild prey as a factor lowering leopard density, which could lead to overestimates especially in the Congo Basin, where forest wildlife suffers from a high demand for wild game for both local and commercial use (Wilkie and Carpenter, 1999)."

Henschel (2009) stated, "The figures published by Martin & de Meulenaer (1988) are still quoted today, and remain the chief source of information for African governments proposing to open or raise harvest quotas for trophy hunting of leopards. However, evidence is mounting that leopards have already disappeared from a number of forest sites on the fringes of the Congo Basin." Henschel (2009) notes that these sites are densely populated with people, that people consume medium-sized wild mammals as bushmeat, that such mammals are preferred leopard prey, and that such prey populations are depleted near densely populated areas. Henschel (2009) hypothesizes that this has led to reduced and even extirpated leopard populations in such areas. Henschel's study of leopards in Gabon found a strong correlation between commercial bushmeat hunting near settlements and the local disappearance of leopards (Henschel 2009).

Marker and Dickman (2005) found that, in Namibia, rainfall was not directly related to leopard density. They found leopard densities to be lower outside of reserves despite there being no marked difference in prey biomass between protected and unprotected areas; the authors explained that "the lower leopard density outside reserves was probably a result of local persecution by landowners, as leopards are commonly considered a threat both to people and their stock." (p. 113). Marker and Dickman note,

> "This is one of the main objections raised to the leopard population estimates made by Martin & de Meulenaer (1988), who assumed that where leopards occur, they should be at the carrying capacity determined by rainfall, without considering factors such as local persecution (Norton 1990). Although leopard density appeared to be indirectly linked to rainfall via the relationship with prey biomass, the overall determinants of leopard density and spatial ecology are likely to be a complex set of factors including an artificial 'carrying capacity' determined by the attitudes of local communities."

In a presentation delivered at the Large Carnivore Workshop, 3-4 November 2010, Henschel (2010) estimated the leopard population of Gabon to be 5,910 compared to the Martin and de Meulenaer estimate of 38,463. Regarding Martin and de Meulenaer's estimate of 714,000 leopards in sub-Saharan Africa, Henschel said, "Do not believe it!"

Chapman and Balme (2010) noted that Martin and de Meulenaer estimated the sub-Saharan leopard population to be 714,000 and the South African population to be 23,000 and said that this is "widely considered to be a gross overestimate" and "South Africa's true leopard population size, while still unknown, is thought to be an order of magnitude less" (p. 114). The authors state, "The detrimental consequences of basing management decisions on such unreliable estimates are patently obvious." (*id.*)

Ray (2011) noted that the Martin and de Meulenaer study has been "critically debated among specialists as presenting a high overestimate and has thus been rejected." (p. 1)

Swanepoel et al. (2014) used population modelling to estimate the leopard population size of South Africa which they estimated to be 4,476 leopards, far below the 23,472 leopards Martin and de Meulenaer estimated.

Du Preez et al. (2014) expressed concern about an increase in the CITES leopard export quota for Zimbabwe from 80 leopards per year to 500 being established based on Martin and de Meulenaer's calculations which "were based on the flawed assumption that leopards occurred at the highest possible density in all habitats" and "used rainfall data to estimate abundance; calculating what seems likely to have been an overestimate of Zimbabwe's leopard population at 16,064." (p. 153-154)

Braczkowski et al. (2015b) expressed concern that while leopards are one of the most sought trophies, leopard hunting quotas are based on "expert guesstimates" or "an over-simplified model that correlated leopard density to rainfall [cite to Martin and de Meulenaer] but ignored important factors such as anthropogenic mortality and prey availability."

Strampelli (2015), who studied leopards in Mozambique, stated there are no reliable continent-wide estimates of population size for the species and note that Martin and de Meulenaer was "obtained through a model that correlated leopard numbers with rainfall but omitted information on prey density or human related mortality, has been heavily criticized and is widely considered by specialists to be flawed." (p. 5-6). Strampelli states that the "over-simplified" Martin and de Meulenaer estimate of 37,542 leopards in Mozambique was used as justification for the 2007 increase in the CITES leopard export quota from 60 to 120. Strampelli further states,

> "Martin & de Meulenaer (1988) estimated a country-wide population for Mozambique of 37,542 leopards, based on density of 0.10/km2 (10 leopards per 100 km^2). This estimate was recently successfully quoted as a justification for an export quota increase (CITES 2007). The same report also states that "it is clear that much of Mozambique (perhaps up to 80%) falls within the category capable of supporting leopards at densities of between 0.03 and 0.1 per km^2" – i.e. between 3.00 and 10.00 per km^2. Such estimates have already been universally rejected as exaggerated and inaccurate by experts (Balme et al. 2010b); indeed, that density in XGR, one of the better protected areas of the country, was estimated at 1.53/100 km^2 suggests that it is unlikely that many areas in Mozambique experience leopard densities such as those quoted in the quota revision application. Although some landscapes will have higher primary productivity levels, it seems plausible that the high levels of anthropogenic disturbances common in much of the country (Hatton et al. 2001) likely more than counteract this."

A study by Jacobson et al. (2016a) on leopard status and distribution stated, "Earlier Africa-wide assessments of population size (Myers, 1976; Eaton, 1977; Martin & De Meulenaer, 1988; Shoemaker, 1993) employed questionable population models based on scant field data and were widely criticized as being unrealistic (Hamilton, 1981; Jackson, 1989; Norton,1990; Bailey, 1993)." (p. 2)

Therefore, the existing CITES export quotas and domestic implementing regulations are completely outdated, scientifically indefensible, and inadequate to protect the leopard in southern Africa, and the exploitation facilitated by these regulations endangers the continued existence of the African leopard.

2. African Leopard Range Country Mechanisms

The significant decline in both the range and, in many cases, the size of leopard populations due to habitat destruction, loss of prey, excessive and poorly regulated trophy hunting, poaching for commercial trade, and human-leopard conflict demonstrates that many range States do not have adequate regulatory mechanisms to protect leopards.

There are several African regional agreements that have relevance to African leopards: the African Union's African Convention on the Conservation of Nature and Natural Resources, 1968;[83] the Revised African Convention on the Conservation of Nature and Natural Resources, 2003;[84] and the Protocol on Wildlife Conservation and Law Enforcement of the Southern African Development Community, 1999.[85]

The African Union (AU), formed in 1992, is an intergovernmental organization comprising 54 African States including all sub-Saharan Africa leopard range States.[86] The AU has an Executive Council to coordinate and take decisions on policies in areas of common interest to Member States, including environmental protection (Article 13 (1)(e)).[87]

Two AU Conventions are relevant to African leopard conservation: the African Convention on the Conservation of Nature and Natural Resources (entered into force in 1968), and the Revised African Convention on the Conservation of Nature and Natural Resources (negotiated in 2003, not yet entered into force).[88]

Parties to the African Convention on the Conservation of Nature and Natural Resources, which entered into force in 1969, have agreed to "adopt the measures necessary to ensure conservation, utilization and development of soil, water, flora and fauna resources in accordance with scientific principles and with due regard to the best interests of the people." (Article I). The Convention lists the leopard as a Class B protected species (Article VIII); Class B species "shall be totally protected, but may be hunted, killed, captured or collected under special authorization granted by the competent authority." (Article VIII (1)(b)). Notably, some leopard range States that are significant exporters of leopard specimens have not ratified the Convention: Namibia, South Africa, and Zimbabwe. But even in range countries that have ratified the Convention, this law does not provide sufficient protection for leopards.

The Convention does not establish a Secretariat or designate the role and frequency of meetings of the Conference of the Parties; it also does not contain enforcement measures to address non-compliance with the Convention. Article XVI states:

> The Contracting States shall supply the Organization of African Unity with: (a) the text of laws, decrees, regulations and instructions in force in their territories, which are intended to

[83] African Union's African Convention on the Conservation of Nature and Natural Resources (1968), *available at* https://treaties.un.org/doc/Publication/UNTS/Volume%201001/volume-1001-I-14689-English.pdf.
[84] Revised African Convention on the Conservation of Nature and Natural Resources (2003), *available at* http://faolex fao.org/docs/pdf/mul45449.pdf.
[85] Protocol on Wildlife Conservation and Law Enforcement of the Southern African Development Community (1999), *available at* http://www.sadc.int/files/4813/7042/6186/Wildlife_Conservation.pdf.
[86] *See* African Union, *at* http://www.au.int/en/countryprofiles.
[87] *Id. at* http://www.au.int/en/sites/default/files/ConstitutiveAct_EN.pdf.
[88] *Id. at* http://www.au.int/en/sites/default/files/treaties/7782-sl-revised_-_nature_and_natural_resources_1.pdf.

> ensure the implementation of this Convention; (b) reports on the results achieved in applying the provisions of this Convention; and (c) all the information necessary for the complete documentation of matters dealt with by this Convention if requested.

However, it is unclear if any States have complied with these requirements. Article XVIII addresses settlement of disputes, including the interpretation or application of the Convention, and allows submission of concerns by any party to the Commission of Mediation, Conciliation and Arbitration of the Organization of African Unity. However, it is unclear if any Party has done so and to what effect.

Very few African leopard range States to have ratified the Revised African Convention on the Conservation of Nature and Natural Resources.[89] The Revised Convention has not yet entered into force because fifteen Parties must ratify it and only thirteen have done so.

Several leopard range States have signed the Treaty of the Southern African Development Community (SADC):[90] Angola, Botswana, DRC, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.[91] Among SADC's objectives is to "achieve sustainable utilisation of natural resources and effective protection of the environment" (Article 5 (g)). Article 22 of SADC calls for the establishment of Protocols to achieve the Treaty's objectives. The SADC Protocol on Wildlife Conservation and Law Enforcement[92] elaborates on Article 5 (g) of the Treaty. Its objectives are to:

> a) promote the sustainable use of wildlife; b) harmonise legal instruments governing wildlife use and conservation; c) enforce wildlife laws within, between and among States Parties; d) facilitate the exchange of information concerning wildlife management, utilisation and the enforcement of wildlife laws; e) assist in the building of national and regional capacity for wildlife management, conservation and enforcement of wildlife laws; f) promote the conservation of shared wildlife resources through the establishment of transfrontier conservation areas; and g) facilitate community-based natural resources management practices for management of wildlife resources (Article 4).

With regard to wildlife management and conservation programs, Parties shall: "establish management programmes for the conservation and sustainable use of wildlife and integrate such programmes into national development plans" and "assess and control activities which may significantly affect the conservation and sustainable use of wildlife so as to avoid or minimise negative impacts." (Article 7) Parties are also to take measures to ensure the conservation and sustainable use of wildlife including:

> a) the protection of wildlife and wildlife habitats to ensure the maintenance of viable wildlife populations; b) prevention of over-exploitation and extinction of species; c) restrictions on the taking of wildlife, including but not limited to restrictions on the number, sex, size or age of specimens taken and the locality and season during which they

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[89] *Id. at* http://www.au.int/en/sites/default/files/treaties/7782-sl-revised_-_nature_and_natural_resources_1.pdf.
[90] Treaty of the Southern African Development Community, *available at* http://www.sadc.int/files/5314/4559/5701/Consolidated_Text_of_the_SADC_Treaty_-_scanned_21_October_2015.pdf.
[91] *Id. at* http://www.sadc.int/member-states/
[92] *Id. at* http://www.sadc.int/files/4813/7042/6186/Wildlife_Conservation.pdf.

> may be taken; and d) restrictions on trade in wildlife and its products, both nationally and internationally, as required by relevant international agreements.

Article 12 of the Protocol concerning sanctions states:

> 1. Sanctions may be imposed against any State Party which: a) persistently fails, without good reason, to fulfill obligations assumed under this Protocol; or b) implements policies which undermine the objectives and principles of this Protocol. 2. The Council [SADC Council of Ministers] shall determine whether any sanction should be imposed against a State Party and shall make the recommendation to the Summit if it decides that a sanction is called for. The Summit shall decide, on a case-by-case basis, the appropriate sanction to be imposed.

However, it appears that no such sanctions have been considered or approved.

The Lusaka Agreement[93] is also in force in some leopard range countries (e.g. Kenya, Tanzania, Republic of Congo (Brazzaville), Uganda, South Africa, Liberia, Swaziland and Zambia).[94] The Agreement entered into force in 1994 and has the purpose "To support the member states and collaborating partners in reducing and ultimately eliminating illegal trade in wild fauna and flora".

The Lusaka Agreement is focused generally on fighting illegal wildlife trade in and between member States, including through wildlife enforcement officer training. The leopard could benefit in the future from such Lusaka Agreement activities but, to date, there have been no specific programs aimed at illegal leopard trade.

Ineffective conservation policies and inadequate enforcement throughout many leopard range States, as well as lack of efficacy of management and lack of government resources, endanger the survival of the African leopard (**Table 6**).

In addition, while all sub-Saharan African countries that are listed as Threatened under the ESA are CITES Parties, only four of these countries have "legislation that is believed generally to meet the requirements for implementation of CITES" (Category 1 under the CITES National Legislation Project) (Democratic Republic of the Congo, Namibia, South Africa, and Zimbabwe); nine of these countries have "legislation that is believed generally not to meet all of the requirements for the implementation of CITES" (Category 2) (Botswana, Burundi, Republic of the Congo, Gabon, Kenya, Malawi, Mozambique, Tanzania, Zambia); and five have "legislation that is believed generally not to meet the requirements for the implementation of CITES" (Category 3) (Angola, Lesotho, Rwanda, Swaziland, Uganda) (**Table 6**).[95]

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[93] Lusaka Agreement (1994), *available at* http://lusakaagreement.org/?page_id=126.
[94] *Id. at* http://lusakaagreement.org/?page_id=24.
[95] The CITES National Legislation Project categorizes Parties by whether or not they have national legislation to implement the Convention. Category 1: legislation that is believed generally to meet the requirements for implementation of CITES; Category 2: legislation that is believed generally not to meet all of the requirements for the implementation of CITES; and Category 3: legislation that is believed generally not to meet the requirements for the implementation of CITES. *See* https://cites.org/legislation.

Table 6. National policies and laws where leopards are listed as Threatened under the ESA.

Country	National Policies, Laws, Regulations
Angola	Wildlife legislation is out-dated and limited; no evidence of consistent enforcement; became a CITES Party in December 2013; legislation in Category 3 under the CITES National Legislation Project; under law, leopard can be hunted, including by foreigners, with a license (DLA Piper 2015).
Botswana	CITES Party since 1978, National Legislation Project Category 2,[96] CITES legislation for terrestrial wildlife and for plants enacted.
Burundi	Became a CITES Party in 1988; CITES National Legislation Project Category 2;[97] CITES legislation enacted.
Republic of the Congo	Strong wildlife protection laws with serious penalties; enforcement is limited and inadequate; became a CITES Party in 1983 and the country has Category 2 CITES implementing legislation; leopards are a fully protected species (Category A) and hunting is not allowed for such species (DLA Piper 2015).
Democratic Republic of the Congo	CITES Party since 1976; legislation is in Category 1 under the CITES National Legislation Project.[98]
Gabon	There are flaws in the primary wildlife legislation and extremely weak penalties; became a CITES Party in 1989; legislation is in Category 2 under the CITES National Legislation Project; leopards are a completely protected species and cannot be hunted (DLA Piper 2015).
Kenya	Became a CITES Party in 1979; legislation is in Category 2 under the CITES National Legislation Project and Kenya is a country "requiring attention as a priority;"[99] strong wildlife legislation enacted, but implementing legislation is pending consultation process.
Lesotho	CITES Party since 2003; legislation is in Category 3 under the CITES National Legislation Project; enabling legislation (environmental) enacted.[100]
Malawi	Became a CITES Party in 1982; legislation is in Category 2 under the CITES National Legislation Project.[101]
Mozambique	Legislation is flawed and inadequate; there is no list of protected species; the law does not prohibit the hunting of protected species; Mozambique became a CITES Party in 1981; CITES National Legislation Project Category 3; enforcement is lacking (DLA Piper 2015). As of January 2016, Mozambique was listed in Category 2 and identified as a Party requiring attention as a priority, CITES-specific legislation enacted but local legal consultant reviewing existing legislation, preparing new draft legislation to address gaps, assisting with national consultative process and preparing final draft legislation.[102]
Namibia	Namibia has a comprehensive national legal framework; Namibia became a CITES Party in 1990; legislation is in Category 1 under the CITES National Legislation Project; financial penalties are comparatively low considering the potential economic value of wildlife; leopards are "protected game" which can be hunted under a permit issued by the Ministry of Environment and Tourism (DLA Piper 2015).

[96] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP+Table2-20years.pdf.
[97] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP+Table2-20years.pdf.
[98] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Cat1.pdf.
[99] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table1-Priority17.pdf.
[100] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table3-less20.pdf.
[101] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP+Table2-20years.pdf.
[102] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table1-Priority17.pdf.

Country	National Policies, Laws, Regulations
Rwanda	CITES Party since 1981; CITES National Legislation Project Category 3 and identified as a Party requiring attention as a priority.[103]
South Africa	South Africa has an "impressive suite" of wildlife regulations and stringent penalties; South Africa has been a CITES Party since 1975; it is in Category 1 of the CITES National Legislation Project; the leopard is a "protected species" which may be hunted under permit; the provinces implement the national laws and there is great disparity between the provinces in this regard; South Africa lacks the enforcement and prosecutorial capacity to adequately combat wildlife crimes (DLA Piper 2015).
Swaziland	CITES Party since 1997; CITES National Legislation Project Category 3; Comprehensive draft and revised draft legislation prepared.[104]
Tanzania	CITES Party since 1980; CITES National Legislation Project Category 2 and identified as a Party requiring attention as a priority;[105] legislation enacted for Tanzania mainland but lack of legislation for Zanzibar a major concern.
Uganda	CITES Party since 1991; CITES National Legislation Project Category 3;[106] Wildlife Policy adopted; draft legislation aligned with policy and submitted to Cabinet.
Zambia	Zambia's national wildlife laws are inadequate as there are significant omissions and confusion; Zambia has been a CITES Party since 1981 and its legislation is in Category 2 under the CITES National Legislation Project; Zambia's laws do not prohibit the hunting and trade of "protected species" for commercial purposes; the leopard is not a protected species but is classified as a "dangerous" animal and a "game animal"; the laws have strong penalties for some violations (illegal hunting of elephants) but these do not extend to other species, including leopards; fines are inadequate compared to potential profits; Zambia banned big cat hunting in 2013 and 2014, except in Game Management Areas, due to declining numbers and allegations of corruption in the awarding of safari hunting concessions (DLA Piper 2015).
Zimbabwe	Zimbabwe has detailed legislation and comprehensive penalties; nonetheless, enforcement is inadequate and wildlife crime is widespread; CITES Party since 1981; Zimbabwe's legislation is in Category 1 under the CITES National Legislation Project.[107]

E. Other Natural or Manmade Factors Affecting the Species' Existence

1. Prey Depletion

Leopard population densities are directly related to biomass of medium (10-40 kg) and large-sized wild herbivores, the main leopard prey (Stein et al. 2016). However, populations of such herbivores have been severely depleted by the unsustainable bushmeat trade which is considered to be a major threat to the survival of the African leopard (Jacobson et al. 2016a, Stein et al. 2016). As noted in Jackson et al. (1989), the existence of suitable habitat in and of itself does not mean that leopards will be present; there are many places with suitable habitat that contain no leopards because the prey has been depleted. In some places, bushmeat hunting has nearly eliminated the small- to medium-sized animals preferred as

[103] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table1-Priority17.pdf.
[104] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table3-less20.pdf.
[105] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Table1-Priority17.pdf.
[106] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP+Table2-20years.pdf.
[107] CITES, *at* https://cites.org/sites/default/files/eng/prog/Legislation/CITES-NLP-Cat1.pdf.

prey by leopards (Jackson et al. 1989). According to Stein et al. (2016), Craigie et al. (2010) found an estimated 59% average decline in leopard prey populations in 78 protected areas in West, East and Southern Africa between 1970 and 2005 due to commercialized bushmeat trade.

In intact rainforests where there is intense competition with humans for wild prey and "wild meat harvests denudes forests of prey" and may drive local leopard extinction (Henschel 2008). Bushmeat hunting in the Congo Basin for local and commercial use has reduced the wild prey base, resulting in lower leopard densities and even the disappearance of leopards from some places (Henschel 2008, 2009). Leopard range is largely reduced in human-populated areas in the Democratic Republic of the Congo due illegal hunting and bushmeat trade (Stein et al. 2016). Bushmeat poaching in Mozambique and Zambia has severely reduced leopard prey inside and outside of protected areas (Stein et al. 2016).

2. Human-Leopard Conflict

Intense persecution, particularly for livestock loss but also for human deaths and injury, is a major threat to the leopard in Africa (Ray et al. 2005, Henschel 2008, Stein et al. 2016). About 60-70% of Africa's people rely on agriculture and livestock for their livelihoods, and the human population of Africa is expected to more than double by 2050 (Stein et al. 2016); thus, the future will likely see increasing numbers of people using increasing amounts of land in conflict with decreasing numbers of leopards. Currently, many sub-Saharan African countries allow farmers to kill predators considered to be a threat to life or property without first obtaining a permit; it is likely that a large number of leopards are killed but not reported; and the total number of leopards killed due to conflict is unknown (Stein et al. 2016). Leopards have been eradicated from some areas in order to protect livestock and humans (Jackson et al. 1989). Marker and Dickman (2005) found leopard densities to be lower outside of reserves despite there being no marked difference in prey biomass between protected and unprotected areas; the authors explained that "the lower leopard density outside reserves was probably a result of local persecution by landowners, as leopards are commonly considered a threat both to people and their stock." (p. 113). And indiscriminate killing, such as the poisoning of carcasses aimed at attracting and killing carnivores of any and all types, and the use of snares to kill other species, is also a threat to the survival of leopards (Henschel 2008, Jorge 2012).

* * *

As demonstrated in this Petition, the current listing of leopards in "southern Africa" is biologically, legally, and geographically unsound, as it relies on biased anecdotal reports that have been discredited for over two decades, and leopards in the 18 countries currently listed as Threatened are in danger of extinction based on the ESA listing factors and should be included along with leopards in Asia and North and West Africa in one species-level Endangered listing. The Service cannot continue to maintain this unlawful split-listing and must immediately initiate a status review of the species. 16 U.S.C. § 1533(b)(3). Indeed, in order to ensure that listings are based on the best available science, the ESA requires FWS to "conduct, at least once every five years, a review of *all* species" listed under the ESA to determine if such species should be reclassified or removed from the list. 16 U.S.C. § 1533(c)(2) (emphasis added). *See also* 50 C.F.R. § 424.21; *Florida Home Builders Ass'n v. Norton*, 496 F.Supp.2d 1330 (M.D. Fl. 2007) (making clear that FWS has a non-discretionary duty to conduct five-year status reviews of each species listed under the ESA). Since finalizing the 1982 listing for leopards in southern Africa, FWS has not conducted a single five year review for *Panthera pardus*, in violation of the ESA. Thus, FWS must

expedite the processing of this petition and immediately issue a positive 90-day finding to begin this long-overdue status review. Petitioners are confident that a status review will reveal that listing the species *Panthera pardus* as Endangered across its entire African and Asian range is warranted.

V. FWS Must Immediately Restrict Leopard Trophy Imports

Additionally, even before FWS completes a status review of the species, we hereby petition the Service take immediate action to restrict leopard imports to address the primary impact that the U.S. has on leopard conservation. First, we urge FWS to suspend the issuance of CITES import permits for *Panthera pardus* trophies until the FWS non-detriment advice memoranda are updated for each range country where trophy hunting occurs. Second, we urge FWS to rescind the special rule pertaining to leopards from southern Africa (50 C.F.R. § 17.40(f)) to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a).

A. FWS Must Suspend Leopard Trophy Imports Pending Scientific Review

It is arbitrary and capricious for the Service to issue CITES import permits for leopard trophies based on the faulty 1982, 1983, or 2015 non-detriment advice memoranda. As detailed above, those memoranda are not supported by the best available science and, therefore, the Service cannot possibly rely on those memoranda to make a reasoned finding that the issuance of leopard trophy import permits "will not be detrimental to the survival of that species." CITES Art. III; 50 C.F.R. § 23.61 ("Detrimental activities, depending on the species, could include, among other things, unsustainable use and any activities that would pose a net harm to the status of the species in the wild. For Appendix I species, it also includes use or removal from the wild that results in habitat loss or destruction, interference with recovery efforts for a species, or stimulation of further trade.").

Under the Administrative Procedure Act, a reviewing court shall "hold unlawful and set aside agency action, findings, and conclusions found to be ... arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law[.]" 5 U.S.C. § 706(2). In evaluating agency actions under this standard, courts must consider "whether the [agency's] decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 378 (1989) (citation and internal quotation marks omitted); *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971). If an agency, however, "failed to provide a reasoned explanation, or where the record belies the agency's conclusion, [the court] must undo its action." *Cnty. of Los Angeles v. Shalala*, 192 F.3d 1005, 1021 (D.C.Cir.1999). At the very least, the agency must have reviewed relevant data and articulated a satisfactory explanation establishing a "rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43 (internal quotation marks omitted); *see also* Pub. Citizen, Inc. v. Fed. Aviation Admin., 988 F.2d 186, 197 (D.C.Cir.1993) ("The requirement that agency action not be arbitrary or capricious includes a requirement that the agency adequately explain its result."). "[A]n agency acts arbitrarily or capriciously if it 'has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Am. Wildlands*, 530 F.3d at 997-98 (*quoting Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43).

In order to comply with the APA, ESA, and CITES, the Service must not issue any leopard trophy import permits unless or until it has strictly scrutinized the trophy hunting programs of leopard range states to determine whether recreational offtake of this imperiled species is sustainable. In order to facilitate that evaluation, the Service should determine whether the range state from which the trophy originated:

- Has an approved and current national leopard management plan, which develops and implements conservation activities for specific leopard conservation units and works in concert with regional leopard management plans. Such national management plans should be developed using the IUCN SSC guidelines for strategic conservation planning, based on scientific information, and implemented in a manner that benefits the species and provides economic incentives for local communities to protect and expand leopard habitat.
- Has up-to-date estimates on leopard distribution range, abundance, and status.
- Observes a precautionary approach to establishing hunting quotas given current leopard population trends.
- Carries a credible capacity to monitor and manage leopard populations in order to maintain healthy numbers and genetic diversity.
- Has appointed an identified national leopard plan coordinator.
- Implements its leopard management in a manner that is informed by the biological needs of the species and is based on the best available science.
- Has sound law enforcement capabilities to deter or punish illegal retaliatory killings.
- Involves local communities in leopard protection and humane conflict mitigation strategies.
- Implements a human-leopard conflict management plan (including rapid response, mitigation approaches, a training component, education).
- Actively promotes wildlife-integrated land-use to ensure land-use planning does not negatively impact leopard conservation.
- Achieves conservation targets within identified time frames.
- Documents the achievement of stated goals and monitor and evaluate the implementation of the plan, and adapt it as necessary.
- Is in compliance with all international, regional and national commitments, agreements and regulations relating to wildlife (and specifically leopard) conservation, including (but not limited to) CITES.
- Has enacted laws and provided ample resources for enforcement against illegal trade in leopards and their parts.
- Cooperates with neighboring countries for transboundary leopard population conservation and monitoring.
- Has a system for measuring good governance when it comes to wildlife conservation/protection policy making and its implementation (for example, transparency International's corruption perception index).
- Has credible policies for managing any hunting offtake, including:
    - A science-based system for establishing hunting quotas which is demonstrably sustainable at a population level;

- Price-setting (taxes and minimum number of safari days) and a system of concession leasing that increase the value of leopards across their range (no competition on price);
- Hunting moratoria for any declining populations;
- A verifiable and enforceable mechanism to ensure no subadults or females are taken;
- An adaptive management policy of monitoring the impacts of the removal of individuals on remaining populations , and adjusting quotas accordingly; and
- A demonstrable commitment to ensure proceeds of trophy hunting are used to benefit wildlife (and specifically leopard) conservation and communities living with wildlife.

The status of *Panthera pardus* has changed dramatically since the 1982 and 1983 memoranda were drafted, and it is entirely arbitrary and capricious for the Service to rely on those memoranda to make non-detriment findings. It is particularly egregious for the Service to turn a blind eye to the last decade of warnings from leopard experts that the Martin and De Meulenaer's report of 700,000 leopards in Africa is completely inaccurate, and to have doubled-down on this bad science in issuing its 2015 non-detriment advice for Mozambique.

Additionally, the existing non-detriment advice memoranda only purport to authorize leopard imports from South Africa if they originate from "Transvaal" – but this now-defunct region does not encompass the whole of the leopard's range in South Africa and it does not appear that the Service has limited leopard trophy imports from South Africa to this part of the country. Thus, it appears that the Service's practice of allowing American trophy hunters to import their leopard kills does not even comply with its own non-detriment advice, which is arbitrary, capricious, and not in accordance with law.

Thus, in order to comply with CITES, the ESA, and the APA, FWS must immediately initiate a review of the leopard hunting programs in African range states, prioritizing the seven countries from which FWS currently allows leopard trophy imports: Mozambique, Botswana, South Africa, Tanzania, Zambia, Zimbabwe, Namibia. Unless or until such review is completed, FWS cannot lawfully issue any CITES import permits for leopard trophies.

B. FWS Should Repeal the ESA Special Rule for Leopards

In addition to taking the above action regarding CITES import permits, FWS must also take immediate action to apply the enhancement standard to leopard trophy imports. As discussed above, FWS committed in 1982 to not issue leopard trophy import permits unless the enhancement standard was met. *See* 47 Fed. Reg. at 4205 (import permit for leopard trophies will only be issued if "it is determined that the country of origin for the trophy has a management program for the leopard, and can show that its populations can sustain a sport hunting harvest, *and that sport hunting enhances the survival of the species*") (emphasis added). The Service has completely abdicated this duty, primarily through the adoption of a special rule that waives the requirement for ESA permits for leopard trophy imports. 50 C.F.R. § 17.40(f). In order to require ESA permits for all otherwise prohibited activities, consistent with 50 C.F.R. § 17.31(a), the Service should rescind this special rule.

As an initial matter, the Service only has authority under the ESA to issue special rules that are "necessary and advisable to provide for the conservation of such species." 16 U.S.C. § 1533(d). Special rules must be designed and implemented to actually promote the conservation of the Threatened species. *See Sierra Club v. Clark*, 755 F.2d 608 (8th Cir. 1985); 16 U.S.C. § 1531(b) (the primary purpose of the ESA is to "provide a program for the conservation of such endangered species"); 16 U.S.C. § 1532(3) (the term "conservation" means "to use…all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary"). The current special rule – which allows American trophy hunters to exploit African leopards with little oversight, constituting a recognized threat to the species – is not *necessary* or *advisable* to provide for leopard conservation. Indeed, as demonstrated in this Petition, trophy hunting of leopards is poorly managed, unsustainable, and does not promote the conservation of *Panthera pardus*.

Therefore, the Service must take action to apply the enhancement standard to leopard trophy imports, in addition to requiring compliance with CITES permitting standards. *See, e.g.,* FWS, *Ensuring the Future of the Black Rhino* (Nov. 25, 2014), *at* http://www.fws.gov/news/blog/index.cfm/2014/11/25/Ensuring-the-Future-of-the-Black-Rhino (acknowledging that the ESA enhancement standard is more stringent than the CITES non-detriment standard and that these rhino import permits will only be issued if the Service finds "that the rhino is taken as part of a well-managed conservation program that contributes to the long-term survival of the species").

Rescinding the leopard special rule – the only purpose of which is to waive the ESA permitting requirements for trophy imports – would achieve this goal. Such action would be consistent with the Service's recent action to reign in the unfettered imports of African elephant and lion trophies. *See* 50 C.F.R. § 17.40(e) ("African elephant sport-hunted trophies may be imported into the United States provided: (A) The trophy was legally taken in an African elephant range country that declared an ivory export quota to the CITES Secretariat for the year in which the trophy animal was killed; (B) A determination is made that the killing of the trophy animal will enhance the survival of the species and the trophy is accompanied by a threatened species permit issued under § 17.32; (C) The trophy is legibly marked in accordance with 50 CFR part 23; (D) The requirements in 50 CFR parts 13, 14, and 23 have been met; and (E) No more than two African elephant sport-hunted trophies are imported by any hunter in a calendar year."); 50 C.F.R. § 17.40(r)(2) ("The import exemption found in § 17.8 for threatened wildlife listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) does not apply to this subspecies. A threatened species import permit under § 17.32 is required for the importation of all specimens of *Panthera leo melanochaita*."). *See also Safari Club Int'l v. Jewell*, 76 F.Supp.3d 198 (D.D.C.2014) (upholding the Service's non-detriment advice memorandum and enhancement memorandum finding that elephant trophy imports from Tanzania are unsustainable); 80 Fed. Reg. 79999 (Dec. 23, 2015) (FWS committing to review African lion range state management plans prior to issuing any ESA import permits for lion trophies).

Moreover, because the trophy hunting industry has been on notice since 1982 that the import of leopard trophies must meet the enhancement standard before being authorized, the Service could issue a Director's Order to reiterate that the commitment made in the 1982 rule remains in force. Such order would be consistent with recent action that the Director took to prohibit FWS from issuing ESA or CITES

trophy import permits for any species to individuals who previously violated federal wildlife law, and directing FWS to "consider all relevant facts or information available" when determining whether to issue a permit.[108] It would also be consistent with the Director's order to strengthen enforcement of existing laws pertaining to the trade in ivory (including ivory obtained through trophy hunting), making clear that the burden of proof is on the importer "to definitively show" that the importation of elephant tusks is ESA compliant.[109]

Thus, while the Service considers this Petition to reclassify all *Panthera pardus* as Endangered, it must take swift action to bring its existing regulations and practice into compliance with the ESA by rescinding the special rule for leopards, applying the enhancement standard to any applications for leopard trophy imports, and updating the non-detriment advice memoranda for any country that authorizes leopard trophy hunting. *See* Declaration of Dr. Jane Goodall, ¶ 9-12; Declaration of Dereck Joubert, ¶ 19 ("The effort to protect leopards from extinction is vital – we no longer have the luxury of time to use or abuse these big cats for our own desires. Poaching of leopards – primarily for the fur trade – continues at unsustainable rates, and the African leopard is under immense threats from habitat loss and human conflict. To allow the trophy hunting of leopards for recreational purposes to continue unchecked is scientifically and ethically unjustified.").

VI. Conclusion

This Petition presents substantial scientific and commercial information indicating that the petitioned action – listing all *Panthera pardus* as Endangered – may be warranted. *See* 50 C.F.R. § 424.14(b). Therefore, Petitioners expect that the Service will promptly issue a positive 90-day finding on this Petition. 16 U.S.C. § 1533(b)(3). Further, because the Service has never reviewed the 1982 listing for *Panthera pardus*, the Service must immediately initiate a status review of the African leopard to bring that listing into compliance with the Endangered Species Act. *Id.* at § 1533(c)(2).

Not only must the Service reevaluate this listing to ensure it is based on the best available science, but it must take immediate action to restrict the import of African leopard trophies by requiring Endangered Species Act permits, applying the enhancement standard to each proposed import of leopard parts, and reevaluating its CITES non-detriment advice for African leopard range states. Indeed, a recent Congressional report specifically directs the Service to "rescind regulations that allow trophy imports to meet lesser conservation standards and require enhancement findings and import permits for all trophies of listed species."[110]

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[108] *See* FWS, Director's Order No. 212 § 3 (Dec. 9, 2015), *available at* http://www.fws.gov/policy/do212.pdf.
[109] *See* FWS, Director's Order No. 210 § 2 (Feb. 25, 2014), *available at* http://www fws.gov/policy/do210.pdf.
[110] Representative Raul M. Grijalva, *Missing the Mark: African Trophy Hunting Fails to Show Consistent Conservation Benefits*" (June 13, 2016), *available at* http://democrats-naturalresources.house.gov/imo/media/doc/Missing%20the%20Mark.pdf.

VII. References Cited

Allendorf, F.W. and Hard, J.J., 2009. Human-induced evolution caused by unnatural selection through harvest of wild animals. *Proceedings of the National Academy of Sciences*, *106*(Supplement 1), pp.9987-9994.

Bailey, T.N., 1993. *The African leopard: ecology and behavior of a solitary felid*. Columbia University Press.

Balme, G.A. and Hunter, L.T., 2013. Why leopards commit infanticide. *Animal Behaviour*, *86*(4), pp.791-799.

Balme, G.A., Slotow, R. and Hunter, L.T., 2009. Impact of conservation interventions on the dynamics and persistence of a persecuted leopard (*Panthera pardus*) population. *Biological Conservation*, *142*(11), pp.2681-2690.

Balme, G.A., Hunter, L.T., Goodman, P., Ferguson, H., Craigie, J. and Slotow, R., 2010. An adaptive management approach to trophy hunting of leopards *Panthera pardus*: a case study from KwaZulu-Natal, South Africa. *Biology and conservation of wild felids. Oxford University Press, Oxford*, pp.341-352.

Braczkowski, A.R., Balme, G.A., Dickman, A., Macdonald, D.W., Johnson, P.J., Lindsey, P.A. and Hunter, L.T., 2015a. Rosettes, Remingtons and Reputation: Establishing potential determinants of leopard (*Panthera pardus*) trophy prices across Africa. *African Journal of Wildlife Research*, *45*(2), pp.158-168.

Braczkowski, A.R., Balme, G.A., Dickman, A., Macdonald, D.W., Fattebert, J., Dickerson, T., Johnson, P. and Hunter, L., 2015b. Who Bites the Bullet First? The Susceptibility of Leopards *Panthera pardus* to Trophy Hunting. *PloS one*, *10*(4), p.e0123100.

Chapman, S. and Balme, G., 2010. An estimate of leopard population density in a private reserve in KwaZulu-Natal, South Africa, using camera—traps and capture-recapture models. *South African Journal of Wildlife Research*, *40*(2), pp.114-120.

Chapron, G. and Treves, A., 2016, May. Blood does not buy goodwill: allowing culling increases poaching of a large carnivore. In *Proc. R. Soc. B* (Vol. 283, No. 1830, p. 20152939). The Royal Society.

Coe, M.J., Cumming, D.H. and Phillipson, J., 1976. Biomass and production of large African herbivores in relation to rainfall and primary production. *Oecologia*, *22*(4), pp.341-354.

Craigie, I.D., Baillie, J.E., Balmford, A., Carbone, C., Collen, B., Green, R.E. and Hutton, J.M., 2010. Large mammal population declines in Africa's protected areas. *Biological Conservation*, *143*(9), pp.2221-2228.

DLA Piper, 2015. *Empty Threat 2015 : Does the Law Combat Illegal Wildlife Trade ? A Review of Legislative and Judicial Approaches in Fifteen Juridictions.* DLA Piper, U.K. https://www.dlapiper.com/~/media/Files/News/2015/05/IllegalWildlifeTradeReport2015.pdf

du Preez, B.D., Loveridge, A.J. and Macdonald, D.W., 2014. To bait or not to bait: a comparison of camera-trapping methods for estimating leopard *Panthera pardus* density. *Biological Conservation*, *176*, pp.153-161.

Eaton R.L., 1977. *The Status and Conservation of the Leopard in Sub-Saharan Africa*. Safari Club International. Tucson, USA.
Environmental Investigation Agency and International Rhino Foundation, 2014. *Petition to Certify Mozambique as Diminishing the Effectiveness of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*. http://eia-global.org/images/uploads/FINAL_Mozambique_Pelly_Petition_June_27_2014.pdf

FWS (U.S. Fish and Wildlife Service), 1982a. Memorandum from Acting Associate Director-Research, Office of the Scientific Authority, to Directors of foreign wildlife departments, on the subject of Importation of Leopard Trophies, dated June 10, 1982.

FWS (U.S. Fish and Wildlife Service), 1982b. Memorandum from Chief, Office of the Scientific Authority to Chief, Federal Wildlife Permit Office, on the subject of Importation of Leopard Trophies, dated June 10, 1982.

FWS (U.S. Fish and Wildlife Service), 1983. Memorandum from Chief, Office of the Scientific Authority to Chief, Federal Wildlife Permit Office, on the subject of Importation of leopard trophies from Namibia (South West Africa), dated March 10, 1983.

FWS (U.S. Fish and Wildlife Service), 2007. Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Fourteenth Regular Meeting; Tentative U.S. Negotiating Positions for Agenda Items and Species Proposals Submitted by Foreign Governments and the CITES Secretariat. 72 *FR* 30606: 30606 -30623.
https://www.federalregister.gov/articles/2007/06/01/07-2714/conference-of-the-parties-to-the-convention-on-international-trade-in-endangered-species-of-wild

FWS (U.S. Fish and Wildlife Service), 2015. Memorandum from Chief, Office of the Scientific Authority to Chief, Federal Wildlife Permit Office, on the subject of, General advice on import of sport-hunted trophies of leopards (*Panthera pardus*) from the Republic of Mozambique for the calendar year 2015, dated September 28, 2015.

Grey, J.C., 2011. *Leopard population dynamics, trophy hunting and conservation in the Soutpansberg Mountains, South Africa* (Doctoral thesis, Durham University, South Africa).

Hamilton P.H., 1981. *The Leopard* Panthera pardus *and the Cheetah* Acinonyx jubatus *in Kenya. Ecology, Status, Conservation, Management.* Report for the US. Fish and Wildlife Service, the African Wildlife Leadership Foundation, and the Government of Kenya.

Henschel, P., 2008. *The conservation biology of the leopard* Panthera pardus *in Gabon: status, threats and strategies for conservation* (Doctoral dissertation, Göttingen, Univ., Diss., 2009). http://d-nb.info/99732676X/34

Henschel, P., 2009. The status and conservation of leopards and other large carnivores in the Congo Basin, and the potential role of reintroduction. *Reintroduction of top-order predators. Blackwell Publishing, Oxford*, pp.206-237.

Henschel, P., 2010. *The Status of the Leopard in Gabon and Lessons Learned for Leopard Research and Management in W/C Africa*. Powerpoint presentation. Large Carnivore Workshop, 3-4 November 2010. http://www.largecarnivoresafrica.com/wp-content/uploads/philiph-henschel2.pdf

Henschel, P., Hunter, L., Breitenmoser, U., Purchase, N., Packer, C., Khorozyan, I., Bauer, H., Marker, L., Sogbohossou, E. and Breitenmoser-Wursten, C., 2008. *Panthera pardus*. *The IUCN Red List of Threatened Species 2008:* e.T15954A5329380. Downloaded on 27 February 2016.

Jackson, P., Bell, R., Borner, M., Bothma, J.du P., Caughley, G., Hestbeck, J.B., Leyhausen, P., Mendelssohn, H., Norton, P.M., Ranjitsinh, M.K., Shoemaker, A.H., Singh, A., Swank, W., Walker, C., Wilson, V.J. and Martin, R.B., 1989. *A review by leopard specialists of The Status of Leopard in Sub-Saharan Africa by Martin and de Meulenaer*. Information document No. 3 submitted to the seventh meeting of the Conference of the Parties to CITES (Lausanne, 1989).

Jacobson, A.P., Gerngross, P., Lemeris Jr, J.R., Schoonover, R.F., Anco, C., Breitenmoser-Würsten, C., Durant, S.M., Farhadinia, M.S., Henschel, P., Kamler, J.F. and Laguardia, A., 2016a. Leopard (*Panthera pardus*) status, distribution, and the research efforts across its range. *PeerJ, 4*, p.e1974.

Jacobson, A.P., Gerngross, P., Lemeris Jr, J.R., Schoonover, R.F., Anco, C., Breitenmoser-Würsten, C., Durant, S.M., Farhadinia, M.S., Henschel, P., Kamler, J.F. and Laguardia, A., 2016b. Leopard (*Panthera pardus*) status, distribution, and the research efforts across its range. Supplemental Table 3: Regional leopard range statistics. *PeerJ, 4*, p.e1974.

Jacobson, A.P., Gerngross, P., Lemeris Jr, J.R., Schoonover, R.F., Anco, C., Breitenmoser-Würsten, C., Durant, S.M., Farhadinia, M.S., Henschel, P., Kamler, J.F. and Laguardia, A., 2016c. Leopard (*Panthera pardus*) status, distribution, and the research efforts across its range. Supplemental Table 4: Status of leopard subspecies presence in historic range countries. *PeerJ, 4*, p.e1974.

Jacobson, A.P., Gerngross, P., Lemeris Jr, J.R., Schoonover, R.F., Anco, C., Breitenmoser-Würsten, C., Durant, S.M., Farhadinia, M.S., Henschel, P., Kamler, J.F. and Laguardia, A., 2016d. Leopard (*Panthera pardus*) status, distribution, and the research efforts across its range. Supplementary Document 1: Profiles for Leopard (*Panthera pardus*) Range Countries. *PeerJ, 4*, p.e1974.
Jorge, A.A., 2012. *The sustainability of leopard* Panthera pardus *sport hunting in Niassa National Reserve, Mozambique.* (Master's thesis, University of KwaZulu-Natal, South Africa, March 2012).

Lindsey, P.A. and Chikerema-Mandisodza, R., 2012. *Preliminary Non-Detriment Finding Assessment: Preliminary Report for Leopards in Zimbabwe*. Zimbabwe Parks and Wildlife Management Authority, Zimbabwe. December 2012.

Marker, L.L. and Dickman, A.J., 2005. Factors affecting leopard (*Panthera pardus*) spatial ecology, with particular reference to Namibian farmlands. *South African Journal of Wildlife Research*, *35*(2), pp.105-115.

Martin R.B. and de Meulenaer T., 1987. *Survey of the Status of the Leopard (*Panthera pardus*) in Sub-Saharan Africa.* Doc. 6.26, Trade in Leopard Skins, Annex, pages 641-666. Sixth Meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). https://cites.org/sites/default/files/eng/cop/06/doc/E06-26.pdf

Martin, R.B. and de Meulenaer, T., 1988. *Survey of the Status of the Leopard (Panthera pardus) in Sub-Saharan Africa*. CITES Secretariat, Lausanne.

Murray, D.L., Kapke, C.A., Evermann, J.F. and Fuller, T.K., 1999. Infectious disease and the conservation of free-ranging large carnivores. *Animal Conservation*, *2*(4), pp.241-254.

Myers, N., 1976. The Leopard *Panthera pardus* in Africa. IUCN Monograph No. 5. International Union for Conservation of Nature and Natural Resources. Morges, Switzerland.

Norton, P., 1990. How many leopards? A criticism of Martin and de Meulenaer's population estimates for Africa. *S. AFR J. SCI./S.-AFR. TYDSKR. WET.*, *86*(5), pp.218-219.

Nowell, K. and Jackson, P., 1996. Wild Cats: Status, Survey and Conservation Action Plan. International Union for Conservation of Nature and Natural Resources/Species Survival Commission Cat Specialist Group, Gland, Switzerland.

Packer, C., Brink, H., Kissui, B.M., Maliti, H., Kushnir, H. and Caro, T., 2011. Effects of trophy hunting on lion and leopard populations in Tanzania. *Conservation Biology*, *25*(1), pp.142-153.

Packer, C., Kosmala, M., Cooley, H.S., Brink, H., Pintea, L., Garshelis, D., Purchase, G., Strauss, M., Swanson, A., Balme, G. and Hunter, L., 2009. Sport hunting, predator control and conservation of large carnivores. *Plos One*, *4*(6), p.e5941.

Palazy, L., Bonenfant, C., Gaillard, J.M. and Courchamp, F., 2011. Cat dilemma: too protected to escape trophy hunting?. *PloS one*, *6*(7), p.e22424.

Palomares, F. and Caro, T.M., 1999. Interspecific killing among mammalian carnivores. *The American Naturalist*, *153*(5), pp.492-508.

Pinnock, D., 2016. South Africa bans leopard trophy hunting for 2016. *Africa Geographic* blog, 25 January 2016.

Pitman, R.T., Swanepoel, L.H., Hunter, L., Slotow, R. and Balme, G.A., 2015. The importance of refugia, ecological traps and scale for large carnivore management. *Biodiversity and Conservation*, *24*(8), pp.1975-1987.

Ray, J.C., Hunter, L.T.B. and Zigouris, J., 2005. *Setting Conservation and Research Priorities for Larger African Carnivores*. Wildlife Conservation Society, New York.

Ray, R.R., 2011. *Ecology and population status and the impact of trophy hunting of the leopard* Panthera pardus *(LINNAEUS, 1758) in the Luambe National Park and surrounding Game Management Areas in Zambia* (Doctoral dissertation, Bonn, Univ., Diss., 2011).

Ripple, W.J., Estes, J.A., Beschta, R.L., Wilmers, C.C., Ritchie, E.G., Hebblewhite, M., Berger, J., Elmhagen, B., Letnic, M., Nelson, M.P. and Schmitz, O.J., 2014. Status and ecological effects of the world's largest carnivores. *Science*, *343*(6167), p.1241484.

Schaller, G.B., 1972. *The Serengeti lion: a study of predator-prey relations*. University of Chicago Press, Chicago.

Shoemaker, A.H., 1993. *The status of the leopard, Panthera pardus, in nature: a country by country analysis*. Riverbanks Zoological Park, South Carolina.

Shield Political Research, The Humane Society of the United States, and Humane Society International, 2015. *Trophy madness: elite hunters, animal trophies, and Safari Club International's hunting awards*. The Humane Society of the United States, Washington, DC. http://blog.humanesociety.org/wp-content/uploads/2015/09/TROPHY-MADNESS_FINAL.pdf

South Africa Department of Environmental Affairs, 2015. Non-detriment Findings. *Government Gazette* No. 39185, 10 September 2015, Department of Environmental Affairs Notice 897 of 2015.

South West Africa, Undated. Letter from South West Africa Agriculture and Nature Conservation to the Office of the Scientific Authority, U.S. Fish and Wildlife Service.

Spong, G., Hellborg, L. and Creel, S., 2000. Sex ratio of leopards taken in trophy hunting: genetic data from Tanzania. *Conservation genetics*, *1*(2), pp.169-171.

Stein, A.B. and Hayssen, V., 2013. Panthera pardus (Carnivora: Felidae). *Mammalian Species*, *45*(900), pp.30-48.

Stein, A.B., Andreas, A. and Aschenborn, O., 2011. *Namibian national leopard survey – 2011: final report.* Ministry of Environment and Tourism, Namibia.

Stein, A.B., Athreya, V., Gerngross, P., Balme, G., Henschel, P., Karanth, U., Miquelle, D., Rostro, S., Kamler, J.F. and Laguardia, A. 2016. *Panthera pardus.* The IUCN Red List of Threatened Species 2016: e.T15954A50659089. Downloaded on 11 July 2016. http://www.iucnredlist.org/details/full/15954/0

Strampelli, P., 2015. *Status and habitat use responses of leopard (Panthera pardus) in a human impacted region of rural Mozambique* (Doctoral dissertation, Imperial College London).

Swanepoel, L.H., Lindsey, P., Somers, M.J., Van Hoven, W. and Dalerum, F., 2011. The relative importance of trophy harvest and retaliatory killing of large carnivores: South African leopards as a case study. *South African Journal of Wildlife Research*, *44*(2), pp.115-134.

Swanepoel, L.H., Somers, M.J. and Dalerum, F., 2015. Functional responses of retaliatory killing versus recreational sport hunting of leopards in South Africa. *PloS one*, *10*(4), p.e0125539.

Teer, J. G. and Swank, W. G., 1977. *Status of the leopard in Africa south of the Sahara*. Unpublished report for the U.S. Fish and Wildlife Service.

Williams, S.T., Williams, K.S., Joubert, C.J. and Hill, R.A., 2016a. The impact of land reform on the status of large carnivores in Zimbabwe. *PeerJ*, *4*, p.e1537.

Williams, S.T., Williams, K.S., Joubert, C.J. and Hill, R.A., 2016b. The impact of land reform on the status of large carnivores in Zimbabwe. Supplemental information. *PeerJ*, *4*, p.e1537.

Zambia DNPW (Department of National Parks & Wildlife), 2015a. *Tourism Minister lifts ban on cat hunting*. Department of National Parks & Wildlife, 20 May 2015. https://www.facebook.com/Zambia-Wildlife-Authority-ZAWA-420351424735202/ (downloaded 20 April 2016)

Zambia DNPW (Department of National Parks & Wildlife), 2015b. *Cat hunting explained.* Department of National Parks & Wildlife, 28 May 2015. https://www.facebook.com/permalink.php?story_fbid=585933481510328&id=420351424735202 (downloaded on 20 April 2016).

VIII. Annexes

A. Declaration from Dr. Jane Goodall
B. Declaration from Dereck Joubert
C. CITES Establishment of Leopard Export Quotas 1987-2013
D. Information from the CITES Trade Database

ANNEX A

Declaration of Jane Goodall, Ph.D., DBE
Founder, the Jane Goodall Institute & UN Messenger of Peace

England)
)
County of Dorset)

I, Jane Goodall, hereby declare as follows:

1. I reside in Bournemouth, England.

2. I received my Ph.D. in ethology from Cambridge University in 1965 and I have received over 45 honorary degrees from universities around the world. I have held several academic appointments, including serving as a professor at Stanford University, University of Southern California, Cornell University (Andrew D. White Professor at Large), and the University of Dar Es Salaam, and I routinely lecture on the topics of primatology, ethology, and conservation. I began studying the behavior of wild chimpanzees in what is now known as Gombe National Park, Tanzania, in 1960. I have written 15 books, plus 16 children's books, many of them drawing upon my knowledge of African wildlife and conservation efforts, and have co-authored more than 86 research papers that have been published in peer-reviewed scientific journals. I am a United Nations Messenger of Peace and I currently serve in an advisory capacity in more than 100 organizations, including the Wildlife Conservation Society, the Cougar Fund and other groups that work on big cat conservation. A copy of my curriculum vitae is attached hereto.

3. In 1977, I founded the Jane Goodall Institute (JGI), which supports community-centered conservation in areas of East Africa and the Congo Basin. For example, JGI is working with 54 villages in western Tanzania to promote environmentally friendly agricultural practices, improve education, build efficient stoves to reduce demand for timber, and raise local incomes in order to mitigate deforestation and habitat loss for chimpanzees. JGI has also protected hundreds of thousands of acres of land in Tanzania, Uganda and Democratic Republic of Congo in which local communities have been empowered with technology to report activities that relate to habitat destruction and poaching.

4. The study of the Gombe chimpanzees is one of the two longest running studies of any wild animal species – now 56 years long – and my colleagues and I have made significant discoveries regarding the behavior of chimpanzees in Gombe, including the use and manufacture of tools, hunting and meat sharing, food preferences, ranging patterns, mother-offspring and sibling relationships, communication patterns, reproductive behavior, social dominance, personality differences, intercommunity "war" and the cultural traditions of a chimpanzee community. While conducting field work at Gombe, I have seen leopards on multiple occasions.

5. Based on my personal knowledge of African wildlife and for the following reasons, I support this administrative petition to extend the full protections of the Endangered Species Act to African leopards and to immediately increase scrutiny of leopard trophy imports into the U.S.

6. I have observed a significant decline in the presence of leopards in Gombe and other locations in Africa I have visited for decades. Leopards are extremely elusive and although I did not frequently see them when I first arrived at Gombe, it was apparent through their prints, scat, and sound that leopards were commonly there. Several months after I began tracking the chimpanzees, I experienced my first siting of a leopard, a male who passed only a few yards away from me through the long grass. In the 1960s and 1970s, two leopards routinely ranged through the Kakombe valley in Gombe and Gombe rangers would see leopards on the beach of Lake Tanganyika at night. One actually sometimes visited my camp at night. But today Gombe, Tanzania's smallest national park, is increasingly pressured by human encroachment and it has been some years since there was any verified observation of any leopard.

7. At multiple other field sites where researchers study chimpanzees – such as Tai National Park in Cote d'Ivoire, the Bili-Uele Forest in Democratic Republic of Congo, and Mahale Mountains National Park in Tanzania – there have been documented instances of chimpanzee and leopard interactions. Chimpanzees sometimes appear to demonstrate fear of leopards and even behave more altruistically in the presence of leopards (suggesting that leopards may predate on chimpanzees, a theory supported by a 2012 study that discovered a chimpanzee patella and phalanges in leopard scat), but there have also been documented instances of chimpanzees antagonizing leopards (including evidence of chimpanzees killing leopard cubs and one incident of chimpanzees eating an adult leopard). There are also examples of baboons on the Serengeti forcing leopards to take refuge in a tree, and reports from Ruaha National Park of leopards preying on baboons. This fascinating behavior is increasingly difficult to observe, due to the decline in the leopard's population and range.

8. It is absolutely clear that leopards – like most wildlife in Africa – are at greater risk of extinction today than they were in 1982 when the U.S. Fish and Wildlife Service listed southern African leopards as Threatened. In the nearly six decades during which I have learned a great deal about wildlife in Tanzania and other African countries, the human population has more than doubled, resulting in rapidly vanishing wildlife habitat, wiping out forests and grasslands essential to sustain leopards and their prey. Large mammals – like leopards and chimpanzees – play essential roles in their ecosystems, and in order to preserve these magnificent animals in perpetuity it will require all nations to exercise their full power to promote the conservation of imperiled species.

9. Given the precipitous decline of African leopards in recent decades, and because the threats to the continued existence of *Panthera pardus* and its habitat are significant, the United States must ensure that it is not contributing to the imperilment of this species and do all it can to promote the conservation of leopards in Africa. Thus, it is completely unacceptable that American trophy

hunters continue to import hundreds of leopard trophies per year, apparently for recreational purposes.

10. Trophy hunters target large males in their prime – those who carry the genes likely to result in the perpetuation of strength and magnificence, splendid individuals whose decapitated heads disfigure the walls of countless wealthy homes. Trophy hunters routinely boast about the animals they have killed, posting photographs of their smiling faces hovering over the lifeless bodies of their conquests, even though the prey (which may be drugged or baited) is often shot with a high powered rifle from a safe distance. Trophy hunters sometimes defend this malicious slaughter by claiming that the money they pay for the pleasure of killing is what enables impoverished countries to pay for conservation of wildlife, but this argument has many flaws.

11. The money paid to hunt a leopard or other trophy animal is often counted as profit by a hunting outfitter and does not usually end up in a conservation program. And as the founder of an organization that has worked for decades on community-based conservation in Africa, I can say confidently that putting a bounty on the heads of individual animals is counter-productive to promoting their protection. Indeed, normalizing the recreational killing of a species promotes poaching of the species for commercial purposes. On the whole, trophy hunting is having a negative impact on populations of imperiled species, including leopards, which are subject to unsustainable quotas across their African range. Conservation programs are only as effective as the governmental organizations responsible for managing them, and the countries where the most trophy hunting occurs have high levels of corruption.

12. In my expert opinion, leopards across their African range are in danger of extinction and the U.S. Fish and Wildlife Service should strictly regulate the import of hunting trophies and other leopard parts in order to not continue to contribute to the decline of this endangered species.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is, in my professional opinion, true and correct.

Jane Goodall

Dr. Jane Goodall

Executed on the 20th day of July, 2016

the Jane Goodall Institute

Curriculum Vitae
Jane Goodall, Ph.D., DBE
Founder, the Jane Goodall Institute
UN Messenger of Peace
www.janegoodall.org

Personal

Date of Birth: 3rd April 1934
Nationality: British
Marital Status: Married to Baron Hugo van Lawick, 1964 (divorced);
Married to Hon. Derek Bryceson, M.P., 1975 (widowed)
Children: Hugo Eric Louis van Lawick (1967 -)

Education

1950 School Certificate (London) with Matriculation Exemption

1952 Higher Certificate (London)

1962 Entered Cambridge University, United Kingdom, as Ph.D. candidate in Ethology under Professor Robert Hinde

1966 Ph.D. in Ethology, Cambridge University, United Kingdom

Research

From 1960 Behavior of free-living chimpanzees in Gombe National Park, Tanzania

1968-1969 Social behavior of the spotted hyena, *Crocutta crocutta*, Ngorongoro Conservation Area, Tanzania

1967-2003 Scientific Director of the Gombe Stream Research Centre, Tanzania

1972-2003 Director of research on the behavior of the olive baboon, *Papio anubis*, Gombe National Park, Tanzania

Academic Appointments

1971 – 1975 Visiting Professor, Department of Psychiatry and Program of Human Biology, Stanford University, Calif., USA

From 1973 Honorary Visiting Professor in Zoology, University of Dar es Salaam, Tanzania

1987 – 1988 Adjunct Professor of the Department of Environmental Studies, Tufts University, School of Veterinary Medicine, Boston, Mass., USA

1990 Associate, Cleveland Natural History Museum, Cleveland, OH, USA

1990 Distinguished Adjunct Professor, Departments of Anthropology and Occupational Therapy, University of Southern California, Calif., USA

1996 – 2002 Andrew D. White Professor-at-Large, Cornell University, NY, USA

Professional Affiliations

From 1974 Trustee, L.S.B. Leakey Foundation, USA

From 1976 Trustee, the Jane Goodall Institute for Wildlife Research, Education and Conservation, USA

From 1981 Scientific Governor, Chicago Academy of Sciences, USA

From 1984 International Director, ChimpanZoo (research program involving zoos and sanctuaries worldwide), USA

From 1987 Vice President, the British Veterinary Association's Animal Welfare Institute, UK

From 1988 Trustee, Jane Goodall Institute, UK

From 1989 Director, Humane Society of the United States, USA

From 1990 Member of the Advisory Board, Advocates for Animals, UK

From 1991 Member of the Advisory Board, the Albert Schweitzer Institute for the Humanities, USA

From 1993 Trustee, the Jane Goodall Institute, Canada

From 1994 Member of the Board, the Orangutan Foundation, USA

From 1994 Member of the Advisory Board, Trees for Life, USA

From 1997 Founder, Whole Child Initiative, USA

From 1995 Member of the Advisory Board, International Dolphin Project and Dolphin Project Europe

From 1995 Member of Council of Advisors, Global Green, USA

From 1996 Member of Advisory Board, The Fred Foundation, Netherlands

From 1998 to May 2008 President, Advocates for Animals, UK

From 1999 Member of Advisory Board, The Orion Society, USA

From 2000 to 2007 Member of the Board, Save the Chimps/Center for Captive Chimpanzee Care, USA

From 2000 Co-founder of Ethologists for Ethical Treatment of Animals/Citizens for Responsible Animal Behavior, USA

From 2001 Member of the International Advisory Board, Teachers Without Borders, USA

From 2001 Member of Advisory Committee, RESTORE, USA

From 2001 Honorary Trustee, The Eric Carle Museum of Picture Book Art, USA

From 2001 Member of IPS Ad-Hoc Committee for the World Heritage Status for Great Apes

From 2001 Member of Board of Trustees, NANPA Infinity Foundation, USA

From 2001 Member of Board, North American Bear Center, USA

From 2001 Member of Advisory Board, Laboratory Primate Advocacy Group, USA

From 2001 Member of Advisory Board, Tech Foundation, USA

From 2001 Member of Honorary Committee, Farm Sanctuary, USA

From 2002 Member of Advisory Board, Rachel's Network, USA

From 2002 Member of the Board of Directors, The Cougar Fund, USA

From 2002 Scientific Fellow of the Wildlife Conservation Society, USA

From 2002 Member of Board of Directors, The Many One Foundation, USA

From 2002 Member of Board of Governors and Officers, For Grace, USA

From 2002 Member of Advisory Board, Dignity U Wear, USA

2002-2003 Papadopoulos Fellow, The Kinkaid School USA

From 2003 Member of the Honorary Board, Albert Schweitzer Institute, USA

From 2004 Member of Advisory Board, Initiative for Animals and Ethics, Harvard University, USA

From 2004 Honorary Patron, Ryan's Well Foundation, Canada

From 2004 Member of Advisory Board, MONA-Spain

From 2004 Member of the Advisory Council, The Spiritual Alliance to Stop Intimate Violence, USA

From 2004 Member of Honour Committee of Fundación Altarriba, Spain

From 2005 Member of International Advisory Board, Friends of Africa International, USA

From 2005 Member of Cincinnati Zoo Advisory Council, USA

From 2005 Member of Advisory Board, Chimps Inc., USA

From 2005 Member of Advisory Board, KidsRights, Netherlands

From 2005 Member of Advisory Board, MediSend, USA

From 2005 Member of Honorary Board, Quinnipiac University, USA

From 2006 Member of Advisory Board, Foundation for Natural Leadership

From 2006 Member of Advisory Board, Nuclear Age Peace Foundation, USA

From 2006 Honorary Member, Club of Budapest, Hungary

From 2006 Member of the Mothers Network, ENO, Finland

From 2006 Member of Board of Directors, National Institute for Play, USA

From 2007 Fellow, Wings WorldQuest, USA

From 2007 Member of Advisory Board, Gift of Life in America, Inc., USA

From 2007 Member of Advisory Board, The Heart of America Foundation, USA

From 2007 Member of Advisory Board, Project R&R: Release and Restitution for Chimpanzees in U.S. Laboratories, a campaign of the New England Anti-Vivisection Society, USA

From 2007 Member of Advisory Board, Save the Chimps, USA

From 2007 Member of Advisory Board, Slow Food Nation, USA

From 2007 Distinguished Fellow, Ewha Academy for Advanced Studies, Republic of Korea

From 2007 Member of Advisory Board, Human and KIND, USA

From 2007 Honorary Board Member, The Scholar Ship Research Institute, UK

From 2007 Member of Advisory Board, Climate Clean, USA

From 2008 Member of the Great Chapter, Grace Cathedral, CA, USA

From 2008 Honorary Board Member, Eagle Vision Initiatives, USA

From 2008 Honorary Patron, Comunidad Inti Wara Yassi, UK

From 2008 Honorary Fellow, Institute of Biology, UK

From 2008 Patron, Earth Charter-UK

From 2008 Special Advisor for Biodiversity, Prince Albert II of Monaco Foundation, Monaco

From 2008 Member of Council of Honour, Waldrappteam, Austria

From 2008 Member of the Board, Climate Change Center, Republic of Korea

From 2008 Patron, Julia's House, UK

From 2008 Member of the Honorary Committee, Alpine Peace Crossing, Austria

From 2008 Member of the Advisory Council, Ebola Vaccination Initiative

From 2008 Patron, Society of Theological Zoology, Germany

From 2008 Member of Celebrity Circle Board, Green Chimneys, USA

From 2009 Honorary Keeper of the Museum Tridentino of Natural Science, Italy

From 2009 Member of Advisory Board, EcoReserve, USA

From 2009 Honorary Fellow, Society of Biology, UK

From 2009 Member of Advisory Board, Goodplanet Foundation of Yann Arthus-Bertrand, France

From 2009 Member of Advisory Board as advisor for Biodiversity, Foundation Jacques Chirac, France

From 2010 Honorary Co-Chair of the Build the Peace Committee, USA

From 2010-2013 Patron, Minding Animals International, Australia

From 2010 Member of the International Conference, WE, USA

From 2010 Member of Advisory Board, Living with Wolves, USA

From 2010 Goodwill Ambassador, Equine Sciences Academy, USA

From 2010 Acclaimed Ambassador, Best Friends Animal Society, USA

From 2011 Member of the Advisory Council, Voices for a World Free of Nuclear Weapons, USA

From 2011 Patron, Voiceless, Australia

From 2012 Honorary Councilor, World Future Council, Germany

From 2012 Honorary Board, Center for Great Apes, USA

From 2013 International Patron, School Broadcasting Network Inc., Australia

From 2013 Member of Scientific and Ethics Council, Ecolo-Ethik, France

From 2013 Philosophical Society, Trinity College, Dublin, Ireland

From 2014 Member of Advisory Council, International Women's Earth and Climate Initiative (IWECI), USA

From 2014 Member of Advisory Board, Years of Living Dangerously, USA

From 2014 Advisor to Board, APOPO, USA

From 2014 Advisory Board, Mongabay.org, USA

From 2014 Honorary Board of Directors, IFAW, USA

From 2015 Patron of Nature, IUCN, USA

Memberships

1972 Honorary Foreign Member of the American Academy of Arts and Sciences, USA

1981 Explorer's Club, USA

1984 Foreign Member of the Research Centre for Human Ethology at the Max-Planck Institute for Behavioral Physiology, Germany

1988 American Philosophical Society, USA

1988 Society of Woman Geographers, USA

1990 Deutsche Akademie der Naturforscher Leopoldina, Germany

1991 Academia Scientiarium et Artium Europaea, Austria

1991 Honorary Fellow of the Royal Anthropological Institute of Great Britain and Ireland

2004 Great Ape Subsection of the Primate Specialist Group, USA

2006 Honorary Member, Ewha Academy of Arts and Sciences, Republic of Korea

2006 Member of the International Primatological Society, USA

Honorary Degrees

1975 LaSalle College, Philadelphia, Penn., USA

1979 Stirling University, Stirling, Scotland, UK

1986 Ludwig-Maximilians University, Munich, Germany

1986 Zoologisches Institut der Universitat Munchen, Munchen, Germany

1986 Tufts University, Boston, Mass., USA

1988 University of North Carolina, Greensboro, N.C., USA

1990 University of Pennsylvania, Philadelphia, Penn., USA

1991 Colorado College, Colorado Springs, Colo.,USA

1993 College of William and Mary, Williamsburg, Va., USA

1993 University of Miami, Coral Gables, Fla., USA

1994 Utrecht University, Utrecht, Netherlands

1996 Western Connecticut State University, Danbury, Conn., USA

1996 Salisbury State University, Salisbury, Md., USA

1997 University of Edinburgh Veterinary School, Edinburgh, Scotland, UK

1998 University of Guelph, Guelph, Ontario, Canada

1999 Albright College, Reading, Penn., USA

2000 Wesleyan College, Macon, Ga., USA

2001 University of Minnesota, Minneapolis, Minn., USA

2001 University at Buffalo, Buffalo, N.Y., USA

2001 Ryerson University, Toronto, Ontario, Canada

2001 Providence University, Taiwan, Republic of China

2002 Elon University, Elon, N.C., USA

2002 Sweet Briar College, Sweet Briar, Va., USA

2003 University of Central Lancashire, UK

2004 University of Natal, Pietermaritzburg, South Africa

2004 Haverford College, Haverford, Penn., USA

2005 Pecs University, Pecs, Hungary

2005 Syracuse University, Syracuse, N.Y., USA

2005 Rutgers, The State University of New Jersey, Camden, N.J., USA

2006 The Open University of Tanzania, Dar es Salaam, Tanzania

2007 Doane College, Crete, Neb., USA

2007 Uppsala University, Uppsala, Sweden

2007 Kyoto University, Kyoto, Japan

2007 University of Liverpool, Liverpool, UK

2008 Lehigh University, Bethlehem, Penn., USA

2008 University of Toronto, Toronto, Canada

2008 University of Haifa, Haifa, Israel

2008 National Taiwan University of Science and Technology, Taiwan, Republic of China

2009 University of Liège, Liège, Belgium

2009 University of Pablo de Olavide, Seville, Spain

2009 University of Alicante, Sant Vicent del Raspeig/Alicante, Spain

2011 American University of Paris, Paris, France

2011 Giordano Bruno GlobalShift University, Budapest, Hungary

2011 Maimonides University, Buenos Aires, Argentina

2012 National Tsing Hua University, Taiwan

2012 Goldsmiths, University of London, UK

2013 University of St. Andrews, Scotland, UK

2013 Trinity College, Dublin, Ireland

2013 St. Ignatius of Loyola University, Peru

2014 University of South Australia, Adelaide, Australia

2016 University of Redlands, Redlands, CA

Awards

1963 and 1964 Franklin Burr Award for Contribution to Science, National Geographic Society, USA

1970 Stott Science Award, Cambridge University, UK

1974 Gold Medal for Conservation, San Diego Zoological Society, USA

1974 Conservation Award, Women's Branch of the New York Zoological Society, USA

1974 Bradford Washburn Award, Boston Museum of Science (with Hugo van Lawick), USA

1980 Order of the Golden Ark, World Wildlife Award for Conservation, presented by HRH Prince Bernhard of the Netherlands, Netherlands

1984 J. Paul Getty Wildlife Conservation Prize, Tanzania

1985 Living Legacy Award, the Women's International Center, USA

1987 The Albert Schweitzer Award of the Animal Welfare Institute, USA

1987 National Alliance for Animals Award

1987 E. Mendel Medaille from the Deutsche Akademie der Naturforscher Leopoldina, East Germany

1987 Golden Plate Award, Academy of Achievement, USA

1988 Centennial Award, National Geographic Society, USA

1988 Joseph Wood Krutch Medal, the Humane Society of the United States, USA

1988 Award for Humane Excellence, American Society for the Prevention of Cruelty to Animals, USA

1989 Encyclopedia Britannica Award for Excellence on the Dissemination of Learning for the Benefit of Mankind, USA

1989 Anthropologist of the Year Award

1990 The Anthropology in Media Award, American Anthropological Association, USA

1990 Whooping Crane Conservation Award, Conoco, Inc., USA

1990 Gold Medal of the Society of Women Geographers, USA

1990 Washoe Award

1990 The Kyoto Prize in Basic Science, Japan

1991 The Edinburgh Medal, UK

1993 Rainforest Alliance Lifetime Achievement Award, USA

1994 Chester Zoo Diamond Jubilee Medal, UK

1995 Commander of the British Empire, presented by Her Majesty Queen Elizabeth II, UK

1995 The National Geographic Society Hubbard Medal for Distinction in Exploration, Discovery, and Research, USA

1995 Lifetime Achievement Award, In Defense of Animals, USA

1995 The Moody Gardens Environmental Award, USA

1995 Honorary Wardenship of Uganda National Parks, Uganda

1996 The Zoological Society of London Silver Medal, UK

1996 The Tanzanian Kilimanjaro Medal, Tanzania

1996 The Primate Society of Great Britain Conservation Award, UK

1996 The Caring Institute Award, USA

1996 The Polar Bear Award, National Alliance for Animals

1996 William Proctor Prize for Scientific Achievement, Sigma Xi, USA

1997 Tyler Prize for Environmental Achievement, USA

1997 David S. Ingalls, Jr. Award for Excellence

1997 Common Wealth Award for Public Service, USA

1997 The Field Museum's Award of Merit

1997 Royal Geographical Society / Discovery Channel Europe Award for A Lifetime of Discovery

1997 Global 500 Roll of Honour Award, UNEP, Seoul, Korea

1998 Disney's Animal Kingdom Eco Hero Award, USA

1998 National Science Board Public Service Award, USA

1998 The Orion Society's John Hay Award, USA

1999 International Peace Award, Community of Christ, USA

1999 Botanical Research Institute of Texas International Award of Excellence in Conservation, USA

2000 Reorganized Church of the Latter Day Saints International Peace Award, USA

2001 Graham J. Norton Award for Achievement in Increasing Community Liability

2001 Rungius Award of the National Museum of Wildlife Art, USA

2001 Master Peace Award

2001 Gandhi/King Award for Non-Violence, USA

2002 The Huxley Memorial Medal, Royal Anthropological Institute of Great Britain and Ireland

2002 United Nations Messenger of Peace Appointment, USA

2003 Benjamin Franklin Medal in Life Science, USA

2003 Harvard Medical School's Center for Health and the Global Environmental Citizen Award, USA

2003 Prince of Asturias Award for Technical and Scientific Achievement, Spain

2003 Chicago Academy of Sciences' Honorary Environmental Leader Award, USA

2003 Commonwealth Club Centennial Medallion Award

2004 Dame of the British Empire, presented by HRH Prince Charles, UK

2004 Teachers College Columbia University Medal for Distinguished Service to Education, USA

2004 Nierenberg Prize for Science in the Public Interest, USA

2004 Will Rogers Spirit Award, the Rotary Club of Will Rogers and Will Rogers Memorial Museums

2004 Lifetime Achievement Award, the International Fund for Animal Welfare (IFAW), USA

2004 Polar Star Award, Paris, France

2004 Save Our Species Award, Santa Barbara, Calif., USA

2004 Time Magazine European Heroes Award

2004 Extraordinary Service to Humanity Award, The Bear Search and Rescue Foundation, USA

2004 Medal for Distinguished Service to Education, Teachers College, Columbia University, N.Y., USA

2005 Lifetime Achievement Award, Jackson Hole Wildlife Film Festival, USA

2005 Siemens Academy of Life Award, Austria

2005 Westminster College President's Medal, Salt Lake City, Utah, USA

2005 National Organization for Women's Intrepid Award, USA

2005 Honorary Conservation Award, University of Iowa, USA

2005 Discovery and Imagination Stage Award, USA

2005 Westminster College President's Medal for Exemplary Achievement, Utah, USA

2005 Pax Natura Award, Utah, USA

2005 Two Wings Award, Vienna, Austria

2006 International Patron of the Immortal Chaplains Foundation, USA

2006 UNESCO 60th Anniversary Golden Medal Award, Paris, France

2006 French Legion of Honor, awarded by the President of France, Mr. Jacques Chirac, and presented by Prime Minister Dominique de Villepin

2006 Lifetime Achievement Award, Jules Verne Adventures

2006 Biophilia Award, Jazzpur Society, Windsor, Canada

2006 Genesis Award, Humane Society of the United States, USA

2007 Lifetime Achievement Award, WINGS WorldQuest

2007 Honorary Medal of the City of Paris, presented by Mr. Bertrand Delanoë, mayor of Paris, France

2007 Roger Tory Peterson Memorial Medal, Harvard Museum of Natural History, USA

2008 Presidential Medal for Global and Visionary Leadership, Montana State University, Bozeman, Mont., USA

2008 Prix de la Fondation Prince Albert II de Monaco, presented to David Lefranc by Prince Albert II of Monaco

2008 Prize for Sustainable Community Development, Weidemann Foundation, Calif., USA

2008 State of Rhode Island and Providence Plantations Citation, R.I., USA

2008 Eurogroup Award, Brussels, Belgium

2008 Courage of Conscience Award, The Peace Abbey, Sherborn, Mass., USA

2008 Environmental Education Award of Hebei University of Science and Technology, China

2008 L.S.B Leakey Foundation Prize for Multidisciplinary Research on Ape and Human Evolution (Leakey Prize), USA

2009 United States Department of the Interior, The Secretary's Lifetime Achievement Award, presented by Mr. Ken Salazar, USA

2009 Minerva Award, USA

2010 Association of American Geographers Atlas Award, USA

2010 International Golden Doves for Peace Award, Italy

2010 Peace Hero, Kids for Peace, USA

2010 BAMBI Award, Germany

2010 NEA Award for Outstanding Service to Public Education, NEA Foundation, Washington, D.C., USA

2011 Order of Merit of the Italian Republic, Italy

2011 Mayor's Medallion, Lincoln, Neb., USA

2011 Heart of Green Award for Lifetime Achievement, TheDailyGreen.com, USA

2011 Focus magazine's Greatest Personality of Planete Doc Film Festival, Poland

2011 Honorary International Ranger Award, The Thin Green Line Foundation and International Ranger Federation, Australia

2011 Inspirational International Award, The Inspiration Awards for Women, USA

2011 Grand Officer of the Order of Merit of the Italian Republic, presented by the President of the Republic's Counselor Magistrate Dr. Elio Berarducci

2012 Lifetime Achievement Award, The Observer Ethical Awards, UK

2012 Outstanding Harmony Award in Rio+20, World Harmony Foundation, Australia

2012 Anne Marrow Lindberg Award for Living with Grace and Distinction, Huffington Center for Aging, USA

2012 II Monito del Giardino international award, Italy

2012 AARP Inspire Award, USA

2013 Varner Vitality Lecture, Oakland University, Michigan, USA

2013 WildCare Environmental Award, California, USA

2013, Wyland Icon Award, USA

2014 Better Malaysia Foundation (BMF) Person of the Year Award, Kuala Lumpur, Malaysia

2014 Animal Defence and Anti-Vivisection Society, Person of the Year Award, British Columbia, Canada

2014 Distinguished Lecturer, the University of Iowa Lecture Committee, Iowa, USA

2014 Invercargill Vegan Society Award, Dunedin, New Zealand

2014 BAUM Award, Germany

2014 Look! World Achievement Award

2014 Green Prize Award, Santa Monica Public Library

2014, Recognition of lifelong contributions to wildlife protection from MOTC, Taiwan

2014, World Technology Network (WTN) Award for Use of Technology in Policy, New York, USA

2014, President's Medal from the British Academy, London, UK

2014, Captain Planet Foundation Exemplar Award, Atlanta, GA USA

2015, Asia Pacific Brand Foundation, The BrandLaureate Legendary Award, Malaysia

2015, Premi Internacional Catalunya Prize, Catalonia, Spain

2015, The Perfect World Foundation, Conservationist of the Year 2015, Stockholm, Sweden

2015, the Orang Utan Republik Foundation, Pongo Environmental Award, Beverly Hills, CA USA

Publications

Books

1967 My Friends the Wild Chimpanzees. Washington, D.C.: National Geographic Society

1971 Innocent Killers (with H. van Lawick). Boston: Houghton Mifflin; London: Collins.

1971 In the Shadow of Man. Boston: Houghton Mifflin; London: Collins.
Published in 48 languages.

1986 The Chimpanzees of Gombe: Patterns of Behavior. Boston: Bellknap Press of the Harvard University Press. Published also in Japanese and Russian.

R.R. Hawkins Award for the Outstanding Technical, Scientific or Medical book of 1986, to Bellknap Press of Harvard University Press, Boston.

The Wildlife Society (USA) Award for "Outstanding Publication in Wildlife Ecology and Management."

1990 Through a Window: My Thirty Years with the Chimpanzees of Gombe. London: Weidenfeld & Nicolson; Boston: Houghton Mifflin.
Translated into more than 15 languages.

1991 Penguin edition, UK. American Library Association "Best" list among Nine Notable Books (Nonfiction) for 1991.

1993 Visions of Caliban (co-authored with Dale Peterson, Ph.D.). Boston: Houghton Mifflin.
New York Times "Notable Book" for 1993.
Library Journal "Best Sci-Tech Book" for 1993.

1999 Brutal Kinship (with Michael Nichols). New York: Aperture Foundation.

1999 Reason For Hope: A Spiritual Journey (with Phillip Berman). New York: Warner Books, Inc. Translated into more than 13 languages.

1999 40 Years At Gombe. New York: Stewart, Tabori, and Chang.

2000 Africa In My Blood (edited by Dale Peterson). New York: Houghton Mifflin Company.

2001 Beyond Innocence: An Autobiography in Letters, The Later Years (edited by Dale Peterson). New York: Houghton Mifflin Company.

2002 The Ten Trusts: What We Must Do To Care for the Animals We Love (with Marc Bekoff). San Francisco: Harper San Francisco.

2005 Harvest for Hope: A Guide to Mindful Eating (with Gary McAvoy and Gail Hudson). New York: Warner Books.

2009 Hope for Animals and Their World: How Endangered Species Are Being Rescued from the Brink (with Thane Maynard and Gail Hudson). New York: Grand Central Publishing.

2010 50 Years at Gombe. New York: Stewart, Tabori, and Chang.

2014 Seeds of Hope: Wisdom and Wonder from the World of Plants (with Gail Hudson). New York: Grand Central Publishing.

Children's Books

1972 Grub: The Bush Baby (with H. van Lawick). Boston: Houghton Mifflin.

1988 My Life with the Chimpanzees. New York: Byron Preiss Visual Publications, Inc. Translated into French, Japanese and Chinese.
Parenting's Reading-Magic Award for "Outstanding Book for Children," 1989.

1989 The Chimpanzee Family Book. Saxonville, MA: Picture Book Studio; Munich: Neugebauer Press; London: Picture Book Studio.

Translated into more than 15 languages, including Japanese and Kiswahili.
The UNICEF Award for the best children's book of 1989.
Austrian state prize for best children's book of 1990.

1989 Jane Goodall's Animal World: Chimps. New York: Macmillan.

1989 Animal Family Series: Chimpanzee Family; Lion Family; Elephant Family; Zebra Family; Giraffe Family; Baboon Family; Hyena Family; Wildebeest Family. Toronto: Madison Marketing Ltd.

1994 With Love (illustrated by Alan Marks). New York / London: North-South Books. Translated into German, French, Italian, and Japanese.

1999 Dr. White (illustrated by Julie Litty). New York: North-South Books.

2000 The Eagle & the Wren (illustrated by Alexander Reichstein). New York: North-South Books.

2001 Chimpanzees I Love: Saving Their World and Ours. New York: Scholastic Press.

2004 Rickie and Henri: A True Story (with Alan Marks) New York: Penguin Young Readers Group.

2013 Dr. White (illustrated by Julie Litty) gift book size. Honk Kong: minedition

2014 The Eagle & the Wren (illustrated by Alexander Reichstein) gift book size. Hong Kong: minedition

2014 With Love (illustrated by Alan Marks) gift book size. Hong Kong: minedition

2014 Jane Goodall The Chimpanzee Children of Gombe (with Michael Neugebauer). Hong Kong: minedition

2015 Prayer for World Peace (with Michael Neugebauer). Hong Kong: minedition

Films

1963 Miss Goodall and the Wild Chimpanzees, National Geographic Society.

1984 Among the Wild Chimpanzees, National Geographic Special.

1988 People of the Forest, with Hugo van Lawick.

1990 Chimpanzee Alert, in the Nature Watch Series, Central Television.

1990 Chimps, So Like Us, HBO film nominated for 1990 Academy Award.

1990 The Life and Legend of Jane Goodall, National Geographic Society.

1990 The Gombe Chimpanzees, Bavarian Television.

1995 Fifi's Boys, for the Natural World series for the BBC.

1995 My Life with the Wild Chimpanzees, National Geographic.

Chimpanzee Diary for BBC2 Animal Zone.

Animal Minds for BBC.

1999 Jane Goodall: Reason For Hope, PBS special produced by KTCA.

2001 Chimps R Us PBS special Scientific Frontiers.

2002 Jane Goodall's Wild Chimpanzees, in collaboration with Science North and Science Museum of Minnesota.

2004 Jane Goodall's Return to Gombe, produced by Tigress Productions for Animal Planet/Discovery Communications.

2004 Jane Goodall's State of the Great Ape, produced by Tigress Productions for Animal Planet/Discovery Communications.

2005 Jane Goodall - When Animals Talk, produced by Tigress Productions for Animal Planet/Discovery Communications.

2006 Jane Goodall's Heroes, produced by Creative Differences for Animal Planet/Discovery Communications.

2007 Almost Human, produced by Creative Differences for Animal Planet/ Discovery Communications

2010 Jane's Journey, produced by Animal Planet, CC Medien, NEOS Film and Sphinx Media

2014 Jane and Payne, produced by Boy Olmi and LSD Live (Dylan Williams)

2015 Racing Extinction, produced by Discovery and directed by Louie Psihoyos

2016 Time to Choose, directed by Charles Ferguson

Articles

1962 Nest building in a group of free-ranging chimpanzees. Ann. N.Y. Acad. Sci. 102: 455-467.

1963 Feeding behaviour of wild chimpanzees: a preliminary report. Symp. Zool. Soc. Lond. 10: 39-48.

1963 My life with the wild chimpanzees. National Geographic 124 (2):272-308.

1964 Tool-using and aimed throwing in a community of free-living chimpanzees. Nature. 201: 1264-1266.

1965 Chimpanzees of the Gombe Stream Reserve. In: I. DeVore (Ed). Primate Behaviour. New York: Holt, Rinehart and Winston.

1965 New discoveries among Africa's chimpanzees. National Geographic 128 (6): 802-831.

1965 Infancy, childhood and adolescence in a group of wild chimpanzees. Proc. Roy. Inst. Lond.

1966 (with H. van Lawick). Use of tools by the Egyptian Vulture, Neophron porenoptemus. Nature. 212: 1468-1469.

1967 Mother-offspring relationships in chimpanzees. In: D. Morris (Ed). Primate Ethology. London: Weidenfeld & Nicolson. pp. 287-345.

1967 (with H. van Lawick). Tool-using bird, the Egyptian Vulture. National Geographic 133 (5): 631-651.

1968 Behaviour of free-living chimpanzees of the Gombe Stream Area. In: J.M. Cullen and C.G. Beer (Eds). Anim. Behav. Monog. Vol. 1, Part 3. London: Bailliere, Tindall, and Casell. pp. 165-311.

1968 Expressive movements and communication in free-ranging chimpanzees: a preliminary report. In: P. Jay (Ed). Primates: Studies in Adaptation and Variability. New York: Hold, Rinehart and Winston. pp. 313-374.

1969 Some aspects of reproductive behaviour in free-living chimpanzees. Journ. Reprod. Fert.

1970 Some aspects of mother-infant behaviour in wild chimpanzees. In: R. Schaffer (Ed). Determinants of Infant Behaviour. New York: John Wiley and Sons.

1970 The scratching rocks clan. Animals. 13: 401-407.

1970 Tool-using in Primates and other Vertebrates. In: D.S. Lehrman, R.A. Hinde, and E. Shaw (Eds). Advances in the Study of Behaviour, Vol. 3. New York and London: Academic Press. pp. 195-249.

1971 Some aspects of aggressive behaviour in a group of free-living chimpanzees. Int. Soc. Sci. Journ. 23 (1): 89-97.

1973 Baboons too use tools. Science News 103: 71-72.

1973 The behaviour of chimpanzees in their natural habitat. Am. J. Psychiatry. 130 (1): 1-12.

1973 (with H. van Lawick and C. Packer). Use of objects as tools in free-living baboons in the Gombe National Park, Tanzania. Nature 24: 212-213.

1973 Cultural elements in a chimpanzee community. In: W.W. Menzel (Ed). Precultural Primate Behaviour, Vol I. Karger: Fourth IPV Symposium Proceedings.

1975 Chimpanzees of Gombe National Park: 13 years of research. In: I. Eibesfeldt (Ed). Hominisation und Verhalten. Stuttgart: Gustav Fischer Verlag. pp. 74-136.

1975 The chimpanzee: a model for the behaviour of early man? In: V. Goodall (Ed). Quest for Man. London: Pall Mall Press. pp. 130-169.

1975 On the contribution of chimpanzee studies to understanding human origins. In: S.L. Isaac (Ed). Perspectives on Human Evolution, Vol. 3: Essays on East Africa and Human Origins--a tribute to the life's work of the late Louis Leakey.

1976 (with D.A. Hamburg). New evidence on the origins of human behaviour. In: D. Hamburg and K. Brodie (Eds). American Handbook of Psychiatry, Vol. 6, New Frontiers. New York: Basic Books.

1976 Continuities between chimpanzee and human behaviour. In: G.L Isaac and E.R. McGown, (Eds). Human Origins: Louis Leakey and the East African Evidence California: W.J. Benjamin Inc.

1976 (with D. Riss). Sleeping behaviour and associations in a group of captive chimpanzees. Folia Primatol. 25: 1-11.

1977 Infant-killing and cannibalism in free-living chimpanzees. In: Folia Primatol. 28: 59-282.

1977 (with K. Morris). Competition for meat between chimpanzees and baboons of the Gombe National Park. Folia Primatol. 28: 109-121.

1977 (with D. Riss). The recent rise to the alpha rank in a population of free-living chimpanzees. Folia Primatol. 27: 134-151.

1978 Chimp Killings: Is it the Man in them? Sci News 113: 276.

1979 (with A. Bandora, E. Bergmann, C. Busse, H. Matama, E. Mpongo, A. Pierce, D. Riss). Inter-community interactions in the chimpanzee population of the Gombe National Park. In: D.A. Hamburg and E.R. McGown (Eds). The Great Apes. Menlo Park, California: Benjamin/Cummings. pp. 13-53.

1979 Life and Death at Gombe. National Geographic 155 (5): 592-621.

1980 (with J. Athumani). An observed birth in a free-living chimpanzee in Gombe National Park, Tanzania. Primates. 21 (4): 545-549.

1982 Order without law. Journal of Social and Biological Structures 5: 353-360.

1983 Population dynamics during a 15 year period in one community of free-living chimpanzees in the Gombe National Park, Tanzania. Zeitscherift fur Tierpsychologie 61: 1-60.

1983 (with T. Nishida, R.W. Wrangham, and S. Uehara.) Local differences in plant-feeding habits of chimpanzees between the Mahale Mountains and Gombe National Park, Tanzania. J. Human Evol. 12: 467-480.

1984 (with D.A. Collins, C.D. Busse and J. Goodall. 1984. Infanticide in two populations of Savanna Baboons. In: G. Hausfater and S.B. Hrdy (Eds). Infanticide: Comparative and Evolutionary Perspectives. New York: Aldine Publishing Company. pp. 193-216.

1984 The nature of the mother-child bond and the influence of family on the social development of free-living chimpanzees. In: N. Kobayashi and T.B. Brazelton (Eds). The Growing Child in Family and Society. Tokyo: University of Tokyo Press. pp. 47-66.

1985 Chapter. In: P.L. Berman (Ed). The Courage of Conviction. New York: Ballantine Books.

1985 (with H. Kummer, H). Conditions of innovative behaviour in primates. Phil. Trans. R. Soc. Lond. 308: 205-214.

1986 Mountain Warrior. Omni. May 1986, 132-143.

1986 Social rejection, exclusion, and shunning among the Gombe chimpanzees. Special issue: Ostracism: A social and biological phenomenon. Eth. and Sociobiol. 17 (3-4): 227-236.

1987 A Plea for the Chimps. The New York Sunday Times Magazine. May 17, 1987. pp. 108-110.

1987 A Plea for the Chimpanzees. Am. Sci. 75 (6): 574-577.

1988 Ethical concerns in the use of animals as donors. Xenograft 25: Proceedings of the International Congress, Xenograft 25. Elsevier Science Publishers. pp. 335-349.

1988 (with A. Prince, J. Moor-Jankowski, J. Eichberg, H. Schellekens, R. Mauler, and M. Girard) Chimpanzees and AIDS research. Nature. 333 (9): 513.

1989 The Chimpanzee: Man's closest relative in danger. In: Kakakuona, the magazine of the Tanzania Wildlife Protection Fund. 1 (1): 5-9.

1989 (with A. Prince, B. Brotman, H. Dienske, H. Schellekens, and J. Eichberg). Appropriate conditions for maintenance of chimpanzees in studies with blood-borne viruses: an epidemiologic and psychosocial perspective. J. Med. Primatol. 18: 27-42.

1989 (with R.W. Wrangham). Chimpanzee use of medicinal leaves. In P. Heltne and L. Marquardt (Eds) Understanding Chimpanzees, pp. 22-37. Cambridge: Harvard University Press.

1990 (with A.L. Zihlman, and M.E. Morbeck). Skeletal biology and individual life history of Gombe chimpanzees. J. Zool., London 221: 37-61.

1990 Gombe: Highlights and Current Research. In: In: P.G. Heltne and L.A. Marquard (Eds). Understanding Chimpanzees. Boston: Harvard University Press. pp. 2-21.

1990 ChimpanZoo. In: P.G. Heltne and L.A. Marquard (Eds). Understanding Chimpanzees. Boston: Harvard University Press. pp. 148-150.

1990 Area Status Report: Tanzania. In: P.G. Heltne and L.A. Marquard (Eds). Understanding Chimpanzees. Boston: Harvard University Press. pp. 360-361.

1990 Respect for Life. In: C. Fadiman (Ed). Living Philosophies. New York: Doubleday. pp. 81-88.

1992 Psychosocial needs of laboratory chimpanzees. Proceedings of the Symposium on Biomedical Research on Primates.

1993 Unusual violence surrounding the rise to alpha rank in the Gombe chimpanzee community. In: Proc. XIIIth Cong. IPS.

1993 (with J. Wallis). Anogenetal swelling in pregnant chimpanzees of Gombe National Park. Am. J. Primatol. 31(2): 89-98.

1994 (with P.A. Morin, J.J. Moore, R. Chakraborty, L. Jin, and D.S. Woodruff). Kin selection, social structure, gene flow and the evolution of chimpanzees. Science 265: 1193-1201.

1994 (with C.B. Stanford, Wallis, J., Matama, H.) Patterns of Predation by chimpanzees on red colobus monkeys in Gombe National Park, 1982-1991. American Journal of Physical Anthropology, 94 (2) 213-228.

1994 (with C.B. Stanford, Wallis, J, Mpongo, E) Hunting decisions in wild chimpanzees. Behaviour, 131, 1-18.

1995 (with C. Packer, D.A. Collins, and A. Sindimwo). Reproductive constraints on aggressive competition in female baboons. Nature 373: 60-63.

1995 Why is it unethical to use chimpanzees in the laboratory? ATLA. 23: 615-620.

1995 Chimpanzees and others at play. ReVision 17 (4): 14-20.

1997 (with A. Pusey and J. Williams). The influence of dominance rank on the reproductive success of female chimpanzees. Science. 277: 828-831.

1999 (with A. Whiten, McGew, W.C., Nishida, T., Reynolds, V., Sugiyama, Y. Tutin, C.E.G., Wrangham, R.W., Boesch, C.) Cultures in chimpanzees. Nature 399, 682-5.

2001 (with Marc Bekoff). Primate Origins of Human Cognition and Behavior, edited by Tetsuro Matsuzawa. (Book review). Science. 411: 995-996.

2001 (with Bekoff, M.). The view from Japan. Nature 411, 995-996.

2001 (with Mario L. Santiago, Cynthia M. Rodenburg, Shadrack Kamenya et. al.) Noninvasive Detection and Molecular Identification at Simian Immunodeficiency Virus in Wild-living Chimpanzees. Nature.

2001 (with A. Whiten, McGew, W.C., Nishida, T., Reynolds, V., Sugiyama, Y. Tutin, C.E.G., Wrangham, R.W., Boesch, C.) Charting cultural variation in chimpanzees. Behavior 138, 1489-1525.

2001 (with Constable, J., Ashley, M., & Pusey, A.) Noninvasive paternity assignment in Gombe chimpanzees. Molecular. Ecology, 10:1279-1300.

2001 (with Hill, K., Goodall, J, Pusey, A., Williams, J., Boesch, C., Boesch, H., & Wrangham, R.W.) Chimpanzee mortality in the wild. Journal of Human Evolution. 40:437-450.

2002 (with RW Wrangham and D Pilbeam). Apes as time machines. In BMF Galdikas, N Briggs, LK Sheeran, GL Shapiro, and J Goodall eds, All Apes Great and Small Volume 1: Chimpanzees, Bonobos, and Gorillas. Plenum/Kluwer Publication

2002 (with Anne Pusey, Shadrack Kamenya, Anthony Collins, Richard Wrangham, Beatrice H. Hahn et. al.) SIV cpz in Wild Chimpanzees. Science.

2002 (with Lonsdorf, E. V.) Cultures in chimpanzees. Encyclopedia of Evolution. Oxford UK, Oxford University Press.

2002 (with Santiago, M.L. Rodenburg, C.M., Kamenya, S., Bibollet-Ruche, F., Gao,F., Bailes, E., Meth, S., Soong, S-J., Kilby, J.M., Moldoveanu, Z., Fahey, B., Muller, M.N., Ayouba, A., Nerrienet, E., McClure, H.M., Heeny, J.L., Pusey, A.E., Collins, D.A., Boesch, C., Wrangham, R.W. Goodall, J. Sharp, P.M., Shaw, G.M. & Hahn, B.H.) SIVcpz in wild chimpanzees. Science 295:465.

2002 (with Williams, J.M., Pusey, A.E., Carlis, J.V., & Farm, B.) Female competition and male territorial behaviour influence female chimpanzees' ranging patterns. Animal Behaviour. 63:347-360.

2003 (with Santiago, M.L., Bibollet-Ruche, F., Bailes, E., Kamenya, S., Muller, M.N., Lukasik, M., Pusey, A.E., Collins, D.A., Wrangham, R.W., Shaw, G.M., Sharp, P.M. & Hahn, B.) Amplification of a complete simian immunodeficiency virus genome from fecal RNA of a wild chimpanzee. Journal of Virology, 77:2233-2242.

2003 (with Santiago, M.L. Lukasik, M., Kamenya, S. Yingying, L., Bibollet-Ruche, F., Bailes, E., Muller, M.N., Emery, M., Goldenberg, D.A., Lwanga, J., Ayouba, A., Nerrienet, E., McClure, H.M., Heeney, J.L., Watts, D.P., Pusey, A.E., Collins, D.A., Wrangham, R.W., Brookfield, J.F.Y., Sharp, P.M., Shaw, G.M., & Hahn, B.H.) Endemic foci of simian immunodeficiency virus infection in wild-living eastern chimpanzees (Pan troglodytes schweinfurthii). Journal of Virology. 77: 7545-7562.

2003 Fifi fights back. National Geographic 203 (4): 76-89.

2004 (with Lodwick, J.L., Borries, C., Pusey, A.E., & McGrew, W.C.). From nest to nest -influence of ecology and reproduction on the active period of adult Gombe chimpanzees. American Journal of Primatology 64:249-260.

2005 (with Pusey, A.E., Oehlert, G.W, & Williams, J.M.). The influence of ecological and social factors on body mass of wild chimpanzees. International Journal of Primatology, 26: 3-31.

2006 (with Lonsdorf, E.V., Travis, D., & Pusey, A. E.). Using retrospective health data from the Gombe chimpanzee study to inform future monitoring efforts. American Journal of Primatology, 68: 897-908.

2007 (with M Emery Thompson, JH Jones, AE Pusey, S Brewer-Marsden, D Marsden, T Matsuzawa, T Nishida, V Reynolds, Y Sugiyama, RW Wrangham). Aging and fertility patterns in wild chimpanzees provide insights into the evolution of menopause.. Current biology: CB 17: 2150-6

2007 (with Pusey, A.E., Pintea, L, Wilson, M.W. & Kamenya, S.). The contribution of long-term research at Gombe National Park to chimpanzee conservation. Conservation Biology 21: 623-634.

2008 (with Ross, S.R., Lukas, K.E., Lonsdorf, K.V., Stoinski, T.S., Hare, B., Shumaker, R). Inappropriate Use and Portrayal of Chimpanzees. Science 319: 1487.

2008 (with Williams, J.M., Lonsdorf, E.V., Wilson, M.L., Schumacher-Stankey, J., Pusey, A. E.). Causes of death in the Kasekela chimpanzees of Gombe National Park, Tanzania. American Journal of Primatology. 70: 745-750.

2008 (with AE Pusey, CM Murray, W Wallauer, ML Wilson, & E Wroblewski). Severe Aggression among Female Pan troglodytes schweinfurthii at Gombe National Park, Tanzania. International Journal of Primatology 29: 949-973

2009 (with Keele, B.F, Jones, J.H. , Terio, K.A., Estes, J.D., Rudicell, R.S., Wilson, M.L., Li, Y., Learn, G.H., Beasley, T.M., Schumacher-Stankey, J., Wroblewski, E., Mosser, A., Raphael, J., Kamenya, S.,Lonsdorf, E.V., Travis, D.A., Mlengeya, T., Kinsel, M.J., Else, J.G., Silvestri, G., Sharp, P.M., Shaw, G.M., Pusey, A.E., Hahn, B.H.). Increased Mortality and AIDS-like Immunopathology in Wild Chimpanzees Infected with SIVcpz. Nature 460: 515-519.

2010 (with Rudicell, R. S., Jones, J.H., Wroblewski, E.E, Learn, G. H., Li, Y., Robertson, J., Greengrass, E., Grossmann, F., Kamenya, S., Pintea, L., Mjungu, D.C., Lonsdorf, E.V., Mosser, A., Lehman, C., Collins, D.A., Keele, B.F., Pusey, A.E., Hahn, B., Wilson, M.L.). Impact of Simian Immunodeficiency Virus Infection on chimpanzee population dynamics. PLoS Pathogens. 6(9): e1001116

2011 (with Lonsdorf, E.V., Murray, C.M., Travis, D.A, Gilby, I.C., Chosy, J., Pusey A.E.). A retrospective analysis of factors correlated to chimpanzee (*Pan troglodytes schweinfurthii*) respiratory health at Gombe National Park. Ecohealth. DOI: 10.1007/s10393-011-0683-0.

2012 (with Pintea L, Pusey AE, Wilson ML, Gilby IC, Collins DA, Kamenya S). Long-term changes in the ecological factors surrounding the chimpanzees of Gombe National Park.

2012 (with Degnan, P. H., Pusey, A.E., Lonsdorf, E.V., Wilson, M.L., Wroblewski, E.E., Rudicell, R., Hahn, B.H., & Ochman, H.). Factors responsible for the diversification of the gut microbial communities within chimpanzees from Gombe National Park. Proceedings of the National Academy of Arts and Sciences 109: 13034-13039.

2013 (with Gilby IC, Brent LJN, Wroblewski EE, Rudicell RS, Hahn BH, Pusey AE.). Fitness benefits of coalitionary aggression in male chimpanzees. Behavioral Ecology & Sociobiology 67: 373-381

2014 (with Stanton, M.A, Lonsdorf, E.V., Pusey, A.E.., Murray, C.M.). Maternal behavior by birth order in wild chimpanzees (*Pan troglodytes*): increased investment by first-time mothers. Current Anthropology 55: 483-489.

2014 (with Lonsdorf, E.V., Markham, A.C., Ciuk, D.J., Heintz, M.R., Anderson, K.E., Murrary, C.M.) Sex Differences in Wild Chimpanzee Behavior Emerge during Infancy. PLoS ONE 9(6): e99099.

2014 (with Lonsdorf, E.V., K.E. Anderson, M.A. Stanton, M.Shender, M.R. Heintz, and C.M. Murray. "Boys will be boys: Sex differences in wild infant chimpanzee social interactions," *Animal Behaviour* 88: 79-83.

2014 Murray, C.M., Lonsdorf, E. V., Stanton, M. A., Wellens, K. R., Miller, J. A., Goodall, J., Pusey, A. E. 2014. Early Social Exposure in Wild Chimpanzees: Mothers with Sons are More Gregarious than Mothers with Daughters. *Proceedings of the National Academy of Sciences*, 111 (51) 18106-18107. www.pnas.org/cgi/doi/10.1073/pnas.1409507111

2015 Goodall, J., Pusey, A. E. 2015. The Flo family. In: *The Encyclopedia of Human Sexuality* (Eds. P Whelehan and A Bolin). Wiley-Blackwell Reference.

ANNEX B

Declaration of Dereck Joubert

Botswana)
)
Okavango)

I, Dereck Joubert, hereby declare as follows:

1. I reside at Duba Plains camp, in the Okavango Delta in Botswana.

2. After my studies at University of Witwatersrand in Johannesburg, South Africa, I started work at the Chobe Lion Research Institute in Botswana researching and, later, filming big cats, for the major broadcasters of the world (e.g., BBC, National Geographic).

3. During our 30 years with the National Geographic Society so far, my wife Beverly and I have made over 25 films for National Geographic that have garnered 9 Emmy Awards, a Peabody award, and other international recognition. I have also published 11 books, multiple scientific papers, and dozens of articles for National Geographic Magazine and other publications, focusing on the plight of wildlife in southern Africa.

4. In 2006 Beverly and I were awarded the status of National Geographic Explorers in Residence, two of only 10 people that carry that title around the world.

5. In 2009, we founded the Big Cats Initiative, a National Geographic program dedicated to the preservation of big cats (including leopards, lions, tigers, jaguars, and cheetahs) through education, conservation projects, and a worldwide awareness campaign. To date, the Big Cats Initiative has funded over 90 grants across more than 27 countries. Further, the Big Cats Initiative has supported research, including the most recent and most comprehensive study of leopard populations across their range.

6. In 2011, I received a Presidential Order of Meritorious Service by the President of Botswana for my conservation efforts in Botswana. I am currently a member of the International Union for Conservation of Nature (IUCN) African Lion Working Group.

7. I am also the founder and CEO of Great Plains Conservation, a company that manages approximately 1,800,000 acres of land in Botswana and Kenya for conservation purposes. Through this effort I have converted large tracts of land that were formerly open to hunting to wildlife preserves that benefit surrounding communities and provide opportunities for low-impact eco-tourism. For example, the Selinda Reserve is a 350,000 acre private wildlife sanctuary in the northern part of Botswana that provides habitat for leopards and dozens of other species. Through this effort we increased the economic benefit to the nation of Botswana from that concession by 2,500% by switching from hunting to photographic tourism. I also sit on the board of The Big Life Foundation in Kenya.

7. I have made four films about leopards: “Eye of the Leopard,” “The Unlikely Leopard,” “Living with Big Cats “ and “Big Cat Odyssey” all of which required Beverly and I to follow individual leopards on a daily basis for multiple years to capture natural leopard behavior. For example, for “Eye of the Leopard,” from 2003-2007 Beverly and I following a leopard cub – named Legadema – from eight days of age, a journey that exposed us to the often

mysterious lives of leopards and gave us an insight into just how fragile and complex their societies are. Making these films – which involves hundreds of hours in the field, tracking leopards, highlighted the need to engage in policy decisions to protect the world's remaining big cats.

8. Based on my substantial experience in field biology and wildlife filmmaking, it is my expert opinion that leopards are in danger of extinction across their African and Asian range, and that governments must take all actions within their authority to promote the conservation of this species before it disappears.

9. Because of the secretive and solitary nature of leopards, it is exceedingly difficult get an accurate census of leopards across the species' African range. There were estimates of about 700,000 leopards in Africa in the 1980s, but the most recent science states that such estimates were flawed. There is no reason to believe that the population trend for leopards is significantly different to those of other big cats in Africa, all of which indicate a 95% decline over the past 50 years. Our own findings coincide with that hypothesis and in many areas I have surveyed, in particular where there is hunting, leopard have declined significantly. Territories have been disrupted and breeding has been suppressed. It is unlikely that there are more than 50,000 leopards in Africa today. Indeed, based on my experience over the last 30 years working with leopards, the population has significantly decreased in that time. For example, in the Selinda and Kwando areas of Botswana where we estimated a home range of 12 sq km per leopard and studied 26 females, once trophy hunting increased, we reached a point where we saw no leopards in 5 years and heard none either. Overhunting is a huge threat to this species.

10. Leopards are severely impacted by habitat loss and human encroachment, with the most recent data revealing that the African leopard has lost 48-67% of its historical range. I have actively worked to reduce those threats through protecting leopard habitat, educating surrounding communities on how to peacefully coexist with these predators, and implementing a program to reimburse local people for any loss of livestock caused by leopards, via our foundations and initiative (Great Plains Foundation, Big Cats Initiative and The Big Life Foundation.) However, the habitat loss is often linked to over population of humans and a task best tackled at a different level of policy and leadership discussion. Hunting, however, is something we can actually do something about with rational legislation today.

11. Despite their imperiled status, leopards continue to be targeted by trophy hunters, most of whom are American. I estimated that in the five years I followed Legadema, 10,000 leopards were legally shot by trophy hunters, (according to issued CITES permits) in addition to the immense amount of leopard poaching during the same period. The African leopard simply cannot sustain losses of thousands or even hundreds of individuals per year – at this rate the subspecies could go to the very edge of extinction in 10-15 years.

12. In my expert opinion, trophy hunting is a dire threat to the continued survival of the African leopard. My own observations across six hunting concessions in Botswana are consistent with this observation. Scientific papers (Palazy et al) on the relationship between lions and trophy hunters are also indicative of that basic fact that trophy hunting is the direct cause of cat population declines wherever it is carried out.

13. In addition, the activity undermines conservation, fuels corruption at the local levels in particular and often higher up, and causes the loss of the healthiest animals in the populations, animals that are key for reproduction and social cohesion of those species. Leopards are no exception. A single young male has enormous obstacles to overcome to survive on his own, to learn how to hunt, to fight for territory and to earn the status to breed. But it is exactly these qualities that trophy hunting targets the young male for, and selects the finest breeders, and carriers of the best genetic qualities for the survival of the species. This selection process often condemns them to death before they can breed. In addition, the cubs of prime breeding males that are shot are left unprotected and vulnerable to incoming territorial males, whose first order of business is to kill cubs from other males. Each leopard that is shot as a trophy cannot be considered in isolation but as just the tip of the iceberg in a trickle down effect of destruction to the family and society of leopards he influences.

14. Hunting is often cited as being a deterrent to poaching, but it was clearly demonstrated in Botswana, that the presence and occurrence of gunshots by legal hunters in an area only served to confuse anti poaching forces in their efforts to detect illegal hunters (poachers.) Once trophy hunting was stopped the wildlife authorities and the military (carrying out anti-poaching duties) were significantly more effective in finding and stopping poachers, to the degree where poaching in the border sections of Botswana went from 'rampant' to 'zero' over a six year period.

15. As a revenue resource, not only has hunting been shown to contribute less than 0.27% to the GDP's of African countries that still allow hunting today, it cannot co-exist with tourism for obvious reasons, so it actually erodes the potential for an alternative land use. The replacement of hunting, in particular of big cats, with tourism, however, is a very viable way to use the land more kindly. For example, before I acquired the Selinda concession in Botswana it was used almost exclusively for trophy hunting. On the first day of purchase I stopped all the hunting. Since then I have seen a steady regrowth and benefit to the wildlife, both in terms of population recovery, and of course the attitude of wildlife towards humans (tourists). We have no attacks, no charges, animals don't run in fear that we have been able to create a facility that is wild again but that allows people from around the world to see wildlife and become engaged with the life changing experiences that a safari in Africa can offer. We converted the concession into a Reserve and it now employs 20 times the number of local staff, pays taxes, and delivers a benefit to the nation of over 2,500% more that it was doing under the hunting regime, while providing food on a daily basis to many thousands of dependents of people we employ.

16. Claims that trophy hunting promotes conservation through financial contributions are not supported, nor are the claims that hunting is the only land use that creates value in marginal wildlife areas. The Selinda Reserve is a classic example of what was once considered a marginal piece of land. The value of these animals is a combination of "intangible" and "real." Who can quantify the impact on a young person, of seeing their first leopard in a tree in the wild, or the disappearance of any knowledge of a leopard to the Ingwe people of the Zulu nation, who take the leopard as their spiritual totem? For tourism, however, it is tangible. For example, I did a survey in Savuti in Botswana to calculate the value of one male lion trophy versus the value of that male lion as a living eco-tourism asset. At the time (in1995), the value of the dead lion was US$15,000, whereas its value alive was approximately US$2,000,000. A male leopard that may live 12 years in the wild is

an enduring revenue stream, a single hunt of that leopard ends, not just its genetic lineage, but its earnings potential for conservation, forever. Most trophy hunting operations, are owned by foreign interests and do not share money with local communities. Responsible eco-tourism – like that operated by Great Plains Conservation – shares the benefit with governments and local communities. For example, most hunting concessions can only service 12-15 hunters per year, whereas an eco-tourism operated concessions can service thousands with much less of an ecological impact. In each of our concessions we pay over more than US$30,000 per year in leases and benefits.

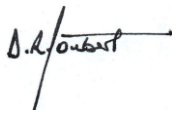
17. Because of our income from tourism and because of our influence on our guests, many of whom come specifically to see leopards, we have been able to solicit support in being able to rescue and move 100 rhinos from the highest poaching areas in South Africa to the protection in Botswana. This is an added and often hidden benefit of protecting the iconic cats of Africa: the extended holistic conservation ethic born from protection rather than selfish eradication.

18. Trophy hunting is little more than a bloodlust and thrill of killing and has no longer any place in sound wildlife management, especially in association with declining and threatened species. Studies also show that we cannot rely on the hunting fraternity to make wise conservation decisions around threatened species and that, in fact, as species decline and become more threatened or even endangered, they become even more valuable and desired by hunters. We have to ask if we want to project to the next generation that the best way for us to interact with nature is via violent actions like this and if that will lead to more or less harmony in an already troubled world.

19. The effort to protect leopards from extinction is vital – we no longer have the luxury of time to use or abuse these big cats for our own desires. Poaching of leopards – primarily for the fur trade – continues at unsustainable rates, and the African leopard is under immense threats from habitat loss and human conflict. To allow the trophy hunting of leopards for recreational purposes to continue unchecked is scientifically and ethically unjustified.

20. In my opinion, leopards across their African range are in danger of extinction and the U.S. Fish and Wildlife Service should strictly regulate the import of hunting trophies and other leopard parts in order to not continue to contribute to the decline of this endangered species.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is, in my professional opinion, true and correct.



Dereck Joubert

Executed on 1st day of July, 2016.

ANNEX C

CITES Establishment of Leopard Export Quotas 1987-2013

Resolution Conf. 5.13 a) recommends that the following states export not more than the indicated number of leopard skins in any one calendar year:

State	Quota
Botswana	80
Kenya	80
Malawi	20
Mozambique	60
United Republic of Tanzania	250
Zambia	300
Zimbabwe	350

Source: https://cites.org/sites/default/files/eng/cop/06/doc/E06-27.pdf, 1987.

Resolution Conf. 6.9, paragraph a), recommends that the following states export not more than the indicated number of leopard skins in any one calendar year:

State	Quota
Botswana	80
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	20
Mozambique	60
United Republic of Tanzania	250
Zambia	300
Zimbabwe	500

Source: https://cites.org/sites/default/files/eng/cop/07/doc/E07-27.pdf, 1989.

Resolution Conf. 7.7, paragraph a), recommends that the following states export not more than the indicated number of leopard skins in any one calendar year:

State	Quota
Botswana	100
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	20
Mozambique	60
South Africa	50
United Republic of Tanzania	250
Zambia	300
Zimbabwe	500

Source: https://cites.org/sites/default/files/eng/cop/08/doc/E-20.pdf, 1992.

STATE	QUOTA
Botswana	100
* Central African Republic	40
* Ethiopia	500
* Kenya	80
Malawi	50
Namibia	100
* Mozambique	60
* South Africa	50
United Republic of Tanzania	250
Zambia	300
Zimbabwe	500

Source: Proposal by Botswana, Malawi, Namibia, Zambia and Zimbabwe to transfer *Panthera pardus* from CITES Appendix I to Appendix II and to establish export quotas for eleven countries https://cites.org/sites/default/files/eng/cop/08/prop/E08-Prop-EQ1_to_EQ5_Panthera.PDF, 1992. The proposal was rejected by vote but the quotas approved.[1]

State	Quota
Botswana	100
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	50
Mozambique	60
Namibia	100
South Africa	75
United Republic of Tanzania	250
Zambia	300
Zimbabwe	500

Source: In session document, https://cites.org/sites/default/files/eng/cop/08/E-In-session.pdf, 1992.

The delegation of Botswana stated that in February 1994 they had submitted a special report to the Secretariat requesting an increase in their annual quota from 100 to 130 for the period 1995-1997. The Secretariat acknowledged receipt of the report and agreed that the increase in quota was justified but needed the approval of the Parties.

Source: https://cites.org/sites/default/files/eng/cop/09/E9-ComI.pdf, 1994.

Reported Exports of Leopard (*Panthera pardus*) Hunting Trophies and Skins

Country	1994			1995			1996	
	Quota	Special reports (exports)	Annual reports (exports)	Quota	Special reports (exports)	Annual reports (exports)	Quota	Special reports (exports)
Botswana	100	41	42 (42)	130	68	25 (25)	130	32
Central African Republic	40	19	19 (19)	40	8	7 (13)	40	n.a.
Ethiopia	500	2	1 (1)	500	0	0 (0)	500	2
Kenya	80	0	2 / (2)	80	0	0 (1)	80	0
Malawi	20	6	6 / (6)	50	8	/ (7)	50	1
Mozambique	60	15	4 (4)	60	23	14 (9)	60	18
Namibia	100	49	/ (47)	100	30	/ (36)	100	21
South Africa	50	28	/ (116)	75	55	n.a.	75	31
United Republic of Tanzania	250	185	275 (270)	250	175	223 (231)	250	250
Zambia	300	44	43	300	38	38	300	47
Zimbabwe	500	382	/ (142)	500	311	n.a.	500	n.a.

n.a. means the report in question was not submitted
( ) figures in brackets are from the CITES annual reports database maintained by WCMC

Source: https://cites.org/sites/default/files/eng/cop/10/doc/E10-41to43.pdf, 1997

[1] https://cites.org/sites/default/files/eng/cop/08/E-Com-I.pdf

Reported exports of leopard (*Panthera pardus*) whole skins and nearly whole skins

Party [quota]	1999	2000	2001
Botswana [130]	115	124	54
Central African Republic [40]	11	22	26
Ethiopia [500]	0	0	0
Kenya [80]	1	0	0
Malawi [50]	0	no report	no report
Mozambique [60]	42	51	26
Namibia [100]	45	61	55
South Africa [75]	15	37	35
United Republic of Tanzania [250]	259 *(includes 23 specimens collected in previous years)*	248	260 *(includes 16 specimens collected in previous years)*
Zambia [300]	76	55	10
Zimbabwe [500]	131	185	275

Source: https://cites.org/sites/default/files/eng/cop/12/doc/E12-23-1-1.pdf, 2002.

State	Quota
Botswana	130
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	50
Mozambique	120
Namibia	250
South Africa	150
Uganda	28
United Republic of Tanzania	500
Zambia	300
Zimbabwe	500

Source: https://cites.org/sites/default/files/eng/cop/16/doc/E-CoP16-52.pdf

State	Quota
Botswana	130
Central African Republic	40
Ethiopia	500
Kenya	80
Malawi	50
Mozambique	120
Namibia	250
South Africa	150
Uganda	28
United Republic of Tanzania	500
Zambia	300
Zimbabwe	500

Source: Resolution Conf. 10.14 (Rev. CoP16), https://cites.org/eng/res/10/10-14R16.php

ANNEX D

Information from the CITES Trade Database

Table 1: International trade in leopards and their parts for all sources and all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
bodies	7	0	9	10	22	19	24	24	9	11	135
bone pieces	0	0	0	2	0	0	0	0	0	0	2
bones	0	1	2	299	8	12	41	16	13	13	405
carvings	1	1	1	0	4	1	1	3	1	0	13
claws	0	70	20	3	64	18	65	72	68	1	381
cloth	0	0	0	0	0	0	0	1	0	0	1
derivatives	3,470	1,770	3,146	1,722	1,593	821	1,442	2	1	1	13,968
feet	0	2	0	29	0	0	0	4	0	0	35
garments	2	2	2	1	6	6	0	5	5	2	31
hair	0	6	0	10	209	0	2	2	8	1	238
hair products	0	0	0	0	0	0	0	1	0	0	1
leather products (L)	0	8	0	0	2	1	0	1	0	0	12
leather products (S)	3	2	4	2	3	6	2	3	262	0	287
live	37	44	45	42	48	75	79	68	68	44	550
medicine	0	0	0	0	0	0	0	383	56	99	538
plates	2	0	0	2	0	0	0	0	0	0	4
shoes	0	0	4	0	0	0	0	0	0	0	4
skeletons	1	0	0	0	0	0	1	0	0	0	2
skin pieces	9	1	1	65	10	2	2	17	8	4	119
skins	72	162	61	74	233	234	353	466	228	45	1,928
skulls	26	132	17	48	238	277	437	479	277	114	2,045
specimens	132	108	119	262	361	445	324	1,421	143	1,037	4,352
tails	0	0	0	0	0	2	0	0	0	10	12
teeth	31	4	9	2	1	40	31	4	13	11	146
trophies	1,229	1,126	1,060	1,279	1,400	990	769	985	722	651	10,211
unspecified	1	0	0	0	0	0	0	0	0	0	1
Grand Total:	5,023	3,439	4,500	3,852	4,202	2,949	3,573	3,957	1,882	2,044	35,421

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, all purposes, on 04/04/2016.

Table 2: International trade in wild source leopards and their parts for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	6	0	7	10	21	19	19	20	9	10	121
bones	0	1	0	259	6	12	41	16	13	13	361
carvings	0	0	0	0	0	0	0	0	1	0	1
claws	0	66	18	0	62	12	63	72	67	0	360
derivatives	521	246	154	4	20	20	50	0	0	0	1015
feet	0	2	0	0	0	0	0	4	0	0	6
garments	0	0	0	0	0	1	0	1	0	1	3
hair	0	6	0	10	209	0	0	2	7	1	235
leather	0	0	0	0	1	0	0	0	0	0	1

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
products (large)											
leather products (small)	0	0	0	0	1	0	0	0	0	0	1
live	5	5	5	2	7	2	13	11	9	2	61
plates	1	0	0	2	0	0	0	0	0	0	3
shoes	0	0	2	0	0	0	0	0	0	0	2
skeletons	1	0	0	0	0	0	1	0	0	0	2
skin pieces	4	0	0	2	4	1	1	12	1	3	28
skins	46	148	36	46	210	222	345	442	214	34	1743
skulls	25	128	16	47	235	270	437	477	276	112	2023
specimens	132	108	119	257	18	442	291	1419	106	905	3797
tails	0	0	0	0	0	1	0	0	0	10	11
teeth	31	4	8	0	0	18	27	4	4	4	100
trophies	1211	1098	1041	1255	1387	977	748	968	706	643	10034
unspecified	1	0	0	0	0	0	0	0	0	0	1
Grand Total	1984	1812	1406	1894	2181	1997	2036	3448	1413	1738	19909

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, wild sources, all purposes, on 03/23/2016.

Table 3. Imports of wild source leopards and their parts for all purposes, by country.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
leather products (small)		AE	0	0	0	0	0	1	0	0	0	0	
live		AE	0	2	0	0	0	0	0	0	0	0	
skins		AE	0	1	1	0	0	0	1	5	0	0	
skulls		AE	0	0	0	0	0	0	3	0	0	1	
trophies		AE	4	6	6	2	1	4	7	1	3	1	
skins		AR	0	0	0	0	0	1	0	3	1	0	
skulls		AR	0	0	0	0	0	1	0	4	4	1	
trophies		AR	1	4	7	1	8	2	4	10	5	4	
bodies		AT	0	0	0	0	0	1	0	0	0	0	
skins		AT	7	14	15	0	3	4	4	3	4	0	
skulls		AT	6	0	11	0	3	4	3	3	3	0	
teeth		AT	0	0	8	0	0	0	0	0	0	0	
trophies		AT	17	27	15	22	21	11	12	18	15	14	
trophies		AT	0	0	0	0	0	0	1	0	0	0	
hair		AU	0	0	0	0	0	0	0	2	0	0	
leather products (small)		AU	0	1	0	0	0	0	0	0	0	0	
skins		AU	1	9	1	0	1	5	2	1	0	0	
skulls		AU	0	0	0	0	0	4	2	1	0	0	
trophies		AU	0	4	0	2	1	0	1	2	0	1	
skins		BE	0	0	0	0	3	1	0	1	0	0	
skulls		BE	0	0	0	0	2	3	0	1	0	0	
trophies		BE	11	6	11	10	10	11	4	4	2	1	
skins		BG	0	1	0	0	0	1	0	1	0	0	
skulls		BG	0	0	0	0	0	2	0	1	0	0	
trophies		BG	4	6	7	3	1	5	3	6	1	2	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
trophies		BH	0	1	0	0	0	0	0	0	0	0	
feet		BR	0	2	0	0	0	0	0	0	0	0	
skins		BR	0	3	0	0	1	0	0	0	0	0	
skulls		BR	0	0	0	0	1	1	0	0	0	0	
teeth		BR	0	4	0	0	0	0	0	0	0	0	
trophies		BR	1	1	0	1	1	1	0	0	0	4	
skulls		BS	0	0	0	0	2	0	0	0	0	0	
trophies		BS	0	1	0	1	1	0	0	0	0	0	
skins		BW	0	0	0	0	0	0	1	2	1	0	
skulls		BW	0	0	0	0	0	0	1	2	5	0	
trophies		BW	1	0	0	0	0	0	0	0	5	0	
bodies		CA	0	0	0	7	9	0	6	4	1	5	
bones		CA	0	1	0	2	2	0	2	0	0	0	
skin pieces		CA	0	0	0	0	0	0	1	0	0	0	
skins		CA	15	24	0	18	33	10	10	12	3	3	
skulls		CA	8	19	0	30	39	12	15	11	4	5	
skulls		CA	0	0	0	0	1	0	0	0	0	0	
trophies		CA	19	17	3	15	17	22	9	11	10	15	
CA total			42	61	3	72	101	44	43	38	18	28	450
skins		CG	0	0	0	0	0	0	0	0	0	2	
bodies		CH	2	0	0	0	0	0	0	0	0	1	
claws		CH	0	0	0	0	0	0	18	0	0	0	
hair		CH	0	6	0	0	0	0	0	0	0	0	
skins		CH	1	0	2	1	2	1	4	4	1	0	
skulls		CH	1	0	0	1	3	1	4	4	1	0	
specimens	ml	CH	0	5	0	0	0	0	0	0	0	0	
specimens		CH	0	100	46	25	0	0	0	27	6	3	
teeth		CH	0	0	0	0	0	0	0	4	4	0	
trophies		CH	10	2	10	4	6	0	21	3	7	5	
skulls		CL	0	0	0	0	0	1	0	0	0	0	
trophies		CL	4	0	1	1	0	1	0	0	3	0	
bodies		CN	1	0	1	0	0	1	2	2	1	0	
skins		CN	0	0	0	1	0	0	0	2	0	0	
skulls		CN	1	0	0	0	0	0	0	0	0	0	
specimens	g	CN	0	0	0	0	0	0	0	0	0	36	
specimens		CN	5	0	0	1	1	5	0	0	0	1	
trophies		CN	3	1	1	2	1	6	0	2	2	0	
skulls		CO	0	0	0	0	1	1	0	1	0	0	
trophies		CO	0	1	0	0	1	5	0	1	0	1	
skins		CR	1	0	0	0	0	0	0	0	0	0	
trophies		CR	1	3	0	2	0	0	1	1	0	0	
trophies		CS	1	0	0	1	0	0	0	0	0	0	
live		CU	0	0	0	0	0	0	0	6	6	0	
bodies		CZ	0	0	0	0	0	0	1	1	0	0	
skins		CZ	0	0	0	0	0	1	4	3	4	0	
skulls		CZ	0	0	0	0	0	1	4	3	4	0	
trophies		CZ	9	7	2	5	4	4	7	7	7	3	
bodies		DE	0	0	0	1	0	1	0	0	0	0	2
bones		DE	0	0	0	257	2	0	0	2	0	3	
claws		DE	0	0	0	0	18	0	0	0	0	0	
skin pieces		DE	0	0	0	0	2	0	0	0	0	0	
skins		DE	1	0	7	0	5	3	14	15	8	0	53

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skulls		DE	0	0	0	0	5	1	13	19	8	0	
specimens	ml	DE	0	0	0	0	0	0	0	60	0	0	
specimens		DE	126	0	53	44	1	100	5	1233	0	901	
teeth		DE	31	0	0	0	0	0	0	0	0	0	
trophies		DE	66	65	42	38	67	37	32	51	38	36	472
DE Total			224	65	102	340	100	142	64	1380	54	940	3411
bodies		DK	0	0	0	0	0	1	2	1	2	0	
bones		DK	0	0	0	0	0	2	4	0	0	0	
derivatives		DK	10	0	0	0	0	0	0	0	0	0	
skins		DK	0	0	0	2	0	2	5	1	2	1	
skulls		DK	0	1	0	1	2	4	8	1	2	2	
teeth		DK	0	0	0	0	0	0	27	0	0	0	
trophies		DK	7	10	11	11	24	23	45	6	3	6	
trophies		EC	0	0	2	0	0	0	1	0	0	0	
skins		EE	0	1	0	0	0	0	0	0	0	0	
skulls		EE	0	1	0	0	0	0	0	0	0	0	
trophies		EE	1	1	0	1	0	0	0	0	1	1	
trophies		EG	0	1	0	0	0	0	0	0	0	0	
bodies		ES	0	0	0	0	0	2	0	1	0	0	3
skeletons		ES	0	0	0	0	0	0	1	0	0	0	3
skins		ES	0	3	0	0	19	27	32	12	7	1	6
skulls		ES	0	4	1	0	20	28	38	14	8	3	
trophies		ES	90	91	100	76	72	54	40	29	28	22	602
ES Total			90	98	101	76	111	111	111	56	43	26	823
skins		FI	0	0	0	0	0	0	2	1	0	0	
skulls		FI	0	0	0	0	0	1	3	1	1	0	
trophies		FI	6	5	3	3	24	6	5	5	2	5	
bodies		FR	0	0	0	0	3	0	0	0	0	0	3
carvings		FR	0	0	0	0	0	0	0	0	0.33	0	0
hair	kg	FR	0.486	0	0	0	0	0	0	0	0	0	0
skeletons		FR	1	0	0	0	0	0	0	0	0	0	1
skins		FR	4	1	1	0	29	26	19	23	11	3	117
skulls		FR	1	1	0	0	30	29	18	26	17	9	131
tails		FR	0	0	0	0	0	1	0	0	0	0	1
teeth	g	FR	65	0	0	0	0	0	0	0	0	0	0
trophies	kg	FR	0	0	4	0	0	0	0	0	0	0	0
trophies		FR	191	73	64	186	110	97	43	91	45	35	935
FR Total													1188
bodies		GB	0	0	0	0	4	3	1	2	4	0	
claws		GB	0	0	0	0	0	0	0	0	5	0	
derivatives		GB	0	0	0	0	0	0	50	0	0	0	
garments		GB	0	0	0	0	0	0	0	1	0	0	
hair		GB	0	0	0	0	209	0	0	0	0	0	
skin pieces		GB	0	0	0	0	0	0	0	5	0	0	
skins		GB	0	3	0	8	9	4	9	5	5	0	
skulls		GB	0	2	0	3	8	7	9	9	4	1	
specimens		GB	0	8	0	0	0	0	0	4	1	0	
trophies		GB	6	6	7	12	6	6	4	7	3	7	
live		GM	0	0	0	2	0	0	0	0	0	0	
bodies		HK	0	0	1	0	0	0	0	0	0	0	
leather products (small)		HK	0	0	0	0	1	0	0	0	0	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skins		HK	0	0	0	0	1	0	0	0	0	0	
skulls		HK	0	0	0	0	1	0	0	0	0	0	
skins		HN	0	0	0	0	0	0	0	0	1	0	
skulls		HN	0	0	0	0	0	0	0	0	1	0	
trophies		HR	6	3	3	3	4	1	1	0	0	1	
skins		HU	0	0	0	0	8	0	3	2	5	0	
skulls		HU	0	0	0	0	8	0	3	2	5	1	
trophies		HU	0	0	6	11	21	11	12	16	13	11	
trophies		ID	0	0	0	0	0	0	0	0	0	1	
trophies		IE	1	0	3	0	0	0	0	0	0	0	
specimens	ml	IL	0	0	0	0	0	0	0	0	1.5	0	
specimens		IL	0	0	0	0	0	0	0	1	0	0	
bodies		IS	0	0	1	0	0	0	0	0	0	0	
skins		IS	0	0	0	0	0	0	0	0	3	1	
skulls		IS	0	0	0	0	0	0	0	0	3	1	
trophies		IS	0	0	0	1	2	0	1	1	1	0	
bodies		IT	0	0	0	0	0	1	0	0	0	0	
bones		IT	0	0	0	0	0	2	0	0	0	0	
skins	kg	IT	0	0	0	0	0	0	1	0	0	0	
skins		IT	0	0	0	0	5	5	4	3	2	0	
skulls	kg	IT	0	0	0	0	0	0	1	0	0	0	
skulls		IT	0	0	0	0	6	6	10	5	7	1	
trophies		IT	20	12	15	18	23	18	22	19	15	7	
skins		JM	0	0	0	0	0	0	2	0	0	0	
skulls		JM	0	0	0	0	0	0	2	0	0	0	
trophies		JM	1	0	1	0	0	0	0	0	0	0	
live		JO	0	0	0	0	1	0	0	0	0	0	
skins		JO	0	0	0	0	1	0	0	0	0	0	
hair	kg	JP	0	0	0	0.2	0	0	0	0	0	0	
specimens	g	JP	0	300	0	0	0	0	0	0	0	0	
specimens	kg	JP	0	0.3	0	0	0	15	0	0	0	0	
specimens		JP	0	0	20	0	0	0	0	0	0	0	
skins		KE	0	0	0	0	0	0	1	0	0	0	
specimens		KE	0	0	0	0	0	0	0	1	0	0	
bodies		KR	3	0	0	0	0	0	1	0	0	0	
live		KR	0	0	0	0	2	0	0	0	0	0	
bodies		KW	0	0	0	0	1	0	0	0	0	0	
specimens		KW	1	0	0	0	0	0	0	0	0	0	
trophies		KW	0	0	2	1	0	0	0	0	0	0	
live		KZ	0	0	0	0	0	0	1	1	0	0	
bodies		LB	0	0	1	0	0	0	0	1	0	0	
skins		LB	0	0	0	0	1	0	0	0	0	0	
skulls		LB	0	0	0	0	0	2	0	1	0	0	
trophies		LB	1	0	1	2	1	2	4	0	1	0	
trophies		LI	1	0	0	0	0	0	0	0	0	0	
skins		LK	0	0	0	0	2	0	0	0	0	0	
skins		LT	0	0	0	0	0	0	0	1	1	0	
skulls		LT	0	0	0	0	0	0	0	1	1	0	
trophies		LT	1	1	2	2	5	3	0	2	2	4	
skins		LU	0	0	0	0	0	0	1	0	0	0	
skulls		LU	0	0	0	0	0	0	2	0	0	0	
trophies		LU	2	1	6	4	0	4	4	0	1	3	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
derivatives		LV	0	0	0	0	0	2	0	0	0	0	
trophies		LV	2	4	3	4	2	1	0	1	3	3	
leather products (small)		LY	0	0	1	0	1	1	0	0	0	0	
skins		LY	0	0	1	0	1	0	0	0	0	0	
bodies		MA	0	0	0	0	0	0	1	0	0	0	
skins		MA	0	0	0	0	0	0	3	0	0	0	
skulls		MA	0	0	0	0	0	0	2	0	0	0	
trophies		MA	0	2	0	1	1	1	2	0	0	1	
trophies		MC	0	0	0	0	0	0	0	0	0	1	
skins		MG	0	0	0	0	0	0	0	1	0	0	
skulls		MG	0	0	0	0	0	0	1	1	0	0	
trophies		MG	0	0	0	0	0	0	1	0	0	0	
skulls		MU	0	0	0	0	0	0	0	1	0	0	
trophies		MU	0	0	0	0	0	0	0	1	0	0	
live		MW	0	0	0	0	0	0	6	2	0	0	
bodies		MX	0	0	0	0	1	0	0	0	0	0	
bones		MX	0	0	0	0	0	2	2	1	0	0	
claws		MX	0	0	0	0	0	0	0	18	18	0	
derivatives		MX	0	0	0	0	0	2	0	0	0	0	
skins		MX	0	0	0	0	3	4	3	4	5	1	
skulls		MX	0	2	0	0	3	5	11	4	4	2	
trophies		MX	40	68	54	64	50	47	38	49	33	31	
trophies		MX	0	0	0	0	0	0	1	0	0	0	
MX Total			40	70	54	64	57	60	55	76	60	34	570
skins		MZ	0	0	1	0	1	0	1	0	0	0	
skulls		MZ	0	0	0	0	0	0	1	0	0	2	
trophies		MZ	0	0	0	0	0	2	0	1	0	0	
bodies		NA	0	0	0	1	0	0	0	0	0	0	
skins		NA	0	0	0	0	0	0	2	2	0	0	
skulls		NA	0	1	0	0	0	0	2	2	0	0	
trophies		NA	3	5	0	2	1	1	1	1	1	0	
skins		NC	1	0	0	0	0	0	0	0	0	0	
trophies		NC	0	0	0	0	0	1	0	0	0	1	
bodies		NG	0	0	0	0	0	0	2	0	0	0	
skins		NG	0	0	0	0	0	0	0	6	0	0	
skulls		NG	0	0	0	0	0	0	2	0	0	0	
trophies		NG	0	0	0	0	0	0	0	4	0	0	
live		NI	0	0	0	0	0	0	1	0	0	0	
trophies		NI	0	0	0	0	0	0	0	1	0	0	
bodies		NL	0	0	0	0	0	1	0	0	0	0	
hair		NL	0	0	0	10	0	0	0	0	0	0	
skins		NL	3	0	0	0	1	0	2	1	0	0	
skulls		NL	0	0	0	1	2	0	2	0	0	0	
trophies		NL	2	1	0	0	3	2	0	0	0	2	
bodies		NO	0	0	0	0	0	0	0	0	0	3	
skins		NO	0	0	0	0	1	2	2	1	0	1	
skulls		NO	0	0	0	1	2	3	4	1	0	3	
specimens		NO	0	0	0	0	0	0	0	1	0	0	
trophies		NO	2	5	2	7	5	6	6	3	3	3	
trophies		NP	0	0	1	0	0	0	0	0	0	0	
bodies		NZ	0	0	0	0	2	0	0	1	0	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
hair		NZ	0	0	0	0	0	0	0	0	0	1	
skin pieces		NZ	0	0	0	0	0	0	0	1	0	0	
skins		NZ	1	2	0	0	1	1	0	0	1	0	
skulls		NZ	0	0	0	0	2	1	1	2	1	0	
trophies		NZ	2	1	0	1	4	6	3	3	1	2	
skins		PA	0	0	0	0	0	0	0	0	2	0	
skulls		PA	0	0	0	0	0	0	0	1	3	0	
trophies		PA	0	0	0	0	0	1	0	1	1	0	
leather products (large)		PH	0	0	0	0	1	0	0	0	0	0	
skulls		PH	0	0	0	0	1	2	2	0	0	0	
trophies		PH	1	0	0	3	41	5	2	0	0	0	
live		PK	0	0	0	0	0	0	0	0	0	2	
skulls		PK	0	0	0	0	1	0	1	2	0	0	
trophies		PK	3	1	1	0	1	0	5	3	0	0	
trophies		PK	0	0	0	0	0	0	1	0	0	0	
bodies		PL	0	0	0	0	0	0	0	0	1	0	
skins		PL	0	0	0	0	2	0	1	2	0	0	
skulls		PL	0	0	0	0	2	0	1	1	0	0	
trophies		PL	5	10	8	8	8	6	8	6	6	6	
leather products (small)		PT	0	1	0	0	0	0	0	0	0	0	
skins		PT	0	0	0	0	0	1	5	5	2	0	
skulls		PT	0	0	0	0	3	6	10	7	2	0	
trophies		PT	18	12	12	7	16	6	9	5	2	1	
trophies		PY	0	0	0	0	0	0	0	0	0	3	
skulls		QA	0	0	0	0	0	0	0	2	2	4	
trophies		QA	2	0	0	0	0	2	3	4	3	0	
skins		RO	0	0	0	0	0	0	0	1	0	0	
skulls		RO	0	0	0	0	0	0	0	1	0	0	
trophies		RO	1	0	4	2	1	1	0	0	2	1	
trophies		RS	0	1	1	2	1	1	1	0	2	0	
bodies		RU	0	0	3	0	1	2	1	1	0	1	
live		RU	0	0	0	0	4	2	4	0	0	0	
skins		RU	0	0	0	0	7	6	8	7	2	1	
skulls		RU	0	0	0	0	6	5	11	6	2	7	
trophies		RU	15	8	18	36	40	35	29	43	21	36	
live		SA	1	0	0	0	0	0	0	0	3	0	
trophies		SA	0	0	4	0	1	0	0	0	0	0	
skins		SB	0	0	0	0	0	0	1	0	0	0	
skulls		SB	0	0	0	0	0	0	1	0	0	0	
skins		SD	0	0	0	0	0	0	0	0	1	0	
skulls		SD	0	0	0	0	0	0	0	0	1	0	
trophies		SD	0	0	0	0	0	0	0	0	0	2	
bodies		SE	0	0	0	0	0	0	0	1	0	0	
claws		SE	0	0	0	0	0	0	0	16	0	0	
skins		SE	0	0	0	0	0	4	1	6	2	0	
skulls		SE	0	0	0	0	0	2	3	6	4	1	
teeth		SE	0	0	0	0	0	18	0	0	0	0	
trophies		SE	2	7	9	5	29	7	3	8	12	3	
bones		SG	0	0	0	0	0	0	0	0	2	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skulls		SG	0	0	0	0	0	0	0	0	1	0	
trophies		SG	0	1	0	0	0	0	0	0	1	0	
trophies		SI	1	4	5	2	4	1	0	2	0	0	
bones		SK	0	0	0	0	0	0	0	0	0	1	
skins		SK	0	0	0	0	0	0	0	0	0	4	
skulls		SK	0	0	0	0	0	0	0	0	0	4	
trophies		SK	3	3	2	8	5	2	5	5	5	2	
trophies		SL	0	1	0	0	1	2	1	2	0	0	
live		SV	0	0	0	0	0	0	0	1	0	0	
trophies		SV	0	0	1	0	0	0	0	0	0	0	
live		SY	1	3	3	0	0	0	0	0	0	0	
skins		SY	0	1	0	0	0	0	0	0	0	0	
skins		SZ	0	2	4	4	0	0	0	0	0	0	
trophies		SZ	6	0	0	2	1	0	0	0	0	2	
live		TJ	2	0	0	0	0	0	0	0	0	0	
specimens		TN	0	0	0	1	0	0	0	0	0	0	
skins		TR	1	0	0	0	0	0	0	0	0	0	
trophies		TR	0	0	0	1	1	0	1	0	0	0	
skins		TW	0	0	0	0	0	0	1	0	0	0	
skins		TZ	0	0	0	0	0	1	1	0	0	0	
skulls		TZ	0	0	0	0	0	5	0	0	0	0	
trophies		TZ	1	1	1	1	1	5	0	0	0	0	
bodies		UA	0	0	0	1	0	0	0	0	0	0	
skulls		UA	0	0	0	0	0	1	0	0	0	0	
trophies		UA	0	1	2	1	1	1	0	0	2	3	
bodies		US	0	0	0	0	0	6	2	5	0	0	13
bones		US	0	0	0	0	2	4	31	9	11	9	66
claws		US	0	66	18	0	44	12	27	38	44	0	249
derivatives		US	511	246	154	4	20	16	0	0	0	0	951
garments		US	0	0	0	0	0	1	0	0	0	1	2
hair		US	0	0	0	0	0	0	0	0	7	0	7
leather products (small)		US	0	0	1	0	0	0	0	0	0	0	1
plates		US	1	0	0	2	0	0	0	0	0	0	3
shoes		US	0	0	2	0	0	0	0	0	0	0	2
skin pieces		US	4	0	0	2	0	1	0	2	1	3	13
skins		US	4	29	3	12	47	83	153	262	108	11	712
skulls		US	2	46	4	9	70	96	186	275	129	47	864
specimens	g	US	0	0	0	0	0	0	0	0	16	0	0
specimens	ml	US	0	0	0	0	0	6	0	0	0	0	0
specimens		US	0	0	0	186	0	286	286	150	39	0	947
specimens		US	0	0	0	0	0	51	0	0	0	0	51
tails		US	0	0	0	0	0	0	0	0	0	10	10
teeth		US	0	0	0	0	0	0	0	0	0	4	4
trophies		US	507	524	506	581	648	447	298	474	352	319	4656
trophies		US	0	0	0	0	0	1	0	0	0	0	1
unspecified		US	1	0	0	0	0	0	0	0	0	0	1
US Total													8553
trophies		VG	0	1	0	0	0	0	0	0	0	0	
skins		XX	0	0	0	0	1	1	0	1	0	2	
skulls		XX	0	0	0	0	0	1	0	0	0	0	
trophies		XX	15	2	0	0	0	3	0	1	0	2	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skins		YE	0	1	0	0	0	0	0	0	0	0	
skins		YU	0	0	0	0	0	0	0	0	1	0	
skulls		YU	0	0	0	0	0	0	0	0	1	0	
bones		ZA	0	0	0	0	0	2	2	4	0	0	8
claws		ZA	0	0	0	0	0	0	18	0	0	0	18
feet		ZA	0	0	0	0	0	0	0	4	0	0	4
live		ZA	1	0	2	0	0	0	1	1	0	0	5
skin pieces		ZA	0	0	0	0	2	0	0	4	0	0	6
skins		ZA	6	52	0	0	22	28	41	40	27	3	219
skulls		ZA	6	51	0	1	11	34	56	51	44	17	271
specimens	ml	ZA	0	0.5	0	0	0	0	0	0	0	0	0
specimens		ZA	0	0	0	0	16	0	0	2	60	0	78
trophies		ZA	89	74	73	74	85	48	44	55	43	30	615
ZA Total													1224
skulls		ZM	0	0	0	0	0	0	0	1	0	0	
trophies		ZM	0	0	0	0	0	0	2	2	0	1	
skins		ZW	0	1	0	0	0	0	2	3	6	0	
skulls		ZW	0	0	0	0	0	0	2	3	6	0	
trophies		ZW	5	5	3	2	4	2	0	0	0	1	

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" to U.S. of *Panthera pardus*, wild sources, all purposes, on 06/06/2016.

Table 5. Exports of wild source leopards and their parts for all purposes, by country.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
leather products (small)		AE	0	0	1	0	1	1	0	0	0	0	
live		AE	0	0	0	0	1	0	0	0	3	0	
skins		AE	6	2	1	0	3	0	0	0	0	0	
skulls		AE	6	0	0	0	0	0	0	0	0	0	
specimens		AE	0	0	35	1	0	0	0	2	0	0	
trophies		AE	2	0	0	0	0	0	1	0	0	0	
trophies		AR	0	0	0	0	0	0	2	0	3	0	
skulls		AT	0	0	0	1	0	0	0	0	0	0	
trophies		AT	4	0	0	3	1	0	2	1	1	1	
skins		AU	0	1	0	0	0	0	1	1	0	0	
trophies		AU	0	0	1	0	0	0	0	0	0	0	
bodies		BE	0	0	0	0	0	0	1	0	0	1	
trophies		BE	0	0	0	0	0	0	0	0	1	0	
trophies		BH	0	0	2	0	0	0	0	0	1	0	
trophies		BR	0	0	0	0	1	0	0	0	0	0	
bodies		BW	0	0	1	0	0	0	0	0	0	0	
claws		BW	0	0	0	0	0	0	0	16	0	0	
hair		BW	0	6	0	0	0	0	0	0	0	0	
skins		BW	0	2	2	0	3	0	3	6	0	0	
skulls		BW	0	0	0	0	2	0	21	22	13	1	
specimens	ml	BW	0	5	0	0	0	0	0	0	0	0	
specimens		BW	0	4	11	25	16	0	0	27	60	0	
trophies	kg	BW	0	0	4	0	0	0	0	0	0	0	
trophies		BW	54	47	50	58	39	34	19	30	33	3	
bodies		CA	0	0	0	0	0	0	1	1	0	0	
garments		CA	0	0	0	0	0	1	0	0	0	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
plates		CA	0	0	0	2	0	0	0	0	0	0	
skins		CA	0	0	0	5	0	0	0	1	0	0	
skulls		CA	0	0	0	2	0	0	0	1	0	0	
trophies		CA	0	0	0	1	0	0	0	2	0	0	
skins		CD	0	0	0	3	2	0	0	5	0	0	
bones		CF	0	0	0	0	2	0	2	0	0	0	
claws		CF	0	0	0	0	18	0	18	0	0	0	
skins		CF	1	0	1	0	0	1	1	0	0	0	
skulls		CF	0	0	0	0	0	3	1	0	0	0	
specimens		CF	0	0	0	0	0	0	0	0	6	3	
trophies		CF	37	28	28	33	90	66	17	23	4	0	
bodies		CH	0	0	0	0	0	0	0	0	3	0	
skin pieces		CH	0	0	0	0	0	0	0	0	0	1	
skins		CH	0	0	7	0	0	0	0	0	0	0	
specimens		CH	125	0	0	0	0	0	0	2	1	0	
trophies		CH	4	0	0	0	0	0	0	0	0	0	
trophies		CL	0	0	0	0	0	4	0	0	0	0	
skins		CM	1	0	0	0	0	0	0	0	0	0	
derivatives		CN	18	202	85	4	0	14	0	0	0	0	
live		CZ	0	0	0	0	0	0	1	1	0	0	
bodies		DE	0	0	3	0	0	0	0	0	0	0	
derivatives		DE	0	0	3	0	0	0	0	0	0	0	
live		DE	1	0	0	0	0	0	0	0	0	0	
skins		DE	0	2	0	0	0	0	0	0	0	0	
skulls		DE	0	0	0	0	0	0	0	0	4	0	
trophies		DE	2	1	0	6	1	0	5	1	8	1	
hair	kg	DJ	0.486	0	0	0	0	0	0	0	0	0	
teeth	g	DJ	65	0	0	0	0	0	0	0	0	0	
trophies		DK	0	0	0	0	0	0	0	0	0	1	
skins		ES	0	0	0	0	0	0	0	0	0	1	
trophies		ES	0	0	1	0	0	0	0	0	0	1	
skins		ET	0	0	0	0	3	0	1	1	0	0	
skulls		ET	0	0	0	0	3	0	0	1	0	0	
trophies		ET	3	2	0	2	1	2	1	0	1	2	
bodies		FI	0	0	0	0	0	0	0	0	0	1	
trophies		FI	1	1	0	0	0	0	0	0	0	0	
bodies		FR	2	0	1	0	2	0	3	2	0	1	
claws		FR	0	0	0	0	0	0	18	0	0	0	
leather products (small)		FR	0	0	0	0	1	0	0	0	0	0	
skins		FR	1	0	0	0	0	0	3	0	0	0	
skulls		FR	0	0	0	0	3	2	5	1	0	0	
trophies		FR	6	6	9	6	9	9	24	11	16	7	
skin pieces		GA	0	0	0	0	0	0	0	5	0	0	
specimens		GA	0	0	0	0	0	0	0	0	20	0	
bodies		GB	0	0	0	0	1	0	0	0	0	0	
leather products (small)		GB	0	0	1	0	0	0	0	0	0	0	
skin pieces		GB	0	0	0	0	0	0	0	2	0	0	
skins		GB	3	2	0	0	0	1	0	0	0	0	
skulls		GB	0	0	0	0	1	1	0	0	0	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
trophies		GB	2	1	1	0	0	0	0	0	0	0	
skin pieces		GH	0	0	0	2	0	0	0	0	0	0	
specimens		GQ	0	0	0	0	0	0	5	0	0	0	
live		GT	0	0	0	0	0	0	0	1	0	0	
specimens		IL	0	0	0	0	0	0	0	1	0	0	
live		IN	2	0	0	0	0	0	0	0	0	0	
plates		IN	1	0	0	0	0	0	0	0	0	0	
live		IR	0	0	0	0	0	2	0	0	0	0	
skins		IR	1	0	0	0	0	0	0	0	0	0	
skins		IT	0	0	0	0	0	0	0	0	1	0	
trophies		IT	1	1	0	0	1	0	0	1	0	0	
live		JO	0	0	3	0	0	0	0	0	0	0	
derivatives		JP	477	0	0	0	0	0	0	0	0	0	
skins		KE	0	0	0	0	1	0	1	0	0	2	
specimens	ml	KE	0	0.5	0	0	0	0	0	0	1.5	0	
specimens		KE	0	0	0	0	0	0	0	1	0	0	
specimens		KE	0	0	0	0	0	51	0	0	0	0	
trophies		KE	0	0	0	0	1	0	1	0	0	0	
live		KG	0	0	0	0	0	0	5	1	0	0	
specimens	kg	KH	0	0	0	0	0	15	0	0	0	0	
derivatives		KW	10	0	0	0	0	0	0	0	0	0	
skin pieces		LA	1	0	0	0	0	0	0	0	0	0	
unspecified		LA	1	0	0	0	0	0	0	0	0	0	
specimens		LR	0	0	0	0	0	0	0	0	0	1	
skins		LT	0	1	0	0	0	0	0	0	0	0	
leather products (small)		LY	0	0	0	0	0	1	0	0	0	0	
skins		LY	0	0	1	0	0	0	0	0	0	0	
live		ML	0	0	0	2	0	0	0	0	0	0	
skins		MW	0	0	0	0	2	0	0	1	0	0	
trophies		MX	0	1	0	0	0	0	0	3	0	0	
bodies		MZ	0	0	0	0	0	0	0	0	0	1	
skeletons		MZ	0	0	0	0	0	0	1	0	0	0	
skin pieces		MZ	0	0	0	0	4	0	0	4	0	0	
skins		MZ	1	6	1	0	11	7	70	92	62	4	
skulls		MZ	1	5	0	0	4	7	76	92	70	13	
trophies		MZ	76	58	59	52	56	49	21	56	31	49	
bodies		NA	0	0	1	2	1	13	3	1	0	4	25
bones		NA	0	0	0	0	4	0	2	0	2	6	14
claws		NA	0	22	0	0	0	4	0	0	18	0	44
hair		NA	0	0	0	0	0	0	0	0	0	1	1
live		NA	0	0	0	0	0	0	0	6	6	0	12
skin pieces		NA	0	0	0	0	0	0	1	0	0	0	1
skins		NA	7	18	12	1	14	8	14	5	2	1	82
skulls		NA	6	12	8	2	12	5	8	6	4	4	67
specimens	ml	NA	0	0	0	0	0	6	0	60	0	0	66
specimens		NA	0	0	0	0	0	100	0	1233	1	900	2234
teeth		NA	31	0	8	0	0	18	27	0	0	0	84
trophies		NA	168	197	176	226	343	150	100	111	100	105	1676
trophies		NA	0	0	0	0	0	1	1	0	0	0	2
NA Total													4308
claws		NL	0	0	0	0	0	0	0	0	8	0	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
skins		NL	0	0	3	7	0	0	0	0	0	0	
skins		NO	0	0	0	0	0	0	0	0	2	0	
skulls		NO	0	0	0	0	0	0	0	0	2	0	
trophies		NO	0	0	0	1	1	0	0	2	0	0	
skins		NZ	1	6	1	4	0	1	0	0	0	0	
trophies		NZ	0	0	0	0	0	0	0	0	0	1	
derivatives		PH	0	13	6	0	0	0	0	0	0	0	
trophies		PT	1	0	0	0	0	0	0	0	0	0	
trophies		QA	0	0	0	0	0	0	2	0	0	0	
hair	kg	RU	0	0	0	0.2	0	0	0	0	0	0	
live		RU	0	0	0	0	2	0	0	0	0	0	
skins		RU	0	0	0	0	0	1	0	0	0	0	
specimens	g	RU	0	0	0	0	0	0	0	0	0	36	
specimens		RU	0	0	20	186	0	286	286	0	0	0	
live		SA	0	2	0	0	0	0	0	0	0	0	
skin pieces		SA	2	0	0	0	0	0	0	0	0	0	
live		SD	2	3	2	0	0	0	0	0	0	0	
shoes		SD	0	0	2	0	0	0	0	0	0	0	
skins		SD	0	0	0	0	0	0	1	0	0	0	
specimens		SN	0	0	0	0	0	0	0	0	18	0	
skins		SY	0	1	0	0	0	0	0	0	0	0	
skins		SZ	0	0	0	0	0	0	0	4	0	0	
specimens		SZ	0	0	0	0	0	0	0	2	0	0	
live		TH	0	0	0	0	2	0	0	0	0	0	
live		TM	0	0	0	0	2	0	0	0	0	0	
skins		TN	0	0	0	1	0	0	0	0	0	0	
skulls		TN	0	0	0	1	0	0	0	0	0	0	
derivatives		TW	0	13	0	0	0	0	0	0	0	0	
skin pieces		TW	1	0	0	0	0	0	0	0	0	0	
skins		TW	0	0	0	0	0	0	0	1	0	0	
trophies		TW	0	0	0	0	3	0	0	0	0	0	
bodies		TZ	0	0	0	0	0	0	0	2	3	0	5
bones		TZ	0	0	0	0	0	3	2	0	8	0	13
feet		TZ	0	2	0	0	0	0	0	0	0	0	2
hair		TZ	0	0	0	10	0	0	0	0	0	0	10
live		TZ	0	0	0	0	0	0	1	0	0	0	1
skins		TZ	11	25	1	1	135	108	56	79	39	7	462
skulls		TZ	6	19	2	1	134	114	54	73	41	6	450
skulls		TZ	0	0	0	0	1	0	0	0	0	0	1
specimens		TZ	1	0	0	0	0	0	0	0	0	0	1
tails		TZ	0	0	0	0	0	1	0	0	0	0	1
trophies		TZ	340	301	260	371	275	200	138	201	145	178	2409
TZ Total													3355
skins		UG	0	0	0	0	0	1	0	1	1	0	
skulls		UG	0	0	0	0	0	0	0	1	1	0	
specimens		UG	1	0	0	0	0	0	0	0	0	0	
trophies		UG	0	0	0	0	5	0	1	0	0	2	
bodies		US	0	0	0	4	2	0	1	0	0	0	
carvings		US	0	0	0	0	0	0	0	0	0.33	0	
hair		US	0	0	0	0	0	0	0	2	0	0	
skins		US	2	0	0	0	1	0	2	0	1	0	
skulls		US	0	0	0	4	0	0	1	1	0	1	

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
specimens	g	US	0	300	0	0	0	0	0	0	0	0	
specimens	kg	US	0	0.3	0	0	0	0	0	0	0	0	
specimens		US	0	0	0	0	1	1	0	0	0	0	
trophies		US	3	5	3	6	8	8	2	14	6	1	
bodies		UY	0	0	0	0	1	0	0	0	0	0	
skins		UY	0	0	0	0	1	0	0	0	0	0	
derivatives		VN	16	18	60	0	0	0	0	0	0	0	
skins		XX	0	0	0	0	0	1	0	0	1	0	
skulls		XX	0	0	0	0	0	0	0	0	1	0	
trophies		XX	0	0	0	0	0	0	1	0	0	5	
bodies		ZA	1	0	0	2	9	6	9	13	3	2	45
bones		ZA	0	1	0	2	0	8	35	8	2	5	61
claws		ZA	0	44	18	0	36	8	26	18	18	0	168
derivatives		ZA	0	0	0	0	20	6	50	0	0	0	76
garments		ZA	0	0	0	0	0	0	0	1	0	1	2
hair		ZA	0	0	0	0	209	0	0	0	0	0	209
leather products (large)		ZA	0	0	0	0	1	0	0	0	0	0	1
leather products (small)		ZA	0	2	0	0	0	0	0	0	0	0	2
live		ZA	0	0	0	0	0	0	6	2	0	2	10
skins		ZA	5	40	1	7	9	67	84	53	4	5	275
skulls		ZA	3	53	3	6	37	101	145	75	26	68	517
specimens		ZA	4	0	0	1	1	2	0	151	0	1	160
teeth		ZA	0	4	0	0	0	0	0	0	0	4	8
trophies		ZA	113	103	111	147	184	143	125	128	108	109	1271
ZA Total													2805
bodies		ZM	0	0	0	0	0	0	1	0	0	0	
bones		ZM	0	0	0	257	0	1	0	0	0	0	
hair		ZM	0	0	0	0	0	0	0	0	7	0	
skins		ZM	4	8	3	6	7	5	13	4	2	0	
skulls		ZM	1	7	0	2	5	7	25	5	4	1	
specimens	g	ZM	0	0	0	0	0	0	0	0	16	0	
specimens		ZM	0	104	53	44	0	0	0	0	0	0	
trophies		ZM	74	62	69	92	88	94	88	165	60	5	
trophies		ZM	0	0	0	0	0	0	2	0	0	0	
bodies		ZW	3	0	1	2	5	0	0	1	0	0	12
bones		ZW	0	0	0	0	0	0	0	8	1	2	11
claws		ZW	0	0	0	0	8	0	1	38	23	0	70
feet		ZW	0	0	0	0	0	0	0	4	0	0	4
skeletons		ZW	1	0	0	0	0	0	0	0	0	0	1
skin pieces		ZW	0	0	0	0	0	1	0	1	1	2	5
skins	kg	ZW	0	0	0	0	0	0	1	0	0	0	0
skins		ZW	2	34	2	11	18	21	95	188	101	14	486
skulls	kg	ZW	0	0	0	0	0	0	1	0	0	0	0
skulls		ZW	2	32	3	28	33	30	101	199	112	18	558
specimens		ZW	1	0	0	0	0	2	0	0	0	0	3
tails		ZW	0	0	0	0	0	0	0	0	0	10	10
teeth		ZW	0	0	0	0	0	0	0	4	4	0	8
trophies		ZW	320	284	271	251	280	217	195	219	188	175	2400
ZW Total													3568

Source: UNEP-WCMC CITES Trade Database searched by "gross exports" to U.S. of *Panthera pardus*, wild sources, all purposes, on 06/06/2016.

Table 6: International trade in "captive-bred" leopards and their parts for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	0	0	0	0	0	0	5	2	0	1	8
live	32	38	34	39	41	70	67	53	56	43	473
skins	0	1	0	0	14	0	0	0	2	1	18
specimens	0	3	0	5	343	0	32	2	37	132	554
trophies	0	0	2	2	1	0	2	1	3	0	11
Grand Total	32	42	36	46	399	70	106	58	98	177	1064

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, captive sources, all purposes, on 03/23/2016.

Table 7: International trade in "captive-bred" leopards and their parts for all purposes: Exporting countries.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
bodies		BE	0	0	0	0	0	0	2	1	0	1
bodies		DE	0	0	0	0	0	0	3	0	0	0
bodies		NL	0	0	0	0	0	0	0	1	0	0
live		BE	4	1	1	0	1	0	2	2	6	0
live		BW	0	0	0	0	0	4	0	0	0	0
live		BY	0	0	0	0	0	1	0	0	0	0
live		CH	0	1	0	3	2	0	0	0	1	0
live		CN	3	0	0	0	0	0	0	0	0	0
live		CY	0	0	0	0	3	0	0	0	0	0
live		CZ	1	0	2	3	1	1	1	2	4	0
live		DE	1	0	1	0	1	3	5	4	0	0
live		DK	0	3	0	0	0	0	1	0	2	3
live		EE	0	0	0	0	1	0	0	1	2	0
live		ES	0	0	0	0	0	0	0	0	0	4
live		FR	1	0	2	6	0	1	1	2	2	0
live		GA	0	0	0	0	0	0	0	0	2	4
live		GB	0	2	0	2	0	0	1	1	0	0
live		GE	0	0	0	0	0	0	0	0	0	1
live		GT	0	0	0	0	0	0	0	1	1	0
live		HU	2	3	1	1	0	2	0	0	0	0
live		ID	2	0	0	0	2	1	2	0	0	0
live		IR	0	0	0	0	0	2	0	0	0	0
live		IT	0	0	0	0	0	0	0	0	0	1
live		JO	0	0	0	0	1	0	0	0	0	0
live		KG	0	0	0	0	0	0	0	0	1	0
live		KR	0	0	0	0	0	1	0	0	0	0
live		KZ	0	2	3	0	0	0	0	0	0	0
live		LB	0	0	0	0	0	0	0	1	0	0
live		LV	0	0	0	0	0	0	2	0	0	0
live		MC	1	1	2	0	0	0	0	0	0	0
live		MX	0	0	0	6	0	11	1	0	0	7
live		NL	0	0	0	0	0	0	1	0	0	0
live		PL	0	0	0	0	0	0	0	0	1	0
live		PT	0	0	0	0	3	0	0	2	0	0
live		RO	2	0	0	0	0	0	0	0	9	0
live		RS	0	0	0	0	0	3	0	0	0	2

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
live		RU	1	0	0	1	3	4	19	0	0	1
live		SE	0	0	0	0	0	0	2	0	0	0
live		SG	1	1	0	0	0	0	0	0	0	0
live		SI	0	2	0	0	0	0	0	0	0	0
live		SK	1	0	0	0	0	0	0	0	0	0
live		SZ	0	0	0	0	1	0	0	0	0	0
live		TH	0	2	0	0	0	0	0	0	0	0
live		TN	0	0	0	0	2	0	0	0	0	0
live		TR	0	0	0	1	0	0	0	5	1	0
live		UA	0	2	1	0	3	0	0	0	0	0
live		US	0	1	4	0	0	0	0	0	0	0
live		UZ	0	0	0	0	0	0	0	0	2	0
live		XX	0	0	1	3	1	0	0	1	0	0
live		ZA	0	1	0	5	0	7	0	2	0	3
live		ZW	0	0	0	0	0	0	0	0	0	3
skins		CH	0	1	0	0	1	0	0	0	0	0
skins		MZ	0	0	0	0	2	0	0	0	0	0
skins		NL	0	0	0	0	0	0	0	0	0	1
skins		SZ	0	0	0	0	1	0	0	0	0	0
skins		ZA	0	0	0	0	0	0	0	0	2	0
specimens	flasks	SG	0	3	0	0	0	0	0	0	0	0
specimens		AE	0	0	0	5	0	0	20	0	2	2
specimens		DK	0	0	0	0	0	0	0	2	0	0
specimens		NA	0	0	0	0	0	0	0	0	33	128
specimens		RU	0	0	0	0	343	0	0	0	0	0
specimens		US	0	0	0	0	0	0	5	0	0	0
trophies		NA	0	0	1	0	0	0	0	0	0	0
trophies		NL	0	0	0	0	0	0	0	1	0	0
trophies		TZ	0	0	0	1	0	0	0	0	1	0
trophies		ZA	0	0	1	1	1	0	0	0	2	0
trophies		ZW	0	0	0	0	0	0	1	0	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, captive sources, all purposes, on 06/06/2016.

Table 8: International trade in "captive-born" leopards and their parts for all purposes.

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	3	1	9	1	1	5	0	2	2	1	25
skulls	0	0	0	0	1	0	0	0	0	0	1
trophies	0	0	1	1	0	0	0	0	4	0	6
Grand Total	3	1	10	2	2	5	0	2	6	1	32

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, F1 sources, all purposes, on 03/23/2016.

Table 9: International trade in "pre-Convention" leopards and their parts from "pre-Convention" for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	0	0	1	0	1	0	1	2	0	0	5
carvings	0	1	1	0	4	1	1	2	1	0	11
claws	0	0	2	0	0	4	0	0	1	0	7
derivatives	0	0	5	2	0	2	0	2	1	1	13
garments	1	2	1	1	0	3	0	1	2	0	11

leather products (large)	0	0	0	0	1	1	0	1	0	0	3
leather products (small)	3	0	2	0	0	0	0	2	1	0	8
skin pieces	3	0	0	2	2	0	1	2	2	1	13
skins	10	6	14	14	7	8	4	21	10	7	101
skulls	1	0	0	0	0	3	0	1	1	1	7
specimens	0	0	0	0	0	1	1	0	0	0	2
tails	0	0	0	0	0	1	0	0	0	0	1
teeth	0	0	0	0	0	1	2	0	6	5	14
trophies	2	0	1	1	3	1	6	3	2	2	21
Grand Total	20	9	27	20	18	26	16	37	27	17	217

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, pre-Convention sources, all purposes, on 03/23/2016.

Table 10: International trade in "ranched" leopards and their parts for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	0	0	0	0	0	0	0	8	4	0	8
skins	0	1	0	0	0	0	0	0	0	0	1
skulls	0	1	0	0	0	0	0	0	0	0	1
trophies	0	1	0	1	0	0	0	0	0	0	1
Grand Total	0	3	0	1	0	0	0	8	4	0	16

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, ranched sources, all purposes, on 03/23/2016.

Table 11: International trade in leopards and their parts from "confiscations/seizures" and for all purposes.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	1	0	0	0	0	0	0	0	0	0	1
bone pieces	0	0	0	2	0	0	0	0	0	0	2
bones	0	0	2	40	4	0	0	0	4	0	50
carvings	1	0	0	0	0	0	0	0	0	0	1
claws	0	4	0	3	2	2	2	0	0	1	14
cloth	0	0	0	0	0	0	0	1	0	0	1
derivatives	2939	1504	2987.5	1712	1573	799	1392	0	0	0	12906.5
feet	0	0	0	29	0	0	0	0	0	0	29
garments	1	0	2	0	2	2	0	1	2	1	11
hair	0	0	0	0	0	0	2	0	1	0	3
hair products	0	0	0	0	0	0	0	1	0	0	1
leather products (large)	0	8	0	0	0	0	0	0	0	0	8
leather products (small)	0	0	0	2	1	4	2	0	260	0	269
medicine	0	0	0	0	0	0	0	383	56	99	538
plates	1	0	0	0	0	0	0	0	0	0	1
shoes	0	0	2	0	0	0	0	0	0	0	2
skin pieces	2	1	1	61	1	1	0	3	4	0	74

skins	10	4	4	8	2	5	1	1	2	1	38
skulls	0	2	1	1	2	3	0	1	0	1	11
specimens	0	0	0	0	0	0	0	1	0	0	1
teeth	0	0	1	2	1	21	2	0	1	0	28
trophies	22	35	19	31	15	11	14	18	10	5	180
Grand Total	2977	1558	3019.5	1891	1603	848	1415	410	340	108	14169.5

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, seized/confiscated sources, all purposes, on 03/23/2016.

Table 12: International trade in leopards and their parts from "source unknown" and for all purposes.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	BE	0	0	0	0	0	0	1	0	0	0	1
derivatives	CN	0	0	7	4	0	14	0	0	0	0	25
leather products (small)	GB	0	0	1	0	0	0	0	0	0	0	1
live	KG	0	0	0	0	0	0	5	1	0	0	6
plates	IN	1	0	0	0	0	0	0	0	0	0	1
skin pieces	GB	0	0	0	0	0	0	0	2	0	0	2
skins	CH	0	0	7	0	0	0	0	0	0	0	7
skins	GB	2	0	0	0	0	0	0	0	0	0	2
skins	LT	0	1	0	0	0	0	0	0	0	0	1
skins	NL	0	0	0	7	0	0	0	0	0	0	7
skins	RU	0	0	0	0	0	1	0	0	0	0	1
skulls	GB	0	0	0	0	0	1	0	0	0	0	1
specimens	AE	0	0	35	0	0	0	0	0	0	0	35
trophies	GB	0	0	1	0	0	0	0	0	0	0	1
Grand Total												91

Source: UNEP-WCMC CITES Trade Database searched by "gross exports" of *Panthera pardus*, unknown sources, all purposes, on 03/23/2016.

Table 13: International trade in leopards and their parts for "commercial" purposes and from all sources.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	0	0	1	0	1	0	5	3	0	1	11
carvings	0	1	1	0	1	0	1	3	0	0	7
claws	0	4	0	2	0	0	0	0	1	0	7
cloth	0	0	0	0	0	0	0	1	0	0	1
derivatives	512	244	847	568	317	147	0	2	1	0	2638
feet	0	0	0	29	0	0	0	0	0	0	29
garments	1	2	1	0	1	2	0	4	3	0	14
leather products (large)	0	0	0	0	1	0	0	0	0	0	1
leather products (small)	0	0	2	1	1	1	1	0	260	0	266
live	6	4	4	5	2	5	1	1	7	4	39
medicine	0	0	0	0	0	0	0	260	26	45	331
skin pieces	4	0	0	55	2	0	0	3	4	1	69
skins	7	5	24	5	4	4	3	10	6	4	72
skulls	3	0	0	0	2	1	1	1	0	0	8

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
specimens	0	0	0	0	0	0	2	0	0	0	2
teeth	0	0	0	2	0	1	1	0	8	2	14
trophies	1	1	2	3	2	1	0	1	1	1	13
Grand Total	534	261	882	670	334	162	15	289	317	58	3522

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, hunting trophy purpose, on 03/23/2016.

Table 14: International trade in leopards and their parts for "commercial" purposes and from all sources: Importing countries (range States in bold).

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AE	2	2	1	0	2	1	0	0	4	1	13
AL	0	0	1	0	0	0	0	0	0	0	1
AU	0	0	0	2	0	0	2	1	5	0	10
CA	4	0	0	0	0	1	0	1	0	0	6
CH	2	0	7	1	0	1	2	5	1	0	19
CN	0	0	2	1	2	0	4	3	4	1	17
DE	0	1	7	0	1	1	0	0	1	1	12
EG	0	0	0	0	0	3	0	0	0	0	3
ES	0	0	0	0	2	1	0	0	0	0	3
FR	0	0	0	0	0	0	0	4	5	0	9
GB	0	1	0	1	0	1	0	0	0	0	3
HK	0	0	0	0	2	0	0	2	0	0	4
HU	0	0	0	0	0	0	0	0	1	0	1
ID	0	0	0	0	1	0	0	0	2	0	3
IN	0	1	0	0	0	1	0	0	0	0	2
IS	0	0	1	0	0	0	0	0	0	0	1
JP	3	0	0	0	0	0	0	0	0	0	3
KR	0	0	0	0	0	0	1	1	0	2	4
LY	0	0	1	0	1	0	0	0	0	0	2
MO	0	0	0	0	1	0	0	0	0	0	1
MX	0	0	1	1	1	0	0	0	0	0	3
NZ	0	0	0	3	0	0	0	0	0	0	3
PK	0	0	0	1	0	0	0	0	0	0	1
QA	0	0	0	0	0	0	0	1	3	3	7
RU	0	0	0	0	0	0	0	4	0	0	4
SA	0	0	0	2	0	0	0	0	0	0	2
SG	0	0	0	0	0	0	0	0	0	1	1
SY	0	0	3	0	0	0	0	0	0	0	3
TR	0	0	7	0	0	0	0	0	0	0	7
TW	0	0	1	0	0	0	0	0	0	0	1
UA	0	1	0	0	0	0	0	0	0	0	1
UG	0	0	0	0	0	1	0	0	0	0	1
US	522	253	850	657	320	151	5	265	289	46	3358
ZA	0	2	0	1	1	0	1	2	2	3	12
ZW	1	0	0	0	0	0	0	0	0	0	1
Grand Total	534	261	882	670	334	162	15	289	317	58	3522

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, commercial purposes, on 03/23/2016.

Table 15. International trade in leopards and their parts for commercial purposes, where specimens were confiscated or seized, by importing country.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
claws		US	0	4	0	2	0	0	0	0	0	0	
cloth		US	0	0	0	0	0	0	0	1	0	0	
derivatives	g	US	0	562	0	0	0	435	0	0	0	0	997
derivatives		US	35	238	847	568	317	146	0	0	0	0	2151
feet		US	0	0	0	29	0	0	0	0	0	0	
garments		AU	0	0	0	0	0	0	0	0	1	0	
garments		DE	0	0	0	0	0	0	0	0	1	0	
garments		US	1	0	0	0	1	0	0	1	0	0	
leather products (small)		US	0	0	0	1	0	0	1	0	260	0	
medicine		US	0	0	0	0	0	0	0	260	26	45	331
skin pieces		AU	0	0	0	0	0	0	0	0	1	0	
skin pieces		US	1	0	0	55	0	0	0	1	1	0	
skins		IS	0	0	1	0	0	0	0	0	0	0	
skins		NZ	0	0	0	3	0	0	0	0	0	0	
skins		US	2	0	0	0	0	2	0	1	0	0	
skulls		US	0	0	0	0	0	1	0	0	0	0	
teeth		US	0	0	0	2	0	1	0	0	1	0	

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus*, commercial purposes, purpose is confiscated or seized, on 06/06/2016.

Table 16. Gross exports of *Panthera pardus* derivatives and medicines to the U.S., commercial purposes, where the source is confiscated or seized.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
derivatives	CH	0	0	0	0	10	0	0	0	0	0	10
derivatives	CN	0	201	847	568	307	146	0	0	0	0	2069
derivatives	KR	0	7	0	0	0	0	0	0	0	0	7
derivatives	VN	29	0	0	0	0	0	0	0	0	0	29
derivatives	XX	6	30	0	0	0	0	0	0	0	0	36
medicine	CN	0	0	0	0	0	0	0	260	26	0	286
medicine	HK	0	0	0	0	0	0	0	0	0	45	45
Totals		35	238	847	568	317	146	0	260	26	45	2482

Source: UNEP-WCMC CITES Trade Database searched by "gross exports" of *Panthera pardus* to the U.S. for commercial purposes, where the specimens were confiscated or seized, on 03/23/2016.

Table 17. International trade in leopards and their parts for commercial purposes, where specimens were confiscated or seized, by exporting country.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
cloth		AE	0	0	0	0	0	0	0	1	0	0	
garments		CA	0	0	0	0	1	0	0	0	0	0	
skins		CD	0	0	0	0	0	1	0	0	0	0	
derivatives		CH	0	0	0	0	10	0	0	0	0	0	
skins		CH	0	0	1	0	0	0	0	0	0	0	
skin pieces		CI	0	0	0	0	0	0	0	0	1	0	
teeth		CI	0	0	0	0	0	1	0	0	1	0	
derivatives	g	CN	0	0	0	0	0	435	0	0	0	0	435
derivatives		CN	0	201	847	568	307	146	0	0	0	0	2069

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
leather products (small)		CN	0	0	0	0	0	0	0	0	260	0	260
medicine		CN	0	0	0	0	0	0	0	260	26	0	286
skins		CN	0	0	0	3	0	0	0	0	0	0	3
garments		FR	1	0	0	0	0	0	0	0	0	0	
skins		FR	2	0	0	0	0	0	0	0	0	0	
garments		GB	0	0	0	0	0	0	0	1	0	0	
skin pieces		GB	0	0	0	1	0	0	0	0	0	0	
skins		GB	0	0	0	0	0	0	0	1	0	0	
medicine		HK	0	0	0	0	0	0	0	0	0	45	
leather products (small)		IR	0	0	0	0	0	0	1	0	0	0	
derivatives		KR	0	7	0	0	0	0	0	0	0	0	
claws		NA	0	4	0	0	0	0	0	0	0	0	
skins		NA	0	0	0	0	0	1	0	0	0	0	
skulls		NA	0	0	0	0	0	1	0	0	0	0	
skin pieces		NG	0	0	0	0	0	0	0	1	0	0	
derivatives	g	TW	0	562	0	0	0	0	0	0	0	0	
skin pieces		UG	1	0	0	0	0	0	0	0	0	0	
teeth		UG	0	0	0	2	0	0	0	0	0	0	
garments		US	0	0	0	0	0	0	0	0	2	0	
skin pieces		US	0	0	0	0	0	0	0	0	1	0	
derivatives		VN	29	0	0	0	0	0	0	0	0	0	
derivatives		XX	6	30	0	0	0	0	0	0	0	0	
claws		ZA	0	0	0	2	0	0	0	0	0	0	
feet		ZA	0	0	0	29	0	0	0	0	0	0	
leather products (small)		ZA	0	0	0	1	0	0	0	0	0	0	
skin pieces		ZA	0	0	0	54	0	0	0	0	0	0	

Source: UNEP-WCMC CITES Trade Database searched by "gross exports" of *Panthera pardus*, commercial purposes, purpose is confiscated or seized, on 06/06/2016.

Table 18: International trade in leopards and their parts for "commercial" purposes and from all sources: Exporting countries (range States in bold).

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AE	0	0	1	0	2	0	0	1	0	0	4
AR	0	2	0	0	0	0	0	0	0	0	2
AT	0	0	1	0	0	0	0	0	0	0	1
AU	0	1	0	1	0	0	0	1	1	0	4
BE	2	1	1	0	1	0	2	1	6	1	15
CA	0	0	0	0	1	0	0	0	0	0	1
CD	0	0	0	0	0	1	0	0	0	0	1
CH	0	0	15	0	11	1	0	0	2	0	29
CI	0	0	0	0	0	1	0	0	2	0	3

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
CN	0	207	847	571	307	146	0	260	286	0	2624
CZ	0	0	0	1	0	0	1	1	0	0	3
DE	7	4	8	1	1	1	5	2	1	1	31
ES	0	0	0	0	0	0	0	0	0	1	1
ET	0	0	0	1	0	0	0	0	0	0	1
FR	3	0	0	1	3	2	2	5	0	3	19
GB	1	0	4	1	2	0	2	13	7	0	30
HK	0	0	0	0	0	0	0	0	0	45	45
ID	3	0	0	0	0	0	0	0	0	0	3
IN	0	1	0	0	0	0	0	0	0	0	1
IR	0	0	0	0	0	0	1	0	0	0	1
JO	0	0	3	0	1	0	0	0	0	0	4
JP	477	0	0	0	0	0	0	0	0	0	477
KR	0	7	0	0	0	0	0	0	0	0	7
KZ	0	1	0	0	0	0	0	0	0	0	1
LT	0	1	0	0	0	0	0	0	0	0	1
LY	0	0	1	0	0	1	0	0	0	0	2
MZ	1	0	0	1	0	0	0	0	1	0	3
NA	0	5	0	0	0	2	0	0	0	0	7
NG	0	0	0	0	0	0	0	1	0	0	1
NL	0	0	0	0	0	0	0	0	3	1	4
TZ	4	0	1	0	3	0	2	1	0	0	11
UA	0	1	0	0	0	0	0	0	0	0	1
UG	1	0	0	2	0	1	0	0	0	0	4
US	0	0	0	2	0	0	0	3	8	2	15
VN	29	0	0	0	0	0	0	0	0	0	29
XX	6	30	0	0	0	0	0	0	0	0	36
ZA	0	0	0	88	0	5	0	0	0	0	93
ZM	0	0	0	0	0	1	0	0	0	1	2
ZW	0	0	0	0	2	0	0	0	0	3	5
Grand Total	534	261	882	670	334	162	15	289	317	58	3522

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, commercial purposes, on 03/23/2016.

Table 19: International trade in leopards and their parts for "hunting trophy" purposes from all sources.

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	2	0	3	8	15	18	12	14	4	8	84
bones	0	1	0	2	6	12	41	16	13	13	104
claws	0	66	18	0	62	12	45	72	59	0	334
derivatives	0	0	0	0	20	6	0	0	0	0	26
feet	0	2	0	0	0	0	0	4	0	0	6
garments	0	0	0	0	0	0	0	0	0	1	1
hair	0	0	0	0	0	0	0	0	0	1	1
leather products (large)	0	8	0	0	0	0	0	0	0	0	8
leather products (small)	0	1	0	0	0	0	0	0	0	0	1
live	0	0	0	0	0	2	0	0	0	0	2
plates	0	0	0	2	0	0	0	0	0	0	2

Term	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skeletons	1	0	0	0	0	0	1	0	0	0	2
skin pieces	0	0	0	0	4	1	1	5	1	2	14
skins	22	112	6	23	191	215	336	423	209	27	1564
skulls	11	131	6	42	229	267	431	473	273	111	1974
tails	0	0	0	0	0	1	0	0	0	10	11
teeth	31	4	0	0	0	18	27	4	4	4	92
trophies	1202	1099	1010	1115	1277	929	696	888	645	634	9495
Grand Total	1269	1424	1043	1192	1804	1481	1590	1899	1208	811	13721

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, hunting trophy purpose, on 03/23/2016.

Table 20: International trade in leopards and their parts for "hunting trophy" purposes and from all sources: Importing countries (range States in bold).

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AE	0	1	1	2	1	0	10	0	3	2	20
AR	1	4	7	1	8	4	4	17	10	5	61
AT	23	26	9	21	23	19	19	24	20	13	197
AU	0	4	0	2	0	6	4	3	0	1	20
BE	11	6	11	10	14	15	4	6	2	1	80
BG	4	6	7	3	1	8	3	8	1	2	43
BH	0	1	0	0	0	0	0	0	0	0	1
BR	1	10	0	1	3	2	0	0	0	4	21
BW	1	0	0	0	0	0	2	4	5	0	12
BY	0	0	0	1	0	0	0	0	0	0	1
CA	33	59	3	70	97	44	43	31	20	24	424
CH	14	2	12	2	11	2	9	15	12	5	84
CL	4	0	0	0	0	2	0	0	3	0	9
CN	1	1	0	1	0	3	0	1	1	0	8
CO	0	1	0	0	2	6	0	2	0	1	12
CR	2	1	0	2	0	0	1	1	0	0	7
CS	1	0	0	0	0	0	0	0	0	0	1
CZ	9	7	2	5	4	6	16	14	15	3	81
DE	96	64	39	38	95	38	55	86	54	39	604
DK	7	11	11	14	26	32	91	9	7	9	217
EC	0	0	2	0	0	0	0	0	0	0	2
EE	1	3	0	1	0	0	0	0	1	1	7
EG	0	1	0	0	0	0	0	0	0	0	1
ES	90	98	101	76	109	111	110	56	33	26	810
FI	6	4	3	3	24	5	10	7	3	5	70
FR	191	73	42	47	114	114	47	72	38	39	777
GB	6	11	7	16	27	18	22	23	18	8	156
HN	0	0	0	0	0	0	0	0	2	0	2
HR	6	3	3	3	4	1	1	0	0	1	22
HU	0	0	6	11	37	11	18	20	23	12	138
ID	0	0	0	0	0	0	0	0	0	1	1
IE	1	0	3	0	0	0	0	0	0	0	4
IS	0	0	0	1	2	0	1	1	7	2	14
IT	20	12	15	18	34	32	38	27	21	8	225
JM	1	0	1	0	0	0	4	0	0	0	6
KW	0	0	2	1	1	0	0	0	0	0	4
LB	1	0	0	0	0	0	2	0	1	0	4
LT	1	1	2	2	5	3	0	4	4	4	26

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
LU	2	1	6	4	0	4	7	0	1	3	28
LV	2	4	3	4	2	3	0	1	3	3	25
MA	0	2	0	1	0	0	0	0	0	0	3
MC	0	0	0	0	0	0	0	0	0	1	1
MG	0	0	0	0	0	0	2	2	0	0	4
MU	0	0	0	0	0	0	0	2	0	0	2
MX	39	70	53	63	56	61	61	76	60	34	573
MZ	0	0	0	0	0	2	2	1	0	2	7
NA	3	2	0	2	0	1	4	5	0	0	17
NC	0	0	0	0	0	1	0	0	0	1	2
NI	0	0	0	0	0	0	0	1	0	0	1
NL	5	1	0	1	4	3	4	0	0	2	20
NO	2	5	2	8	8	11	12	5	3	10	66
NP	0	0	1	0	0	0	0	0	0	0	1
NZ	2	0	0	1	4	6	4	7	3	3	30
PA	0	0	0	0	0	1	0	2	6	0	9
PH	1	0	0	3	2	4	4	0	0	0	14
PK	3	1	1	0	2	0	6	5	0	0	18
PL	5	10	8	8	12	6	10	8	6	6	79
PT	18	13	12	7	19	13	24	17	6	1	130
QA	2	0	0	0	0	2	1	6	5	4	20
RO	1	0	4	2	1	1	0	2	2	1	14
RS	0	1	1	2	1	1	1	0	2	0	9
RU	15	8	21	31	48	48	46	53	11	40	321
SA	0	0	4	0	1	0	0	0	0	0	5
SB	0	0	0	0	0	0	2	0	0	0	2
SD	0	0	0	0	0	0	0	0	0	2	2
SE	2	6	9	5	29	31	7	34	14	4	141
SG	0	1	0	0	0	0	0	0	3	0	4
SI	1	4	5	1	2	1	0	2	0	0	16
SK	3	3	2	8	5	2	5	5	5	11	49
SL	0	1	0	0	1	2	1	2	0	0	7
SV	0	0	1	0	0	0	0	0	0	0	1
SZ	2	0	3	2	1	0	0	0	0	2	10
TR	0	0	0	1	1	0	1	0	0	0	3
TZ	1	1	1	1	1	11	1	0	0	0	17
UA	0	1	2	2	1	2	0	0	2	3	13
US	522	693	538	606	840	663	707	1074	644	408	6695
VG	0	1	0	0	0	0	0	0	0	0	1
XX	15	2	0	0	0	5	0	1	0	2	25
YU	0	0	0	0	0	0	0	0	2	0	2
ZA	87	178	74	75	117	112	158	148	114	50	1113
ZM	0	0	0	0	0	0	2	3	0	1	6
ZW	4	5	3	2	4	2	4	6	12	1	43
Grand Total	1269	1424	1043	1192	1804	1481	1590	1899	1208	811	13,721

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, hunting trophy purpose, on 03/23/2016.

Table 21: International trade in leopards and their parts for "hunting trophy" purposes from all sources: Exporting countries (range States in bold).

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
AE	2	0	0	0	0	0	0	0	0	0	2
AR	0	0	0	0	0	0	2	0	3	0	5
AT	3	0	0	1	1	0	2	1	1	1	10
AU	0	0	1	0	0	0	0	0	0	0	1
BE	0	0	0	0	0	0	0	0	1	0	1
BH	0	0	2	0	0	0	0	0	0	0	2
BR	0	0	0	0	1	0	0	0	0	0	1
BW	54	51	59	58	40	34	42	66	28	4	436
CA	0	0	0	4	0	0	0	4	0	0	8
CF	38	28	29	17	110	70	29	23	3	0	347
CH	4	0	0	0	0	0	0	0	0	0	4
CL	0	0	0	0	0	4	0	0	0	0	4
DE	2	0	3	1	0	0	0	1	8	1	16
DK	0	0	0	0	0	0	0	0	0	1	1
ES	0	0	1	0	0	0	0	0	0	2	3
ET	3	2	0	1	6	2	2	2	1	2	21
FI	1	1	0	0	0	0	0	0	0	1	3
FR	4	1	2	1	3	0	0	3	0	0	14
GB	2	0	0	0	2	0	0	0	0	0	4
IR	0	0	0	0	0	2	0	0	0	0	2
IT	1	1	0	0	1	0	0	1	0	0	4
MX	0	0	0	0	0	2	0	3	0	0	5
MZ	73	68	58	42	71	60	168	241	161	67	1009
NA	208	236	174	216	362	202	154	122	122	121	1917
NZ	0	0	0	0	0	0	0	0	0	1	1
PT	1	0	0	0	0	0	0	0	0	0	1
QA	0	0	0	0	0	0	2	0	0	0	2
TN	0	0	0	2	0	0	0	0	0	0	2
TW	0	0	0	0	3	0	0	0	0	0	3
TZ	351	344	239	294	511	394	235	310	222	188	3088
UG	0	0	0	0	5	0	1	2	0	2	10
US	2	5	3	12	10	8	5	15	6	2	68
UY	0	0	0	0	1	0	0	0	0	0	1
XX	0	0	0	0	0	1	1	0	0	2	4
ZA	114	254	131	160	242	331	422	286	159	192	2291
ZM	77	77	72	96	101	105	128	170	65	4	895
ZW	329	356	269	287	334	266	397	649	428	220	3535
Grand Total	1269	1424	1043	1192	1804	1481	1590	1899	1208	811	13721

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, hunting trophy purpose, on 03/23/2016.

Table 22: International trade in leopards trophies for "personal" purposes from all sources: Importing countries (range States in bold).

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	AE	4	7	5	0	0	4	0	1	2	0	
trophies	AT	3	2	6	12	4	1	2	0	2	2	34
trophies	AU	2	0	0	0	1	0	1	0	0	1	
trophies	BG	0	1	0	0	1	0	0	0	0	0	
trophies	BH	0	2	0	0	0	0	0	0	0	0	
trophies	BS	0	1	0	1	1	0	0	0	0	0	
trophies	CA	3	0	0	0	1	0	0	1	0	2	

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	CH	0	0	0	2	0	0	20	0	1	0	23
trophies	CL	0	0	1	1	0	0	0	0	0	0	
trophies	CN	0	0	0	0	0	0	0	2	0	0	
trophies	CR	0	2	0	0	0	0	0	0	0	0	
trophies	CS	0	0	0	1	0	0	0	0	0	0	
trophies	DE	4	0	3	0	3	3	0	1	0	0	
trophies	EC	0	0	0	0	0	0	1	0	0	0	
trophies	EE	0	0	0	1	0	0	0	0	0	0	
trophies	ES	0	0	0	0	0	0	3	1	11	0	15
trophies	FI	0	1	0	0	0	1	0	0	0	0	
trophies	FR	0	0	34	141	75	62	16	75	28	27	458
trophies	GB	0	0	0	1	0	0	0	0	0	0	
trophies	IM	0	0	0	0	0	0	0	0	0	1	
trophies	IS	0	0	0	0	1	0	0	0	0	0	
trophies	IT	0	0	0	0	0	0	0	0	2	0	
trophies	LB	0	0	1	3	2	2	2	0	0	0	
trophies	LI	1	0	0	0	0	0	0	0	0	0	
trophies	MA	0	0	0	1	1	1	2	0	0	1	
trophies	MX	1	0	1	2	0	0	0	1	0	0	
trophies	NG	0	0	0	0	0	0	0	4	0	0	
trophies	NL	0	0	1	0	1	0	0	0	0	0	
trophies	NZ	0	1	0	0	0	1	0	0	0	0	
trophies	PH	0	0	0	0	41	5	0	0	0	0	46
trophies	PK	0	0	0	0	0	0	1	0	0	0	
trophies	PL	0	0	0	0	0	0	0	1	0	0	
trophies	QA	0	0	0	0	0	0	1	0	0	0	
trophies	RU	0	0	0	5	5	2	2	4	14	5	37
trophies	SE	0	1	0	0	0	0	0	3	0	0	
trophies	SG	0	0	0	0	1	0	0	0	1	0	
trophies	SI	0	0	0	1	2	0	0	0	0	0	
trophies	SZ	4	0	0	0	0	0	0	0	0	0	
trophies	US	3	3	3	2	1	0	0	11	7	1	31
trophies	**ZA**	0	0	0	0	0	0	2	9	0	0	
Total		25	21	55	174	141	82	53	114	68	40	773

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus* trophies, all sources, hunting trophy purpose, on 06/06/2016.

Table 23: International trade in leopards trophies for "personal" purposes from all sources: Exporting countries (range States in bold).

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	AE	0	0	0	0	0	0	1	0	0	0	
trophies	AR	0	0	0	0	0	0	2	0	0	0	
trophies	AU	0	0	0	0	0	0	0	1	0	0	
trophies	BH	0	0	0	0	0	0	0	0	1	0	
trophies	**BW**	0	0	0	2	4	0	3	22	21	1	53
trophies	**CF**	0	0	13	16	19	18	10	8	1	0	85
trophies	DE	0	0	0	5	0	0	3	0	5	1	
trophies	**ET**	0	4	0	0	1	0	0	0	0	1	
trophies	FR	0	3	0	0	0	0	0	0	0	0	
trophies	GB	0	1	0	0	0	0	0	1	0	0	
trophies	**KE**	0	0	0	0	1	0	1	0	0	0	
trophies	MX	0	1	0	0	0	0	0	0	0	0	

trophies	**MZ**	4	0	1	12	2	4	2	6	1	6	38
trophies	**NA**	3	2	8	27	19	7	6	4	7	3	86
trophies	NL	0	0	0	0	0	0	0	1	0	0	
trophies	NO	0	0	0	1	1	0	0	2	0	0	
trophies	NZ	0	0	0	0	0	0	0	0	0	1	
trophies	**TZ**	6	4	22	94	36	35	16	54	17	19	303
trophies	**UG**	0	0	0	0	1	0	0	0	0	0	
trophies	US	0	0	0	0	0	1	0	0	0	0	
trophies	**ZA**	3	4	2	7	44	11	0	0	4	2	77
trophies	**ZM**	2	0	2	2	5	2	3	4	4	1	
trophies	**ZW**	7	2	7	8	8	4	6	11	7	5	65

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus* trophies, all sources, hunting trophy purpose, on 06/06/2016.

Table 24: International trade in leopards and their parts for "scientific" purposes from all sources

Term	Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		0	0	0	0	0	0	1	0	0	0	1
bones		0	0	0	257	0	0	0	0	0	0	257
derivatives		0	0	0	0	0	0	50	0	0	0	50
hair	kg	0.486	0	0	0.2	0	0	0	0	0	0	0.686
hair		0	6	0	10	209	0	0	2	7	0	234
live		2	0	0	0	1	1	0	0	0	0	4
skin pieces		0	0	0	1	0	0	0	0	0	0	1
skins		0	0	0	7	0	0	0	0	0	0	7
specimens	flasks	0	3	0	0	0	0	0	0	0	0	3
specimens	g	0	300	0	0	0	0	0	0	16	36	352
specimens	kg	0	0.3	0	0	0	15	0	0	0	0	15.3
specimens	ml	0	5.5	0	0	0	6	0	60	1.5	0	73
specimens		126	108	99	260	360	437	311	1384	140	1034	4259
teeth	g	65	0	0	0	0	0	0	0	0	0	65

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, scientific purpose, on 06/06/2016.

Table 25: International trade in leopards and their parts for "scientific" purposes from all sources: Importing countries (range States in bold).

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
hair		AU	0	0	0	0	0	0	0	2	0	0
hair		CH	0	6	0	0	0	0	0	0	0	0
specimens	ml	CH	0	5	0	0	0	0	0	0	0	0
specimens		CH	0	100	46	30	0	0	0	0	6	3
specimens	g	CN	0	0	0	0	0	0	0	0	0	36
bones		DE	0	0	0	257	0	0	0	0	0	0
specimens	ml	DE	0	0	0	0	0	0	0	60	0	0
specimens		DE	126	0	53	44	1	100	30	1233	0	901
hair	kg	FR	0.486	0	0	0	0	0	0	0	0	0
teeth	g	FR	65	0	0	0	0	0	0	0	0	0
derivatives		GB	0	0	0	0	0	0	50	0	0	0
hair		GB	0	0	0	0	209	0	0	0	0	0
specimens	flasks	GB	0	3	0	0	0	0	0	0	0	0
specimens		GB	0	8	0	0	343	0	0	0	0	0
live		GT	0	0	0	0	0	1	0	0	0	0
specimens	ml	IL	0	0	0	0	0	0	0	0	1.5	0

live		JO	0	0	0	0	1	0	0	0	0	0
hair	kg	JP	0	0	0	0.2	0	0	0	0	0	0
live		JP	2	0	0	0	0	0	0	0	0	0
specimens	g	JP	0	300	0	0	0	0	0	0	0	0
specimens	kg	JP	0	0.3	0	0	0	15	0	0	0	0
bodies		KR	0	0	0	0	0	0	1	0	0	0
hair		NL	0	0	0	10	0	0	0	0	0	0
specimens		NO	0	0	0	0	0	0	0	1	0	0
hair		US	0	0	0	0	0	0	0	0	7	0
skin pieces		US	0	0	0	1	0	0	0	0	0	0
skins		US	0	0	0	7	0	0	0	0	0	0
specimens	g	US	0	0	0	0	0	0	0	0	16	0
specimens	ml	US	0	0	0	0	0	6	0	0	0	0
specimens		US	0	0	0	186	0	286	281	150	39	0
specimens		US	0	0	0	0	0	51	0	0	0	0
specimens	ml	**ZA**	0	0.5	0	0	0	0	0	0	0	0
specimens		**ZA**	0	0	0	0	16	0	0	0	95	130

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, scientific purpose, on 06/06/2016.

Table 26: International trade in leopards and their parts for "scientific" purposes from all sources: Exporting countries (range States in bold).

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
live		AE	0	0	0	0	1	0	0	0	0	0
specimens		AE	0	0	35	5	0	0	20	0	2	0
bodies		BE	0	0	0	0	0	0	1	0	0	0
hair		**BW**	0	6	0	0	0	0	0	0	0	0
specimens	ml	**BW**	0	5	0	0	0	0	0	0	0	0
specimens		**BW**	0	4	11	25	16	0	0	0	60	0
specimens		**CF**	0	0	0	0	0	0	0	0	6	3
specimens		CH	125	0	0	0	0	0	0	0	0	0
hair	kg	DJ	0.486	0	0	0	0	0	0	0	0	0
teeth	g	DJ	65	0	0	0	0	0	0	0	0	0
specimens		DK	0	0	0	0	0	0	0	2	0	0
specimens		GA	0	0	0	0	0	0	0	0	20	0
specimens		GQ	0	0	0	0	0	0	5	0	0	0
live		ID	2	0	0	0	0	0	0	0	0	0
specimens	ml	**KE**	0	0.5	0	0	0	0	0	0	1.5	0
specimens		**KE**	0	0	0	0	0	51	0	0	0	0
specimens	kg	KH	0	0	0	0	0	15	0	0	0	0
specimens		LR	0	0	0	0	0	0	0	0	0	1
live		MX	0	0	0	0	0	1	0	0	0	0
specimens	ml	**NA**	0	0	0	0	0	6	0	60	0	0
specimens		**NA**	0	0	0	0	0	100	0	1233	34	1030
skin pieces		NL	0	0	0	1	0	0	0	0	0	0
skins		NL	0	0	0	7	0	0	0	0	0	0
hair	kg	RU	0	0	0	0.2	0	0	0	0	0	0
specimens	g	RU	0	0	0	0	0	0	0	0	0	36
specimens		RU	0	0	0	186	343	286	286	0	0	0
specimens	flasks	SG	0	3	0	0	0	0	0	0	0	0
specimens		SN	0	0	0	0	0	0	0	0	18	0
hair		**TZ**	0	0	0	10	0	0	0	0	0	0
specimens		**UG**	1	0	0	0	0	0	0	0	0	0
hair		US	0	0	0	0	0	0	0	2	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
specimens	g	US	0	300	0	0	0	0	0	0	0	0
specimens	kg	US	0	0.3	0	0	0	0	0	0	0	0
specimens		US	0	0	0	0	1	0	0	0	0	0
derivatives		**ZA**	0	0	0	0	0	0	50	0	0	0
hair		**ZA**	0	0	0	0	209	0	0	0	0	0
specimens		**ZA**	0	0	0	0	0	0	0	149	0	0
bones		**ZM**	0	0	0	257	0	0	0	0	0	0
hair		**ZM**	0	0	0	0	0	0	0	0	7	0
specimens	g	**ZM**	0	0	0	0	0	0	0	0	16	0
specimens		**ZM**	0	104	53	44	0	0	0	0	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, scientific purpose, on 06/06/2016.

Table 26: International trade in leopards and their parts for "breeding in captivity" purposes from all sources: Exporting countries (range States in bold).

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	AE	0	0	0	1	0	5	0	1	0	0	7
live	BE	0	1	0	0	1	0	0	0	4	0	6
live	CA	0	0	0	1	0	0	0	0	0	0	1
live	CZ	0	0	0	0	0	0	0	1	3	0	4
live	DE	1	0	0	0	1	0	1	0	0	0	3
live	FR	0	0	0	0	0	0	0	1	0	0	1
live	GB	0	0	0	0	0	0	1	0	0	0	1
live	ID	0	0	0	0	0	0	2	0	0	0	2
live	ML	0	0	0	2	0	0	0	0	0	0	2
live	**SZ**	0	0	0	0	1	0	0	0	0	0	1
live	UA	0	0	0	0	1	0	0	0	0	0	1
live	YE	0	0	6	0	0	0	0	0	0	0	6
live	**ZA**	1	2	2	1	0	0	1	1	0	0	8
Total												43

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, breeding in captivity purpose, on 06/06/2016.

Table 27: International trade in leopards and their parts for "breeding in captivity" purposes from all sources: Importing countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	AE	2	3	8	0	0	0	0	0	3	0	16
live	AM	0	0	0	0	1	5	0	0	0	0	6
live	BH	0	0	0	0	0	0	1	0	0	0	1
live	EG	0	0	0	0	0	0	0	1	0	0	1
live	GA	0	0	0	0	0	0	3	1	0	0	4
live	GM	0	0	0	2	0	0	0	0	0	0	2
live	JP	0	0	0	0	0	0	1	0	0	0	1
live	PK	0	0	0	1	0	0	0	0	0	0	1
live	RU	0	0	0	0	0	0	0	2	0	0	2
live	SA	0	0	0	0	0	0	0	0	4	0	4
live	SY	0	0	0	0	1	0	0	0	0	0	1
live	TH	0	0	0	2	1	0	0	0	0	0	3
live	ZA	0	0	0	0	1	0	0	0	0	0	1

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, breeding in captivity purpose, on 06/06/2016.

Table 28: International trade in leopards and their parts for "educational" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	BW	0	0	1	0	0	0	0	0	0	0	1
bodies	ZA	1	0	0	0	0	1	2	4	1	0	9
bodies	ZW	0	0	1	0	0	0	0	0	0	0	1
derivatives	DK	0	0	635	0	0	0	0	0	0	0	635
derivatives	SL	0	0	5	0	0	0	0	0	0	0	5
leather products (small)	AE	0	0	0	0	0	1	0	0	0	0	1
live	CY	0	0	0	0	3	0	0	0	0	0	3
live	GT	0	0	0	0	0	0	0	1	0	0	1
skins	AE	0	1	1	1	3	1	0	0	0	0	7
skins	CH	0	1	1	0	0	0	0	0	0	0	2
skins	TZ	0	0	0	0	0	0	0	1	0	0	1
skins	US	0	0	0	0	0	0	1	0	1	0	2
skulls	GB	0	0	0	0	0	1	0	0	0	0	1
skulls	TN	0	0	0	1	0	0	0	0	0	0	1
skulls	TZ	0	0	0	0	0	0	0	1	0	0	1
skulls	ZA	1	0	0	0	0	0	0	2	0	0	3
specimens	AE	0	0	0	1	0	0	0	0	0	0	1
specimens	TH	0	0	0	0	0	0	1	0	0	0	1
specimens	ZA	4	0	0	1	1	2	0	0	0	1	9
specimens	ZW	0	0	0	0	0	2	0	0	0	0	2
teeth	SY	0	0	0	0	0	12	0	0	0	0	12
trophies	ZA	2	0	1	1	1	1	0	1	2	0	9
trophies	ZW	0	0	2	0	0	2	0	0	0	0	4
Total												712

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, breeding in educational purpose, on 06/06/2016.

Table 29: International trade in leopards and their parts for "law enforcement/judicial/forensic" purposes from all sources: Exporting countries.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
skin pieces		GA	0	0	0	0	0	0	0	5	0	0
skins	kg	GA	0	0	0	0	0	0	0	0.19	0	0
skins		GB	1	0	0	0	0	0	0	0	0	0
skins		NL	0	0	3	0	0	0	0	0	0	0
skins		SZ	0	0	0	0	0	0	0	2	0	0
specimens		SZ	0	0	0	0	0	0	0	2	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, law enforcement/judicial/forensic purpose, on 06/06/2016.

Table 29: International trade in leopards and their parts for "medical" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
specimens	AE	0	0	0	0	0	0	0	0	0	2
specimens	BW	0	0	0	0	0	0	0	27	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, medical purpose, on 06/06/2016.

Table 30: International trade in leopards and their parts for "reintroduction or introduction into the wild" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
live	TM	0	0	0	0	2	0	0	0	0	0
live	ZA	0	0	0	0	0	0	6	6	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, reintroduction or introduction into the wild purpose, on 06/06/2016.

Table 31: International trade in leopards and their parts for "personal" purposes from all sources.

Term	Unit	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		3	0	3	2	5	0	4	3	4	2	26
bone pieces		0	0	0	2	0	0	0	0	0	0	2
bones		0	0	2	40	2	0	0	0	6	0	50
carvings		1	0	0	0	3	1	0	0	0	0	5
claws		0	0	2	1	2	6	20	0	0	1	32
derivatives	kg	0	0	0.04	0.062	2.9562	11.35	0	0	0	0	14.4082
derivatives	g	0	0	0	0	120	2315	0	0	0	0	2435
derivatives		1091	1386	1588.5	1096	1256	666	1392	0	0	1	8476.5
garments		1	0	2	0	1	4	0	1	2	1	12
hair		0	0	0	0	0	0	2	0	1	0	3
hair products		0	0	0	0	0	0	0	1	0	0	1
leather products (large)		0	0	0	0	1	1	0	1	0	0	3
leather products (small)		3	1	2	1	0	4	1	2	1	0	15
live		3	0	0	0	4	0	0	0	0	0	7
medicine	kg	0	0	0	0	0	0	0	0	0	1.45	1.45
medicine		0	0	0	0	0	0	0	123	30	54	207
plates		2	0	0	0	0	0	0	0	0	0	2
shoes		0	0	4	0	0	0	0	0	0	0	4
skin pieces	kg	0	0	0	0	10	0	0	0	0	0	10
skin pieces		5	0	1	8	1	1	1	4	3	1	25
skins	kg	0	0	0	0	0	0	0	0	0	1.9	1.9
skins		24	34	27	22	16	12	10	25	11	10	191
skulls	kg	0	0	0	0	0	0	0	0	0	0.65	0.65
skulls		10	1	11	3	6	6	7	2	3	3	52
specimens		2	0	0	0	0	1	0	5	1	0	9
tails		0	0	0	0	0	1	0	0	0	0	1
teeth		0	0	9	0	1	9	3	0	0	1	23
trophies		25	21	55	174	141	82	53	114	68	40	773
unspecified		1	0	0	0	0	0	0	0	0	0	1
Total #		1171	1443	1706.5	1349	1439	794	1493	281	130	114	9920.5
Total g		0	0	0	0	120	2315	0	0	0	0	2435
Total kg		0	0	0.04	0.062	12.9562	11.35	0	0	0	4	28.4082

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, personal purpose, on 06/06/2016.

Table 32: International trade in leopards and their parts for "personal" purposes from all sources: Exporting countries.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
bodies		BE	0	0	0	0	0	0	0	0	0	1
bodies		CA	0	0	0	0	0	0	1	1	0	0
bodies		CH	0	0	1	0	0	0	0	0	3	0
bodies		FR	3	0	1	0	0	0	3	1	0	1
bodies		NA	0	0	1	1	0	0	0	0	0	0
bodies		NL	0	0	0	0	0	0	0	1	0	0
bodies		US	0	0	0	1	0	0	0	0	0	0
bodies		ZA	0	0	0	0	5	0	0	0	1	0
bone pieces		ZA	0	0	0	2	0	0	0	0	0	0
bones		CN	0	0	2	40	0	0	0	0	0	0
bones		NA	0	0	0	0	0	0	0	0	2	0
bones		TZ	0	0	0	0	0	0	0	0	4	0
bones		ZA	0	0	0	0	2	0	0	0	0	0
carvings		JE	0	0	0	0	0	1	0	0	0	0
carvings		NZ	0	0	0	0	3	0	0	0	0	0
carvings		ZA	1	0	0	0	0	0	0	0	0	0
claws		CR	0	0	0	0	0	0	1	0	0	0
claws		FR	0	0	0	0	0	0	18	0	0	0
claws		KH	0	0	0	0	0	0	1	0	0	0
claws		NP	0	0	0	0	0	0	0	0	0	1
claws		US	0	0	2	0	0	0	0	0	0	0
claws		VN	0	0	0	1	1	2	0	0	0	0
claws		ZA	0	0	0	0	1	4	0	0	0	0
derivatives		AU	0	0	0	4	0	0	0	0	0	0
derivatives		CA	0	61	0	0	0	1	0	0	0	0
derivatives		CI	0	5	0	0	0	0	0	0	0	0
derivatives	g	CN	0	0	0	0	120	2200	0	0	0	0
derivatives	kg	CN	0	0	0.04	0.026	2.9562	11.35	0	0	0	0
derivatives		CN	1019	1166	1344.5	858	1241	632	1392	0	0	0
derivatives		DE	0	1	3	0	0	0	0	0	0	0
derivatives		GB	0	0	0	6	0	0	0	0	0	0
derivatives		HK	0	30	5	65	6	25	0	0	0	0
derivatives	kg	ID	0	0	0	0.036	0	0	0	0	0	0
derivatives		ID	0	0	0	2	0	0	0	0	0	0
derivatives		JP	0	0	1	0	0	0	0	0	0	0
derivatives		KH	0	0	49	24	0	7	0	0	0	0
derivatives		KR	15	0	0	0	2	0	0	0	0	0
derivatives		LA	0	10	0	0	0	0	0	0	0	0
derivatives	g	MY	0	0	0	0	0	115	0	0	0	0
derivatives		MY	0	0	0	13	2	0	0	0	0	0
derivatives		NG	0	0	3	0	0	0	0	0	0	0
derivatives		PH	0	13	6	0	0	0	0	0	0	0
derivatives		PT	0	0	3	0	0	0	0	0	0	0
derivatives		SG	0	0	0	62	2	0	0	0	0	0
derivatives		TH	0	0	0	16	0	0	0	0	0	0
derivatives		TW	0	13	0	0	0	0	0	0	0	0
derivatives		US	0	0	0	0	0	0	0	0	0	1
derivatives		VN	16	37	60	20	3	0	0	0	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
derivatives		XX	41	50	114	26	0	1	0	0	0	0
garments		AT	0	0	1	0	0	0	0	0	0	0
garments		CA	0	0	0	0	1	3	0	0	0	0
garments		DK	0	0	0	0	0	0	0	0	1	0
garments		GB	0	0	0	0	0	0	0	0	1	1
garments		MX	0	0	1	0	0	0	0	0	0	0
garments		ZA	1	0	0	0	0	1	0	1	0	0
hair		GB	0	0	0	0	0	0	0	0	1	0
hair		KH	0	0	0	0	0	0	2	0	0	0
hair products		NG	0	0	0	0	0	0	0	1	0	0
leather products (large)		CA	0	0	0	0	0	1	0	0	0	0
leather products (large)		GB	0	0	0	0	0	0	0	1	0	0
leather products (large)		ZA	0	0	0	0	1	0	0	0	0	0
leather products (small)		AU	0	0	1	0	0	0	0	0	0	0
leather products (small)		GB	3	0	1	0	0	0	0	1	0	0
leather products (small)		GH	0	0	0	1	0	0	0	0	0	0
leather products (small)		LR	0	0	0	0	0	0	1	0	0	0
leather products (small)		NZ	0	0	0	0	0	0	0	1	0	0
leather products (small)		SD	0	0	0	0	0	4	0	0	0	0
leather products (small)		ZA	0	1	0	0	0	0	0	0	1	0
live		BE	2	0	0	0	0	0	0	0	0	0
live		SD	1	0	0	0	0	0	0	0	0	0
live		UA	0	0	0	0	2	0	0	0	0	0
live		ZA	0	0	0	0	2	0	0	0	0	0
medicine	kg	CN	0	0	0	0	0	0	0	0	0	1.45
medicine		CN	0	0	0	0	0	0	0	123	29	6
medicine		HK	0	0	0	0	0	0	0	0	1	48
plates		CH	1	0	0	0	0	0	0	0	0	0
plates		IN	1	0	0	0	0	0	0	0	0	0
shoes		SD	0	0	4	0	0	0	0	0	0	0
skin pieces		CH	0	0	0	0	0	0	0	0	0	1
skin pieces		CN	0	0	1	0	0	0	0	0	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
skin pieces	kg	FR	0	0	0	0	10	0	0	0	0	0
skin pieces		GB	0	0	0	0	0	0	0	2	0	0
skin pieces		GH	0	0	0	2	0	0	0	0	0	0
skin pieces		LA	1	0	0	0	0	0	0	0	0	0
skin pieces		NG	0	0	0	0	1	1	0	0	0	0
skin pieces		NI	1	0	0	0	0	0	0	0	0	0
skin pieces		NZ	0	0	0	0	0	0	1	0	0	0
skin pieces		PH	0	0	0	0	0	0	0	0	1	0
skin pieces		SA	2	0	0	0	0	0	0	0	0	0
skin pieces		TH	0	0	0	0	0	0	0	1	0	0
skin pieces		TW	1	0	0	0	0	0	0	0	0	0
skin pieces		ZA	0	0	0	6	0	0	0	1	2	0
skins		AE	6	0	0	0	0	0	0	0	0	0
skins		AU	0	0	0	0	0	0	2	0	0	0
skins	kg	BE	0	0	0	0	0	0	0	0	0	1.9
skins		CA	0	0	0	2	0	2	0	1	2	0
skins		CD	1	0	0	3	1	0	0	5	0	0
skins		CH	0	0	0	0	0	0	1	0	0	0
skins		CI	2	0	0	0	0	0	0	0	0	0
skins		CM	1	0	0	0	0	0	0	0	0	0
skins		CY	0	0	1	0	0	0	0	0	0	0
skins		DE	0	2	0	0	0	0	0	0	0	0
skins		FR	0	0	0	1	0	0	2	0	0	0
skins		GB	3	4	4	0	0	0	0	2	1	1
skins		GH	1	0	0	0	0	0	0	0	0	0
skins		HK	0	0	0	1	0	0	0	0	0	0
skins		IE	0	0	1	0	0	0	0	0	0	0
skins		IR	1	0	0	0	0	0	0	0	0	0
skins		KE	0	0	0	0	1	0	0	0	0	0
skins		LR	0	0	0	1	0	0	0	0	0	0
skins		ML	0	1	0	0	0	0	0	0	0	0
skins		MW	0	0	0	0	2	0	0	1	0	0
skins		MZ	0	1	0	0	5	0	0	0	0	0
skins		NA	2	8	12	0	0	1	1	0	0	0
skins		NG	1	2	0	0	0	1	0	0	1	0
skins		NL	0	0	0	0	0	0	0	0	0	2
skins		NO	0	0	0	0	1	0	0	0	1	0
skins		NP	2	0	0	0	0	0	0	0	0	0
skins		NZ	0	4	0	6	1	2	0	4	0	0
skins		PT	0	0	0	0	0	0	1	0	0	0
skins		SA	0	0	1	0	0	0	0	0	0	0
skins		SD	0	0	0	0	0	0	1	0	0	0
skins		SG	0	0	0	0	0	1	0	0	0	0
skins		SZ	0	0	0	0	1	0	0	2	0	0
skins		TZ	0	3	1	0	0	0	0	0	0	2
skins		UY	0	0	0	0	1	0	0	0	0	0
skins		XX	0	0	0	0	1	0	0	0	0	0
skins		ZA	0	5	2	3	0	5	2	0	4	4
skins		ZM	2	2	3	4	0	0	0	0	0	0
skins		ZW	2	2	2	1	2	0	0	10	2	1
skulls		AE	6	0	0	0	0	0	0	0	0	0
skulls		AT	0	0	0	1	0	0	0	0	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
skulls		CA	0	0	0	1	0	0	0	0	0	0
skulls		CG	0	0	0	0	1	0	0	0	0	0
skulls		CH	0	0	0	0	0	1	0	0	0	0
skulls		FR	0	0	0	0	1	2	5	1	0	0
skulls		MX	0	0	0	0	0	1	0	0	0	0
skulls		NA	1	0	8	0	0	0	0	1	0	0
skulls		NO	0	0	0	0	0	0	0	0	2	0
skulls		TZ	0	0	1	0	0	0	0	0	0	1
skulls	kg	ZA	0	0	0	0	0	0	0	0	0	0.65
skulls		ZA	0	1	0	0	3	1	2	0	1	1
skulls		ZM	1	0	0	0	0	0	0	0	0	0
skulls		ZW	2	0	2	1	1	1	0	0	0	1
specimens		AE	0	0	0	0	0	0	0	2	0	0
specimens		CH	0	0	0	0	0	0	0	2	1	0
specimens		TZ	1	0	0	0	0	0	0	0	0	0
specimens		US	0	0	0	0	0	1	0	0	0	0
specimens		ZA	0	0	0	0	0	0	0	1	0	0
specimens		ZW	1	0	0	0	0	0	0	0	0	0
tails		ZA	0	0	0	0	0	1	0	0	0	0
teeth		FR	0	0	0	0	0	1	1	0	0	0
teeth		KE	0	0	0	0	0	0	1	0	0	0
teeth		NA	0	0	8	0	0	0	0	0	0	0
teeth		NG	0	0	0	0	0	8	0	0	0	0
teeth		US	0	0	0	0	0	0	0	0	0	1
teeth		VN	0	0	0	0	1	0	1	0	0	0
teeth		ZW	0	0	1	0	0	0	0	0	0	0
trophies		AE	0	0	0	0	0	0	1	0	0	0
trophies		AR	0	0	0	0	0	0	2	0	0	0
trophies		AU	0	0	0	0	0	0	0	1	0	0
trophies		BH	0	0	0	0	0	0	0	0	1	0
trophies		BW	0	0	0	2	4	0	3	22	21	1
trophies		CF	0	0	13	16	19	18	10	8	1	0
trophies		DE	0	0	0	5	0	0	3	0	5	1
trophies		ET	0	4	0	0	1	0	0	0	0	1
trophies		FR	0	3	0	0	0	0	0	0	0	0
trophies		GB	0	1	0	0	0	0	0	1	0	0
trophies		KE	0	0	0	0	1	0	1	0	0	0
trophies		MX	0	1	0	0	0	0	0	0	0	0
trophies		MZ	4	0	1	12	2	4	2	6	1	6
trophies		NA	3	2	8	27	19	7	6	4	7	3
trophies		NL	0	0	0	0	0	0	0	1	0	0
trophies		NO	0	0	0	1	1	0	0	2	0	0
trophies		NZ	0	0	0	0	0	0	0	0	0	1
trophies		TZ	6	4	22	94	36	35	16	54	17	19
trophies		UG	0	0	0	0	1	0	0	0	0	0
trophies		US	0	0	0	0	0	1	0	0	0	0
trophies		ZA	3	4	2	7	44	11	0	0	4	2
trophies		ZM	2	0	2	2	5	2	3	4	4	1
trophies		ZW	7	2	7	8	8	4	6	11	7	5
unspecified		LA	1	0	0	0	0	0	0	0	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, personal purpose, on 06/06/2016.

Table 33: International trade in leopards and their parts for "personal" purposes from all sources: Importing countries.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
bodies		CA	0	0	0	1	1	0	0	0	0	1
bodies		CH	2	0	0	0	0	0	0	0	0	1
bodies		CN	0	0	0	0	0	0	0	1	0	0
bodies		DE	0	0	1	1	0	0	0	0	0	0
bodies		FR	0	0	0	0	1	0	0	0	0	0
bodies		GB	0	0	0	0	0	0	0	0	3	0
bodies		IS	0	0	1	0	0	0	0	0	0	0
bodies		LB	0	0	1	0	0	0	0	1	0	0
bodies		MA	0	0	0	0	0	0	1	0	0	0
bodies		NG	0	0	0	0	0	0	2	0	0	0
bodies		NZ	0	0	0	0	2	0	0	0	0	0
bodies		PL	0	0	0	0	0	0	0	0	1	0
bodies		RU	0	0	0	0	1	0	0	0	0	0
bodies		US	1	0	0	0	0	0	1	1	0	0
bone pieces		US	0	0	0	2	0	0	0	0	0	0
bones		NZ	0	0	2	40	0	0	0	0	0	0
bones		SG	0	0	0	0	0	0	0	0	2	0
bones		US	0	0	0	0	2	0	0	0	4	0
carvings		GB	0	0	0	0	3	0	0	0	0	0
carvings		US	1	0	0	0	0	0	0	0	0	0
carvings		XX	0	0	0	0	0	1	0	0	0	0
claws		CA	0	0	2	0	0	0	0	0	0	0
claws		CH	0	0	0	0	0	0	18	0	0	0
claws		GB	0	0	0	0	0	4	0	0	0	0
claws		NZ	0	0	0	0	1	0	0	0	0	0
claws		US	0	0	0	1	1	2	2	0	0	1
derivatives	g	NZ	0	0	0	0	120	1815	0	0	0	0
derivatives	g	US	0	0	0	0	0	500	0	0	0	0
derivatives	kg	NZ	0	0	0.04	0.062	0.6262	11.35	0	0	0	0
derivatives	kg	US	0	0	0	0	2.33	0	0	0	0	0
derivatives		CA	0	0	0	2	0	0	0	0	0	0
derivatives		DE	0	0	0	0	0	0	0	0	0	1
derivatives		NZ	0	0	454.5	745	817	427	0	0	0	0
derivatives		US	1091	1386	1134	349	439	239	1392	0	0	0
garments		GB	0	0	0	0	0	0	0	1	0	0
garments		IT	0	0	0	0	0	1	0	0	0	0
garments		NO	0	0	0	0	0	0	0	0	1	0
garments		NZ	1	0	0	0	0	0	0	0	0	0
garments		US	0	0	2	0	1	3	0	0	1	1
hair		US	0	0	0	0	0	0	2	0	1	0
hair products		US	0	0	0	0	0	0	0	1	0	0
leather products (large)		NZ	0	0	0	0	0	0	0	1	0	0
leather products (large)		PH	0	0	0	0	1	0	0	0	0	0
leather products (large)		US	0	0	0	0	0	1	0	0	0	0
leather products		AU	0	1	0	0	0	0	0	0	1	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
(small)												
leather products (small)		NZ	3	0	1	0	0	0	0	0	0	0
leather products (small)		RU	0	0	1	0	0	0	0	0	0	0
leather products (small)		US	0	0	0	1	0	4	1	2	0	0
live		AE	2	0	0	0	4	0	0	0	0	0
live		SA	1	0	0	0	0	0	0	0	0	0
medicine	kg	US	0	0	0	0	0	0	0	0	0	1.45
medicine		US	0	0	0	0	0	0	0	123	30	54
plates		US	2	0	0	0	0	0	0	0	0	0
shoes		US	0	0	4	0	0	0	0	0	0	0
skin pieces	kg	US	0	0	0	0	10	0	0	0	0	0
skin pieces		GR	0	0	0	0	0	0	1	0	0	0
skin pieces		NZ	0	0	0	6	1	0	0	0	0	0
skin pieces		US	5	0	1	2	0	1	0	4	3	1
skins	kg	AU	0	0	0	0	0	0	0	0	0	1.9
skins		AE	0	0	0	0	0	0	1	5	0	0
skins		AR	0	2	0	0	0	0	0	0	0	0
skins		AT	4	14	15	0	0	0	0	0	1	0
skins		AU	3	10	2	5	1	6	0	1	0	0
skins		BE	0	0	0	0	1	0	0	0	0	0
skins		CA	2	1	0	0	1	0	0	0	0	1
skins		CG	0	0	0	0	0	0	0	0	0	2
skins		CH	0	0	0	2	0	0	0	3	1	0
skins		CN	0	0	0	1	0	0	1	2	0	2
skins		DE	1	0	0	0	0	1	2	0	1	0
skins		DK	0	0	0	0	1	0	0	0	0	0
skins		FR	2	0	0	0	1	1	0	1	2	2
skins		GB	0	0	0	2	4	1	1	0	0	0
skins		IN	2	0	0	0	0	0	0	0	0	0
skins		IT	0	0	0	1	0	0	0	0	0	0
skins		LK	0	0	0	0	2	0	0	0	0	0
skins		MA	0	0	0	0	0	0	3	0	0	0
skins		NC	1	0	0	0	0	0	0	0	0	0
skins		NG	0	0	0	0	0	0	0	6	0	0
skins		NL	0	0	0	0	1	0	0	1	0	0
skins		NZ	2	0	3	0	0	0	0	0	0	0
skins		PF	0	0	0	1	0	0	0	0	0	0
skins		PT	0	0	1	0	0	0	0	0	0	0
skins		RU	0	0	0	0	0	0	0	0	2	0
skins		SE	0	0	0	0	0	0	0	0	1	0
skins		SZ	0	2	4	4	0	0	0	0	0	0
skins		TR	1	0	0	0	0	0	0	0	0	0
skins		US	4	5	2	6	2	3	2	6	3	1
skins		XX	0	0	0	0	0	0	0	0	0	2
skins		ZA	2	0	0	0	2	0	0	0	0	0
skulls	kg	BE	0	0	0	0	0	0	0	0	0	0.65
skulls		AE	0	0	0	0	0	0	1	0	0	0
skulls		AT	3	0	11	0	0	0	0	0	0	0
skulls		AU	0	0	0	0	0	1	0	0	0	0
skulls		BE	0	0	0	0	0	0	0	0	0	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
skulls		BS	0	0	0	0	2	0	0	0	0	0
skulls		CA	0	0	0	0	2	0	0	0	0	1
skulls		CH	0	0	0	1	0	0	0	0	0	0
skulls		DE	0	0	0	0	0	0	1	0	0	0
skulls		FI	0	0	0	0	0	1	0	0	0	0
skulls		FR	1	0	0	0	0	0	0	0	0	1
skulls		LB	0	0	0	0	0	2	0	1	0	0
skulls		MA	0	0	0	0	0	0	2	0	0	0
skulls		NA	0	1	0	0	0	0	0	0	0	0
skulls		NG	0	0	0	0	0	0	2	0	0	0
skulls		NZ	0	0	0	0	1	0	0	0	0	0
skulls		RU	0	0	0	0	0	0	1	0	0	0
skulls		SE	0	0	0	0	0	0	0	0	2	0
skulls		SG	0	0	0	0	0	0	0	0	1	0
skulls		US	1	0	0	1	1	2	0	1	0	0
skulls		ZA	5	0	0	1	0	0	0	0	0	0
specimens		CN	1	0	0	0	0	1	0	0	0	0
specimens		GB	0	0	0	0	0	0	0	4	1	0
specimens		KW	1	0	0	0	0	0	0	0	0	0
specimens		US	0	0	0	0	0	0	0	1	0	0
tails		GB	0	0	0	0	0	1	0	0	0	0
teeth		AT	0	0	8	0	0	0	0	0	0	0
teeth		NZ	0	0	1	0	0	0	0	0	0	0
teeth		SG	0	0	0	0	0	0	0	0	0	1
teeth		US	0	0	0	0	1	9	3	0	0	0
trophies		AE	4	7	5	0	0	4	0	1	2	0
trophies		AT	3	2	6	12	4	1	2	0	2	2
trophies		AU	2	0	0	0	1	0	1	0	0	1
trophies		BG	0	1	0	0	1	0	0	0	0	0
trophies		BH	0	2	0	0	0	0	0	0	0	0
trophies		BS	0	1	0	1	1	0	0	0	0	0
trophies		CA	3	0	0	0	1	0	0	1	0	2
trophies		CH	0	0	0	2	0	0	20	0	1	0
trophies		CL	0	0	1	1	0	0	0	0	0	0
trophies		CN	0	0	0	0	0	0	0	2	0	0
trophies		CR	0	2	0	0	0	0	0	0	0	0
trophies		CS	0	0	0	1	0	0	0	0	0	0
trophies		DE	4	0	3	0	3	3	0	1	0	0
trophies		EC	0	0	0	0	0	0	1	0	0	0
trophies		EE	0	0	0	1	0	0	0	0	0	0
trophies		ES	0	0	0	0	0	0	3	1	11	0
trophies		FI	0	1	0	0	0	1	0	0	0	0
trophies		FR	0	0	34	141	75	62	16	75	28	27
trophies		GB	0	0	0	1	0	0	0	0	0	0
trophies		IM	0	0	0	0	0	0	0	0	0	1
trophies		IS	0	0	0	0	1	0	0	0	0	0
trophies		IT	0	0	0	0	0	0	0	0	2	0
trophies		LB	0	0	1	3	2	2	2	0	0	0
trophies		LI	1	0	0	0	0	0	0	0	0	0
trophies		MA	0	0	0	1	1	1	2	0	0	1
trophies		MX	1	0	1	2	0	0	0	1	0	0
trophies		NG	0	0	0	0	0	0	0	4	0	0

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
trophies		NL	0	0	1	0	1	0	0	0	0	0
trophies		NZ	0	1	0	0	0	1	0	0	0	0
trophies		PH	0	0	0	0	41	5	0	0	0	0
trophies		PK	0	0	0	0	0	0	1	0	0	0
trophies		PL	0	0	0	0	0	0	0	1	0	0
trophies		QA	0	0	0	0	0	0	1	0	0	0
trophies		RU	0	0	0	5	5	2	2	4	14	5
trophies		SE	0	1	0	0	0	0	0	3	0	0
trophies		SG	0	0	0	0	1	0	0	0	1	0
trophies		SI	0	0	0	1	2	0	0	0	0	0
trophies		SZ	4	0	0	0	0	0	0	0	0	0
trophies		US	3	3	3	2	1	0	0	11	7	1
trophies		ZA	0	0	0	0	0	0	2	9	0	0
unspecified		US	1	0	0	0	0	0	0	0	0	0

Source: UNEP-WCMC CITES Trade Database searched by "net imports" of *Panthera pardus*, all sources, personal purpose, on 06/06/2016.

Table 34: International trade in leopards and their parts for "circus and travelling exhibition" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Totals
bodies	BE	0	0	0	0	0	0	1	1	0	1	3
bodies	ZW	3	0	0	0	0	0	0	0	0	0	3
claws	NL	0	0	0	0	0	0	0	0	8	0	8
garments	US	0	0	0	1	0	0	0	0	0	0	1
leather products (small)	AU	0	0	0	0	0	0	0	0	1	0	1
live	BW	0	0	0	0	0	4	0	0	0	0	4
live	BY	0	0	0	0	0	2	0	0	0	0	2
live	CH	0	1	0	0	0	0	0	0	0	0	1
live	DE	0	0	1	0	0	0	3	0	0	0	4
live	FR	2	0	0	0	0	0	0	0	0	0	2
live	GE	0	0	0	0	0	0	0	0	0	1	1
live	GT	0	0	0	0	0	0	0	1	0	0	1
live	HU	0	0	0	0	0	2	0	0	0	0	2
live	JP	1	0	1	0	0	0	0	0	0	0	2
live	KG	0	0	0	0	0	0	5	1	1	0	7
live	LB	0	0	0	0	0	0	0	1	0	0	1
live	LV	0	0	0	0	0	0	2	0	0	0	2
live	MX	0	0	0	6	0	9	1	0	0	7	23
live	NL	0	0	0	0	0	0	1	0	0	0	1
live	RO	2	0	0	0	0	0	0	0	9	0	11
live	RU	1	0	2	0	3	6	15	0	0	1	28
live	TH	0	2	0	0	0	0	0	0	0	0	2
live	TR	0	0	0	1	0	0	0	5	1	0	7
live	UA	0	2	1	1	0	0	0	1	0	0	5
live	US	0	0	2	0	0	0	0	0	0	0	2
live	UZ	0	0	0	0	0	0	0	0	2	0	2
live	XX	0	0	0	2	1	0	0	0	0	0	3
skin pieces	BR	0	0	0	0	2	0	0	0	0	0	2
skin pieces	DE	0	0	0	1	0	0	0	0	0	0	1
skins	AT	0	0	0	2	0	0	0	0	0	0	2
skins	AU	0	0	0	0	0	0	0	1	0	0	1

skins	CH	0	0	0	0	1	0	0	0	0	0	1
skins	DE	0	0	0	1	0	0	0	0	0	0	1
skins	GB	0	0	0	0	0	0	0	1	0	0	1
skins	IT	0	0	0	0	0	0	0	0	1	0	1
skins	RU	0	0	0	0	0	1	0	0	0	0	1
skins	TW	0	0	0	0	0	0	0	1	0	0	1
specimens	NA	0	0	0	0	0	1	0	0	0	0	1
specimens	RU	0	0	20	0	0	0	0	0	0	0	20
teeth	FR	0	0	0	0	0	0	0	0	0	5	5
trophies	CH	0	0	0	1	0	0	0	0	0	0	1
Total												168

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, circus and travelling exhibition purpose, on 06/06/2016.

Table 35: International trade in leopards and their parts for "zoo" purposes from all sources: Exporting countries.

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	BE	2	0	0	0	0	0	2	2	0	0	6
live	CH	0	0	0	3	2	0	0	0	0	0	5
live	CN	3	0	0	0	0	0	0	0	0	0	3
live	CZ	1	0	2	2	1	1	0	1	4	0	12
live	DE	0	0	0	0	1	3	0	4	0	0	8
live	DK	0	1	0	0	0	0	1	0	2	3	7
live	EE	0	0	0	0	1	0	1	1	2	0	5
live	ES	0	0	0	0	0	0	0	0	0	4	4
live	FR	0	0	2	6	0	1	1	2	2	1	15
live	GA	0	0	0	0	0	0	0	0	0	4	4
live	GB	0	2	1	2	0	0	0	1	0	0	6
live	GT	0	0	0	0	0	0	0	0	1	0	1
live	HU	2	3	1	1	0	0	1	0	0	0	8
live	ID	1	0	0	0	2	1	2	0	0	0	6
live	IN	2	0	0	0	0	0	0	0	0	0	2
live	IR	0	0	0	0	0	2	0	0	0	0	2
live	IT	0	0	0	0	0	0	0	0	0	1	1
live	JO	0	0	3	0	0	0	0	0	0	0	3
live	KR	0	0	0	0	0	1	0	0	0	0	1
live	KZ	0	2	3	0	1	0	0	1	0	0	7
live	MC	1	1	2	0	0	0	0	0	0	0	4
live	MX	0	0	0	0	0	2	0	0	0	0	2
live	NA	0	0	0	0	0	0	0	6	6	0	12
live	PL	0	0	0	0	0	0	0	0	1	0	1
live	PT	0	0	0	0	3	0	0	2	0	0	5
live	RS	0	0	0	0	0	3	0	0	0	2	5
live	RU	0	0	0	1	0	0	0	0	0	0	1
live	SD	1	3	2	0	0	0	0	0	0	0	6
live	SE	0	0	0	0	0	0	2	0	0	0	2
live	SG	1	1	0	0	0	0	0	0	0	0	2
live	SI	0	2	0	0	0	0	0	0	0	0	2
live	SK	1	0	0	0	0	0	0	0	0	0	1
live	TH	0	0	0	0	2	0	0	0	0	0	2
live	TN	0	0	0	0	2	0	0	0	0	0	2
live	UA	0	0	0	0	2	1	0	0	0	0	3
live	US	0	2	2	0	0	0	0	0	0	0	4

Term	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	XX	0	0	1	1	0	0	0	1	0	0	3
live	ZA	0	0	0	3	2	3	0	1	3	6	18
trophies	ZA	0	0	1	0	0	0	0	0	0	0	1
Total												182

Source: UNEP-WCMC CITES Trade Database searched by "net exports" of *Panthera pardus*, all sources, zoo purpose, on 06/06/2016.

Table 36. Gross Imports of *Panthera pardus* from Botswana, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		CN	0	0	1	0	0	0	0	0	0	0	1
claws		SE	0	0	0	0	0	0	0	16	0	0	16
hair		CH	0	6	0	0	0	0	0	0	0	0	6
live		ZA	0	0	0	0	0	4	0	0	0	0	4
skins		CH	0	0	2	0	0	0	0	0	0	0	2
skins		DK	0	0	0	0	0	0	1	0	0	0	1
skins		ES	0	0	0	0	0	0	1	0	0	0	1
skins		GB	0	0	0	0	1	0	0	0	0	0	1
skins		SE	0	0	0	0	0	0	0	1	0	0	1
skins		US	0	0	0	0	0	0	0	5	0	0	5
skins		ZA	0	2	0	0	2	0	1	0	0	0	5
skulls		DK	0	0	0	0	0	0	1	0	0	0	1
skulls		ES	0	0	0	0	0	0	4	1	0	0	5
skulls		FR	0	0	0	0	0	0	0	0	4	1	5
skulls		GB	0	0	0	0	1	0	0	0	0	0	1
skulls		IT	0	0	0	0	0	0	0	0	2	0	2
skulls		SE	0	0	0	0	0	0	0	1	0	0	1
skulls		US	0	0	0	0	0	0	1	11	6	0	18
skulls		ZA	0	1	0	0	1	0	15	9	1	0	27
specimens	ml	CH	0	5	0	0	0	0	0	0	0	0	5
specimens		CH	0	4	11	25	0	0	0	27	0	0	67
specimens		ZA	0	0	0	0	16	0	0	0	60	0	76
trophies	kg	FR	0	0	4	0	0	0	0	0	0	0	4
trophies		AE	0	0	0	2	0	0	0	0	0	0	2
trophies		DE	4	1	0	0	0	1	0	0	1	0	7
trophies		DK	0	0	0	0	0	0	1	0	0	0	1
trophies		ES	6	3	3	6	1	4	3	1	11	0	38
trophies		FR	3	1	1	2	4	0	0	0	5	1	17
trophies		GB	1	0	0	0	0	0	0	0	0	0	1
trophies		HU	0	0	0	1	1	0	0	0	4	0	6
trophies		IT	1	0	0	0	0	0	0	1	3	0	5
trophies		MX	3	4	6	2	1	0	0	0	0	0	16
trophies		RO	1	0	0	0	0	0	0	0	0	0	1
trophies		RU	1	0	0	3	1	1	2	2	0	0	10
trophies		SA	0	0	0	0	1	0	0	0	0	0	1
trophies		SE	0	0	3	0	0	0	0	1	0	0	4
trophies		US	21	35	35	33	28	15	1	13	8	2	191
trophies		ZA	13	4	5	11	2	13	12	12	1	0	73
bodies total			0	0	1	0	0	0	0	0	0	0	1
claws total			0	0	0	0	0	0	0	16	0	0	16
hair total			0	6	0	0	0	0	0	0	0	0	6

live total			0	0	0	0	0	4	0	0	0	0	4
skins total			0	2	2	0	3	0	3	6	0	0	16
skulls total			0	1	0	0	2	0	21	22	13	1	60
specimens total			0	4	11	25	16	0	0	27	60	0	143
specimens total	ml		0	5	0	0	0	0	0	0	0	0	5
trophies total			54	48	53	60	39	34	19	30	33	3	373
trophies total	kg		0	0	4	0	0	0	0	0	0	0	4
Grand Total	no		108	146	168	220	162	76	134	312	358	10	1084

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Botswana, all sources, all purposes, on 03/23/2016.

Table 37. Gross Imports of *Panthera pardus* from Cameroon, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		DE	1	0	0	0	0	0	0	0	0	0	1

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Cameroon, all sources, all purposes, on 03/23/2016.

Table 38. Gross Imports of *Panthera pardus* from Central African Republic, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bones		DE	0	0	0	0	2	0	0	0	0	0	2
bones		ZA	0	0	0	0	0	0	2	0	0	0	2
claws		DE	0	0	0	0	18	0	0	0	0	0	18
claws		ZA	0	0	0	0	0	0	18	0	0	0	18
skins		FR	1	0	1	0	0	0	0	0	0	0	2
skins		ZA	0	0	0	0	0	1	1	0	0	0	2
skulls		FR	0	0	0	0	0	2	0	0	0	0	2
skulls		ZA	0	0	0	0	0	1	1	0	0	0	2
specimens		CH	0	0	0	0	0	0	0	0	6	3	9
trophies		AT	0	0	0	0	0	4	1	0	1	0	6
trophies		AU	0	0	0	0	0	0	0	1	0	0	1
trophies		BE	2	1	0	1	0	2	0	1	0	0	7
trophies		CH	2	0	2	0	0	0	0	0	0	0	4
trophies		CO	0	1	0	0	0	0	0	0	0	0	1
trophies		DE	0	0	0	0	2	0	0	1	1	0	4
trophies		DK	0	0	1	1	0	4	0	0	0	0	6
trophies		ES	0	1	0	1	0	0	1	0	0	0	3
trophies		FI	0	0	0	0	22	0	0	0	0	0	22
trophies		FR	31	19	22	27	34	44	10	12	1	0	200
trophies		HU	0	0	0	0	0	0	0	1	0	0	1
trophies		IT	0	1	0	0	2	0	0	0	0	0	3
trophies		LU	0	0	0	0	0	4	3	0	0	0	7
trophies		MA	0	2	0	0	0	0	0	0	0	0	2
trophies		MX	1	2	1	2	0	0	0	5	0	0	11
trophies		NZ	0	0	0	0	0	0	1	1	0	0	2
trophies		RU	0	1	2	1	0	2	1	0	0	0	7

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		SE	1	0	0	0	22	4	0	0	0	0	27
trophies		US	0	0	0	0	2	0	0	0	0	0	2
trophies		ZA	0	0	0	0	6	2	0	1	1	0	10
Bones total			0	0	0	0	2	0	2	0	0	0	4
Claws total			0	0	0	0	18	0	18	0	0	0	36
Skins total			1	0	1	0	0	1	1	0	0	0	4
Skulls total			0	0	0	0	0	3	1	0	0	0	4
Specimens total			0	0	0	0	0	0	0	0	6	3	9
Trophies total			37	28	28	33	90	66	17	23	4	0	326
Grand Total			38	28	29	33	110	70	39	23	10	3	383

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Central African Republic, all sources, all purposes, on 03/23/2016.

Table 39. Gross Imports of *Panthera pardus* from Congo, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		GB	0	0	0	2	0	0	0	0	0	0	2
skulls		US	0	0	0	0	1	0	0	0	0	0	1
Grand Total			0	0	0	2	1	0	0	0	0	0	3

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Congo, all sources, all purposes, on 03/23/2016.

Table 40. Gross Imports of *Panthera pardus* from Côte d'Ivoire, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
derivatives		US	0	5	0	0	0	0	0	0	0	0	5
skin pieces		US	0	0	0	0	0	0	0	0	1	0	1
skins		FR	2	0	0	0	0	0	0	0	0	0	2
teeth		US	0	0	0	0	0	1	0	0	1	0	2
Grand Total			2	5	0	0	0	1	0	0	2	0	10

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Côte d'Ivoire, all sources, all purposes, on 03/23/2016.

Table 41. Gross Imports of *Panthera pardus* from the Democratic Republic of the Congo, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		AE	0	0	0	0	0	0	0	5	0	0	5
skins		BE	0	0	0	0	1	0	0	0	0	0	1
skins		CH	0	0	0	1	0	0	0	0	0	0	1
skins		GB	0	0	0	2	0	0	0	0	0	0	2
skins		US	1	0	0	0	0	1	0	0	0	0	2
skins		XX	0	0	0	0	1	0	0	0	0	0	1
Grand Total			1	0	0	3	2	1	0	5	0	0	12

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from the Democratic Republic of the Congo, all sources, all purposes, on 03/23/2016.

Table 42. Gross Imports of *Panthera pardus* from Ethiopia, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		CA	0	0	0	0	3	0	0	0	0	0	3
skins		NO	0	0	0	0	0	0	0	0	0	1	1
skins		TZ	0	0	0	0	0	0	1	0	0	0	1
skins		ZA	0	0	0	0	0	0	0	1	0	0	1
skulls		CA	0	0	0	0	3	0	0	0	0	0	3
skulls		ZA	0	0	0	0	0	0	0	1	0	0	1
trophies		AE	0	2	0	0	0	0	0	0	0	0	2
trophies		BH	0	2	0	0	0	0	0	0	0	0	2
trophies		DE	2	0	0	0	0	0	0	0	1	0	3
trophies		DK	0	1	0	0	0	0	0	0	0	0	1
trophies		FR	1	1	0	0	1	0	0	0	0	1	4
trophies		IT	0	0	0	0	0	1	0	0	0	0	1
trophies		MX	0	0	0	1	0	0	1	0	0	1	3
trophies		TZ	0	0	0	0	0	1	0	0	0	0	1
trophies		ZA	0	0	0	1	0	0	0	0	0	0	1
Skins Total			0	0	0	0	3	0	1	1	0	1	6
Skulls Total			0	0	0	0	3	0	0	1	0	0	4
Trophies Total			3	6	0	2	1	2	1	0	1	2	18
Grand Total			3	6	0	2	7	2	2	2	1	3	28

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Ethiopia, all sources, all purposes, on 03/23/2016.

Table 43. Gross Imports of *Panthera pardus* from Gabon, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live		TN	0	0	0	0	0	0	0	0	4	4	8
skin pieces		GB	0	0	0	0	0	0	0	5	0	0	5
skins		HU	2	0	0	0	0	0	0	0	0	0	2
specimens		US	0	0	0	0	0	0	0	0	20	0	20
Grand Total			2	0	0	0	0	0	0	5	24	4	35

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Gabon, all sources, all purposes, on 03/23/2016.

Table 44. Gross Imports of *Panthera pardus* from Ghana, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
leather products (small)		US	0	0	0	1	0	0	0	0	0	0	1
skin pieces		US	0	0	0	2	0	0	0	0	0	0	2
skins		US	1	0	0	0	0	0	0	0	0	0	1
Grand Total			1	0	0	3	0	0	0	0	0	0	4

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Ghana, all sources, all purposes, on 03/23/2016.

Table 45. Gross Imports of *Panthera pardus* from Kenya, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		AU	0	0	0	0	1	0	0	0	0	0	1
skins		GB	0	0	0	0	0	0	1	0	0	0	1
skins		XX	0	0	0	0	0	0	0	0	0	2	2
specimens	ml	IL	0	0	0	0	0	0	0	0	1.5	0	1.5
specimens	ml	ZA	0	0.5	0	0	0	0	0	0	0	0	0.5
specimens		IL	0	0	0	0	0	0	0	1	0	0	1
specimens		US	0	0	0	0	0	51	0	0	0	0	51
teeth		US	0	0	0	0	0	0	1	0	0	0	1
trophies		AU	0	0	0	0	1	0	1	0	0	0	2
Skins Total			0	0	0	0	1	0	1	0	0	2	4
Specimens Total			0	0	0	0	0	51	0	1	0	0	52
Specimens Total	ml		0	0.5	0	0	0	0	0	0	1.5	0	2
Teeth Total			0	0	0	0	0	0	1	0	0	0	1
Trophies Total			0	0	0	0	1	0	1	0	0	0	2
Grand Total	no		0	0	0	0	2	51	3	1	0	2	59

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Kenya, all sources, all purposes, on 03/23/2016.

Table 46. Gross Imports of *Panthera pardus* from Liberia, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
leather products (small)		US	0	0	0	0	0	0	1	0	0	0	1
skins		US	0	0	0	1	0	0	0	0	0	0	1
specimens		DE	0	0	0	0	0	0	0	0	0	1	1
Grand Total			0	0	0	1	0	0	1	0	0	1	3

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Liberia, all sources, all purposes, on 03/23/2016.

Table 47. Gross Imports of *Panthera pardus* from Malawi, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		LK	0	0	0	0	2	0	0	0	0	0	2
skins		NL	0	0	0	0	0	0	0	1	0	0	1
Grand Total			0	0	0	0	2	0	0	1	0	0	3

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Malawi, all sources, all purposes, on 03/23/2016.

Table 48. Gross Imports of *Panthera pardus* from Mali, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live		GM	0	0	0	2	0	0	0	0	0	0	2
skins		US	0	1	0	0	0	0	0	0	0	0	1
Grand Total			0	1	0	2	0	0	0	0	0	0	3

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Mali, all sources, all purposes, on 03/23/2016.

Table 49. Gross Imports of *Panthera pardus* from Mozambique, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		NO	0	0	0	0	0	0	0	0	0	1	1
skeletons		ES	0	0	0	0	0	0	1	0	0	0	1
skin pieces		DE	0	0	0	0	2	0	0	0	0	0	2
skin pieces		ZA	0	0	0	0	2	0	0	4	0	0	6
skins		AR	0	0	0	0	0	0	0	0	1	0	1
skins		CA	0	0	0	0	0	0	0	0	0	1	1
skins		CH	1	0	0	0	0	0	3	2	0	0	6
skins		DE	0	0	0	0	0	0	3	2	0	0	5
skins		ES	0	0	0	0	0	0	7	1	5	1	14
skins		FR	0	0	0	0	0	1	2	8	1	1	13
skins		GB	0	0	0	0	0	0	4	2	0	0	6
skins		HU	0	0	0	0	0	0	1	0	0	0	1
skins		IS	0	0	0	0	0	0	0	0	3	1	4
skins		IT	0	0	0	0	0	0	0	1	0	0	1
skins		MX	0	0	0	0	0	0	0	1	1	0	2
skins		MZ	0	0	0	0	1	0	0	0	0	0	1
skins		NA	0	0	0	0	0	0	2	2	0	0	4
skins		NL	0	0	0	0	0	0	2	0	0	0	2
skins		NO	0	0	0	0	1	1	0	0	0	0	2
skins		PT	1	0	0	0	0	0	3	4	2	0	10
skins		RU	0	0	0	0	0	0	1	0	0	0	1
skins		SE	0	0	0	0	0	0	0	1	0	0	1
skins		SZ	0	0	1	0	2	0	0	0	0	0	3
skins		US	0	0	0	0	0	1	34	48	22	0	105
skins		XX	0	0	0	0	0	1	0	0	0	0	1
skins		ZA	0	5	0	0	9	3	6	17	22	0	62
skins		ZW	0	1	0	0	0	0	2	3	5	0	11
skulls		AR	0	0	0	0	0	0	0	1	1	0	2
skulls		CA	0	0	0	0	0	0	0	0	0	1	1
skulls		CH	1	0	0	0	0	0	3	2	0	0	6
skulls		DE	0	0	0	0	0	0	3	2	0	0	5
skulls		ES	0	0	0	0	0	0	8	2	5	1	16
skulls		FR	0	0	0	0	0	1	2	8	1	1	13
skulls		GB	0	0	0	0	0	0	4	4	0	0	8
skulls		HU	0	0	0	0	0	0	1	0	0	0	1
skulls		IS	0	0	0	0	0	0	0	0	3	1	4
skulls		IT	0	0	0	0	0	0	0	1	1	0	2
skulls		MX	0	0	0	0	0	0	0	1	1	0	2
skulls		NA	0	0	0	0	0	0	2	2	0	0	4
skulls		NL	0	0	0	0	0	0	2	0	0	0	2
skulls		NO	0	0	0	0	1	1	0	0	0	1	3
skulls		PT	0	0	0	0	0	0	3	5	2	0	10
skulls		RU	0	0	0	0	0	0	1	0	0	0	1
skulls		SE	0	0	0	0	0	0	0	1	0	0	1
skulls		US	0	0	0	0	3	1	37	41	23	0	105

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skulls		XX	0	0	0	0	0	1	0	0	0	0	1
skulls		ZA	0	5	0	0	0	3	8	19	28	8	71
skulls		ZW	0	0	0	0	0	0	2	3	5	0	10
trophies		AR	0	0	0	0	0	0	0	1	0	0	1
trophies		BG	0	0	0	0	0	0	0	1	0	0	1
trophies		CA	0	0	0	0	0	0	0	0	0	1	1
trophies		DE	0	0	1	0	0	1	0	2	1	3	8
trophies		DK	1	1	0	0	0	0	0	0	0	0	2
trophies		ES	15	11	8	4	10	5	2	7	0	3	65
trophies		FR	0	3	2	14	4	4	2	6	2	5	42
trophies		GB	0	0	0	1	1	0	0	0	0	1	3
trophies		HU	0	0	0	0	1	1	0	0	0	0	2
trophies		IS	0	0	0	0	0	0	0	0	1	0	1
trophies		LT	0	0	0	0	0	0	0	0	0	1	1
trophies		LU	0	0	0	0	0	0	0	0	0	2	2
trophies		MX	2	8	12	6	1	0	0	1	1	1	32
trophies		NA	1	1	0	0	0	0	0	1	0	0	3
trophies		NO	0	0	0	0	1	1	0	0	0	1	3
trophies		PL	0	0	0	0	0	1	0	0	1	0	2
trophies		PT	6	7	6	4	8	4	2	3	2	1	43
trophies		RU	0	0	0	0	0	2	1	0	0	0	3
trophies		SZ	4	0	0	0	0	0	0	0	0	0	4
trophies		US	6	4	14	15	21	16	7	18	12	20	133
trophies		XX	15	0	0	0	0	3	0	0	0	2	20
trophies		ZA	21	19	13	6	9	9	9	19	11	8	124
trophies		ZW	5	4	3	2	0	2	0	0	0	0	16
Bodies Total			0	0	0	0	0	0	0	0	0	1	1
Skeletons Total			0	0	0	0	0	0	1	0	0	0	1
Skin Pieces Total			0	0	0	0	4	0	0	4	0	0	8
Skins Total			2	6	1	0	13	7	70	92	62	4	257
Skulls Total			1	5	0	0	4	7	76	92	70	13	268
Trophies Total			76	58	59	52	56	49	23	59	31	49	512
Grand Total			79	69	60	52	77	63	170	247	163	67	1047

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Mozambique, all sources, all purposes, on 03/23/2016.

Table 50. Gross Imports of *Panthera pardus* from Namibia, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		AT	0	0	0	0	0	1	0	0	0	0	1
bodies		CA	0	0	0	0	1	0	1	1	0	2	5
bodies		DE	0	0	0	1	0	1	0	0	0	0	2
bodies		ES	0	0	0	0	0	1	0	0	0	0	1
bodies		GB	0	0	0	0	0	3	1	0	0	0	4
bodies		IS	0	0	1	0	0	0	0	0	0	0	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		IT	0	0	0	0	0	1	0	0	0	0	1
bodies		NL	0	0	0	0	0	1	0	0	0	0	1
bodies		NO	0	0	0	0	0	0	0	0	0	2	2
bodies		RU	0	0	0	0	0	2	1	0	0	0	3
bodies		UA	0	0	0	1	0	0	0	0	0	0	1
bodies		US	0	0	0	0	0	3	0	0	0	0	3
bones		CA	0	0	0	0	2	0	2	0	0	0	4
bones		DE	0	0	0	0	0	0	0	0	0	3	3
bones		SG	0	0	0	0	0	0	0	0	2	0	2
bones		US	0	0	0	0	2	0	0	0	0	3	5
claws		US	0	26	0	0	0	4	0	0	18	0	48
hair		NZ	0	0	0	0	0	0	0	0	0	1	1
live		CU	0	0	0	0	0	0	0	6	6	0	12
skin pieces		CA	0	0	0	0	0	0	1	0	0	0	1
skins		AT	5	8	12	0	0	0	1	0	1	0	27
skins		CA	2	4	0	1	6	1	3	2	0	0	19
skins		CH	0	0	0	0	2	0	0	0	0	0	2
skins		DE	0	0	0	0	1	1	2	0	1	0	5
skins		ES	0	0	0	0	1	1	0	0	0	0	2
skins		FR	0	0	0	0	0	1	1	0	0	0	2
skins		GB	0	0	1	0	1	0	1	0	0	0	3
skins		RU	0	0	0	0	1	1	0	1	0	0	3
skins		SE	0	0	0	0	0	1	0	2	0	0	3
skins		SK	0	0	0	0	0	0	0	0	0	1	1
skins		US	0	1	0	0	1	1	2	0	0	0	5
skins		ZA	0	5	0	0	1	1	4	0	0	0	11
skulls		AT	4	0	8	0	0	0	0	0	0	0	12
skulls		CA	2	4	0	1	7	1	4	2	0	1	22
skulls		CH	0	0	0	0	2	0	0	0	0	0	2
skulls		DE	0	0	0	0	0	0	0	2	0	0	2
skulls		DK	0	1	0	0	0	0	0	0	0	0	1
skulls		GB	0	0	0	0	0	2	0	0	0	0	2
skulls		NL	0	0	0	1	2	0	0	0	0	0	3
skulls		PA	0	0	0	0	0	0	0	0	1	0	1
skulls		SE	0	0	0	0	0	0	0	2	0	0	2
skulls		SG	0	0	0	0	0	0	0	0	1	0	1
skulls		SK	0	0	0	0	0	0	0	0	0	1	1
skulls		US	0	2	1	0	3	2	0	1	0	1	10
skulls		ZA	0	5	0	0	0	1	4	0	2	1	13
specimens	ml	DE	0	0	0	0	0	0	0	60	0	0	60
specimens	ml	US	0	0	0	0	0	6	0	0	0	0	6
specimens		DE	0	0	0	0	0	100	0	1233	0	900	2233
specimens		TH	0	0	0	0	0	1	0	0	0	0	1
specimens		US	0	0	0	0	0	0	0	0	1	0	1
specimens		ZA	0	0	0	0	0	0	0	0	35	130	165
teeth		AT	0	0	8	0	0	0	0	0	0	0	8
teeth		DE	31	0	0	0	0	0	0	0	0	0	31
teeth		DK	0	0	0	0	0	0	27	0	0	0	27
teeth		SE	0	0	0	0	0	18	0	0	0	0	18
trophies		AR	0	0	0	1	4	1	1	1	1	3	12
trophies		AT	12	19	8	15	14	2	3	4	11	6	94
trophies		BE	2	0	2	0	0	0	1	0	0	0	5

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		BG	4	3	3	2	1	3	1	3	0	0	20
trophies		BR	0	0	0	1	0	0	0	0	0	0	1
trophies		CA	1	3	0	1	5	3	3	3	1	6	26
trophies		CH	2	1	0	0	1	0	0	0	1	2	7
trophies		CR	1	2	0	0	0	0	0	0	0	0	3
trophies		CS	1	0	0	1	0	0	0	0	0	0	2
trophies		CZ	4	3	2	3	1	0	1	1	2	3	20
trophies		DE	38	43	29	28	43	17	3	23	16	19	259
trophies		DK	3	4	3	3	7	4	29	0	1	1	55
trophies		EE	0	0	0	1	0	0	0	0	0	0	1
trophies		EG	0	1	0	0	0	0	0	0	0	0	1
trophies		ES	5	8	14	12	15	4	3	4	0	4	69
trophies		FI	1	1	1	1	0	1	0	3	1	3	12
trophies		FR	18	2	2	18	18	7	6	4	7	2	84
trophies		GB	1	2	2	2	0	2	0	1	1	0	11
trophies		HR	1	2	3	3	4	1	1	0	0	0	15
trophies		HU	0	0	5	4	6	2	0	1	2	1	21
trophies		IT	0	1	1	2	5	4	0	2	1	0	16
trophies		LT	0	0	1	1	2	0	0	0	0	0	4
trophies		LU	1	1	0	2	0	0	1	0	0	0	5
trophies		LV	0	0	0	0	0	0	0	0	2	2	4
trophies		MX	1	6	6	4	7	0	2	2	9	4	41
trophies		NA	1	0	0	0	0	0	0	0	0	0	1
trophies		NL	0	0	0	0	2	2	0	0	0	0	4
trophies		NO	0	1	0	2	3	1	1	0	1	0	9
trophies		NZ	0	0	0	1	0	0	0	0	0	2	3
trophies		PA	0	0	0	0	0	0	0	0	1	0	1
trophies		PL	5	4	4	5	5	2	1	1	2	2	31
trophies		PT	4	1	1	0	2	0	0	0	0	0	8
trophies		RO	0	0	0	0	1	0	0	0	0	0	1
trophies		RS	0	1	0	1	0	0	0	0	0	0	2
trophies		RU	0	1	2	8	11	10	6	6	3	8	55
trophies		SE	0	2	5	3	3	0	0	2	0	1	16
trophies		SG	0	0	0	0	0	0	0	0	1	0	1
trophies		SI	1	2	2	2	4	1	0	2	0	0	14
trophies		SK	1	2	1	2	3	1	2	1	2	1	16
trophies		SL	0	0	0	0	0	2	1	2	0	0	5
trophies		SZ	2	0	0	0	0	0	0	0	0	0	2
trophies		UA	0	1	1	1	0	0	0	0	0	1	4
trophies		US	51	71	71	87	157	76	30	40	29	33	645
trophies		VG	0	1	0	0	0	0	0	0	0	0	1
trophies		XX	0	0	0	0	0	0	0	1	0	0	1
trophies		ZA	7	8	12	9	18	8	6	4	5	1	78
trophies		ZW	0	0	0	0	2	0	0	0	0	0	2
trophies		AT	0	0	0	0	0	0	1	0	0	0	1
trophies		US	0	0	0	0	0	1	0	0	0	0	1
Bodies Total			0	0	1	2	1	13	3	1	0	4	25
Bones Total			0	0	0	0	4	0	2	0	2	6	14
Claws Total			0	26	0	0	0	4	0	0	18	0	48
Hair Total			0	0	0	0	0	0	0	0	0	1	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Live Total			0	0	0	0	0	0	0	6	6	0	12
Skin Pieces Total			0	0	0	0	0	0	1	0	0	0	1
Skins Total			7	18	13	1	14	8	14	5	2	1	83
Skulls Total			6	12	9	2	14	6	8	7	4	4	72
Specimens Total			0	0	0	0	0	101	0	1233	36	1030	2400
Specimens Total	ml		0	0	0	0	0	6	0	60	0	0	66
Teeth Total			31	0	8	0	0	18	27	0	0	0	84
Trophies Total			168	197	181	226	344	155	103	111	100	105	1690
Grand Total	no		212	253	212	231	377	305	158	1363	168	1151	4430

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Namibia, all sources, all purposes, on 03/23/2016.

Table 51. Gross Imports of *Panthera pardus* from Nigeria, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
derivatives		US	0	0	3	0	0	0	0	0	0	0	3
hair products		US	0	0	0	0	0	0	0	1	0	0	1
skin pieces		US	0	0	0	0	1	1	0	1	0	0	3
skins		HU	0	1	0	0	0	0	0	0	0	0	1
skins		US	1	2	0	0	0	1	0	0	1	0	5
teeth		US	0	0	0	0	0	8	0	0	0	0	8
Skins Total			1	3	0	0	0	1	0	0	1	0	6
Grand Total			1	3	3	0	1	10	0	2	1	0	21

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Nigeria, all sources, all purposes, on 03/23/2016.

Table 52. Gross Imports of *Panthera pardus* from Senegal, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
specimens		US	0	0	0	0	0	0	0	0	18	0	18

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Senegal, all sources, all purposes, on 03/23/2016.

Table 53. Gross Imports of *Panthera pardus* from Sierra Leone, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
derivatives		DK	0	0	5	0	0	0	0	0	0	0	5

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Sierra Leone, all sources, all purposes, on 03/23/2016.

Table 54. Gross Imports of *Panthera pardus* from South Africa, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		CA	0	0	0	1	1	0	4	2	1	2	11
bodies		CN	1	0	0	0	0	1	2	2	1	0	7
bodies		CZ	0	0	0	0	0	0	1	1	0	0	2
bodies		DK	0	0	0	0	0	1	1	0	0	0	2
bodies		ES	0	0	0	0	0	1	0	1	0	0	2
bodies		FR	0	0	0	0	2	0	0	0	0	0	2
bodies		GB	0	0	0	0	2	0	0	2	0	0	4
bodies		KW	0	0	0	0	1	0	0	0	0	0	1
bodies		MX	0	0	0	0	1	0	0	0	0	0	1
bodies		NA	0	0	0	1	0	0	0	0	0	0	1
bodies		NZ	0	0	0	0	2	0	0	1	0	0	3
bodies		PL	0	0	0	0	0	0	0	0	1	0	1
bodies		US	0	0	0	0	0	3	1	4	0	0	8
bone pieces		US	0	0	0	2	0	0	0	0	0	0	2
bones		CA	0	1	0	2	0	0	0	0	0	0	3
bones		DE	0	0	0	0	0	0	0	2	0	0	2
bones		DK	0	0	0	0	0	2	4	0	0	0	6
bones		MX	0	0	0	0	0	2	2	1	0	0	5
bones		SK	0	0	0	0	0	0	0	0	0	1	1
bones		US	0	0	0	0	2	4	29	5	2	4	46
carvings		US	1	0	0	0	0	0	0	0	0	0	1
claws		GB	0	0	0	0	0	4	0	0	0	0	4
claws		NZ	0	0	0	0	1	0	0	0	0	0	1
claws		US	0	44	18	2	36	8	26	18	18	0	170
derivatives		GB	0	0	0	0	0	0	50	0	0	0	50
derivatives		LV	0	0	0	0	0	2	0	0	0	0	2
derivatives		MX	0	0	0	0	0	2	0	0	0	0	2
derivatives		US	0	0	0	0	20	2	0	0	0	0	22
feet		US	0	0	0	29	0	0	0	0	0	0	29
garments		GB	0	0	0	0	0	0	0	1	0	0	1
garments		IT	0	0	0	0	0	1	0	0	0	0	1
garments		NZ	1	0	0	0	0	0	0	0	0	0	1
garments		US	0	0	0	0	0	0	0	0	0	1	1
hair		GB	0	0	0	0	209	0	0	0	0	0	209
leather products (large)		PH	0	0	0	0	1	0	0	0	0	0	1
leather products (small)		AU	0	1	0	0	0	0	0	0	1	0	2
leather products (small)		PT	0	1	0	0	0	0	0	0	0	0	1
leather products (small)		US	0	0	0	1	0	0	0	0	0	0	1
live		AE	2	2	2	0	2	0	0	0	0	0	8
live		BE	0	0	0	1	0	0	0	0	0	0	1
live		CA	0	0	0	0	0	0	0	0	0	2	2

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live		EG	0	0	0	0	0	7	0	2	1	2	12
live		ES	0	0	0	0	0	1	0	0	0	0	1
live		GA	0	0	0	0	0	0	3	3	4	0	10
live		JP	0	0	0	0	0	2	2	0	0	0	4
live		MW	0	0	0	0	0	0	6	6	0	0	12
live		PK	0	0	0	0	0	0	0	0	0	2	2
live		SA	0	0	0	2	0	0	0	0	0	0	2
live		TH	0	0	0	2	1	0	0	0	0	0	3
live		UG	0	0	0	0	0	1	0	0	0	0	1
skin pieces		NZ	0	0	0	6	0	0	0	0	0	0	6
skin pieces		US	0	0	0	54	0	0	0	1	2	0	57
skins		AT	0	0	0	0	0	0	0	0	1	0	1
skins		AU	2	3	0	1	0	3	1	0	0	0	10
skins		BE	0	0	0	0	0	0	0	1	0	0	1
skins		BR	0	1	0	0	0	0	0	0	0	0	1
skins		BW	0	0	0	0	0	0	0	1	0	0	1
skins		CA	1	5	0	6	4	0	0	2	0	1	19
skins		CG	0	0	0	0	0	0	0	0	0	2	2
skins		CH	0	0	0	1	0	0	0	0	0	0	1
skins		CR	1	0	0	0	0	0	0	0	0	0	1
skins		CZ	0	0	0	0	0	1	3	1	0	0	5
skins		DE	0	0	0	0	0	1	1	5	1	0	8
skins		DK	0	0	0	1	0	2	1	0	0	0	4
skins		EE	0	1	0	0	0	0	0	0	0	0	1
skins		ES	0	3	0	0	0	11	12	3	0	0	29
skins		FI	0	0	0	0	0	0	1	1	0	0	2
skins		FR	2	0	0	0	0	3	3	0	0	0	8
skins		GB	2	0	0	0	2	1	1	0	0	1	7
skins		IT	0	0	0	1	0	0	0	0	0	0	1
skins		MX	0	0	0	0	0	3	3	0	0	0	6
skins		MZ	0	0	1	0	0	0	1	0	0	0	2
skins		NL	1	0	0	0	1	0	0	0	0	0	2
skins		NO	0	0	0	0	0	1	2	1	0	0	4
skins		PA	0	0	0	0	0	0	0	0	1	0	1
skins		PL	0	0	0	0	0	0	0	1	0	0	1
skins		PT	0	0	1	0	0	1	2	0	0	0	4
skins		RU	0	0	0	0	0	1	2	0	2	0	5
skins		SE	0	0	0	0	0	1	0	0	0	0	1
skins		SK	0	0	0	0	0	0	0	0	0	1	1
skins		SZ	0	2	0	0	4	0	0	0	0	0	6
skins		TZ	0	0	0	0	0	1	0	0	0	0	1
skins		US	0	27	0	0	2	40	52	37	3	2	163
skulls	kg	BE	0	0	0	0	0	0	0	0	0	0.65	0.65
skulls		AE	0	0	0	0	0	0	3	0	0	1	4
skulls		AR	0	0	0	0	0	0	0	0	3	1	4
skulls		AU	0	0	0	0	0	1	1	1	0	0	3
skulls		BE	0	0	0	0	0	0	0	1	0	1	2
skulls		BR	0	0	0	0	0	1	0	0	0	0	1
skulls		BW	0	0	0	0	0	0	0	1	0	0	1
skulls		CA	1	2	0	4	5	0	4	4	1	2	23
skulls		CN	1	0	0	0	0	0	0	0	0	0	1
skulls		CO	0	0	0	0	1	1	0	1	0	0	3

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skulls		CZ	0	0	0	0	0	1	3	1	0	0	5
skulls		DE	0	0	0	0	0	0	1	6	1	0	8
skulls		DK	0	0	0	1	1	4	3	0	0	2	11
skulls		EE	0	1	0	0	0	0	0	0	0	0	1
skulls		ES	0	4	1	0	1	13	15	3	0	2	39
skulls		FI	0	0	0	0	0	0	2	1	1	0	4
skulls		FR	1	0	0	0	2	4	3	0	2	6	18
skulls		GB	0	1	0	1	2	3	2	2	0	0	11
skulls		HU	0	0	0	0	0	0	0	0	0	1	1
skulls		IT	0	0	0	0	1	1	4	3	2	1	12
skulls		MG	0	0	0	0	0	0	1	0	0	0	1
skulls		MX	0	2	0	0	1	4	7	0	0	0	14
skulls		MZ	0	0	0	0	0	0	1	0	0	2	3
skulls		NA	0	1	0	0	0	0	0	0	1	0	2
skulls		NO	0	0	0	0	1	2	4	0	0	1	8
skulls		NZ	0	0	0	0	1	1	1	1	0	0	4
skulls		PA	0	0	0	0	0	0	0	0	1	0	1
skulls		PH	0	0	0	0	1	2	2	0	0	0	5
skulls		PK	0	0	0	0	1	0	1	2	0	0	4
skulls		PT	0	0	0	0	3	6	7	0	0	0	16
skulls		QA	0	0	0	0	0	0	0	2	2	4	8
skulls		RU	0	0	0	0	0	1	4	0	0	6	11
skulls		SE	0	0	0	0	0	2	2	0	2	1	7
skulls		SK	0	0	0	0	0	0	0	0	0	1	1
skulls		TZ	0	0	0	0	0	5	0	0	0	0	5
skulls		UA	0	0	0	0	0	1	0	0	0	0	1
skulls		US	0	43	2	0	16	50	74	45	11	37	278
skulls		ZM	0	0	0	0	0	0	0	1	0	0	1
specimens		CN	4	0	0	1	1	2	0	0	0	1	9
specimens		NO	0	0	0	0	0	0	0	1	0	0	1
specimens		US	0	0	0	0	0	0	0	150	0	0	150
tails		GB	0	0	0	0	0	1	0	0	0	0	1
teeth		BR	0	4	0	0	0	0	0	0	0	0	4
teeth		US	0	0	0	0	0	0	0	0	0	4	4
trophies		AE	0	1	1	0	1	0	7	0	0	1	11
trophies		AR	0	0	3	0	1	0	2	1	4	1	12
trophies		AT	1	0	1	1	0	0	0	0	0	1	4
trophies		AU	2	0	0	0	0	0	0	1	0	0	3
trophies		BE	3	0	0	0	0	2	1	1	0	1	8
trophies		BR	1	1	0	0	0	1	0	0	0	2	5
trophies		BW	1	0	0	0	0	0	0	0	0	0	1
trophies		CA	1	0	1	4	1	0	2	2	6	4	21
trophies		CH	0	0	0	0	2	0	0	0	1	0	3
trophies		CL	2	0	0	0	0	0	0	0	0	0	2
trophies		CN	2	0	1	1	1	1	0	1	2	0	9
trophies		CO	0	0	0	0	1	1	0	1	0	1	4
trophies		CR	0	0	0	0	0	0	1	1	0	0	2
trophies		CZ	1	0	0	2	1	1	3	2	0	0	10
trophies		DE	2	1	1	0	2	0	4	7	5	3	25
trophies		DK	0	0	3	2	5	7	3	1	1	1	23
trophies		EE	0	1	0	0	0	0	0	0	1	0	2
trophies		ES	9	6	5	8	11	11	4	2	2	5	63

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		FI	1	0	0	0	1	2	2	0	1	1	8
trophies		FR	3	6	1	7	1	6	3	2	4	2	35
trophies		GB	1	1	2	4	3	2	2	2	0	2	19
trophies		GT	0	0	1	0	0	0	0	0	0	0	1
trophies		HU	0	0	0	0	0	0	0	1	0	2	3
trophies		ID	0	0	0	0	0	0	0	0	0	1	1
trophies		IE	1	0	0	0	0	0	0	0	0	0	1
trophies		IS	0	0	0	1	1	0	1	1	0	0	4
trophies		IT	1	0	1	1	4	2	6	3	2	1	21
trophies		KW	0	0	2	1	0	0	0	0	0	0	3
trophies		LB	1	0	0	1	1	0	2	0	0	0	5
trophies		LT	0	0	0	0	1	2	0	0	1	1	5
trophies		LV	0	0	0	0	0	1	0	0	0	0	1
trophies		MG	0	0	0	0	0	0	1	0	0	0	1
trophies		MX	2	4	3	11	3	9	7	6	2	6	53
trophies		MZ	0	0	0	0	0	2	0	1	0	0	3
trophies		NA	1	4	0	0	1	0	1	0	1	0	8
trophies		NC	0	0	0	0	0	1	0	0	0	0	1
trophies		NL	2	0	1	0	1	0	0	0	0	0	4
trophies		NO	0	1	0	1	0	0	4	2	2	1	11
trophies		NP	0	0	1	0	0	0	0	0	0	0	1
trophies		NZ	1	0	0	0	2	4	1	2	0	0	10
trophies		PH	1	0	0	1	38	4	2	0	0	0	46
trophies		PK	2	1	1	0	1	0	1	3	0	0	9
trophies		PL	0	0	0	0	0	0	0	3	2	0	5
trophies		PT	0	1	2	1	6	2	7	0	0	0	19
trophies		QA	0	0	0	0	0	0	1	3	2	0	6
trophies		RO	0	0	1	1	0	0	0	0	0	0	2
trophies		RS	0	0	0	1	1	0	0	0	1	0	3
trophies		RU	4	0	1	0	2	2	5	9	4	18	45
trophies		SA	0	0	1	0	0	0	0	0	0	0	1
trophies		SE	0	3	1	0	0	3	2	0	2	0	11
trophies		SI	0	1	0	0	0	0	0	0	0	0	1
trophies		SK	0	1	0	0	0	0	0	1	2	0	4
trophies		SV	0	0	1	0	0	0	0	0	0	0	1
trophies		SZ	0	0	0	0	1	0	0	0	0	0	1
trophies		TZ	1	1	1	1	1	4	0	0	0	0	9
trophies		UA	0	0	0	0	0	1	0	0	0	0	1
trophies		US	68	85	76	98	89	74	53	69	64	53	729
trophies		ZM	0	0	0	0	0	0	1	1	0	0	2
trophies		ZW	0	0	0	0	1	0	0	0	0	1	2
Bodies Total			1	0	0	2	9	6	9	13	3	2	44
Bone Pieces Total			0	0	0	2	0	0	0	0	0	0	2
Bones Total			0	1	0	2	2	8	35	8	2	5	63
Carvings Total			1	0	0	0	0	0	0	0	0	0	0
Claws Total			0	44	18	2	37	12	26	18	18	0	175
Derivatives			0	0	0	0	20	6	50	0	0	0	76

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Total													
Feet Total			0	0	0	29	0	0	0	0	0	0	29
Garments Total			1	0	0	0	0	1	0	1	0	1	3
Hair Total			0	0	0	0	209	0	0	0	0	0	209
Leather Products (large) Total			0	0	0	0	1	0	0	0	0	0	1
Leather Products (small) Total			0	2	0	1	0	0	0	0	1	0	4
Live Total			2	2	2	5	3	11	11	11	5	6	56
Skin Pieces Total			0	0	0	60	0	0	0	1	2	0	63
Skins Total			9	42	2	10	13	70	85	53	8	7	290
Skulls Total			3	54	3	6	37	103	145	75	27	69	519
Skulls Total	kg		0	0	0	0	0	0	0	0	0	0.65	0.65
Specimens Total			4	0	0	1	1	2	0	151	0	1	156
Tails Total			0	0	0	0	0	1	0	0	0	0	1
Teeth Total			0	4	0	0	0	0	0	0	0	4	8
Trophies Total			115	119	113	148	185	145	129	129	112	109	1189
Grand Total	no		136	268	138	268	517	365	490	460	178	204	3024

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from South Africa, all sources, all purposes, on 03/23/2016.

Table 55. Gross Imports of *Panthera pardus* from Sudan, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
leather products (small)		US	0	0	0	0	0	4	0	0	0	0	4
live		SA	1	0	0	0	0	0	0	0	0	0	1
live		SY	1	3	0	0	0	0	0	0	0	0	4
live		ZA	0	0	2	0	0	0	0	0	0	0	2
shoes		US	0	0	4	0	0	0	0	0	0	0	4
skins		AE	0	0	0	0	0	0	1	0	0	0	1
Live Total			2	3	2	0	0	0	0	0	0	0	7
Grand Total			2	3	6	0	0	4	1	0	0	0	16

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Sudan, all sources, all purposes, on 03/23/2016.

Table 56. Gross Imports of *Panthera pardus* from Swaziland, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live		ZA	0	0	0	0	1	0	0	0	0	0	1
skins		CN	0	0	0	0	0	0	0	2	0	0	2
skins		ZA	0	0	0	0	7	0	0	2	0	0	9
specimens		ZA	0	0	0	0	0	0	0	2	0	0	2
Skins Total			0	0	0	0	7	0	0	4	0	0	11
Grand Total			0	0	0	0	8	0	0	6	0	0	14

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Swaziland, all sources, all purposes, on 03/23/2016.

Table 57. Gross Imports of *Panthera pardus* from Togo, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		ES	1	0	0	0	0	0	0	0	0	0	1

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Togo, all sources, all purposes, on 03/23/2016.

Table 58. Gross Imports of *Panthera pardus* from the United Republic of Tanzania, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		DK	0	0	0	0	0	0	0	1	2	0	3
bodies		GB	0	0	0	0	0	0	0	0	1	0	1
bodies		RU	0	0	0	0	0	0	0	1	0	0	1
bones		IT	0	0	0	0	0	2	0	0	0	0	2
bones		US	0	0	0	0	0	0	2	0	8	0	10
bones		ZA	0	0	0	0	0	1	0	0	0	0	1
feet		BR	0	2	0	0	0	0	0	0	0	0	2
hair		NL	0	0	0	10	0	0	0	0	0	0	10
live		NI	0	0	0	0	0	0	1	0	0	0	1
skin pieces		AT	0	1	0	0	0	0	0	0	0	0	1
skins		AR	0	0	0	0	0	1	0	0	0	0	1
skins		AT	0	3	1	0	3	4	0	0	1	0	12
skins		AU	0	0	0	0	0	2	1	0	0	0	3
skins		BE	0	0	0	0	2	1	0	0	0	0	3
skins		BG	0	1	0	0	0	1	0	0	0	0	2
skins		BR	0	0	0	0	1	0	0	0	0	0	1
skins		CA	8	3	0	1	8	1	1	5	0	0	27
skins		CH	0	0	0	0	0	1	1	1	1	0	4
skins		CZ	0	0	0	0	0	0	0	1	0	0	1
skins		DE	0	0	0	0	4	1	3	3	3	0	14
skins		DK	0	0	0	0	0	0	1	0	0	1	2
skins		ES	0	0	0	0	16	14	3	3	1	0	37
skins		FR	1	1	0	0	28	20	11	10	6	2	79
skins		GB	0	2	0	0	0	1	1	0	1	0	5
skins		HU	0	0	0	0	8	0	2	0	3	0	13
skins		IT	0	0	0	0	5	5	2	2	0	0	14
skins		JM	0	0	0	0	0	0	2	0	0	0	2
skins		MG	0	0	0	0	0	0	0	1	0	0	1
skins		MX	0	0	0	0	2	1	0	0	2	0	5
skins		NL	2	0	0	0	0	0	0	0	0	0	2
skins		NO	0	0	0	0	0	0	0	0	0	1	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		PA	0	0	0	0	0	0	0	0	1	0	1
skins		PL	0	0	0	0	2	0	0	0	0	0	2
skins		RU	0	0	0	0	6	4	4	1	2	0	17
skins		SB	0	0	0	0	0	0	1	0	0	0	1
skins		SE	0	0	0	0	0	0	1	0	0	0	1
skins		US	0	0	0	0	41	40	10	47	14	3	155
skins		ZA	0	15	0	0	9	11	12	5	3	0	55
skins		ZW	0	0	0	0	0	0	0	0	1	0	1
skulls		AR	0	0	0	0	0	1	0	0	0	0	1
skulls		AT	0	0	1	0	3	4	0	0	1	0	9
skulls		AU	0	0	0	0	0	2	1	0	0	0	3
skulls		BE	0	0	0	0	2	1	0	0	0	0	3
skulls		BG	0	0	0	0	0	1	0	0	0	0	1
skulls		BR	0	0	0	0	1	0	0	0	0	0	1
skulls		CA	5	3	0	1	7	1	1	3	0	0	21
skulls		CH	0	0	0	0	0	1	1	1	1	0	4
skulls		CZ	0	0	0	0	0	0	0	1	0	0	1
skulls		DE	0	0	0	0	4	1	3	3	3	0	14
skulls		DK	0	0	0	0	0	0	1	0	0	0	1
skulls		ES	0	0	0	0	16	14	3	3	1	0	37
skulls		FR	0	1	0	0	28	22	11	10	5	1	78
skulls		GB	0	0	0	0	0	1	1	0	1	0	3
skulls		HU	0	0	0	0	8	0	2	0	3	0	13
skulls		IT	0	0	0	0	5	5	2	1	0	0	13
skulls		JM	0	0	0	0	0	0	2	0	0	0	2
skulls		MG	0	0	0	0	0	0	0	1	0	0	1
skulls		MX	0	0	0	0	2	1	0	0	2	0	5
skulls		NO	0	0	0	0	0	0	0	0	0	1	1
skulls		PA	0	0	0	0	0	0	0	0	1	0	1
skulls		PL	0	0	0	0	2	0	0	0	0	0	2
skulls		RU	0	0	0	0	6	4	4	1	2	0	17
skulls		SB	0	0	0	0	0	0	1	0	0	0	1
skulls		US	1	0	1	0	41	40	10	43	14	1	151
skulls		ZA	0	15	0	0	9	15	11	6	6	4	66
skulls		ZW	0	0	0	0	0	0	0	0	1	0	1
skulls		CA	0	0	0	0	1	0	0	0	0	0	1
specimens		KW	1	0	0	0	0	0	0	0	0	0	1
tails		FR	0	0	0	0	0	1	0	0	0	0	1
trophies		AE	0	1	0	0	0	0	0	1	1	0	3
trophies		AR	0	2	2	0	2	1	0	0	0	0	7
trophies		AT	0	2	4	1	3	3	4	6	1	4	28
trophies		BE	3	3	5	7	9	3	0	0	0	0	30
trophies		BG	0	1	0	0	1	1	0	1	1	0	5
trophies		BR	0	0	0	0	1	0	0	0	0	0	1
trophies		BY	0	0	0	1	0	0	0	0	0	0	1
trophies		CA	4	2	0	1	1	0	0	0	1	0	9
trophies		CH	2	0	8	1	0	0	0	0	0	0	11
trophies		CN	1	1	0	0	0	2	0	0	0	0	4
trophies		CZ	1	1	0	0	0	0	0	3	0	0	5
trophies		DE	11	8	7	5	11	7	8	6	3	7	73
trophies		DK	0	1	1	1	2	2	2	0	0	1	10
trophies		ES	27	40	40	19	16	20	11	4	6	6	189

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		FI	2	2	0	0	0	1	0	1	0	0	6
trophies		FR	102	30	28	106	37	32	16	53	16	19	439
trophies		GB	0	0	0	0	0	0	0	0	0	2	2
trophies		HR	4	1	0	0	0	0	0	0	0	1	6
trophies		HU	0	0	0	4	9	4	8	6	5	7	43
trophies		IE	0	0	3	0	0	0	0	0	0	0	3
trophies		IT	14	8	8	7	7	7	8	9	6	5	79
trophies		JM	1	0	0	0	0	0	0	0	0	0	1
trophies		LT	0	0	0	0	2	1	0	0	0	0	3
trophies		LU	1	0	2	1	0	0	0	0	1	1	6
trophies		LV	2	0	0	1	0	0	0	1	0	0	4
trophies		MX	20	26	22	27	21	16	15	7	14	13	181
trophies		NL	0	1	0	0	0	0	0	0	0	2	3
trophies		NO	1	3	1	2	0	0	0	0	0	0	7
trophies		PL	0	1	0	1	2	0	1	0	0	0	5
trophies		PT	1	0	0	0	0	0	0	0	0	0	1
trophies		RO	0	0	2	1	0	0	0	0	1	1	5
trophies		RS	0	0	1	0	0	1	1	0	0	0	3
trophies		RU	1	3	7	8	12	10	8	9	0	4	62
trophies		SE	0	0	0	1	1	0	0	0	0	0	2
trophies		SK	0	0	0	0	0	0	0	1	0	0	1
trophies		TR	0	0	0	1	1	0	0	0	0	0	2
trophies		US	137	149	107	173	134	84	59	98	80	97	1118
trophies		ZA	7	19	13	17	8	6	0	4	12	10	96
trophies		ZM	0	0	0	0	0	0	0	0	0	1	1
Bodies Total			0	0	0	0	0	0	0	2	3	0	5
Bones Total			0	0	0	0	0	3	2	0	8	0	13
Feet Total			0	2	0	0	0	0	0	0	0	0	2
Hair Total			0	0	0	10	0	0	0	0	0	0	10
Live Total			0	0	0	0	0	0	1	0	0	0	1
Skin Pieces Total			0	1	0	0	0	0	0	0	0	0	1
Skins Total			11	25	1	1	135	108	56	79	39	7	462
Skulls Total			6	19	2	1	135	114	54	73	41	7	452
Specimens Total			1	0	0	0	0	0	0	0	0	0	1
Tails Total			0	0	0	0	0	1	0	0	0	0	1
Trophies Total			342	305	261	386	280	201	141	210	148	181	2455
Grand Total			360	352	264	398	550	427	254	364	239	195	3403

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from the United Republic of Tanzania, all sources, all purposes, on 03/23/2016.

Table 59. Gross Imports of *Panthera pardus* from Zambia, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		DK	0	0	0	0	0	0	1	0	0	0	1
bones		DE	0	0	0	257	0	0	0	0	0	0	257
bones		ZA	0	0	0	0	0	1	0	0	0	0	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
hair		US	0	0	0	0	0	0	0	0	7	0	7
skins		CA	2	3	0	0	4	1	2	0	0	0	12
skins		ES	0	0	0	0	0	0	2	0	0	0	2
skins		GB	0	1	0	2	3	1	0	1	1	0	9
skins		LU	0	0	0	0	0	0	1	0	0	0	1
skins		MX	0	0	0	0	0	0	0	0	1	0	1
skins		SZ	0	0	3	4	0	0	0	0	0	0	7
skins		US	2	0	0	0	0	0	0	0	0	0	2
skins		ZA	0	4	0	0	0	3	8	3	0	0	18
skulls		BW	0	0	0	0	0	0	0	0	1	0	1
skulls		CA	0	1	0	0	4	1	2	0	0	0	8
skulls		DK	0	0	0	0	0	0	1	0	0	0	1
skulls		GB	0	1	0	2	1	1	0	1	1	0	7
skulls		IT	0	0	0	0	0	0	2	0	0	0	2
skulls		LU	0	0	0	0	0	0	2	0	0	0	2
skulls		MX	0	0	0	0	0	0	4	0	0	0	4
skulls		US	1	1	0	0	0	0	6	0	1	0	9
skulls		ZA	0	4	0	0	0	5	8	4	1	1	23
specimens	g	US	0	0	0	0	0	0	0	0	16	0	16
specimens		CH	0	96	0	0	0	0	0	0	0	0	96
specimens		DE	0	0	53	44	0	0	0	0	0	0	97
specimens		GB	0	8	0	0	0	0	0	0	0	0	8
trophies		AT	0	0	0	1	1	1	0	6	1	1	11
trophies		AU	0	0	0	1	0	0	0	0	0	1	2
trophies		BE	0	0	2	0	0	1	1	2	1	0	7
trophies		BW	0	0	0	0	0	0	0	0	1	0	1
trophies		CA	2	1	0	0	3	14	2	0	1	0	23
trophies		CZ	0	0	0	0	0	2	0	0	1	0	3
trophies		DE	0	0	0	1	4	6	6	4	2	0	23
trophies		DK	0	0	1	1	0	0	6	2	1	0	11
trophies		ES	4	2	4	8	6	2	6	3	3	0	38
trophies		FI	0	0	1	0	0	0	0	0	0	0	1
trophies		FR	3	2	0	4	5	2	2	4	3	0	25
trophies		GB	2	2	2	3	2	1	1	2	0	0	15
trophies		HU	0	0	1	2	3	4	3	6	0	0	19
trophies		IT	0	0	1	1	1	1	2	1	2	1	10
trophies		JM	0	0	1	0	0	0	0	0	0	0	1
trophies		LT	0	0	1	1	0	0	0	0	0	0	2
trophies		LV	0	4	3	3	2	0	0	0	0	0	12
trophies		MX	1	0	0	3	7	6	11	11	1	0	40
trophies		NO	0	0	0	0	0	1	1	0	0	0	2
trophies		PK	0	0	0	0	0	0	3	0	0	0	3
trophies		PT	1	0	2	0	0	0	0	0	0	0	3
trophies		RU	1	0	3	5	1	0	0	3	0	0	13
trophies		SE	0	0	0	0	1	1	0	0	4	0	6
trophies		SI	0	0	3	0	0	0	0	0	0	0	3
trophies		SK	0	0	0	3	2	0	3	2	0	0	10
trophies		SL	0	0	0	0	1	0	0	0	0	0	1
trophies		SZ	0	0	0	2	0	0	0	0	0	0	2
trophies		UA	0	0	1	0	1	0	0	0	0	0	2
trophies		US	54	46	39	48	42	48	36	112	39	2	466
trophies		ZA	7	6	6	7	9	4	6	7	3	0	55

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		ZW	0	1	0	0	0	0	0	0	0	0	1
trophies		MX	0	0	0	0	0	0	1	0	0	0	1
trophies		PK	0	0	0	0	0	0	1	0	0	0	1
Bodies Total			0	0	0	0	0	0	1	0	0	0	1
Bones Total			0	0	0	257	0	1	0	0	0	0	258
Hair Total			0	0	0	0	0	0	0	0	7	0	7
Skins Total			4	8	3	6	7	5	13	4	2	0	52
Skulls Total			1	7	0	2	5	7	25	5	4	1	57
Specimens Total			0	104	53	44	0	0	0	0	0	0	201
Specimens Total	g		0	0	0	0	0	0	0	0	16	0	16
Trophies Total			75	64	71	94	91	94	91	165	63	5	813
Grand Total			80	183	127	403	103	107	130	174	76	6	1389

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Zambia, all sources, all purposes, on 03/23/2016.

Table 60. Gross Imports of *Panthera pardus* from Zimbabwe, 2005-2014, all purposes and all sources.

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies		CA	0	0	0	2	4	0	0	0	0	0	6
bodies		GB	0	0	0	0	1	0	0	0	0	0	1
bodies		HK	0	0	1	0	0	0	0	0	0	0	1
bodies		KR	3	0	0	0	0	0	0	0	0	0	3
bodies		SE	0	0	0	0	0	0	0	1	0	0	1
bones		US	0	0	0	0	0	0	0	4	1	2	7
bones		ZA	0	0	0	0	0	0	0	4	0	0	4
claws		GB	0	0	0	0	0	0	0	0	5	0	5
claws		MX	0	0	0	0	0	0	0	18	18	0	36
claws		US	0	0	0	0	8	0	1	20	0	0	29
derivatives		AT	0	0	1	0	0	0	0	0	0	0	1
feet		ZA	0	0	0	0	0	0	0	4	0	0	4
leather products (large)		US	0	8	0	0	0	0	0	0	0	0	8
live		ZA	0	0	0	0	0	0	0	0	0	3	3
skeletons		FR	1	0	0	0	0	0	0	0	0	0	1
skin pieces		NZ	0	0	0	0	0	0	0	1	0	0	1
skin pieces		US	0	0	0	0	0	1	0	0	1	2	4
skins	kg	IT	0	0	0	0	0	0	1	0	0	0	1
skins		AR	0	0	0	0	0	0	0	3	0	0	3
skins		AT	2	3	2	0	0	0	3	3	2	0	15
skins		BG	0	0	0	0	0	0	0	1	0	0	1
skins		BR	0	2	0	0	0	0	0	0	0	0	2
skins		BW	0	0	0	0	0	0	1	1	0	0	2
skins		CA	0	9	0	9	7	7	4	3	3	1	43
skins		CH	0	0	0	0	0	0	0	1	0	0	1
skins		CN	0	0	0	1	0	0	0	0	0	0	1

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins		CZ	0	0	0	0	0	0	1	1	4	0	6
skins		DE	0	0	0	0	0	0	5	5	4	0	14
skins		DK	0	0	0	1	0	0	2	0	1	0	4
skins		ES	0	0	0	0	2	1	7	5	1	0	16
skins		FI	0	0	0	0	0	0	1	0	0	0	1
skins		FR	0	0	0	0	0	1	2	5	4	0	12
skins		GB	0	0	0	0	2	1	2	2	3	0	10
skins		HK	0	0	0	0	1	0	0	0	0	0	1
skins		HN	0	0	0	0	0	0	0	0	1	0	1
skins		HU	0	0	0	0	0	0	0	2	2	0	4
skins		IT	0	0	0	0	0	0	2	0	2	0	4
skins		LT	0	0	0	0	0	0	0	1	1	0	2
skins		MX	0	0	0	0	1	0	0	3	1	1	6
skins		NG	0	0	0	0	0	0	0	6	0	0	6
skins		NZ	0	0	0	0	1	0	0	0	1	0	2
skins		PL	0	0	0	0	0	0	1	1	0	0	2
skins		PT	0	0	0	0	0	0	0	1	0	0	1
skins		RO	0	0	0	0	0	0	0	1	0	0	1
skins		RU	0	0	0	0	0	0	1	5	0	1	7
skins		SE	0	0	0	0	0	0	0	2	0	0	2
skins		SK	0	0	0	0	0	0	0	0	0	2	2
skins		US	0	0	0	0	3	2	55	128	68	6	262
skins		YU	0	0	0	0	0	0	0	0	1	0	1
skins		ZA	0	20	0	0	1	9	8	12	2	3	55
skulls	kg	IT	0	0	0	0	0	0	1	0	0	0	1
skulls		AR	0	0	0	0	0	0	0	3	0	0	3
skulls		AT	2	0	2	0	0	0	3	3	2	0	12
skulls		BE	0	0	0	0	0	2	0	0	0	0	2
skulls		BG	0	0	0	0	0	1	0	1	0	0	2
skulls		BW	0	0	0	0	0	0	1	1	0	0	2
skulls		CA	0	9	0	19	12	9	4	2	3	1	59
skulls		CH	0	0	0	0	1	0	0	1	0	0	2
skulls		CL	0	0	0	0	0	1	0	0	0	0	1
skulls		CZ	0	0	0	0	0	0	1	1	4	0	6
skulls		DE	0	0	0	0	1	0	6	6	4	0	17
skulls		DK	0	0	0	0	1	0	2	0	1	0	4
skulls		ES	0	0	0	0	3	1	8	5	2	0	19
skulls		FI	0	0	0	0	0	1	1	0	0	0	2
skulls		FR	0	0	0	0	0	0	2	8	5	0	15
skulls		GB	0	0	0	0	3	1	2	2	2	1	11
skulls		HK	0	0	0	0	1	0	0	0	0	0	1
skulls		HN	0	0	0	0	0	0	0	0	1	0	1
skulls		HU	0	0	0	0	0	0	0	2	2	0	4
skulls		IT	0	0	0	0	0	0	2	0	2	0	4
skulls		LT	0	0	0	0	0	0	0	1	1	0	2
skulls		MU	0	0	0	0	0	0	0	1	0	0	1
skulls		MX	0	0	0	0	0	0	0	3	1	1	5
skulls		NO	0	0	0	1	0	0	0	1	0	0	2
skulls		NZ	0	0	0	0	1	0	0	1	1	0	3
skulls		PA	0	0	0	0	0	0	0	1	0	0	1
skulls		PL	0	0	0	0	0	0	1	1	0	0	2
skulls		PT	0	0	0	0	0	0	0	2	0	0	2

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skulls		RO	0	0	0	0	0	0	0	1	0	0	1
skulls		RU	0	0	0	0	0	0	1	5	0	1	7
skulls		SE	0	0	0	0	0	0	1	2	0	0	3
skulls		SK	0	0	0	0	0	0	0	0	0	2	2
skulls		US	0	3	1	7	9	5	58	134	74	9	300
skulls		YU	0	0	0	0	0	0	0	0	1	0	1
skulls		ZA	0	22	0	1	1	9	8	11	6	3	61
specimens		CN	1	0	0	0	0	2	0	0	0	0	3
tails		US	0	0	0	0	0	0	0	0	0	10	10
teeth		CH	0	0	0	0	0	0	0	4	4	0	8
teeth		NZ	0	0	1	0	0	0	0	0	0	0	1
trophies		AR	1	2	2	0	1	0	1	7	0	0	14
trophies		AT	4	6	2	4	3	1	4	2	1	2	29
trophies		AU	0	4	0	1	0	0	0	0	0	0	5
trophies		BE	1	2	2	2	1	3	1	0	1	0	13
trophies		BG	0	1	4	1	0	1	2	1	0	2	12
trophies		BR	0	0	0	0	0	0	0	0	0	2	2
trophies		CA	9	10	2	8	4	4	1	5	3	2	48
trophies		CH	0	0	0	1	1	0	0	1	1	2	6
trophies		CL	2	0	0	0	0	1	0	0	0	0	3
trophies		CN	0	0	0	1	0	2	0	1	1	0	5
trophies		CR	0	1	0	1	0	0	0	0	0	0	2
trophies		CZ	3	3	0	0	2	1	3	1	4	0	17
trophies		DE	9	12	4	4	5	5	8	8	8	4	67
trophies		DK	3	3	2	3	10	6	4	3	0	1	35
trophies		EE	1	0	0	0	0	0	0	0	0	1	2
trophies		ES	25	20	26	18	13	8	10	8	6	4	138
trophies		FI	2	2	1	2	1	2	3	1	0	1	15
trophies		FR	30	9	8	8	5	2	2	10	7	5	86
trophies		GB	1	1	1	2	0	1	1	2	2	2	13
trophies		HR	1	0	0	0	0	0	0	0	0	0	1
trophies		HU	0	0	0	0	1	0	1	1	2	1	6
trophies		IT	4	2	4	7	4	3	6	3	1	0	34
trophies		LT	1	1	0	0	0	0	0	2	1	0	5
trophies		LU	0	0	4	1	0	0	0	0	0	0	5
trophies		LV	0	0	0	0	0	0	0	0	1	1	2
trophies		MU	0	0	0	0	0	0	0	1	0	0	1
trophies		MX	8	15	2	4	6	13	8	5	5	5	71
trophies		NO	1	0	1	2	1	3	0	1	0	0	9
trophies		NZ	1	0	0	0	2	2	1	0	1	0	7
trophies		PA	0	0	0	0	0	0	0	1	0	0	1
trophies		PH	0	0	0	2	3	0	0	0	0	0	5
trophies		PK	1	0	0	0	0	0	0	0	0	0	1
trophies		PL	0	5	4	2	1	3	6	2	1	4	28
trophies		PT	2	3	1	2	0	0	0	2	0	0	10
trophies		QA	0	0	0	0	0	2	0	0	0	0	2
trophies		RO	0	0	1	0	0	1	0	0	1	0	3
trophies		RS	0	0	0	0	0	0	0	0	1	0	1
trophies		RU	5	1	3	6	7	6	4	10	0	1	43
trophies		SA	0	0	1	0	0	0	0	0	0	0	1
trophies		SD	0	0	0	0	0	0	0	0	0	2	2
trophies		SE	1	2	0	1	2	0	1	1	2	2	12

Term	Unit	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies		SG	0	1	0	0	0	0	0	0	0	0	1
trophies		SI	0	1	0	0	0	0	0	0	0	0	1
trophies		SK	2	0	1	3	0	1	0	0	1	1	9
trophies		SL	0	1	0	0	0	0	0	0	0	0	1
trophies		SZ	0	0	0	0	0	0	0	0	0	2	2
trophies		UA	0	0	0	0	0	0	0	0	2	2	4
trophies		US	185	156	178	143	180	143	126	132	129	117	1489
trophies		XX	0	2	0	0	0	0	0	0	0	0	2
trophies		ZA	30	19	23	24	28	6	11	8	10	11	170
trophies		ZM	0	0	0	0	0	0	0	1	0	0	1
Bodies Total			3	0	1	2	5	0	0	1	0	0	12
Bones Total			0	0	0	0	0	0	0	8	1	2	11
Claws Total			0	0	0	0	8	0	1	38	23	0	70
Derivatives Total			0	0	1	0	0	0	0	0	0	0	1
Feet Total			0	0	0	0	0	0	0	4	0	0	4
Leather Products (large) Total			0	8	0	0	0	0	0	0	0	0	8
Live Total			0	0	0	0	0	0	0	0	0	3	3
Skeletons Total			1	0	0	0	0	0	0	0	0	0	1
Skin Pieces Total			0	0	0	0	0	1	0	1	1	2	5
Skins Total			2	34	2	11	18	21	95	192	101	14	490
Skins Total	kg		0	0	0	0	0	0	1	0	0	0	1
Skulls Total			2	34	3	28	33	30	101	199	112	18	560
Skulls Total	kg		0	0	0	0	0	0	1	0	0	0	1
Specimens Total			1	0	0	0	0	2	0	0	0	0	3
Tails Total			0	0	0	0	0	0	0	0	0	10	10
Teeth Total			0	0	1	0	0	0	0	4	4	0	9
Trophies Total			333	285	277	253	281	220	204	220	192	177	2442
Grand Total			342	361	285	294	345	274	401	667	434	226	3629

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* from Zimbabwe, all sources, all purposes, on 03/23/2016.

Table 61: Imports of *Panthera pardus* into Austria, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	H	W	AT	0	0	0	0	0	1	0	0	0	0	1
skins	H	W	AT	3	0	0	0	3	4	4	3	4	0	21
trophies	H	W	AT	17	26	9	10	17	10	11	18	13	10	141
trophies	H	W	AT	0	0	0	0	0	0	1	0	0	0	1

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins	P	O	AT	0	0	0	0	0	0	0	0	1	0	1
skins	P	W	AT	4	14	15	0	0	0	0	0	0	0	33
trophies	P	W	AT	0	1	6	12	4	1	1	0	2	4	31
skins	Q	O	AT	0	0	0	0	1	0	0	0	0	0	1
bodies total				0	0	0	0	0	1	0	0	0	0	1
skins total				7	14	15	0	4	4	4	3	5	0	56
trophies total				17	27	15	22	21	11	13	18	15	14	173
Grand Total				24	41	30	22	25	16	17	21	20	14	**230**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Austria by individual sources and purposes, on 03/16/2016.

Table 62: Imports of *Panthera pardus* into Canada, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	E	W	CA	0	0	0	0	0	0	0	2	0	0	2
skins	E	W	CA	0	0	0	0	0	0	0	1	0	0	1
trophies	H	C	CA	0	0	0	0	0	0	0	0	2	0	2
bodies	H	W	CA	0	0	0	6	8	0	6	2	1	4	27
skins	H	W	CA	11	22	0	18	32	10	10	11	3	2	119
trophies	H	W	CA	16	17	3	15	16	22	9	10	8	13	129
trophies	H	F	CA	0	0	0	0	0	0	0	0	2	0	2
trophies	P	I	CA	0	0	0	0	0	0	0	0	0	1	1
skins	P	O	CA	0	0	0	2	1	0	1	1	0	1	6
bodies	P	W	CA	0	0	0	1	1	0	0	0	0	1	3
skins	P	W	CA	2	2	0	0	1	0	0	0	0	1	6
trophies	P	W	CA	3	0	0	0	1	0	0	1	0	1	6
bodies	T	O	CA	0	0	0	0	0	0	0	1	0	0	1
skins	T	W	CA	2	0	0	0	0	0	0	0	0	0	2
live	Z	C	CA	0	1	2	1	0	1	0	1	2	2	10
bodies total				0	1	2	7	9	1	6	5	1	5	33
live total				0	1	2	1	0	1	0	1	2	2	10
skins total				15	24	0	20	34	10	11	13	3	4	134
trophies total				34	43	3	51	69	22	32	33	21	34	141
Grand Total				34	42	5	43	60	33	26	30	18	26	**318**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Canada by individual sources and purposes, on 03/17/2016.

Table 63: Imports of *Panthera pardus* into France, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	H	W	FR	0	0	0	0	1	0	0	0	0	0	1
skins	H	W	FR	2	1	1	0	28	25	19	23	11	0	110
trophies	H	W	FR	188	74	33	47	52	44	10	11	10	4	473
skins	P	O	FR	3	0	0	1	0	0	0	1	0	0	5
bodies	P	W	FR	0	0	0	0	2	0	0	0	0	0	2
skins	P	W	FR	2	0	0	0	1	1	1	0	2	2	9
trophies	P	W	FR	4	2	33	138	60	51	32	76	33	30	459
live	Q	C	FR	0	2	0	0	0	0	0	0	0	4	6
live	Z	C	FR	0	1	3	1	0	2	0	0	0	0	7
bodies total				0	0	0	0	3	0	0	0	0	0	3
live total				0	3	3	1	0	2	0	0	0	4	13
skins total				7	1	1	1	29	26	20	24	13	2	124
trophies total				192	76	66	185	112	95	42	87	43	34	932
Grand Total				199	80	70	187	144	123	62	111	56	40	**1,072**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into France by individual sources and purposes, on 03/17/2016.

Table 64: Imports of *Panthera pardus* into Germany, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	B	C	DE	0	0	0	0	0	0	2	0	0	0	2
bodies	H	W	DE	0	0	0	0	0	1	0	0	0	0	1
skins	H	W	DE	0	0	0	0	5	2	12	15	8	0	42
trophies	H	W	DE	62	66	30	41	60	34	30	46	38	36	443
bodies	P	O	DE	0	0	1	0	0	0	0	0	0	0	1
skins	P	O	DE	0	0	0	0	0	1	0	0	1	0	2
trophies	P	O	DE	0	0	0	0	0	0	0	1	0	0	1
bodies	P	W	DE	0	0	0	1	0	0	0	0	0	0	1
skins	P	W	DE	1	0	0	0	0	0	2	0	0	0	3
trophies	P	W	DE	4	1	3	0	4	3	2	1	0	0	18
live	Q	C	DE	0	1	0	0	0	0	0	0	0	0	1
trophies	Q	O	DE	0	0	0	1	0	0	0	0	0	0	1
skins	T	O	DE	0	1	0	0	0	0	0	0	0	0	1
skins	T	U	DE	0	0	7	0	0	0	0	0	0	0	7
skins	T	W	DE	0	0	7	0	0	1	0	0	0	0	8
live	Z	C	DE	0	0	2	0	3	0	0	2	0	0	7
bodies total				0	0	1	1	0	1	0	0	0	0	3
live total				0	1	2	0	3	0	2	2	0	0	10
skins total				1	1	14	0	5	4	14	15	9	0	63
trophies total				66	67	33	42	64	37	32	48	38	36	463
Grand Total				67	69	50	43	72	42	48	65	47	36	**539**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Germany by individual sources and purposes, on 03/17/2016.

Table 65: Imports of *Panthera pardus* into Italy, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	H	R	IT	0	0	0	1	0	0	0	0	0	0	1
bodies	H	W	IT	0	0	0	0	0	1	0	0	0	0	1
skins	H	W	IT	0	0	0	0	5	5	4	3	2	0	19
trophies	H	W	IT	20	12	15	18	23	18	22	18	12	7	165
skins	P	O	IT	0	0	0	1	0	0	0	0	0	0	1
trophies	P	W	IT	0	0	0	0	0	0	0	0	3	0	3
skins	Q	O	IT	0	0	0	0	0	0	0	1	0	0	1
live	Z	C	IT	0	0	0	0	1	0	0	0	0	0	1
bodies total				0	0	0	0	0	1	0	0	0	0	1
live total				0	0	0	0	1	0	0	0	0	0	1
skins total				0	0	0	1	5	5	4	4	2	0	21
trophies total				20	12	15	19	23	18	22	18	15	7	169
Grand Total				20	12	15	20	29	24	26	22	17	7	**192**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Italy by individual sources and purposes, on 03/17/2016.

Table 66: Imports of *Panthera pardus* into Mexico, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	H	C	MX	0	0	0	0	0	0	0	0	2	0	2
trophies	H	F	MX	0	0	0	0	0	0	0	0	2	0	2
trophies	H	I	MX	0	0	0	0	0	2	0	0	0	0	2

trophies	H	O	MX	0	0	0	0	0	0	6	0	0	0	6
bodies	H	W	MX	0	0	0	0	1	0	0	0	0	0	1
skins	H	W	MX	0	0	0	0	3	4	3	4	5	0	19
trophies	H	W	MX	39	68	50	57	49	46	38	48	30	29	454
trophies	H	W	MX	0	0	0	0	0	0	1	0	0	0	1
trophies	P	W	MX	1	0	1	2	0	0	0	1	0	0	5
live	Q	C	MX	0	0	0	0	0	2	0	0	1	0	3
trophies	T	W	MX	0	0	1	1	1	0	0	0	0	0	3
live	Z	C	MX	0	0	0	4	0	0	0	0	0	1	5
bodies total				0	0	0	0	1	0	0	0	0	0	1
live total				0	0	0	4	0	2	0	0	1	1	8
skins total				0	0	0	0	3	4	3	4	6	0	20
trophies total				40	68	52	60	56	48	45	49	34	29	481
Grand Total				40	68	52	64	59	54	48	53	41	30	**510**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Mexico by individual sources and purposes, on 03/17/2016.

Table 67: Imports of *Panthera pardus* into Russia, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	B	C	RU	0	0	0	0	0	0	0	2	0	0	2
bodies	H	W	RU	0	0	3	0	0	2	1	1	0	1	8
live	H	W	RU	0	0	0	0	0	2	0	0	0	0	2
skins	H	W	RU	0	0	0	0	7	6	8	7	2	0	30
trophies	H	W	RU	15	8	20	29	36	35	23	51	15	31	263
live	N	W	RU	0	0	0	0	4	0	0	0	0	0	4
skins	P	C	RU	0	0	0	0	0	0	0	0	2	0	2
bodies	P	W	RU	0	0	0	0	1	0	0	0	0	0	1
trophies	P	W	RU	0	0	0	5	5	2	2	4	14	5	37
live	Q	U	RU	0	0	0	0	0	0	4	0	0	0	4
live	Q	W	RU	0	0	0	0	0	0	4	0	0	0	4
skins	T	O	RU	0	0	0	0	0	0	0	4	0	0	4
live	Z	C	RU	0	5	3	3	0	0	2	2	6	3	24
live	Z	F	RU	0	0	0	0	0	0	0	1	0	0	1
bodies total				0	0	3	0	1	2	1	1	0	1	9
live total				0	5	3	3	4	2	10	5	6	3	41
skins total				0	0	0	0	7	6	8	11	4	0	36
trophies total				15	8	20	34	41	37	25	55	29	36	300
Grand Total				15	13	26	37	53	47	44	72	39	40	**386**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Russia by individual sources and purposes, on 03/17/2016.

Table 68: Imports of *Panthera pardus* into South Africa, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
live	B	C	ZA	0	0	0	0	2	0	2	1	0	0	5
live	B	F	ZA	0	0	0	1	0	0	0	0	0	0	1
live	B	F	ZA	0	0	0	1	0	0	0	0	0	0	1
live	B	W	ZA	1	0	0	0	0	0	0	0	0	0	1
live	E	C	ZA	0	0	0	0	3	0	0	0	0	0	3
trophies	H	C	ZA	0	0	0	0	0	0	1	0	0	0	1
trophies	H	F	ZA	0	0	1	1	0	0	0	0	0	0	2
trophies	H	R	ZA	0	1	0	0	0	0	0	0	0	0	1
skins	H	W	ZA	0	51	0	0	22	28	41	38	27	0	207
trophies	H	W	ZA	87	74	73	76	80	43	40	46	43	25	587

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
skins	L	W	ZA	0	0	0	0	0	0	0	2	0	0	2
skins	P	C	ZA	0	0	0	0	7	0	0	0	0	0	7
skins	P	O	ZA	2	0	0	0	0	0	1	0	0	0	3
skins	P	W	ZA	6	1	0	0	3	0	0	0	0	0	10
trophies	P	W	ZA	2	0	0	0	1	0	4	12	1	0	20
live	Q	C	ZA	0	0	0	0	0	4	0	0	0	0	4
live	T	C	ZA	0	1	0	0	1	0	1	0	2	3	8
live	T	W	ZA	0	0	0	0	0	0	1	1	0	0	2
trophies	T	W	ZA	0	0	0	1	0	0	0	1	0	0	2
live	Z	C	ZA	0	1	0	2	0	0	0	2	2	2	9
live	Z	W	ZA	0	0	2	0	0	0	0	0	0	0	2
live total				1	2	2	4	6	4	4	4	4	5	36
skins total				8	52	0	0	32	28	42	40	27	0	229
trophies total				89	75	74	78	81	43	45	59	44	25	613
Grand Total				98	129	76	82	119	75	91	103	75	30	**878**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into South Africa by individual sources and purposes, on 03/17/2016.

Table 69: Imports of *Panthera pardus* into Spain, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
bodies	H	W	ES	0	0	0	0	0	2	0	1	0	0	3
skins	H	W	ES	0	3	0	0	18	27	32	12	7	0	99
trophies	H	W	ES	90	91	100	76	72	53	39	29	18	20	588
trophies	P	W	ES	0	0	0	0	0	0	3	1	11	0	15
live	Q	C	ES	0	0	0	0	0	1	1	0	0	0	2
live	T	C	ES	0	0	0	0	0	1	0	0	0	0	1
skins	T	W	ES	0	0	0	0	1	0	0	0	0	0	1
bodies total				0	0	0	0	0	2	0	1	0	0	3
live total				0	0	0	0	0	2	1	0	0	0	3
skins total				0	3	0	0	19	27	32	12	7	0	101
trophies total				90	91	100	76	72	53	42	30	29	20	602
Grand Total				90	94	100	76	91	84	75	43	36	20	**709**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into Spain by individual sources and purposes, on 03/17/2016.

Table 70: Imports of *Panthera pardus* into the United States of America, all sources, all purposes 2005-2014.

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	E	W	US	0	0	2	0	0	0	0	0	0	0	2
trophies	H	C	US	0	0	1	0	0	0	1	0	0	0	2
trophies	H	I	US	21	31	19	30	14	13	14	18	10	5	175
skins	H	R	US	0	1	0	0	0	0	0	0	0	0	1
bodies	H	W	US	1	0	0	0	0	6	1	4	0	0	12
skins	H	W	US	1	26	4	1	46	83	152	262	106	2	683
trophies	H	W	US	497	512	494	566	642	445	296	460	345	316	4,573
trophies	H	W	US	0	0	0	0	0	1	0	0	0	0	1
skins	L	W	US	0	0	3	0	0	0	0	0	0	0	3
trophies	P	I	US	0	0	0	0	0	0	0	0	1	0	1
skins	P	O	US	1	2	0	1	0	2	1	6	1	1	15
trophies	P	O	US	0	0	0	0	0	0	0	1	0	0	1
skins	P	U	US	2	0	0	0	0	0	0	0	0	0	2
bodies	P	W	US	0	0	0	0	0	0	1	1	0	0	2
skins	P	W	US	4	2	0	4	1	0	0	0	0	0	11

Term	Purpose	Source	Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
trophies	P	W	US	4	3	4	4	1	0	1	10	6	2	35
live	Q	C	US	0	0	0	1	1	2	2	0	1	0	7
skins	Q	O	US	0	0	0	2	0	0	0	0	1	0	3
skins	Q	W	US	0	0	0	0	0	0	0	0	1	0	1
skins	S	U	US	0	0	0	7	0	0	0	0	0	0	7
skins	T	I	US	2	0	0	0	0	2	0	1	0	0	5
skins	T	O	US	3	2	0	0	1	0	0	0	0	0	6
skins	T	U	US	0	1	0	0	0	0	0	0	0	0	1
trophies	T	U	US	0	0	1	0	0	0	0	0	0	0	1
skins	T	W	US	0	1	0	0	0	0	1	0	1	0	3
trophies	T	W	US	0	1	1	0	0	0	0	0	0	1	3
live	Z	C	US	0	0	0	6	3	0	1	1	3	3	17
live	Z	F	US	0	0	0	0	0	0	0	1	0	0	1
live	Z	F	US	0	0	0	0	0	0	0	1	0	0	1
bodies total				1	0	0	0	0	6	2	5	0	0	14
live total				0	0	0	7	4	2	3	3	4	3	26
skins total				13	35	7	15	48	87	154	269	110	3	741
trophies total				522	547	522	600	657	459	312	489	362	324	4,794
Grand Total				536	582	529	622	709	554	471	766	476	330	**5,575**

Source: UNEP-WCMC CITES Trade Database searched by "gross imports" of *Panthera pardus* into the United States of America by individual sources and purposes, on 03/17/2016.

From:	Farkas, Sandra
To:	Tim Vannorman
Subject:	Namibia Lion Letter
Date:	Monday, October 02, 2017 9:49:39 AM
Attachments:	Namibia Letter due October 4, 2017_3.doc 09.26.17, Attach #1, Conservation Strategy, Vision.pdf 09.26.17, Attach #2, NW Lion Management Plan, July 2017.pdf

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Tim,

Please disregard the previous letter and have a look at this letter.

I am also attaching the Strategy (attachment 1) and the Management Plan (attachment 2) for your convenience.

Thanks,

Sandy

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Sandra Farkas, Biologist
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Ministry of Environment and Tourism
Republic of Namibia

LION CONSERVATION STRATEGY FOR NAMIBIA

July 2017

Foreword

The lion *Panthera leo* is iconically African, and an important indicator of wilderness quality and integrity where it occurs. A key species for wildlife tourism, research and sports hunting, the lion is nevertheless, increasingly threatened.

Recent surveys indicated a suspected decline of 43% over the past 21 years of the African lion populations. With much of its former range now lost, and human-livestock densities increasing around core lion populations, the lion has become one of the major predators of livestock, presenting challenges and hardship to those who live amongst lions. Whilst an economic liability, and a threat to human safety, the lion is also a major source of economic benefit, being one of Africa's most important tourism attractions.

Compared to other Sub-Saharan lion range states, Namibia is home to only a small population of around 1000 lions, but, unlike the situation in most other countries, the lion population in Namibia has slowly increased over the past 20 years. This was mainly due to the expansion of lions into the Kunene Region. In other parts of Namibia, lion habitat is threatened through land use change and fragmentation resulting in human wildlife conflict and reduction in range available for lions.

The Ministry of Environment and Tourism has the constitutional mandate to safeguard and sustain the biological diversity of Namibia for the long-term benefits of current and future generations. It is the vision of this strategy to ensure the long-term conservation of the Namibian lion in a sustained environment.

The Ministry of Environment and Tourism acknowledges the contributions made by different stakeholders in the development of the Lion Conservation Strategy for Namibia. The Ministry is looking forward to join hands with all key stakeholders involved in wildlife and lion conservation to implement the Lion Conservation Strategy to ensure that our lion populations remain viable and are beneficial to the people who share their land and resources with lions.

Malan Lindeque
PERMANENT SECRETARY

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1. Introduction and background

The African lion (*Panthera leo*) is the largest African member of the genus *Panthera*, weighing up to about 230 kg, and is confined to the African continent. The lion is a highly charismatic member of the megafauna of Africa and is the only cat species that is conspicuously social (Schaller 1972).

The African lion plays a key role in the ecological functioning of the African ecosystems, but also provides key challenges when they come into conflict with other land uses like stock farming.

Three categories of lions are found in Namibia; wild free roaming lions in large and open protected areas and other land used for conservation purposes such as conservancies, managed lions free roaming in small fenced reserves, and captive lions that are entirely dependent on humans for their survival.

1.1 Lion Conservation status

The African lion is listed as Vulnerable on the IUCN Red List (Bauer *et al*. 2016) and the Namibian population is included in Appendix II of the Convention on the International Trade of Endangered Species (CITES). African lion is a Specially Protected Species under the Nature Conservation Ordinance, Ordinance 4 of 1975 of Namibia.

1.2. Distribution

Lions are found in most countries of sub-Saharan Africa (Bauer *et al.* 2016). Lions are largely found in the savanna biome of Africa, which includes areas that receive annual rainfall of between 300 and 1500 mm. Savannas encompass a wide variety of habitats including grasslands, wetlands, dry woodlands and mosaics of all of these. Lion distribution is represented in 67 lion areas comprising 3.4 million square kilometres, which is 17% of the former range or about 25% of the savannah (Riggio *et al*. 2013). Lions no longer occur in the desert parts of North Africa, but occur and are expanding in numbers and range in the Namib Desert in Namibia (Bauer & van der Merwe 2004; Stander 2007).

Lion populations are decreasing in west and east Africa and are only stable in the southern African region (Bauer *et al*., 2015). It is assumed that they are extinct in most of their historical range and may be surviving in as little as 8% of their former range (Bauer *et al.*2016) Absent from forests, lions otherwise have a wide habitat tolerance, penetrating deep into deserts, even where only ephemeral watercourses occur. Where water is available, lions will drink regularly, but are by no means water dependent, getting most of their water requirements from their prey (Smithers 1983, Skinner and Smithers 1990). The most important habitat requirement is that it provides an adequate food supply in the form of medium to large sized mammals.

Historically lions were distributed throughout Namibia with sightings recorded in the areas of Swakop River, south of Windhoek, Keetmanshoop and many other areas by the early travellers (Vedder, 1938). Lion populations where extirpated from most parts of Namibia by the turn of the 20th Century.

The Namibian lion population can be subdivided into 2 populations, the Etosha-Kunene population and the Khaudum-Zambezi population. It is unlikely that there is any significant exchange between these populations at present and it is unlikely that this will change in the near future. In addition there are a number of small populations on private game reserves, most notable is the population maintained in a private game reserve in the Kalahari, Ongava and Etosha Heights Safari Lodge on the edge of Etosha National Park. There are also possible genetic differences between the populations but the significance of this is still unclear but should be considered when making management decisions (Dubach et al., 2013).

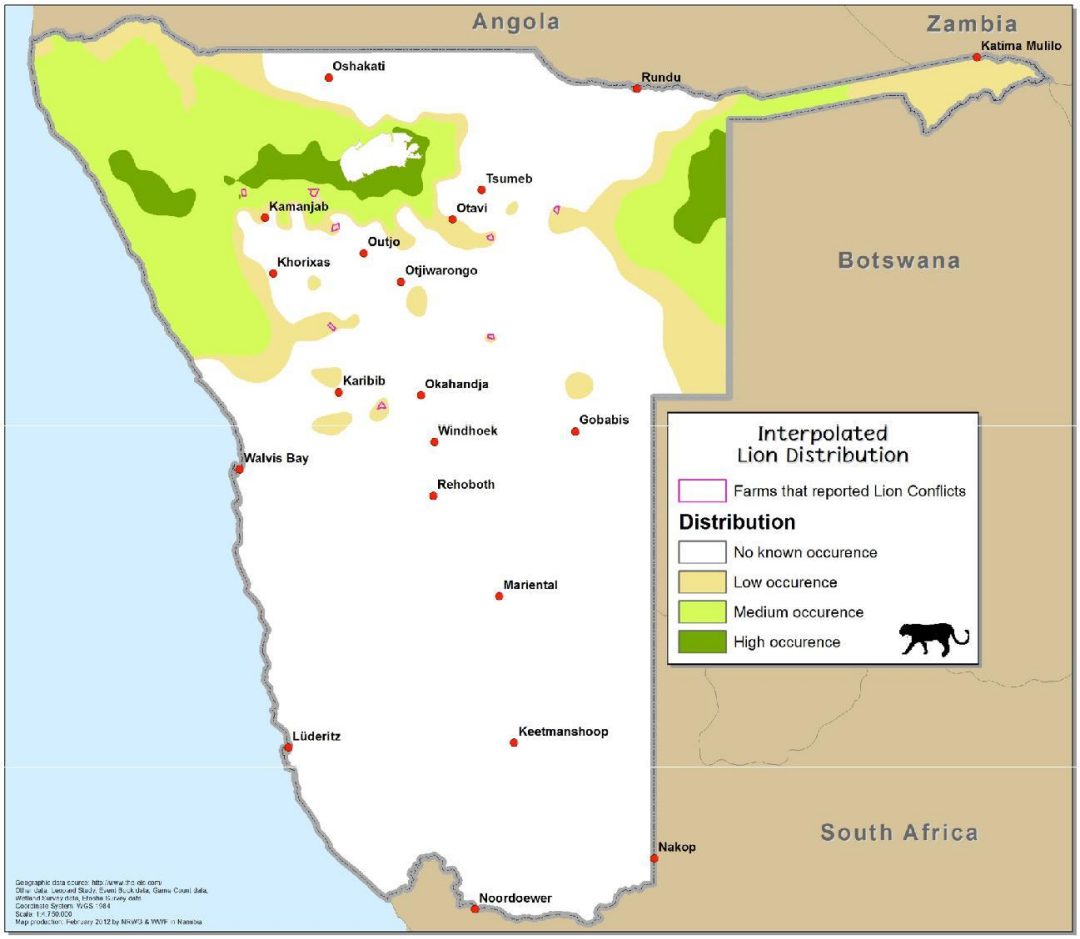

Fig.2. *Distribution of free ranging lions in Namibia (Large Carnivore Atlas, 2012)*

1.3. Habitat requirements

The Lion has a broad habitat tolerance; they are absent only from the tropical rainforest and interior of the Sahara desert (Nowell & Jackson 1996). Like most large carnivores, lions require areas with sufficient prey base and low human densities. Within their home ranges lions require habitats or locations that are suitable for hunting, resting and breeding. Although landscape features may vary from area to area, lions tend to select areas where prey is easier to catch, than areas where prey densities are highest (Hopcroft *et al*. 2005).

1.4. Biology:

Lions are the most social of the cats, with related females remaining together in prides, and related and unrelated males forming coalitions competing for tenure over prides. Average pride size (including males and females) is four to six adults; prides generally break into smaller groups when hunting (Bauer *et al.*2016). Lions live at higher densities than most felids with a variation from 1.5 adults per 100km2 in Southern African semi-deserts to 55 per 100 km2. (Sunquist & Sunquist 2002).

In most large protected areas, lion populations tend to be stable (Packer *et al*. 2005; Ferreira & Funston 2010a), but when introduced into a new reserve with naïve and high prey densities, lion populations increase very rapidly (Kilian & Bothma 2003; Miller & Funston 2014) requiring active management interventions to avoid undesired outcomes resulting from overpopulation.

1.5. Ecology

Lion prey consists of medium- to large-sized ungulates, including antelopes, zebra and wildebeest. However, lions feed on almost any animal, from rodents to a rhino and do at times also scavenge, displacing other predators from their kill (IUCN, 2016).

Lions respond to behavioural and physiological changes in prey in terms of what species, sex and age of prey they select (Owen-Smith 2008). Although lions hunt cooperatively (Stander 1992) no clear evidence was found that this benefits lions in terms of the amount of food they eat (Packer *et al*. 1988), and thus hunting success is not a driver of sociality in lions (Packer *et al*. 1990).

Lion home range size differs contrastingly between populations, ranging from as small as 20 km^2 in the Ngorongoro Crater (Elliot & Cowan 1978), to 400 km^2 in Etosha National Park (Stander 1991), and up to 4500 km^2 in the Kgalagadi system (Funston 2011).

1.6. Diseases

It is believed that disease risk for lions increases as populations become isolated, placing them at a higher risk when confined by fencing (Keet *et al*. 2009). In addition, their increasing proximity to people and domestic animals exposes them to new diseases (IUCN SSC Cat Specialist Group 2006).

Namibian lion are generally believe to be free from most of the diseases affecting African lions elsewhere. Therefore it is important that the disease free status of the lion populations, especially the populations in large protected areas such as Etosha National Park are protected against introduction of diseases.

2. Threats to the survival of lion

Surveys have indicated a suspected decline of 30-50% in the African lion population in recent decades. A decade ago estimates ranged from 23,000 to 39,000 wild lions (Chardonnet 2002; Bauer & van der Merwe 2004), with a current estimate of 30,000 (Riggio *et al*. 2013). The main threats to lions are indiscriminate killing (primarily as a result of human-lion conflict) and prey base depletion. Habitat loss and conversion have led to a number of subpopulations becoming small and isolated (Bauer *et al.* 2008).

The following are known threats to the long-term survival of lion in Namibia as well as their wider range:

- Persecution by livestock farmers (both commercial and communal)
- Habitat loss and degradation, as well as habitat fragmentation
- Decreasing wild prey populations
- Potential loss of connectivity with neighbouring countries
- Diseases

3. Background and Rationale for the Conservation Strategy

This is the first Namibian species management plan for the Lion and its development follows from and is guided through the National Policy on the Conservation and Management of Large Carnivores of 2014. The Policy outlined the following strategies:

- Targeted and sustained Research and Monitoring
- Species-specific Large Carnivore Conservation and Management Planning
- Sustainable Utilization of Large Carnivores
- Management of Human-Carnivore Conflict
- Stakeholder Engagement Platforms
- Standard Operational Procedures
- Large carnivore conservation at landscape level

4. Vision and Goal statements

Vision

Ensure the long-term conservation of the Namibian lion in a sustainable environment for the mutual benefit of present and future generations of people and lions

Goal

Viable free-ranging lion populations on formally protected land, conservation areas and in suitable game reserves providing social, cultural and economic benefits to all

4.1. Objectives

The following objectives are developed to meet the strategies set out in the National Policy on the Conservation and Management of Large Carnivores:

Objectives

1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that recognise and promote wildlife as an integral part of multiple land use systems and which provide conservation-related socio-economic benefits across current and potential lion range.

2. **Management**: To ensure effective conservation management of lions, their habitats and prey through identified needs including research and monitoring.

3. **Conflict mitigation**: To reduce and mitigate human/livestock conflicts with lions in a participatory, responsible and transparent manner.

4. **Socio-economics**: Analyze and distribute equitably the costs and benefits of lion conservation and management, whilst optimizing wildlife-related net benefits to affected communities.

5. **Trade and regulation**: To prevent illegal trade and to regulate consumptive use of lions and lion products.

6. Transboundary connectivity: Ensure connectivity with the neighbouring lion populations is maintained

4.2. Objectives and strategic actions

Objective	Strategic Actions	Intended 5-Year Outcomes	Indicators	Implementing Party	Estimated Cost
1. **Policy and legislative environment**: To improve, reform and implement policy, legislation and institutional frameworks that promote wildlife as an integral part of multiple land use systems and which provide conservation related socio-economic benefits across current and potential lion range	1.1. Implement lion conservation strategy within existing wildlife and other relevant policies, and consistent with primary legislation	Enabling policy and legislative environment that promotes lion conservation established, and operational	Lion conservation strategy in place and implemented	MET and relevant Government agencies	100,000
	1.2. Develop and implement regulations prohibiting translocation of lions from other areas to Etosha National Park	Etosha NP lion population is protected, and its disease-free status and genetic integrity of lion populations is maintained through prevention of mixing of geographically separated lion populations	Regulations preventing introductions of lions from distant areas into Etosha National Park developed and in place	MET	50,000
	1.3. Develop and implement regulations for the keeping of lions on private game reserves, clarifying rights, responsibilities and ownership	Viable lion populations established in suitable areas, especially on private land mainly used for wildlife management.	(i) Regulations on establishment of lion populations in other suitable areas in place, (ii) Increase in number of new lion populations	MET, Private Game Reserves, Communal and freehold conservancies	500,000

			established in the historical range		
	1.4 Develop and implement mechanisms to regulate hunting of problem lions	(i) All legal hunting of problem lions ethically conducted, benefiting the areas most affected by lion problems (ii) Compliance with international rules on trade in lion products resulting from the lion hunts.	Regulation of all matters pertaining to hunting of problem lions, prohibiting leg-hold traps and regulating cage traps	MET	50,000
	1.5. Develop and implement regulations for the rehabilitation of lions, and lions kept in captivity.	(i) Lion rehabilitation process is regulated to ensure that it does not lead to socio-economically detrimental outcomes (ii) Numbers of lion kept in captivity remain stable	(i) Regulations in place for rehabilitation of lions (ii) All permit holders comply to conditions under the regulations or be closed down	MET, Large Carnivore Management of Association Namibia (LCMAN), registered large carnivore rehabilitation centres &	200,000

		or decrease over time.	permanently	captive facilities.	
2. **Lion Management:** lion populations, their habitats and prey base effectively managed in collaboration with local stakeholders	2.1. Continue long-term monitoring of lion populations and their prey throughout the lion range	Lion and their prey base remain stable or increase in the lion range	Regular monitoring of lions and prey species in lion range areas	MET, LCMAN and private game reserves, wildlife research and monitoring organisations, NGOs	1,500,000
	2.2. Maintain and strengthen capacity for lion conservation, management , monitoring and research within the MET and amongst the other key stakeholders	Capacity to manage lion in Namibia is established within MET, LCMAN and other key stakeholders.	(i) Large carnivore coordinator is appointed and capacitated (i) Large carnivore coordinator and LCMAN attends regular training workshops and capacity building initiatives	MET, LCMAN, Range wide Large Carnivore Programme	500,000
	2.3. Identify and implement best	(i) Hunting of lion is ethically conducted, and	(i) Regulations and guidelines on lion	MET, LCMAN,	100,000

	management standards and practices for all legally hunted lion populations, ensuring their viability and sustainable and adaptively managed hunting quotas	is not detrimental to the long-term survival of the species in Namibia (ii) Legal hunting of lion contributes meaningful and tangible benefits to the landholders, and communities sustaining and sharing their land with lion populations	hunting in place (ii) Records of benefit flows to landholders and communities from lion hunts	hunting operators, conservancies	
	2.4 Promote collaborative management of lion populations across landscapes	Lion conservation is practiced beyond the boundaries of the formally protected areas	Lion range expansion adjacent to formally protected areas and other suitable places.	MET, communal and freehold landholders, private sector, NGOs	200,000
	2.5. Maintain viable and sustainable populations of prey species in lion range areas to enhance lion conservation and to further reduce human-lion conflicts	(i) Stable or increasing wild prey populations in lion range (ii) Improved and predator friendly livestock husbandry	(i) Regularly conducted wildlife survey reports (ii) Number of projects supporting predator friendly	MET, LCMAN, NGOs	1,000,000

		practices in place (iii) Reduce lion predation on domestic livestock	livestock husbandry practices (iii) Acceptable community attitudes towards lions		
	2.6 Facilitate lion re-introduction programmes in the region informed by science	Namibia contributes to lion re-introduction programmes in southern Africa region	Number of lion re-introductions supported by Namibian Government (on request, opportunistic)	MET, SADC member states	500,000
3. **Conflict mitigation:** To reduce and minimise human-lion conflict in a participatory, responsible and accountable manner	3.1. Identify and implement strategies to reduce and mitigate livestock losses	(i) Reduction in lion caused livestock losses (ii) Increased level of tolerance of lions by livestock rearing communities	(i) Decrease in number of livestock killed by lions (ii) Continued co-existence of lions and cattle in dominantly livestock farming areas (iii) Reduction in	MET, NACSO, WWF Namibia	500,000

			number of lions destroyed as problem animals		
	3.2. Through partnership with civil society and private sector establish well trained and properly staffed problem animal response units to deal with lion-human conflicts	Capacity in place at various levels throughout the lion range to provide instant response to reported lion conflicts	Number of rapid response units established and operational in the lion range	MET, NACSO, NGOs & Private sector	2,000,000
	3.3. Implement and raise awareness on the National Human-Wildlife Conflict Management Policy	Human-wildlife conflict in Namibia managed according to the strategies of the National Policy on Human Wildlife Conflict Management	Level of implementation of the provisions of the National Policy on Human-Wildlife Conflict Management	MET, NACSO, CANAM, Farmers Unions	200,000
	3.4. Exchange information on best practices, working models to prevent human-lion conflict both nationally and internationally	Best practices and lessons learnt are shared with all stakeholders leading to reduction in incidences of human-lion conflicts	Reduction in incidences of human-lion conflicts	MET, NGOs, KAZA TFCA	500,000
	3.5. Work closely with traditional authorities to prevent new land	Traditional authorities support and respect areas zoned for wildlife	(i) Number of workshops conducted with Traditional	MET, MURD, NACSO, NGOs,	500,000

	allocations in areas zoned for wildlife and lion conservation on communal land	conservation when considering new land allocations	Authorities (ii) No new human-settlements in areas zoned for wildlife conservation except for emergency grazing during drought conditions	Traditional Authorities	
	3.6. Develop area-specific lion conflict management strategies adapted to local conditions	Area-specific management strategies for human- lion conflict considering the opportunities and challenges presented by different areas.	Area-specific human – lion conflict management strategies developed for the lions in Northwest and Northeast	MET	500,000
4. **Socio-economics:** The costs and benefits of long-term lion conservation and management equitably distributed	4.1. Strongly promote the concept of competitive advantage that African wildlife provides Namibia compared to other land uses types and industries	Wildlife, including lion, fully integrated in multi-species production systems in suitable areas in Namibia	(i) Contribution of the wildlife and tourism sector to the GDP of the country (ii) Expansion of the wildlife based production systems	MET, private sector, farmers unions	500,000

			inclusive of lions		
	4.2. Deliver appropriate training, education and capacity building to identified stakeholders	Capacity exists at community level to manage conflict with lions	Reduction in human-lion conflict incidences	MET, NACSO, NGOs, KAZA TFCA	300,000
	4.3. Agree, and implement collaboratively developed area-specific lion management plans with identified stakeholder groups in the lion range in Namibia	Lion management at area specific scale taking into consideration the opportunities and challenges unique to lion range areas	Separate local level lion management plans for key lion populations in the Northwest, Northeast and on small fenced reserves.	MET, LCMAN, KAZA TFCA, conservancies	500,000
	4.4. Implement transparent mechanisms to equitably distribute lion related/generated income to identified stakeholders	Communities and landholders supporting lion conservation on their land obtain direct and equitable benefits from the conservation of lions	Mechanisms developed to distribute benefits from lion to communities and landholders	MET, NACSO, tourism operators, hunting operators	200,000
	4.5. Engage more actively in the integrated landuse planning processes as well as the implementation and monitoring thereof	Land use planning is applied as a tool to secure lion conservation friendly land uses in lion range areas	Wildlife and lion conservation recognised and supported in integrated land use planning	MET, MURD, MLR, TA, NACSO, NGOs	100,000

			processes.		
5. **Trade and Regulation:** Effective regulation of consumptive, non-consumptive lion utilization and trade in lion products ensured	5.1. Implement approved policy and practice at national and local level regarding problem animal control and hunting of lions	(i) Problem animal control and hunting of lion adhere to approved policies and regulations governing such activities and is transparently conducted (ii) Potential loopholes in problem lion hunting by farmers and any associated fraudulent activities eliminated	No reported cases of fraudulent activities concerning problem lion hunts	MET, Hunting operators, Hunting Associations	50,000
	5.2. Ensure trophy hunting contributes directly to lion conservation by providing lion hunting quotas only to landholders that have well managed resident lion populations on their	(i) Benefits from lion accrue to communities and landholders supporting viable resident populations of lion	Lion utilization quotas granted to landholders and communities with viable resident lion populations	MET, conservancies, farmers, NACSO, NGOs	100,000

	land	(ii) Communities and landholders supporting resident lion population are more organised and support lion conservation at larger landscape level			
6. **Transboundary connectivity** – lion conservation across transboundary landscape in the KAZA TFCA	6.1. Develop and implement transboundary collaborative research and management projects	New knowledge and information is generated on lion conservation at transboundary scale that is used to influence management interventions for shared lion populations	Number of collaborative research projects in the KAZA TFCA	MET, KAZA, Angola, Botswana and Zambia	500,000
	6.2. Ensure and maintain connectivity between regional lion populations through, and in line with the transboundary conservation programmes	(i) Regional lion populations are connected and remain viable and stable over time (ii) Protected, and respected lion and other wildlife dispersal areas in	(i) Number of collaborative research projects in the KAZA TFCA (ii) Research and Monitoring results	MET, KAZA, Angola, Botswana and Zambia	500,000

		place ensuring unhindered movement of lion and other wildlife between and across international boundaries	demonstrating connectivity between regional lion populations		
	6.3. Where possible, promote compatible land uses on both sides of national boundaries through existing transboundary conservation programmes	Land uses incompatible with lion conservation across national boundaries are reduced over time, creating viable environment for lion dispersal without negative outcomes for both lion and human activities.	(i) Studies conducted to assess level incompatible land uses across international boundaries (ii) Stable or decline in incompatible land uses	MET, Traditional Authorities, KAZA, Angola, Botswana and Zambia	500,000

5. Implementation and revision of the Strategy

The Lion Conservation Strategy is structured so that the activities identified that will contribute to the achievement of the strategic objectives, can be used more effectively in the development of annual action plans and work plans by MET, private partners, conservancies and NGOs. It is intended that the strategy would provide the main foundation for an annual planning cycle, which in the process of implementation of annual action plans will provide input and lessons learnt for revision of the strategy after five years.

Within MET this process will be guided through the Large Carnivore Advisory Group (LCTAG) and MET will give input to the stakeholder meetings of private sector through stakeholder meetings like the Large Carnivore Management Association (LCMAN) of Namibia.

The strategy will be revised after 5 years or earlier should the need arise due to unforeseen circumstances. This will be determined through a mid-term review after two years.

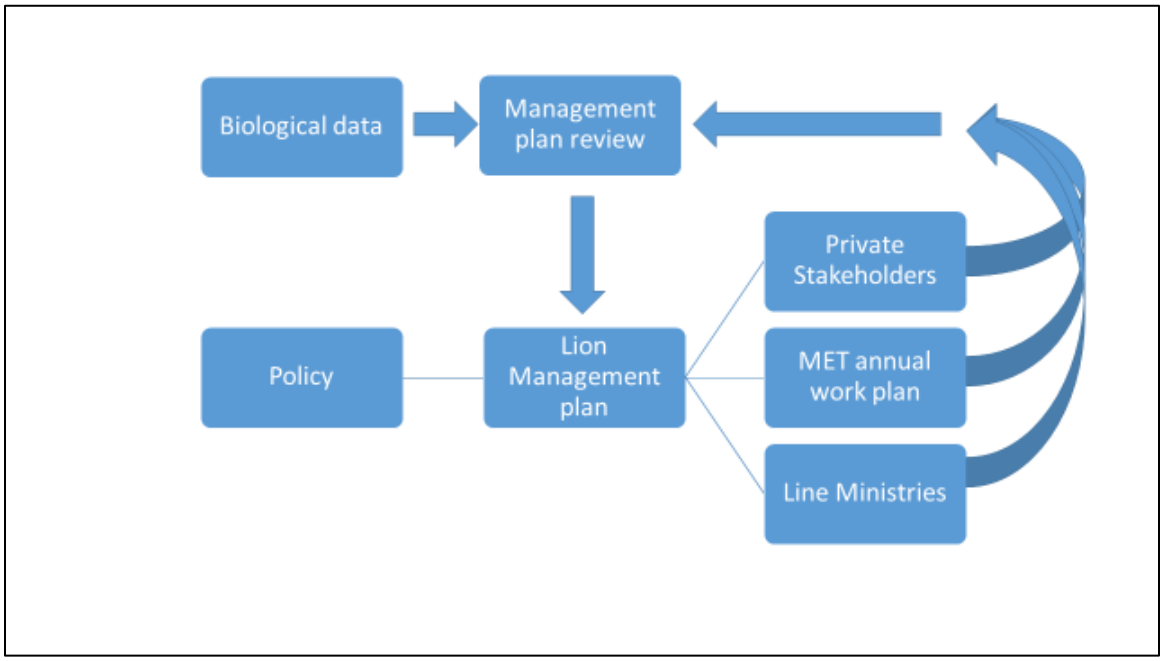

Fig. 2 *Flow diagram showing the implementation and review process*

6. List of sources consulted

Chardonnet, P. (Ed.). (2002). *Conservation of the African Lion: Contribution to a Status Survey*. France: International Foundation for the Conservation of Wildlife, USA: Conservation Force.

Bauer, H., Packer, C., Funston, P, F., Henschel, P & Nowell, K. (2016). Panthera leo. The IUCN Red List of Threatened Species 2016:e.T15951A7162455.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Dloniak, S.M., Packer, C., (2016), Reply to Riggio et al.: Ongoing lion declines across most of Africa warrant urgent action. Proceedings of the National Academy of Sciences 113, E109.

Bauer, H., Chapron, G., Nowell, K., Henschel, P., Funston, P., Hunter, L.T.B., Macdonald, D.W., Packer, C., (2015), Lion (Panthera leo) populations are declining rapidly across Africa, except in intensively managed areas. Proceedings of the National Academy of Sciences 112, 14894-14899.

Bauer, H. & Van Der Merwe, S. (2004). Inventory of free-ranging lions (*Panthera leo*) in Africa. *Oryx* 38: 26-31.

Dubach, J.M., Briggs, M.B., White, P.A., Ament, B.A., Patterson, B.D., (2013), Genetic perspectives on "Lion Conservation Units" in Eastern and Southern Africa. Conservation Genetics 14, 741-755.

Elliot, J.P. & Cowan, I. Mc T. (1978). Territoriality, density and prey of the lion in Ngorongoro Crater, Tanzania. *Canadian Journal of Zoology* 56: 1726-1734.

Funston, P.J. (2011). Population characteristics of lions (*Panthera leo*) in the Kgalagadi Transfrontier Park. *South African Journal of Wildlife Research* 41: 1-12.

Hopcraft, J. G. C., Sinclair, A. R. E. & Packer, C. (2005). Planning for success: Serengeti lions seek prey accessibility rather than abundance. *Journal of Animal Ecology* 74: 559–566.

Keet, D.F., Davies-Mostert, H., Bengis, R.G., Funston, P., Buss, P., *et al*. (Eds.). (2009). *Lion (Panthera leo) Bovine tuberculosis disease risk assessment* (Workshop report). Skukuza, South Africa: Conservation Breeding Specialist Group (CBSG SSC / IUCN), CBSG Southern Africa, Endangered Wildlife Trust.

Kilian, P.J. & Bothma, J. Du P. (2003). Notes on the social dynamics and behaviour of reintroduced wild lions in the Welgevonden Private Game Reserve. *South African Journal of Wildlife Research* 33: 119-124

Miller, S.M. & Funston, P.J. (2014). Population growth rates of lions (*Panthera leo*) on small fenced reserves in South Africa: a management dilemma. *South African Journal of Wildlife Research* 44: 43-55.

Minin, E.D., Leader-williams, N., Bradshaw, C.J.A., (2016), Banning Trophy Hunting Will Exacerbate Biodiversity loss. Trends in Ecology & Evolution 31, 4.

Nowell, K. & Jackson, P. (1996). Status Survey and Conservation Action Plan Wild Cats. IUCN, Gland, Switzerland.

Owen-Smith, N. (2008). Changing vulnerability to predation related to season and sex in an African ungulate assemblage. *Oikos* 117: 602-610.

Packer, C., Scheel, D. & Pusey, A. E. (1990). Why lions from groups: food is not enough. American Naturalist 136: 1–19.

Packer, C., Herbst, L., Pusey, A. E., Bygott, J. D., Hanby, J. P., Cairns, S. J. & Borgerhoff-Mulder, M. (1988). Reproductive success in lions. In: Reproductive Success (Ed. by T. H. Clutton-Brock), pp. 363–383. Chicago: University of Chicago Press.

Packer, C., Pusey, A.E., Rowley, H., Gilbert, D.A., Martenson, J. & O'Brian, S.J. (1991). Case study of a population bottleneck: lions of the Ngorongoro crater. Conservation Biology 5: 219–230.

Packer, C., Gilbert, A., Pusey, A.E. & O'Brien, S. J. (1991). A molecular genetic analysis of kinship and cooperation in African lions. *Nature* 351: 562–565.

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Dickman, A., Funston, P., Henschel, P., de Iongh, H., Lichtenfeld, L., Packer, C. and Pimm, S. (2013). The size of savannah Africa: a lion's view. *Biodiversity and Conservation* 22(1): 17-35

Riggio, J., Caro, T., Dollar, L., Durant, S.M., Jacobson, A.P., Kiffner, C., Pimm, S.L., van Aarde, R.J., (2016), Lion populations may be declining in Africa but not as Bauer et al. suggest. Proceedings of the National Academy of Sciences 113, E107-E108.

Schaller, G.B. (1972). The Serengeti Lion: A Study of Predator Prey Relations. University of Chicago Press, Chicago.

Stander, P. E. (1992). Cooperative hunting in lions: the role of the individual. *Behavioral Ecology and Sociobiology* 29: 445–454.

Stander, P. (2007). Behaviour-ecology and Conservation of desert-adapted Lions. *2007 Progress Report of the Kunene Lion Project. Desert Lions Conservation. Namibia*, 17.

Sunquist, M., and F. Sunquist. 2002. Wild Cats of the World. University of Chicago Press, Chicago and London

Trinkel, M., Angelici, F.M., 2016, The Decline in the Lion Population in Africa and Possible Mitigation Measures, In: Angelici, M.F. (Ed.) Problematic Wildlife: A Cross-Disciplinary Approach. Springer International Publishing, Cham, pp. 45-68.

Vedder, H. 1938. South West Africa in Early Times. Thomas Nelson Printers Ltd. London & Edinburgh

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

HUMAN-LION CONFLICT MANAGEMENT PLAN FOR NORTH WEST NAMIBIA

July 2017

FOREWORD

Managing Human-Lion Conflict in the arid environment of the Kunene Region is complex. Sporadic and variable rainfall patterns, typical of arid environments, result in large overlapping home ranges amongst the lions that often clash with local farmers in search of suitable grazing for their livestock. Lions are important to the growing tourism industry and there is an urgent need to manage Human-Lion Conflict in the region.

Long-term data collected on the ecology of the lion population provide a sound basis to develop and implement a management strategy to address the conflict. The Human-Lion Conflict Management Plan is subject to the National Policy on Human-Wildlife Conflict Management and relies on full collaboration by the various stakeholders under the guidance of the Ministry of Environment and Tourism.

Malan Lindeque
PERMANENT SECRETARY

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ABBREVIATIONS

CBNRM	Community-based Natural Resource Management
DECP	Desert Elephant Conservation Project
DLCT	Desert Lion Conservation Trust
DWNP	Directorate of Wildlife and National Parks
DSS	Directorate of Scientific Services
GPTF	Game Products Trust Fund
IRDNC	Integrated Rural Development and Nature Conservation
HWC	Human-Wildlife conflict
HLC	Human-Lion conflict
KRCCA	Kunene Region Communal Conservancy Association
MET	Ministry of Environment and Tourism
MLR	Ministry of Land Reform
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
PH	Professional Hunter
UNAM	University of Namibia

GLOSSARY

For the purposes of this management plan, the words or phrases set out below have the following meanings:

Authorized staff member	Regional heads of the Ministry authorized by the Minister to carry such duties, functions and responsibilities.
Capacity building	Transfer of knowledge, information, skills and understanding.
Conservancy	Communal area conservancy Gazetted in terms of the Nature Conservation Amendment Act (No.5 of 1996).
Culling	Lethal removal of wild animals to reduce their numbers.
Director	Director of Wildlife and National Parks
Human-Wildlife Conflict	Any event in which wild animals harm, destroy or damage human life or property (including damage to or destruction of crops), or in which wild animals are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Human-Lion Conflict	Any event in which lions harm or destroy human life or their domestic livestock, or in which wild lions are injured, captured or destroyed as a result of a perceived threat to humans or their property.
Government	Government of the Republic of Namibia.
Ministry	The Ministry of Environment and Tourism.

Problem-causing animal	An identified individual wild animal that at any point in time harms, destroys or damages human life or property.
Professional Hunter	A professional hunter approved by MET.
Protected Area	Formal protected area proclaimed in the Government Gazette according to legislation.
Staff member	Person appointed in terms of the Public Service Act (13 of 1995).
Stakeholder	Any individual, group of individuals, organization or government department or agency that is affected by HWC or is involved in research on HWC or implementation of measures to mitigate HWC.
Wild animal	Any wild animal that is included in Schedules 3, 4 and 5 of the Nature Conservation Ordinance (Ordinance 4 of 1975, as amended) or any similar schedules contained in legislation that replaces the Ordinance.

1. INTRODUCTION

Addressing Human-Wildlife Conflict requires striking a balance between conservation priorities and the needs of people who live with wildlife. Most Namibians depend on the land for their subsistence. But the presence of many species of large mammals, combined with settlement patterns of people, leads to conflict between people and wildlife. It is therefore necessary that mechanisms are created for rural communities and farmers to manage and benefit from wildlife and other natural resources.

A variety of approaches can be implemented in order to manage the conflict efficiently and effectively, and that are in line with the strategies set out in the policy. These include prevention strategies which endeavour to avoid the conflict occurring in the first place and take action towards addressing its root causes, and protection strategies that are implemented when the conflict is certain to happen or has already occurred, as well as mitigation strategies that attempt to reduce the level of impact and lessen the problem.

2. BACKGROUND

Successful conservation efforts and the growth of communal conservancies in the North West of Namibia during the past 20 years have resulted in an increase of wildlife populations.

Along the borders of the Skeleton Coast Park a small population of lions survives in extreme desert conditions. These lions exhibit unique adaptation to their environment and live in a harsh habitat of sand dunes, gravel plains and barren mountains, and occasionally forage along the beaches of the Skeleton Coast. This has resulted in the growth in tourism because nowhere else in the world can free-ranging lions be seen amongst sand dunes or on a beach. These lions should be viewed as a National asset to Namibia that needs to be managed wisely to the optimum benefit of the Namibian people.

However, the increase in wildlife numbers, has led to heightened conflict between lions and the local people. While income-generating enterprises such as tourism, trophy hunting and crafts have thrived at conservancy level; considerably less attention has been

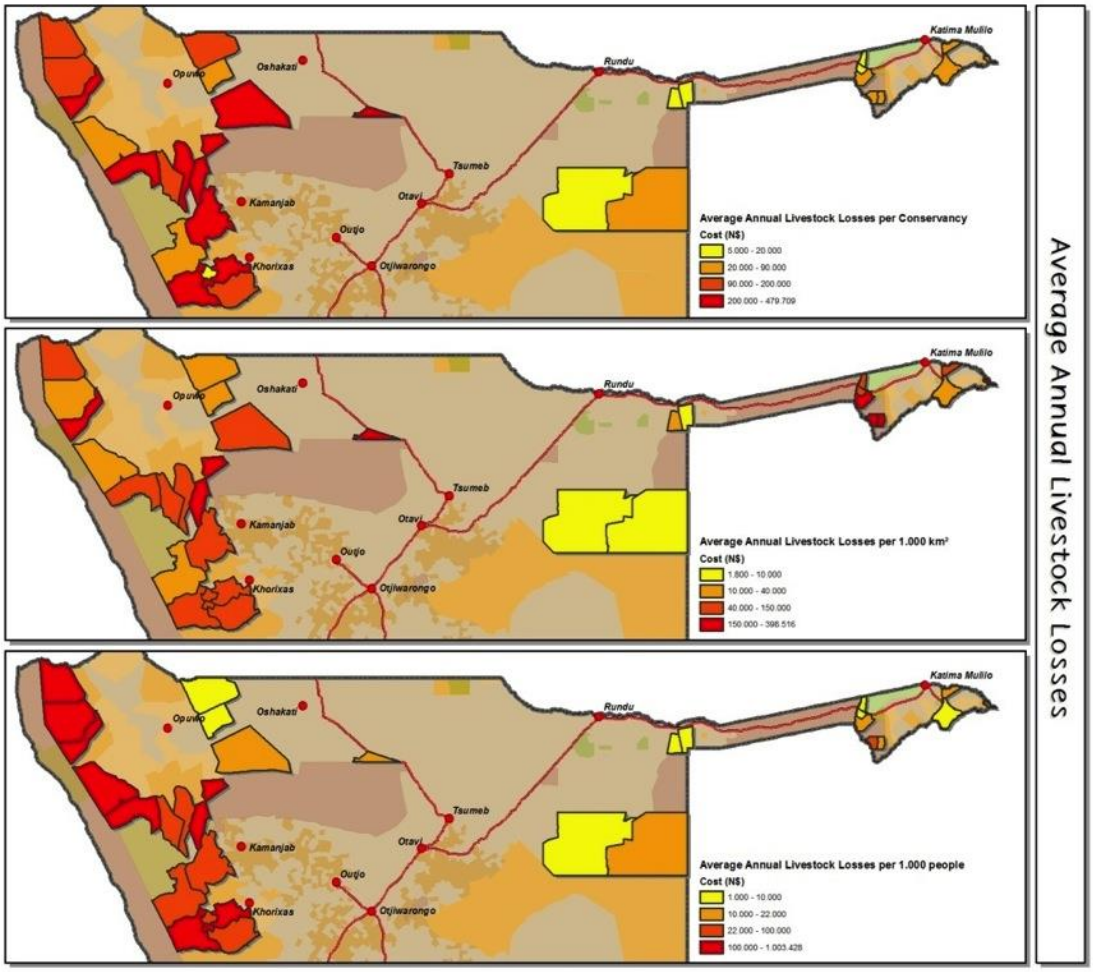
paid to reducing human-wildlife conflict. In most conservancies the costs experienced by conservancy members that suffer livestock losses from lions exceeds the selected income they earned from their respective conservancies. Table 1 shows the annual costs of livestock losses in some of the key conservancies across northern Namibia. Conservancies in the North West (NW) of Namibia suffer significantly higher losses when compared to conservancies across northern Namibia (Table 1).

Conservancies with the highest incidents of human-wildlife conflict are those on or near to national parks and tourism concession areas (Figure 1) with conservancies along the borders of Etosha National Park and Skeleton Coast Park, and around Palmwag concession areas suffering most livestock losses. Lions prey on domestic livestock, and farmers respond by shooting lions to protect their livelihood. Local communities have to bear the costs of living with lions but do not always share equally in the benefits. As a result, members of those conservancies are often least sympathetic to the presence of the park and are less inclined to support conservation practices. These attitudes can be turned around by providing communal farmers with information, support, management skills and infrastructure to protect livestock, as part of the implementation of conservancy and/or regional HWC management plans.

Table 1: The estimated costs of Human-Wildlife Conflict through livestock losses (N$) per conservancy and per 1,000 people for each conservancy.

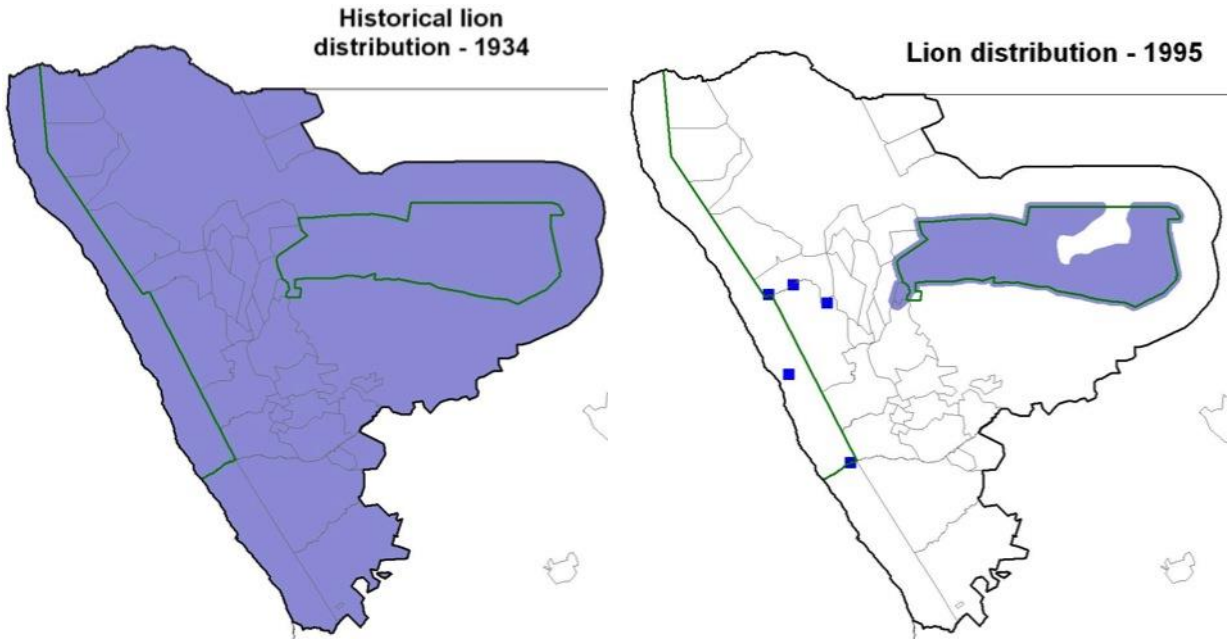
Average annual livestock losses per conservancy			Average annual livestock losses per 1,000 people per conservancy	
Conservancy	**Cost (N$)**		**Conservancy**	**Cost (N$)**
Muduva Nyangana	5,868		Uukwaluudhi	1,185
Mayuni	9,976		N=/a Jaqna	2,473
Uibasen Twyfelfontein	16,063		Muduva Nyangana	2,934
N=/a Jaqna	17,311		Uukolonkadhi/Ruacana	3,603
George Mukoya	18,044		Mayuni	4,157
Kwandu	18,484		Kwandu	4,299
Sikunga	22,445		Salambala	4,801
Impalila	27,873		George Mukoya	9,022
Uukwaluudhi	29,633		King Nehale	10,122
Salambala	36,968		Sikunga	11,223
Balyerwa	37,849		Sheya Uushona	13,566
Wuparo	40,196		Impalila	18,582
Nyae Nyae	48,998		Wuparo	19,141
Puros	50,508		Mashi	20,500
Mashi	79,952		Nyae Nyae	21,303
Torra	88,596		Balyerwa	25,232
Uukolonkadhi/Ruacana	90,074		Anabeb	45,126
Anabeb	90,252		Uibasen Twyfelfontein	69,840
Orupembe	100,636		Torra	73,830
Sorris Sorris	123,372		#Khoadi//hoas	74,261
Marienfluss	165,771		Omatendeka	85,673
King Nehale	202,446		Sorris Sorris	94,902
Doro !Nawas	207,000		Sesfontein	106,211
Omatendeka	214,182		Ehirovipuka	131,443
#Khoadi//hoas	237,636		Doro !Nawas	138,000
Sanitatas	250,857		Puros	194,262
Sesfontein	265,527		Orupembe	251,591
Ehirovipuka	328,608		Marienfluss	552,570
Sheya Uushona	479,709		Sanitatas	1,003,428

Figure 1. Livestock losses recorded in conservancies across northern Namibia.



Historically lions occurred throughout the Kunene Region, but with autocratic political structures, land reform (such as the Odendaal Commission in 1970) and the growth of agriculture post 1970, the population declined dramatically (Figure 2). Lions that inhabited the Skeleton Coast Park and the bordering arid habitat of the northern Namib Desert were all but wiped out leaving only the Etosha population.

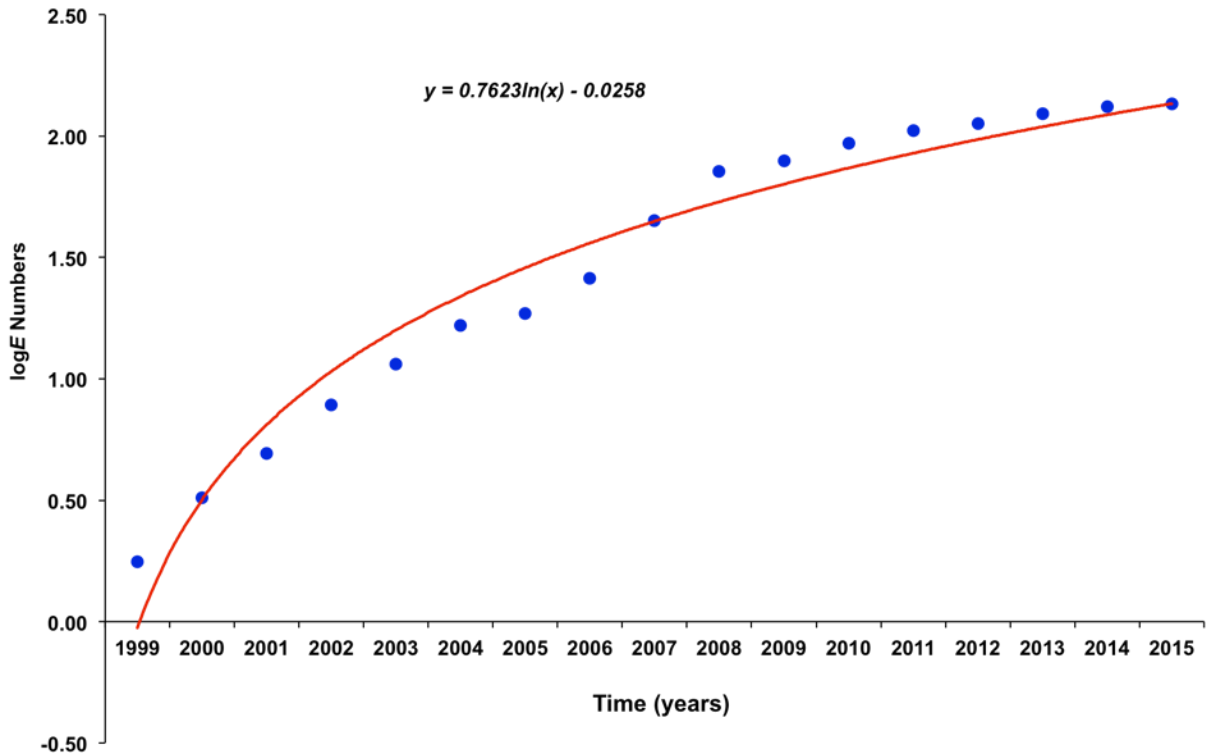
Figure 2. Historical distribution of lions in the North West of Namibia (1934 – 1995).



Following the independence of Namibia in 1990 that led to the establishment of communal conservancies, the development of CBNRM programmes, and the rapid growth of tourism, as well as above average rainfall in the region the few surviving desert-adapted lions increased and expanded to parts of its former range (Figure 4).

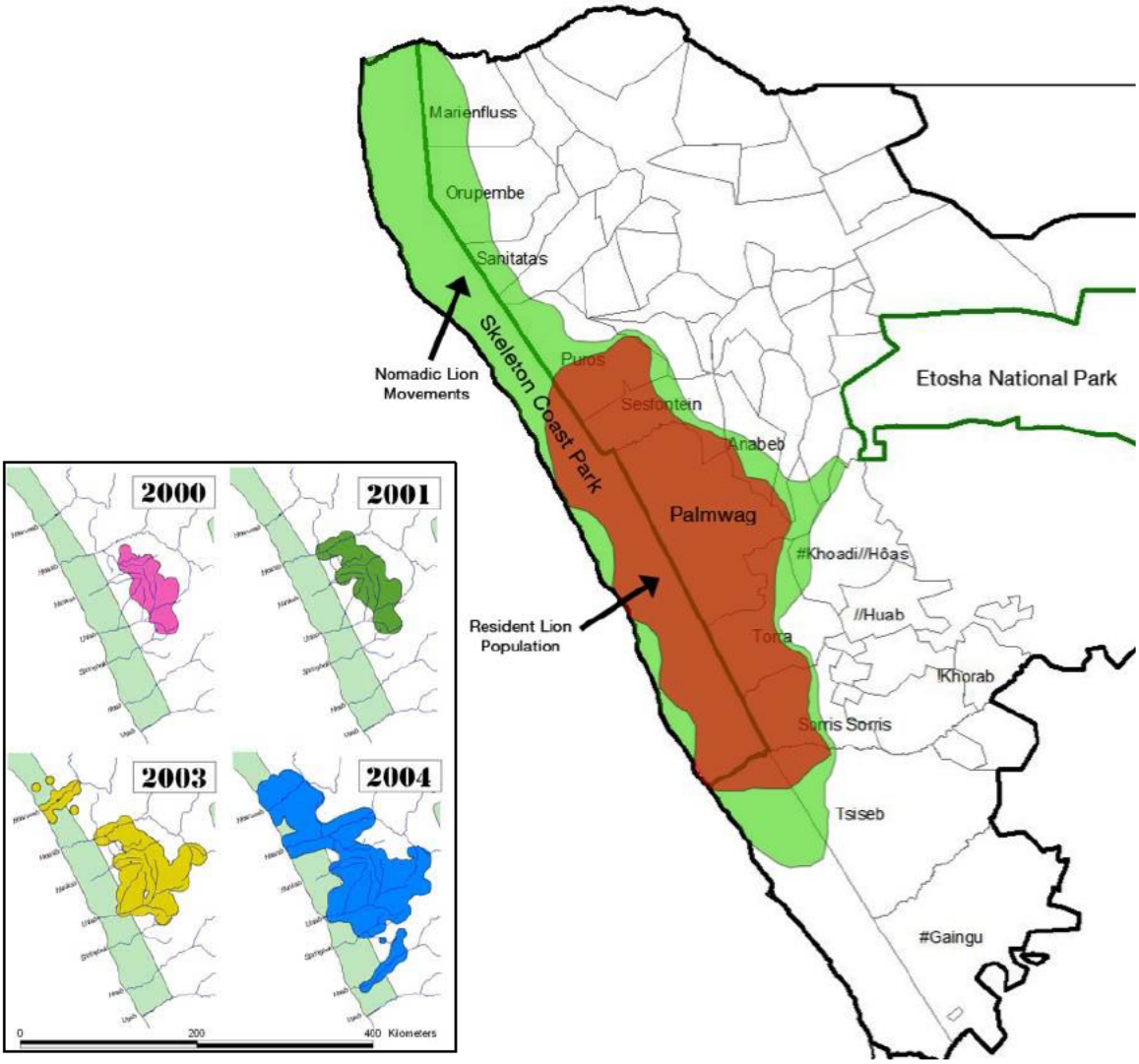
The lions have been the subject of intensive long-term research and monitoring since 1998. During this period the population displayed a positive growth rate (Figure 3) and the number of lions increased from approximately 20 individuals in 2000 to an estimated 180 in 2015.

Figure 3. Growth rate of the desert-adapted lion population between 1999 and 2015.



Lions may occasionally still move between Etosha and the arid areas bordering the Skeleton Coast Park, but the increase in livestock farming east of the Grootberg escarpment has essentially created an effective barrier. The lions inhabiting the Skeleton Coast Park and bordering areas exhibit unique adaptation to the arid environment and are treated as a separate sub-population, referred to as the "Desert" population. Between 1999 and 2015 the "Desert" lion population expanded from the core area northwest of Palmwag to occupy ephemeral river systems and suitable habitats between the Hoaruseb and Ugab Rivers (Figure 4).

Figure 4. The distribution of desert-adapted lions in the North West of Namibia in 2015 with indications of the recorded expansion between 2000 and 2004.



The “Desert” lion sub-population is important to the conservation of the species in Namibia. Their range (Figure 4) contributes to 51% of the total area inhabited by lions in Namibia, but only 16% of this range falls inside a protected area. Nevertheless, the conservation prospects are favourable, since the area has a rapid-growing tourism industry and forms the hub of CBNRM and Communal Conservancy programmes.

3. RATIONALE

In 2009, Cabinet approved the National Policy on Human Wildlife Conflict Management. The Policy provided a framework for addressing human-wildlife conflict efficiently and effectively in order to promote both biodiversity conservation as well as human development.

Due to human population growth, wildlife population growth, unplanned agricultural activities, and the expansion of agricultural and industrial activities, which together have led to increased human encroachment on previously wild and uninhabited areas the incidents of human-wildlife conflict have increased. With the current challenges and new innovative ideas on how to address the conflict, the National Policy on Human Wildlife Conflict Policy has been reviewed. The new policy is more focused and specific on affected areas and the specific conflict that should be addressed. The policy also contains an implementation plan that outlines the required human and financial resources requirements to deal with the problem. This human-lion conflict management plan contributes to the revised National Policy on Human Wildlife Conflict Management.

4. ALIGNMENT

The Human-Lion Conflict Management Plan is aligned with both the National Policy on Human Wildlife Conflict Management and the Lion Conservation Strategy (Draft). The legislative basis for control of problem causing animals, hunting and the rights on the utilisation of wildlife is currently covered by the Nature Conservation Ordinance 4 of 1975 as amended by the Nature Conservation Amendment Act (Act 5 of 1996).

5. PRINCIPLES

The Human-Lion Conflict Management Plan is based on a number of fundamental principles outlined in the National Policy on Human Wildlife Conflict Management.

6. POLICY DIRECTION

6.1 Vision

To manage human wildlife conflict in a way that recognizes the rights and development needs of local communities, recognizes the need to promote biodiversity conservation, promotes self-reliance and ensures that decision-making is quick, efficient and based on the best available information.

In order to achieve this, the Government will devolve decision-making to the lowest appropriate institutional levels, develop appropriate mitigation and monitoring methods and develop the capacity of all stakeholders to manage human wildlife conflict.

6.2 Mission

To provide a framework for addressing Human-Lion conflict efficiently and effectively in NW Namibia following the guidelines of the revised National Policy on Human Wildlife Conflict Management.

6.3 Goal

To provide measures and approaches to manage and reduce human lion conflict in NW Namibia according to the revised National Policy on Human Wildlife Conflict Management.

6.4 Objectives

The objectives of the Management Plan are:

6.4.2 To contribute to a standardised monitoring system for human-lion conflict Management.

6.4.3 To establish best practice mitigation measures for human-lion conflict management.

6.4.4 To develop innovative mechanisms to reduce the level of human-lion conflict.

6.4.5 To provide clarity on the question of compensation with regard to damages caused by wildlife, especially the lion.

6.5 Strategies

Human-Lion Conflict (HLC) is a multi-faceted problem. In order to address its impacts, a number of different strategies are required to address the following key issues:

- The economic impacts of HLC on local communities.

- The appropriate level of decision-making power for managing HLC, particularly in a case where an animal that persistently causes problems needs to be destroyed.

- Accurate information on the scale, the costs and impacts of conflict, and the success of mitigation methods and approaches.

- The skills of all stakeholders to manage HLC efficiently and effectively.

In order to address these key issues the Government has developed the following strategies:

6.5.1 Land use planning and livestock management structures

Understanding the patterns and extent of human-lion conflict experienced by communities farming with livestock in NW Namibia is important to the development of effective management options. Data collected by conservancies through the Event Book procedures and other monitoring systems provide valuable information. Between 2003 and 2015 the five conservancies that share their land with the Desert lion population recorded 5,863 incidents of livestock attacks caused by lions and other carnivores. On average 451 incidents were recorded per year (range: 205 in 2003 to 713 in 2013) with Sesfontein Conservancy recording the highest number of attacks (N = 2293) followed by Anabeb (N = 1393), Torra (N = 1303) and Purros Conservancies (N = 873). The pattern and frequency of livestock attacks varied between years and between conservancies (Figure 5).

Between 2005 and 2015 a total of 343 incidents of human-lion conflict were recorded by the five conservancies at an average of 32 incidents per year (range: 15 in 2011 to 54 in 2015). Torra Conservancy recorded the highest number of incidents (N = 121) followed by Purros (N = 85), Sesfontein (N = 77) and Anabeb Conservancies (N = 60). Although Torra Conservancy recorded a dramatic increase between 2011 and 2015, the pattern and frequency of human-lion conflict incidents between years and between conservancies appears to be random (Figure 6).

A total of 37 lions were destroyed between 2005 and 2015 (Figure 7). Torra Conservancy reported the highest number of lions destroyed during human-lion conflict (N = 18) followed by Sesfontein (N = 9), Anabeb (N = 7) and Purros Conservancies (N = 3). There was no statistical relationship between the recorded incidents of human-lion conflict and the number of lions destroyed. However, the number of lions destroyed increased dramatically between 2013 and 2015 when 27 of the 37 lions (73 %) were killed. During the same period the five conservancies only recorded 36 % of the total recorded human-lion incidents and 26 % of the recorded attacks on livestock.

Figure 5. Number of livestock damage incidents caused by lions and other carnivores per year between 2003 and 2015 as recorded by five conservancies.

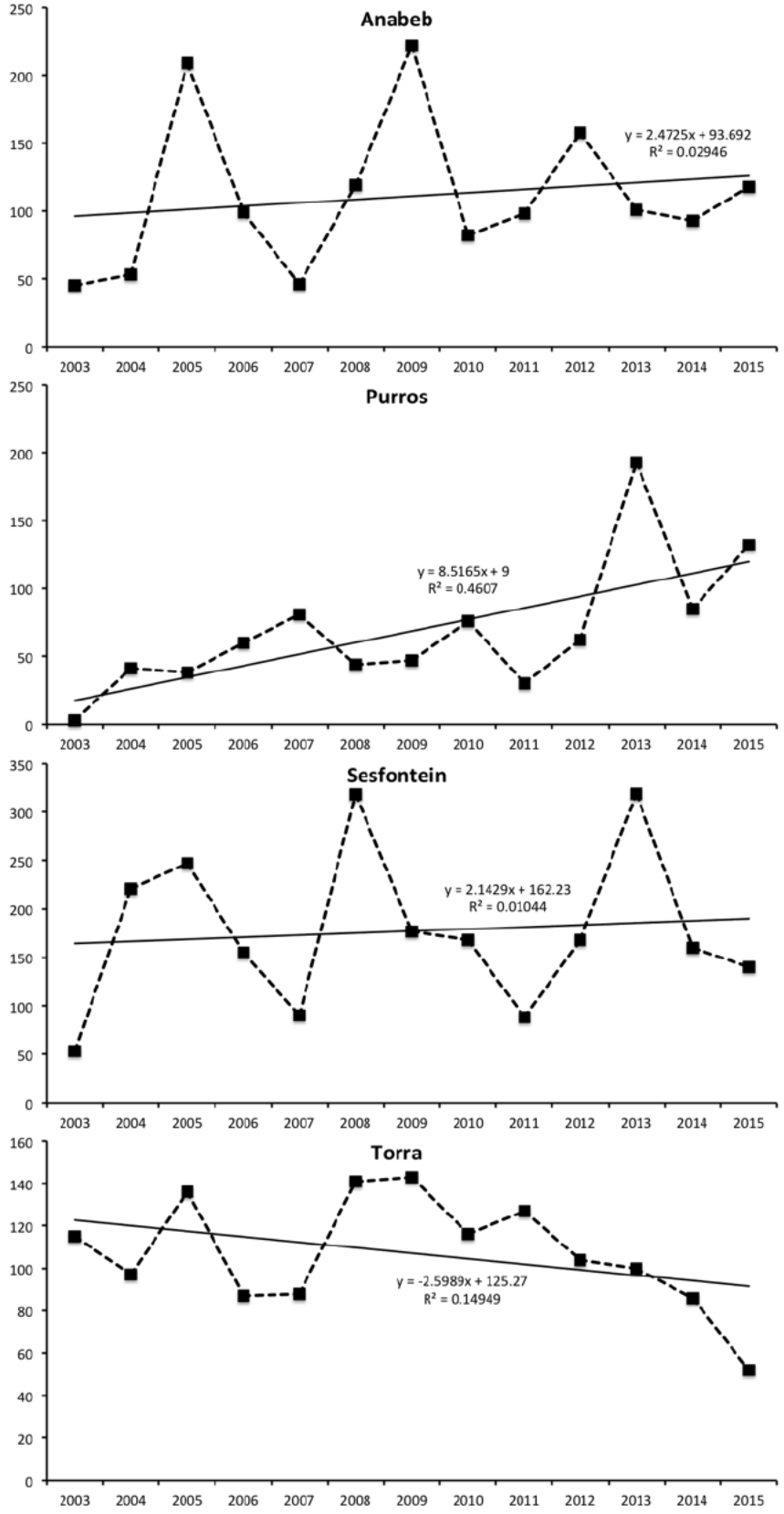
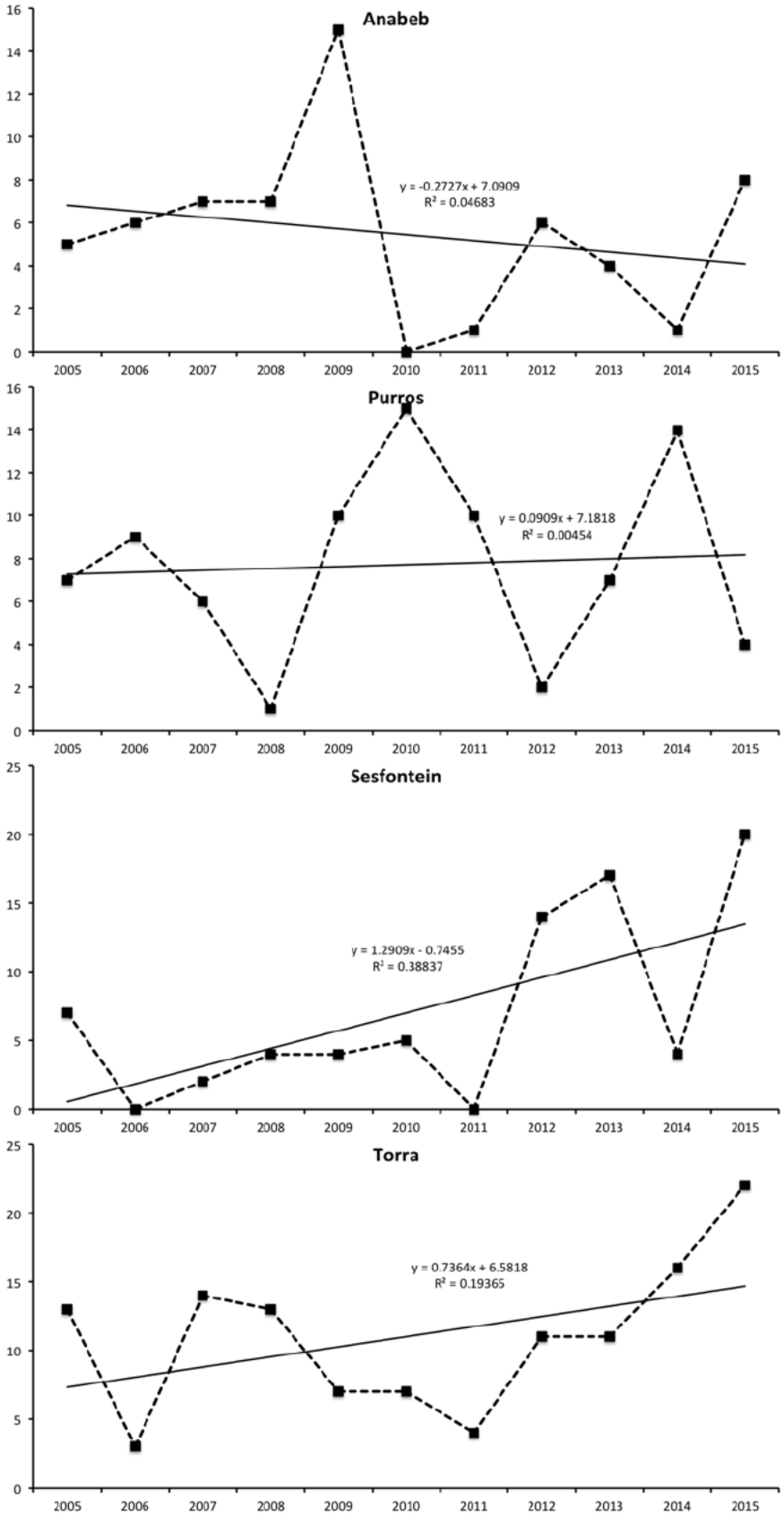


Figure 6. Number of human-lion conflict incidents per year between 2003 and 2015 as recorded by five conservancies.



6.5.2 Aspects of lion demography & behaviour ecology relevant to HLC

A sound understanding of the population dynamics, demography and behaviour ecology of the Desert lion population is essential to the process of conserving the species and managing human-lion conflict. This can only be achieved through the systematic collection of long-term data on the key aspects of their ecology. These include habitat utilisation, home ranges, movement patterns, hunting behaviour, activity patterns, group/pride structures and limiting factors.

6.5.2.1 Movements and habitat use

Over the past seven years (2008 – 2015) satellite and GPS radio-collars were fitted to 19 different lions that represent all the current prides in the population. In total 196,849 data points were recorded that contain accurate movement patterns and habitat utilisation of all the major prides/groups of lions that represent data over 43.5 lion-years (Table 2 & Figure 7).

Table 2. Sample sizes and status of 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	N^{-1} (points)	N^{-2} (nights)	Duration	Status
Hoanib Floodplain	Xpl-10,	♀	38,438	2,365	16.5 yrs	Dead***
	Xpl-55	♀				On-going**
Hoanib River	Xpl-47	♀	29,017	2,741	7.6 yrs	Dead
	Xpl-59	♀				On-going
Okongwe	Xpl-70	♀	11,298	1,142	2.8 yrs	Malfunction*
Orowau / Hunkap	Xpl-81	♂	9,226	1,169	3.4 yrs	On-going
	Xpl-53	♀	10,051	794	2.2 yrs	Malfunction
	Xpl-100	♀	861	164	8 mo	On-going
Uniab Delta	Xpl-45	♀	32,277	2,033	5.8 yrs	On-going
Barab / Obab	Xpl-54	♂	5,868	533	1.5 yrs	Malfunction
	Xpl-49	♀	30,253	1,447	4 yrs	Malfunction
Aub - Etendeka	Xpl-79	♂	420	210	7 mo	Dead
	Xpl-65	♀	3,281	402	1.1 yrs	Malfunction
	Xpl-94	♂	811	139	6 mo	On-going
Agab River	Xpl-50	♂	6,892	329	1 yr	Dead
	Xpl-36	♀	4,567	515	3.2 yrs	Dead

Huab River	Xpl-75	♀	8,998	1,338	3.9 yrs	On-going
Ugab River	Xpl-77	♂	2,799	247	9 mo	Dead
	Xpl-98	♂	1,792	305	11 mo	On-going
Totals			196,849	15,873	**or 43.5 Lion years**	

Key:
Dead*** = Lion was shot, trophy hunted or died of natural causes during the past year.
On-going** = Lion is alive and collecting of movement data continues.
Malfunction* = Satellite radio collar failed.

The distance that a lion moves per night is a function of home range size and habitat use. Accurate information on this is important to the conservation process and essential for the management of Human-Lion-Conflict. The home ranges of male lions are larger than those of females and on average the 19 lions moved 8.2 km per night (Table 6). Male lions, however, moved further per night (9.3 ± 1.2 km) than did lionesses (7.3 ± 0.9, t = 3.963, $P < 0.01$).

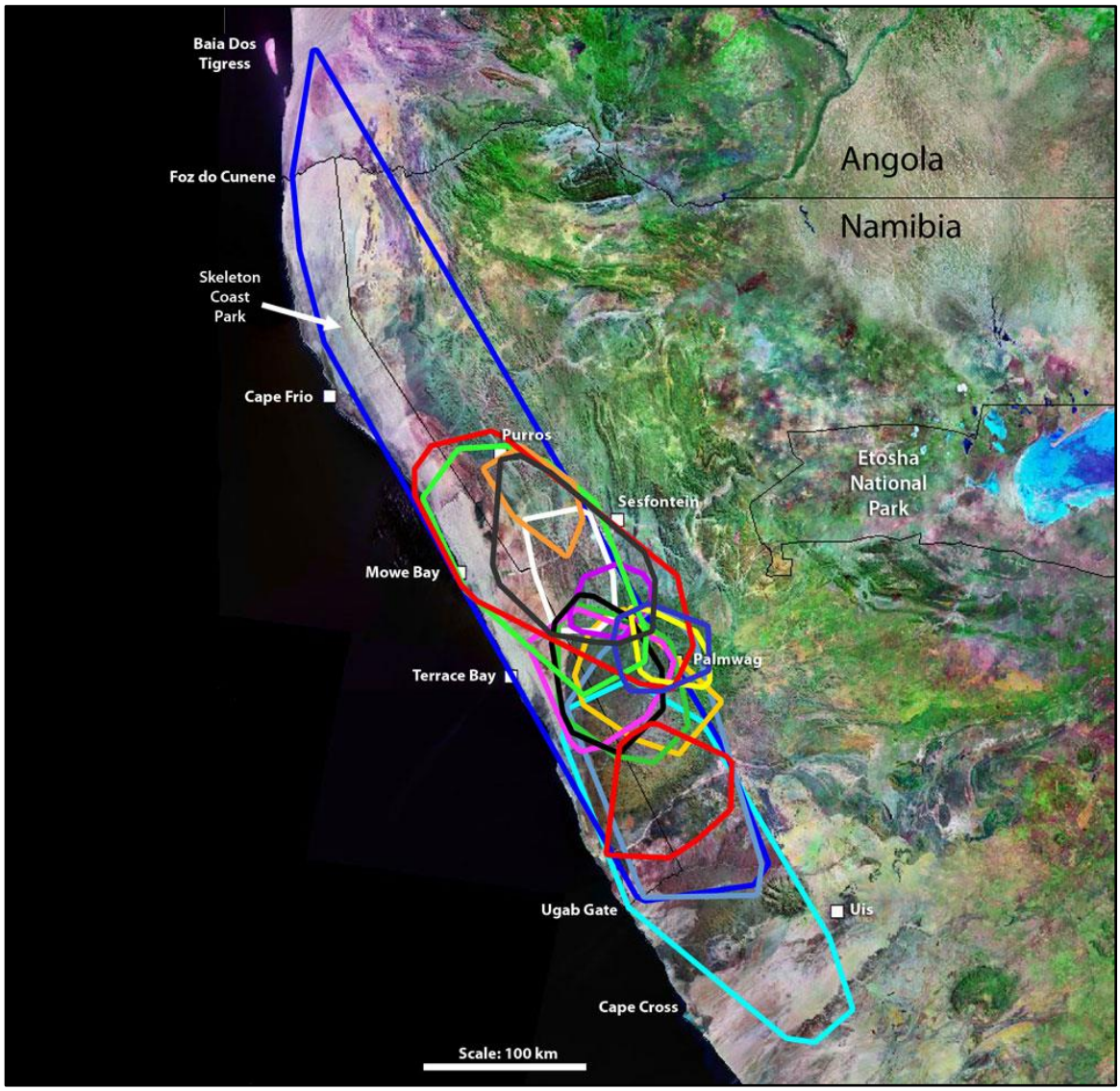
Table 6. Home range estimates (km^{-2}), using the Minimum Convex Polygon (MCP) technique, and distances moved by 19 lions (7 males and 12 females) fitted with satellite radio collars in the northern Namib.

Pride / Area	Lion ID	Sex	Home Range MCP* (km^2)	Total distance moved (km)	Average distance moved per	Range of distance per night (km)
Floodplain	Xpl-10	♀	12,642	17,334	9.8	0 – 62.1
	Xpl-55	♀	2,550	11,410	9.5	0 – 36.4
Hoanib	Xpl-47	♀	2,471	14,136	7.9	0 – 36.3
	Xpl-59	♀				
Okongwe	Xpl-70	♀	1,668	4,922	6.1	0 –37.7
Orowau / Hunkap	Xpl-81	♂	6,405	11,437	11.4	0 – 52.0
	Xpl-53	♀	1,236	4,328	5.5	0 –22.8
	Xpl-100	♀	618	1,032	6.3	0 – 26.3
Uniab Delta	Xpl-45	♀	3,997	2,135	6.9	0 – 38.9
Barab / Obab	Xpl-54	♂	3,978	4,911	9.5	0 – 63.2
	Xpl-49	♀	4,161	13,219	7.9	0 – 40.1
Aub / Etendeka	Xpl-79	♂	1,923	1,115	7.7	0 – 27.7
	Xpl-65	♀	1,258	984	7.1	0 – 21.5
	Xpl-94	♂	915	1,329	9.6	0 – 24.8
Agab River	Xpl-50	♂	4,881	1,108	8.1	0 – 31.9
	Xpl-36	♀	3,882	3,454	6.9	0 – 32.0
Huab River	Xpl-75	♀	4,865	8,137	7.1	0 – 46.5

Ugab River	Xpl-77	♂	16,872	2,544	10.3	0 – 54.1
	Xpl-98	♂	3,878	2,517	8.3	0 – 30.8

The spatial and temporal patterns of movements and how lions utilise their home ranges are important parameters for all aspects of conservation, mitigation of human/lion conflict and tourism development. There are many different statistical methods to calculate home range sizes. Depending on the movement patterns of animals and the habitat, some methods are more suitable than others. In this analysis the home range size of lions marked with satellite radio collars were calculated using the universal Minimum Convex Polygon (MCP) method. In some cases Spider Distance techniques were used as an additional assessment of habitat use. The movement data from the 19 collared lions provide an essential base-line understanding of the demography of the population.

Figure 7. Layout of the areas utilised by 19 lions fitted with satellite radio collars in the northern Namib between 2008 and 2015.



Conflict between lions and people occur essentially all along the eastern edge of the distribution of the lion population. However, the long-term data collected on lion movements indicate that there are particular “hotspots” where incidents of Human-Lion-Conflict occur repeatedly over the years regardless of the individual lions. These “hotspots” coincide with reports of Human-Lion-Conflict recorded by the communities. Data are presented on lion movements in relation to these “hotspots” with a focus on the past three years due to heightened levels of Human-Lion-Conflict.

- *Torra Conservancy*

Human-lion conflict has been particularly problematic in parts of the Torra Conservancy due to an abundance of sub-adult lions that have dispersed from their natal prides. Data collected on the demography and movements of the established lion prides since 2008 provide a base-line understanding of habitat utilisation by these lions (see Figs. 6 – 10).

- *Aub / Etendeka Pride*

During the past three years the original Aub Pride have expanded extensively into the Etendeka and Klip River area. The adult male Xpl-79 that was fitted with a satellite collar was unfortunately shot and the collar destroyed (Figure 8). A young adult male (Xpl-94) from the Hunkap Pride moved into the area and was fitted with a new satellite collar (Figure 9). Unfortunately this lion was also shot a few months later and the collar was destroyed.

Figure 8. The home range area of Xpl-79 (male).

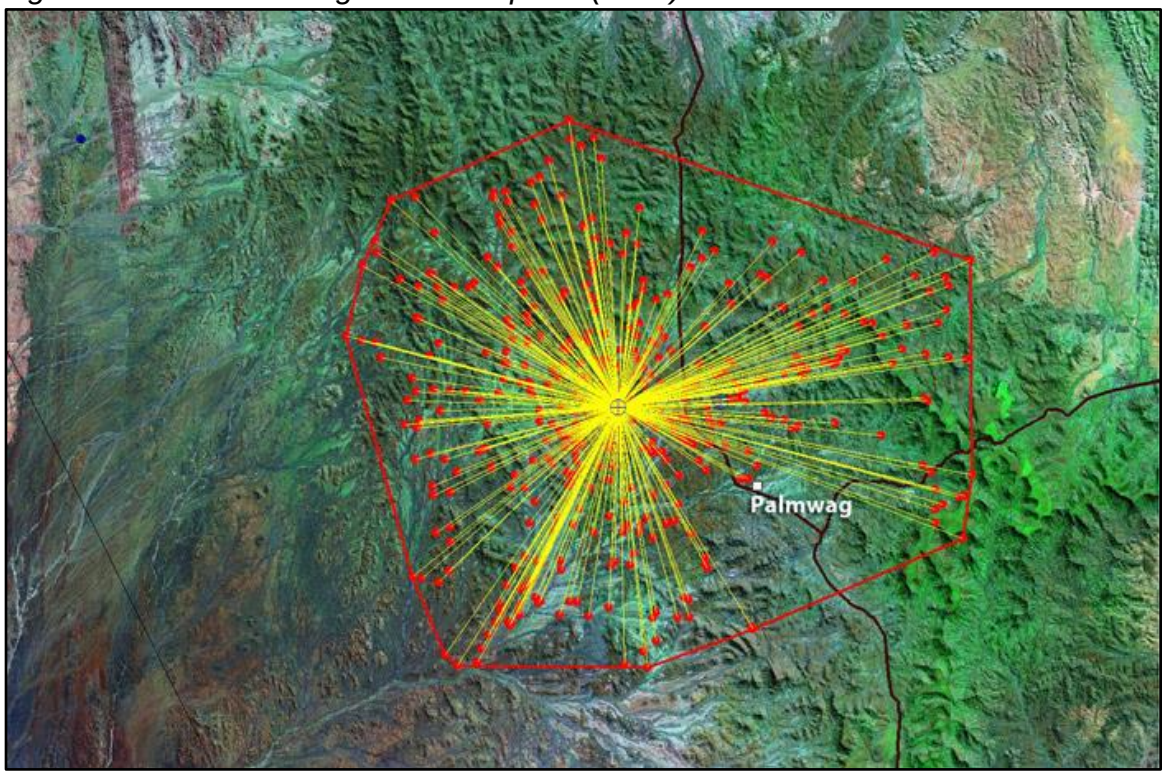
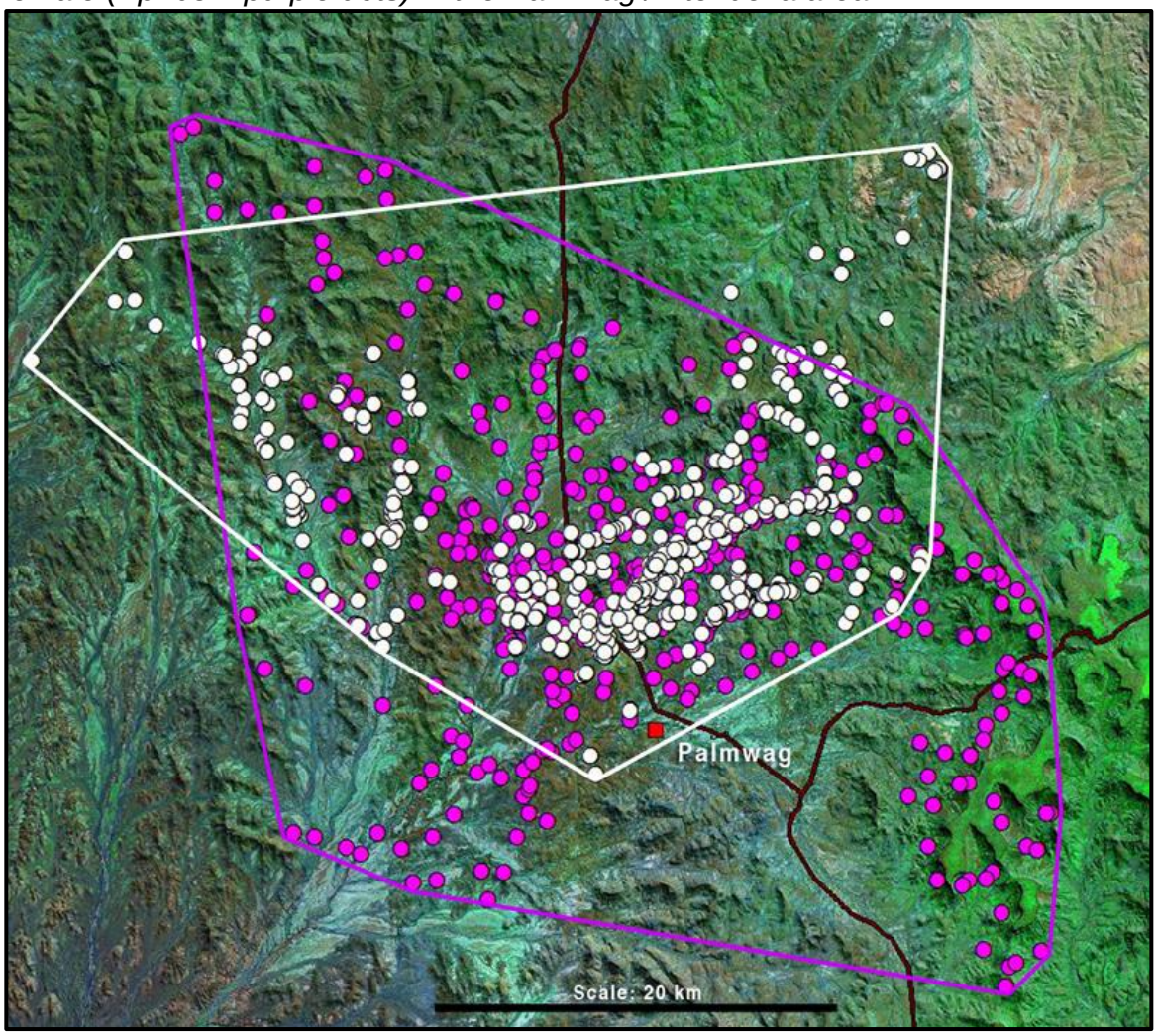


Figure 9. The home range area of an adult male (Xpl-94 – white dots) and an adult female (Xpl-65 – purple dots) in the Palmwag / Etendeka area.



- *Agab / Springbok River Pride*

The numbers of the Agab Pride increased substantially during the past two years and many of the sub-adult lions expanded to the Springbok River and into the Bergsig area. As a result the incidents of conflict with the local communities increased. After the pride male (Figure 10) and the Ugab male (Xpl-77) was shot whilst mating with Xpl-36 (Figure 11) the Pride spent more time between the Agab and Springbok Rivers. An adult male from the Obab Pride (Xpl-74) joined the lionesses.

Figure 10. The home range area of Xpl-50 (male).

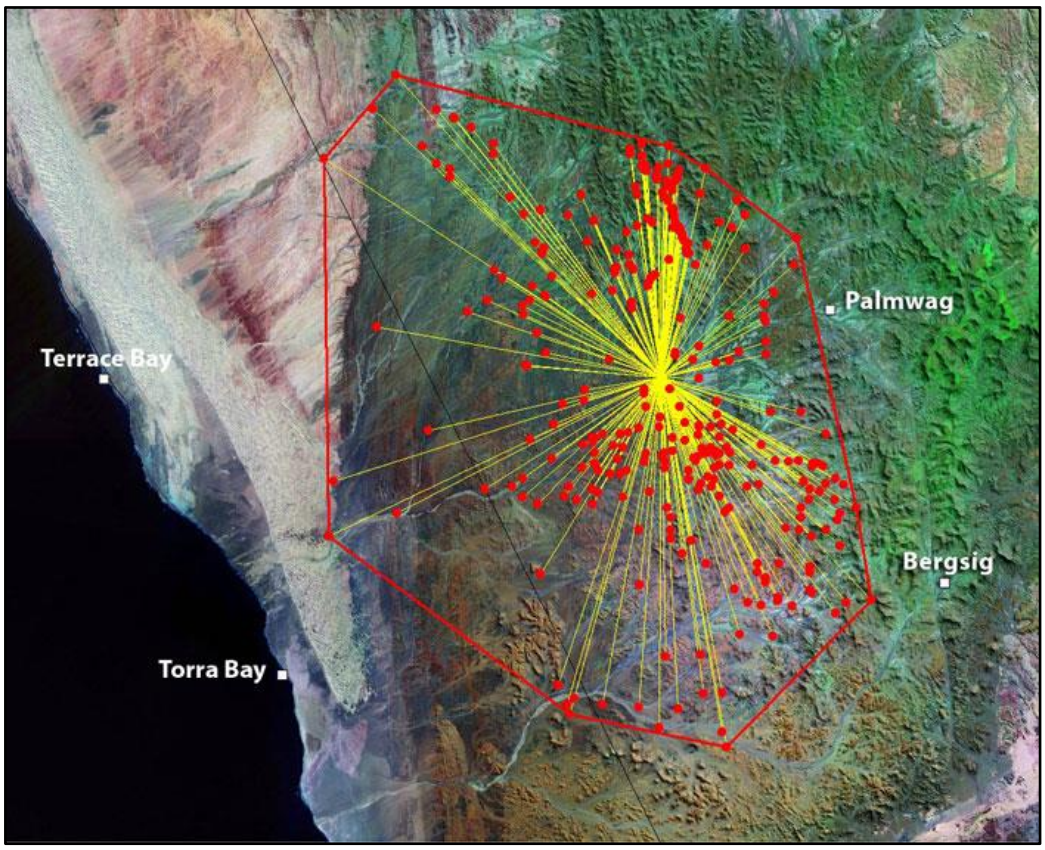
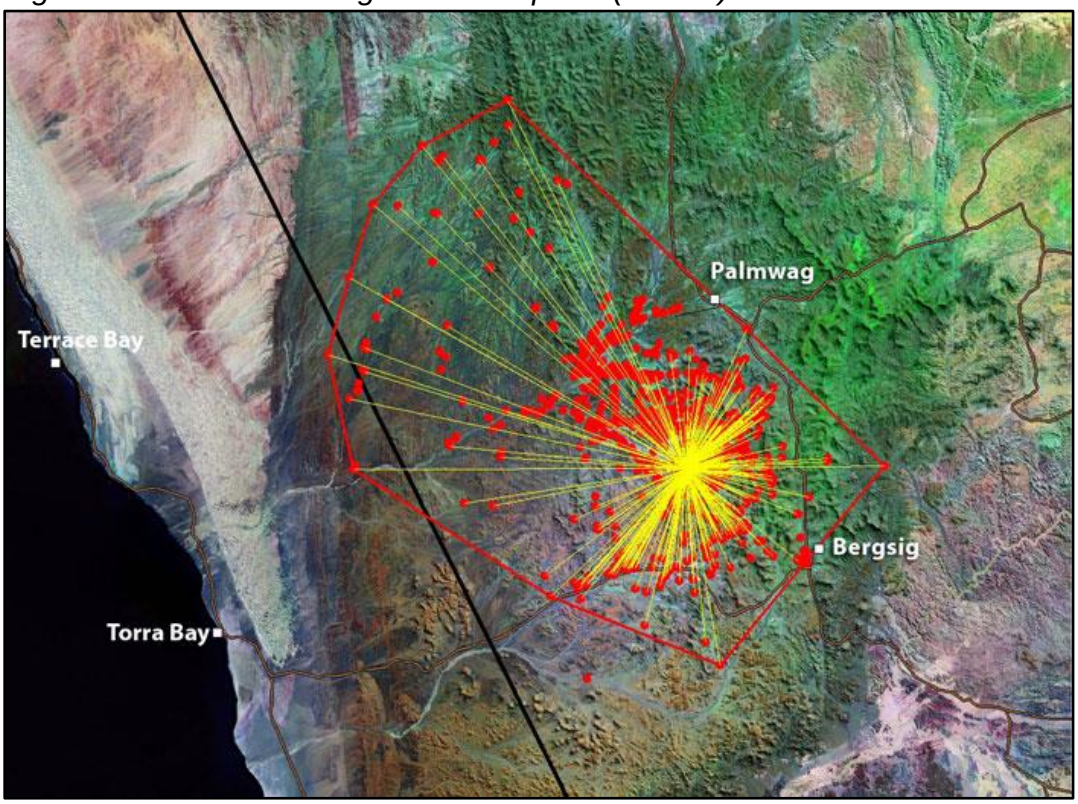


Figure 11. The home range area of Xpl-36 (female).



- *Huab Pride*

The Huab Pride expanded from 3 individuals (1 male Xpl-68 and two females Xpl-75 / Xpl-76) in 2012 to approximately 13 – 15 lions. Five sub-adults, from the first litter of Xpl-75 & Xpl-76 born early in 2012, dispersed and settled in the Ugab River. The home range of Xpl-75 expanded from 2013 (Figure 12) to a larger area that extended up to the Ugab River by the end of 2015 (Figure 13).

Figure 12. The home range area of Xpl-75 (female) up to the end of 2013.

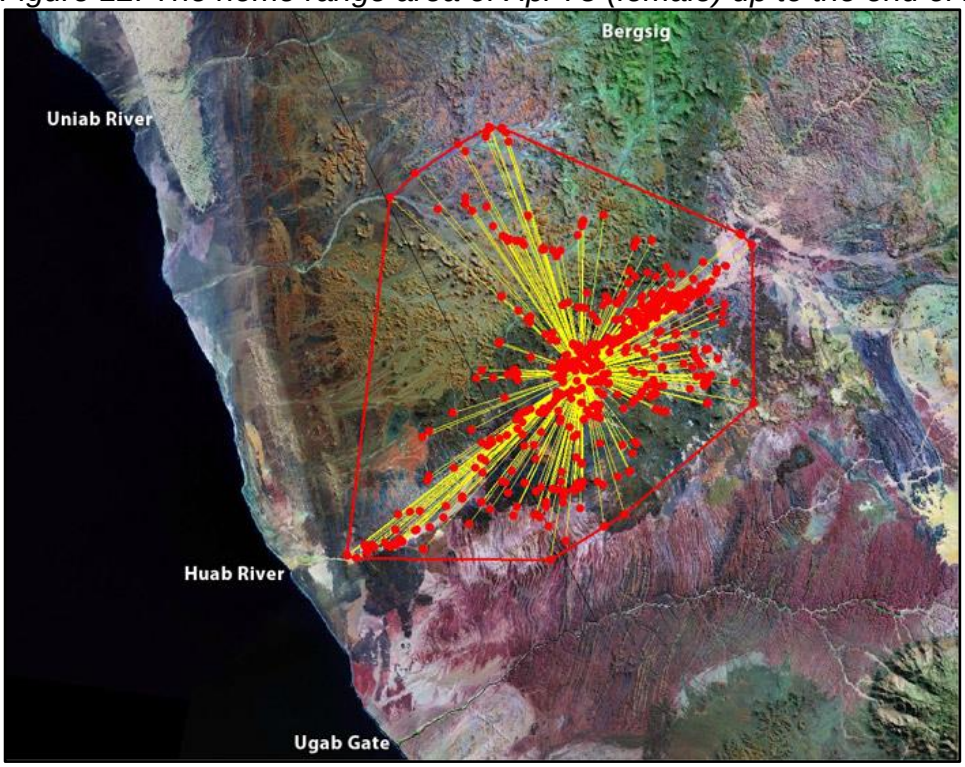
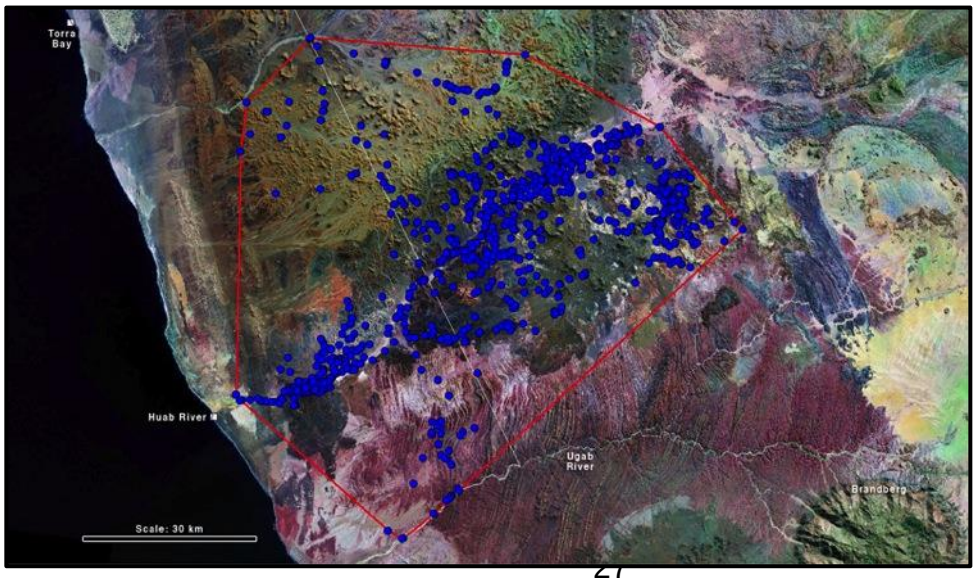


Figure 13. The home range area of Xpl-75 (female) up to the end of 2015.



- *Ugab Pride*

After the adult male (Xpl-77, Figure 14) was shot close to Bergsig on 27 Sep 2013, the Ugab River was vacant until five sub-adult lions from the Huab Pride dispersed and occupied the Ugab (Figure 15).

Figure 14. The home range area of Xpl-77 (male) up until September 2013.

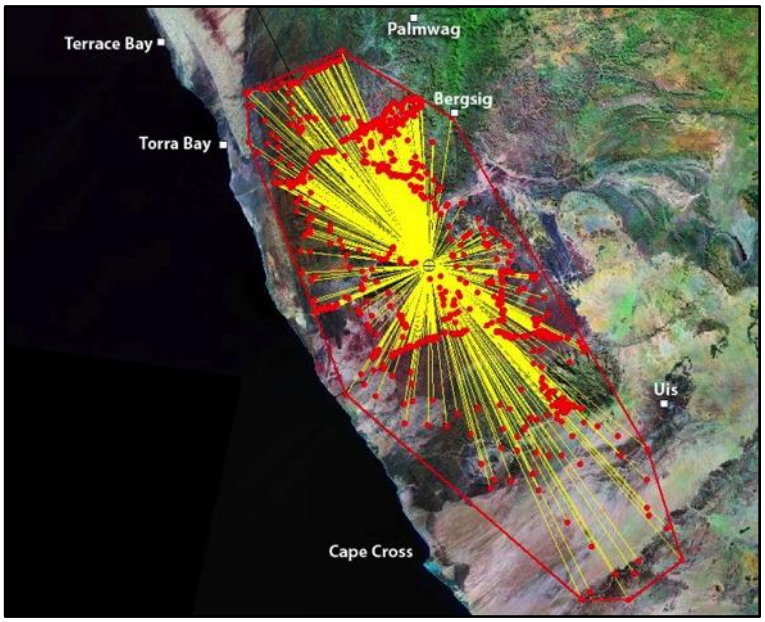
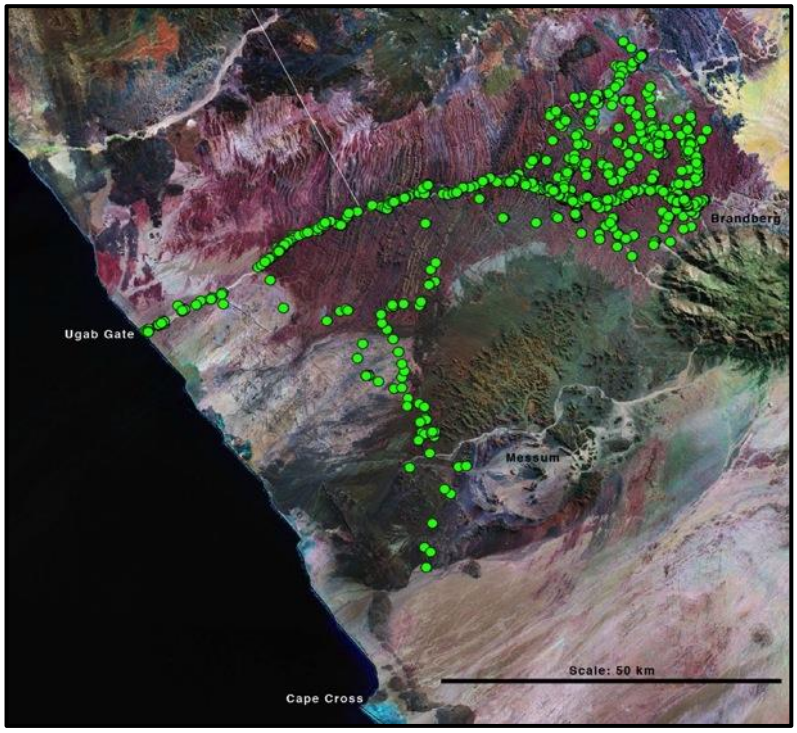


Figure 15. The current home range area of Xpl-98 (male).



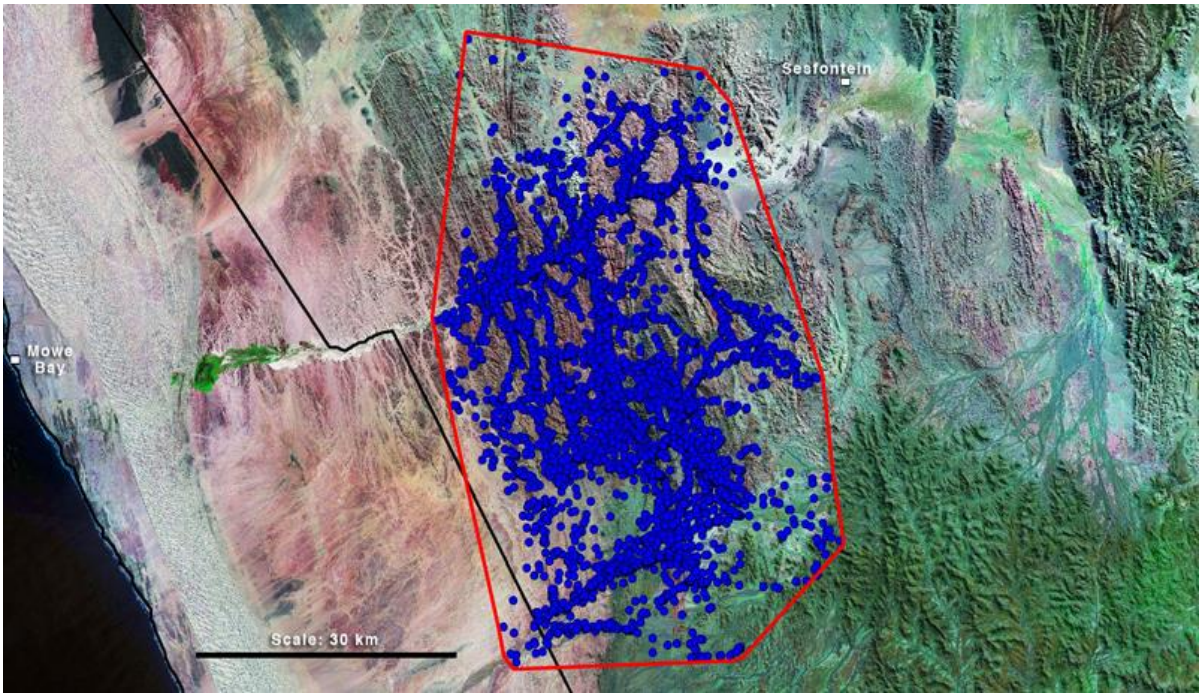
- Purros, Sesfontein & Anabeb Conservancies

The home ranges of desert-adapted lions are exceptionally large and there is extensive overlap between the home ranges of different prides. This is an important strategy in their adaptation to the harsh arid environment that is particularly relevant to understanding the frequency and patterns of Human-Lion-Conflict. The home ranges of lion prides in the northern section of the study area overlap with at least two, but sometimes with all three conservancies. As a result, each of these prides is generally responsible for incidents of Human-Lion-Conflict in two or all three conservancies over the course of a few years. More relevant to understanding and the managing Human-Lion-Conflict is the fact that lions from several different prides may be responsible for Human-Lion-Conflict at any one location over time.

- *Hoanib Pride*

The Hoanib Pride has occupied the Hoanib River between Elephant Song and Amp's Poort since 2006 (Figure 16). Their range extends up to the southern section of Okongwe and south to the Hunkap River. These lions have been responsible for Human-Lion-Conflict in both the Purros and Sesfontein Conservancies. The lioness Xpl-47 was fitted with a GPS collar in May 2008 and her movements were recorded until she was shot in the upper Obias River on 8 November 2015. A new satellite collar was fitted to the last surviving adult lioness (Xpl-59).

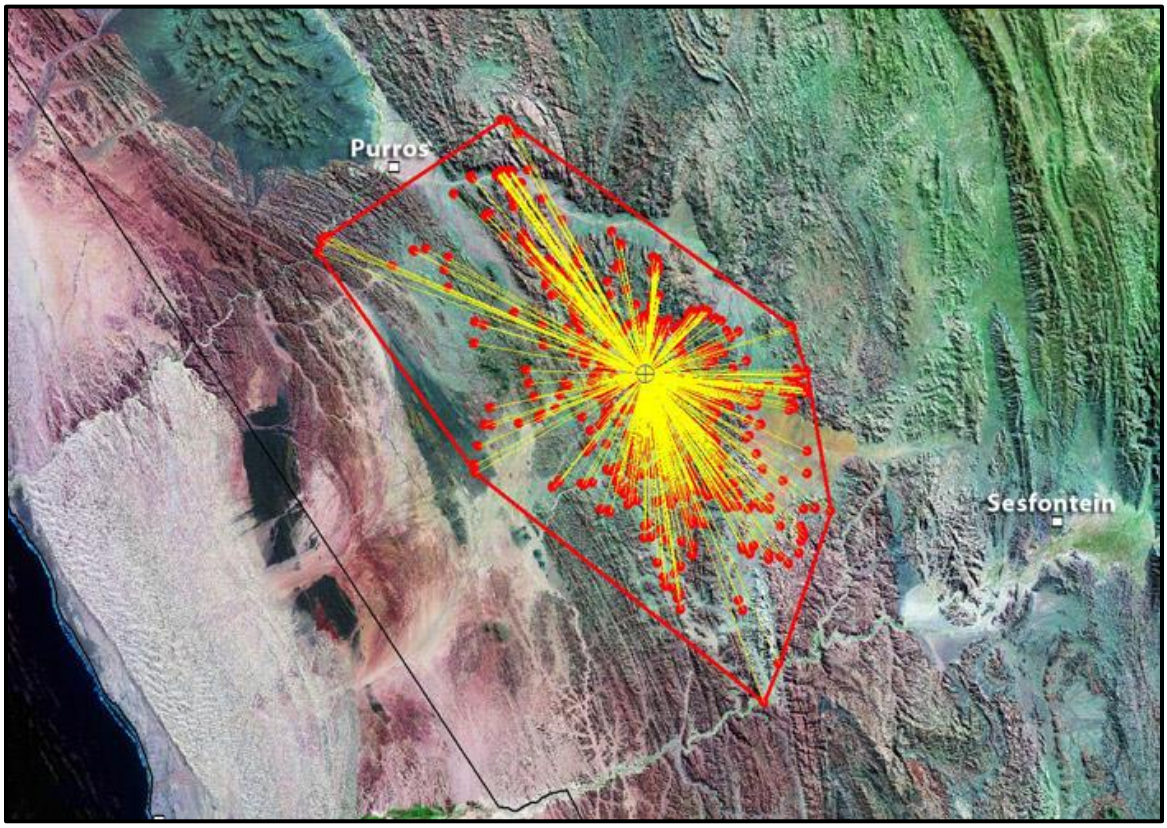
Figure 16. The home range area of Xpl-47 (female) until her death in November 2015.



- *Okongwe Pride*

Three lionesses dispersed from the Hoanib Pride in 2007 to form the Okongwe Pride. They were known as the “70s Lionesses” and occupied the mountainous terrain around Okongwe waterhole (Figure17). Conflict with local livestock farmers at Tomakas and along the Gamatum River in Purros Conservancy and at Ganamub and Elephant Song in the Sesfontein Conservancy has resulted in high mortality rates. At least 10 lions were shot or poisoned during the past three years. These included seven adult males (Xpl-56, Xpl-73, Xpl-68 “Terrace Male” & four of the “Five Musketeers”) and three adult females (Xpl-70, Xpl-72 & Xpl-96) that were fitted with satellite collars. The collars and all evidence of the lions were destroyed. The destruction of collars and other information by local communities undermines the process of managing and limiting Human-Lion-Conflict.

Figure 17. The home range area of Xpl-70 (female) of the Okongwe Pride.



- *Orowau / Hunkap Pride*

There are currently only two established adult pride males in the northern section of the population. The males (Xpl-81 & Xpl-87) are currently favouring the Orowau and Hunkap areas, but during the past two years they have regularly interacted with the Floodplain, Hoanib and Okongwe lionesses (Figure 18). The home range of Xpl-81 "Kebbel" indicates that there is extensive overlap with the five different groups of lionesses (Figs. 19 & 20). Both lionesses are responsible for Human-Lion-Conflict in Anabeb and Sesfontein Conservancies. The male lions have significantly larger home ranges and also cause Human-Lion-Conflict problems in the Purros Conservancy.

Figure 18. The home range area of the adult male Xpl-81 (red dots & polygon) in relation to the home ranges of five different groups of lionesses.

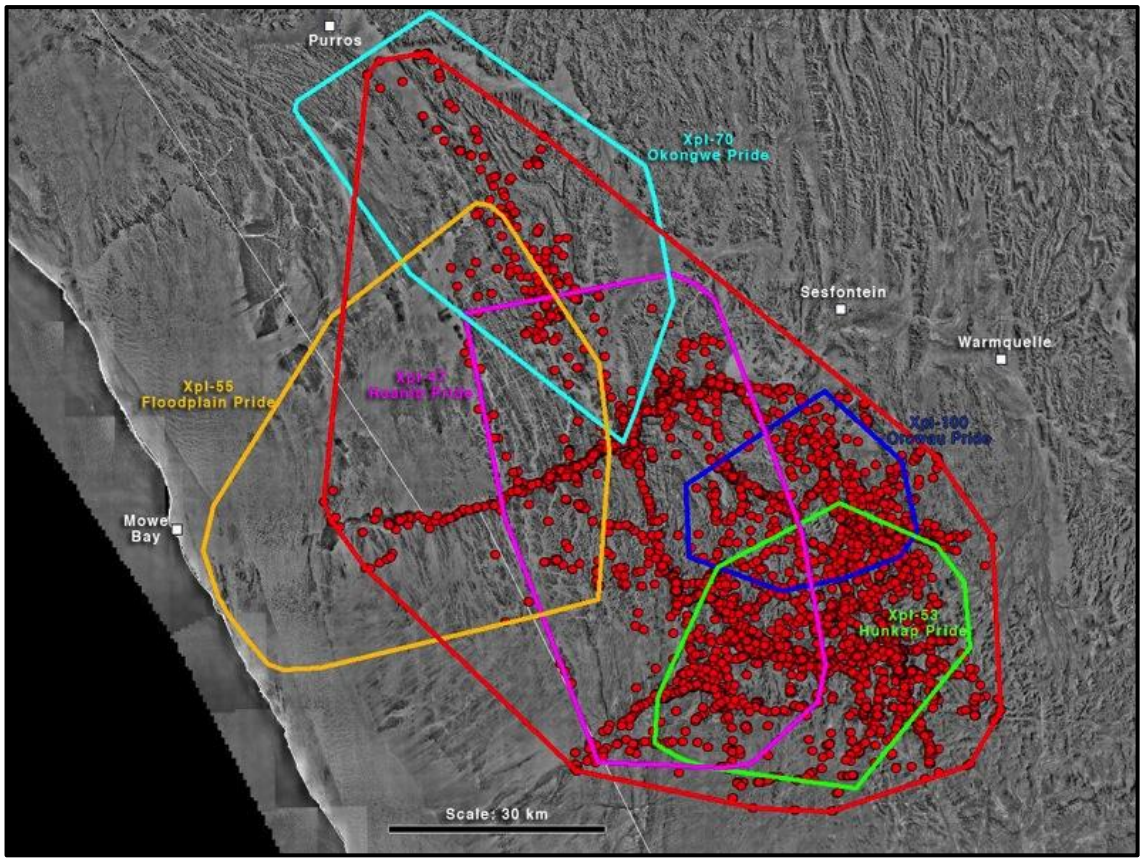


Figure 19. The home range area of Xpl-53 (female) of the Hunkap Pride.

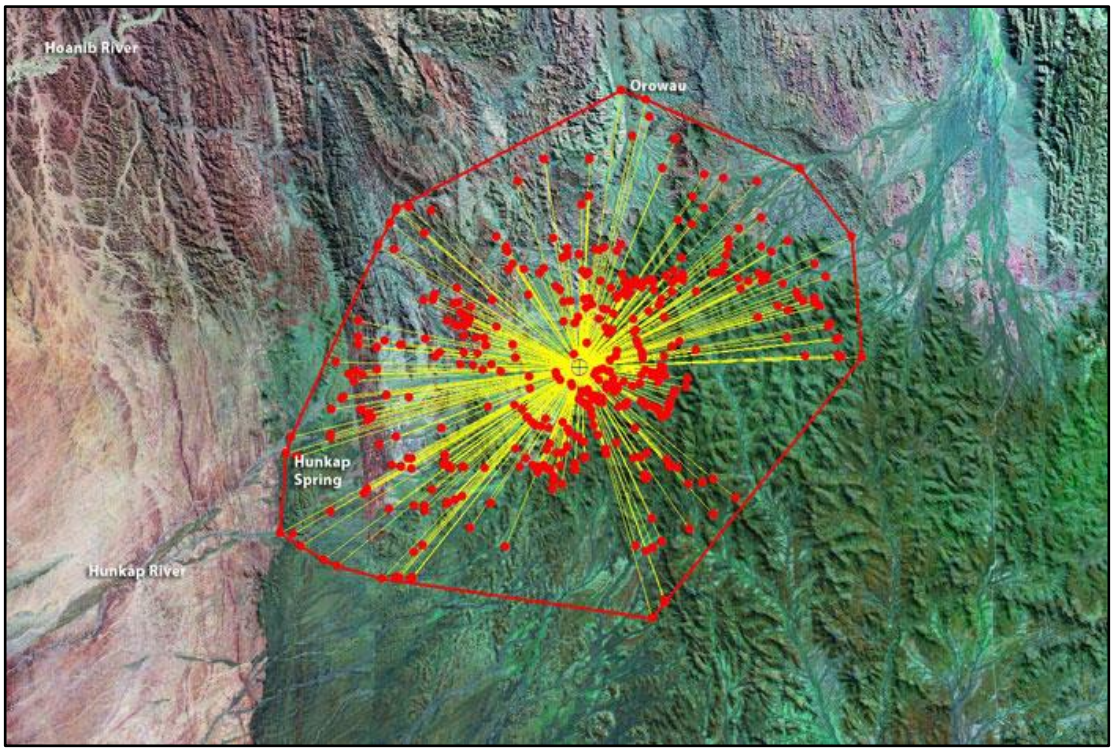
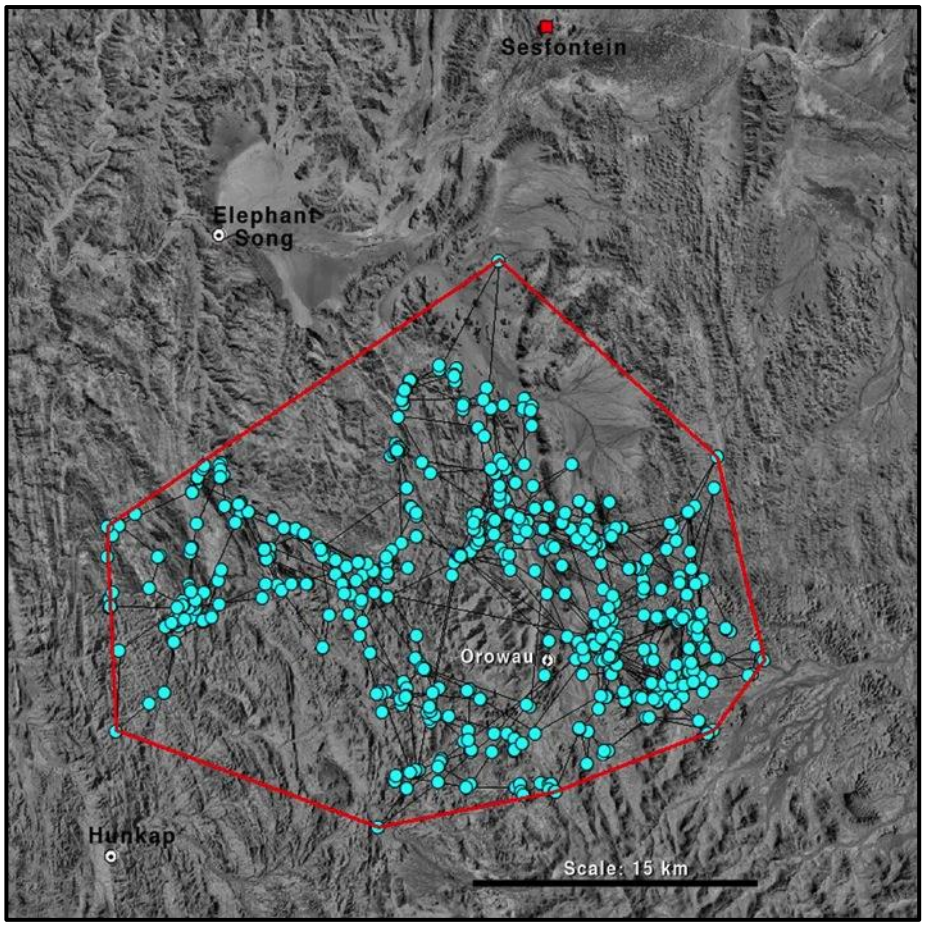


Figure 20. The home range area of Xpl-100 (female) of the Orowau Pride.



6.5.2.2 Understanding "Hotspots"

In order to survive in the harsh arid conditions these lion have developed particular skills and adapted behaviour. They have large overlapping home ranges and they move long distances of up 70 km per night. This is necessary because the sporadic and highly variable rainfall in the arid environment result in a heterogeneous and unpredictable distribution of prey animals. Detailed behavioural observations over the past 17 years suggest that the lions maintain and rely on a mental "map" (both spatial and temporal) of rich food patches. Rich food patches are areas where prey animals concentrate at certain times of the year, or after certain environmental conditions, and/or where the habitat (e.g. broken terrain or thick vegetation) result in higher hunting success. These rich food patches are therefore referred to as "hotspots" and lions regularly return to them to search for prey.

To demonstrate the significance of "hotspots", the movements and behaviour of the Uniab Delta Pride in relation to a "hotspot" are presented here.

The mouth of the Uniab River consists of a delta structure with numerous fresh water springs and thick reed beds that attract large numbers of Oryx, springboks and ostriches. Lions regularly visited the Uniab Delta before the population crash during the 1990s and the knowledge of the rich food source died with them. In December 2014 a sub-group of the Obab Pride discovered the Uniab Delta and feasted on the selection of prey that are vulnerable between the thick reeds and with strong coastal winds that aid their hunting success. The discovery of the rich food source resulted in the lions separating from their natal pride to form the Uniab Delta Pride (Figure 21). Between January and November 2015 the Uniab Delta Pride visited the mouth of the Uniab River on six occasions (Figure 22). On average they spent 23.3 days along the coastal habitat of the Uniab Delta (range: 7 – 60 days). In between these visits the four lionesses moved inland, up to 38.9 km from the mouth of the Uniab River, for an average of 20 days (range: 5 – 41 days, $N = 5$). When the lionesses were at the Uniab Delta they moved an average of 4.8 km/day, but when they moved inland their daily distances increased to 8.5 km/day.

Figure 21. The home range area of Xpl-45 (female) in relation to the Uniab Delta.

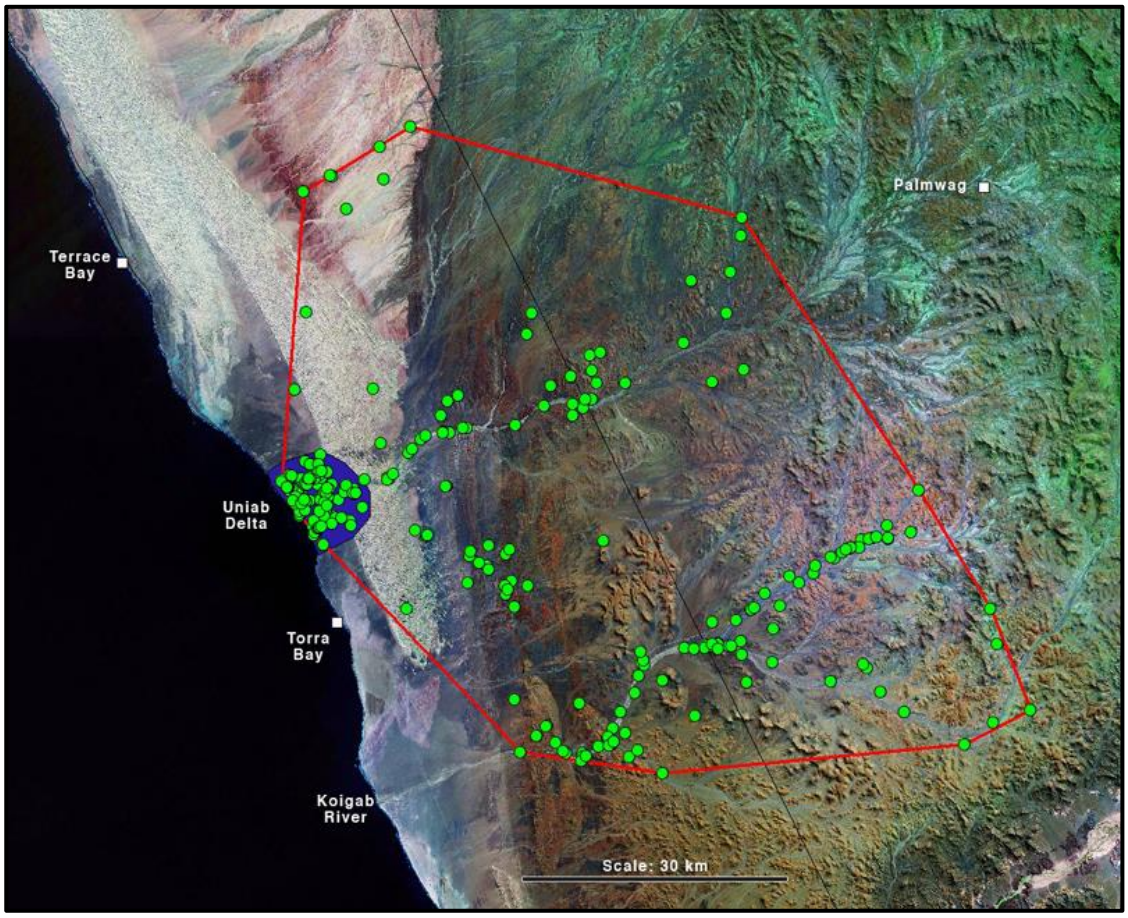
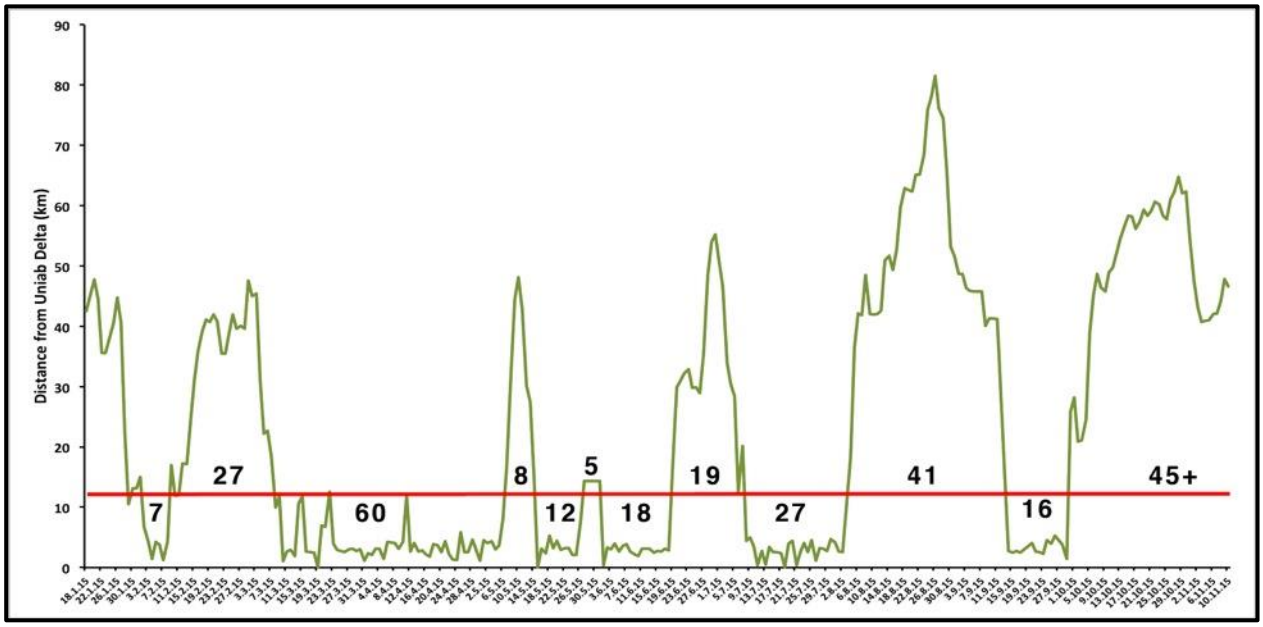


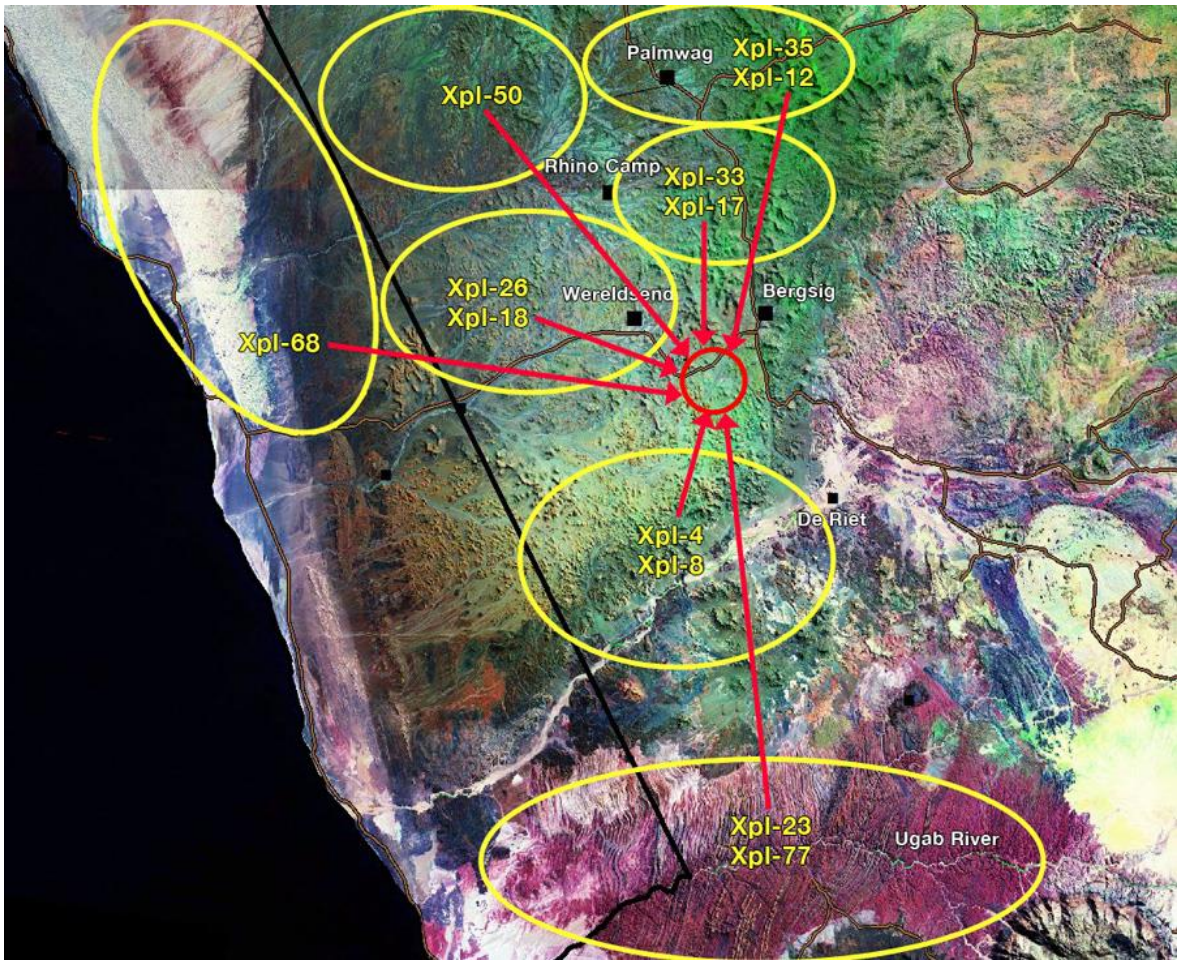
Figure 22. Sequential distances of the Floodplain Pride from the mouth of the Hoanib River between Aug 2014 and Nov 2015. The red line denotes the border of the coastal habitat and the numbers represent the number of days spent at the coast (below the red line) or further inland (above the red line).



Domesticated animals have been selectively bred over thousands of years to meet the needs of humans. As a result they have lost the ability to fend for themselves in nature and rely on humans to protect them. This is particularly pertinent at night when predators, such as lions, are active. Livestock, such as cattle, goats and donkeys are extremely vulnerable to predation by lions. The presence of livestock around a settlement that roam freely at night constitute all the hallmarks of a “hotspot”. Once lions become aware of the rich food source, they will return regularly.

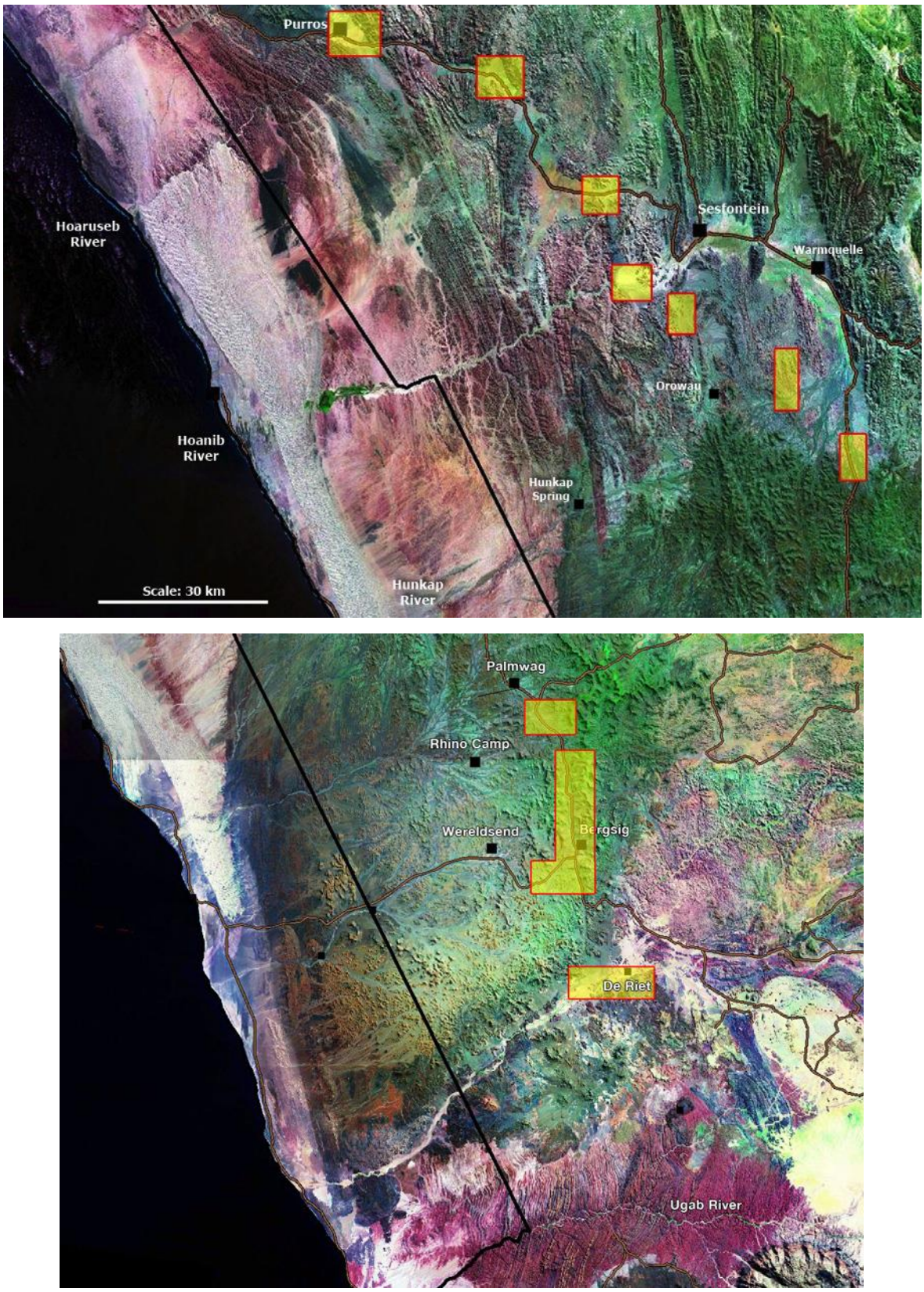
Over a seven-year period between 2006 and 2013 a total of 22 cases of human-lion conflict were recorded at Driefontein near Bergsig in the Torra Conservancy (Figure 23). Driefontein has all the characteristics of a “hotspot” and attracted 12 radio-collared lions from seven different prides with some individual returning to Driefontein several times. During this sample of human-lion conflict 16 lions were destroyed including 11 of the 12 radio-collared lions.

Figure 23. The origins of 12 radio-collared lions that caused human-lion conflict problems at Driefontein in the Torra Conservancy between 2006 and 2013.



Based on monitoring data collected since 2000 a total of ten “hotspots” were identified where lions have regularly been attracted to settlements and livestock (Figure 24). There are two “hotspots” in Purros Conservancy, three in Sesfontein Conservancy, two in Anabeb Conservancy and three in Torra Conservancy. These “hotspots” can be managed effectively for a marked reduction in human-lion conflict problems.

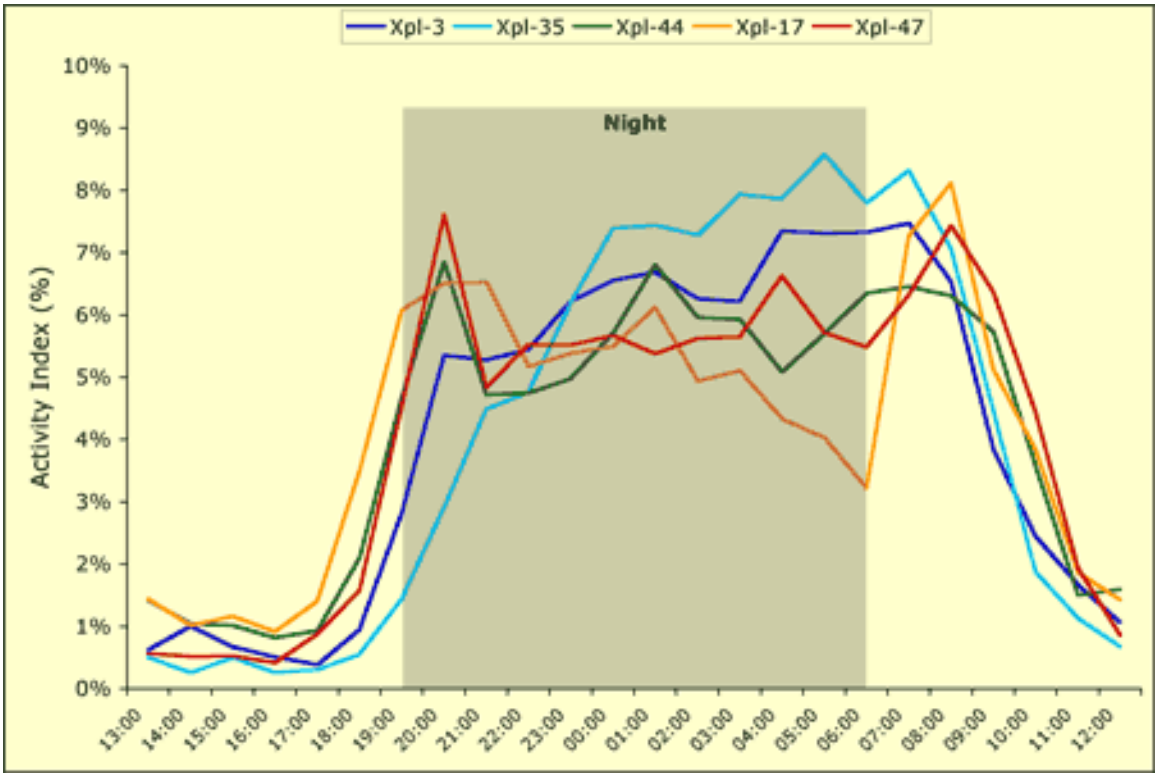
Figure 24. The locations of ten "hotspots" where lions are regularly attracted to settlements and livestock in the Purros, Sesfontein, Anabeb and Torra Conservancies.



6.5.2.3 Activity Patterns

Lions are active primarily at night. Data from five satellite collars, where the sampling frequency was ≥1 fix/hour, were included to assess patterns of activity. Distances moved per hour were used as an index of activity. To control for individual biases (e.g. mean distances moved by different lions per night) the distance moved per hour was expressed as a proportion of the total distance moved by the lion on that night. The patterns of activity are remarkably similar for all five lions (Figure 25). A sharp peak of activity occurred from between sunset and 20h00, followed by a drop in activity between 21h00 and 22h00. Activity increased again around midnight, but thereafter the pattern became less uniform although activity decreased towards daybreak, especially amongst the females. After sunrise activity increased and peaked between 07h00 and 08h00, followed by a uniformly sharp decline, and by 11h00 all five lions had stopped moving.

Figure 25. Activity patterns of five lions (males = blue/green, females = red/orange) in the northern Namib.



6.5.2.3 Population Dynamics

Aspects of the population dynamics of the Desert lion population, such as group structures, reproduction and mortality, have been monitored since 2000. Human-lion conflict and the related shooting or poisoning of lions is the main limiting factor of the population and amounts to 89 % of all adult and sub-adult mortalities.

The major cause of mortality in the lion population between 1999 and 2012 was the killing (by local people during Human-Lion-Conflict) and trophy hunting of adult and sub-adult lions. Male lions were particularly vulnerable and contribute to >80% of the recorded mortalities. The regularity, especially since 2004, at which male lions were shot, poisoned or hunted, and the selection of adult males for trophy hunting, has resulted in a significant reduction of males in the population. It also contributed to vastly different age-specific mortality rates between males and females (Figure 26), which serve to illustrate the negative impact on the population. Increasingly skewed sex ratios, favouring females (Figure 27), have reached critical levels (2010 - 1♀ : 0.18 ♂). Seven of the nine major prides are currently without a pride male.

The excessive killing of adult and sub-adult males has compromised the long-term viability of the Desert lion population. There is an urgent need to adapt the management and utilisation strategies relating to lions, if the long-term conservation of the species in the Kunene were to be secured.

Figure 27. Probability of age-specific mortality rates for females (red line) and males (blue line) in the Desert lion population (females: n = 277 lion-years; males: n = 225 lion-years).

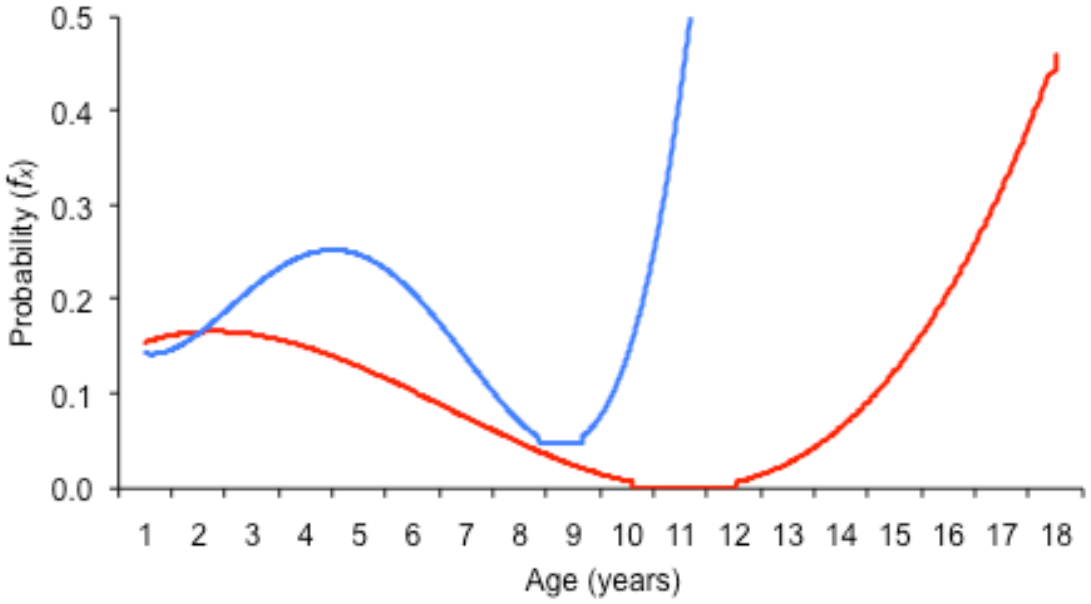
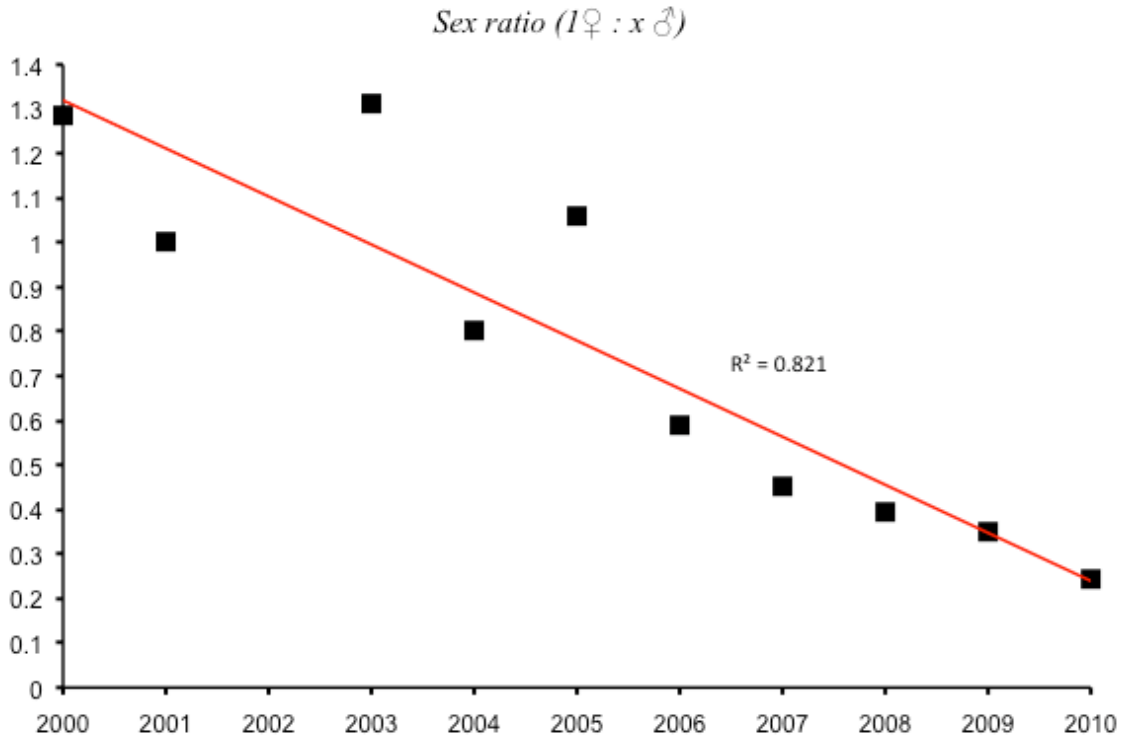


Figure 27. The decline of males in the sex ratio (1♀ : x ♂) of sub-adult and adult lions in the Desert lion population, between 2000 and 2010.



6.5.3 Developing & implementing appropriate technical solutions for mitigating HLC

The National Policy on Human-Wildlife Conflict Management states that the implantation of preventative measures is an effective and efficient way to manage Human-Lion Conflict. Local wildlife management units should carry out local level land-use planning as a means to reduce Human-Lion-Conflict. As part of zoning their area for different land-uses, such as exclusive wildlife and tourism zones, they should also identify wildlife corridors. In this case the establishment of a “high-risk lion corridor” that includes all the conflict “hotspots” will isolate the problem and facilitate an efficient management structure.

Effective and appropriate land use planning must be regulated and enforced by the elected committee for each conservancy and by the traditional leaders and Regional Councils. The exclusive wildlife zones, as per the gazetted registration of conservancies, and the “high-risk lion corridors” should be respected and implemented.

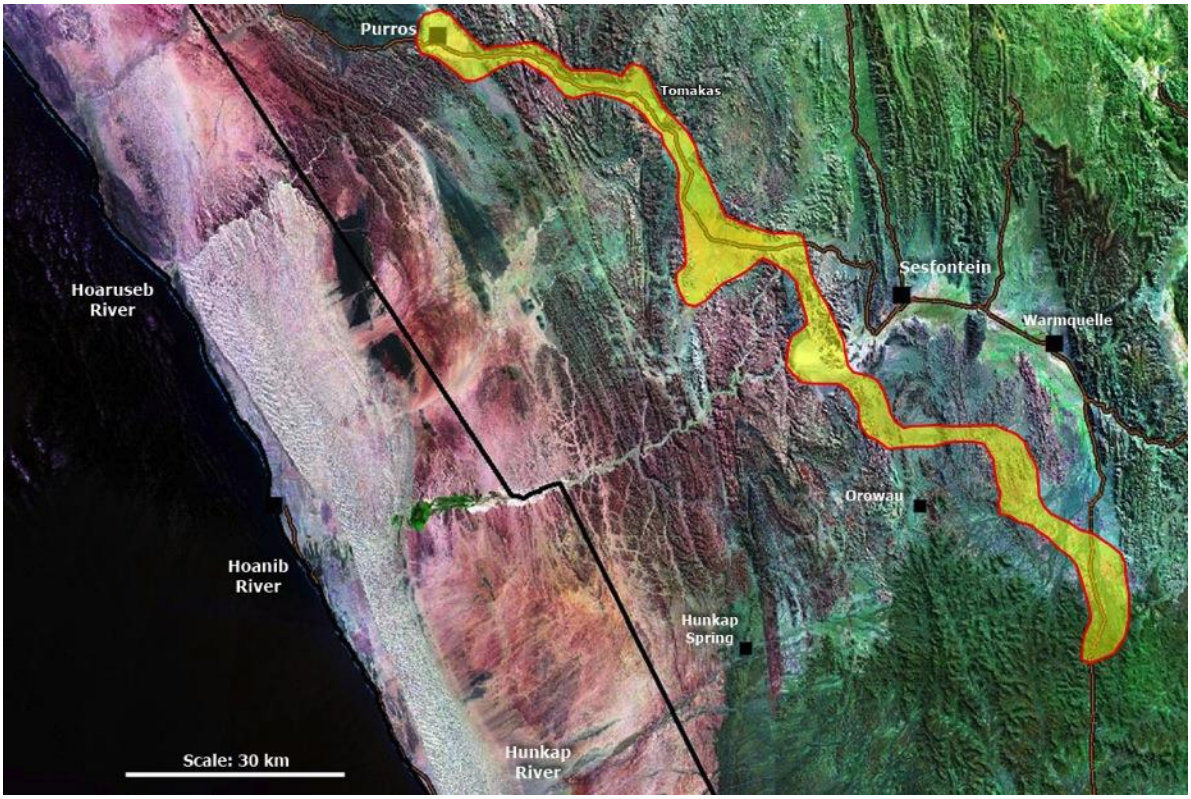
6.5.3.1 “High-Risk Lion Corridor”:

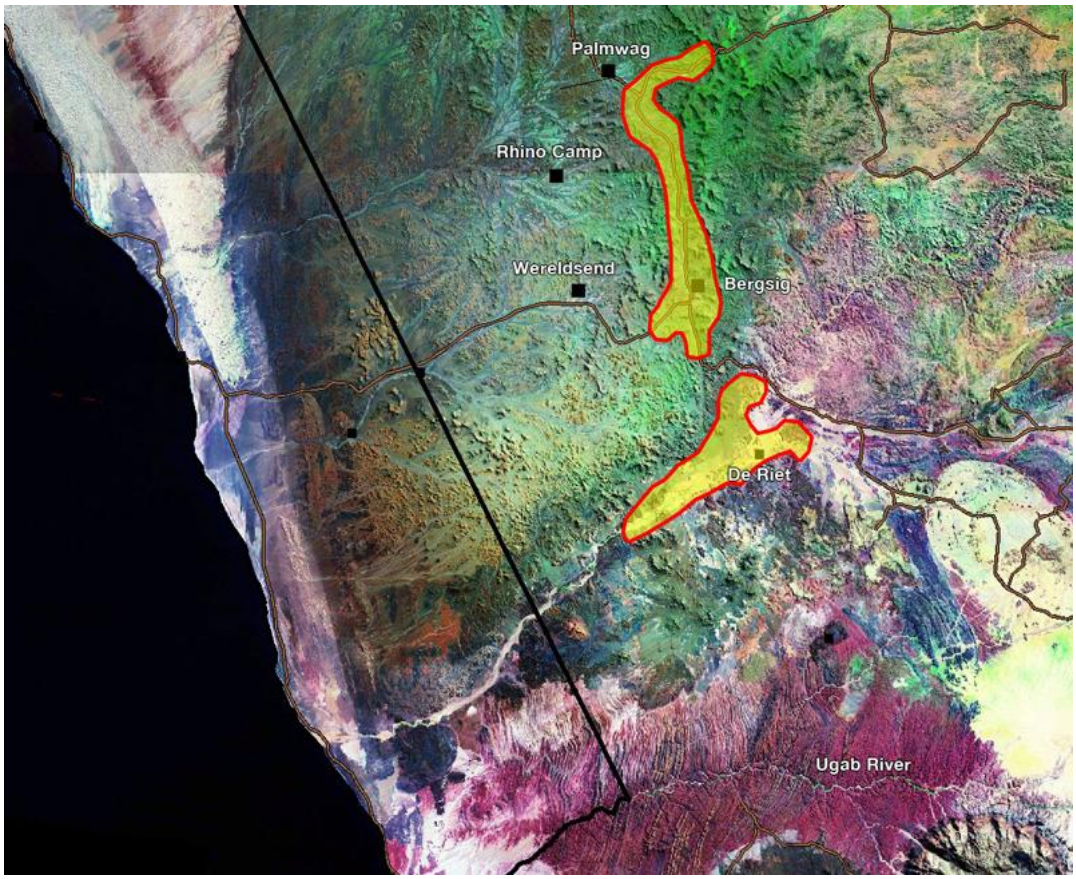
Research and monitoring of the Desert lion population and incidents of Human-Lion-Conflict over the past 15 years have produced reliable data indicating that lion problems occur repeatedly at the same locations. All previous management efforts, including the destruction of many lions, at these locations have failed for the following reasons:

a) Livestock that roam freely at night constitute all the characteristics of a rich food patch or “hotspot”.
b) Lions are quick to identify “hotspots” and will return regularly in search of prey.
c) Lions have large overlapping home ranges and as a result individual lions from several different prides will be attracted to these “hotspots”.

Establishing a “high-risk lion corridor” that includes all the known “hotspots” (Figure 27) and implementing stringent livestock management protocols, supplemented by various techniques to deter lions, within the corridor will effectively reduce Human-Lion-Conflict.

Figure 27. Proposed "High-Risk Lion Corridor" that includes all the major areas of HLC in the Puros, Sesfontein, Anabeb and Torra Conservancies.





6.5.3.2 Effective Livestock Management

Most conflict situations arise from livestock management practices that leave animals vulnerable to predators, such as allowing livestock to roam freely at night or untended during the day. The communities from all four conservancies have expressed their reluctance and disagreement to keep livestock inside protective corrals at night. Due to the low rainfall and lack of sufficient grazing in the region the communities prefer to allow their livestock to also feed at night. This is a key element to the success of Human-Lion-Conflict management that needs to be reconsidered. Based on the information presented here with regards to lion behavioural ecology, “hotspots” and on-going problems that occur at the same locations, the protection of livestock at night is paramount to the implementation and success of this Human-Lion-Conflict Management Plan.

6.5.3.2.1. Herding and guarding

The use of a person and/or dogs to walk with the livestock while grazing during the day can have a significant positive impact in reducing predator incidents. However care should be taken that guard dogs do not kill non-target predators or natural prey species.

6.5.3.2.2. Lion-proof Corrals

Keeping livestock inside protective corrals overnight will not only prevent lions from killing livestock, but it will also prevent the escalation of Human-Lion-Conflict problems in the area. Without free-roaming livestock (all species, including donkeys) at night lions will not identify the area as a “hotspot”, other methods of deterring lions from the area will be more effective and lions are likely to vacate the area. A compromise can be reached between the local livestock farmers, the conservancies and MET where only those farmers inside the proposed “high-risk lion corridor” (Figure 27) need to herd their livestock and place them inside corrals at night. Supplemented by the other preventative measures, such as early warning systems, discussed below the proposed “high-risk lion corridor” will essentially create a buffer zone that will deter lions from leaving the safety of their known home ranges. Without livestock grazing at night to attract them and low

numbers of wildlife (due to the livestock controlling the available grazing) lions are unlikely to move into areas utilised by people and livestock.

Lion-proof corrals are made from metal poles, wire mesh and other commercially available materials. The structure consists of short posts 2.5m apart, 1.8m high with an over-hang to the outside, mesh wire and shade netting surrounding the whole structure. There are two gates at opposite corners, thus allowing farmers to erect their own internal fencing. The following materials are required for a corral that is 30 x 40 metres in size:

- Tar (gum) poles: length = 3 metres x 49 poles
- Diamond mesh: height = 3 metres x 140metres.
- Steel wire x 1 roll (sufficient for several additional kraals).
- Medium thickness binding wire x 1 roll (sufficient for several additional kraals).
- Extra thin binding wire x 1 roll (sufficient for several additional kraals).
- Metal farm gates: length = 2.4 metres x 2 gates.
- Threaded rods (12-15mm x 1 metre) with nuts x 10.
- Wire-straining tool x 1 (to be used for the construction of all future kraals).
- Large-size Crescent fencing pliers x 4 (to be used for the construction of all future kraals).

6.5.3.3 Early Warning Systems and Scare Tactics

Since November 2012 a total of 16 lions from selected prides in areas where there is potential for high conflict were fitted with satellite collars and their movements monitored by the DLP. The daily positions of the lions were plotted on a map and posted on the Desert Lion website. Lion Rangers, appointed by conservancies, or other community organisations monitored the website and the information on lion movements was then given to farmers who could then take precautionary actions when lions moved towards their livestock. This initiative served as an early warning system where local farmers can monitor the locations of lions in their area and take precautionary actions when lions move towards their livestock. This approached, referred to as the Satellite Early Warning System, produced promising results, but lacked institutional support and did not reach its full potential. A central “Early Warning” unit in Windhoek controlled by MET, as described

in the National Policy on Human-Wildlife Conflict Management, will provide the necessary structure to support this approach.

A second more direct early warning system (the Logger Early Warning System) was developed in 2016. The Desert Lion Conservation Trust (DLCT) collaborated with a highly qualified electronic engineer in Swakopmund and they designed and built several units. The system produced favourable results during a dry-testing phase and now needs to be implemented in the field at settlements where regular problems with lions are experienced.

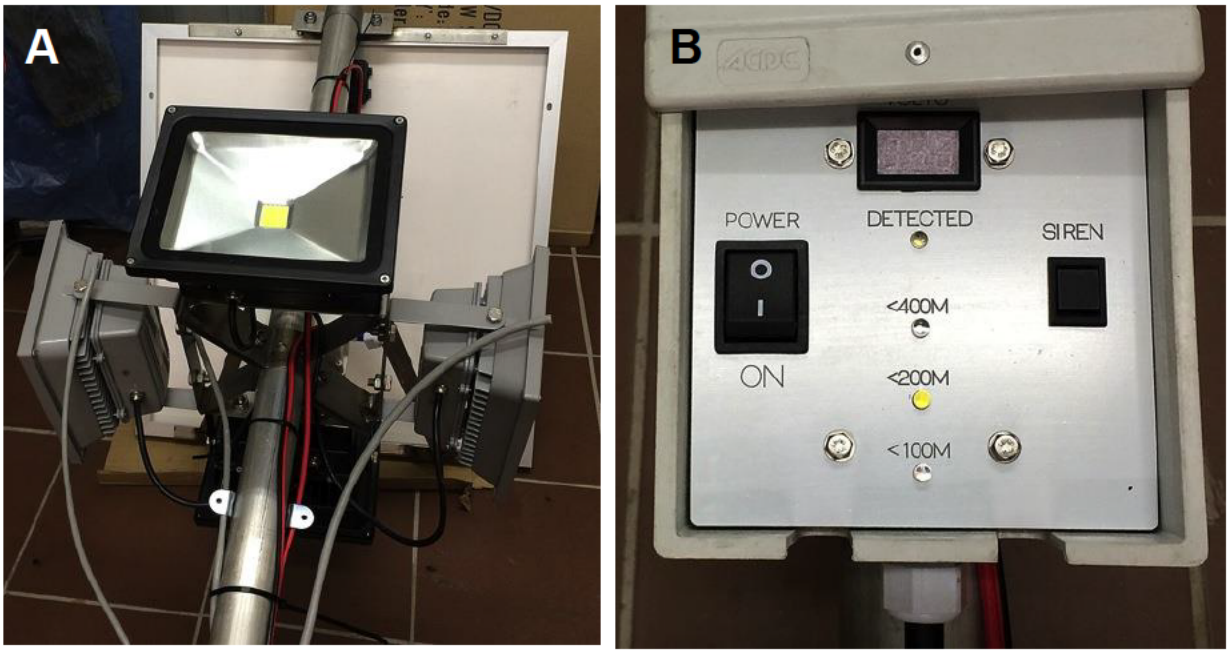
The Logger Early Warning System consists of several components (Figure 28) and a brief summary of the mechanisms is described here.

- Several lions from all the prides that border human settlements or that may be responsible for HLC are fitted with collars that contain GPS recorder and a special RFID Tag unit in addition to the normal VHF transmitter.
- The GPS unit will record accurate position coordinates every hour at night and every four hours during the day. The coordinates will be stored on a memory chip in the collar and can be downloaded remotely.
- An “Early Warning Logger” will then be mounted adjacent to a corral at settlements with high incidents of HLC.
- The “Early Warning Logger” consists of an antenna, an electronic circuit board that acts as a small computer processor, four powerful LED floodlights (Figure 28a) and a siren that are mounted on top of a 4 metre pole. The unit is also fitted with a solar panel and a 12 Volt battery to provide sufficient power throughout the night. The logger will be mounted so that each of the four LED floodlights point towards one of the four wind directions (North, East, South and West).
- The Logger will continuously transmit RFID signals to probe for any RFID Tags (fitted to the lion collars) that may be nearby.
- Preliminary results indicate that the Logger can detect the lion collars from a distance of 2 – 3 km.
- When the Logger detects a lion collar it will instruct the collar to record a GPS position every 5 minutes and relay the information to the Logger. Whereupon the Logger will calculate the direction and distance of the lion from the settlement and

trigger one or two of the LED floodlight to "point" in the direction of the lions. The floodlights are very powerful and will allow the people to see the lions as well as deter the lions from approaching the corral.

- A control/display unit that is mounted lower down on the Logger pole (Figure 28b) will display the distance of the lions from the settlement. When the lions reach a distance of 200 metres from the settlement a powerful siren will be triggered to deter the lions from approaching.

Figure 28. Elements of the "Logger Early Warning System" that will be mounted at settlements that experience HLC problems.



Generating disturbances associated with settlements, people & livestock is an effective way to scare lions away and prevent Human-Lion-Conflict. Whenever the lions come into contact with settlements and livestock they should be deterred & discouraged. However, it is vitally important for the lions to form a clear association between the disturbance and the settlement/livestock. Various scare tactics have been tested and the successful methods are addressed below:

- Sound playbacks. In recent years lions have successfully been deterred from approaching human settlements by playing modern music or recordings of human

voices, especially stand-up comedy shows with female or high-pitched male voices, at high amplitude.

- Loud Noises. The use of fireworks and especially rockets that explode overhead have been successful in scaring lions away from settlements. Air-horns and whistles can also be used but they are less effective than fireworks.
- Ultra-sound playbacks. A method of reproducing ultra-high frequencies (above human hearing) using electronic oscillators and frequency generators was designed in Swakopmund along with the Logger Early Warning System. The electronics were attached to an amplifier and a powerful speaker (Figure 29) and the system is currently being tested in the field. The preliminary results are exceptionally good. Lions immediately reacted to the sound playbacks and moved away. The same response was observed with several black-backed jackals and one brown hyaena.

Figure 29. Ultra-sound system developed to deter lions

- Vehicles. Lions can be chased-off and deterred by vehicles, but there are several important elements to consider. 1) Lions are capable of distinguishing between different types of vehicles based on engine type (petrol or diesel), appearance (e.g. came-drive vehicles or open pick-up vehicles with people on the back) and the manner of driving. 2) Some lions that live inside tourism areas are habituated to tourist vehicles and this leads to high quality sightings for tourists. 3) Care must be taken not to compromise this important tourism value by using game-drive vehicles to deter lions. 4) This can be

achieved by a) only using white open pick-up trucks, b) with people on the back, c) that are making a lot of noise and shouting, d) by driving fast and aggressively, and e) by ensuring that lions can easily associate these vehicles and the disturbance with human settlements and livestock.

6.5.3.4 Rapid Response Unit

Following the guidelines under the National Policy on Human-Wildlife Conflict Management two Rapid Response Teams need to be established. An initiative led by IRDNC with support from DLCT and DECP is underway to secure funding and implement the Rapid Response programme.

Objectives of the Rapid Response programme:

- Develop two teams, each comprising of trained local people, to monitor aspects of the lion population and to respond to potential or actual incidents of HLC. Critical is that these teams will liaise with conservancy management, lodges and traditional leaders. Develop systems of local community game guards and rangers to assist in this.
- Through these Teams, to mentor conservancies and farmers into taking rational and objective decisions about lions and the challenges of living with them. This goes right from managing threats and incidents to drawing up and adopting conservancy management plans for the species.
- Reduce HLC through a variety of means, for example, constructing lion-proof corrals, deploying and maintaining automated early warning systems at key villages
- Educate and train farmers, game guards, tourists, guides and residents on living with lions and promote the value of lions.
- Add value by providing information on individuals, movements and history of the lion population, and by encouraging tourism industry development and buy-in to the in-situ conservation of these animals.
- Mentorship of local qualified Namibians to run the program in the long term.
- Develop systems to monitor the progress and success of this program

The development of two teams to respond to human wildlife conflict incidents, facilitate in training farmers, communicate with Traditional Leaders, conservancy management and farmers and to gather information and data is essential. The procurement of 2 vehicles and recruitment of 4 suitable members is important and already underway. The appointment of a Project Co-ordinator and a Project Administrator to drive and manage the project is necessary. Training will be extensive and is to be provided by DLCT, DEP and IRDNC. These teams will be mobile, have satellite phones, radio communication (vehicle and hand held sets), spotlights and be equipped to respond to incidents and stay in the bush for several weeks at a time. The vehicles will also be monitored by commercial satellite fleet management systems. While the ideal is to have two operational independent teams, this will be phased in gradually to allow for developing efficient management and reporting structures. A system of Lion Rangers is already in place in three of the lion range conservancies. These rangers were nominated and appointed by their communities. However, it is only with the development of the Rapid Response Teams that they can become truly efficient. In year two a suitable UNAM conservation graduate will be sourced to join the program. Training and mentoring will be on site with focus on all aspects, research, HWC, logistics and admin with a view to this person eventually taking over management of the program.

Reducing Human-Lion-Conflict is a crucial aspect of the program. There have been extensive meetings with affected local communities to seek solutions to this problem. The main thrust of this aspect is to build structures and systems to reduce losses to farmers and to ensure human safety. Over and above the response teams and education this will entail constructing lion-proof corrals, providing early warning of the presence of animals using collaring and providing lights in key localities at farms/homesteads. While most conservancies have land use zonation plans in place, these are often not respected properly and some of these need to be changed to better accommodate lions and elephants.

The Rapid Response Teams will be trained in (excluding the skills they need for their daily tasks) living with elephants and lions, basic elephant and lion behaviour, basic biology and requirements of the two species. The Kunene Region Communal Conservancy

Association (KRCCA) is an influential organization with respected leadership. They will also be trained to pass on the information and to monitor peoples' reaction and attitudes to these efforts. A major part of the education effort is to build capacity within these communities to deal with living with wildlife and also to communicate to visitors to these areas. A concerted effort will be made to educate the tourism sector, local guides and visitors to the area about these unique animals. This will take the form of formal training for guides and the production and distribution (via key entrance points to the area and car hire firms) of pamphlets. This is already taking place, but does need to be increased. The ambition is to accommodate one Namibian University of Science and Technology student per year on their 6-month practical or internship. This will provide them with an opportunity to partake in meaningful and relevant surveys and actions.

Poaching at present is not a problem in the region. However, there is an increase in poaching of both elephants (for ivory) and lions (bones and body parts for the Asian traditional medicine market) in southern Africa. As anti-poaching efforts become more successful elsewhere, so we can expect poachers to target our area. This has already been evident with the free-ranging black rhino population in the Kunene Region. We urgently need to increase our efforts in this regard to make it as difficult as possible for poachers to operate in this area. Our Teams and Coordinator will work closely with the Ministry of Environment and Tourism, the Save The Rhino Trust and the Protected Resources Unit of the Namibian Police. A relationship has already been established with these stakeholders and will be maintained as a priority.

Adding value or increasing tangible benefits to farmers and residents affected by these animals is a priority. Employment and increased compensation rates are seen as crucial in this regard. Tour operators and Lodge or accommodation operators will be asked to encourage their guests to contribute to a "sightings fund". Whenever lions or elephants are seen, a small donation can be made. It is important that research provide information on individuals, group sizes, habits, personality etc. of lions and elephants. This makes the experience tourists might have more personal and meaningful. In the long-term, we will develop Lion and Elephant Rangers to the point where visitors can accompany them on their patrols, thus gaining an insight into local conservation first hand.

Systems will be developed to measure the success of the Rapid Response programme. This is not just about work completed, number of kraals built or number of patrol days, but also includes monitoring actual number of HWC incidents and very importantly, the attitude and buy-in by local farmers and residents.

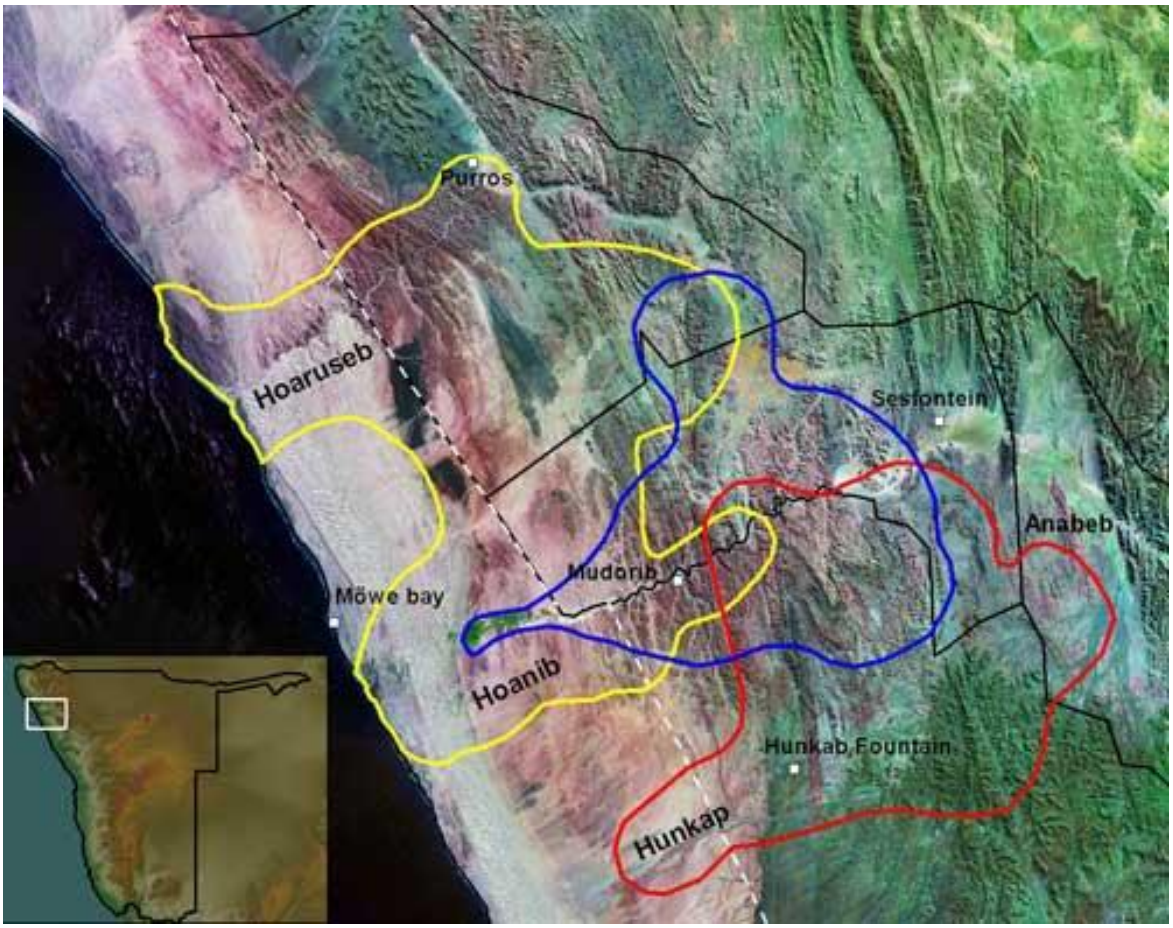
6.5.4 Lion Tourism

Tourism can play an important role in the conservation of lions and in the mitigation of Human-Lion Conflict. The simultaneous growth of wildlife populations, tourism, and community-based conservation efforts during recent years in NW Namibia is testimony to this. Under the current climate where local people benefit from wildlife and communal conservancies enter into contractual agreements with tour operators, the tourism industry's potential role in wildlife conservation is ever increasing. Along with black rhinos and elephants, lions are one of the most popular species among tourists. The value of lions and the benefits derived through tourism in the region, must arguably out-way the losses incurred as a result of Human-Lion Conflict.

Notwithstanding, people still pose the biggest threat to lions. Local communities suffer financial losses when lions prey on their livestock, upon which they often retaliate (legally) by killing lions. The tourism industry and related entities (including the communal conservancies) enjoy the benefits, but the local people that live close to lions (i.e. individual farmers) have to bear the costs. This discrepancy has been identified and according the National Policy on Human-Wildlife Conflict Management there is a need for preferential benefits to those local people.

Between 2007 and 2008 a detailed study was conducted in the Hoaruseb River (Purros Conservancy), the Hoanib River (Sesfontein Conservancy) & Hunkap River (Anabeb Conservancy; Figure 30). The objectives were: a) to evaluate the tourism potential of lions, and b) to propose a system where direct benefits derived from lions would reach the appropriate local people in order to offset the losses.

Figure 30. The home ranges of three lion prides that utilise the Hoanib River (Yellow - Hoaruseb pride 4584 km², Blue - Hoanib pride 2345 km², Red - Hunkap pride 2927 km².



There were a total of 35 individually known lions in three separate prides (Hoaruseb = 14, Hoanib = 14, Hunkap = 7) and they occupied a combined area of 6171 km² (Figure 30). There was overlap between the home ranges of all three groups, but they rarely interacted with each other.

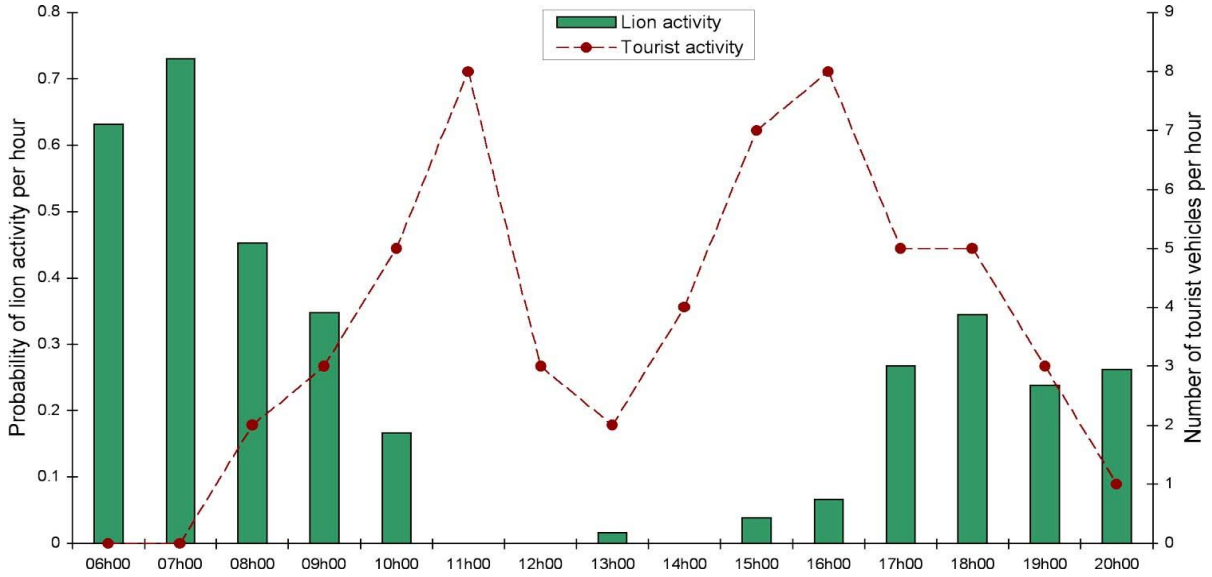
The lions were observed intensively for 2208 hours (92 x 24hrs) during which time they killed 51 prey animals of 12 different species. Oryx was the most important prey species and along with zebra, ostrich and springbok, formed 75% of the lion's food. Livestock (donkeys) represented only 5% of the kills.

Lions were inactive for 72 % of the 24-hour day (N = 92 days) and activity was highest at night and during the early morning up until. During the middle of the day (10h00 – 15h00)

they generally rested in thick vegetation and were not visible. Although lions were active mostly at night, the main peak of activity was around sunrise, followed by another increase in activity at sunset.

The Hoaruseb lions spent 85 % of their time in the riverbed and the remainder in rocky outcrops close to the river (5 – 10 km). The likelihood of finding and seeing the lions, during a sample of 82 attempts, was high (69 %). The average distance between passing vehicles and lions was 74 metres (range: 15-250 m). Despite this high probability of seeing lions, only 8 % of the 86 tourists vehicles that drove past the lions (average = 4.2 vehicles per day) actually saw them. The peak tourism traffic was between 09h00 and 18h00 when lions were inactive (Figure 31) and resting behind vegetation and other forms of cover. The lions were mostly relaxed when vehicles drove past them, but when vehicles were noisy or caused disturbance, they often walked or ran out of sight.

Figure 31. Daytime activity patterns of lions and tourist vehicles in the Hoaruseb River. Data were collected during 83 periods of 24-hour observations. Tourism activity represents the number of vehicles that drove past the lions per hour, during the 24-hour observations.



Because of their nocturnal habits, the movements and behaviour of lions are often poorly understood. Tour operators will benefit from accurate and current information on lions, and there is a need to provide such information to the industry, so as to increase the

potential benefit of tourism to wildlife conservation. Collaborating with the communal conservancies and involving them in the process is essential.

The Desert Lion Project has provided numerous training courses to conservancy members and local tour operators to improve the tourism potential of Desert lions. Such training has helped to increase the success rate of finding and approaching lions during game drives, and improve the quality and accuracy of information conveyed to tourists. In the Hoaruseb River the proportion of tourist vehicles spotting and observing lions increased to 52 % after such training courses.

The major tour operators and TOSCO should be approached to discuss the mechanisms of a establishing a “Lion Fund” where operators agree to donate a minimal fee (e.g. N$ 100 per vehicle) for every sighting of lions. A system of collecting and managing the funds must be developed and approved by MET. Each communal conservancy should establish a separate “Lion Fund” account where income derived from lions-related tourism and hunting can be used to off-set the losses and costs of Human-Lion Conflict. Options of securing matching or “gear-up” funds from other sources to supplement the “Lion Funds” at conservancy level should be investigated.

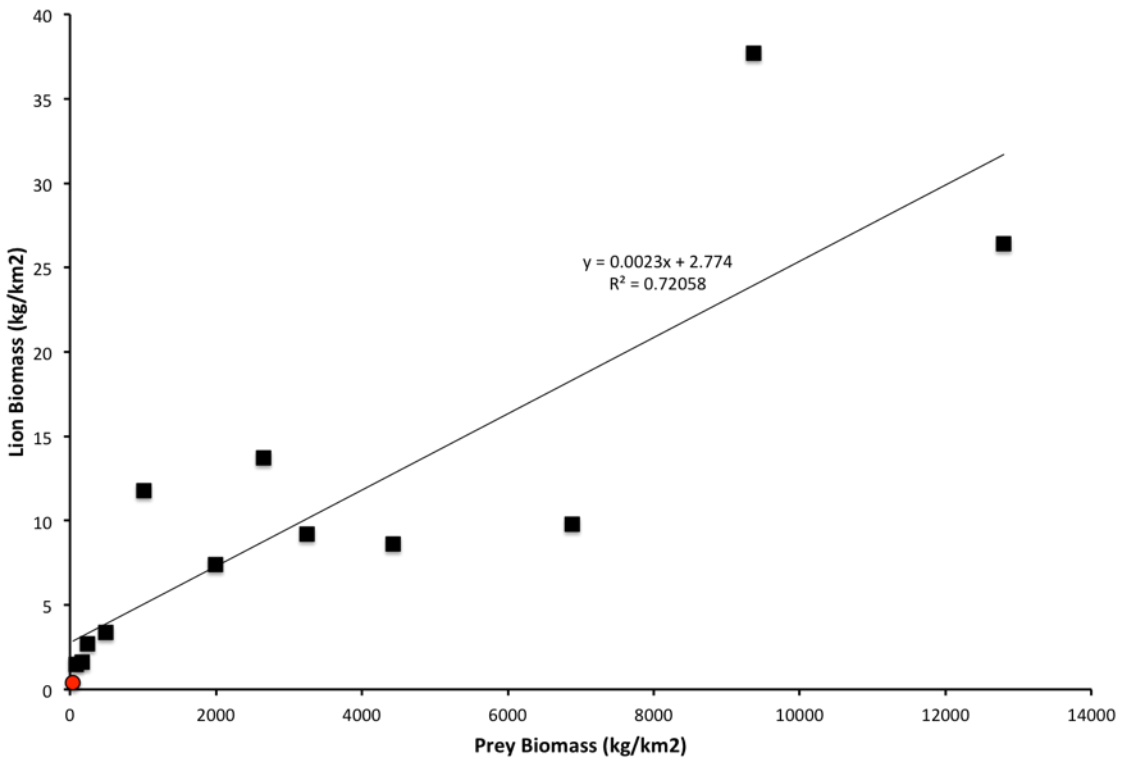
6.5.5 Lion Population Management

Some conservancies and local communities have raised concern that the Desert lion population have increased beyond the expected ecological carrying capacity and that their numbers may need to be reduced.

An analysis of the frequency of Human-Lion Conflict incidents (see Page 22) between conservancies and between years revealed that increased levels of Human-Lion Conflict occur randomly and are generally related to a localised abundance of particularly sub-adult males in one of two prides. The Hoanib Floodplain pride is currently the only pride that do not move into areas used for livestock farming and that are safe from human-related mortalities. The home ranges of all the other prides overlap to some extent with livestock areas (Figure 7).

The density of lions in the Desert population (0.48 – 0.62 / 100 km^{-2}) appears to be in balance with the arid environment and compares favourable with lion population densities in other semi-arid environments, such as Etosha National Park (1.8 – 2.4 / 100 km^{-2}) and Kalagadi Transfrontier Park (1.5 / 100 km^{-2}). Furthermore, to relationship between lion biomass and prey biomass (based on figures from the 2016 Aerial Survey in NW Namibia) compares favourably with similar data from 13 other lion populations in sub-Saharan Africa (Figure 32).

Figure 32. Lion biomass as a function of available prey biomass in 14 conservation areas in sub-Saharan Africa. The Desert lion population is indicated by a red dot.



The genetic heterozygosity of the Desert lion population is sufficiently diverse and similar to that of the Etosha lion population. However, due to the skewed adult sex ratio and shortage of adult pride males there is a need for regular monitoring. The genetic variability and viability of the Desert lion population should be measured at least once every ten years.

6.5.5.1 Trophy Hunting

Trophy hunting of lions can be a very lucrative and selective option for turning a problem into an asset. As with every form of utilisation there is always the fear of exploitation and greediness. Notwithstanding with good scientific data as backup and carefully designed control measures in place the selective use of trophy hunting can be valuable in managing Human-Lion Conflict, removing “problem” lions and generating income towards the “Lion Funds” at conservancy level.

Hunting quotas are generally allocated for each conservancy separately, but in NW Namibia it is, however, essential that sustainable off-take quotas are first calculated for the whole Desert lion population, and then divided between the relevant conservancies. This is necessary because lions move across several conservancies and the home ranges of all the prides overlap extensively.

Quota settings should be based on the CITES standard of 5% off-take and follow the import conditions of the US Fish and Wildlife Service under the Endangered Species Act, that require proof of sustainable and ethical hunting of free-ranging lions where trophy fees are used for the conservation of the species.

In the event of prolonged incidents of Human-Lion Conflict, the Ministry of Environment & Tourism could identify and declare a “problem” lion that can be utilized for trophy hunting. Clear and binding conditions must be stipulated and an MET staff member should accompany the PH to ensure that the actual “problem” lion is shot. On numerous occasions during the past 15 years hunters have misused such hunting permits by ignoring the “problem” lions and selecting unrelated adult male lions. Care must be taken that “problem” lion trophy hunting permits in addition to the allocated annual quotas do not amount to unsustainable off-takes. Due to the current skewed sex ratio in the population – the result, partly, of excessive numbers of adult males shot on quota and “problem” trophy hunting permits – adult male lions (> 4 years of age) may not be trophy hunted.

Funds generated through trophy hunting will provide a much need income to local communities and conservancies. Permit conditions issued by MET must stipulate the proportion of funds to be allocated to the relevant conservancy “Lion Funds” and to the Game Products Trust Fund (GPTF).

6.5.5 Research and Monitoring

In order to manage Human-Lion Conflict in NW Namibia conflict effectively and efficiently it is crucial to have adequate data that is available in a usable form for key decision-makers. There is a need for more comprehensive data that enables the Government and other stakeholders to understand better the nature and scale of the problems, to develop solutions and monitor the success of the solutions. Data gathering needs to be standardized so that results can be compared from area to area and over time. Data needs to be stored in a central database that all stakeholders can have access to.

The specific objectives of this strategy are:

6.5.5.1 To develop a standardized monitoring and reporting system on HLC that captures the most relevant data for use by all stakeholders

6.5.5.2 To monitor and evaluate the effectiveness of different HLC mitigation methods and to disseminate findings to all stakeholders

6.5.5.3 To determine the social and ecological carrying capacity for lions

Strategic approach

Establish National database with the MET that should include historical and current data from existing systems including the MET Permit Office.

Record data from each reported HLC incident capturing:

- Numbers, age and sex structure of lions
- Location of incident

- Date & time when incident occurred
- Damage caused
- Who was affected
- Action taken
- Was any mitigation in place (e.g. were animals in a corral?, etc.)
- Who recorded the data;
- Sex and age structure of the animal
- Any other information which may be appropriate

Provide data on the economic impact of HLC on households – this provides a better indication of the costs to citizens than simply recording the cost of damage as it takes into account the economic status of the household bearing the loss and other factors. For example, the impact of losing five cows to a lion is much higher on a household owning eight cows compared to a household owning 50 cows. Similarly the loss will be greater to a female-headed household with few other assets and little or no cash income.

Provide data on the effectiveness of HLC mitigation methods including type of method, features of the method (e.g. detailed description of the infrastructure, components, ingredients, position in relation to other important features such as other water points, houses, etc), aim of the method, extent to which the method has achieved its aims, reasons for success or failure, length of time over which monitoring has taken place, description of monitoring methodology, provide comparative data to improve our understanding of the factors influencing patterns of HLC, and designed to detect possible duplication of data.

Work with all other stakeholders to develop standardized data gathering and monitoring systems that are simple and cost-effective to implement. Disseminate data in appropriate forms to all stakeholders. Build capacity of stakeholders in collecting, recording and using data and ensure that there is systematic and consistent data recording in terms of level of effort and across temporal, spatial and numerical scales.

Develop various forms of “Early Warning Systems” to provide communities and farmers with sufficient and timely information in order to take appropriate measures to prevent livestock losses. The early warning system should provide information on a daily basis.

MET will coordinate a centrally-based Rapid Response structure which will coordinate with Rapid Response Units deployed in NW Namibia to address incidents of HLC and manage “problem” lions.

All efforts to monitor and manage HLC will be coordinated by MET. The general public, interested parties and individuals may not be involved in any form of HLC management without the written approval of MET and the conservancies.

6.5.6 Human Lion Conflict Insurance Scheme

It has not been Government policy to provide compensation to farmers for losses due to wild animals since compensation schemes implemented elsewhere have proved to be very problematic and open to abuse. However, there is a need to reduce the growing tension around HWC as losses of human lives, livestock, and crops as well as damage to infrastructure are highly emotional issues and affect livelihoods.

The National Policy on Human-Wildlife Conflict Management is addressing new approaches to insurance against HWC that will also cover the Human-Lion Conflict Management Plan for NW Namibia. Income generated from lion-related tourism and hunting in the NW should be applied to balance the losses at grass-route level.

7. IMPLEMENTATION FRAMEWORK

7.4 Monitoring and Evaluation

7.4.1 The impact of the implementation of this Management Plan and progress and constraints regarding its implementation will be periodically assessed by the Ministry of Environment and Tourism in consultation with other stakeholders.

7.4.2 The Event/Incident Book System and the Human-Wildlife Conflict Data form will be used for monitoring and evaluation of HLC.

7.5 Implementation Action Plan

Table 1: Land use planning and livestock management structures

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of livestock & HLC	On-going	Planning aimed at avoiding HLC	General operational funds	Conservancies MET, IRDNC DLCT

Table 2: Aspects of lion demography & behaviour ecology relevant to HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Monitoring of lion population	On-going	Record population demography & ecology	General operational funds	MET, DLCT & IRDNC

Table 3: Developing & implementing appropriate technical solutions for mitigating HLC

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Zoning of conservancies to avoid HLC	Wildlife zones & high-risk areas free of livestock	Implement "High-Risk Lion Corridor"	General operational funds	Conservancies, Traditional authorities, MET

Table 4: Effective Livestock Management & "High-Risk Lion Corridor"

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish protocols for livestock management inside "High-Risk Lion Corridor"	Erect several lion corrals inside "High-Risk Lion Corridor"	Ensure that no livestock, including donkeys, roam freely at night	N$ 250,000	Conservancies, IRDNC & MET

Table 5: *Early Warning Systems and Scare Tactics*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Satellite Early Warning System	Six key lions fitted with satellite collars	Provide early warning movement data to farmers	N$ 150,000	DLCT, MET
Logger Early Warning System	Establish 4 Logger Systems at key locations. Fit RFID collars to 15 key lions.	ID key lion prides & fit collars. Erect Loggers at 4 corrals.	N$ 285,000	DLCT, MET

Table 6: *Rapid Response Units*

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Develop Rapid Response protocol	Establish 4 RRU teams	MET establish central control	N$751,920	MET, IRDNC, DLCT, Conservancies

Table 7: Lion Tourism

Programme Strategy	Five Year Target	Key Actions	Required Funds	Responsible Organizations
Establish "Lion Funds" at conservancy level to manage lion-sighting fees	All major tour operators pay N$ 100 for every lion sighting	Involve tourism industry		TOSCO, Conservancies, MET & IRDNC

8. BIBLIOGRAPHY

8.1 Ministry of Environment and Tourism. 2005. National workshop on human-wildlife conflict management in Namibia. Safari Hotel, Windhoek.

8.2 Nature Conservation Amendment Act of 1996 (Act 5 of 1996).

8.3 Nature Conservation Ordinance of 1975 (Number 4 of 1975).

8.4 The National Policy on Human-Wildlife Conflict Management.

8.5 National Lion Conservation Strategy (Draft).

8.6 Human-Lion Conflict in the Northwest of Namibia. Regional workshop on managing lion conflict. Kamanjab - 11 May 2016.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
International Affairs
5275 Leesburg Pike, MS: IA
Falls Church, VA 22041-3803

October 4, 2017

Ministry of Environment and Tourism
Natural Resources Management
Private Bag 13306
Windhoek, Namibia

Dear Colleagues,

Thank you for sending your Lion Conservation Strategy for Namibia and Human-lion Conflict Management Plan for North West Namibia. As we look over your strategy, we see with great optimism, that many ideas are already at work and more are in the planning stage. This is great news, as we are diligently working to finalize our enhancement finding for your Namibian lion.

As you stated in your email, we realize that other sub-national plans will be forthcoming. If we could have a time-line for those plans that would help us manage the expectations of our hunting community. We also need to have more details so we can complete our finding. There are three areas that are of vital importance to us where we need more detailed information. These include a population breakdown to the area, trophy hunting quotas that would be established, and hunting fees that you would collect. Please see the more specific questions that follow.

To help in the evaluation of these factors, we re-iterated the IUCN Species Survival Commission (SSC) Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives, Ver. 1.0 (IUCN SSC 2012), that provides useful principles, which, considered in conjunction with our permit issuance criteria, will aid us when making the required enhancement finding for importation of sport-hunted trophies. This document sets out guidance from experts in the field on the use of trophy hunting as a tool for ‘‘creating incentives for the conservation of species and their habitats and for the equitable sharing of the benefits of use of natural resources’’ (IUCN SSC 2012, p. 2) and recognizes that recreational hunting, particularly trophy hunting, can contribute to biodiversity conservation and more specifically, the conservation of the hunted species. The SSC document lays out five guiding principles: (a) Biological sustainability: The hunting program cannot contribute to the long-term decline of the hunted species; (b) Net Conservation Benefit: The biologically sustainable hunting program should be based on laws, regulations, and scientifically based quotas, established with local input, that are transparent and periodically reviewed; (c) Socio-Economic-Cultural Benefit: A well-managed

hunting program can serve as a conservation tool when it respects the local cultural values and practices; (d) Adaptive Management: Planning, Monitoring, and Reporting: Hunting can enhance the species when it is based on appropriate resource assessments and monitoring (e.g., population counts, trend data), upon which specific science-based quotas and hunting programs can be established; and (e) Accountable and Effective Governance: A biologically sustainable trophy-hunting program should be subject to a governance structure that clearly allocates management responsibilities.

We are confident that through authorization of the import of the sport-hunted lion, *Panthera melanochaita*, from your country, the United States can assist in the conservation of your African lion. It is our belief that through a scientifically based management program that includes monitoring and hunting controls, that U.S. hunters will enjoy their hunting experiences within your country and provide a significant benefit to African lion conservation. If you have any questions, please feel free to contact me by mail, email, or telephone (Tim_VanNorman@fws.gov; (703) 358-2350).

Sincerely,

Timothy J. Van Norman, Chief
Branch of Permits
Division of Management Authority
U.S. Fish and Wildlife Service

Please help us, help you create a beneficial conservation plan for your country and the conservation of your lion population.
The lion is listed in Appendix II of CITES. As such, the Scientific Authority of the exporting country must make a determination that the export of a sport-hunted trophy will not be detrimental to the survival of the species (Article III, 2(a)). While the finding that the U.S. Fish and Wildlife Service must go beyond the "Non-detriment" standard, it would be very beneficial to our review if you could provide a copy of a recent "Non-detriment" finding made by your Scientific Authority.

Population Status
Can you give us the status of lion population distribution numbers within your entire country? Please give us a break down of the areas that have lion prides. If these factors are taken into consideration while compiling your numbers, it would greatly help us: population trends; sex; age class.

Is your population census done in a standardized fashion? How often are population estimates completed? What is the census methodology?

Hunting Fees
What is the cost, to a foreign hunter, for a hunting license? In your conservation strategy, you write about allocation of these hunting fees to impacted parties. Please give a more specific breakdown. Does a percentage go directly back to lion conservation efforts or into more general wildlife management efforts? If so, what percentage is allocated to each? How does your government utilize this revenue? What is the percentage that will go back to local communities?

Hunting Policies Concerning Quotas
Please describe how the lion hunting program quotas functions within your country. Specifically, do you have an established national/regional hunting quota? How is this quota determined? While we realize that hunting quotas are general allocated for each conservancy separately, how will you track these quotas nationally and how will these quotas be tracked regionally?

The management plan mentions taking problem lions, and how hunters can assist in these situations by the take of the lion and paying a hunting fee. While removing problem lions is a situation that may turn into an income source at the conservancy level, please give details how this program will be enacted describing the distribution of funds across all stakeholder levels.

If hunting areas/concessions allocated to safari outfitters, how are they allocated? What requirements have been established for the concession holders (i.e., mandatory census activities, assistance to local villages, etc.)? Are concessions awarded on an annual basis or for longer periods? If concession areas are centrally controlled by your government (e.g., several outfitters hunt in the same areas and no one outfitter is responsible for overall management), what mechanism is used to monitor and control outfitters activities?

Your management plan suggested that quota setting should be based on CITES standard of 5% off-take and follow the import conditions of the US Fish and Wildlife Service under the Endangered species Act. This off-take will require proof of sustainable and ethical hunting of free-ranging lions where trophy fees are used for the conservation of the species. Please describe the details for the monies to be applied back to the conservation of the species.

The management plan explains that age restrictions have been set to prohibit the taking of male lions greater than four years of age. How will this restriction be implemented?

Can the management plan further explain what format will be used to manage sport hunting (i.e., establishment of national hunting districts under government control, awarding hunting concessions to privately owned operations)?

From:	Gadd, Michelle
To:	Darcy Vargas; Anna Barry; Kathleen Moore; Tim Vannorman; Emma Nelson
Subject:	new 2017 paper: Lions, trophy hunting and beyond: knowledge gaps and why they matter
Date:	Wednesday, August 16, 2017 3:57:13 PM
Attachments:	Macdonald_et_al-2017-Mammal_Review.pdf

Lions, trophy hunting and beyond: knowledge gaps and why they matter
MacDonald et al. 2017
released July 31, 2017
Mammal Review
http://onlinelibrary.wiley.com/doi/10.1111/mam.12096/epdf

ABSTRACT
What does trophy hunting (selective hunting for recreation) contribute to wild lion conservation? Macdonald (Report on Lion Conservation with Particular Respect to the Issue of Trophy Hunting. WildCRU, Oxford, UK, 2016) summarises what we know. We identify unknowns, gaps in the knowledge that inhibit conservation planning, including: the causes of lion mortality, the amount of land used for lion trophy hunting, the extent to which trophy hunting depends on lions for financial viability, and the vulnerability of areas used for hunting to conversion to land not used for wildlife, if trophy hunting ceased. The cost of reversing biodiversity loss exceeds income from tourism, including hunting. New financial models are needed, particularly in view of the expanding human population in Africa.

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PERSPECTIVE

Lions, trophy hunting and beyond: knowledge gaps and why they matter

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ABSTRACT

What does trophy hunting (selective hunting for recreation) contribute to wild lion conservation? Macdonald (Report on Lion Conservation with Particular Respect to the Issue of Trophy Hunting. WildCRU, Oxford, UK, 2016) summarises what we know. We identify unknowns, gaps in the knowledge that inhibit conservation planning, including: the causes of lion mortality, the amount of land used for lion trophy hunting, the extent to which trophy hunting depends on lions for financial viability, and the vulnerability of areas used for hunting to conversion to land not used for wildlife, if trophy hunting ceased. The cost of reversing biodiversity loss exceeds income from tourism, including hunting. New financial models are needed, particularly in view of the expanding human population in Africa.

BACKGROUND

Lions *Panthera leo*, iconic symbols of the African wilderness, are in trouble. The latest International Union for Conservation of Nature (IUCN) estimates suggest a population of 23000–39000 (probably closer to the lower estimate), a decline of at least 43% between 1993 and 2014, approximately three lion generations (Bauer et al. 2015). Lions have been extirpated from at least 92% of their historic range. According to the 2016 IUCN Red List Assessment, in Africa, lions are almost certainly extinct in 15 countries, possibly extinct in another seven, and now occur in only 25 countries (Bauer et al. 2016). Lion decline may be even more severe than estimated by the IUCN (Anonymous 2006a, b) based on well-known populations which tend to be in a better state. Only six populations have more than 1000 lions (Selous-Niassa, Serengeti-Mara, Kavango-Zambezi, Greater Limpopo,

Katavi-Ruaha and Kgalagadi). About half of the remaining wild populations comprise fewer than 100 individuals (Dickman et al. submitted). Lion populations are in crisis, due primarily to the loss and degradation of habitat, loss of prey, and conflict with people (Anonymous 2016a), pressures exacerbated when they are small, isolated, and poorly managed (Anonymous 2006a, b, Henschel et al. 2014).

Public interest in lion conservation was stimulated in July 2015 with the killing of a well-known lion nicknamed 'Cecil' (Macdonald et al. 2016a). Fierce debate has since raged over whether trophy hunting is good or bad for lion conservation. To be clear, trophy hunting 'generally involves the payment of a fee by a foreign or local hunter for a hunting experience, usually guided, for one or more individuals of a particular species with specific desired characteristics (such as large size or antlers). The trophy is usually retained by the hunter and taken home' (Anonymous 2016a).

This debate would be informed by identifying the conditions where trophy hunting contributes to lion conservation, if indeed such conditions prevail anywhere. Whether trophy hunting lions is ethically acceptable is a distinct debate, which we enlarge on below. Some hold trophy hunting in such moral repugnance that any benefit to conservation is insufficient to justify it. This view may come to prevail, and perhaps a majority of the Western public already holds it (although the balance of opinion probably varies from place to place, notably between the West and lion range countries). Until the part played by trophy hunting is known and, as necessary, alternative means of financing lion conservation are in place, we have defended a more utilitarian population-based perspective, arguing that the cost of implementing such a moral imperative may be too high if no better alternative for lion conservation is available (Macdonald et al. 2016b). We support the cessation of trophy hunting where it is clearly inimical to conservation, and its reform where it is better for conservation than any viable alternative land use. While lion hunting exists, it should, at least, be sustainable. An account of the evidence base for assessing its sustainability is presented by Macdonald (2016). In compiling that evidence base, we were, however, thwarted by a surprising lack of information on several important issues. In the much, but perhaps unfairly, mocked words of the former US politician Donald Rumsfeld, there are knowns, known unknowns, and unknown unknowns.

We identified a conspicuous knowledge gap concerning the causes of lion mortality. At both national and regional scales, trophy hunting of wild lions has been ranked relatively low as a threat (Anonymous 2006a, b; we do not consider 'canned' hunting, in which captive-bred lions are hunted, as it has little relevance to wild lion conservation). However, there is evidence that over-hunting has reduced lion numbers at national scales – such an effect was particularly clear in Tanzania (Packer et al. 2011). In unfenced reserves, large-scale population growth rates are lower in the presence of trophy hunting (Packer et al. 2013). It is also clear that badly regulated hunting can be locally damaging (Caro et al. 2009, Packer 2015, Creel et al. 2016).

Trophy hunting is not the only reason lions are killed. How the number of lions killed by trophy hunting compares with those killed by snaring or human-lion conflict is known only for a few localities (e.g. Loveridge et al. (2016), and conventional ecological methods for estimating mortality have been found to underestimate rates of illegal killings, such as poaching, relative to legal killings, for example trophy hunting (Treves et al. 2017). Mortality due to conflict with local people may be orders of magnitude greater than that due to international trophy hunters: in Tanzania's Ruaha landscape, at least 37 lions were killed in 2011 due to conflict, in an area of less than 500 km^2, making the offtake over 100 times higher than the recommended maximum offtake for a trophy hunting area (Dickman in prep.). Recently, concern over lions being poisoned as an incidental outcome of attempts to disguise elephant poaching has gained prominence (Sandhu 2016). There are other places (e.g. Hwange; Loveridge et al. 2016) where trophy hunting is the main cause of mortality for adult male lions. However, in many places the balance of these factors remains unknown, although it is suspected that throughout Africa many more lions die due to conflict than are killed by trophy hunters (Anonymous 2016a).

Where trophy hunting occurs, its mortality is probably additive. It can also lead to a cascade of indirect mortality through social perturbation (the perturbation effects of other sources of mortality have not been studied). But even where other sources of mortality predominate, it is theoretically possible for a small amount of additive mortality to tip the balance from a scenario where a population is stable or increasing to one where the population growth rate is negative. Creel et al. (2016) concluded that for trophy hunting to be sustainable under the conditions that most lions experience, total mortality needs to be reduced. Where other sources of mortality dominate, tackling them is likely to be the priority. It is clear that there will be many places where focussing on a single threat to lions, whether trophy hunting or any other cause, will be inadequate for effective conservation. A holistic approach, considering all the threats and their interconnections, is most likely to succeed.

As with photo-tourism, trophy hunting can protect wildlife by providing an economic reason for land being maintained under a wildlife-based land use. Income

from trophy hunting can be significant for government bodies responsible for managing wildlife – the Wildlife Division in Tanzania, for example makes 60% of its income from trophy hunting licence fees (Estes 2015). Major unknowns therefore include the likely, but inconclusively demonstrated, positive roles of trophy hunting in creating economic incentives for wildlife-based land use, whether on private, state or communal land. It may also provide an anti-poaching presence in wildlife areas, together with general management such as maintenance of boreholes. How widely land managed for hunting is well managed for non-hunted species is also poorly understood.

The continued availability of land for lions is clearly crucial for their conservation. Our review of the evidence led to the conclusion that trophy hunting's greatest contribution to lion (and wider) conservation lay in providing an incentive to retain wildlife habitat that might otherwise be lost to agriculture or pastoralism (Macdonald 2016). It is vital, therefore, to know how much lion habitat there is, where it is, how many lions it supports and how it is managed. Large areas of wilderness are used for lion hunting, but there are few recent estimates of precisely how much. Lindsey et al. (2013) estimated that lions were hunted in around 558000 km^2, which comprised 27–32% of the lion range in countries where they were hunted. There have been no published updates since Botswana banned lion hunting in 2008 (and all hunting in public areas in 2014), or since Zambia imposed a lion hunting moratorium between 2013 and 2016. Also, since Lindsey et al.'s estimate, human encroachment has caused losses of hunting land: Packer (2015) estimates that 40% of hunting blocks in Tanzania have been abandoned in the last decade. Hunting blocks elsewhere have also been abandoned after becoming depleted and unviable (Lindsey et al. 2016). If not used for hunting, a lot of that land would be likely to be lost to wildlife, by for example being converted to agriculture or livestock grazing. In some areas, where economic forces did not prompt conversion, lions and their prey might recover when hunting stopped, leading to restoration of hunting at some point.

We make two interim conclusions: first, trophy hunting should be strictly regulated to ensure that it does contribute to lion conservation, including by the maintenance of habitat (Macdonald 2016 makes clear how this can be achieved). Second, where lion hunting is disallowed by national law or rendered financially unviable (by import bans for example), alternatives must be found to ensure that its contribution to habitat preservation is replaced – this is the difficult bit, and the one worst bedeviled by unknowns. The substituted institutions will need to effect more than habitat protection, by preventing poaching, for example. It is crucial to distinguish between scenarios where trophy hunting of lions alone is stopped and those where there is a general cessation of trophy hunting. Many hunting areas may not be financially dependent on lions, but a further unknown is whether a cessation of lion hunting would be followed by extended restrictions on the hunting of other charismatic and threatened species. Lindsey et al. (2017) demonstrate that, with or without hunting, many areas have insufficient funds for effective management.

HOW HUNTING AFFECTS LION POPULATIONS

An understanding of the mechanisms whereby trophy hunting affects lion populations requires monitoring, and knowledge not just of population size, but also of the density of individuals eligible for hunting. Appropriate methodologies are available (e.g. Funston et al. 2010, Broekhuis & Gopalaswamy 2016, Elliot & Gopalaswamy 2016). Macdonald (2016) shows how an adaptive management system can ensure that departures from sustainable offtakes can be rectified. Thus, while there is scope for refining methods of counting carnivores (Gopalaswamy et al. 2015), useful methods exist – the dangerous unknown is ignorance of the numbers of lions, largely due to the practicalities of who is going to pay for such monitoring.

In principle, calculating the mortality lion populations can withstand, from trophy hunting or any other source, is straightforward. There are area-based and density-based harvesting models of sustainable offtake. These could be refined to account for intra-specific variation in lion density, and other threats. For example the figure recommended by Packer et al. (2011) for offtake of 0.5 lions per 1000 km^2, while intended to be precautionary, does not account for variation in lion population density. Furthermore, it would be useful to quantify the interactions between mortality factors (e.g. trophy hunting, snaring, and conflict) some of which (e.g. snaring) are non-specific. Perturbation effects (Tuyttens & Macdonald 2000) on lion demography resulting from trophy hunting are well documented (Loveridge et al. 2007), and there is evidence that such effects exacerbate human-lion conflict (Loveridge et al. in prep).

WHAT WOULD HAPPEN TO LION POPULATIONS IF THEY WERE NO LONGER HUNTED FOR TROPHIES?

It is difficult to predict what would happen to hunted lion populations if hunting was stopped. Would photo-tourism substitute, or some other regime that was not wildlife-friendly? Hunting may, in general, be less beneficial

than photo-tourism for lion populations, but may nonetheless be better than nothing (Lindsey et al. 2017). There are crucial unknowns from the viewpoints of both land managers and governments. These include the extent to which photo-tourism (itself vulnerable to insecurity and global economic forces), or other non-consumptive uses can substitute for trophy hunting, and crucially, how lion populations would fare following conversion. How much current trophy hunting land is suitable for conversion to photo-tourism is uncertain. Lindsey et al. (2006) argue that certainly not all of it is, and question whether there is sufficient demand to supply visitors to these areas.

Under what conditions is trophy hunting land converted to less wildlife-friendly uses such as agriculture, settlement, mining, or pastoralism? The regulation and enforcement of land ownership and land-use zoning are likely to be influential. The key unknown here is how important lions are for the profitability of trophy hunting operations relative to their value under different land uses. It is also important to whom the different values of lions accrue under different land-use systems. Progress is hampered by inadequate political, legal, and governance instruments, such that local people have no incentive to value wildlife (Muposhi et al. 2016).

Amongst the most serious unknowns, then, are the extents to which trophy hunting (and photo-tourism) does or could provide sufficient financial incentive to retain land under wildlife-based uses and under alternative uses, and what factors influence this (and how the answers are likely to change in the rapidly changing socio-economic landscape of Africa and beyond). From the viewpoint of governments, the associated expenditure and value-added estimates of the economic contribution of trophy hunting and the alternative land-uses should be compared, not just the economic revenue directly attributable to each activity, which is most commonly the practice in both the academic literature and advocacy documents. Questions of land-use transitions will also be affected by unknowns such as the likely sequence in which measures against lion hunting would be extended to other species, most obviously elephants *Loxodonta africana* to whom, *de facto*, it has already extended through the ban of imports in important consumer countries, whereas the process of uplisting leopards *Panthera pardus* already began under the Endangered Species Act of the USA (Anonymous 2016a, b).

In 2012, before the restrictions on elephant hunting and reduced lion quotas, Lindsey et al. (2012) made a tentative prediction that a lion hunting ban would make trophy hunting financially unviable in substantial areas of the lion's geographic range, with potential wider negative impacts. Banning the hunting of species like leopards would be likely to reduce viability in a wider area. Those authors did not account for the cost of conservation in their perspective on sustainability. Questions about the proportion of park and wildlife management budgets provided by trophy hunting operators are generally unanswered (and might usefully be posed of photo-tourist operators too). Most National Parks in Africa would not be financially viable without support from government, which often comes at least in part from hunting revenues. It would also be helpful to know how important trophy hunting is for the financial viability of wildlife authorities. Considering that in most African countries conservation is underfunded (Lindsey et al. 2017), it would be useful to know more about the comparative economics of trophy hunting and photo-tourism.

A linked unknown is how lions would be tolerated if they could not be hunted, but land was managed for other wildlife uses, such as trophy hunting of their prey. Lions could then impose a substantial cost – it has been said that 'game farming is incompatible with predators' (Schneider 1990). The fate of lion populations, even under non-consumptive land uses, is also uncertain, although insights may soon be gleaned from Botswana where hunting was banned in 2015 (Macdonald 2016); there may also be lessons, although certainly not simple cause and effect, to be gleaned from Kenya, where trophy hunting was banned in 1977 and where wildlife numbers declined on average by 68% between 1977 and 2016, alongside increases in human and livestock numbers that further confound simple interpretations (Macdonald 2016, Ogutu et al. 2016). Banning trophy hunting does not necessarily lead to less killing of lions: Richard Leakey observes that: 'Carnivores are being decimated… hunting has never been stopped in Kenya, and there is more hunting in Kenya today than at any time since independence. (Thousands) of animals are being killed annually with no control…' (Martin 2015).

Of 38 lion populations in non-hunting areas examined for the latest IUCN Red List assessment, 58% were declining, whereas of the seven populations examined in hunting areas, potentially self-selecting and mainly fenced, one (14%) was declining (Bauer et al. 2015). Comparing trends is not straightforward. For example, hunted populations are likely to be depleted already, whereas well-protected populations are generally closer to carrying capacity and are therefore more likely to decline if protection wavers.

THE CURRENT STATUS OF TROPHY HUNTING

It is clear that evaluating how trophy hunting contributes to lion conservation is compromised by lack of data. Here, we turn to the current state of lion trophy hunting.

Macdonald (2016) sets out criteria under which lion hunting could be deemed sustainable. How many hunted populations meet these criteria is unknown, as are the conditions where trophy hunting is a conservation tool. Although we know which populations are currently hunted, we do not know how many of these depend on lion hunting for their viability (the only estimate, from 2012 and before heavy quota reductions in Tanzania and several other countries, is about 11%; Lindsey et al. 2012). Indeed, for many management units, how many lions are hunted annually is unknown. Monitoring of both populations and hunting offtake is often poor; Macdonald (2016) concludes that under these circumstances, precaution demands the use of conservative age-based and area-based criteria when allocating quotas.

Amongst the knowledge gaps that impair a comprehensive analysis of lion trophy hunting is the inadequacy of statistics on exports. Improving the collection and organisation of data by the Convention on International Trade in Endangered Species of Wild Fauna and Flora was amongst several recommendations made by Macdonald (2016). Others included a move to open auctions for concession leases and to longer leases to discourage short-termist mining of the natural resources (Brink et al. 2016).

ETHICS AND HINDSIGHT

Thus far we have focused on empirical data. However, the evidence of these disciplines will be judged within a wider set of societal ethics. There is no consensus, even among conservationists, that a utilitarian perspective on trophy hunting is the right one. Even the concept of 'sustainability', used above as a criterion of good management, would be viewed by some as ethically questionable when applied to lion hunting (or to any killing of animals for 'sport'). Also, we are mindful that while emotional responses affect moral judgements (Nelson et al. 2016), policies based principally on emotion could have perverse consequences. Where an intention to improve lion conservation worsens it, perhaps even those implacably opposed to lion hunting on ethical grounds might favour a 'journey' towards its cessation rather than a 'jump'. As Macdonald (2016) concluded 'if society judged trophy hunting lions unacceptable, but also concluded that it benefited lion conservation, then this dilemma might be approached via a journey to find ways of replacing the benefits of hunting before jumping to end them'.

The day may not be far off, if it is not here already, when much of society (at least outside lion range countries) regards lion hunting as being as unacceptable as, for example bear baiting or child labour (Macdonald et al. 2016a). However, views widely held in the wealthy West are often at odds with views within lion range countries, where lions often impose severe costs (including man-eating) on the people who live alongside them. Who has the right to make decisions about trophy hunting? How should the weight of opinions held on lion hunting in countries without lions, such as the USA (which has a thriving domestic hunting market), be ranked against the opinions held in African countries where lions occur (and where the financial consequences of a cessation of trophy hunting might bite hardest)? These are all difficult issues. It is clear, though, that if lion hunters aspire to be tolerated, they must demonstrate radical reform (and that may not be enough). It is also clear that those who seek to eliminate trophy hunting have either to acknowledge that the possible subsequent loss of lions is a cost they are prepared to pay, or to demonstrate an economically valid alternative wildlife-based land use.

CONCLUSION

Trophy hunting, like almost everything else affecting conservation, is a moving target (and moving, like all aspects of African conservation, heavily at the mercy of external factors). Having reviewed what we know about lion trophy hunting (Macdonald 2016), we thought it helpful to highlight the unknowns here and why they matter. Our understanding of trophy hunting's potential global significance for the species is compromised by not knowing over how much of the species' range it occurs. Where trophy hunting does occur, the implications for lion conservation of any change to the current system vary from place to place. Where lion trophy hunting is run with sustainable quotas, and where no viable wildlife-friendly alternative exists, its removal seems likely to be negative for lion conservation. But there are extensive areas where the implications of the removal of trophy hunting for lion conservation are uncertain, because we do not know the answer to questions like how much the industry's viability depends on lions, or if lions could persist after an alternative land use was substituted.

Unknown threats to lions will surely change. The next clutch will be spawned by changing societal, global economic, demographic, and environmental factors. Trophy hunting, and the prudence of relying on tourism to support conservation in Africa, might be considered minor issues compared to the others jeopardising biodiversity. The money needed to reverse biodiversity loss dwarfs that likely to flow from any variant of tourism, including hunting, so new financial models to encourage coexistence with nature must be found. Dickman et al. (2011) speculate that mechanisms for converting global value to local benefits provide one promising option. Beyond that, we cannot predict how emerging markets and economies such as Russia and China will influence the status quo. The most

perilous unknowns of all include the consequences of an estimated tripling by the year 2100 of the human population of Africa. Whatever plan is put in place for the conservation of lions and the rest of Africa's wildlife, it must accommodate the reality of nature living alongside two billion people.

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REFERENCES

Anonymous (2006a) *Conservation strategy for the lion in West and Central Africa*. IUCN, Gland, Switzerland.

Anonymous (2006b) *Regional Conservation Strategy for the lion Panthera leo in Eastern and Southern Africa*. IUCN, Gland, Switzerland.

Anonymous (2016a) *Beyond Cecil: Africa's Lions in Crisis*. Panthera, WildAid, WildCRU, New York, USA.

Anonymous (2016b) Endangered and Threatened Wildlife and Plants; 90-Day Findings on Three Petitions. https://www.federalregister.gov/documents/2016/11/30/2016-28513/endangered-and-threatened-wildlife-and-plants-90-day-findings-on-three-petitions

Bauer H, Chapron G, Nowell K, Henschel P, Funston P, Hunter LTB, Macdonald DW, Packer C (2015) Lion (*Panthera leo*) populations are declining repidly across Africa, except in intensively managed areas. *Proceedings of the National Academy of Sciences of the United States of America* 112: 14894–14899. https://doi.org/10.1073/pnas.1500664112.

Bauer H, Packer C, Funston PF, Henshel P, Nowell K (2016) Panthera leo. The IUCN Red List of Threatened Species.

Brink H, Smith RJ, Skinner K, Leader-Williams N (2016) Sustainability and long term-tenure: lion trophy hunting in Tanzania. *PLoS ONE* 11: https://doi.org/ARTN e0162610 10.1371/journal.pone.0162610.

Broekhuis F, Gopalaswamy AM (2016) Counting cats: spatially explicit population estimates of cheetah (*Acinonyx jubatus*) using unstructured sampling data. *PLoS ONE* 11: e0153875. https://doi.org/10.1371/journal.pone.0153875.

Caro TM, Young CR, Cauldwell AE, Brown DDE (2009) Animal breeding systems and big game hunting: models and application. *Biological Conservation* 142: 909–929.

Creel S, M'soka J, Droge E, Rosenblatt E, Becker MS, Matandiko W, Simpamba T (2016) Assessing the sustainability of African lion trophy hunting, with recommendations for policy. *Ecological Applications* 26: 2347–2357.

Dickman AJ, Macdonald EA, Macdonald DW (2011) A review of financial instruments to pay for predator conservation and encourage human-carnivore coexistence. *Proceedings of the National Academy of Sciences of the United States of America* 108: 13937–13944. https://doi.org/10.1073/pnas.1012972108.

Dickman AJ, Riggio J, Jacobsen K, Loveridge AJ, Burnham D, Bauer H et al. (submitted) Determining the ecological and socio-political fragility of free-ranging African lion populations.

Elliot N, Gopalaswamy AM (2016) Towards accurate and precise estimates of lion density. *Conservation Biology* 31: 934–943.

Estes R (2015) Hunting helps conserve African wildlife habitat. *African Indaba* 13: http://www.africanindaba.com/2015/09/hunting-helps-conserve-african-wildlife-habitat-september-2015-volume-13-4/

Funston PJ, Frank L, Stephens T, Davidson Z, Loveridge A, Macdonald DM, Durant S, Packer C, Mosser A, Ferreira SM (2010) Substrate and species constraints on the use of track incidences to estimate African large carnivore abundance. *Journal of Zoology* 281: 56–65. https://doi.org/10.1111/j.1469-7998.2009.00682.x.

Gopalaswamy AM, Mohan D, Karanth KU, Kumar NS, Macdonald DW (2015) An examination of index-calibration experiments: counting tigers at macroecological scales. *Methods in Ecology and Evolution* 6: 1055–1066. https://doi.org/10.1111/2041-210X.12351.

Henschel P, Coad L, Burton C, Chataigner B, Dunn A, Macdonald DW, Saidu Y, Hunter LTB (2014) The lion in West Africa is Critically Endangered. *PLoS ONE* 9: e83500.

Lindsey PA, Alexander R, Frank LG, Mathieson A, Romanach SS (2006) Potential of trophy hunting to create incentives for wildlife conservation in Africa where alternative wildlife-based land uses may not be viable. *Animal Conservation* 9: 283–291. https://doi.org/10.1111/j.1469-1795.2006.00034.x.

Lindsey PA, Balme GA, Booth VR, Midlane N (2012) The significance of African lions for the financial viability of trophy hunting and the maintenance of wild land. *PLoS ONE* 7: e29332. https://doi.org/10.1371/journal.pone.0029332.

Lindsey PA, Balme GA, Funston P, Henschel P, Hunter L, Madzikanda H, Midlane N, Nyirenda V. (2013) The trophy hunting of African lions: scale, current management practices and factors undermining sustainability. *PLoS ONE* 8: e73808. https://doi.org/10.1371/journal.pone.0073808.

Lindsey PA, Balme GA, Funston PJ, Henschel PH, Hunter LTB (2016) Life after Cecil: channelling global outrage into funding for conservation in Africa. *Conservation Letters* 9: 296–301. https://doi.org/10.1111/conl.12224.

Lindsey PA, Petracca LS, Funston PJ, Bauer H, Dickman A, Everatt K et al. (2017) The performance of African protected areas for lions and their prey. *Biological Conservation* 209: 137–149. https://doi.org/doi: 10.1016/j.biocon.2017.01.011.

Loveridge AJ, Searle AW, Murindagomo F, Macdonald DW (2007) The impact of sport-hunting on the population dynamics of an African lion population in a protected area. *Biological Conservation* 134: 548–558.

Loveridge AJ, Valeix M, Chapron G, Davidson Z, Mtare G, Macdonald DW (2016) Conservation of large predator populations: demographic and spatial responses of African lions to the intensity of trophy hunting. *Biological Conservation* 204(Part B): 247–254. https://doi.org/10.1016/j.biocon.2016.10.024

Loveridge AJ, Calderon-Quiñónez AP, Macdonald DW, (in prep) Effect of anthropogenic male mortality on social and territorial stability of lions (Panthera leo).

Macdonald DW (2016) *Report on Lion Conservation with Particular Respect to the Issue of Trophy Hunting*. WildCRU, Oxford, UK. https://www.wildcru.org/wp-content/uploads/2016/12/Report_on_lion_conservation.pdf

Macdonald DW, Jacobsen KS, Burnham D, Johnson PJ, Loveridge AJ (2016a) Cecil: a moment or a movement? Analysis of media coverage of the death of a lion, *Panthera leo*. *Animals* 6: https://doi.org/10.3390/ani6050026.

Macdonald DW, Johnson PJ, Loveridge AJ, Burnham D, Dickman AJ (2016b) Conservation or the moral high ground: siding with Bentham or Kant. *Conservation Letters* 9: 307–308. https://doi.org/10.1111/conl.12254.

Martin G (2015) *Lionizing Cecil Makes us Feel Good, but a Trophy Hunting Ban will Accelerate Slaughter*. UC Berkeley, Berkeley, California, USA.

Muposhi VK, Gandiwa E, Bartels P, Makuza SM (2016) Trophy hunting, conservation and rural development in Zimbabwe: issues, options and implications. *International Journal of Biodiversity* 2016: 1–16. https://doi.org/10.1155/2016/8763980.

Nelson MP, Bruskotter JT, Vucetich JA, Chapron G (2016) Emotions and the ethics of consequence in conservation decisions: lessons from Cecil the lion. *Conservation Letters* 9: 302–306. https://doi.org/10.1111/conl.12232.

Ogutu JO, Piepho HP, Said MY, Ojwang GO, Njino LW, Kifugo SC, Wargute PW (2016) Extreme wildlife declines and concurrent increase in livestock numbers in Kenya: what are the causes? *PLoS ONE* 11: e0163249. https://doi.org/10.1371/journal.pone.0163249.

Packer C (2015) *Lions in the Balance: Man-eaters, Manes, and Men with Guns*. Chicago University Press, Chicago and New York, USA.

Packer C, Brink H, Kissui BM, Maliti H, Kushnir H, Caro T (2011) Effects of trophy hunting on lion and leopard populations in Tanzania. *Conservation Biology* 25: 142–153. https://doi.org/10.1111/j.1523-1739.2010.01576.x.

Packer C, Loveridge A, Canney S, Caro T, Garnett ST, Pfeifer M et al. (2013) Conserving large carnivores: dollars and fence. *Ecology Letters* 16: 635–641. https://doi.org/10.1111/ele.12091.

Sandhu S (2016) *Elephant Poisoned by Poachers in Kruger National Park Leads to Death of 110 Vultures*. The Independent, London, UK.

Schneider R (1990) Concerns about game ranching. *Canadian Veterinary Journal-Revue Veterinaire Canadienne* 31: 479–480.

Treves A, Artelle KA, Darimont CT, Parsons DR (2017) Mismeasured mortality: correcting estimates of wolf poaching in the United States. *Journal of Mammology*. https://doi.org/10.1093/jmammal/gyx052

Tuyttens FAM, Macdonald DW (2000) Consequences of social perturbation for wildlife management and conservation. In: Gosling LM & Sutherland WJ (eds) *Behaviour and Conservation* 315–329. Cambridge University Press, Cambridge, UK.