Form 3-200-20

OMB Control No. 1018-0093
Expires 08/31/2020

RCVD MAR 2 2021

Department of Interior
U.S. Fish and Wildlife Service

Federal Fish and Wildlife Permit Application Form

U.S. Fish and Wildlife Service
Division of Management Authority
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
1-800-358-2104 or 703-358-2104

Type of Activity

IMPORT OF SPORT-HUNTED TROPHIES under Appendix I of the Convention on International Trade in Endangered Species (CITES) and/or U.S. Endangered Species Act (ESA)

Complete Sections A or B, and C, D, and E of this application. U.S. address may be required in Section C, see instructions for details.
Instructions on how to make your application complete and help avoid unnecessary delays are attached.

Section A: Complete if applying as an individual

1.a. Last Name	1.b. First Name	1.c. Middle Name/Initial	1.d. Suffix
FETTERS	STEVEN	ALAN	

2. Date of Birth (mm/dd/yyyy)	3. Telephone Number	3.a. Alternate Telephone Number	4. E-mail address
(b) (6)			

Section B: Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution

1.a. Name of business, agency, Tribe, or institution		1.b. Doing business as (DBA)	
2. Tax identification no.		3. Description of business, agency, Tribe, or institution	
4.a. Principal officer Last name	4.b. Principal officer First Name	4.c. Principal officer Middle name/initial	4.d. Suffix
5. Principal officer title	6. Primary contact name		
7.a. Business telephone number	7.b. Alternate telephone number	7.c. Business fax number	7.d. Business e-mail address

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)
(b) (6)

1.b. City	1.c. State	1.d. Zip code/Postal code	1.e. County/Province	1.f. Country
SAINT JOE	INDIANA	46785	DEKALB	USA

2.a. Mailing address (include if different than physical address; include name of contact person if applicable)
(b) (6)

2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f.Country
SAINT JOE	INDIANA	46785	DEKALB	USA

Section D: All applicants MUST complete

1. Attach the **nonrefundable application processing fee** in the form of a check or money order payable to the U.S. FISH AND WILDLIFE SERVICE **in the amount of $100**. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee--attach documentation of fee exempt status as outlined in instructions [50 CFR 13.11(d)].

2. Certification: I hereby certify that I have read and am familiar with the regulations contained in ***Title 50 Part 13 of the Code of Federal Regulations*** and the other ***applicable parts in subchapter B of Chapter I of Title 50***, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

Signature of applicant/Principal Officer for permit (No photocopied or stamped signatures) Date of signature (mm/dd/yyyy)

(b) (6) 02/23/2021

ease continue to next page

OMB Control No. 1018-0093
Expires 08/31/2020

E. IMPORT OF SPORT-HUNTED TROPHIES *(Appendix I of CITES and/or ESA)*

Note 1: This form should be used to request authorization to import trophies of species listed on Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND SOUTHERN WHITE RHINOCEROS TROPHIES TAKEN IN NAMIBIA.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

Please provide the following information. Complete all questions on the application. Mark questions that are not applicable with "N/A". If needed, use a separate sheet of paper. On all attachments or separate sheets you are submitting; please indicate the application question number you are addressing. If applying for more than one trophy, be sure to answer questions 1-6 for each trophy addressed in this application. If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

   a. Scientific name (genus, species, and, if applicable, subspecies) and common name.
   PANTHERA LEO LION

   b. Sex (if known). MALE

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

   b. Date wildlife is to be hunted:

   c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

6. IF THE TROPHY HAS ALREADY BEEN TAKEN, please enter the following:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:
   WEGDRAAL FARM 1, VRYBURG, NORTH WEST, SOUTH AFRICA

   b. Date wildlife was hunted: 05/26/2019

c. Name of hunting outfitter, safari company, or professional hunter you hunted with:
JACOSBUS CORNELIUS VISAGIE, PH NUMBER NW7211/12/2018
BOSS SAFARIS

d. The current location of the trophy (address and country) [the U.S. import permit will identify this country as the country of export/re-export and must match with the export/re-export document]:
SPLITTING IMAGE TAXIDERMY, P.O. BOX 27582, GREENACRES
PORT ELIZABETH, 6057, SOUTH AFRICA

7. Please provide a copy of any applicable foreign government permits or licenses that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so). ATTACHED

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from Namibia, you must provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name: KELLY HOWITZ
Business Name: SPLITTING IMAGE TAXIDERMY
Address: THE BADGER BUILDING, 14 UITENHAGE ROAD
City: SYDENHAM, PORT ELIZABETH
State/Province: EASTERN CAPE
Country, Postal Code: SOUTH AFRICA 6001

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or hunted when making the required findings, if you have any information that could support this finding, it would be helpful to our review if you could provide it. Please submit such information on a separate page with your application.

a. Do you have any information regarding the population status or trend data on the species hunted?

b. In order to hunt, you likely paid for licenses or trophy fees. What were those fees and do you have any information on how those funds were used by either the landowner, community, or government?

c. Do you have information on other funding activities that are being carried out, or were carried out, by the safari outfitter, professional hunter, concession holder, or land owner that provide a conservation benefit to the species being hunted/species hunted

CERTIFICATION STATEMENT (original signature must be provided for either 10 or 11 below)

10. If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national, provide documentation to show you have a Power of Attorney to act on your client's behalf and sign the following statement.

I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

Taxidermist/Broker's signature: _____ Date: _____

11. If you are the hunter applying to import your own trophy, please read and sign the following statement.

I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying to import a leopard trophy, I understand that I may only import two leopard trophies in one calendar year.

Applicant's signature: (b) (6) _____ Date: 02-23-2021

Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

12. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

SOUTH AFRICAN PROFESSIONAL HUNTING REGISTER AND TROPHY EXPORT APPLICATION

No: 69038

Professional Hunters' Association of South Africa

Duration of Hunt: Commenced 23 / 05 / 2019 Terminated 26 / 05 / 2019

Tick appropriate Province block where hunt took place (separate sheet for each province)

KwaZulu-Natal (KZN)	Free State (FS)	Gauteng (GP)	Limpopo Province (LP)	North West (NW)	Mpumalanga (MPA)	Western Cape (WC)	Eastern Cape (EC)	Northern Cape (NC)
				X				

Post Permit to (Mark correct block with X)

PROFESSIONAL HUNTER

Name: JC Visagie
Business Address: Wegdraai Deel 1
Gemsbokvlakte
Code: 8621
ID No: 651221 570 8083
PH Permit No: NW 7211/12/2018
Date: 26/05/2019 Signature:

CLIENT

Name: Steven Allan Fetzers
Permanent Postal Address: (b) (6)
SAINT JOE, INDIANA Code: 46785
Country: USA
Passport No: (b) (6)
Email: (b) (6)
Date: 25/04/19 Signature: (b) (6)

HUNTING OUTFITTER

Name: JC Visagie
Business Address: Wegdraai Deel 1
Gemsbokvlakte Code: 8621
I.D. No: 651221 570 8083
Tel No: 083 308 4847 Fax No:
HO Permit No: NW 7116/12/2018
Date: 26/05/19 Signature:

Farm Name Registration No	Magisterial District	Name & Residential Address of Land Owner	Hunting Permit Certificate/Licence No.	Date Killed/ Wounded	Species Killed or Wounded	No. Killed or Wounded	Sex F	Sex M	Parts of Trophy to be Exported
Geelhout Safaris 10213	Vryburg	Wegdraai Deel 1 Piet Plessis NW	9459/04/2019	24/05	LION	1		X	Full mount

Address to which trophies are to be sent: SPLITTING IMAGE TAXIDERMY
Code: Country: RSA Trophy Export Date (Estimate):

Conservation Levy
Total:

Copies: Client Original White
1st Copy Pink
Hunting Outfitter 2nd Copy Blue
Taxidermist 3rd Copy Green
Professional Hunter Last Copy Yellow

Forward to Nature Conservation Authority where hunt took place
Retain for a period of three years
Taxidermist
Remains in book

NB Voluntary conservation contributions for every trophy taken would be appreciated. These funds go towards wildlife conservation, the upliftment of communities, research projects and many more.

MCPO 00533/11/2018 NW 7116/12/2018 Application ID 7116

Issued in terms of the provisions of:
The National Environmental Management Biodiversity Act, Act 10 of 2004 as amended

Biodiversity North West Integrated Permit Ordinary

Hunting Contractor / Outfitter

North West Province

Issued in terms of the provisions of:
(1) Bophuthatswana Nature Conservation Act, Act No.3 of 1973; (2) Transvaal Nature Conservation Ordinance, No.12 of 1983; (3) Cape Nature and Environmental Conservation Ordinance, 19 of 1974.

APPROVED SPECIES AND NUMBERS, RESTRICTED ACTIVITIES AND CONDITIONS AS PER ADDENDUM AND PAGES ATTACHED

PERMIT HOLDER

Details

Surname:	Visagie
Full Name:	Jacobus Cornelius
Id Number:	6512215108083
Passport:	
Cell Home:	0833084847
Tel Home:	053 0500 147
Tel Work:	
Fax Home:	
Email:	jacusvisagie@gmail.com

Physical Address

Building:	1 Geelhout Safaris
Street:	205 Farm Wegdraai
Suburb:	Piet Plessis
Town:	PIET PLESSIS
Area Code:	8621
Division/Region:	Vryburg
Province/State:	North West
Country:	South Africa

Postal Address

P.O Box	6
Post Office:	Piet Plessis
Town:	PIET PLESSIS
Postal Code:	8621
District/Region:	Vryburg
Province/State:	North West
Country:	South Africa

REGION

NorthWest

LOCATION

Property

Facility

Facility Name:	Plaas Wegdraai Gedeelte 1 (Zendestamdel) 205
Building:	1 Geelhout Safaris
Street:	R76/7306105006 Plaas Wegdraai
Suburb:	Piet Plessis
Town:	PIET PLESSIS
Area Code:	8621
Division/Region:	Vryburg
Province:	North West
Country:	South Africa

CONSERVATION PERMIT OFFICE
NW WEST PROVINCE
10 Dec 2018, 09:01 AM
2039 Mmabatho 2735
431 Fax: +27(0)18 389 5640

Stamp of Issuing authority

VALIDITY PERIOD
FROM 06/12/2018 TO 05/12/2021

Stamp if applicable

Permit holder / Dealer

Signature of Issuing Authority
(Khumoetsile Molatlhegi)

10 Dec 2018, 09:01 AM

Signature of Permit Holder
(Jacobus Cornelius Visagie)

North West Department of Rural, Environment and Agricultural Development. (READ), Cnr. Dr. James Moroka Drive & Stadium Road, Mmabatho
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, Mmabatho, 2735

FACILITIES

Name	Town	Province	Country
Plaas Wegdraai Gedeelte 1 (Zendestamdel) 205	PIET PLESSIS	North West	South Africa

STANDARD CONDITIONS

GENERAL CONDITIONS - ALL PERMITS

1) The Issuing Authority for this licence is : The Northwest Department of Rural,Environment and Agricultural Development (READ), Chief Directorate Environmental Services, Private Bag X 2039, Mmabatho, 2735, hereafter named "the Issuing Authority". 2) This permit, unless otherwise stated, is only valid within the boundaries of the North West Province (hereafter named "the Province") and then specifically as specified on the permit. 3) This permit is valid only : - a) for the specific species, sex and numbers as specified on this permit. b) for the specific activity / activities authorised. c) for the specified methods or instruments authorised. d) for the specific property / locality as specified. e) for the specific day, time or period stipulated. 4) This permit is only deemed valid : - a) in the original format and with the content as issued by the Issuing Authority. b) once it has been printed and the signature of the permit holder has been endorsed thereon in ink. 5) the Issuing Authority reserves the right to amend, withhold, withdraw or cancel any permit at any time. 6) This permit is not transferable to any individual, natural person, juristic person or any other legal identity. 7) Any alterations or attempt thereto, whether electronically or in any other way, shall immediately render it invalid. 8) This permit shall lapse and be deemed invalid when it is altered, lost or destroyed and no copy thereof shall be issued. 9) This permit shall also become invalid as soon as the permit holder loses possession of any animal, plant or derivative as the case may be, as specified on the permit. 10) This permit does not grant the permit holder automatic access to any Protected Area, National Park, Provincial Nature Reserve or privately owned land and : - a) the permit holder must beforehand obtain all other relevant written permissions, documents, rights and licences. b) the permit holder must comply with any other / further conditions or restrictions that the manager / landowner may stipulate at his / her discretion. 11) The permit holder must at all times while performing any restricted activity authorised by this permit, have the permit and all other relevant documentation in his / her possession and without delay make it available upon request by any authorized person. 12) An authorized person must also be allowed access onto the property at any reasonable time for any inspection needed and can remain on such property as long as it is needed to do the inspection. 13) The permit holder must immediately after completion of any activity authorised by this permit, record the required particulars in the space provided therefore or on the annexure or document attached hereto or in the prescribed register related to the permit. 14) The permit holder must return the original signed permit to the Issuing Authority within (14) fourteen days : - a) after performing or completing the authorised restricted activity, or b) after the date of expiry thereof whichever happens first, and c) if applicable furnish the Issuing Authority with a prescribed written feedback report on the results of every activity conducted. 15) The permit holder must retain a copy of the permit together with all other relevant written permissions, documents, rights and licenses for a period of at least (2) two years from date of issue or for as long as the permit holder is in possession of the animal, plant or derivative, whichever period is the longer. 16) If applicable, the permit holder shall apply for the renewal of the permit to the Issuing Authority, on the appropriate application form, at least (3) three months prior to the expiry date thereof. 17) Applications for renewal of this permit will only be processed after the original signed permit together with the prescribed written feedback report has been returned to the Issuing Authority. 18) This permit, during the period of validity thereof, is also subject to: - a) all applicable norms and standards in existence at the time of issuance. b) the provisions of any law in force, in respect of the specific species, activity, method or instrument to which this permit applies. 19) It is the permit holder's responsibility to obtain the correct information on any other legislation, specification, requirement or changes thereto that may be applicable or are required by any other Issuing Authority / Organization / Institute, relating to this permit. 20) By signing this permit, the permit holder declares that he / she is aware of the fact that : - a) any transgression or failure to return the original permit or failure to render the required reports can lead to criminal prosecution and also jeopardize any future applications by or in the name of the permit holder. b) if the permit holder contravenes or fails to comply with any permit condition or requirement, he / she shall be guilty of an offence. 21) The prescribed fees paid to the Issuing Authority for the issue of this permit shall not be refunded.

OCCUPATION - HUNTING CONTRACTOR / OUTFITTER

1) The permit holder may not use this permit to act as a Professional hunter. The permit holder must be the holder of a valid professional hunters permit in order to act as a professional hunter. 2) The permit holder permit may not present or organize the hunting of a wild animal or an exotic animal unless he / she is the holder of hunting-rights in respect of the applicable species and property on which such hunting is presented, organized or conducted. 3) The permit holder must be able and equipped to provide and render in compliance with the requirements as determined by the Issuing Authority, the following facilities and services to his client : - a) the escorting services of a professional hunter; b) hunting, skinning, handling and dispatch services; c) accommodation, storage, washing and sanitary conveniences; d) catering; e) transport; f) cleaning and refuse removal services; g) first-aid and fire-fighting services, and h) staff services. 4) The permit holder MUST prior to the commencement of the hunt, obtain the necessary license, permit, document or permission for his / her client to : - a) hunt a wild animal, and when applicable. b) convey or export trophies in - or from the Province. 5) The permit holder shall, before the commencement of the provision or rendering of any facility or service to a client, conclude a written remuneration agreement in duplicate with the client and shall, thereafter, when ever the provision or rendering of any additional facility or service or other amendment is agreed upon, in a similar manner conclude such an agreement with the client or make appropriate identical alterations on both copies of such agreement or any other agreement, as the case may be, and both copies of such agreement or any other agreement and any alterations on such copies shall be signed and dated by such contractor and such client and such agreement or agreements shall contain the following particulars:— a) the name and business address of such contractor; b) the name and permanent postal address of such client; c) the name and business address of the professional hunter who will escort the client; d) the address to which he must dispatch trophies if this is required by the client; e) the place and date of commencement and the place and date of termination of the provision and rendering of facilities and services to the client; f) the facilities and services which will be provided or rendered to the client and the tariff for each facility or service or the daily tariff, and g) the number, species and sex of wild animals offered for hunting and the tariff for each wild animal wounded or killed beyond any reasonable doubt whether or not such animal or the carcass of such animal can be located. 6) The permit holder shall, upon the conclusion of a remuneration agreement as contemplated by above, retain the copy of such agreement for a period of three years and deliver the original thereof, forthwith to the client. 7) A permit holder shall not be entitled to claim remuneration from a client in respect of anything which is not specified in a remuneration agreement as contemplated by above or to so claim at a tariff other than a tariff specified in such agreement or, unless inconsistent with the terms of such agreement, in respect of anything specified in such agreement which was not actually provided, rendered or delivered to the client. 8) The permit holder must upon completion of the hunt, obtain the copy of the professional hunters register as contemplated by legislation and shall : - a) sign the copy of the professional hunters register and forward it to the nature conservation authority in the Province where the hunt took place, within (14) fourteen days of completion of the hunt. (This original copy is a pre-requisite for the processing of any export-permit application, and b) retain certified copies of all documentation for a period of three years for record

Signature of Issuing Authority
(Khumoetsile Molatlhegi)

10 Dec 2018, 09:01 AM

Signature of Permit Holder
(Jacobus Cornelius Visagie)

North West Department of Rural, Environment and Agricultural Development. (READ), Cnr. Dr. James Moroka Drive & Stadium Road, Mmabatho
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, Mmabatho, 2735

purposes. 9) The permit holder is responsible for the packing and dispatching of trophies to the place of destination as specified by the client. 10) The permit holder may not present or offer for hunting any species, sex and number of wild animals unless such wild animals are readily available for hunting and occur in a free and natural state on the land contemplated and such wild animals are not tamed, partly tamed of kept in captivity. 11) The permit holder must submit for approval, to the Issuing Authority, any advertisement, brochure or pamphlet or other document by which he of she advertises and any alteration thereof. 12) The permit holder may not permit any other person to act as an agent, hunting agent or safari agent and assists, organize or present the hunting of a wild animal for a client, unless he of she is the holder of the written permission in the form of a legal binding contractual agreement between the agent and the permit holder, and use the promotional material of the Hunting Contractor / Outfitter as approved by the Issuing Authority.

Signature of Issuing Authority
(Khumoetsile Molatlhegi)

10 Dec 2018, 09:01 AM

Signature of Permit Holder
(Jacobus Cornelius Visagie)

North West Department of Rural, Environment and Agricultural Development. (READ), Cnr. Dr. James Moroka Drive & Stadium Road, Mmabatho
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, Mmabatho, 2735

Issued in terms of the provisions of:
The National Environmental Management Biodiversity Act, Act 10 of 2004 as amended

Biodiversity North West Integrated Permit Ordinary

North West Province

Issued in terms of the provisions of:
(1) Bophuthatswana Nature Conservation Act, Act No.3 of 1973; (2) Transvaal Nature Conservation Ordinance, No.12 of 1983; (3) Cape Nature and Environmental Conservation Ordinance, 19 of 1974.

Professional Hunter - Dangerous Game

APPROVED SPECIES AND NUMBERS, RESTRICTED ACTIVITIES AND CONDITIONS AS PER ADDENDUM AND PAGES ATTACHED

PERMIT HOLDER

Details

Surname:	Visagie
Full Name:	Jacobus Cornelius
Id Number:	6512215108083
Passport:	
Cell Home:	0833084847
Tel Home:	053 0500 147
Tel Work:	
Fax Home:	
Email:	jacusvisagie@gmail.com

Physical Address

Building:	1 Geelhout Safaris
Street:	205 Farm Wegdraai
Suburb:	Piet Plessis
Town:	PIET PLESSIS
Area Code:	8621
Division/Region:	Vryburg
Province/State:	North West
Country:	South Africa

Postal Address

P.O Box	6
Post Office:	Piet Plessis
Town:	PIET PLESSIS
Postal Code:	8621
District/Region:	Vryburg
Province/State:	North West
Country:	South Africa

REGION

NorthWest

LOCATION

Facility **Property**

CONSERVATION PERMIT OFFICE
NW WEST PROVINCE
05 Dec 2018, 10:18 AM
2039 Mmabatho 2735
031 Fax: +27(0)18 389 5640

Stamp of Issuing authority

VALIDITY PERIOD

FROM 26/11/2018 TO 25/11/2021

Stamp if applicable

Permit holder / Dealer

Signature of Issuing Authority
(Khumoetsile Molatlhegi)

05 Dec 2018, 10:18 AM

Signature of Permit Holder
(Jacobus Cornelius Visagie)

North West Department of Rural, Environment and Agricultural Development. (READ), Cnr. Dr. James Moroka Drive & Stadium Road, Mmabatho
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, Mmabatho, 2735

STANDARD CONDITIONS

GENERAL CONDITIONS - ALL PERMITS

1) The Issuing Authority for this licence is : The Northwest Department of Rural,Environment and Agricultural Development (READ), Chief Directorate Environmental Services, Private Bag X 2039, Mmabatho, 2735, hereafter named "the Issuing Authority". 2) This permit, unless otherwise stated, is only valid within the boundaries of the North West Province (hereafter named "the Province") and then specifically as specified on the permit. 3) This permit is valid only : - a) for the specific species, sex and numbers as specified on this permit. b) for the specific activity / activities authorised. c) for the specified methods or instruments authorised. d) for the specific property / locality as specified. e) for the specific day, time or period stipulated. 4) This permit is only deemed valid : - a) in the original format and with the content as issued by the Issuing Authority. b) once it has been printed and the signature of the permit holder has been endorsed thereon in ink. 5) the Issuing Authority reserves the right to amend, withhold, withdraw or cancel any permit at any time. 6) This permit is not transferable to any individual, natural person, juristic person or any other legal identity. 7) Any alterations or attempt thereto, whether electronically or in any other way, shall immediately render it invalid. 8) This permit shall lapse and be deemed invalid when it is altered, lost or destroyed and no copy thereof shall be issued. 9) This permit shall also become invalid as soon as the permit holder loses possession of any animal, plant or derivative as the case may be, as specified on the permit. 10) This permit does not grant the permit holder automatic access to any Protected Area, National Park, Provincial Nature Reserve or privately owned land and : - a) the permit holder must beforehand obtain all other relevant written permissions, documents, rights and licences. b) the permit holder must comply with any other / further conditions or restrictions that the manager / landowner may stipulate at his / her discretion. 11) The permit holder must at all times while performing any restricted activity authorised by this permit, have the permit and all other relevant documentation in his / her possession and without delay make it available upon request by any authorized person. 12) An authorized person must also be allowed access onto the property at any reasonable time for any inspection needed and can remain on such property as long as it is needed to do the inspection. 13) The permit holder must immediately after completion of any activity authorised by this permit, record the required particulars in the space provided therefore or on the annexure or document attached hereto or in the prescribed register related to the permit. 14) The permit holder must return the original signed permit to the Issuing Authority within (14) fourteen days : - a) after performing or completing the authorised restricted activity, or b) after the date of expiry thereof whichever happens first, and c) if applicable furnish the Issuing Authority with a prescribed written feedback report on the results of every activity conducted. 15) The permit holder must retain a copy of the permit together with all other relevant written permissions, documents, rights and licenses for a period of at least (2) two years from date of issue or for as long as the permit holder is in possession of the animal, plant or derivative, whichever period is the longer. 16) If applicable, the permit holder shall apply for the renewal of the permit to the Issuing Authority, on the appropriate application form, at least (3) three months prior to the expiry date thereof. 17) Applications for renewal of this permit will only be processed after the original signed permit together with the prescribed written feedback report has been returned to the Issuing Authority. 18) This permit, during the period of validity thereof, is also subject to: - a) all applicable norms and standards in existence at the time of issuance. b) the provisions of any law in force, in respect of the specific species, activity, method or instrument to which this permit applies. 19) It is the permit holder's responsibility to obtain the correct information on any other legislation, specification, requirement or changes thereto that may be applicable or are required by any other Issuing Authority / Organization / Institute, relating to this permit. 20) By signing this permit, the permit holder declares that he / she is aware of the fact that : - a) any transgression or failure to return the original permit or failure to render the required reports can lead to criminal prosecution and also jeopardize any future applications by or in the name of the permit holder. b) if the permit holder contravenes or fails to comply with any permit condition or requirement, he / she shall be guilty of an offence. 21) The prescribed fees paid to the Issuing Authority for the issue of this permit shall not be refunded.

OCCUPATION - PROFESSIONAL HUNTER - DANGEROUS GAME

1) The permit holder may not use this permit, unless : - a) the hunt has been organized by a Hunting Contractor / Outfitter; and b) the hunting-outfitter is the holder of hunting-rights in respect of the land on which such hunting is presented or organized; and c) the client is in possession of all applicable documentation to hunt the wild animal. 2) The permit holder must ensure that his or her client does not hunt contrary to the provisions of any applicable legislation and in order to do so, he / she may give his or her client any lawful instruction. 3) The permit holder must report all transgressions of any legislation by his / her client, within 24 hours at the police station or the office of the nature conservator nearest to the place where the transgression occurred and obtain a reference number of such report. 4) The permit holder shall keep a register, the pages of which shall be permanently bound in quadruplicate (provided that the first three pages of each four pages may be perforated for easy detachment) and numbered consecutively, in which he / she shall record the following particulars (in quadruplicate) in such a manner that such particulars in respect of not more than one client appear on any one page:— a) the name and business address of the professional hunter; b) the name and permanent postal address of the client; c) the name and business address of the Hunting Contractor / Outfitter who presented or organised the hunting for the client; d) the province, place where and the date on which his escort service to the client commenced and the place where and the date on which such service terminated; e) the name, registration number, magisterial district of every farm on which he escorted the client and the name and address of the owner of every such farm, and f) the species, sex and number of wild animals killed or wounded by the client on every farm referred to in paragraph (e), the date on which every wild animal was killed or wounded and, in the case of a wild animal with a horn or horns, the length or the estimated length of such horn or horns, as the case may be. 5) Any alteration made to any entry in the register contemplated shall be identical on all four copies of the record and all four copies on which such alteration appears shall be signed and dated by the professional hunter and the client concerned. 6) The permit holder must upon the termination of his escort service to a client, together with the client concerned sign and date the record of particulars in the register contemplated by legislation and the permit holder shall detach the first three copies thereof and— a) deliver the original page to the client concerned; b) deliver one copy to the Hunting Contractor / Outfitter mentioned in such record, and c) within 14 days after completion of the hunt, send one copy by registered post to the Issuing Authority. 7) This permit authorises the guiding on dangerous game (Elephant, Hippopotamus, Rhinoceros, Buffalo, Lion and Leopard).

Signature of Issuing Authority
(Khumoetsile Molatlhegi)

05 Dec 2018, 10:18 AM

Signature of Permit Holder
(Jacobus Cornelius Visagie)

North West Department of Rural, Environment and Agricultural Development. (READ), Cnr. Dr. James Moroka Drive & Stadium Road, Mmabatho
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, Mmabatho, 2735

DRSM 01654/3/2019 NW 9459/04/2019 Application ID 9459

Issued in terms of the provisions of:
The National Environmental Management Biodiversity Act, Act 10 of 2004 as amended

Biodiversity North West Integrated Permit Ordinary Release, Hunt, Transport .375 Caliber Hunt Dangerous Game

North West Province

Issued in terms of the provisions of:
(1) Bophuthatswana Nature Conservation Act, Act No.3 of 1973; (2) Transvaal Nature Conservation Ordinance, No.12 of 1983; (3) Cape Nature and Environmental Conservation Ordinance, 19 of 1974.

APPROVED SPECIES AND NUMBERS, RESTRICTED ACTIVITIES AND CONDITIONS AS PER ADDENDUM AND PAGES ATTACHED

PERMIT HOLDER

Details

Surname:	Fetters
Full Name:	Steven Allan
Id Number:	
Passport:	(b) (6)
Cell Home:	0833084847
Tel Home:	
Tel Work:	
Fax Home:	
Email:	info@geelhoutsafaris.com

Physical Address

Building:	
Street:	(b) (6)
Suburb:	
Town:	Saint JOe
Area Code:	5397
Division/Region:	Indiana
Province/State:	Indiana
Country:	USA

Postal Address

Post Office:	
Town:	
Postal Code:	
District/Region:	
Province/State:	
Country:	

REGION

NorthWest

LOCATION

Facility

Property

Property Name:	Wegdraai Farm 1
Building:	Geelhout Safaris
Street:	205 Plaas Wegdraai
Suburb:	Piet Plessis
Town:	Vryburg
Area Code:	8621
Division/Region:	Vryburg District
Province/State:	NORTH WEST
Country:	South Africa

CONSERVATION PERMIT OFFICE
NORTH WEST PROVINCE
03 Apr 2019, 10:47 AM
2039 Mmabatho 2735
Tel: +27(0)18 389 5640

Stamp of Issuing authority

VALIDITY PERIOD
FROM 20/05/2019 TO 19/05/2020

Stamp if applicable

Permit holder / Dealer

Signature of Issuing Authority
(Borho Manganye)
03 Apr 2019, 10:47 AM

Signature of Permit Holder
(Steven Allan Fetters)

North West Department of Rural, Environment and Agricultural Development. (READ), Cnr. Dr. James Moroka Drive & Stadium Road, Mmabatho
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, Mmabatho , 2735

ADDENDUM

PROPERTIES

Name	Town	Province	Country
Wegdraal Farm 1	Vryburg	NORTH WEST	South Africa

SPECIES INFORMATION

Scientific Name	Common Name	Number	Gender	Description/Markings
Panthera leo	Lion	1	Male	900008800799794

PROFESSIONAL HUNTERS

Full Name	PH Number	Cell Work	Tel Work
Jacosbus Cornelius Visagie	NW7211/12/2018	0833084847	0833084847

HUNTING OUTFITTERS

Full Name	HC Number	Cell Work	Tel Work
Jacobus Cornelius Visagie	NW7116/12/2018	0833084847	0833084847

OTHER PARTIES INVOLVED

Full Name	ID Number	Contact	Involvement	Physical Address
Karl Human	7409125073086	Cell:+27833562740 Tel:+27741345478	Taxidermist	CRESTWOOD FARM Karl Human Taxidermy, 1 Crestwood Farm, Brakfontein, East London, 5214, Eastern Cape, Eastern Cape, South Africa

ACTIVITIES

Activity Name
Release
Hunt
Transport

METHODS

Method Name
.375 Caliber

STANDARD CONDITIONS

GENERAL CONDITIONS - ALL PERMITS

1) The Issuing Authority for this licence is : The Northwest Department of Rural,Environment and Agricultural Development (READ), Chief Directorate Environmental Services, Private Bag X 2039, Mmabatho, 2735, hereafter named "the Issuing Authority". 2) This permit, unless otherwise stated, is only valid within the boundaries of the North West Province (hereafter named "the Province") and then specifically as specified on the permit. 3) This permit is valid only : - a) for the specific species, sex and numbers as specified on this permit. b) for the specific activity / activities authorised. c) for the specified methods or instruments authorised. d) for the specific property / locality as specified. e) for the specific day, time or period stipulated. 4) This permit is only deemed valid : - a) in the original format and with the content as issued by the Issuing Authority. b) once it has been printed and the signature of the permit holder has been endorsed thereon in ink. 5) the Issuing Authority reserves the right to amend, withhold, withdraw or cancel any permit at any time. 6) This permit is not transferable to any individual, natural person, juristic person or any other legal identity. 7) Any alterations or attempt thereto, whether electronically or in any other way, shall immediately render it invalid. 8) This permit shall lapse and be deemed invalid when it is altered, lost or destroyed and no copy thereof shall be issued. 9) This permit shall also become invalid as soon as the permit holder loses possession of any animal, plant or derivative as the case may be, as specified on the permit. 10) This permit does not grant the permit holder automatic access to any Protected Area, National Park, Provincial Nature Reserve or privately owned land and : - a) the permit holder must beforehand obtain all other relevant written permissions, documents, rights and licences. b) the permit holder must comply with any other / further conditions or restrictions that the manager / landowner may stipulate at his / her discretion. 11) The permit holder must at all times while performing any restricted activity authorised by this permit, have the permit and all other relevant documentation in his / her possession and without delay make it available upon request by any authorized person. 12) An authorized person must also be allowed access onto the property at any reasonable time for any inspection needed and can remain on such property as long as it is needed to do the inspection. 13) The permit holder must immediately after completion of any activity authorised by this permit, record the required particulars in the space provided therefore or on the annexure or document attached hereto or in the prescribed register related to the permit. 14) The permit holder must return the original signed permit to the Issuing Authority within (14) fourteen days : - a) after performing or completing the authorised restricted activity, or b) after the date of expiry thereof whichever happens first, and c) if applicable furnish the Issuing Authority with a prescribed written feedback report on the results of every activity conducted. 15) The permit holder must retain a copy of the permit together with all other relevant written permissions, documents, rights and licenses for a period of at least (2) two years from date of issue or for as long as the permit holder is in possession of the animal, plant or derivative, whichever period is the longer. 16) If applicable, the permit holder shall apply for the renewal of the permit to the Issuing Authority, on the appropriate application form, at least (3) three months prior to the expiry date thereof. 17) Applications for renewal of this permit will only be processed after the original signed permit together with the prescribed written feedback report has been returned to the Issuing Authority. 18) This permit, during the period of validity thereof, is also subject to: - a) all applicable norms and standards in existence at the time of issuance. b) the provisions of any law in force, in respect of the specific species, activity, method or instrument to which this permit applies. 19) It is the permit holder's responsibility to obtain the correct information on any other legislation, specification, requirement or changes thereto that may be applicable or are required by any other Issuing Authority / Organization / Institute, relating to this permit. 20) By signing this permit, the permit holder declares that he / she is aware of the fact that : - a) any transgression or failure to return the original permit or failure to render the required reports can lead to criminal prosecution and also jeopardize any future applications by or in the name of the permit holder. b) if the permit holder contravenes or fails to comply with any permit condition or requirement, he / she shall be guilty of an offence. 21) The prescribed fees paid to the Issuing Authority for the issue of this permit shall not be refunded.

HUNT - DANGEROUS GAME

1) The permit holder must ensure that : - a) a fire-arm having a barrel caliber of at least 9.525 mm H&H (.375 of an inch H&H) is used to hunt buffalo,

Signature of Issuing Authority
(Borho Manganye)

03 Apr 2019, 10:47 AM

Signature of Permit Holder
(Steven Allan Fetters)

North West Department of Rural, Environment and Agricultural Development. (READ), Cnr. Dr. James Moroka Drive & Stadium Road, Mmabatho
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, Mmabatho , 2735

ADDENDUM

elephant, lion, leopard, rhinoceros or hippopotamus. b) the client is escorted by preferably two registered professional hunters who are qualified to hunt the above mentioned dangerous wild animals. c) unless approved and specified on this permit, no prohibited hunting method or instrument is used to hunt an animal. d) the animal which is hunted, is not a "put and take animal" since the animal must qualify as free ranging (wild) for at least a period of twenty four (24) months prior to the hunting thereof. e) no hunting of rhinoceros or lion takes place unless a representative of the relevant nature conservator appointed by the Issuing Authority, is present. f) any official who attends the hunt has the full right to defend himself / herself as well as anybody else, should an emergency situation arise and such official is not held liable for any damages / claims in this regard.

HUNT - STANDARD REQUIREMENTS

1) The permit holder when prohibited by any applicable legislation, may NOT use any prohibited methods or instruments to hunt, capture or catch any wild animal unless he / she has obtained a special permit authorising him / her to do so. 2) The permit holder may NOT use : - a) a fire-arm having a barrel of a caliber of 6.5 mm (.256 of an inch) or less, to hunt any eland, kudu, blue wildebeest, black wildebeest, gemsbok, red hartebeest, roan antelope, sable antelope, Burchell's zebra, Cape mountain zebra, Hartmann's mountain zebra, nyala, or water buck unless authorised in the restricted activities. b) a fire-arm having a barrel caliber of less than 9.525 mm H&H (.375 of an inch H&H) to hunt any buffalo, elephant, lion, leopard, rhinoceros, hippopotamus or giraffe unless authorised in the restricted activities of this permit. 3) The permit holder must : - a) obtain the written permission as prescribed in applicable legislation, from the landowner to hunt on the property of the landowner and, b) obtain the written permission as prescribed in applicable legislation, from the landowner to remove the carcass from the property of the landowner. 4) When the permit holder kills any wild animal, he / she shall, before leaving the above-mentioned property (or if he / she does not leave it, after each days hunt) record in the space provided on the hunting license and / or written permission the particulars regarding the date, species, sex and number of each wild animal, or if it is impossible to distinguish the sex, the total number of each species of such wild animals which has been killed. 5) If the permit holder belongs to any hunting organisation, the hunt is conducted in the hunting area according to the code of ethical conduct and good practice, as supported by such organised hunting fraternity. 6) The responsibility to comply with all permit conditions, will reside with the permit holder and landowners of the properties assisting the permit holder.

Signature of Issuing Authority
(Borho Manganye)

03 Apr 2019, 10:47 AM

Signature of Permit Holder
(Steven Allan Fetters)

North West Department of Rural, Environment and Agricultural Development. (READ), Cnr. Dr. James Moroka Drive & Stadium Road, Mmabatho
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, Mmabatho , 2735

DRSM 02681/9/2019 NW 14497/10/2019 Application ID 14497

Issued in terms of the provisions of:
The National Environmental Management Biodiversity Act, Act 10 of 2004 as amended

Biodiversity North West Integrated Permit Ordinary Transport, Convey

North West Province

Issued in terms of the provisions of:
(1) Bophuthatswana Nature Conservation Act, Act No.3 of 1973; (2) Transvaal Nature Conservation Ordinance, No.12 of 1983; (3) Cape Nature and Environmental Conservation Ordinance, 19 of 1974.

Transport or Convey a wild animal product or derivative (Non-living,

APPROVED SPECIES AND NUMBERS, RESTRICTED ACTIVITIES AND CONDITIONS AS PER ADDENDUM AND PAGES ATTACHED

PERMIT HOLDER (TRANSPORTER)

Details

Surname:	Erasmus
Full Name:	Pieter
Id Number:	760707586087
Passport:	
Cell Home:	
Tel Home:	0103125379
Tel Work:	0103125379
Fax Home:	
Email:	amu@badgercargo.co.za

Physical Address

Portion/Building:	Unit 7 Innes Business Park
Farm/Street:	Jansen Road 38
Suburb:	Jet Park
Town:	Boksburg
Area Code:	1469
Division/Region:	Gauteng
Province/State:	Gauteng
Country:	South Africa

Postal Address

	38
Post Office:	Jansen Road
Town:	Jet Park
Postal Code:	1469
District/Region:	Boksburg
Province/State:	Gauteng
Country:	South Africa

TRANSLOCATION DETAILS

TRANSPORT FROM

Owner:	Wouter Roets
Farm Name:	Wegdraai Farm
Portion/Building:	Wegdraai Farm
Farm/Street:	Wegdraai Farm
Suburb:	Piet Plessis
Town:	Vryburg
Area Code:	8621
Division/Region:	Dr RSM
Province/State:	North West
Country:	South Africa
Size/Hectares:	

TRANSPORT TO

Owner:	Douglas Cockcroft
Farm Name:	Splitting Image Taxidermy
Portion/Building:	The Badger Building
Farm/Street:	Sydenham Road
Suburb:	Port Elizabeth
Town:	Port Elizabeth
Area Code:	6057
Division/Region:	
Province/State:	Eastern Cape
Country:	RSA
Size/Hectares:	

NATURE CONSERVATION PERMIT OFFICE
NORTH WEST PROVINCE
03 Oct 2019, 04:47 PM
Private Bag X2019 Mmabatho 2735
Tel +27 (0)18 389 5331 Fax +27(0)18 389 5640

Stamp of Issuing authority

VALIDITY PERIOD
FROM 03/10/2019 TO 02/12/2019

Stamp if applicable

Permit holder / Dealer

EWeideman

Signature of Issuing Authority
(Estelle Weideman)

03 Oct 2019, 04:47 PM

Signature of Permit Holder
(Pieter Erasmus)

North West Department of Economic Development, Environment, Conservation and Tourism, Cnr. Dr. James Moroka Drive & Stadium Road , MMABATHO
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, MMABATHO, 2735

ADDENDUM

SPECIES INFORMATION

Scientific Name	Common Name	Number	Gender	Description/Markings
Panthera leo	Lion	1	Male	Trophy

ACTIVITIES

Activity Name
Transport
Convey

STANDARD CONDITIONS

GENERAL CONDITIONS - ALL PERMITS

1) The Issuing Authority for this licence is : The Northwest Department of Rural,Environment and Agricultural Development (READ), Chief Directorate Environmental Services, Private Bag X 2039, Mmabatho, 2735, hereafter named "the Issuing Authority". 2) This permit, unless otherwise stated, is only valid within the boundaries of the North West Province (hereafter named "the Province") and then specifically as specified on the permit. 3) This permit is valid only : - a) for the specific species, sex and numbers as specified on this permit. b) for the specific activity / activities authorised. c) for the specified methods or instruments authorised. d) for the specific property / locality as specified. e) for the specific day, time or period stipulated. 4) This permit is only deemed valid : - a) in the original format and with the content as issued by the Issuing Authority. b) once it has been printed and the signature of the permit holder has been endorsed thereon in ink. 5) the Issuing Authority reserves the right to amend, withhold, withdraw or cancel any permit at any time. 6) This permit is not transferable to any individual, natural person, juristic person or any other legal identity. 7) Any alterations or attempt thereto, whether electronically or in any other way, shall immediately render it invalid. 8) This permit shall lapse and be deemed invalid when it is altered, lost or destroyed and no copy thereof shall be issued. 9) This permit shall also become invalid as soon as the permit holder loses possession of any animal, plant or derivative as the case may be, as specified on the permit. 10) This permit does not grant the permit holder automatic access to any Protected Area, National Park, Provincial Nature Reserve or privately owned land and : - a) the permit holder must beforehand obtain all other relevant written permissions, documents, rights and licences. b) the permit holder must comply with any other / further conditions or restrictions that the manager / landowner may stipulate at his / her discretion. 11) The permit holder must at all times while performing any restricted activity authorised by this permit, have the permit and all other relevant documentation in his / her possession and without delay make it available upon request by any authorized person. 12) An authorized person must also be allowed access onto the property at any reasonable time for any inspection needed and can remain on such property as long as it is needed to do the inspection. 13) The permit holder must immediately after completion of any activity authorised by this permit, record the required particulars in the space provided therefore or on the annexure or document attached hereto or in the prescribed register related to the permit. 14) The permit holder must return the original signed permit to the Issuing Authority within (14) fourteen days : - a) after performing or completing the authorised restricted activity, or b) after the date of expiry thereof whichever happens first, and c) if applicable furnish the Issuing Authority with a prescribed written feedback report on the results of every activity conducted. 15) The permit holder must retain a copy of the permit together with all other relevant written permissions, documents, rights and licenses for a period of at least (2) two years from date of issue or for as long as the permit holder is in possession of the animal, plant or derivative, whichever period is the longer. 16) If applicable, the permit holder shall apply for the renewal of the permit to the Issuing Authority, on the appropriate application form, at least (3) three months prior to the expiry date thereof. 17) Applications for renewal of this permit will only be processed after the original signed permit together with the prescribed written feedback report has been returned to the Issuing Authority. 18) This permit, during the period of validity thereof, is also subject to: - a) all applicable norms and standards in existence at the time of issuance. b) the provisions of any law in force, in respect of the specific species, activity, method or instrument to which this permit applies. 19) It is the permit holder's responsibility to obtain the correct information on any other legislation, specification, requirement or changes thereto that may be applicable or are required by any other Issuing Authority / Organization / Institute, relating to this permit. 20) By signing this permit, the permit holder declares that he / she is aware of the fact that : - a) any transgression or failure to return the original permit or failure to render the required reports can lead to criminal prosecution and also jeopardize any future applications by or in the name of the permit holder. b) if the permit holder contravenes or fails to comply with any permit condition or requirement, he / she shall be guilty of an offence. 21) The prescribed fees paid to the Issuing Authority for the issue of this permit shall not be refunded.

TRANSPORT / EXPORT / IMPORT - ALL SPECIES

1) This permit is invalid unless accompanied by : - a) a valid veterinary / agricultural permit from the province (s) applicable, where required by law. b) the applicable documentation and permits as required from the importing / exporting province or country. 2) For live animals, this permit is only valid if the transport conditions conform to the SABS Guidelines for Transport of Live Animals or, in the case of air transport, to the IATA Live Animals Regulations.

SPECIAL CONDITIONS

Condition Name	Condition Description
Special Condition:	This animal was hunted by: S.A Fetters

EWeideman

Signature of Issuing Authority
(Estelle Weideman)

03 Oct 2019, 04:47 PM

Signature of Permit Holder
(Pieter Erasmus)

th West Department of Economic Development, Environment, Conservation and Tourism, Cnr. Dr. James Moroka Drive & Stadium Road , MMABAT
Contact Information: Tel:+27 (0)18 389 5130, Fax:+27 (0)18 389 5130, E-mail:jdenga@nwpg.gov.za
Postal Address: Private Bag X 15, MMABATHO, 2735

environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

CHECK LIST FOR THE VERIFICATION OF THE LEGALITY OF HUNTING TROPHIES FOR THE COORDINATION OF EXPORT PERMITS

Hunting province: North West Province

Exporting province: Eastern Cape exports@splittingimagetaxidermy.co.za

(APPLICANT USE)

Check list for verification of legality of hunting trophies

Name of the hunting client	Name of the hunting outfitter	Name of the professional hunter
Steve Allan Fetters	JC. Visagie	JC. Visagie
Passport Number and Date of the hunt :	500858387	23/05/2019 – 26/05/2019
Hunting Permit number and Species hunted:	*NW 9459/04/2019*	*Lion*

(OFFICE USE)

Verification by hunting province for legal requirements to be complied with in the hunting province

Legal requirement	Complied		Comment
	YES	NO	
Hunting outfitter registered	✓		
Professional hunter registered	✓		
Hunting permit issued	✓		Number: Validity period:
Species hunted on exemption / certificate of adequate enclosure		✓	
Pink copy of the professional hunting register received	✓		09038
Hunter the holder of written permission from the landowner	✓		
Hunting outfitter the holder of hunting rights	✓		
Transport / Export permit issued		✓	Number:
Trophies appropriately marked (Elephant /crocodile Rhino / Leopard)	✓	N/A	

Verification of compliance with legal requirements by the exporting province

Trophies appropriately marked		

Recommendation by the hunting province

Recommended for Issuance.

Date:	Name of official:	Signature:
29/07/2020	T.C Mologatoa	T.C Mologatoa

1. **Procedure for the marking of hunting trophies:**

1.1 Trophies (e.g. rhino horns, crocodile, elephant tusks and leopard skins) must be marked by the hunting province before the trophies are transported to the taxidermy, in the case where the taxidermy is in another province.

3.2 If a tag needs to be removed from a hunting trophy (e.g. leopard skin) by the taxidermist for processing purposes and needs to be re-marked prior to export, the export province can agree to do so upon request by the hunting province. The original tag number must be used (i.e. the quota allocation of the hunting province must be used). Spare tags for re-marking are available from DEA.

3.3 The exporting province may agree to do an inspection to verify the markings for specific hunting trophies upon request of the hunting province.

3.4 Exporting Province may only accept this verification form if it is signed and stamped

ENVIRONMENTAL SERVICES
29 JUL 2020
BIODIVERSITY MANAGEMENT
PERMIT OFFICE

Form 3-200-20

OMB Control No. 1018-0093
Expires 08/31/2020

RCVD DEC 31 2020

Department of Interior
U.S. Fish and Wildlife Service

Federal Fish and Wildlife Permit Application Form

U.S. Fish and Wildlife Service
Division of Management Authority
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
1-800-358-2104 or 703-358-2104

Type of Activity

IMPORT OF SPORT-HUNTED TROPHIES under Appendix I of the Convention on International Trade in Endangered Species (CITES) and/or U.S. Endangered Species Act (ESA)

Complete Sections A or B, and C, D, and E of this application. U.S. address may be required in Section C, see instructions for details.
Instructions on how to make your application complete and help avoid unnecessary delays are attached.

Section A: Complete if applying as an individual

1.a. Last Name	1.b. First Name	1.c. Middle Name/Initial	1.d. Suffix
SVIHEL	JOHN	JAMES	

(b) (6)

Section B: Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution

1.a. Name of business, agency, Tribe, or institution		1.b. Doing business as (DBA)	
2. Tax identification no.		3. Description of business, agency, Tribe, or institution	
4.a. Principal officer Last name	4.b. Principal officer First Name	4.c. Principal officer Middle name/initial	4.d. Suffix
5. Principal officer title	6. Primary contact name		
7.a. Business telephone number	7.b. Alternate telephone number	7.c. Business fax number	7.d. Business e-mail address

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)

(b) (6)

1.b. City	1.c. State	1.d. Zip code/Postal code	1.e. County/Province	1.f. Country
FOLEY	MN	56329	BENTON	USA

2.a. Mailing address (include if different than physical address; include name of contact person if applicable)
N/A

2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f.Country

Section D: All applicants MUST complete

1. Attach the **nonrefundable application processing fee** in the form of a check or money order payable to the U.S. FISH AND WILDLIFE SERVICE **in the amount of $100**. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee--attach documentation of fee exempt status as outlined in instructions [50 CFR 13.11(d)].
2. Certification: I hereby certify that I have read and am familiar with the regulations contained in ***Title 50 Part 13 of the Code of Federal Regulations*** and the other ***applicable parts in subchapter B of Chapter I of Title 50***, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

Signature of applicant/Principal Officer for permit (No photocopied or stamped signatures) Date of signature (mm/dd/yyyy)

(b) (6) 12/11/2020

Please continue to next page

E. IMPORT OF SPORT-HUNTED TROPHIES *(Appendix I of CITES and/or ESA)*

Note 1: This form should be used to request authorization to import trophies of species listed on Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND SOUTHERN WHITE RHINOCEROS TROPHIES TAKEN IN NAMIBIA.

Note 2: If you hold an import permit for a trophy that you did not use, please **return the unused original permit.** If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

Please provide the following information. Complete all questions on the application. Mark questions that are not applicable with "N/A". If needed, use a separate sheet of paper. On all attachments or separate sheets you are submitting; please indicate the application question number you are addressing. If applying for more than one trophy, be sure to answer questions 4-6 for each trophy addressed in this application. If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

N/A

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

JOHN SVIHEL (b) (6)

3. Disqualification factor. A conviction, or entry of a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act disqualifies any such person from receiving or exercising the privileges of a permit, unless such disqualification has been expressly waived by the Service Director in response to a written petition. (50 CFR 13.21(c)) Have you or any of the owners of the business, if applying as a business, been convicted, or entered a plea of guilty or nolo contendere, forfeited collateral, or are currently under charges for any violations of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court; and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

N/A

4. For each trophy to be imported, provide:

   a. Scientific name (genus, species, and, if applicable, subspecies) and common name.
   Panthera leo
   Lion

   b. Sex (if known). MALE

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

   N/A

   b. Date wildlife is to be hunted:

   N/A

   c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

   N/A

6. **IF THE TROPHY HAS ALREADY BEEN TAKEN**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife was removed from the wild:
   Tanzania, Selous Game Reserve, Area LL2
   Coordinates: 8.49849 / 38.20583 4

   b. Date wildlife was hunted:

   11/10/2020

c. Name of hunting outfitter, safari company, or professional hunter you hunted with:
Traditional African SAFARI T2 (2011) LTD
P.H. JAMIL JAMAL

d. The current location of the trophy (address and country) [the U.S. import permit will identify this country as the country of export/re-export and must match with the foreign export/re-export document]:
DAR es SALAAM / TANZANIA

7. Please provide a copy of any applicable foreign government permits or licenses that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so). Please see attached

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you must provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].
Name: TRADITIONAL AFRICAN SAFARIS T2 (2011) LTD
Business Name: TRADITIONAL AFRICAN SAFARIS T2(2011) LTD
Address: P.O. BOX 76963
City: Dar es Salaam
State/Province: I
Country, Postal Code: Tanzania

9. For species listed under the U.S. Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service (Service) must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or hunted when making the required findings, if you have any information that could support this finding, it would be helpful for our review if you could provide it. Please submit such information on a separate page with your application.

a. Do you have any information regarding the population status or trend data on the species hunted?
N/A

b. In order to hunt, you likely paid for licenses or trophy fees. What were those fees and do you have any information on how those funds were used by either the landowner, local community, or government?
Hunting license $1250.00 trophy fees $ 24,750.00
Conservation fees $ 3150.00 community development $ 4200.00
Concession fees $4200.00
See below:

c. Do you have information on other funding activities that are being carried out, or were carried out, by the safari outfitter, professional hunter, concession holder, or landowner that provide a conservation benefit to the species being hunted/species hunted?
The fees go to the government to protect the area, as it is a game reserve All monies including tophy fees are spread throughout the community for development of the surrounding area of the reserve.

CERTIFICATION STATEMENT (original signature must be provided for either 10 or 11 below)

10. If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national, provide documentation to show you have a Power of Attorney to act on your client's behalf and sign the following statement:

I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying for the import of an elephant trophy, I understand that my client may import no more than two elephant trophies in one calendar year.

Taxidermist/Broker's signature: _____ Date: _____

11. If you are the hunter applying to import your own trophy, please read and sign the following statement:

I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying to import an elephant trophy, I understand that I may import no more than two elephant trophies in one calendar year.

Applicant's signature: [redacted] Date: 12/11/2020

Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign governments to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

12. All international shipments must be through a designated port. A list of designated ports (where an inspector is posted) is available from the list of designated ports. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

JOHN

Returned 23.12.2020

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF NATURAL RESOURCES AND TOURISM

TANZANIA WILDLIFE MANAGEMENT AUTHORITY (TAWA)

GAME HUNTING PERMIT

ORIGINAL

CN.# 998411007559

APP: 0000261

MAIN PERMIT

RETURN DATE: Monday, December 21, 2020

PERMIT NO. MP-0000210

Station: DAR ES SALAAM OFFICE **Start Date:** Saturday, October 31, 2020 **End Date:** Saturday, November 21, 2020 **Package Type:** PREMIUM **Extra Days:** 1 **This RESIDENT'S / VISITOR'S Permit is Granted to** JOHN JAMES SVIHEL **of Address** MINNESOTA **Passport No.** (b) (6)

Who holds Weapon (Type) REMINGTON **Calibre** .375 **Maker's No:** (b) (6) **C.A.R No:** (b) (6) **Licence No:** NA **Dated** 2020-06-30 **Issued At** DAR ES SALAAM **Weapon owner & Address** JAMIL JAMAL , **Weapon (Type)** BLASER **Calibre** 300 **Maker's No:** (b) (6) **C.A.R No:** NA **Licence No:** (b) (6) **Dated** 2020-10-30 **Issued At** DAR ES SALAAM **Weapon owner & Address** JAMIL JAMIL

and entitles him to hunt the below animals in the (Game area and blocks) SELOUS GR LL2 **owned by** TRADITIONAL AFRICA SAFARIS (TZ) 2011 LIMITED **PH** JAMIL JAMAL **LICENSE No.** TZA2019180DAR

Additional Blocks

SN	SPECIE NAME	QTY PER SPECIES
1	BUFFALO AFRICAN CAPE	4
2	BABOON YELLOW	2
3	BUSHBUCK CHASE	1
4	BUSHPIG	2
5	CARACAL	1
6	CIVET CAT	1
7	DUIKER COMMON	1
8	DUIKER HARVEY'S RED	1
9	ELAND LIVINGSTONES	1
10	GENET COMMON	1
11	HARTEBEEST LICHTENSTEIN'S	2
12	HIPPOPOTAMUS	2
13	HYAENA SPOTTED	1
14	IMPALA SOUTHERN	2
15	JACKAL COMMON	1
16	JACKAL SILVER BACKED	1
17	KLIPSPRINGER	1
18	KUDU GREATER	1
19	LEOPARD	1
20	LION	1
21	MONKEY VERVET	1
22	PORCUPINE CRESTED	1
23	RATEL (HONEY BADGER)	1
24	REEDBUCK BOHOR	3
25	REEDBUCK SOUTHERN (COMMON)	3
26	SABLE ANTELOPE ROOSEVELT	1
27	SERVAL CAT	1
28	STEINBUCK	1
29	SUNI (PYGYM ANTELOPE)	1
30	WARTHOG	2
31	WATERBUCK COMMON	1
32	WILD CAT	1
33	NYASA WILDEBEEST	3
34	ZEBRA BURCHELL'S	3
35	DOVE	5
36	DUCK	5
37	FRANCOLIN	5

SN	SPECIE NAME	QTY PERSPECIES
38	GEESE	5
39	GUINEAFOWL	5
40	PIGEON	5
41	SANDGROUSE	5

1. The Hunting Permit must be surrendered to the Director of Wildlife Division within 30 days of expiry or immediately the Professional
2. This Permit does not entitle the holder to capture animals, be in possession of live animals or carry on a live animal business of a Trophy
3. Maximum number of animals must not be exceeded without the written authority of the Director of Wildlife.
4. A Hunter must obtain Certificate of Ownership for all trophies he wishes to keep , transfer.
5. A Professional Hunter conducting a safari must carry his /her PH Licence during the entire safari.
6. A Professional Hunter conducting a safari must get a guide or obtain letter of authority from the Director of Wildlife to go out alone.
7. For weapons indicate the heaviest rifle in the case of big game or shotgun in the case of birds or others in the case of fish.
8. A Professional Hunter conducting a safari must take all measurements and or weight and record them in the data sheet provided immediately after an animal shot and its carcass.

Signature of Holder

Signature of Issuing Officer & Official Stamp

For: CONSERVATION COMMISSIONER
TANZANIA WILDLIFE MANAGEMENT AUTHORITY
MOROGORO

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF NATURAL RESOURCES AND TOURISM

TANZANIA WILDLIFE MANAGEMENT AUTHORITY (TAWA)

REGISTER OF GAME KILLED (INCLUDES WOUNDED ANIMALS)

PERMIT NO. HP-0000210 **998411007559**

CLIENT NAME: JOHN JAMES SVIHEL **PH NAME:** JAMIL JAMAL

COMPANY: TRADITIONAL AFRICA SAFARIS (TZ) 2011 LIMITED **PH LICENSE NO:** TZA2019180DAR

SPECIES	No. KILLED	AREA WHERE HUNTED	WEAPON USED	DATE	TIME	SEX	LOCATION/DISTANCE	LENGTH OF HORN/ANIMAL OR WEIGHT	REMARKS
DUIKER COMMON	ONE	LL2	375	06/11/2020	09:15	M	8.475492	38.253343	L-10.5-R12	KILLED
HIPPO	ONE	LL2	375	07/11/2020	13:38	M	8.20497	3827963	Tusk-Cr-20cm	KILLED
ZEBRA	ONE	LL2	375	08/11/2020	17:30	M	8.381752	38.496653	L-33cm	KILLED
PORCUPINE	ONE	LL2	375	09/11/2020	18:00	M	8.453489	38.423924	Skull-16cm-Body	KILLED
LION	ONE	LL2	375	10/11/2020	13:09	M	8.49849	38.205284	ASP-L13.5cm/Tail	KILLED
ZEBRA	ONE	LL2	375	12/11/2020	16:30	M	8.25450	38.97160	L-33cm	KILLED
BUFFALO	ONE	LL2	375	14/11/2020	10:30	M	8.20063	38.98785	Tusk-L62cm	KILLED
IMPALA	ONE	LL2	375	14/11/2020	16:45	M	8.25672	38.97830	L-57cm-R58cm	KILLED
BABOON	ONE	LL2	375	16/11/2020	09:36	M	8.19632	38.98657	- - -	KILLED
BUFFALO	ONE	LL2	375	18/11/2020	09:00	M	8.24928	38.26874	Tusk-173cm	KILLED

DECLARATION

I (name) JOHN SVIHEL [redacted] (9) (a) hereby declare that the register of game killed is a true record of all animals killed or wounded by me during the validity of this permit.

HUNTING CLIENT SIGNATURE

Date 11/22/2020

PROFESSIONAL HUNTER SIGNATURE

Date 22/11/2020

WILDLIFE OFFICER INCHARGE SIGNATURE

Date 22/11/2020

MKUU WA KANDA
KANDA YA KASKAZINI
PORI LA AKIBA SELOUS
KINGUPIRA

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF NATURAL RESOURCES AND TOURISM

TANZANIA WILDLIFE MANAGEMENT AUTHORITY (TAWA)

REGISTER OF GAME KILLED (INCLUDES WOUNDED ANIMALS)



PERMIT NO. MP-0000210 **998411007559**

CLIENT NAME: JOHN JAMES SVIHEL **PH NAME:** JAMIL JAMAL

COMPANY: TRADITIONAL AFRICA SAFARIS (TZ) 2011 LIMITED **PH LICENSE NO:** TZA2019180DAR

SPECIES	No. KILLED	AREA WHERE HUNTED	WEAPON USED	DATE	TIME	SEX	GPS COORDINATES		LENGTH OF HORN/ANIMAL OR WEIGHT	REMARKS
WILDEBEEST	ONE	LLZ	375	01/11/2020	17:25	M	8.423638	38.493324	1.1.135	KILLED
ZEBRA	ONE	LLZ	375	02/11/2020	11:15	M	8.469978	38.289601	L. 334	KILLED
ELAND	ONE	LLZ	375	02/11/2020	12:30	M	8.443848	38826301	L.92 R.91	KILLED
HIPPO	ONE	LLLZ	375	02/11/2020	17:00	M	8.30807	38.30674	WeKL69 R.65	KILLED
CIVET	ONE	LLZ	375	02/11/2020	18:00	M	8.29980	38.29698	R.P. L8.5WB	KILLED
WATER BUCK	ONE	LLZ	375	03/11/2020	10:30	M	8.358911	38.531442	L.62.5 R.63	KILLED
HYAENA	ONE	LLZ	375	03/11/2020	11:00	M	8.376159	38.498517	R.P.	KILLED
HARTEBEEST	ONE	LLZ	375	03/11/2020	16:30	M	8.468575	38.392996	L.42.5 R.46	KILLED
WARTHOG	ONE	LLZ	375	04/11/2020	06:40	M	8.399013	38.48593	L.27 R.19	KILLED
IMPALA	ONE	LLZ	375	04/11/2020	09:00	M	8.416949	38.42795	L.34 R.33	KILLED
BABOON	ONE	LLZ	375	04/11/2020	14:00	M	8.479915	38.30587	— —	KILLED

DECLARATION

I (name of client) JOHN SVIHEL hereby declare that the register of game killed is a true record of all animals killed or wounded by me during the validity of this permit.

[redacted] (9) (a)

HUNTING CLIENT SIGNATURE

Date 11/22/2020

PROFESSIONAL HUNTER SIGNATURE

Date 22/11/2020

WILDLIFE OFFICER INCHARGE SIGNATURE

Date 22/11/2020

MKUU WA KANDA
KANDA YA KASK-MASHARIKI
PORI LA AKIBA SELOUS
KINDUMPIRA

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF NATURAL RESOURCES AND TOURISM

TANZANIA WILDLIFE MANAGEMENT AUTHORITY (TAWA)

REGISTER OF GAME KILLED (INCLUDES WOUNDED ANIMALS)

PERMIT NO. MP-0000210 **998411007559**

CLIENT NAME: JOHN JAMES SVIHEL **PH NAME:** JAMIL JAMAL

COMPANY: TRADITIONAL AFRICA SAFARIS (TZ) 2011 LIMITED **PH LICENSE NO:** TZA2019189DAR

SPECIES	NO KILLED	AREA WHERE KILLED	WEAPON USED	DATE	TIME	SEX	GPS COORDINATES		LENGTH OF HORN/ANIMAL FOR WEIGHT	REMARKS
LEOPARD	ONE	LL2	375	20/11/2020	18.20	M	8.38322	38.22066	R.P.L9 WGL	KILLED
RED DUIKER	ONE	LL2	375	21/11/2020	09:15	M	8.34136	38.21736	L.42 R.45	KILLED

DECLARATION

I (name) JOHN SVIHEL [redacted] hereby declare that the register of game killed is a true record of all animals killed or wounded by me during the validity of this permit.

HUNTING CLIENT SIGNATURE Date 11/20/2020

PROFESSIONAL HUNTER SIGNATURE Date 22/11/2020

WILDLIFE OFFICER INCHARGE SIGNATURE Date 22/11/2020

MKUU WA KAMBI KANDA YA KASKAZINI PORI LA AKIBA SELOUS MAGUFURI

OMB Control No. 1018-0093
Expires 08/31/2020

E. IMPORT OF SPORT-HUNTED TROPHIES *(Appendix I of CITES and/or ESA)*

Note 1: This form should be used to request authorization to import trophies of species listed on Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND SOUTHERN WHITE RHINOCEROS TROPHIES TAKEN IN NAMIBIA.

Note 2: If you hold an import permit for a trophy that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

Please provide the following information. Complete all questions on the application. Mark questions that are not applicable with "N/A". If needed, use a separate sheet of paper. On all attachments or separate sheets you are submitting; please indicate the application question number you are addressing. If applying for more than one trophy, be sure to answer questions 4-6 for each trophy addressed in this application. If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

   PRO CARGO USA 15619 MORLES ROAD HOUSTON, TEXAS 77032 ATTN CINDI RULON

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

   CINDI RULON CINDI.RULON@PROCARGOUSA.COM 281-220-3176

3. Disqualification factor. A conviction, or entry of a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act disqualifies any such person from receiving or exercising the privileges of a permit, unless such disqualification has been expressly waived by the Service Director in response to a written petition. (50 CFR 13.21(c)) Have you or any of the owners of the business, if applying as a business, been convicted, or entered a plea of guilty or nolo contendere, forfeited collateral, or are currently under charges for any violations of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court; and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

   a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

PANTHER LEO AFRICAN LION

   b. Sex (if known). MALE

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

   b. Date wildlife is to be hunted:

   c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

6. **IF THE TROPHY HAS ALREADY BEEN TAKEN**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife was removed from the wild:

MUCHINGA PROVINCE IN NORTH LUANGWA AREA NEAR TOWN OF MPIKA ZAMBIA

   b. Date wildlife was hunted:

JULY, 2019

c. Name of hunting outfitter, safari company, or professional hunter you hunted with:

FREESTONE SAFARIS PROFESSIONAL HUNTER DEBRUIN NIEMBER

d. The current location of the trophy (address and country) [the U.S. import permit will identify this country as the country of export/re-export and must match with the foreign export/re-export document]:

BANGWEULU TAXIDERM PLOT 4142 CHIFWEMA ROAD NEW KASAMA ZAMBIA

7. Please provide a copy of any applicable foreign government permits or licenses that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so). ATTACHED

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you must provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	
Business Name:	BANGWEULU TAXIDERMY
Address:	PLOT 4142 CIFWEMA ROAD
City:	NEW KASAMA
State/Province:	ZAMBIA
Country, Postal Code:	

9. For species listed under the U.S. Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service (Service) must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or hunted when making the required findings, if you have any information that could support this finding, it would be helpful for our review if you could provide it. Please submit such information on a separate page with your application.

a. Do you have any information regarding the population status or trend data on the species hunted?

SEE ATTACHED ENHANCEMENT REPORT

b. In order to hunt, you likely paid for licenses or trophy fees. What were those fees and do you have any information on how those funds were used by either the landowner, local community, or government?

I PAID 4200 USD FOR MY HUNT SEE ATTACHED ENHANCEMENT REPORT FOR DETAILS

c. Do you have information on other funding activities that are being carried out, or were carried out, by the safari outfitter, professional hunter, concession holder, or landowner that provide a conservation benefit to the species being hunted/species hunted?

SEE ATTACHED ENHANCEMENT REPORT

OMB Control No. 1018-0093
Expires 08/31/2020

CERTIFICATION STATEMENT (original signature must be provided for either 10 or 11 below)

10. If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national, provide documentation to show you have a Power of Attorney to act on your client's behalf and sign the following statement:

I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying for the import of an elephant trophy, I understand that my client may import no more than two elephant trophies in one calendar year.

Taxidermist/Broker's signature: [signature] Date: 4/07/2021

11. If you are the hunter applying to import your own trophy, please read and sign the following statement:

I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying to import an elephant trophy, I understand that I may import no more than two elephant trophies in one calendar year.

Applicant's signature: _____ Date: _____

Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign governments to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

12. All international shipments must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

NPW FORM 12

ORIGINAL

0000864

S/No.....

REPUBLIC OF ZAMBIA

The Zambia Wildlife Act

(No. 14 of 2015)

(Licences and Fees) Regulations, 2007

(Regulation 7(5))

RECORD OF GAME AND/OR PROTECTED ANIMALS KILLED OR WOUNDED

Name of Professional Hunter: De Bruin Niember NRC/Passport No. 907453/10/2

Residential Address: Farm 738 Mumbwa 40 Lusaka West

Name of Safari Company on behalf of which the Professional Hunter is submitting this return: Freestone Safaris

DETAILS OF CLIENT

Name of client: Phillips IV Wallace

Tel/Mobile No. (b) (6) NRC/Passport No:

Postal Address: Freestone Safaris Nationality: USA

Type of Licence: Non-Resident Residential Address: USA

Date of Issue: 08/07/2019 Licence No. 0002424/00 3567/00 3570/00 3634/ Chilanga

Name of Hunting Block where hunting was conducted: Lunga-West Mkushi

Hunting period From 08/07/2019 To 30/07/2019

Date Killed or wounded	Species	Sex	Number killed	Number Wounded	GPS Location	Trophy for export Yes	Trophy for export No	Foreign currency value charged to client
11/07/2019	Crocodile	M	1		S14°27.0[illegible]	✓		
11/07/2019	Hippo	M	1		[illegible]	✓		
16/07/2019	ROAN	M	1		[illegible]	✓		
19/07/2019	LION	M	1		[illegible]	✓		
20/07/2019	Impala	M	1		[illegible]	✓		

DETAILS OF TROPHY MEASUREMENTS

Species	Length of Skin	Length of Tusk	Average length of horn	Length of Skull
Crocodile	12.8 Ft			
Roan			25"	
Impala			17"	
Lion				38cm

Certification by -

(a) Client

I certify that the animals listed on this return were hunted or wounded by me during the period stated and that the total amount of foreign currency stated and paid by me to the safari company is the full amount I was charged.

(b) Professional Hunter

I certify that the animals listed in this return were actually hunted by the client in accordance with the terms and conditions of the Safari Hunting Licence and that the total foreign currency stated above is the full amount paid by the client for the hunt.

Date 22/07/2019 Signature of Client Wallace IV

Date 22/07/2019 Signature of Professional Hunter

Date 22/07/2019 Name of Wildlife Police Officer JONES KOFI

Employment No. of W.P.O 276021

Signature of W.P.O

Notes: Original copy to Committee ** Duplicate to Safari Company ** Triplicate to Commercial ** Quadruplicate to be retained in the book

Original

NPW FORM 2

S/No. 0002626

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue: Chilanga Date of Issue: 13/05/2019

DETAILS OF LICENSEE

Full Name: Phillips IV Wallace NRC No./Passport No.: (b) (6)

Nationality: USA Age:

Tel/Mobile No.: E-mail:

Full Name of Safari Company: Freestone Safaris Ltd

Certificate of Incorporation No.: Date of Incorporation:

Postal Address: Freestone Safaris Residential Address: Lindy

Firearm Licence/Tourist Firearm Import No.: 611816 Calibre of Firearm: 416

Type of Hunt: Classical

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Lion	1st	M	Lindy	2019	4200

Total Animals fees paid - the kwacha equivalent of US$ 4200
Concession Fees paid - the kwacha equivalent of US$
Grand Total the kwacha equivalent of US$ 4200

Official Stamp

Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Serial No. 555555

NPW FORM 5B

S/No.: .....

REPUBLIC OF ZAMBIA

THE ZAMBIA WILDLIFE ACT
(ACT NO. 14 OF 2015)

0006162

THE ZAMBIA WILDLIFE
(LICENCES AND FEES) REGULATION, 2007

Appendix 2 Second Schedule(3)
PERMIT TO HUNT IN A GAME MANAGEMENT AREA

Station of issue: Chilanga Date of Issue: 08/07/2019

DETAILS OF PERMIT HOLDER

Full name: Phillips IV Wallace NRC/Passport No: (b) (6)

Tel/Mobile No.: E-mail address:

Postal Address: Freestone Safaris Residential Address: USA

DETAILS OF FIREARMS

Firearm Licence No(s) 1.: 611816 2. 3.

Calibre(s) 1.: 9.3x74R 2. 600 NE 3. 416 / 300

DETAILS OF LICENCES, HUNTING AREA & HUNTING TYPE

Resident/Non Resident Hunting Licence No (s)

Bird Hunting Licence No: 0004210

Hunting Type: Non Resident

is hereby authorised to hunt in Musalangu Game Management Area,

Lundu Hunting block for days from 08/07/19

to 30/07/19 (Dates inclusive)

Amount Paid: $ 150 GRZ Receipt No: 0043844

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
Official Stamp
8 JUL 2019
LICENSING
PRIVATE BAG 1 CHILANGA ZAMBIA

Chairperson of the Committee

Note: ... to Accounts - Triplicate to Commercial - Quadruplicate to be retained in the Book

Conservation Force v.5/8/18

Operator Enhancement Questionnaire

1. Name of area operator: Freestone Safaris Ltd.
   a. Years in business: 03
   b. Name of company conducting hunt: Freestone Safaris Ltd.
2. Name of concession: Lunsu Size in km²: 6184 km²
   a. Land tenure: __ Government lease ✓ Community __ Private ranch __ Private conservancy
   b. Length of concession agreement: 10 Can it be renewed? ✓ Yes __ No
   c. Length of renewal, if applicable: 10
   d. Estimated total amount received in trophy fees last year, if applicable: $ ±350 000$
   e. Are there any special obligations under the concession agreement such as annual reporting, poaching control, community investment, community employment, etc.? If so, please explain: Yes, Community Obligation Donation, Infrastructure Development, Law Enforcement Contribution, Resource Monitoring, Fire Management.
   f. Please provide the concession location and nearest city. Please attach a map or maps with the boundaries marked and showing the nearest city: North Luangwa, Muchinga Province Zambia, Nearest town → Mpika.
   g. If the concession borders a national park, please provide the park name: _____
   h. Description of general and distinctive habitat features and any water features: Typical valley, mopane, miombo woodlands.
3. Are there any communities living in the concession? ✓ Yes __ No
   a. If so, estimated number of people or villages in the concession? 6 villages.
4. Are there communities bordering this concession? ✓ Yes __ No
   a. If so, estimated number of people or villages around the concession? Many
5. Relevant game populations in the concession:[1]

Species name	Relative Abundance (dense/avg./sparse)	Est. population	3-Year trend (up/ down/ stable)	How monitored?
Elephant	Average		up	Scouts.
Lion	Dense.		up	Scouts.
Leopard	Dense.		up	Scouts.
Prey species	Sparse Average.		up	Scouts.

6. Total employment number: 70
   a. Please identify the number and type of all employees:

[1] The new FWS import permit application form asks the applicant: "9. a. Do you have any information regarding the population status or trend on the species hunted?"

Conservation Force
Operator Enhancement Questionnaire

v.5/8/18

Type	Total number of this type	Number of this type who are local/from nearby communities
Professional Hunters	02	
Trackers	04	04
Anti-poaching scouts/rangers	21	21
Other anti-poaching		
Cooks/housekeepers	04	04
Community coordinators		
Managers	01	01
Biologists		
Others: Skinners/cleaners etc.	06	06

7. Number of staff employed in the off-season: 09

   a. Please identify the number and type of staff that are engaged when the season is not open:

Type	Total number of this type	Number of locals/from nearby communities	When employed?
Anti-poaching staff	21	21	All year
Managers	01	01	11
Maintenance			
Road opening/construction	30	30	May - Jul
Community relations personnel			
Others: _____			

8. Anti-poaching efforts:[2]

   a. Number of anti-poaching staff: 21

   b. Are anti-poaching patrols conducted during the hunting season, off-season, or both? Both

   c. Months during which anti-poaching patrols are conducted: All year

   d. Number of anti-poaching patrols per month: 06

   e. Description of anti-poaching equipment, vehicles, etc.: Land Cruiser, 2 motorbikes.

   f. Who is responsible for organizing and coordinating anti-poaching from prevention through successful prosecution? Government

   g. Do you offer rewards to poaching informants leading to arrest? ✓Yes __No

   h. Do you offer rewards to poaching informants upon conviction? ✓Yes __No

   i. Please describe the company's anti-poaching expenditures below. What currency are the expenditures given in? ± 400 000 zmw/pr annum, in Zambia Kwacha.

[2] The new FWS import permit application asks for activities that provide a "conservation benefit" to the species. The FWS considers anti-poaching a "conservation benefit."

Conservation Force
Operator Enhancement Questionnaire

Type of expense	Spending 2015	Spending 2016	Spending 2017	Remarks
Salaries for anti-poaching scouts			250 000	Only been operating from 2017
Equipment			30 000	
Vehicles				
Petrol				
Rewards paid			20 000	
Other: _____				
Other: _____				
TOTALS				

9. Anti-poaching results:

Category	2015	2016	2017	Remarks
Poaching incidents discovered			± 20	
Elephant carcasses observed			02	
Lion carcasses observed			—	
Leopard carcasses observed			—	
Ivory poachers arrested			02	
Meat poachers arrested			05	
Other poachers arrested				
Poachers convicted			04	
Snares/gin traps collected			many	
Firearms confiscated			many	
Vehicles confiscated			—	
Bicycles confiscated			—	
Boats/nets confiscated			many	
Tusks recovered			04	
Other: _____				

10. Community investment:[3]

a. Does the company contribute money or goods/services to local communities? ✓ Yes __ No

b. If so, what percentage or amount is shared, how often, and why (e.g., required by law, required by contract, voluntary contribution)? $20 000, Required by Contract.

c. Does the company provide game meat to nearby communities? ✓ Yes __ No

d. If so, please estimate the amount and/or value of meat contributed in prior year and describe the meat contribution program: 50%.

e. If the company performs problem animal activities for surrounding communities (e.g., patrolling fields during the harvest, chasing away problem animals, conducting PAC hunts or PAC killings), please describe. Don't do

[3] The new FWS import permit application asks for activities that provide a "conservation benefit" to the species. The FWS considers community investment a "conservation benefit."

f. Please describe any consolation payments made to local residents damaged by game species. What currency are the expenditures reported in? ___/ Ant-do

Species	Damage caused	Consolation paid 2015	Consolation paid 2016	Consolation paid 2017
Elephant				
Lion				
Leopard				
Other				

g. Please describe any community projects paid for by the company. What currency are the expenditures reported in? This is managed by Community Resource Board from company contributions. Thus detailed info not known.

Type of project	Spending 2015	Spending 2016	Spending 2017	Remarks
Education (e.g., classrooms, offices)				
Education (e.g., school fees, supplies)				
Health (e.g., clinics, offices)				
Health (e.g., medical salaries, equipment)				
Community scout salaries				
Other community anti-poaching				
Local government activities				
Water infrastructure improvements				
Sports teams funded				
Construction materials donated				
Other: _____				
Other: _____				
TOTALS				

11. How many U.S. clients did the company have in the past three years, what percentage of the company's clients were from the U.S., and what fees did they pay?

	Hunting elephant	Hunting lion	Hunting leopard	Hunting all species
Number of U.S. clients	2015: 2016: 2017: 00	2015: 2016: 2017: 01	2015: 2016: 2017: 03	2015: 2016: 2017: 05
Percentage of U.S.	2015: /	2015: 100%	2015: 75%	2015: 40%

clients	2016: 2017:	2016: 2017:	2016: 2017:	2016: 2017:
Trophy fees paid by U.S. clients	2015: 2016: 2017:	2015: 2016: 2017: 75000$	2015: 2016: 2017: 75000$	2015: 2016: 2017: 60000$

12. Approximate dollar amount and/or percentage of the company's revenue from U.S. clients:
60%

13. Other information: Please provide a narrative of other enhancement information about the operation, such as any special hunting policies (e.g., aging, size, resting areas), concession improvements (e.g., digging and maintaining boreholes, restocking), management activities, research, etc. Strict government rules, on lion & leopard ageing as well as minimum sizes of elephants and no females hunted.

14. I declare that the foregoing is true and correct.

Signature: _____

Name: Hernan Nievabo Title: Mr.

Professional Cargo Services Inc.

15619 Morales Rd., Houston, Texas 77032 281-220-3158

BELOW IS A POWER OF ATTORNEY FORM WHICH IS REQUIRED BY U.S. CUSTOMS, TO ALLOW US TO TRANSACT U.S. CUSTOMS CLEARANCE ON YOUR BEHALF.
U.S. Customs Services 141.32 C.R.

CUSTOMS POWER OF ATTORNEY

SS #: (b) (6)

Cell Phone #: (b) (6)

Email Address:

X Individual

KNOW ALL MEN BY THESE PRESENTS: That Wallace S. Phillips IV (Full Name of Person), residing at (b) (6) BRYAN, TX 77808

hereby constitutes and appoints each of the following persons, **Professional Cargo Services Inc.**, may act through any of its offices or any employees with Power of Attorney on file with this licensed broker as required by the Regional Commission of Customs as a true and lawful agent and attorney of the grantor named above for and in the name, place, steed of said grantor from this date and in all Customs Districts, and in no other name, to make, endorse, sign, declare, or swear to any entry, withdrawal, declaration, certificate, bill of lading, or other document required by law or regulation in connection with the importation, transportation, or exportation of any merchandise shipped or cosigned by or to said grantor; to perform any act or condition which may be required by law or regulation in connection with such merchandise; to receive any merchandise deliverable to said grantor: To make endorsements on bills of lading conferring authority to transfer title, make entry or collect drawback, and to make, sign, declare, or swear to any statement, supplemental declaration of proprietor on drawback entry, declaration of exporter on drawback entry, or any other affidavit or document which may be required by law or regulation for drawback purposes, regardless of whether such bill of lading, sworn statement, schedule, certificate, abstract, declaration, or other affidavit or document is intended for filing in any customs district. To sign, seal, and deliver for and as the act of said grantor any bond required by law or regulation in connection with the entry or withdrawal of imported merchandise or merchandise exported with or without benefit of drawback, or in connection with the entry, clearance, lading, unlading or navigation of any vessel or other means of conveyance owned or operated by said grantor, and any and all bonds which may be voluntarily given and accepted under applicable laws and regulations, consignee's and owners declarations provided for in section 485, Tariff Act of 1930, as amended, or affidavits in connection with the entry of merchandise: To sign and swear to any document, and to perform any act that may be necessary or required by law or regulation in connection with the entering, clearing, lading, unlading, or operation of any vessel or other means of conveyance owned or operated said grantor. To authorize other Customs Brokers to act as grantor's agent; to receive, endorse and collect checks issued for Customs duty refunds in grantor's name drawn on the Treasurer of the United States; if the grantor is a nonresident of the United States, to accept service of process on behalf of the grantor. And generally to transact at the customhouses in said district any and all customs business, including making, signing, and filing of protests under section 514 of the Tariff Act of 1930. In which said grantor is or may be concerned or interested and which may properly be transacted or performed by an agent and attorney, giving to said agent attorney full power and authority to do anything whatever requisite and necessary to be done in the premises as fully as said grantor could do if present and acting, hereby ratifying and confirming all that the said agent and attorney shall lawfully do by virtue of these presents; the forgoing power of attorney to remain in full force and effect until notice of revocation in writing is duly given to and received by the District Director of customs of the district aforesaid. If the donor of this power of attorney is a partnership, the said power shall in no case have any force or effect after the expiration of two years from the date of its execution. Or until revoked. Pursuant to 19 CFR 111.36(a), election is made waiving the right to receive invoices, supporting documents and correspondences from Professional Cargo Services Inc. duties and services performed on our behalf. It is understood the right to revoke said waiver is continuing.

Customs Rules on Discharge of Importers Liability for Duties

The U.S. Customs Service has issued a final amendment of the regulations to provide an alternative procedure for an Importer record to pay duties on imported merchandise through a licensed customhouse broker. Present rules provide for the payment of duties to Customs by a broker on behalf of the importer. Under the alternative procedure, the Importer may elect to submit to the broker a separate check or bank draft for the duties payable to the "U.S. Customs Service." The broker would then deliver the Importer's check or bank draft to Customs. The new rule also requires brokers to provide written notification to their clients, advising that if the client is an Importer of record, payment to the broker will not relieve the client of liability for Customs charges in the event that the charges are not paid by the broker. Brokers will be required to provide this notification to all active clients annually during the month of February. Additionally, brokers will be required to provide such information on a power of attorney executed on or after the effective date of the new rule. The amendments are effective as of September 27, 1982.

(Print Name) Wallace S. Phillips (b) (6) by John Rulon CHB ATTY IN FACT has caused these presents to be sealed and signed:

Signature: (b) (6)

Date: 3/18/2020

APPLICANT:

TODD FRY

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit.** If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Todd Fry - (b) (6) Boerne, Texas 78006

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Panthera leo

b. Sex (if known).

female

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

N/A

b. Date wildlife is to be hunted:

N/A

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

N/A

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

Bubye Valley Conservancy, Masvingo Province, Zimbabwe

b. Date wildlife was hunted:

November 3rd, 2018

c. Approximate age of animal:

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

Mazunga Safaris, Professional Hunter- Pete Fick

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

Mazunga Safaris - 8 Norfolk road, Hillside, Bullawayo, Zimbabwe

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

See provided hunting permits

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	Pete Fick
Business Name:	Mazunga Safaris
Address:	8 Norfolk Rd.
City:	Bulawayo
State/Province:	Zimbabwe
Country, Postal Code:	

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.

11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):	Pete Fick
E-mail:	bulawayo@bvczim.com
Phone number:	+263-772 278 779

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature: _____ (b) (6) _____ Date: 1/2021

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

APPLICANT:

TODD FRY

HUNTING PERMITS

HUNTING RETURN FORM - TRAS2
APPLICATION FOR HUNTING NP/CITES

Issued in terms of Exchange Control Act (Chapter 22:05),
The Parks and Wild Life Act (Chapter 20:14) and the Tourism Act (Chapter 14:20)

0000081269
HUNT_FUNDS_CAPTURED

1. DETAILS OF THE SAFARI OPERATOR

Name of Operator	Mazunga Safaris (Pvt) Ltd	**Client's Full Name**	TODD DARYLE FRY
ZTA (HOP) No.	HOP0062	**Passport Number**	(b) (6)
		Country of Issue	UNITED STATES
Address	Bubye Valley Conservancy 8 Norfolk Road P O Box 9169, Hillside, Bulawayo	**Address**	(b) (6) BOERNE, TEXAS 78006, USA
Name of Professional Hunter	P FICK	**Licence No.**	112
Telephone		**Fax**	NIL
Number of Accompanying Guests			1
Are the trophies being exported after tanning and mounting?			
Are the trophies being exported after primary treatment?			
Name of Processing Agent or Taxidermist	TROPHY CONSULTANTS INTERNATIONAL	**Address**	4 JOSIAH CHINAMANO RD BELMONT BULAWAYO
Name of Shipping Agent	Maple freight	**Address**	4th Josiah Chinamano Road Belmont Bulawayo Zimbabwe
Name of Foreign Agent	TRACY SAFARI ADVENTURES	**Address**	5424 SUNOL BOULEVARD #10 STE 235, PLEASANTON CA 94566 USA

2. HUNTING AREAS

	Hunting Area Name	Province	Signature of Land Authority
1	Bubye Valley Conservancy	Masvingo	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Date of Safari From	25-10-2018
Date of Safari To	11-11-2018
Daily Rate Charged For Big Game USD	3,000.00
Daily Rate Charged For Plains Game USD	.00
Daily Rate Charged for Non hunting guests USD	300.00
Number of Accompanying Guests	1

ZPWMA
Date Stamp

3. DETAILS OF DEPOSITS

(All Inclusive of Daily Rate, Trophy Fees, Processing, Handling charges and any other incidentals)

(i) Safari Operator

	Value Date	ECA Number	ECA Date	Currency	Invoice Amount	Amount Paid
1	31-OCT-2018	DMS/25291	23-JAN-2019	USD	129,896	57,262
2	22-NOV-2018	DMS/25291	23-JAN-2019	USD	129,896	47,729
3						
4						

(ii) Taxidermist

	Value Date	ECA Number	ECA Date	Currency	Invoice Amount	Amount Paid
1						
2						
3						
4						

4. FINANCIAL DATA

Total Daily rate	54,000.00	**Total Guests rate**	3,600.00
Less Commission	24,905.02	**Total Trophy fees**	66,925.00
Other fees (incidentals)	5,371.00	**Grand Total USD**	104,990.99
Percentage Commission Charged	46.13	**Total Processing Fees**	

5. DETAILS OF SPECIES HUNTED

	SPECIES	SEX	W/K	CONCESSION/FARM	GRID REF	DATE SHOT	SCI TROPHY SIZE	TROPHY FEES
1	ZEBRA	M	Killed	Bubye Valley Conservancy	36k 971 079	02-NOV-2018	N/A	1,100
2	ZEBRA	M	Killed	Bubye Valley Conservancy	35k 088 909	01-NOV-2018	N/A	1,100
3	ZEBRA	M	Killed	Bubye Valley Conservancy	36k 038 064	25-OCT-2018	N/A	1,100
4	ZEBRA	M	Killed	Bubye Valley Conservancy	36k 958 965	30-OCT-2018	N/A	1,100
5	ZEBRA	F	Killed	Bubye Valley Conservancy	36k 952 093	31-OCT-2018	N/A	1,100
6	ZEBRA	M	Killed	Bubye Valley Conservancy	36k 958 965	30-OCT-2018	N/A	1,100
7	ZEBRA	F	Killed	Bubye Valley Conservancy	35k 952 093	31-OCT-2018	N/A	1,100
8	ZEBRA	M	Killed	Bubye Valley Conservancy	36k 039 058	25-OCT-2018	N/A	1,100
9	ZEBRA	M	Killed	Bubye Valley Conservancy	35k 023 910	31-OCT-2018	N/A	1,100
10	ZEBRA	M	Killed	Bubye Valley Conservancy	36K 216 597	03-NOV-2018	N/A	1,100
11	HYENA	F	Killed	Bubye Valley Conservancy	36K 032 932	30-OCT-2018	N/A	725
12	ELAND	M	Killed	Bubye Valley Conservancy	35k 961 879	05-NOV-2018	31	1,800
13	GIRAFFE	M	Killed	Bubye Valley Conservancy	36k 139 113	27-OCT-2018	N/A	1,800
14	GIRAFFE	M	Killed	Bubye Valley Conservancy	36k 007 195	01-NOV-2018	N/A	1,800
15	GIRAFFE	M	Killed	Bubye Valley Conservancy	36k 956 877	30-OCT-2018	N/A	1,800
16	LION	F	Killed	Bubye Valley Conservancy	36k 987 008	03-NOV-2018	20 3/4	6,000
17	LION	M	Killed	Bubye Valley Conservancy	36k 961 879	03-NOV-2018	26 1/2	42,000
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

050/001696

NP/CITES FORM 10

This permit is not valid (in the case of issue by the Head Office of the Zimbabwe Parks & Wildlife Management Authority) unless payment is reflected in cash register figures in this box (See paragraph 18 on reverse)

PHL: .....
PHL 01
Amount Paid$4000
Date 12/12/17
Re. 1000267

(payment details)

ORIGINAL
VALID AS AUTHORITY TO HUNT

ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY
HUNTING PERMIT
PARKS AND WILDLIFE ACT [*CHAPTER 20:14*]

Permission is hereby granted on the authority of the Minister of Environment and Natural Resources Management in terms of the Parks and Wildlife Act [*Chapter 20:14*],

to Lemco-Mazunga Safaris

of Bubye Valley Conservancy

and co-hunter .....

of .....

Firstly to hunt in Hunt Number or Section Bubye Valley Conservancy of the Mat South

..... Area, such number of animals as is indicated in column "A" below against the name of the animals specified. Such hunting shall be conducted during the period extending between 01-01-18 and 31-12-18 (inclusive dates)

Animal	A	B	Animal	A	B	Animal	A	B
Waterbuck (m)		80	Warthog (m)		100	Wildcat		30
Baboon		50	Gemsbok (m)		2	Kudu (m)		75
Buffalo (m)		120	Genet Cat		25	Klipspringer		10
Bushbuck (m)		10	Giraffe (m)		55	Leopard (m)		19
Bushpig		40	Guinea fowl		1000	Lion (m)		16
Caracal		3	Francolin		500	Monkey		30
Cheetah (m)		1	Doves		2000	Nyala (m)		15
Civet Cat		30	Honey Badger		40	Porcupine		20
Duiker (m)		15	S. Hyena		40	Sable (m)		10
Eland (m)		80	Impala		750	Serval		3
Elephant (m)		3	Jackal		60	Steenbok (m)		30
Wildbeest (m)		200	Zebra		250	Tsessebe (m)		1

Secondly to remove from the Hunting Area such number of animals as indicated in column "B" above against the name of the animal specified. An animal specified may be removed in whole or in part unless there is a condition on this permit prohibiting such removal.

Thirdly to sell, within a period of six months from the second date which appears above, the trophies of such number of animals as may be indicated in column "B" above against the name of the animal and subject to any other regulations which may be in force governing movement, sale or export of wildlife trophies.

The holder of this permit shall not permit any other person to hunt the animals specified in addition to such holder and his co-hunter appointed at the time of issue of this permit.

This permit is issued strictly subject to the terms and conditions which appear on the reverse.

.....
for and on behalf of the Director General, *Parks and Wildlife Management Authority*

(Designation) AREA MANAGER

.....
for *Finance Manager*

.....
for and on behalf of the Director General, *Parks and Wildlife Management Authority*

Parks and Wildlife Management Authority
MANAGEMENT SERVICES CONSUMPTIVE
27 DEC 2017
HEAD OFFICE

Date stamp of authority which issue the permit

050 001902

NP/CITES FORM 10

This permit is not valid (in the case of issue by the Head Office of the Zimbabwe Parks & Wildlife Management Authority) unless payment is reflected in cash register figures in this box (See paragraph 18 on reverse)

PHL:
PHL 321
Amount Paid$250
Date 09/08/18
Rec. H10R076016
Being additional permit permit # 001696 after quota ammendment
(payment details)

ORIGINAL
VALID AS AUTHORITY TO HUNT

ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY

HUNTING PERMIT

PARKS AND WILDLIFE ACT [*CHAPTER 20:14*]

Permission is hereby granted on the authority of the Minister of Environment and Natural Resources Management in terms of the Parks and Wildlife Act [*Chapter 20:14*],

to Lemco-Mazunga Safaris

of Bubye Valley Conservancy

and co-hunter .....

of .....

Firstly to hunt in Hunt Number or Section Bubye Valley Conservancy of the Mat South

..... Area, such number of animals as is indicated in column "A" below against the name of the animals specified. Such hunting shall be conducted during the period extending between 09-08-18 and 31-12-18 (inclusive dates)

Animal	A	B
Hyena (brown)		2
Lioness		10
XXXXXXXXXXXXXXXXXXXXXX		

Animal	A	B
XXXXXXXXXXXXXXXXXXXXXXXXX		

Animal	A	B
XXXXXXXXXXXXXXXXXXXXXX		

Secondly to remove from the Hunting Area such number of animals as indicated in column "B" above against the name of the animal specified. An animal specified may be removed in whole or in part unless there is a condition on this permit prohibiting such removal.

Thirdly to sell, within a period of six months from the second date which appears above, the trophies of such number of animals as may be indicated in column "B" above against the name of the animal and subject to any other regulations which may be in force governing movement, sale or export of wildlife trophies.

The holder of this permit shall not permit any other person to hunt the animals specified in addition to such holder and his co-hunter appointed at the time of issue of this permit.

This permit is issued strictly subject to the terms and conditions which appear on the reverse.

Date stamp of authority which issue the permit

10 AUG 2018
HEAD OFFICE

.....
for and on behalf of the Director General, *Parks and Wildlife Management Authority*

(*Designation* ADMIN)

.....
for *Finance Manager*

.....
for and on behalf of the Director General, *Parks and Wildlife Management Authority*

(*Designation* DG)

Printed by Printflow (Private) Limited.

APPLICANT:

TODD FRY

ENHANCEMENT INFORMATION

Applicant: Todd Fry

Import Permit Application (supplement)

Lioness from Bubye Valley Conservancy

For Species listed under the endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of species involved. While we will communicate with the range country for the species you will hunt or hunted when making the required findings, if you have any information that could support this finding it would be helpful to our review if you could provide it. Please submit such information on a separate page with your application.

A. Do you have any information regarding the population status or trend data on the species hunted?

   We have provided several documents that include population status trends of lions and lionesses in the Bubye Valley Conservancy. The lion population has exploded in this region and it now has the largest lion population in Zimbabwe. There is a survey included for 2020 where it estimates the increase in the lion population to be 24%, up from 2019. The lion population has grown too large, and currently the overpopulation has had a crippling effect on the prey species. The tiny percentage of old male lions that are harvested yearly will have little to no effect on this growing population.

B. In-order-to hunt you likely paid for licenses or trophy fees. What are those fees, and do you have any information on how those funds were used by either the landowner, community, or government?

   In almost all the documents provided you will see a mention of trophy fees and how they are spent. Much research has been conducted about how to handle the overpopulation of the lions in this region – and trophy hunting is the only one that brings revenue to the conservation of these animals. It is approximately, $45,000 to hunt a lion in Bubye Valley Conservancy and all that money goes back to conservation and maintaining the habitat.

C. Do you have information on other funding activities that are being carried out, or were carried out, by the safari outfitter, professional hunter, concession holder, or landowner that provide a conservation benefit to the species being hunted/ species hunted?

   Please see the operator enhancement report provided by Mazunga Safaris.

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
PHILIPPE CHARDONNET, D.V.M.
SHANE MAHONEY
RENEE SNIDER

January 7, 2021

Department of the Interior
U.S. Fish and Wildlife Service
Division of Management Authority (DMA)
Attn: Amy Brisendine
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803
VIA E-Permits

RE: **Import Permit Application for a sport-hunted lioness trophy from Zimbabwe**
APPLICANT: **Todd Fry**
Area of Hunt: **Bubye Valley Conservancy**

Ms. Brisendine,

Enclosed, please find the USFWS permit application to import a sport-hunted lioness trophy from Zimbabwe for Mr. Todd Fry. Mr. Fry went on safari in November of 2018 and took a lion in the Bubye Valley Conservancy with Mazunga Safaris. While there he was offered to hunt a troublesome lioness and was successful in the hunt.

The Bubye Valley Conservancy has Zimbabwe's largest lion population and supports an astounding 35 species of wild, free-ranging game animals including the classic Big Five. It is well-known for its strict hunting policies and rigorous enforcement of ethical hunting practices that all professional hunters must abide by. The Conservancy has one of the best records of anti-poaching initiatives in Zimbabwe, with no elephants, lions, or leopards poached to date. Due to the successful management of the area the lion population has continued to flourish, so much that there is an over abundance of lion in the area that have become troublesome to prey population and the balance of the ecosystem. The small percentage of old male lions that are able to be hunted per year has little to no effect on the overall population control. Removal of lone, non-lactating lioness have been identified as an important management objective aimed at reducing the overall lion population. The hunting of selected lionesses will benefit the conservancy ecologically as well as financially, enabling them continue their successful conservation endeavors.

The USFWS has already found the hunting in this area to be non-detrimental to the lion population and has proven to enhance the species by issuing over 7 permits for this area that Conservation Force has applied for (PRT #'s MA27002D, MA16345D, MA6473B, MA62562C, MA62528C, MA08061D, and MA42492D). We ask that you consider this information and the supporting documents submitted when making an enhancement decision on this application and issuing an import permit.

If you have any questions about this import application, please do not hesitate to contact us.

3240 S I-10 Service Road W, Suite 200 • Metairie, Louisiana 70001 • USA
Telephone: (504) 837-1233 • Fax (504) 837-1145 • Email: cf@conservationforce.org
www.conservationforce.org

Sincerely,

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Todd Fry (w/attachments)

Enclosures:

a. FWS Permit Application Form 3-200-20- Section "E"
b. Notice of Representation
c. Hunting Permits
d. Operator Enhancement Report
e. Bubye Valley Conservancy Motivation for Hunting of Adult lionesses
f. Lion Research Program- "The Big Cats"
g. Thanks to Sport Hunters, a Zimbabwean Wildlife Conservation Success Story
h. Lion conservation and Trophy Hunting Report – Appendix C: Case Study of Bubye Valley Conservancy
i. E-mail from Pete Fick – regarding overabundance of lion population in Bubye Valley
j. Bubye Valley Conservancy Lion Call-Up Survey Report

APPLICANT:

TODD FRY

E-MAIL FROM PETE FICK-
OPERATOR
OF BUBYE VALLEY CONSERVANCY

Hi Aimee

Attached is our latest lion survey from this year on the Bubye Valley Conservancy.

In short the survey shows an increase of 24% of our lion population compared to the 2019 survey. Obviously such a large increase is very concerning and not sustainable for the area. The tiny percentage of old male lions that we harvest will have little to no effect on our population. After 9 years of extensive scientific lion research it is recommended by the scientists that a sustainable population for us should be in the region of 250 lions. The over population of lion (and both brown and spotted hyena) has had a crippling affect on all prey species and cheetah. Although the BVC still has a very healthy giraffe population we have lost in excess of 50% of our giraffe, primarily due to lion predation. All prey species have been detrimentally affected and in some cases we have lost more than 75% of some species.

It has been extremely difficult for us to find suitable areas in Africa to move excess lions, however plans are in place to move between 15 – 20 lions to the Nuanetsi wild life conservancy. This is an area of approximately 350 000 acres with abundant prey species and presently has no lions.

Regards Pete

APPLICANT:

TODD FRY

NOTICE

OF

REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III and Regina Lennox of the non-profit firm Conservation Force as my attorneys and legal representatives for all matters concerning my applications for a permit to import a lawfully hunted LIONESS trophy.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation.

I also request that these attorneys, through the address for Conservation Force below, be copied with all correspondence, acknowledgements, notices and decisions concerning my application to import my trophy at the following address:

Conservation Force
3240 S. I-10 Service Road W., Suite 200
Metairie, Louisiana 70001 USA
T: (504) 837-1233
F: (504) 837-1145
E: cf@conservationforce.org

Signed (b) (6)

Name: TODD D FRY

Date: 1-2021

APPLICANT:

TODD FRY

OPERATOR ENHANCEMENT REPORT

OPERATOR ENHANCEMENT QUESTIONNAIRE

1. **OPERATOR INFORMATION**
   a. Name of Area Operator: MAZUNGA SAFARIS
   b. Years in business: SINCE 1995
   c. Name of Company conducting hunt: MAZUNGA SAFARIS
   d. Closest town to hunt location: BEITBRIDGE
   e. Country where hunt will take place: ZIMBABWE
2. **CONCESSION**
   a. Name of Concession: BUBYE VALLEY CONSERVANCY
   b. Area in Km^2: 3,400 SQUARE KILOMETRES (BIGGER THAN LUXEMBOURG)
   Land tenure:
   Government Lease ____ Community ____ Private Ranch YES Private Conservancy
   c. Length of Concession Agreement: N/A
   d. Can it be renewed? Yes N/A No ____
   e. Length of Renewal, if applicable: N/A
   f. Estimated total amount received in trophy fees last year, if applicable: US$2060312
   g. Are there any special obligations under the Concession Agreement such as annual reporting, poaching control, community investment, community employment, etc.? If so, please explain below:
   SHAREHOLDERS EXPECT ANNUAL REPORTING. MAZUNGA PARTICIPATES IN ALL OF THE ABOVEMENTIONED ACTIVITIES, FUNDED BY HUNTING REVENUE, AS WELL AS THOSE LISTED BELOW: *(NOTE: MAJORITY OF EMPLOYEES ARE FROM SURROUNDING COMMUNITIES.)*
   - THE RHINO PROTECTION OPERATIONS
   - COMMUNITY DEVELOPMENT AND SUPPORT

   h. Please provide the Concession location and nearest City: NEAREST TOWN BEITBRIDGE.
   BEITBRIDGE DISTRICT - MATABELELAND SOUTH
   i. Please attach a map or maps with the boundaries marked and showing the nearest City MAP ON WEBSITE
   j. If the Concession borders a National Park, please provide Park name: N/A
   k. Description of general and distinctive habitat features and any water features:
   LOW LYING ARID MOPANE WOODLAND WITH THE BUBYE RIVER RUNNING THROUGH THE MIDDLE OF THE PROPERTY – SEASONAL RIVER, NOT PERENIAL. A NUMBER OF DAMS CONSTRUCTED FOR GAME WATER SUPPLIES AND ALL WATER POINTS (APPROX 350) ARE PUMPED FROM THE DAMS OR BOREHOLES. IE. ARTIFICIAL WATER POINTS.
3. **COMMUNITIES IN THE CONCESSION**
   a. Are there any communities living in the Concession? Yes ____ No NO
   b. If so, estimated number of people or villages in the Concession? N/A
   c. Are there communities bordering this Concession? Yes YES No ____
   d. If so, estimated number of people or Villages around the Concession? OVER 5000

4. **RELEVANT GAME POPULATIONS IN THE CONCESSION:**[1]

SPECIES NAME	RELATIVE ABUNDANCE			ESTIMATED POPULATION	3-YEAR TREND			HOW IS IT MONITORED?
	DENSE	AVG.	SPARSE		UP	DOWN	STABLE	
ELEPHANT		√		750	√			AERIAL SURVEY
LION	√			450 - 500				ANNUAL BAITED CALL-UP SURVEY
LEOPARD		√		300				ANNUAL CAM-TRAP SURVEY
PREY SPECIES	√			40 000 +		√		ANNUAL ROAD STRIP COUNTS & AERIAL SURVEY

[1] The FWS Import Permit Application form asks the applicant: "9. a. Do you have any information regarding the population status or trend on the species hunted?"

5. LOCAL COMMUNITY PARTICIPATION

a. Total employment number: **500 THE MAJORITY OF WHOM COME FROM SURROUNDING COMMUNITIES - VARIES SLIGHTLY DURING THE YEAR.**

b. Please identify the number and type of all employees:

EMPLOYEE TYPE	TOTAL NUMBER OF THIS TYPE	NUMBER OF THIS TYPE WHO ARE LOCAL/FROM NEARBY COMMUNITIES
PROFESSIONAL HUNTERS	±12	NIL
TRACKERS	± 30	± 20%
ANTI-POACHING SCOUTS/RANGERS	±180	± 70%
OTHER ANTI-POACHING – FENCE GUARDS	±48	± 80%
COOKS/HOUSEKEEPERS	±43	± 60%
COMMUNITY COORDINATORS	4	± 100%
MANAGERS	±13	2
BIOLOGISTS	±2	NIL
OTHERS: NGO/RESEARCHER/RHINO MONITORING MAINTENANCE/GENERAL WORKERS	1 ±170	NIL ± 80%

6. Number of staff employed in the off-season: +/-500

a. Please identify the number and type of staff that are engaged when the season is not open:

EMPLOYEE TYPE	TOTAL NUMBER OF THIS TYPE	NUMBER OF LOCALS /FROM NEARBY COMMUNITIES	WHEN EMPLOYED?
ANTI-POACHING STAFF	±180	±70%	FULL TIME
MANAGERS	13	2	FULL TIME
MAINTENANCE	±100	±80%	FULL TIME
ROAD OPENING /CONSTRUCTION	±70	±80%	FULL TIME
COMMUNITY RELATIONS PERSONNEL	2	1	FULL TIME
OTHERS:	±135	±80%	FULL TIME

7. ANTI-POACHING EFFORTS:[2]

a. Number of Anti-Poaching staff: **180 SCOUTS AND 48 FENCE GUARDS**

b. Are Anti-Poaching Patrols conducted during the hunting season, off-season, or both?
Hunting season: _____ Off-season: _____ Both seasons: **YES**

c. Months during which Anti-Poaching Patrols are conducted: **ALL YEAR ROUND**

d. Number of Anti-Poaching Patrols per month: **±60 TO 70 PER MONTH**

e. Description of Anti-Poaching equipment, vehicles, etc.:
5 MOBILE VEHICLE REACTION UNITS (1 BEING A WELL TRAINED QRF) , FOOT PATROLS BACKED UP BY HELICOPTER AND TRACKER DOGS.

[2] The new FWS Import Permit Application asks for activities that provide a "conservation benefit" to the species. The FWS considers anti-poaching a "conservation benefit."

7. ANTI-POACHING EFFORTS: *[CONTINUATION]*

f. Who is responsible for organizing and coordinating anti-poaching from prevention through successful prosecution?
5 ANTI-POACHING MANAGERS TOGETHER WITH NATIONAL PARKS AND LOCAL POLICE FORCE

g. Do you offer rewards to poaching informants leading to arrest? Yes **YES** No _____

h. Do you offer rewards to poaching informants upon conviction? Yes **YES** No _____

i. Please describe the company's anti-poaching expenditures below:

TYPE OF EXPENSE	SPENDING 2017	SPENDING 2018	SPENDING 2019	REMARKS
SALARIES FOR ANTI-POACHING SCOUTS				
EQUIPMENT				
VEHICLES				
PETROL				
REWARDS PAID				
OTHER: _____				
OTHER: _____				
TOTALS	1200000	1450000	1900000	

j. What currency are the expenditures given in? **US$**

8. ANTI-POACHING RESULTS:

CATEGORY	2017	2018	2019	REMARKS
POACHING INCIDENTS DISCOVERED	60-100 MEAT & RHINO			
ELEPHANT CARCASSES OBSERVED	0	0	0	No Elephant poached to date
LION CARCASSES OBSERVED	0	0	0	No Lion poached to date
LEOPARD CARCASSES OBSERVED	0	0	0	No Leopard poached to date
IVORY POACHERS ARRESTED	0	N/A	N/A	
MEAT POACHERS ARRESTED	20	23	31	
OTHER POACHERS ARRESTED	4	4	11	Rhino poachers only
POACHERS CONVICTED	0	2	1 + 8 K	Rhino poachers only (K = killed).
SNARES/GIN TRAPS COLLECTED	±200	+/- 200	+/- 200	
FIREARMS CONFISCATED	1	3	4	
VEHICLES CONFISCATED	0	0	1	
BICYCLES CONFISCATED	0	0	0	
BOATS/NETS CONFISCATED	±10 NETS	8 nets	5 nets	
TUSKS RECOVERED	0	0	0	
OTHER: RHINO HORN	4	14	20	

9. COMMUNITY INVESTMENT:[3]

a. Does the Company contribute money or goods/services to local communities?
YES Yes _____ No

b. If so, what percentage or amount is shared, how often, and why (e.g.: required by law, required by contract, voluntary contribution)?
A LONG HISTORY OF BUILDING & EQUIPPING SCHOOLS, CLINICS, GRINDING MILLS, BOREHOLES ETC, ALL VOLUNTARILY. AMOUNT SPENT PER ANNUM VARIES BUT HAS AMOUNTED TO AS MUCH AS $250,000 IN A SINGLE YEAR.

c. Does the Company provide game meat to nearby communities? Yes YES No _____

d. If so, please estimate the amount and/or value of meat contributed in prior year and describe the meat contribution program:
THE CONSERVANCY DONATES 3,6 TONNES OF MEAT PER MONTH TO SURROUNDING COMMUNITIES, ALLOCATED EQUALLY TO BEITBRIDGE, MWENEZI AND GWANDA DISTRICTS.

e. If the Company performs problem animal activities for surrounding communities (e.g.: patrolling fields during the harvest, chasing away problem animals, conducting PAC hunts or PAC killings), please describe.
PAC IS UNDERTAKEN IF REQUESTED BY NATIONAL PARKS – PAC ASSISTANCE IS GIVEN EVERY YEAR .

f. Please describe any consolation payments made to local residents damaged by game species
NIL – THE CONSERVANCY HAS A DOUBLE ELECTRIC FENCE TO PREVENT HUMAN/WILDLIFE CONFLICT.

g. What currency are the expenditures reported in? N/A

SPECIES	DAMAGE CAUSED	CONSOLATION PAID 2017	CONSOLATION PAID 2018	CONSOLATION PAID 2019
ELEPHANT	N/A	N/A	N/A	N/A
LION	N/A	N/A	N/A	N/A
LEOPARD	N/A	N/A	N/A	N/A
OTHER	N/A	N/A	N/A	N/A

a. Please describe any community projects paid for by the Company:
[USE SEPARATE SHEET]

b. What currency are the expenditures reported in? US$

TYPE OF PROJECT	SPENDING 2017	SPENDING 2018	SPENDING 2019	REMARKS
EDUCATION (E.G.: CLASSROOMS, OFFICES)	110000	38000	47000	
EDUCATION (E.G.: SCHOOL FEES, SCHOOL SUPPLIES)				
HEALTH (E.G.: CLINICS, OFFICES)				
HEALTH (E.G.: MEDICAL SALARIES, EQUIPMENT)				
COMMUNITY SCOUT SALARIES				
OTHER COMMUNITY ANTI-POACHING				

9. COMMUNITY INVESTMENT: [CONTINUATION]

[3]The new FWS Import Permit Application asks for activities that provide a "conservation benefit" to the species. The FWS considers community investment a "conservation benefit."

TYPE OF PROJECT	SPENDING 2017	SPENDING 2018	SPENDING 2019	REMARKS
LOCAL GOVERNMENT ACTIVITIES				
WATER INFRASTRUCTURE IMPROVEMENTS		23000	86000	
SPORTS TEAMS FUNDED				
CONSTRUCTION MATERIALS DONATED	10000			
OTHER: _____				
OTHER: _____				
TOTALS	120000	62000	133000	

10. How many U.S. Clients did the Company have in the past three years, what percentage of the Company's clients were from the U.S., and what fees did they pay?

	HUNTING ELEPHANT	HUNTING LION	HUNTING LEOPARD	HUNTING ALL SPECIES
NUMBER OF U.S. CLIENTS	2017: 3	2017: 10	2017: 5	2017: 103
	2018: 0	2018: 11	2018: 14	2018: 90
	2019: 0	2019: 14	2019: 10	2019: 84
PERCENTAGE OF U.S. CLIENTS	2017: 60%	2017: 46%	2017: 83%	2017: 81%
	2018: 0%	2018: 68%	2018: 73%	2018: 86%
	2019: 0%	2019: 87%	2019: 90%	2019: 88%
TROPHY FEES PAID BY U.S. CLIENTS	2017: 21000	2017: 197800	2017: 74700	2017: 1403835
	2018: 0	2018: 430000	2018: 112000	2018: 1462905
	2019: 0	2019: 507000	2019: 85000	2019: 962280

11. Approximate Dollar amount and/or percentage of Company's revenue from U.S. Clients: $ 83%

12. OTHER INFORMATION: Please provide a narrative of other enhancement information about the operation, such as any special Hunting Policies (e.g.: aging, size, resting areas), Concession Improvements (e.g.: digging and maintaining boreholes, restocking), Management Activities, Research, etc. [USE SEPARATE SHEET] (see below)

13. I declare that the foregoing is true and correct:

TELEPHONE: 00 263 772278513

EMAIL: mazunga@bvczim.com

CONCESSION NAME
BUBYE VALLEY CONSERVANCY

OPERATOR – FULL NAME (PLEASE PRINT)
MAZUNGA SAFARIS

TITLE
GENERAL MANAGER



SIGNATURE

https:/www.bubyevalleyconservation.com/

OPERATOR WEBSITE

APPLICANT:

TODD FRY

THANKS TO SPORT HUNTERS A ZIMBABWEAN WILDLIFE CONSERVATION SUCCESS STORY

Thanks To **Sport Hunters,** A Zimbabwean Wildlife Conservation Success Story

STORY & PHOTOS BY **KEVIN THOMAS**

BEYOND ZIMBABWE'S CURRENT OVERALL media image of doom and gloom there is a shining light in the country's sustainable wildlife utilization field, and it goes by the name of the Bubye Valley Conservancy, or more simplistically by the acronym BVC. It's a success story that certainly wouldn't be were it not for paying sport hunters. For therein lies the secret to the vast project's success.

Significant in its achievements has been the establishment of large and flourishing populations of black rhino, elephant, and African lion. This 3,740 square kilometer landmass (in excess of 850,000 acres) is situated in what is termed Zimbabwe's southern lowveld region, one of the country's hottest and driest areas. Summer temperatures regularly exceed 40 degrees Celsius C (104 degrees Fahrenheit) and the average recorded rainfall over forty-five years is 347 mm (13.6 inches).

Totally unsuited to agricultural practices or ecotourism and despite the low rainfall, the BVC has an exceedingly high nutrient ecosystem that ably supports large numbers of medium size herbivores — particularly blue wildebeest and Burchell's zebra. This means high densities of predators can potentially be sustained.

To look briefly at the BVC's history: at the turn of the 20th century Lemco (Liebig's Extract of Meat Company) established a vast cattle ranching operation on this landmass. Most indigenous wildlife species, because they were deemed to compete with livestock for grazing, coupled to the fact that buffalo and wildebeest had the potential to transmit disease to cattle, were eradicated. Due to predation on cattle, lion, leopard, and hyena were also heavily persecuted.

Despite the Lemco wildlife eradication program, and as is often the case under similar circumstances, most of the indigenous wildlife species survived in small isolated pockets. However, by the 1990s the resident buffalo, lion, and elephant populations had been completely eradicated. Black and white rhino populations which had occurred in the area historically had disappeared well prior to the establishment of Lemco Ranch.

Crippled by devastating droughts in 1982-83 and again in 1992-93, Lemco Ranch was sold off in 1994 due to it being deemed unsuitable and economically non-viable for cattle ranching. The shareholders who bought the property then established the Bubye Valley Conservancy, the intention being to revert this vast landmass back to wildlife only,



vast buffalo herds of the BVC are not only an important prey species for lion; a buffalo bull is considered one of Africa's most dangerous game species and attracts trophy hunters



Sound scientifically based wildlife management systems and low seasonal trophy take offs on the BVC ensure excellent trophy quality such as this superb buffalo bull with the writer and his trackers; it was shot by American client Peter Tague.

and after the decision was made an immediate program was implemented to remove all of the internal cattle fencing.

Obviously, this conversion to wildlife from cattle ranching necessitated massive investment. A 2.1-meter-high double electrified game fence had to be erected surrounding the entire area. The fence follows the 440 kilometer boundary (880 kilometers for both fences) and cost approximately $2.1 million to erect, with an annual maintenance cost of $220,000 a year. During 2014, a further $350,000 was spent converting the Malangani section to the same specs as the rest of the BVC game fence.

On the wildlife front, and although a number of residual populations had remained in the aftermath of Lemco, their numbers had to be boosted through re-introductions, again at huge cost to the shareholders. Nine well-appointed safari camps were also constructed across the BVC, and the internal road networks improved. These kinds of developments always carry significant annual running and maintenance costs, all of the aforementioned aside from game fence maintenance.

Notable annual costs on the BVC are the ongoing anti-poaching program in excess of $600,000, diesel fuel at $350,000, wages and salaries at $1,220,000 (2015), electricity at $70,000 and safari camp running and maintenance costs at $850,000. These figures adequately illustrate that in order for wildlife to continue being the primary land use factor on the BVC, a substantial income base is required.

From the outset the BVC shareholders policy has always been that their main intended form of income would be derived from commercial trophy hunting. However, during the initial development phase and as an experiment into non-consumptive ecotourism, the southern Samanyanga section (approximately 80,000 acres) was fenced off and separated from the main, and no hunting was allowed, only photographic safaris.

As is well proven, in the African context there is absolutely no way that wildlife conservation will succeed in any form unless you have the support of the surrounding communities. Without this, it is doomed.

By 2002 and for a variety of reasons, this experiment had proven non-viable and the partition fence was removed. Once this had happened, the sole form of income for the conservancy was through trophy hunting. A situation that remains unchanged to this day.

As is well proven, in the African context there is absolutely no way that wildlife conservation will succeed in any form unless you have the support of the surrounding communities. Without this, it is doomed. During the early development stages, the BVC planners recognized this crucial fact, and implemented the highly successful BVC Outreach Program which embraces three surrounding tribal districts — Mwenezi, Maranda and Jopempe. In addition, and through funds donated by the BVC they have established the Mtetengwe Trust in the Beit Bridge district.

In a further unique experiment, any poachers arrested for



Above: Photos such as this of a poached black rhino and her calf on the BVC need to be widely circulated to illustrate just how serious this greed driven scourge is. Monies accrued from trophy hunters are contributing directly to the ongoing anti-poaching operations – photo credit the BVC.

Below: Nine well-appointed safari camps have been built across the BVC to accommodate sport hunters – this photo shows Dyers Camp from across the Bubye River.





An excellent 30-inch waterbuck taken on the BVC by UK client Josh Cox.

poaching antelope on the BVC appear before a tribal court presided over by the chief within their community, and not before a magistrate; thus far it is proving highly successful.

Aside from school's infrastructure, clinic construction, essential boreholes being sunk and equipped in tribal areas, and various other assistance programs, the BVC also supplies the neighboring tribal communities with 45 tons of meat free of charge each year. Right across Africa's rural tribal areas protein in any form is always in short supply.

Income derived from commercial trophy hunting on the BVC has also been directly responsible for the achievement of some extremely meaningful conservation goals. Probably the most important of these is the black rhino story. The continued protection of this endangered species on the BVC by their anti-poaching program has been made possible by the revenue generated from trophy hunting of lion, elephant, buffalo, and other species (donor funds too, do partially offset these costs).

White rhinos were first introduced onto the BVC in 1998. This population was boosted by further continual translocations of both black and white rhino from other areas unable to protect their rhino populations, in the face of the rhino poaching escalations facing Zimbabwe and South Africa during the mid-2000s. Because of the rhino poaching onslaught in Zimbabwe, only the big privately-owned conservancies have been able to maintain positive rhino population growth rates. The most successful of these has been the BVC with an average 8 percent annual increase.

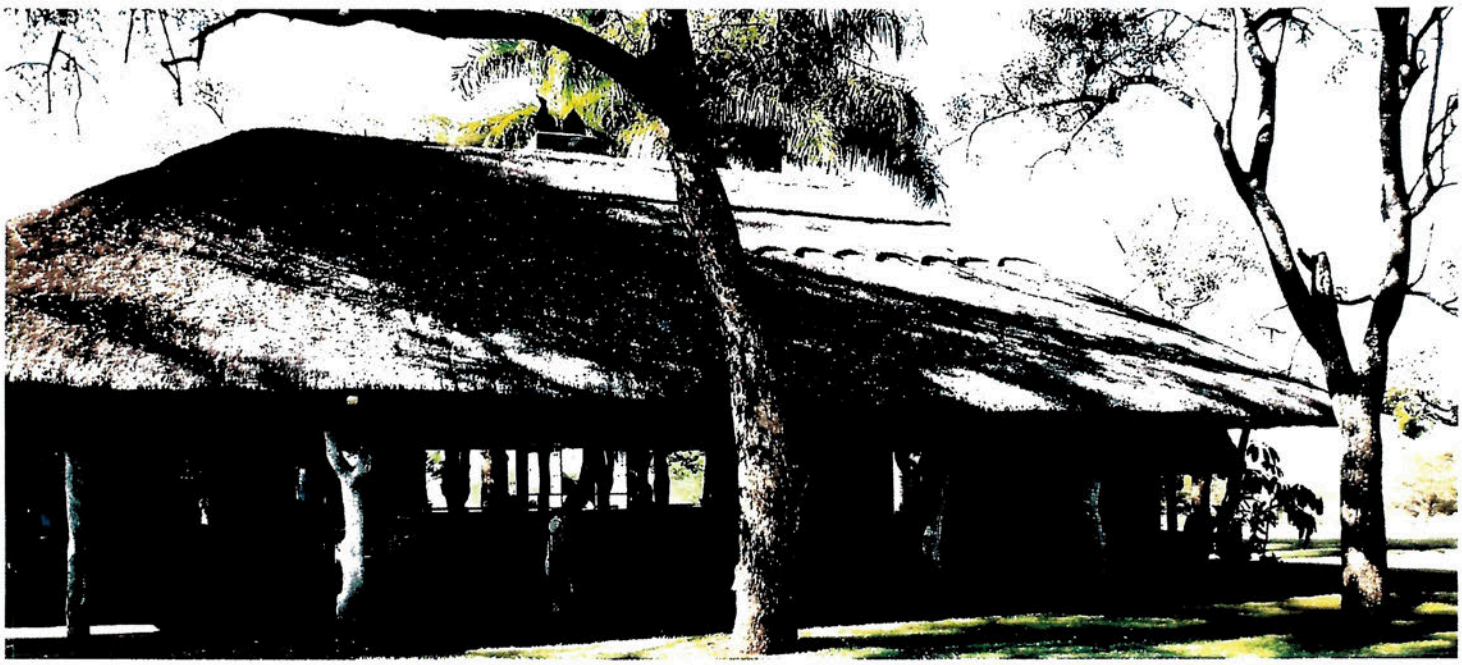
The BVC hasn't been immune from this rhino poaching scourge despite having a superbly led, motivated, disciplined, and managed anti-poaching team of 120-armed game scouts. Poaching losses have been incremental since 2012 when they lost 5 rhinos. In 2013 the losses rose to 22 (see the accompanying graph). Anti-rhino poaching patrols and constant monitoring on a landmass this size, is a huge and costly exercise.

Gun battles with poachers aren't unheard of on the BVC and with Zimbabwe's "shoot to kill" policy towards poachers; trying to poach a rhino on the BVC is indeed a high-risk pastime. In 2010, when I was hunting out of Nengo Camp with Bill Haslett from Pennsylvania, an anti-poaching game scout patrol shot and killed AK-47-toting Samuel "Big Sam" Mazhongwe, who'd stupidly initiated the contact. At the time he was one of Zimbabwe's most notorious rhino poachers.

With regard to lion on the BVC, during 1999 thirteen lions were re-introduced to the Samanyanga section, and during the same year four young males managed to enter the conservancy naturally. In 2002, following the collapse of the Samanyanga ecotourism experiment and with the removal of the partition fence, the lion were free to roam across the entire conservancy. This resulted in the lion population increasing significantly. By 2015 it was estimated through scientific research that the lion population was over 500. These figures make the BVC's wild African lion population the largest in Zimbabwe, and indications are that the conservancy's lion population has now reached saturation.

Allied to the above, the elephant population on the BVC has now also reached the carrying capacity at 700 and needs to be managed. To address the skewed sex ratio, the BVC have been offering a few bull elephants each year (10 to 20-year-old bulls that have been breaking into the conservancy) on non-trophy elephant hunts, the requirement being that only lone animal's with tusks of less than 25 pounds aside be taken off. Funds from these management hunts have been plowed straight back into the conservancy and the meat has gone to the surrounding communities.

Despite the high levels of protection afforded to all wildlife species on the BVC, and the moderate annual off-take levels via trophy hunting adequately serving to highlight how trophy hunting can be sustainable – provided poaching is controlled – the lion and elephant populations on the BVC do face a slightly worrying future.



The main lodge at Ripple Creek – one of nine such luxury safari camps built across the BVC.

The end game for both of these species on the conservancy is one of two likely scenarios. If lion and elephant hunting is severely restricted either through a USFWS listing as endangered, or the banning of trophies into the U.S. makes hunting of both these species undesirable, or impossible for BVC clientele (over 90 percent are American), then the numbers will have to be reduced drastically by management, as they will have absolutely no value to the Conservancy and will be seen as competitive. Elephant have a detrimental effect on habitat, and lion on other species.

If, on the other hand, sanity prevails among those international players who at times seemingly make some ill-informed decisions regarding how Africans should manage their wildlife, the outcome would be a lot more positive. If lion and elephant hunting is allowed to continue with scientifically arrived-at sustainable quotas, based on sound ecological assessments and independent monitoring, then both species will remain financially valuable and desirable. Equally important, it would allow the BVC to maintain populations that are available for restocking other areas.

I've had the privilege of guiding hunting safaris on the BVC regularly since 1992, when the cattle operation was still being phased out. General Manager Blondie Leatham, who has been on the Conservancy since 1987, is backed up by one of the most dedicated wildlife conservation teams in Southern Africa. If one looks at the results of their achievements during the last 22 years it is obvious the Bubye Valley Conservancy represents one of the finest examples of wildlife conservation success throughout the whole of Africa, particularly for lion, elephant, and black rhino.

Trophy hunters haven't only ensured the well-being of black rhino, elephant and lion on the BVC. They can be equally proud in the knowledge that the monies they spend hunting on this bespoke venue, also protects cheetah, painted dog (African wild dog), and pangolin. In a nutshell, trophy hunter spending has created a conservation umbrella under which all of the above species can continue to thrive and expand. Let's hope it will continue. ★

ABOUT THE WRITER

Kevin Thomas, a fifth-generation African was born in Rhodesia (Zimbabwe) in 1950. In March 1968 at age 17 he joined the Rhodesian Department of National Parks & Wildlife Management under their cadet game ranger scheme. Having spent 6 years as a game ranger and after having served on various remote Zambezi Valley stations, he left the department and ventured into a short-lived Zambezi Valley-based hunting safari venture as a PH. Due to a worsening insurgency war erupting in Rhodesia, Kevin stopped hunting and in January 1974 became a founder member of the Rhodesian Army's elite Selous Scouts Special Forces counter insurgency unit, serving in the unit for 5 years as an operational NCO. In mid-1979 he departed the Selous Scouts as a senior NCO and became a PH, a career choice that has afforded him the opportunity to hunt across much of Southern Africa. In 1993 Kevin began writing hunting stories for African Hunter magazine, and in addition he has for several years been a regular contributor of hunting articles to South Africa's popular Magnum magazine. He has also written for the US magazine Successful Hunter and he also regularly contributes hunting stories in the UK to Sporting Rifle magazine. Kevin is the author of four published books and retired from hunting at the end of 2013, but continues to write. During 2015 and at age 65, he and his wife Brenda chose to depart Africa for the UK, where they now reside on their own 60-foot live aboard cruiser narrowboat on the UK's 2,000 miles of canals & waterways, an ideal environment for Kevin to continue with his writing, art, and photography.

www.kevindthomas.com

APPLICANT:

TODD FRY

BUBYE VALLEY CONSERVANCY LION CALL-UP SURVEY REPORT

Bubye Valley Conservancy (BVC) Lion Call-up Survey Report

July 2020

Contents

1. Executive Summary....2
2. Introduction....2
3. Demographic Information....2
   - 3.1 Lion Groups
   - 3.2 Demographics
   - 3.3 Class Trends
4. 2020 Lion Population Estimate....5
   - 4.1 Call-up Calibration
   - 4.2 Population Estimate
5. Lion Distribution....6
   - 5.1 Area-specific Trends
   - 5.2 Distribution by call-up site
6. Lion Response Times....10
7. Concluding Remarks....11
8. References....12

Appendix A: Spotted Hyaena counted per call-up site 2020.

Appendix B: Brown Hyaena counted per call-up site 2020.

1. Executive Summary

This year's call-up survey results recorded an overall increase in the estimated lion population compared with the 2019 survey. The average group size of lion per call site is the largest recorded to date.
The 2020 lion population and density estimates are as follows:

BVC lion population estimate = **290** +/- 116

BVC lion population density = **10.6 / 100km²** +/- 4.2

Population estimations on a property the size of BVC are extremely challenging and by no means completely accurate. The elusive nature of lion, the large areas that they cover and differing responses to the call-up method from different demographic classes of this species further complicates accurate and precise population estimates. Call-up surveys are a well-described method for obtaining baseline population indices and monitoring population trends over time. The aim of using this standardised survey method, repeated on a regular basis, is not to count every lion on the conservancy but rather to provide management with relevant information relating to the lion population as a whole. This information is used to identify areas of concern and implement interventions where necessary. Population management is a dynamic process and continuous monitoring is vital to enable management to assess the results of interventions over time and make informed decisions regarding their population management strategy.

2. Introduction

The annual call-up survey was carried out from 6th - 22nd July 2020 on Bubye Valley Conservancy (BVC). The same baited call-up method adapted from Ferreira and Funston (2010) that has been used since 2013 was closely followed as in previous years. In line with this methodology, baited call sites were set up in a regular grid of points throughout the main conservancy, and 3-5 sites were systematically called every night until all sites had been covered. This baited technique was specifically adapted for BVC to increase the detection rate, allow for camera trap images of lion (and other predators visiting bait sites) to be captured and thus aid in individual identification and age estimation (demographics).

3. Demographic Information

**Special note: The call-up data from 2015 has been excluded from the historical data because the method followed a different protocol to the other years (only adults and sub-adults were recorded).

3.1 Lion Groups

For the purposes of this study we refer to a number of individuals that responded to the call, and who display a clear association with one another, as lion 'social groups' rather than 'prides'. The reason being that lion may respond to a call individually, rather than as a whole pride.

As shown in **Table 1** below, the total number of groups counted during this survey is comparable with the number of groups recorded in both 2018 and 2019. The number of groups presenting with and without cubs have also remained consistent over the past 3 years. The average group

size, however, has increased and this year was the largest recorded since inception of the call-up surveys.

Table 1. Average group size and cub presence

Year	With Cubs	Without Cubs	Total Groups	Ave. Group Size
2013	6	63	69	2.3
2014	5	70	75	1.9
2016	15	51	66	3.0
2017	9	53	62	2.8
2018	2	38	40	2.3
2019	4	33	37	2.8
2020	4	34	38	3.3

3.2 Demographics

Table 2. Population Demographics

Year	Adults		Sub-adults		Juveniles	% Adults in Population	Male : Female
	Male	Female	Male	Female			
2013	43	55	52	11	74	41.7	1.44
2014	60	33	34	12	42	51.4	2.09
2016	36	61	30	27	40	50.0	0.75
2017	39	64	19	21	32	58.9	0.68
2018	27	38	8	10	4	71.0	0.73
2019	28	41	11	14	8	67.6	0.68
2020	25	63	8	2	27	69.3	0.51

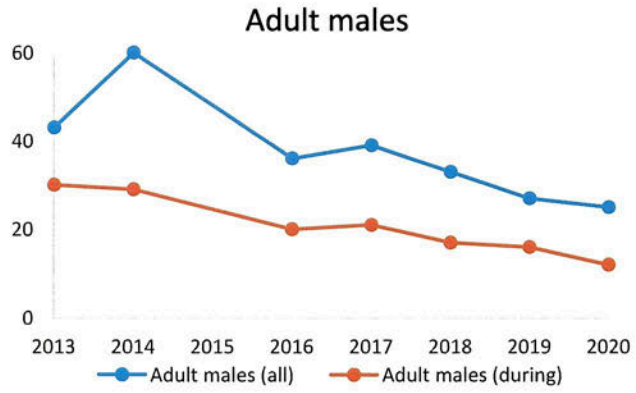
The number of male lion counted has **decreased** by ~15% from 2019, while the number of females counted **increased** by ~18% from 2019; with the increase in adult females being most significant (~54%). Sub-adult numbers remain low and recorded a **decrease** of ~60% from 2019. The number of cubs counted this year was more than triple the number recorded in 2019 (cubs are classified as juveniles estimated to be < 1yr old).

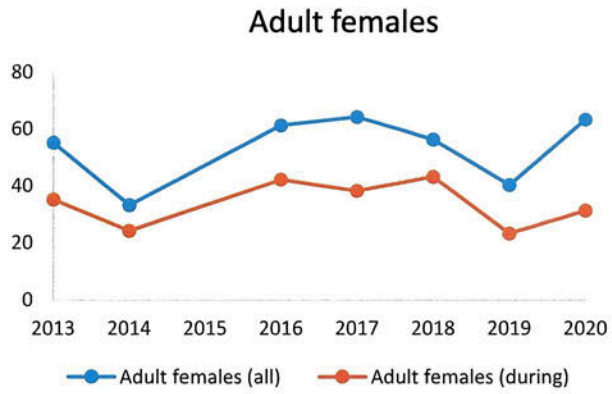
The sex ratio of counted lion is approximately **1M: 2F (1 : 1.96),** which is marginally higher than the ratio of 1M: 1.47F recorded in 2019.

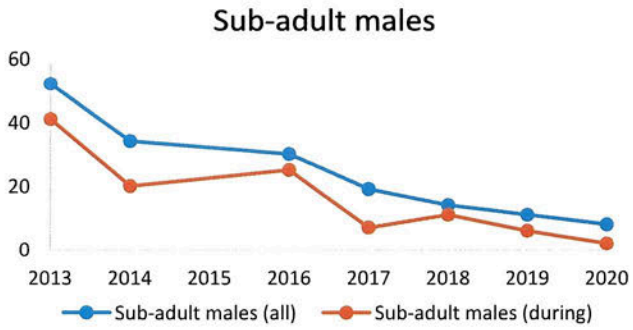
3.3 Class Trends

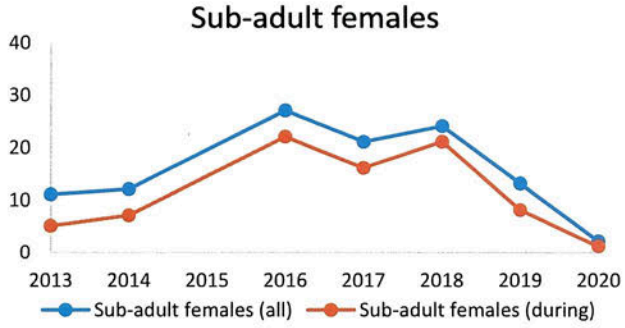
Graphs illustrating the trends in age and sex classes since the call-up surveys were started can be seen in **Figure 1** below.

Overall the adult male and sub-adult male age classes have displayed a steady annual decline in the number of counted individuals over the past 7 years. The sub-adult female class initially showed annual increases in numbers, but since 2018 the numbers have declined, the lowest recorded in 2020. Adult female numbers have remained relatively stable since 2016, however the sharp increase in number counted this year is in contrast with the gradual decline seen from 2017-2019. The juvenile age class trend has been steadily decreasing until this year which recorded more than 3 x the number from 2019.









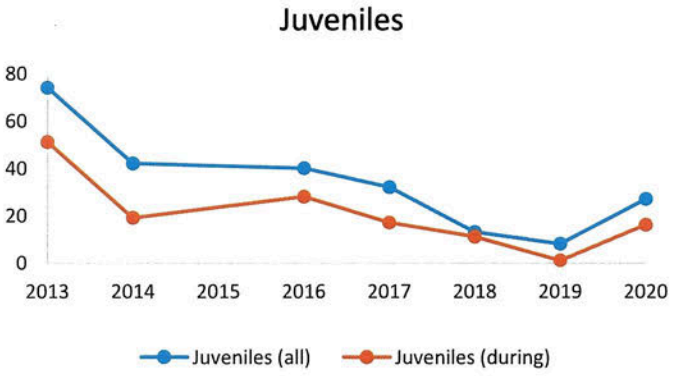


Figure 1. Graphs illustrating the trends for lion age and sex classes.
Blue: Total no. lion counted; Orange: No. lion counted during the call.

4. 2020 Lion Population Estimate

4.1 Call-up Calibration

One of the major limitations of call-up surveys as a sampling technique is that the probability of a lion responding to the call is strongly influenced by its initial distance from the call site at the time of the call. The actual number of lion counted therefore needs to be calibrated accordingly. Previously, a logistic regression using 5 years of collar data from known (collared) lions that were present in the vicinity of the call-up sites was used to estimate the probability/likelihood of response. The call-up method used on BVC is based on a response distance of 3km.
The likelihood of response value used in this year's calibration was an average calculated from previous years data as no reliable method of estimation was carried out concurrently with this year's survey. This value has not differed significantly in the past years so is likely to still be accurate as all aspects of the call-up method are standardised.

4.2 Population Estimate

Figure 2 below shows the trend in the estimated lion population number on BVC from 2013 - 2020 (excluding 2015). The estimated population number shows a steady decline from 2016 - 2019 with an average decrease of ~18% per annum over this 3-year period. This year's estimate, however, shows an increase of ~24% from 2019 – 2020.

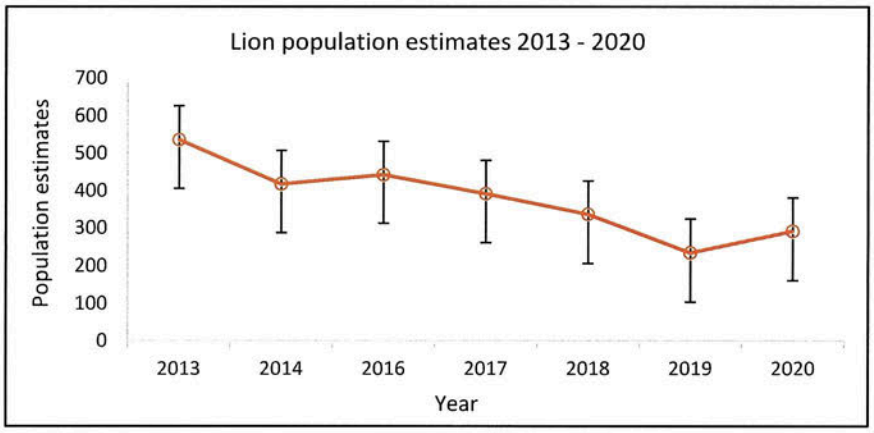


Figure 2: BVC lion population estimates and trend from 2013 – 2020 (+/- 95%CI).

The graph in **Figure 3** illustrates the average number of lion recorded per call site for each of the call-up surveys since 2013. Similar to the population estimate trend shown above, there was a consistent decline in the number of lion per call site from 2016 – 2019 until this year, where an increased number was recorded.

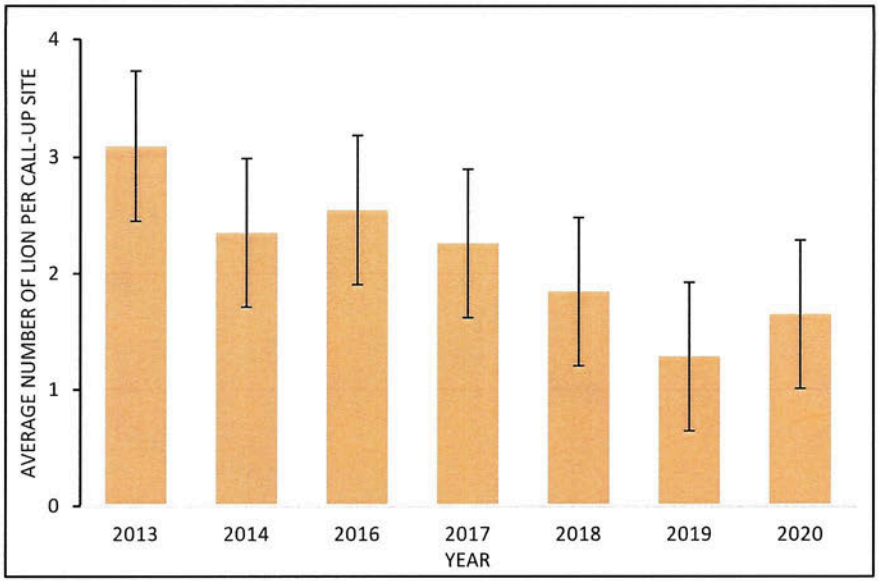


Figure 3. Average number of lions detected per call-up site from 2013-2020 (+/- 95% CI).

5. Lion Distribution

5.1 Area-specific Trends

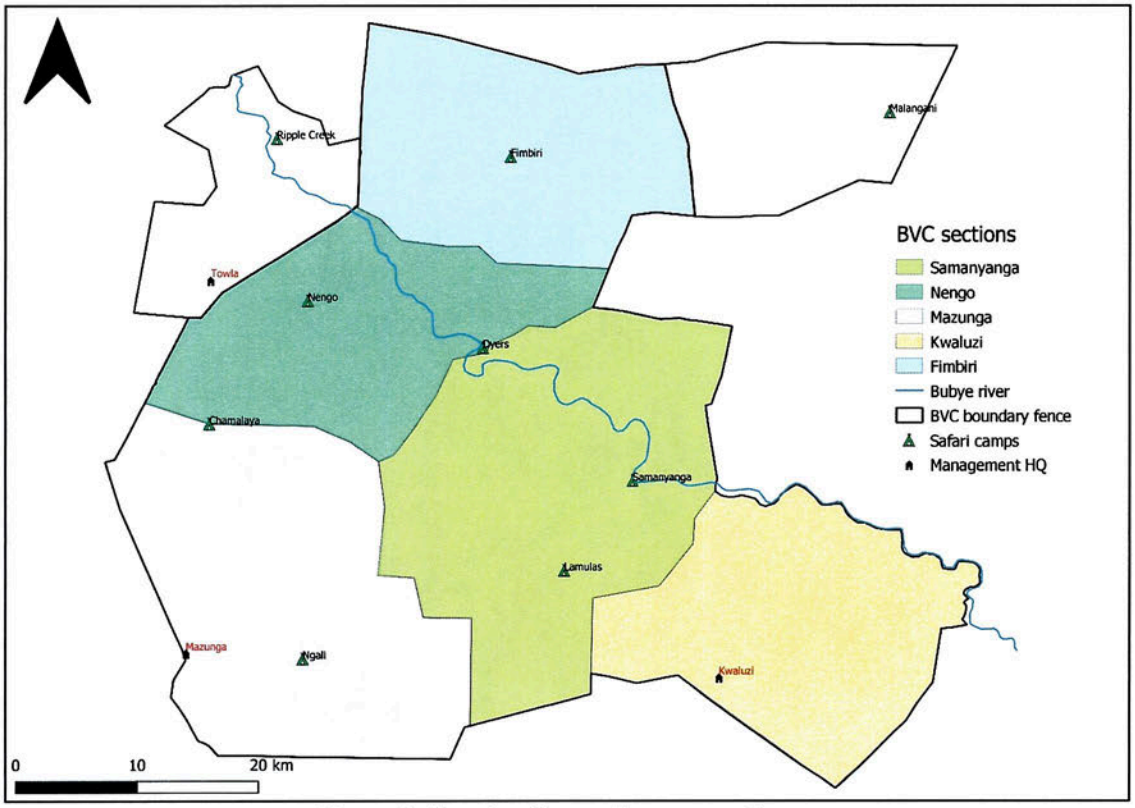


Figure 4: Map showing sections across the main conservancy.

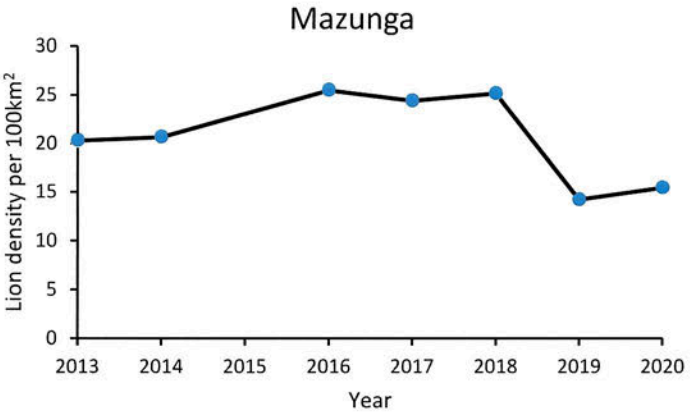


Figure 5: Lion density / 100km² - Mazunga section

The estimated lion density in the Mazunga section saw a sharp decline from 2018-2019 but a marginal increase from 2019-2020. This section still has the second highest density on the conservancy with an estimate of **15.44 lion / 100km²**.

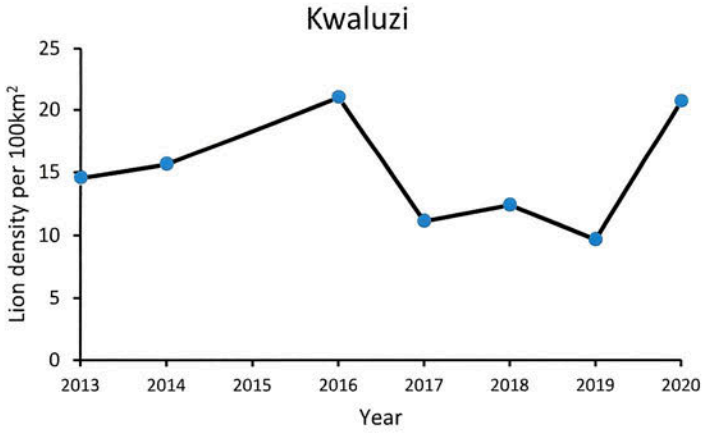


Figure 6: Lion density / 100km² - Kwaluzi section

After relatively stable trend in population density estimates from 2017-2019, the Kwaluzi section this year recorded a massive increase and is currently the section with the highest estimated lion population density on the conservancy. The estimated density of **20.69 lion / 100km²** is similar to the 2016 survey estimates.

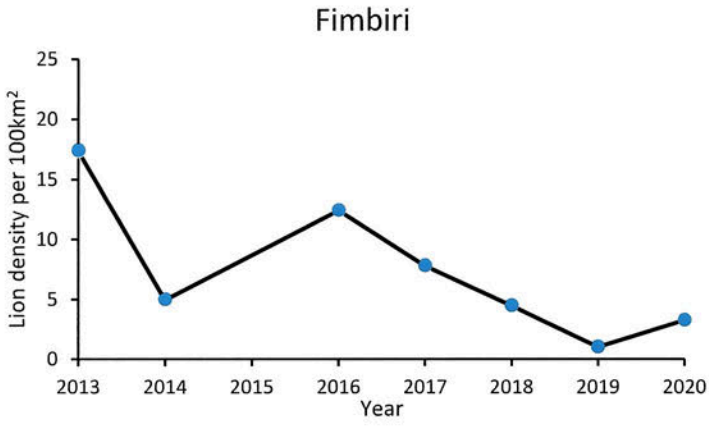
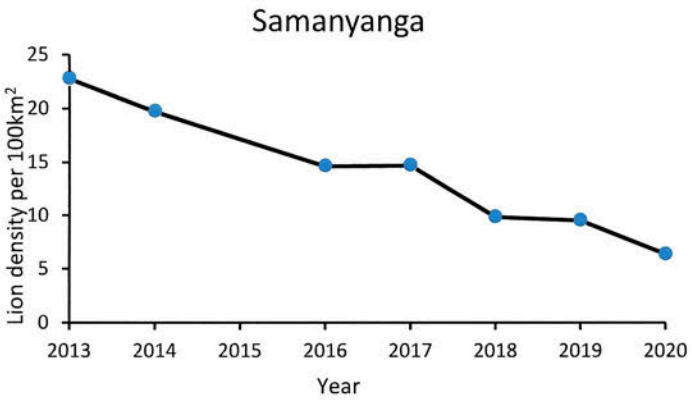


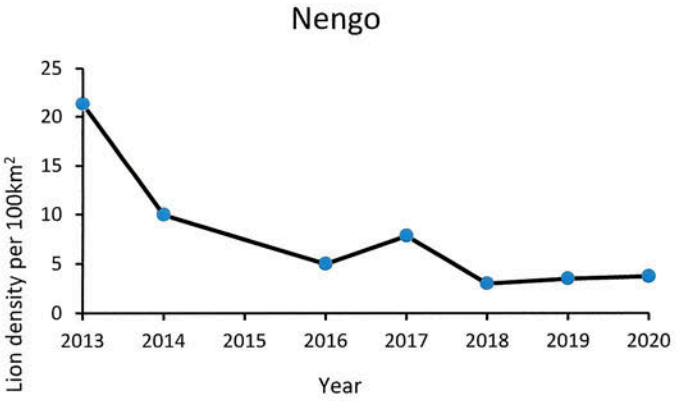
Figure 7: Lion density / 100km² - Fimbiri section

The Fimbiri section showed a consistent decline in estimated lion population densities from 2016-2019 and a contrasting increase from 2019-2020. This year's density estimate of **3.26 lion / 100km²** is still the lowest density estimate for the conservancy.



This year's population density estimate for the Samanyanga section is in keeping with the general declining annual density estimates. The density estimate of **6.37 lion / 100km²** is the 3rd highest on the conservancy after the Mazunga and Kwaluzi sections.

Figure 8: Lion density / 100km² - Samanyanga section



The lion population density estimates on the Nengo section have shown a marginal yet steady increase form 2018-2020. This section has the 2nd lowest density estimate at **3.73 lion / 100km².**

Figure 9: Lion density / 100km² - Nengo section

5.2 Distribution by call-up site

Figure 10 & 11 below are maps illustrating the distribution of lion per call-up site throughout the conservancy. Complimentary to the area-specific estimates shown above, the distribution of larger social groups and male lion favour the Mazunga and Kwaluzi sections.

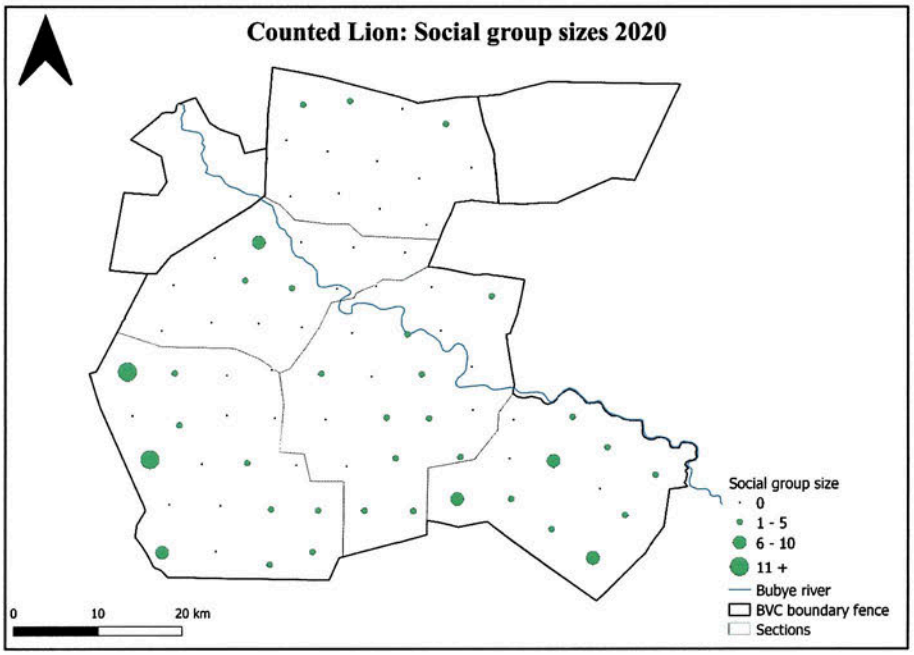


Figure 10: Lion social group sizes for the 2020 call-up survey.

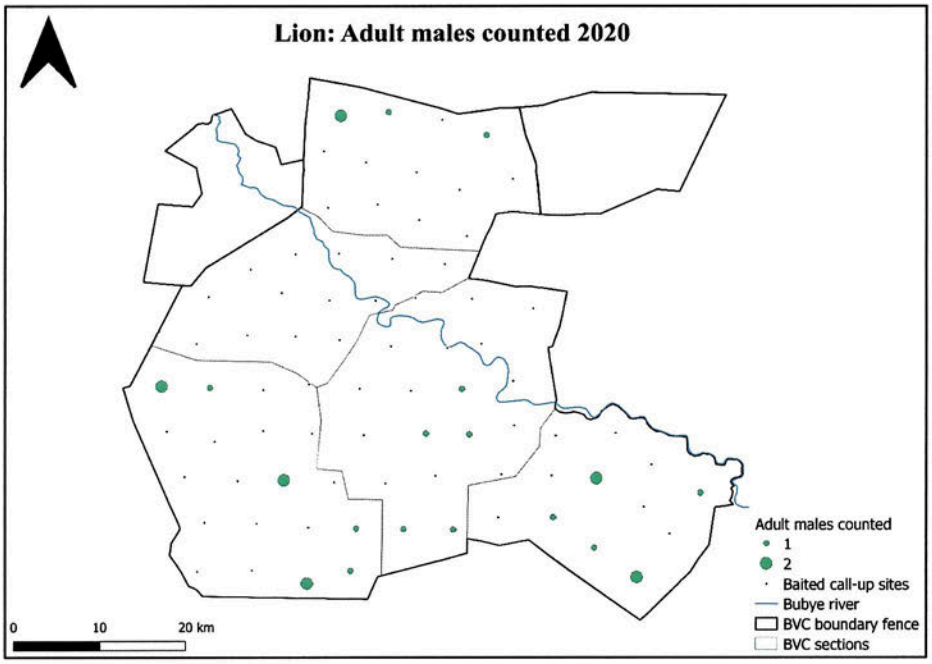


Figure 11: Adult male distribution of counted individuals for the 2020 call-up survey.

6. Lion Response Times

Figure 12 below illustrates the proportion of lion responding before, during and after the call-up. This data is gathered using a combination of recorded observations by the night teams at the time of the call-up, together with analysis of camera trap images from before, during and after the call-up has been conducted.

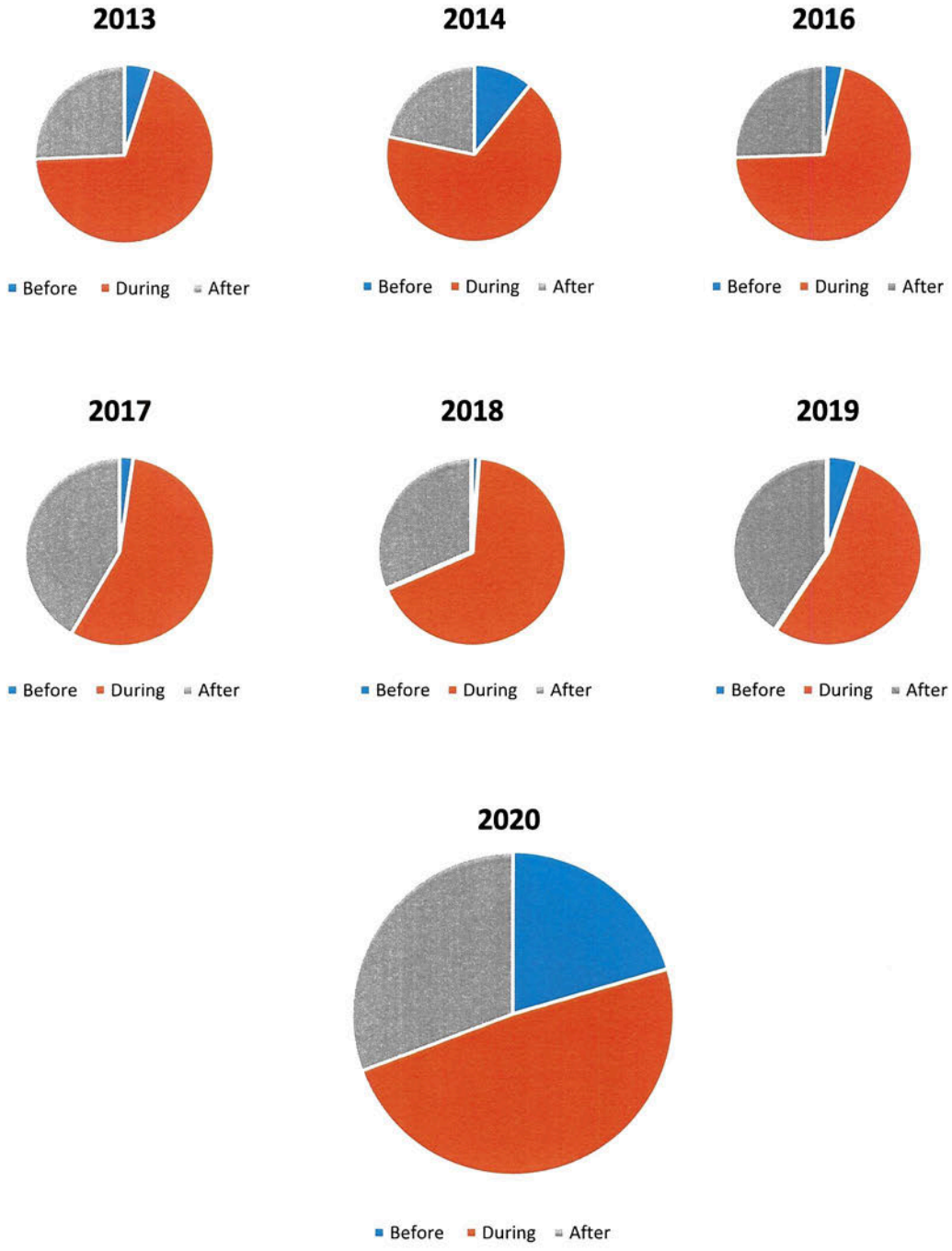


Fig 1. Proportion of lion responding before, during and after the call for each year.

The largest proportion of lion responses over the years have occurred during the actual call-up phase, with variations in the proportion of lion present at the call site in the phases before and after the call-up. It is interesting to note that a large proportion of lion were detected before the call-up was started during this year's survey.

7. Concluding Remarks

This standardised call-up method has been used on the BVC since 2013 and therefore provides a good estimate of trends in the lion population over time. Although the call-up method, like other sampling methods, has its limitations, it still remains a valid and well documented method for lion population estimation.

From the results of this year's call-up survey the following needs to be highlighted:

a. BVC lion density remains the highest density of lion within Zimbabwe, and one of the highest in Eastern and Southern Africa (see table below).

Conservation area	**Density (lion/100km2)**	**Source**
Masai Mara (Ken)	20-30	Ogutu & Dublin 1998
Ngorongoro crater (Tan)	30	Kissui, Mosser & Packer 2010
BVC (Zim)	**10,6**	**This study**
Kruger NP (RSA)	10	Funston et al 2003
Katavi NP (Tanz)	3,9	Kiffner,Meyer, Muhlenberg & Walter 2009
Katavi NP (Tanz)	7	Caro 1999
Selous Game Reserve (Tan)	2,1 - 5,1 (3.7)	Crosmary et al 2018
Selous Gamer Reserve (Tan)	2 - 10 (6.7)	Brink et al 2013
Niassa NR (Moz)	2,9	Unpublished data (Bauer et al 2016 contributors)
Hwange NP (Zim)	2,7	Loveridge et al 2007
Gonarezhou NP (Zim)	0,9	Groom, Funston & Mandisodza 2014
KGNP (RSA/Bots)	0,77-1,63	Funston 2001

Table 3: Table comparing lion densities (lion/100km^2) in Eastern and Southern Africa.

Most of the conservation areas included in the table above are unfenced or only partially fenced and thus considered open ecosystems. BVC's well patrolled, double-fenced perimeter acts as solid boundary effectively forming a closed system and the natural dispersal/movement of lion out of the area is virtually impossible.

b. The low percentage of sub-adult females in the BVC population (1.57%) could be explained by the difficulty of classifying sub-adult females (from ~2 years of age a sub-adult female is very similar in height and size to a mature female, the comparison can be challenging). This could inadvertently explain the increase in the percentage of adult females within the BVC population (40% to 49%).

c. The sex ratio that was highly biased towards males in 2013 & 2014, has improved over the years and the sex ration recorded in 2020 is comparable to that of other lion populations in Southern and Eastern Africa (see **Table 4** below).

Area	Sex ratio (male:female)
Hwange NP	1:6
Kafue NP	1:2.6
Lower Zambezi	1:2.4
South Luangwa	1:2.1
BVC	**1:1.96**
Selous	1:1.5
Etosha NP	1:1.4

Table 4: Male to female sex ration in other lion populations.

References:

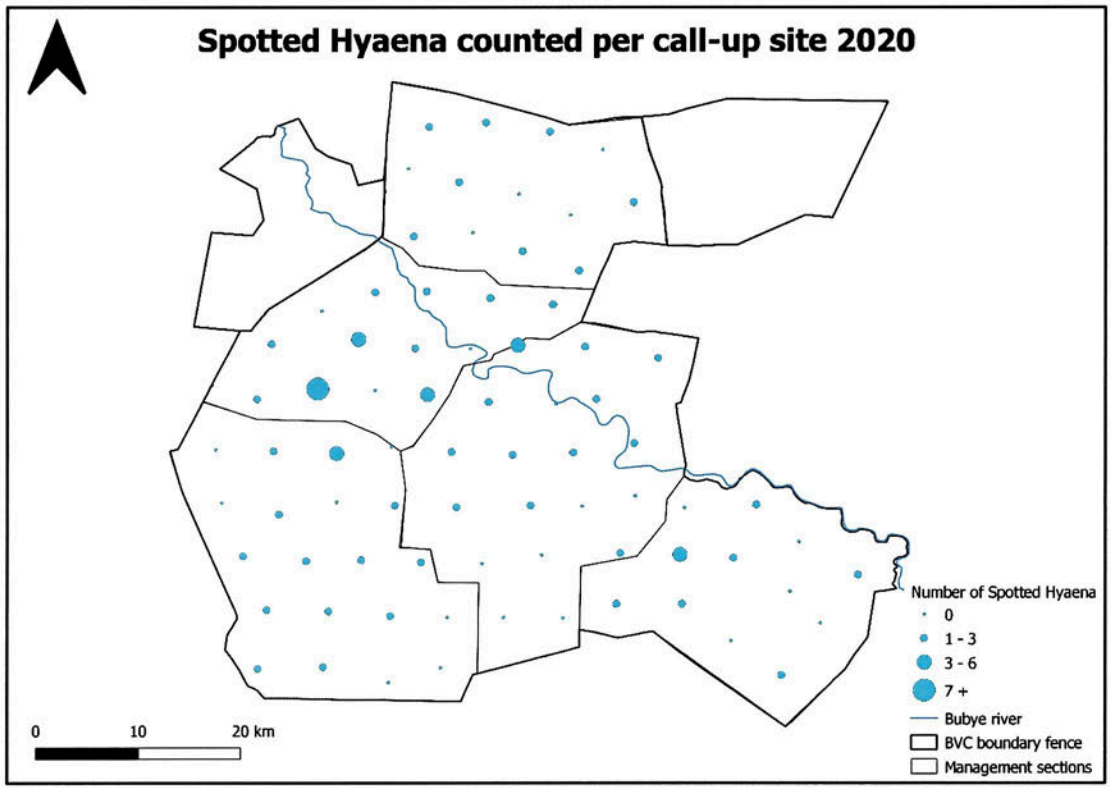
- Ferreira, S & Funston, P. (2010) Estimating lion population variables: Prey and disease effects on Kurger National Park, South Africa. *Wildlife Research, 37(3): 194-206.*

- Midlane, N., O'Riain, M., Balme, G., Hunter, L. (2015) To track or to call: comparing methods for estimating population abundance of African lions *Panther leo* in Kafue National Park. *Biodivers Conserv.*

- Brink, H., Smith, R., Skinner, K. (2013) Methods for lion monitoring: A comparison from the Selous Game Reserve, Tanzania. *African Journal of Ecology.*

Appendix A:

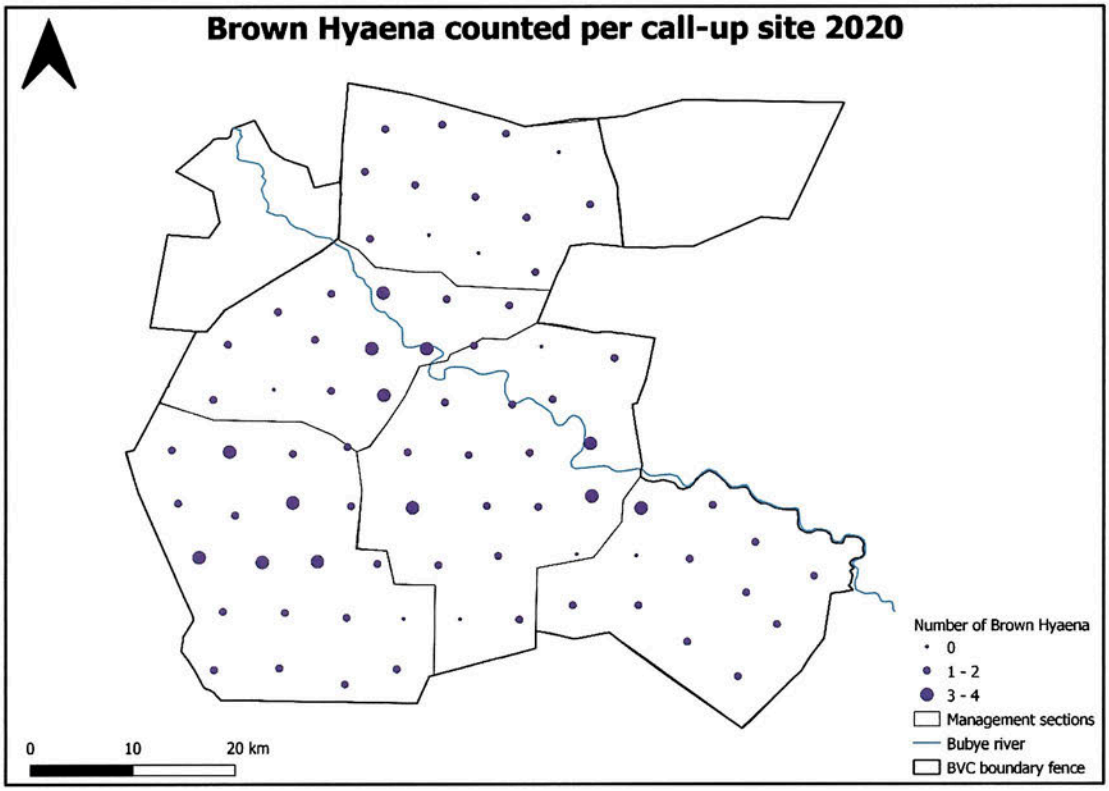
The figure below illustrates the number of Spotted Hyaena counted per call-up site. Individual Spotted Hyaena were identified as far as possible from camera trap images. Identified individuals were not double counted and arrivals 3-hrs after the call-up were excluded. Out of the 77 call-up sites, 65% (or 50/77) recorded Spotted Hyaena with a total of 109 individuals counted. Although call-up surveys have been described for Spotted Hyaena, the intention here is to provide an idea of the species' distribution throughout the conservancy.



Appendix B:

The figure below illustrates the number of Brown Hyaena counted per call-up site. Individuals were identified as far as possible from camera trap images. Identified individuals were not double counted and arrivals 3-hrs after the call-up were excluded. Out of the 77 call-up sites, 88% (or 68/77) recorded Brown Hyaena, with a total of 122 counted. This is slightly down from the 72 call-up sites (93.5%) that recorded Brown Hyaena in 2019.

** Please note that this is not a verified method on Brown Hyaena population estimates, it does however provide an indication on the prevalence of the species throughout the conservancy.



APPLICANT:

TODD FRY

BUBYE VALLEY CONSERVANCY MOTIVATION FOR THE HUNTING OF ADULT LIONESSES

Bubye Valley Conservancy
Motivation for the hunting of adult lionesses

Blondie Leathem, General Manager, Bubye Valley Conservancy
Email: mazunga@bvczim.com

The Bubye Valley Conservancy (BVC) is one of largest private wildlife areas in Zimbabwe with a total area of approximately 3400 km^2. Originally a cattle ranch, the BVC was established in 1994 through the introduction of a variety of large, wild herbivores and with the primary objective of maintaining an ecologically sustainable and economically viable wildlife enterprise based on ethical trophy hunting. In 1999, thirteen lions of Namibian origin were introduced to the conservancy from Pilansberg National Park, South Africa. An additional four animals were recorded to have broken in between 1999 and 2003. With abundant prey and the protection from human-wildlife conflict provided by the electrified perimeter fence, the lion population increased at a rate of 25% per annum reaching an estimated population size of 500 individuals in 2013 (Wijers, 2016). The rapid increase in the lion population has had detrimental effects on prey populations particularly wildebeest, eland and giraffe which have recorded declines exceeding 60% (Wijers & Gush, 2018b).

The lion population explosion observed in the BVC likely emanated from the lack of natural regulatory processes that are known to limit population growth in larger unfenced systems. Miller et al. (2013) suggested that management interventions that are implemented to control population growth in smaller, fenced reserves should aim to mimic the outcomes of natural processes particularly regarding reproductive, survival and dispersal schedules. Given the size of the BVC lion population, it would be logistically and financially unfeasible to alter reproductive schedules using contraceptive methods. Furthermore, contraception has been reported to result in fragmentation of prides into smaller groups and single females which can further impact predator prey dynamics through increased predation (Lehmann et al., 2008; Miller et al., 2013). Options for manipulating survival and dispersal rates include translocation, euthanasia and hunting. Although translocation remains an option for BVC management, previous offers and attempts to move animals have proven this to be an unlikely solution due to highly restrictive government policies as well as the limited number of areas willing to receive lions. Trophy hunting and euthanasia are therefore the only reasonable methods of lion population control for BVC.

Adult female lions represent approximately 44% of the total BVC lion population (Wijers & Gush, 2018a). Although the majority of adult females exist in large, stable prides, several lone individuals have been observed. In addition, GPS collar data and sightings information from single lionesses that have either split from their native prides, or that have never been part of a pride, has shown that these individuals typically remain alone and form smaller groups with their offspring. Removal of lone, non-lactating lionesses has therefore been identified as an important management objective aimed at reducing the overall lion population, recruitment and predation. Hunting of lionesses is a preferable method of removal to euthanasia as the income generated from each hunt will be used to fund the conservancy's lion research and anti-poaching projects which are vital for effective wildlife management and protection. Furthermore, the allocated lioness hunting quota represents only a small fraction (15-20%) of the ideal required management offtake. The hunting of selected lionesses will benefit the conservancy ecologically as well as financially helping to ensure continued sustainable management of BVC's wildlife.

References

Lehmann, M. B., Funston, P. J., Owen, C. R., and Slotow, R. (2008). "Feeding behaviour of lions (Panthera leo) on a small reserve," African J. Wildl. Res., 38, 66–78.

Miller, S. M., Bissett, C., Burger, A., Courtenay, B., Dickerson, T., Druce, D. J., Ferreira, S., et al. (2013). "Management of Reintroduced Lions in Small, Fenced Reserves in South Africa: An Assessment and Guidelines," South African J. Wildl. Res., 43, 138–154.

Wijers, M. (2016). BVC Lion Population Survey 2016. Unpublished report, Bubye Valley Conservancy.

Wijers, M. and Gush, W. (2018a). BVC Lion Call-up Survey Report 2018. Unpublished report, Bubye Valley Conservancy

Wijers, M. and Gush, W. (2018b). BVC Herbivore Population Survey 2018. Unpublished report, Bubye Valley Conservancy

APPLICANT:

TODD FRY

LION RESEARCH PROGRAM

THE BIG CATS

Lion Research Programme

…He is quick, and his power to do harm is enormous, for he can cause death with a stroke of his paw or one grip of his jaws…"
- Guide to Rhodesia, 1914

THE BIG CATS

Lion and leopard are two of Africa's most iconic and charismatic carnivores. As a function of their role at the top of the food chain, they are vital to proper ecosystem functioning and health. However, both of these species are facing global population decline through the effects of burgeoning human population growth, and the resultant persecution and habitat fragmentation.

Approximately half of all habitat available to African lions is currently found in commercial trophy-hunting areas; yet the vast majority of lion studies have been conducted inside core protected areas such as national parks – the need for a comprehensive lion study within trophy-hunting areas has generally been neglected.

Conservation research on these key ecological species was initiated on the Bubye Valley Conservancy in 2009, beginning with simple density estimates calculated by counting animal tracks on dirt roads. Since the project's conception; the scope of the research has grown to include GPS collaring for population monitoring and interaction analyses, camera-trapping to determine population density, demographics and age structure, and activity loggers to help us better understand the behavioural ecology and eco-physiology of these species. The breadth of research has also increased to include habitat and herbivore surveys, which are fundamental to understanding the ecology of any species in a dynamic ecosystem. The research on BVC has so far produced three doctoral projects through the University of Oxford. Byron du Preez completed his study in 2013, which used leopards as a model species to investigate the impact of lions on the behavioural ecology of a competitively subordinate carnivore, and highlighted the conservation implications that could result from uncontrolled lion populations at densities higher than the local system can sustain. In 2015, Paul Trethowan built on this study of lion-leopard conflict on the conservancy, and expanded the research to assess lion behavioural ecology using activity loggers mounted on the collars of study animals. Matt Wijers is currently undertaking the most recent doctoral study, which focuses on testing the application of new technology to the monitoring of large carnivores.

In addition to these projects, the ecology unit at BVC also conducts surveys to assist management of key species on the conservancy. These include an annual lion population survey, herbivore counts and long-term camera trap surveys targeting leopard, lion and hyenas.

APPLICANT:

TODD FRY

LION CONSERVATION AND TROPHY HUNTING REPORT APPENDIX C: CASE STUDY OF A SUCCESSFUL HUNTING AREA: THE BUBYE VALLEY CONSERVANCY

Appendix C: Case study of a successful hunting area: the Bubye Valley Conservancy

There are multiple examples of poorly run hunting areas, which have been linked to population declines of lions and other species (Packer et al. 2009; Packer 2015), as well as other concerns such as poor animal welfare practices (e.g. Green Mile Safaris, see Section 2.1.2.4). However, it is possible to have a well-managed trophy hunting area that leads to an increasing lion population despite being harvested, and one such model, Zimbabwe's Bubye Valley Conservancy (BVC), is described below.

C.1 Background to Bubye Valley Conservancy

At the end of the nineteenth century, the Liebig's Extract of Meat Company (LEMCO) founded a large cattle ranch in the Zimbabwean lowveld – indigenous wildlife was deliberately eliminated due to competition for grazing and the risk of disease transmission to the livestock. As their natural prey base became depleted, the predators were subsequently persecuted when they resorted to livestock predation. Some wildlife persisted in small pockets of remote habitat within the ranch, however lion, elephant (*Loxodonta africana*), buffalo, black rhino and white rhino (*Ceratotherium simum*) were all completely eradicated. A monoculture of cattle dominated the landscape for the better part of a century.

In 1992 Zimbabwe suffered one of the worst droughts on record, which effectively destroyed the economic viability of cattle ranching in the area, and the privately owned Bubye Valley Conservancy was subsequently founded in 1994 with the realisation that endemic wildlife, which are better adapted than livestock to cope with the local climate, could be successfully commercialised (Child 1988; Bond 1993).

C.2 Lions in Bubye Valley Conservancy

After originally being eradicated by the cattle ranchers, 13 lions were reintroduced to the Bubye Valley Conservancy in 1999, and 4 young males broke into the Conservancy that same year. From the original 17 animals present in 1999, ten years later in 2009 the Bubye Valley Conservancy lion population was estimated at approximately 280 when a WildCRU research team initiated robust population surveys in the area. This lion population has continued to grow, and today it is estimated at over 500 individuals (du Preez et al. 2015).

With boreholes artificially augmenting the water availability, herbivore populations are able to increase in excess of what they probably naturally occured at historically. Overpopulation can lead to overgrazing and excessive hoof pressure, soil erosion, weed encroachment and desertification. Dense prey populations may also allow predator populations to rapidly expand to unsustainable levels that could result in outcompetition of subordinate carnivores (du Preez et al. 2016a) and an eventual crash in the prey base. These anthropogenically

derived ecological problems are exacerbated in fenced areas, and often present the dilema of further interference mangement.

The exponentially increasing Bubye Valley Conservancy lion population currently exists at one of the highest densities in Africa (~0.187 lions km^{-2}: du Preez et al. 2015), greater than that of the Serengeti, Tanzania (0.100 lions km^{-2}: Pusey and Packer 1987; Spong 2002), Selous, Tanzania (0.080 – 0.130 lions km^{-2}: Creel and Creel 1996; Creel and Creel 1997), Kruger National Park, South Africa (0.096 – 0.112 lions km^{-2}: Mills 1995), and Hwange National Park, Zimbabwe (0.027 lions km^{-2}: Loveridge et al. 2007a), which equates to one of the largest contiguous lion populations in Zimbabwe.

The Bubye Valley Conservancy offsets the cost of lion predation on its other wildlife via sport-hunting of the species, which began in 2002. Despite being hunted the lion population continued to grow, while the management facilitated the protection and enhancement of the lion prey base via anti-poaching efforts and stable water provision, as well as the purchasing of additional land. Lion offtake at less than 3% of the total population is responsible for more than a third of the annual revenue generated by the Conservancy, without which it would be unviable to continue as a wildlife area (B. du Preez, pers. comm.).

C.3 Revenue generated from lion hunting in Bubye Valley Conservancy

In 2015, the lion trophy fee in BVC was US$42,000, with a lion hunt daily rate of US$2,950 day^{-1} (with a minimum lion hunt duration of 18 days, so that equated to US$53,100). There are also additional costs that averaged US$6,500 per lion hunt in 2015 (scout, observers, bait used, other trophy species taken during the lion hunt), so each hunt generates around US$101,600. In 2015, there were 12 lion hunts, so that generated a total of US$1,219,200. Lion trophy hunting represents approximately 33.9% of the Bubye Valley Conservancy's total annual revenue generation (which includes post-hunt meat and hide sales). All of the revenue generated from lion sport-hunting on the Bubye Valley Conservancy has gone back into the running costs of the Conservancy, which is all part of conservation, and which includes: anti-poaching and fence monitoring and maintenance (approximately US$506,000 $year^{-1}$), research (approximately US$34,700 $year^{-1}$ not including client and sponsor donations), and community support assistance (approximately US$210,000 $year^{-1}$). With a lack of attractive scenery, and an unsaturated photographic tourism industry throughout the rest of the country, sustainable sport-hunting provides the sole economic incentive to continue operating the Bubye Valley Conservancy as a wildlife conservation area (B. du Preez, pers. comm.).

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
PHILIPPE CHARDONNET, D.V.M.
SHANE MAHONEY
RENEE SNIDER

September 24, 2019

TRANSMISSION VIA EMAIL: amy_brisendine@fws.gov
Ms. Amy Brisendine
U.S. Fish and Wildlife Service
Division of Managemen Authoritye (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virgina 22041

RE: SUPPLEMENT TO APPLICATION

PRT #: 08061D

APPLICANT NAME: TODD FRY

Dear Ms. Brisendine:

Pursuant to our phone conversation we are supplementing the above captioned application for a lion to also include a lioness that was also taken on the same safari, in the same location and with the same operator as follows:

COUNTRY:	Zimbabwe
SPECIE:	Panthera Leo Melanochaita – LIONESS
DATE OF HUNT:	10/22/2018 to 11/08/2018
HUNTING WITH:	Mazunga Safaris
CONSERVANCY:	Bubye Valley Conservancy

Attached please find Hunting Permit No. 001902 for the Lioness, issued by Zimbabwe Parks and Wildlife Management Authority, dated 09/08/2018.

If you have any question about this supplement, please do not hesitate to contact us.

Regards,

/s/ Emma C. Sampson
Emma C. Sampson
CONSERVATION FORCE
Permits Department

Enclosures: Permit to hunt; Biologist's Lioness report
cc Client

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
PHILIPPE CHARDONNET, D.V.M.
SHANE MAHONEY
RENEE SNIDER

January 11, 2021

Department of the Interior
U.S. Fish and Wildlife Service
Attn: Amy Brisendine
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803
VIA E-MAIL: amy_brisendine@fws.gov

RE: PRT # CS0003510, Lioness from Bubye Valley Conservancy
Applicant: Todd Fry
RE: Special note and request to Expedite Import Permit Application

Ms. Brisendine:

This is a special note about PRT # CS0003510, for Todd Fry for the lioness trophy from Bubye Valley Conservancy in Zimbabwe.

On July 25th, 2018 Conservation Force filed application #MA08061D for a lion trophy from Bubye Valley Conservancy for Todd Fry. The application was filed before the hunt. During Mr. Fry's hunt he was offered to hunt a troublesome lioness and did so successfully. Emma of Conservation Force called the DMA and concluded that the lioness could be added to the existing lion permit with a simple "supplementation." On September 24th, 2019 our office submitted a supplementary letter to include the lioness into the existing lion application (we have included this letter). Apparently Emma misunderstood what she was told but regardless, the lioness amendment was never effectuated.

Mr. Fry's original lion permit was issued in August of 2020 and we continued to file supplemental information regarding the lioness, not learning that the DMA had no record (or recognition) of that permit application for a lioness until last week on January 8th, 2021.

Due to our misunderstanding and the time that has elapsed, we have filed this wholly new application for the lioness and we ask that you consider expediting the issuance of this application so that our client may possibly ship both of his trophies to the United States together.

If you have any questions about this import application, please do not hesitate to contact us.

Sincerely,

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Todd Fry

3240 S I-10 Service Road W, Suite 200 • Metairie, Louisiana 70001 • USA
Telephone: (504) 837-1233 • Fax (504) 837-1145 • Email: cf@conservationforce.org
www.conservationforce.org

APPLICANT:

CHARLES HELM

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Charles Helm (b) (6) [redacted], Dallas, Texas 75214

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

Charles Helm ([redacted]

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Panthera leo, lion

b. Sex (if known).

male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

N/A

b. Date wildlife is to be hunted:

N/A

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

N/A

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

Kafue System, Kafue Royal Concession, Kaindu, Zambia, Africa

b. Date wildlife was hunted:

August 31, 2019

c. Approximate age of animal:

over 8 years of age

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

Royal Kafue P.H. Andrew Baldry

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

Bangweulu Taxidermy Ltd. 4142/K Chifwema Road, New Kasama, Lusaka, Zambia

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

Please see provided

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	Michael Borman
Business Name:	Bangweulu Taxidermy, Ltd.
Address:	4142/K Chifwema Road
City:	New Kasama, Lusaka
State/Province:	Zambia
Country, Postal Code:	

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.
See attached
11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):	Andrew Baldry
E-mail:	kafueroyal@gmail.com
Phone number:	+260 97 5315144

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature: _[redacted]_ Date: 1-14-2021

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from [redacted]. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

APPLICANT:
CHARLES HELM
LICENSES
AND HUNTING PERMITS

u/off
2153

NPW FORM 5B

S/No.: .....

REPUBLIC OF ZAMBIA

THE ZAMBIA WILDLIFE ACT
(ACT NO. 14 OF 2015)

0006284

THE ZAMBIA WILDLIFE
(LICENCES AND FEES) REGULATION, 2007

Appendix 2 Second Schedule(3)

PERMIT TO HUNT IN A GAME MANAGEMENT AREA

Station of issue: Chilanga Date of Issue: 15/08/19

DETAILS OF PERMIT HOLDER

Full name: Charles Miner Helm NRC/Passport No: (b) (6)

Tel/Mobile No.: ..... E-mail address: .....

Postal Address: Royal Kafue Residential Address: USA

DETAILS OF FIREARMS

Firearm Licence No(s) 1.: Company fire Arms 2. - 122387 3. .....

Calibre(s) 1.: 416 2. ..... 3. .....

DETAILS OF LICENCES, HUNTING AREA & HUNTING TYPE

Resident/Non Resident Hunting Licence No (s) .....

Bird Hunting Licence No. .....

Hunting Type: Non-Resident

is hereby authorised to hunt in Kafue G. Ranch Game Management Area,

As Above Hunting block for ..... days from 16/08/19

to 30/08/19 02/09/2019 (Dates inclusive)

Amount Paid $ 150 GRZ Receipt No. OCHH339

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
LICENSING
PRIVATE BAG 1 CHILANGA, ZAMBIA.

Official Stamp AUG 2019

Chairperson of the Committee

Note: Original copy to Permit Holder - Duplicate copy to Accounts - Triplicate to Commercial - Quadruplicate to be retained in the Book

NPW FORM 2

0004580
S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue..... Chilanga ..... Date of Issue..... 23/08/2019

DETAILS OF LICENSEE

Full Name..... CHARLES HELM ..... NRC No./Passport No..(b) (6) .....

Nationality..... Age.....

Tel/Mobile No:..... E-mail.....

Full Name of Safari Company:..... Royal Kafue .....

Certificate of Incorporation No. ..... Date of Incorporation.....

Postal Address..... Lusaka ..... Residential Address.....

Firearm Licence/Tourist Firearm Import No..... 122135 ..... Calibre of Firearm..... .416 .

Type of Hunt..... CLASSIC .....

Any other relevant information, which may be considered in support of this application (e.g, previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Lion	1st	M	Kajondy Game Ranch	2019	4200
					-

Total Animals fees paid - the kwacha equivalent of ..... US$ 4200.-

Concession Fees paid - the kwacha equivalent of ..... US$ -

Grand Total the kwacha equivalent of ..... US$ 4200

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
23 AUG 2019
LICENSING
PRIVATE BAG 1, CHILANGA, ZAMBIA.

Official Stamp ..... Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

NPW FORM 12

ORIGINAL

0007852

S/No.....

REPUBLIC OF ZAMBIA

The Zambia Wildlife Act

(No. 14 of 2015)

(Licences and Fees) Regulations, 2007

(Regulation 7(5))

RECORD OF GAME AND/OR PROTECTED ANIMALS KILLED OR WOUNDED

Name of Professional Hunter: ANDREW BARDY NRC/Passport No. 489363/11/2

Residential Address:.....

Name of Safari Company on behalf of which the Professional Hunter is submitting this return: ROYAL KAFUE

DETAILS OF CLIENT

Name of client: CHARLES HELM. NRC/Passport No: (b) (6)

Tel/Mobile No..... Nationality: USA

Postal Address..... Residential Address.....

Type of Licence: GMA Licence No.: 000625

Date of Issue: 15/8/19 Place of Issue. CHIPATA

Name of Hunting Block where hunting was conducted: KAMNDU

Hunting period From 12/8/19 To 02/09/19

Date Killed or wounded	Species	Sex	Number killed	Number Wounded	GPS Location	Trophy for export Yes	Trophy for export No	Foreign currency value charged to client
23/8	HYENA		1		14 [illegible] 0745035			
24/8	IMPALA		1		14 [illegible] 0684713		X	
31/8	LION		1		14 [illegible] 0680505			

DETAILS OF TROPHY MEASUREMENTS

Species	Length of Skin	Length of Tusk	Average length of horn	Length of Skull
HYENA.	1m 60cm			
IMPALA.			18.	
LION.	2M 90cm			

Certification by -

(a) Client

I certify that the animals listed on this return were hunted or wounded by me during the period stated and that the total amount of foreign currency stated and paid by me to the safari company is the full amount I was charged.

(b) Professional Hunter

I certify that the animals listed in this return were actually hunted by the client in accordance with the terms and conditions of the Safari Hunting Licence and that the [illegible] full amount paid by the client for the hunt.

Date 02/09/19 Signature of Client (b) (6)

Date..... Signature of Professional Hunter.....

Date..... Name of Wildlife Police Officer. D/Cnstbl 615 Chisanu

Employment No. of W.P.O. 0527473

Signature of W.P.O.

Notes: Original copy to Committee ** Duplicate to Safari Company ** Triplicate to Commercial ** Quadruplicate to be retained in the book

SAMPLE

ANTI-POACHING

REPORT

Andrew Baldry (b) (6) 4/8/2020 9:22 AM

Sample anti poaching report

To Tammy L. Piker <permits@conservationforce.org>

Hi Tammy,

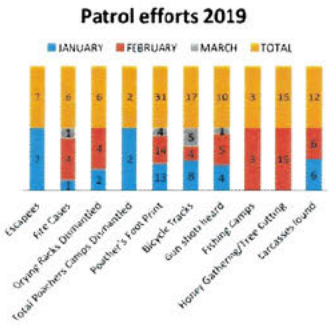
This is a communal report of activities OUTSIDE of the designated hunting zones. Currently, there are no recorded cases of poaching inside the Kaindu Community Game Ranch. However, our scouts are allowed to protect wildlife outside of the Game Ranch and within the Kaindu Community boundaries.

Graphical representation of some of recoveries achieved during the reporting period.



AK47, 375RiFle. Ammunitions, Bicycles assorted Bush meat and fishing nets Confiscated from illegal dealers

EFFORTS ACHIEVED FROM JANUARY TO MARCH	JANUARY	FEBRUARY	MARCH	TOTAL
Escapees	7	0	0	7
Fire Cases	1	4	1	6
Drying Racks Dismantled	2	4	0	6
Total Poachers Camps Dismantled	2	0	0	2
Poacher's Foot Print	13	14	4	31
Bicycle Tracks	8	4	5	17
Gun shots heard	4	5	1	10
Fishing Camps	0	3	0	3
Honey Gathering/Tree Cutting	0	15	0	15
Carcasses found	6	6	0	12



16

- Screen Shot 2019-04-15 at 08.36.38.png (307 KB)

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
PHILIPPE CHARDONNET, D.V.M.
SHANE MAHONEY
RENEE SNIDER

January 14, 2021

Department of the Interior
U. S Fish and Wildlife Service
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike, Falls Church, Virginia 22041-3803

RE:		
	Applicant:	**Charles Helm**
	Species:	**Lion**
	Country:	**Zambia**
	Date of hunt:	**August 31, 2019**
	Hunting with:	**Royal Kafue, Ltd**

Dear Madam/Sir:

Enclosed please find the permit application to import a sport-hunted lion trophy taken from Zambia in 2019 by Mr. Charles Helm. Mr. Helm hunted in the Kafue Royal Concession with professional hunter Andrew Baldry of Royal Kafue Safaris.

In 2010 the chief of the Kaindu community presented an opportunity to Andrew Baldry to occupy the badly abused and abandoned land and to help restore it again with its natural resources. After two years of heavy anti-poaching endeavors, that recovered over 1,000 snares and hundreds of weapons, the nomadic species began to return. The game ranch was soon registered by the Zambian Wildlife Authority and Royal Kafue continued with its conservation efforts and restoration of the land, actively working with the surrounding Kaindu community to better their understanding of the value of these natural resources. Through this relationship between operator and community a new type of communal wildlife estate emerged, where the community now owns the registered game ranch. The overwhelming benefits of this relationship can be read about in the operator report and the enhancement documents provided, and the beauty of this restoration can be witnessed in this video by Frank Louw https://www.youtube.com/watch?v=GCzFBrK59cg&t=224s and in this video by Zig Mackintonsh on the Conservation frontlines website https://www.conservationfrontlines.org/2020/01/fate-of-the-african-lion-royal-kafue-zambia/

Strict lion quotas are set for the Kafue system. In a span of 10 years only 3 lions were hunted that were in-excess-of 9 years of age. This type of localized management plan for the lion, encompassed with trophy hunting has proven to be an overwhelming success for the Kafue area, proving that science-based regulated hunting does in fact enhance the species.

We ask that you consider this information and the supporting information in the documents provided, as well as the hundreds of other documents submitted by the government of Zambia, Safari Operators, and other hunters who have submitted import permit applications when making an enhancement determination for this permit application.

Please do not hesitate to contact us if you have any questions

Sincerely,

Aimée Korver
Permits Paralegal

Enclosures:

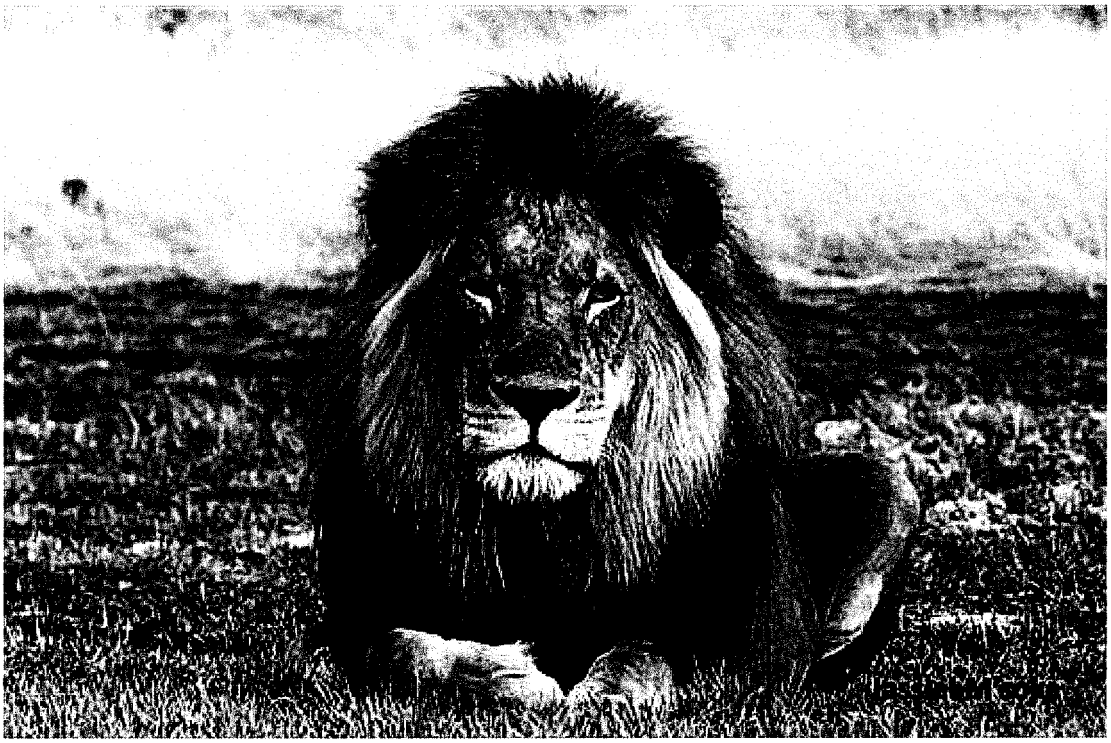
- Charles Helm Permit application
- Notice of Representation
- Charles Helm Licenses and Hunting Permits
- Royal Kafue E-mail with video link
- Royal Kafue Operator Enhancement Report
- Sample Anti-Poaching Report
- History of Kaindu Community Game Ranch
- Royal Kafue and the Kaindu Natural Resource Trust Article
- Confirmation Letter to Royal Kafue for Hunting Rights to Chiefdom
- Maps of Community Game Ranch and Area of Hunt
- The updated Enhancement and Non-Detriment Findings for African Lion Sport Hunting in Zambia

cc: Mr. Charles Helm (w/enclosures)

MINISTRY OF TOURISM AND ARTS

DEPARTMENT OF NATIONAL PARKS & WILDLIFE

ENHANCEMENT AND NON-DETRIMENT FINDINGS FOR AFRICAN LION SPORT HUNTING IN ZAMBIA



MAY, 2016
UPDATED JANUARY 2020

Department of National Parks & Wildlife
P/Bag 1,
Chilanga
Tel: (260) 211 278335, 211 278365
Fax: (260) 211 278365, 211 278244
Email: info@dnpw.mota.gov.zm

TABLE OF CONTENTS

1.0 INTRODUCTION 6

2.0 BIOLOGICAL STATUS 6

2.1 DISTRIBUTION 6

2.2 POPULATION STATUS 7
2.2.1 LUANGWA ECOSYSTEM 8
2.2.2 KAFUE ECOSYSTEM 10
2.2.3 LOWER ZAMBEZI ECOSYSTEM 11
2.3 GENETIC VARIABILITY 11

3.0 CONSERVATION AND MANAGEMENT 12

3.1 LEGISLATION AND POLICY 12
3.2 PRIMARY LEGISLATION RELATED TO HUNTING 13
3.2.1 CLASSES OF LICENSES 13
3.2.2 THE WILDLIFE FUND 14
3.3 SUPPORTING STATUTORY INSTRUMENTS (SIS) 14
3.4 ZAMBIA'S CONSERVATION STRATEGY AND ACTION PLAN FOR THE AFRICAN LION 15
3.4.1 OTHER SPECIES CONSERVATION PLANS AND STRATEGIES THAT INTERACT WITH LION CONSERVATION STRATEGY 16
3.5 DNPW ORGANIZATION AND ACTIVITIES 17
3.5.1 ANTI-POACHING OPERATIONS 19
3.6 STAKEHOLDER INVOLVEMENT IN LION CONSERVATION 20
3.6.1 HUNTING OUTFITTERS 20
3.6.2 COMMUNITIES 20
3.6.3 NON-GOVERNMENTAL ORGANIZATIONS 20

4.0 ZAMBIA LION RESEARCH 21

5.0 UTILIZATION 22

5.1 SAFARI HUNTING IN ZAMBIA 22
5.2 LION HUNTING AREAS 22
5.2.1 GMAS 23
5.2.2 OPEN GAME RANCHES 24
5.3 HUNTING QUOTAS 25
5.3.1 QUOTA ALLOCATION PROCESS 25
5.4 STATUS OF BLOCK ALLOCATIONS 28
5.4.1 OBLIGATIONS OF THE CONCESSIONAIRE IN THE HUNTING CONCESSION AGREEMENT 28

5.4.2 TENDER PROCESS FOR HUNTING BLOCKS 31
5.4.3 COMPLIANCE TO OBLIGATIONS OF THE CONCESSION AGREEMENT 31
5.5 QUOTA SETTING AND GMA MANAGEMENT **32**
5.5.1 TREND IN OVERALL QUOTA ALLOCATIONS 32
5.5.2 QUOTA ALLOCATION ACROSS ECOSYSTEMS 32
5.5.3 UTILISATION OF QUOTA 34
5.6. VALUE OF 2018 QUOTA **35**
5.6.1 INCOME GENERATION OF THE 2018 QUOTA 35
5.7. LION QUOTAS AND UTILIZATION PRE-MORATORIUM (2005 – 2012) 38
5.8 DEVELOPMENT OF LION HUNTING QUOTAS AND GUIDELINES FOR HUNTING LIONS AFTER THE MORATORIUM 41
5.9 MECHANISM FOR MONITORING TROPHY HUNTING IN ZAMBIA **45**
5.9.1 QUOTA MONITORING 45
5.9.2 LION HUNTING MONITORING 45
5.10. LION QUOTA ALLOCATION AND UTILIZATION 2016 - 2018 48
5.11 INTERNATIONAL TRADE **52**

6.0 INVOLVEMENT OF THE HUNTING SECTOR IN LION CONSERVATION **52**

6.1 BENEFITS OF LION HUNTING IN ZAMBIA **52**
6.1.1 ECOLOGICAL BENEFITS 52
6.1.2. ECONOMIC BENEFITS 53
6.1.3. SOCIAL BENEFITS 53
6.2 TRANSPARENCY **54**

7.0 THREATS AND MITIGATION **54**

7.1 MITIGATION OF HABITAT LOSS, ENCROACHMENT AND FRAGMENTATION **54**
7.1.1 GENERAL MANAGEMENT PLANS 56
7.1.3 OPEN GAME RANCHES AND TRANS-FRONTIERS CONSERVATION AREAS 56
7.2 HUMAN LION CONFLICT **57**
7.3 BUSH MEAT POACHING AND PREY DEPLETION **58**
7.3.1 PREY AVAILABILITY AND ABUNDANCE 59

8.0 COMMUNITY BASED NATURAL RESOURCES MANAGEMENT (CBNRM) **62**

8.1 CBNRM IN ZAMBIA **62**
8.2 COMMUNITY BENEFITS **63**
8.3 GOVERNANCE OF CRBS **65**
8.4 CONTRIBUTION OF HUNTING REVENUES TO CRBS **65**
8.4.1 COMMUNITY LIVELIHOODS AND DEVELOPMENT THROUGH CRB PROJECTS 66

9.0 REVENUES AND EXPENDITURES FROM TROPHY HUNTING **67**

9.1 ANIMAL AND HUNTING FEES 68
9.2 DNPW INCOME AND EXPENDITURE 68
9.2.1 VALUE OF HUNTING CONCESSION AGREEMENTS 69

10.0 EVALUATION AGAINST THE U.S. ENDANGERED SPECIES ACT (50 CFR 17.32) PERMIT ISSUANCE CRITERIA 72

11.0 CONCLUSIONS AND NON-DETRIMENT FINDINGS 73

12.0 REFERENCES 75

ANNEX 1 NATIONAL PARKS AND WILDLIFE POLICY, AUGUST 2018. 80

ANNEX 2: LIST OF CRBS REGISTERED IN EACH REGION 81

LIST OF FIGURES

Figure 1. Distribution of lion in Zambia 7
Figure 2: Organization Structure for the Department of National Parks and Wildlife 17
Figure 3. Organization of the Wildlife Conservation and Management Division DNPW 19
Figure 4: Area of GMAs (km^2) in each of the ecosystem clusters where hunting blocks are located 23
Figure 5: The location of hunting blocks and grading within the GMAs in relation to the national parks and Mushingashi Conservancy 27
Figure 6: Overall quota allocation (4535 animals) per ecosystem in 2018 33
Figure 7: Total quota allocation by category in 2018. 63% is allocated to the non-resident quota. 33
Figure 8: Allocation of the lion quota by hunting category in 2018 and 2019. 34
Figure 9: Allocation of the 2018 lion quota across the major ecosystems. Kafue and Luangwa take up the bulk of the lion quota. 34
Figure 10: Example of lion sighting form used by Professional Hunters 45
Figure 11: Lion Trophy record form 47
Figure 12: 2018 quota allocation of lion across the occupied hunting blocks in the GMAs. Note that quotas allocated to OGR is not shown 49
Figure 13: Population trends for selected species in the Kafue National Park 1994-2019 (Source DNPW 2019, in review) 60
Figure 14:Ungulate population trends in South Luangwa National Park 61
Figure 15: Population trends for buffalo, impala, waterbuck and warthog in the Lower Zambezi National Park 61
Figure 16 Species abundance in the Luangwa ecosystem National Parks vs GMAs 62
Figure 17: Comparison of income from Consumptive and Non-Consumptive Revenues and the impact of the hunting ban in 2013 – 2014 69

LIST OF TABLES

Table 1. Previous lion population estimates for Zambia 8
Table 2: Zambia Law Enforcement Effort: 2016 – 2018 19

Table 3: Results from Law Enforcement Operations carried out by the Wildlife Law Enforcement Unit.....20
Table 4: Summary of hunting block categories.....23
Table 5: List of Open Game Ranches in Zambia.....25
Table 6: Institutions involved in Zambia's quota allocation process.....26
Table 7: Current Annual financial obligations of hunting concessionaires to Communities in selected Game Management Areas (In Zambian Kwacha).....29
Table 8: Contributions of Safari Companies to Wildlife Conservation from the Luangwa and Kafue ecosystem (2008 - 2019).....30
Table 9: Trend in the quota set by ZAWA and DNPW for all species and key classic and mini hunt trophies..32
Table 10: Ranked top 10 species utilisation levels for non-resident quotas recorded between 2003 - 2011 (adapted from Chomba and Nyirenda, 2015).....35
Table 11: Overall income (US$) generated from the sale of 100% of the 2018 quota allocated to prime, secondary, understocked and specialised hunting blocks.....36
Table 12: Total animal licence fee income (US$) and overall contribution of the 2018 lion quota......36
Table 13: Potential gross income (US$2,138,600) of seven main species that contribute to Classic and Mini Hunts that define the block categories.....37
Table 14: Zambia lion Allocated Quotas for the period 2005 to 2012.....39
Table 15: Lion harvest rates in Zambia 2005 – 2012 (Lions /1000 km^2).....40
Table 16: Lion Hunting Quota for 2016.....41
Table 17: Age categories defining lion trophies as described in the DNPW hunting guidelines.....43
Table 18: Summary of the number of lions harvested between 2016 and 2018 and classified into categories according to the criteria defined in the hunting guidelines......48
Table 19: Allocation of lion quotas per hunting block and OPG's – 2018 and 2019.....50
Table 20: Status of General Management Plans in Zambia's lion hunting Areas.....56
Table 21: Control of Problem Lions in Zambia 2002-2018.....58
Table 22: Total disbursement of Game License (50%) and Concession fee (20%) to CRBs. (Data source: Zambia National CRB Association, Lusaka).....66
Table 23: List of community projects implemented by CRBs in the four regions using funds from hunting blocks. (Source: Zambia CRB Association, Lusaka).....67
Table 24: Total ZAWA/DNPW Revenues (ZMW) 2010 – 2018 (Source: DNPW Accounts Unit).....70
Table 25: ZAWA/DNPW Expenditures (ZMW) 2010 - 2017 (Source: DNPW Accounts Unit).....71

1.0 Introduction

Zambia's policy on conservation is based on sustainable utilization as a way to enhance the economic and ecological importance of biodiversity. In this regard, lion has an important role not only as an apex terrestrial carnivore in the Zambian ecosystem but, also as a potential provider of economic benefits to the people of Zambia especially those living in rural communities. Zambia realizes the threats that the species is facing, and therefore the need of having strategies, programmes and plans on lion conservation. In this vein, the Zambian government through the then Zambia Wildlife Authority (now Department of National Parks and Wildlife - DNPW) formulated a lion conservation strategy (2010) and more recently (2019) has revised the guidelines on hunting of lion in Zambia, which were drafted in 2016.

Importantly, the Zambian government in the recent past has promulgated a suspension of, inter alia, lion trophy hunting from 2013 to 2015, but the suspension was lifted in 2016 after data collection on Zambia's lion population showed that a limited offtake is sustainable and impacted rural communities requested that the suspension be lifted due the detrimental impact on their livelihoods and increased human-livestock-lion conflict without hunting revenues.

In 2015, major legal reforms occurred in the wildlife sector with the review of the Zambia Wildlife Act No. 12 of 1998. The reforms give new impetus to the structure of wildlife conservation in the country. To strengthen the lion management programme, DNPW needs additional resources to reinvest into lion research, protection and conservation. Sustainable utilization, in the form of highly selective and well-monitored sport hunting, can provide the needed revenues to achieve these goals. The proceeds from lion sport hunting are re-invested into conservation and sustainable development in local communities. In this way, sustainable sport-hunting of lions provides direct benefits to both conservation of Zambia's wild lion populations and the people living with the lions in their areas thereby promoting conservation ethics at the national and local level.

Since the re-introduction of trophy hunting for lion in 2016, the DNPW is implementing an adaptive management strategy that limits the off-take of lions. To support this approach, it has experimented a robust age-based monitoring programme, that will become binding for the 2020 hunting season.

In doing so the DNPW has drawn on the lessons learnt from the responses of scientific community (e.g. Macdonald, 2016) and the conclusions of FWS enhancement findings (USFWS 2017) to guide its implementation of the science-based Zambian *Conservation Strategy and Action Plan for African Lion* (ZAWA, 2009). This strategy is the platform being used to introduce best practices in conservation of lions (and other large carnivores) to ensure their long-term sustainability in Zambia and will be updated in 2020.

This enhancement and non-detriment finding provides an update to the *Enhancement and Non Detriment Findings for African Lion Sport Hunting in Zambia* prepared in May 2016 (DNPW, 2016).

2.0 Biological status

2.1 Distribution

There are three main clusters of lion populations in Zambia; Kafue, Luangwa and Lower Zambezi ecosystems, the latter two of which share connectivity through the intervening game management areas. Cushman *et al.* (2018) rank the Kafue and Lower Zambezi ecosystems as the second and third most important dispersal areas for lion in the region but draw attention to the threats facing the

corridors linking these areas that are addressed in the Kavango Zambezi Transfrontier Park (KAZA) Large Carnivore Conservation Strategy (in press).The historical distribution of lion prior to the 1960s is recorded as occurring throughout Zambia (Ansell, 1978), although this very general statement is likely to be reflective of historic habitat porosity, low human density and popular perceptions as opposed to being documented through systematic surveys. Current distribution of the species is restricted to National parks and the surrounding game management areas with a few lion sightings and dispersers reported each year in open areas. In addition to stronghold populations in the three main clusters, smaller numbers of lions exist in Liuwa Plains, Sioma Ngwezi, Nsumbu and the Lavushi Manda National Parks. The Kazungula and Siavonga Open Areas have vagrant populations shared with other countries. Historically, lions occurred in the West Lunga complex, although no recent sightings have been reported from that area. In contrast, lions have been documented in the Bangweulu Swamp area in recent years (Fig 1). The Lower Zambezi Population is the only significant population that is likely to be transboundary, although lions are known to move between countries in the Kavango Zambezi Transfrontier Park (KAZA).

The total lion range in Zambia is about 148,000 km^2, representing about a 63 % of Zambia's protected area network (230,000 km^2).

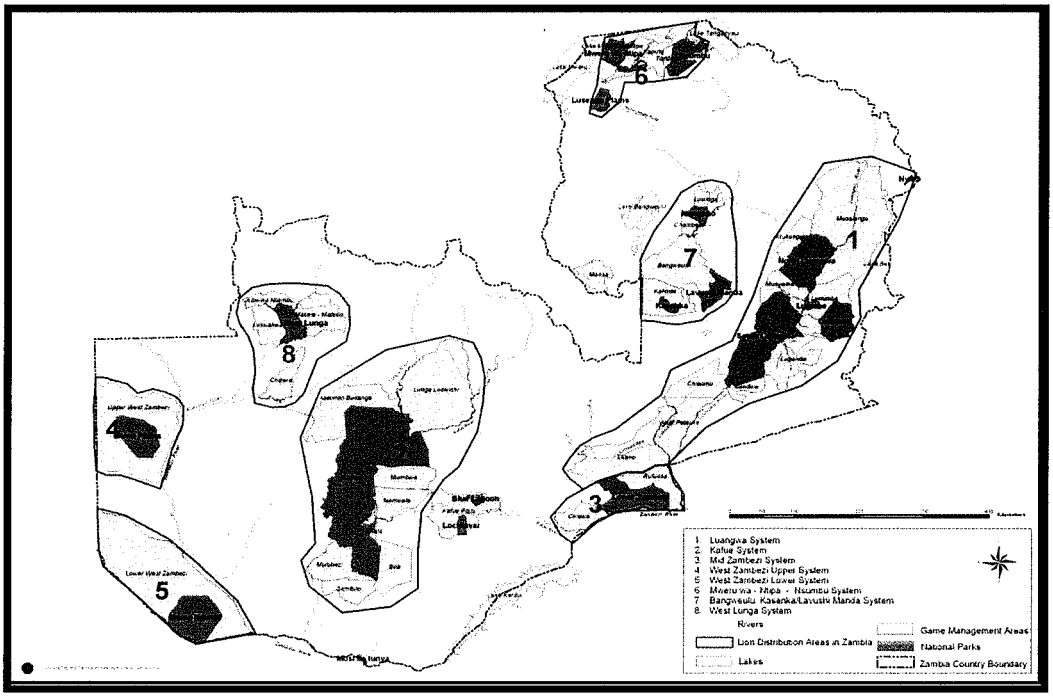


Figure 1. Distribution of lion in Zambia

2.2 Population status

Low density, broad and clumped distribution, largely nocturnal activity pattern, and the difficulty of observing lions in areas outside of those heavily visited by photo-tourists, makes the precise inventory of lion populations a difficult task (Schaller, 1972). These difficulties may be overcome in areas where lions are habituated to humans, but represent significant hurdles in areas where lions are heavily affected by human persecution such that they may lead to gross underestimates (Bauer & Van Der Merwe, 2004).

Previous lion estimates for the country have typically relied on expert opinion e.g., Chardonnet, 2002; Bauer and Van Der Merwe, 2004; Riggio, 2011; Riggio et al., 2013. Bauer and Van Der Merwe, 2004 gave a total national estimate of 1,500 lions, without breaking it down into component ecosystem populations. Table 1, presents the estimated lion populations according to Chardonnet, (2002) and Riggio (2011). There are subtle differences in the estimates between the two in that areas looked at differed in terms of area size. For example, whereas Chardonnet, 2002 estimated lion population for Nsumbu National Park, Riggio, 2011 included Lusenga Plains National Park in their estimate.

Table 1. Previous lion population estimates for Zambia

Protected Area	2002	2011
Nsumbu Complex	39	<50
Bangweulu		<50
Luangwa Ecosystem	1,633	
Petauke Corridor	165	425 - 835
Lower Zambezi NP and Kariba shore	183	
Kafue Ecosystem	1026	250 - 500
West Lunga	153	153
LPNP, SNNP & West Zambezi GMA	376	
LPNP		3
SNNP		<50

Source: Chardonnet, 2002 and Riggio, 2011.

Due to varying estimates, the Zambia Wildlife Authority (now DNPW) continues to work closely with the Zambia Carnivore Programme (ZCP) that, starting from 2007 is monitoring lion populations in South Luangwa National Park (SLNP) and the adjoining Game Management Areas (GMAs), Kafue National Park (KNP) and Liuwa Plains (ZCP, 2018). Intensive monitoring areas have been instituted within the larger Luangwa and Kafue ecosystems specifically aimed at estimating the status of the lion populations in these key ecosystems.

Overall, estimates are based on observed numbers in the field and have not taken into consideration effort and detection to vigorously estimate the population size for the study area. But indicators are that the moratorium on hunting has stabilized prides in the study area and improved cub survival and number of male coalitions. Therefore, the estimate of 1,200 lions present in Zambia given by Macdonald, 2016 should be considered also as a guess estimate.

The sections below give a summary of the results in each of the core lion areas.

2.2.1 Luangwa Ecosystem

The Luangwa ecosystem can be divided into two parts; the Upper Luangwa consisting of South Luangwa, North Luangwa, Lukusuzi, Nyika, and Luambe National Parks with the surrounding Musalangu, Lupande, Munyamadzi, Mukungule and Sandwe Game Management Areas. The other area is what is considered as the Corridor Area (linking South Luangwa National Park with Lower Zambezi National Park) consisting of West Petauke, Chisomo and Luano GMAs with the surrounding Open Game Ranches (OGRs). The Luangwa is considered as the most important lion cluster in the

country (ZAWA, 2009, DNPW 2016). The density of lion in this ecosystem is likely affected by the topography, with the valley section having more prey density than the plateau and escarpment sections.

Yamazaki 1996, studied 63 lions in 6 prides in a 355 km^2 portion of the Luangwa Valley, the Nsefu sector and part of the Lumimba and Lupande Game Management Areas. He reported population densities ranging from 12.4 – 13.8 lions /100km^2. He found that the status of the male lion population in the study area was affected by high harvest rate.

A more recent field study (Rosenblatt et al 2014), found for a portion of (2776km^2 study area) South Luangwa NP, a minimum density of 3.4 lion/100km^2 and a maximum density of 8.83 lion /100km^2. The IUCN Red List Assessment (Bauer et al 2015) for lion report in Table 3 of the Supporting Information a decline of 28% in the Luangwa population Such Table 3 caption is the following: *Inferred Lion population trend based on interpolated census data from 1993-2014 in 47 monitored Lion subpopulations (note that these are study subpopulations not necessarily representing total site subpopulation).* In fact, the data shown above is only for a small portion of the South Luangwa NP and not for the whole ecosystem.

In reality the Rosenblatt et al., 2014 study referenced above report an initial population estimate in 2008 of 102 (95%CL 90 - 123) lions and a final population estimate in 2012 of 94 lions (95%CL 92 - 106) a 9.21% decline i.e., about a 2% decline per year (2008-2012) and not a 28% decline as suggested and inferred by the IUCN data. A published rebuttal to the IUCN data and to a subsequent publication by Bauer et al. (2015b) that relied on the IUCN data, points out several errors in data analyses and draws a very different conclusion to claims of continent-wide species decline. (Riggio et al. 2015)

The Zambian Carnivore Programme has continued with field studies in the same study area of Rosenblatt 2014 (2776km^2 study area), to analyse, inter alia, lion demography in the area. In 2013, ZCP reported preliminary lion numbers were high. This was based on intensive monitoring of 13 prides and 13 coalitions collectively comprising 141 individuals, with 3 adjacent prides of 20 animals each and a number of new male coalitions (ZCP, 2014). This implies that the study population together with pride in adjacent areas was at least 200 lions. In 2014, ZCP indicated it was monitoring 15 prides and 13 coalitions, with a total of 166 individual lions identified and re-sighted.

In 2018 ZCP monitored 215 individuals in 19 prides and 17 coalitions across the same study area of 2776km^2 which included South Luangwa National Park and the adjacent Lupande and Lumimba Game Management Areas. Study is also being expanded northwards into North Luangwa National Park and southwards into the Open Game Ranches in response to changing spatial dynamics by some study prides and conducted additional survey and monitoring work in collaboration with the DNPW.

ZCP together with the DNPW published a peer-reviewed paper in 2018 (Mweetwa et al. (2018) evaluating 8 years of Luangwa lion demography, spanning both the three-year hunting moratorium and five years prior.

This study monitored 386 individual lions within and around SLNP for five years (2008–2012) with trophy hunting, and for three years (2013–2015) during the moratorium. These data are used to estimate the effects of hunting on lion survival, recruitment, and abundance. It concluded that hunting lowered the subadult and adult male survival by 17% and 14% in subadult and adult males respectively, with smaller effects on adult female and cub survival. Large increases in lion abundance occurred during the hunting moratorium, with the study population approximately doubling by the last year of the moratorium. More cubs were produced each year of the moratorium than in any year with trophy hunting, and lion demographics shifted from a senescent and male-depleted population to a much younger population with >29% of all known adults being male. While the moratorium was

controversial, it has contributed to creating the desired changes in the lion population and demonstrates that by applying a rigorous management programme, lion populations will recover rapidly.

This study provides valuable lessons of the effects of trophy hunting on populations within protected areas that can move freely across the boundaries and emphasises that sustainable hunting of large carnivores is dependent on sound conservative harvest policies and that these policies should also consider prey density that links lion offtake with production. It is important to note that the study reached the same conclusions of the 2016 NDF i.e. that any sustainable harvesting strategy must consist of conservative quotas, age-based harvesting, and systematic monitoring to address the inherent uncertainty that accompanies the understanding of demography in naturally sparse large carnivores.

No intensive research has been conducted in the corridor area (refer to first paragraph in this section), but, a first animal count was conducted by DNPW (DNPW 2018) from 1st October to 10th October, 2018 in Lower Luano GMA in order to ascertain the current status of wildlife species. This count was done by transect line using known tracks for the larger ungulates and point sample counts (call-ins) for the predators. Seven lions responded to the call-ins while five lions were found on the way to call-ins. The report concluded that there is need to conduct follow-up calling counts in Lower Luano GMA as well as an in-depth analysis of the individuals on the photographs from the camera traps in order to distinguish the individual so as not to ensure double counts happened. Additionally, there is a need for validation of calling-station survey by means of GPS radio-collars data and that the population size and density of wild animals in general in the Lower Luano GMA was fair to low but all indications were that is was a recovering population.

Based on the current data, the lion population in the Luangwa Ecosystem is considered to be stable and potentially increasing.

2.2.2 Kafue Ecosystem

The Kafue National Park and surrounding Game Management Areas cover an area of approximately 66,000km^2. The earliest intensive studies on lion in the Kafue ecosystem were carried out between 2003 and 2005 by Ron and Anne Carlson (Becker et al., 2012). Since then a number of studies have been initiated to determine abundance and vital rates (Midlane et al., 2014, 2015 and ZCP, 2014).

The study by Anne and Ron Carlson covered an area of 4,720km^2 in northern Kafue National Park bordering the Lunga Luswishi and Kasonso Busanga GMAs (Becker et al., 2012). Population data was collected from 107 individually identified animals in 13 prides and 4 coalitions. The density of lion ranged between 1.5 adults/100km^2 and 1.8 lions/100km^2. The study population age structure was 21% cubs, 11% sub-adults, and 68% adults. The adult sex ratio was 3 females to 1 male. Mean pride size ranged from 2 to 7 adult females. Adult males comprised 17% of the observed population.

Midlane et al., 2015 estimated 228 lions (95 % CI 179 – 277) and 264 (95 % CI 204 – 325) for an 11,000 km^2 study area in northern Kafue. Estimated population density was 2.08 lions/100 km^2 in 2010 (95 % CI 1.63–2.53) and 2.41/100 km^2 (95 % CI 1.86–2.96) in 2011. Midlane et al's 2015 density of lion was higher than the estimated density by Becker et al, 2012. However, differences in methods and categorization of age classes preclude comparison.

In 2013, ZAWA (now DNPW) in collaboration with ZCP initiated intensive monitoring study of lions in northern Kafue covering the same intensive study area of Midlane et al's 2015 study, to monitor not

only monitor abundance and trends, but to also estimate vital rates for this population. At the close of the 2014 season, there were 56 uniquely identified lions in 9 collared prides and 6 male coalitions, with several other unknown adults nomadic through the area (ZCP, 2014). Building on Carlson's and Midlane's studies the ZCP study represents a long term effort to provide demographic vital rates for this population of lions.

In 2018 ZCP (ZCP 2018) intensively monitored 15 prides and 15 coalitions totalling 173 lions across Northern and Central Kafue in 2018 extending the study area to the remote Kasonso-Busanga GMA. This important area has been, in the past, heavily depleted from poaching but has seen substantial investment that led to amazing recovery of wildlife through the excellent work of the concessionaire of the hunting block.

It is believed that the lion population in this ecosystem is stable or possibly increasing.

2.2.3 Lower Zambezi Ecosystem

The third significant lion cluster in Zambia is represented by the Lower Zambezi system, composed of the Lower Zambezi NP, and the Chiawa and Rufunsa GMAs. This system is linked to the Luangwa ecosystem through Luano, West Petauke, and Chisomo GMAs and the Open Game ranches in the open areas east of the Luangwa River.

Chardonnet 2002, estimated the population in Lower Zambezi National Park and Kariba Shore area (9140 km^2) lion population at 183 lions (range 128-238). Riggio et al., 2012 estimate for the area included areas in Zimbabwe, thus cannot be included. Intensive studies undertaken for the periods 2001 – 2003 and 2006 – 2009 estimated for a 695 km^2 section of the Lower Zambezi National Park a density ranging from 1.7 lion/100km^2 to 5.2 lion 100/km^2 and 2.2 lions/100km^2 to 5.2 lions /100km^2. The study population ranged from 11 to 34 adults lions (Leigh, 2005). The population consisted of 4–37% cubs, 0–28% sub-adults, 7–46% adult males, and 31–50% adult females. Becker's study from 2012 was the last intensive lion study of the Lower Zambezi National Park. However routine monitoring through scout patrols as for all other Parks in Zambia continues in the area. This routine monitoring indicates the population in this area is recovering.

2.2.4 Liuwa Plains

The initiatives to re-establish a wild lion population in the Liuwa Plains has progressed over the last few years. A female introduced in 2011 to bond with the iconic "Lady Liuwa" was apparently killed defending her cubs by an introduced male. These cubs survived and thanks to restoration efforts by DNPW, African Parks, the Barotse Royal Establishment and ZCP, the lion population has stabilised and the Liuwa pride at the end of 2018 was twelve lions strong. (ZCP 2018)

2.3 Genetic Variability

The Zambia Lion Project (ZLP) conducted an analysis of DNA sequence diversity of Zambian lion from samples collected during the period 2004 – 2012 (Curry et al., 2015). The study revealed genes that link Southern African with East African lion populations among the Zambian lion population. This suggests that Zambia may serve as a bridge connecting these lion populations. Overall gene diversity throughout the Zambian lion population was 0.7319 +/- 0.0174 with eight haplotypes found; three haplotypes previously described and the remaining five novel. These five genes, have only been reported in Zambia so far. Genetic diversity of Zambian lions is much higher than comparable areas in eastern and southern Africa were genetic diversity has been studied (Curry et al., 2015). The

conclusion from this study is that Zambian lions represent a genetically diverse and healthy population.

More recently, nuclear and mitochondrial DNA results from 409 lions (Curry et al. 2019) found that although African lions in Zambia consist of two highly diverse eastern and western sub-populations, there is more movement between the populations than previously thought. Population assignment analysis identifies two populations with little evidence of admixture assigning lions to either the eastern or western sub-populations. A high occurrence of private alleles and clear evidence for a Wahlund effect further justify the presence of a highly structured population. But, while mitochondrial DNA analysis still shows little to no matrilineal gene flow (FST = 0.53) between sub-populations, microsatellite analysis suggests there is gene flow (FST = 0.04) with low but significant isolation-by-distance and an average of 6 migrants per generation. Evidence of isolation-by-distance is also found in factorial correspondence analysis with the Lower Zambezi National Park and eastern corridor clusters overlapping isolated clusters of the Luangwa Valley and western sub- population. From this evidence, the Luangwa Valley appears separated from the western sub-population with some dispersal through the southern regions of the eastern sub-population. Both the eastern and western sub-populations have high heterozygosity (0.68 and 0.69, respectively) and genetic diversity (0.47 and 0.50, respectively) values, indicative of genetically healthy populations.

3.0 Conservation and Management

3.1 Legislation and Policy

In 2015, the Zambia Wildlife Act No. 12 of 1998 was repealed and replaced with the Zambia Act No. 14 of 2015. The wildlife Act of 2015 provided for the transformation of the Zambia Wildlife Authority (ZAWA) into a government department - the Department of National Parks and Wildlife (DNPW). The DNPW was consequently established and commenced operating in January 2016. The act is the principal legislation guiding the management of wildlife in Zambia, and the department is the only government department responsible for the management of wildlife (lions inclusive) in Zambia. The Act also provides for the promotion of opportunities for the equitable and sustainable use of public wildlife estates; provides for the establishment, control and co-management of Community Partnership Parks for the conservation and restoration of ecological structures for non-consumptive forms of recreation and environmental education; provides for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas; enhances the benefits of Game Management Areas to local communities and wildlife; involves local communities in the management of Game Management Areas; and provides for the development and implementation of management plans. Crucially to ensure the sustainability of the wildlife sector, the Act provides for the setting up of a Wildlife Fund, were funds from licensing and donors will be deposited.

The act provides for stiffer penalties related to poaching and enforcing all wildlife related violations in Zambia. Hunting of all wild animals without a permit is illegal. Further, it is a criminal offence to hunt, kill, capture or be in possession of a lion specimen without a license. Lion is considered a protected species under the Zambia Wildlife Act and therefore attracts stiffer penalties without option of a fine. Other legislation includes the regulations (Private Wildlife Estates) and Statutory Instruments already in force implementing the 1998 Act (These are CITES, Hunting, Elephant Hunting).

The Government of the Republic Zambia formally approved the new policy for National Parks and Wildlife in August 2018 replacing the former one dated 1998 (Annex 1)

The principal objective of the Policy is to promote the conservation of wildlife as an environmental good for socio-economic benefits to the country. The specific objectives of this Policy are:

a) To create enabling conditions for effective conservation of wildlife and sustainable growth of the sector;

b) Improve population of wildlife in depleted areas by reintroduction of wildlife species in protected areas and other conservation lands and conserve wildlife using Ecosystem/Landscape Management Approach;
c) To devolve wildlife user rights, costs and benefits to community and private land owners;
d) To unlock the economic potential of wildlife and performance of the sector;
e) To minimalize Human-Wildlife Conflict;
f) To build capacity for wildlife management and conservation in the Sector;
g) To develop and promote research as a planning and management tool in wildlife management;
h) To mainstream multilateral environmental agreements in the conservation of wildlife;
i) To Mainstream Climate Change and other emerging issues;
j) Gender Mainstreaming, HIV and AIDS and Youth Empowerment;
k) To promote private sector and community participation in wildlife conservation.

Other statutory instruments are in preparation for the implementation of the 2015 Wildlife Act including a specific statutory instrument on lion hunting.

3.2 Primary legislation related to hunting

The Zambia Wildlife Act No. 14 of 2015 makes provision for the following types of licences and permits under Section 39: (a) hunting licence (for non-resident, citizen, resident and bona fide residents of GMAs); (b) bird licence and (c) professional hunter's licence. The following permits are issued under this section (a) fishing permit; (b) capture permit; (c) professional guide's permit; (d) photographic tour operator's permit; and (e) commercial photographic permit. Much of the content of the Act is devoted to the administration and management of hunting as described under the following Parts:

- Part II, Section 7 of the Act establishes the Wildlife Management Licensing Committee which is responsible for considering applications for licenses, permits and certificates and grants: renewing or refusing to grant or renew licenses, permits and certificates; and terminating, suspending or revoking licenses, permits and certificates. The application for the licenses recognised under the Act are in prescribed forms that require payment of prescribed fees under a specific Regulation. The creation of a Licensing Committee ensures transparency and accountability in the award of licenses by ensuring the discretion to award licenses exists in more than one individual.
- Part IV, Section 31 deals with the restriction of hunting of wild animals in GMAs.
- Part V, Sections 32 – 35 refer to Community Resource Boards, their functions and financial provisions.
- Part VI, Sections 36 – 38 refer to the definition of "Game Animals" and "Protected Animals" and their use.
- Part VII, Sections 39 – 57 deals with the licenses and permits that are required to utilise wildlife in Zambia. Section 48 specifically deals with Hunting Concessions.
- Parts VIII, IX, X and XI provide the provisions for the hunting of wildlife, killing of wildlife, ownership of trophies and trade (Sections 58 – 108) and form the bulk of the Act.
- The remaining parts cover the Wildlife Development Fund, Enforcement, Offences and Penalties and General Provisions.

3.2.1 Classes of licenses

The 2015 Wildlife Act provides for the following types of licences *(a)* hunting licence; *(b)* bird licence; and *(c)* professional hunter's licence. The Act has substantially reduced the number of licences that can be issued and has gone a step further and classified some of the old licences to permits. Section

39 makes provision for the issuance of the following permits *(a)* fishing permit; *(b)* capture permit; *(c)* professional guide's permit; *(d)* photographic tour operator's permit; and *(e)* commercial photographic permit. The new Act has done away with Resident and Non-Resident licences. However, these activities will be undertaken under a hunting license issued to national and *bonafide* residents of hunting areas. The special licence has been replaced with a capture permit.

3.2.1.1 Procedure for obtaining a licence

Under the Zambia Wildlife Act No. 14 of 2015, section 7 establishes the Wildlife Management Licensing Committee which shall be responsible for; considering applications for licenses, permits and certificates and grant, renewing or refusing to grant or renew licenses, permits and certificates; and terminating, suspending or revoking licenses, permits and certificates. The application for the licenses recognised under the Act is in a prescribed form requires payment of a prescribed fee under a specific Regulation. The creation of a Licensing Committee ensures transparency and accountability in the award of licenses by ensuring the discretion to award licenses exists in more than one individual.

3.2.2 The Wildlife Fund

The Zambia Wildlife Act No 14 of 2015, in section 109, establishes the Wildlife Development Fund for purposes of development of research, conservation and management. Whereas in the repealed Act the Authority was responsible for the disbursement of funds, under the provisions of the current Act, the Minister responsible for wildlife manages and administers the Fund through the Fund Committee, which is about to be established.

The DNPW is liaising with the Ministry of Finance on the mechanism for sharing revenue with local communities. Currently there are regulations namely Statutory Instrument No. 89 of 2004, which provides that the Department pays into a fund established by a Community Resource Board 50% of the total revenue earned from Animals fees and 20% of concession fees from that particular GMA.

3.3 Supporting Statutory Instruments (SIs)

The following Statutory Instruments were approved and published in 2016

Statutory Instrument No. 41 of 2016 – The Zambia Wildlife (Game Animals) Order, 2016

The purpose of the Statutory Instrument which was issued in accordance with Section 146 of the Zambia Wildlife Act No.14 of 2015 was to pass the Zambia Wildlife (Game Animals) Order, 2016, which repealed and replaced the Zambia Wildlife (Game Animals) Order, 2015 and to provide a current schedule of game animals.

Statutory Instrument No. 42 of 2016 – The Zambia Wildlife (Protected Animals) Order, 2016

The objective of the Statutory Instrument was to pass the Zambia Wildlife (Protected Animals) Order, 2016. The Zambia Wildlife Act in Subsection (1) of Section 36 required the Minister to specify animals as either game or protected. Therefore, the Zambia Wildlife (Protected Animals) Order, 2016 repealed and replaced the Zambia Wildlife (Protected Animals) Order, 1993 and to provide a current schedule of protected animals.

Statutory Instrument No. 43 of 2016 – The Zambia Wildlife (Export Prohibition) Order, 2016

The objective of the Statutory Instrument was to pass the Zambia Wildlife (Export Prohibition) Order, 2016. The Zambia Wildlife Act in Subsection 103 prohibits the exportation of wild animals or meat of wild animals without an export permit. Therefore, the export prohibition order sought to limit the categories of wild animals that could be exported.

A number of statutory instruments have been drafted to compliment the operation of the new Act. Some of the pertinent ones include;

a) **The Zambia Wildlife (Granting of Hunting Concessions) Regulations,**
This SI provides for the Department a clear procedure for the advertisement, evaluation, negotiation and award of Hunting Concession Agreements to successful bidders, which ensures transparency in the award of these agreements.

b) **The Zambia Wildlife (Lion and Leopard Sport Hunting) Regulations, 2020**

This SI places certain conditions for hunting of Lions in Game Management Areas, including but not limited to: age-based regulations for lions, banning the hunting of female lions, minimum length for leopard and monitoring systems for both species. It is being discussed with Ministry of Justice and should be approved and published in February 2020.

c) **The Zambia Wildlife (Conducting of Ecological Assessments or Research on Wildlife) Regulations**

This SI regulates ecological research on wildlife, outlines the procedure for obtaining permission to conduct such research, and sets the fees to be charged for research activities

d) **The Zambia Wildlife (Elephant Sport Hunting) Regulations**

The revised SI on Elephant Sport Hunting will provide for additional procedures to hunt elephant for sport hunting, the designated areas for sport hunting, ownership and export of ivory from elephant sport hunting. These regulations ensure elephant hunting is carefully managed and sustainable.

e) **The Zambia Wildlife (Licenses and Fees) Regulations**

This particular SI is under consideration, the Department is still using the 2007 edition for purposes of pricing and issuance of licenses. The new permit under the new Act have not yet been captured under this SI.

3.4 Zambia's Conservation Strategy and Action Plan for the African lion

Zambia developed a ten-year Conservation Strategy and Action Plan for the African lion in 2010. Zambia's vision as stated in the Strategy is to have a secure, viable and well managed wild population of lion that will support conservation of biodiversity that is in harmony with human development. The Strategy's mission is to galvanize stakeholder cooperation in the conservation and management of the African lion in its natural habitats in the country thereby contributing to biodiversity conservation, socio-economic development and spiritual well-being of local communities, the general public and the country as a whole, with the ultimate goal of securing, restoring and maintaining viability and genetic diversity of lion populations.

Since the approval of the strategy and in accordance with its section 6.0 several actions have been carried out by the Zambian government and its cooperating partners to implement the relevant objectives and targets of the strategy. In particular research has been initiated, management actions taken to address research and monitoring, local community benefits, human lion conflict, land use planning and zoning and trade. Specific actions taken are described in the relevant sections below.

A voluntary program to assess and age lions taken as trophies was established by ZAWA (now DNPW) in partnership with the Zambia Lion Project (ZLP). Since 2005, this program has obtained DNA samples of lions (trophies and living) across Zambia and, from 2006-2012, obtained tooth samples to estimate

age of lions taken as trophies. The establishment of trophy lion sampling protocols, and the cooperation of Zambia's hunting fraternity in participating in these studies, represent a strong base from which future sampling of trophy lion (and leopard) will be conducted. In addition, results from the past sampling demonstrate the performance of the hunting sector during the past lease period (prior to age-based selection regulations), and provide a baseline for comparing future performance. Further, new studies are continually improving the accuracy of estimating the age of wild lions, which will provide additional tools to assist authorities in trophy age enforcement.

The conservation strategy noted that monitoring of hunting and illegal offtake was problematic and information was dispersed in various units of the Zambia Wildlife Authority. To address this, ZAWA (now DNPW) in 2013 set up a Conservation Unit whose main responsibility is monitoring hunting, human wildlife conflict, private wildlife estates and the effectiveness of law enforcement. Through this unit data are flowing regularly on hunting and other activities. The Conservation Unit serves as a centralized repository for these data providing for long-term monitoring of progress and trends.

The strategy requested for proper monitoring of lion diseases and health. This has been accomplished through the veterinary unit of the DNPW which is regularly sampling lion specimens for diseases and assisting law enforcement officers in the treatment of injured lions due to illegal activities, such as snaring. In addition, the DNPW authorized ZCP, South Luangwa Conservation Society (SLCS), and Game Rangers International (GRI), three NGOs working in the Luangwa and Kafue ecosystems to employ veterinarians that are field based and help in monitoring wildlife health and removal of wire snares. Of the twelve ecologists that were employed by DNPW since 2010, three are devoting 70 per cent of their work time to lion related issues.

In implementing the strategy, several additional lions related studies have been initiated with a number of stakeholders such as the Zambia Carnivore Programme (ZCP), Kafue Lion Project, Zambia Lion Project (ZLP) and WWF – Zambia (See section 4.0)

The Strategy has recently been effectively updated through the development of new guidelines governing lion hunting in Zambia. The guidelines (see section 5.3.3.2) are now in the process of being transformed into a Statutory Instrument on lion hunting which will also include provisions for monitoring lion hunting through an age-based system. As described above, the protocol for sampling and age estimation of trophy lions is already well-established, and significant improvements have been made for estimating lion age (among others see White and Belant 2016, White et al. 2016). At a participatory workshop held on 11th April, 2016 in Lusaka, these guidelines were discussed with key stakeholders in lion conservation in Zambia in order to obtain the maximum participation which is key to the success of its implementation.

Zambia's Lion Conservation Strategy and Action Plan was devised to guide lion management and conservation in Zambia for ten years and its goals address the same issues of concern (scientific management, human-lion conflict, and protection of suitable habitat) as the U.S. Fish and Wildlife Service identified in its threatened Endangered Species Act listing of the lion. DNPW is implementing the plan adapting it to management challenges and on knowledge generated through on-going monitoring and research. In 2020 DNPW is planning to hold a workshop to update and review the Conservation Strategy and Action Plan for the African lion.

3.4.1 Other Species Conservation Plans and Strategies that interact with lion Conservation strategy

Zambia recognizes that the effective conservation of wildlife is through the conservation of ecosystems and not protected areas or species. Large carnivores engage in wide ranging behavior and depend on intact ecosystems with a wide array of prey species. Well conserved large carnivore populations are an indication of intact ecosystems. And the conservation of other species that require

large, intact ecosystems can simultaneously benefit large carnivores like lion by ensuring habitat and prey base are protected.

In this regard, conservation strategies for wild dog and cheetah (DNPW, 2019) and rhino (DNPW, 2019) have recently been launched and elephant conservation strategy is currently undergoing review with the support of WWF-Zambia and the Nature Conservancy. Because of the reliance of these species on intact ecosystems, the effective conservation of these species would contribute to the successful conservation of lion as well. In addition, the DNPW is mandated by law to develop General Management Plans (GMPs) for all protected areas to guide the development and management of these areas. GMPS are discussed in section 7.1.1 below.

The hunting concession agreements (sections 5.4) that are signed by the Hunting Concession Holder, DNPW and the Community commit all the parties to proper management of habitat, fire and wildlife. These are key sections to the agreement among these three parties.

3.5 DNPW Organization and activities

The Department is responsible for the control and management of National Parks and Game Management Areas. In addition, the department is also responsible for conservation of objects of aesthetic, pre-historical, geographical, archaeological and scientific interests in national parks and Game Management areas in order to promote cultural and natural heritage and scientific studies. The organization structure of DNPW is shown in Figure 2.

The core function of the Department of National Park and Wildlife (DNPW) as provided under section 5 of the Zambia Wildlife Act No. 14 of 2015 is 'the effective and sustainable conservation and administration of protected areas which include National Parks, Bird and Wildlife Sanctuaries and Game Management Areas (GMAs) and the development of sustainable tourism in these areas. In GMAs, DNPW co-manages the wildlife resource in partnership with local communities.

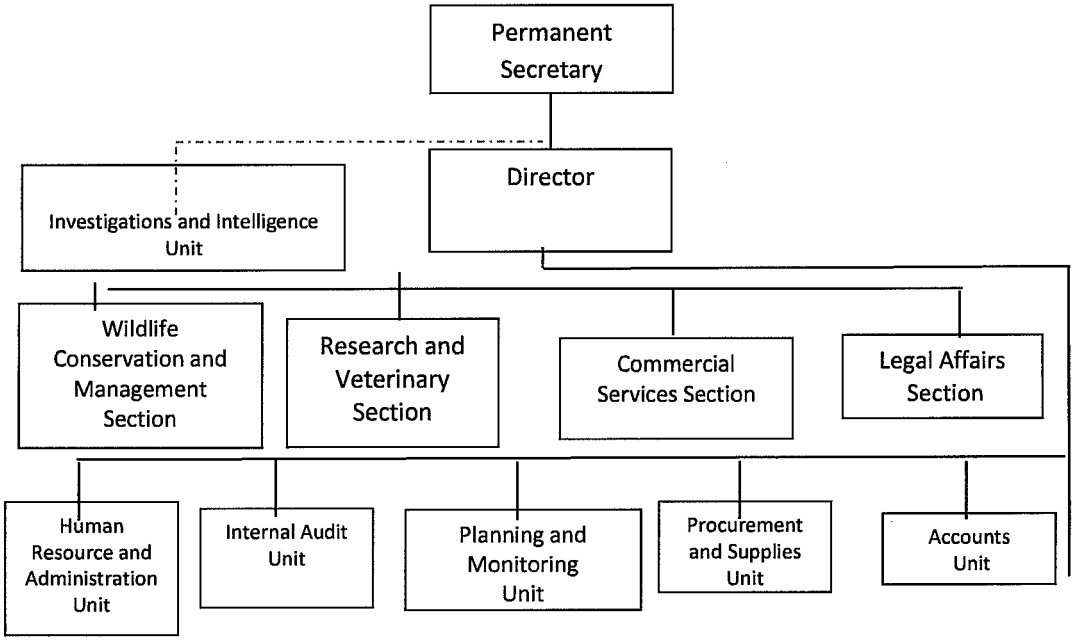


Figure 2: **Organization Structure for the Department of National Parks and Wildlife**

Within DPNW law enforcement is under the section of Wildlife Conservation and Management (see Figure 2).

This Section is responsible for the general enforcement of wildlife laws. It is responsible for the conservation and management of wildlife and development of infrastructure in protected areas. The section's functions are outlined below:

- Detect and investigate wildlife crimes;
- Manage and mitigate human wildlife conflicts;
- Regulate operations of private wildlife estates (nature conservancies/game ranches);
- Facilitate infrastructure development in protected areas;
- Sensitize the general public on wildlife conservation;
- Manage eco systems and landscapes and conserve specific species;
- Formulate and implement park regulations;
- Promote regional and international cooperation in the area of wildlife management, conservation and law enforcement; and
- Facilitate the training of Wildlife Police Officers

The section is headed by an Assistant Director who is assisted by Principal Warden- Operations, Principal Warden- Conservation, Principal Engineer, and Principal Natural Resources Management officer. The section is organized in four units as follows:

The Wildlife Law Enforcement Unit is responsible for enforcing wildlife laws, detection and investigation of wildlife crimes. Currently the Unit has a staff compliment of 1,525 Wildlife Police Officers covering an estimated 236,376 km^2 of wildlife estates (equivalent to approximately 155 km^2/Wildlife Police Officer. There was no recruitment of Wildlife Police Officers in 2016, however, in 2017 the World Wide Fund - Zambia trained and contracted 25 Wildlife Police Officers for Sioma Ngwezi. Their contracts ended in December 2017 and these WPOs were absorbed into the Civil Service mainstream in 2018. The DNPW also recruited a further275 Wildlife Police Officers in 2018 (179 new recruits and 96 Village Scouts who have since been replaced). The current WPO establishment for the DNPW is 2,700 of which 1,525 have been employed. Authority to recruit a further 1,000 Wildlife Police Officers in 2019 and 175 Wildlife Police Officers in 2020 has been submitted to central government.

The DNPW is directly involved in a broader programme to combat wildlife trafficking and illegal trade in wildlife and wildlife products (see https://www.wildlifecrimeprevention.com).

The **Wildlife Conservation Unit** is responsible for regulation of operations of private wildlife estates, management of ecosystems, landscapes and conservation of specific species as well as formulating and implementing park regulations. The Unit also manages and mitigates human wildlife conflicts and is responsible for facilitating the training of Wildlife Police Officers.

The **Infrastructure Development Unit** is responsible for construction and maintenance of infrastructure in protected areas, as well as maintenance of equipment plant and machinery.

The **Community Based Natural Resources Management Unit** is responsible for co-managing Game Management Areas with local communities and facilitating their economic and social well-being. The functions of the Unit include the following:

- Provide technical support to Community Resource Boards on the management of human and natural resources in Game Management Areas and open areas;
- Train village scouts and Community Resources Board members (see section 8);

- Facilitate the election of Village Action Groups and Community Resources Board members; and
- Monitor projects and the utilisation of funds disbursed to Community Resources Boards (CRBs).

Furthermore, an Investigations Unit is responsible for carrying out investigations and intelligence services related to wildlife crimes. The Unit is falls directly under the office of the Director National Parks.

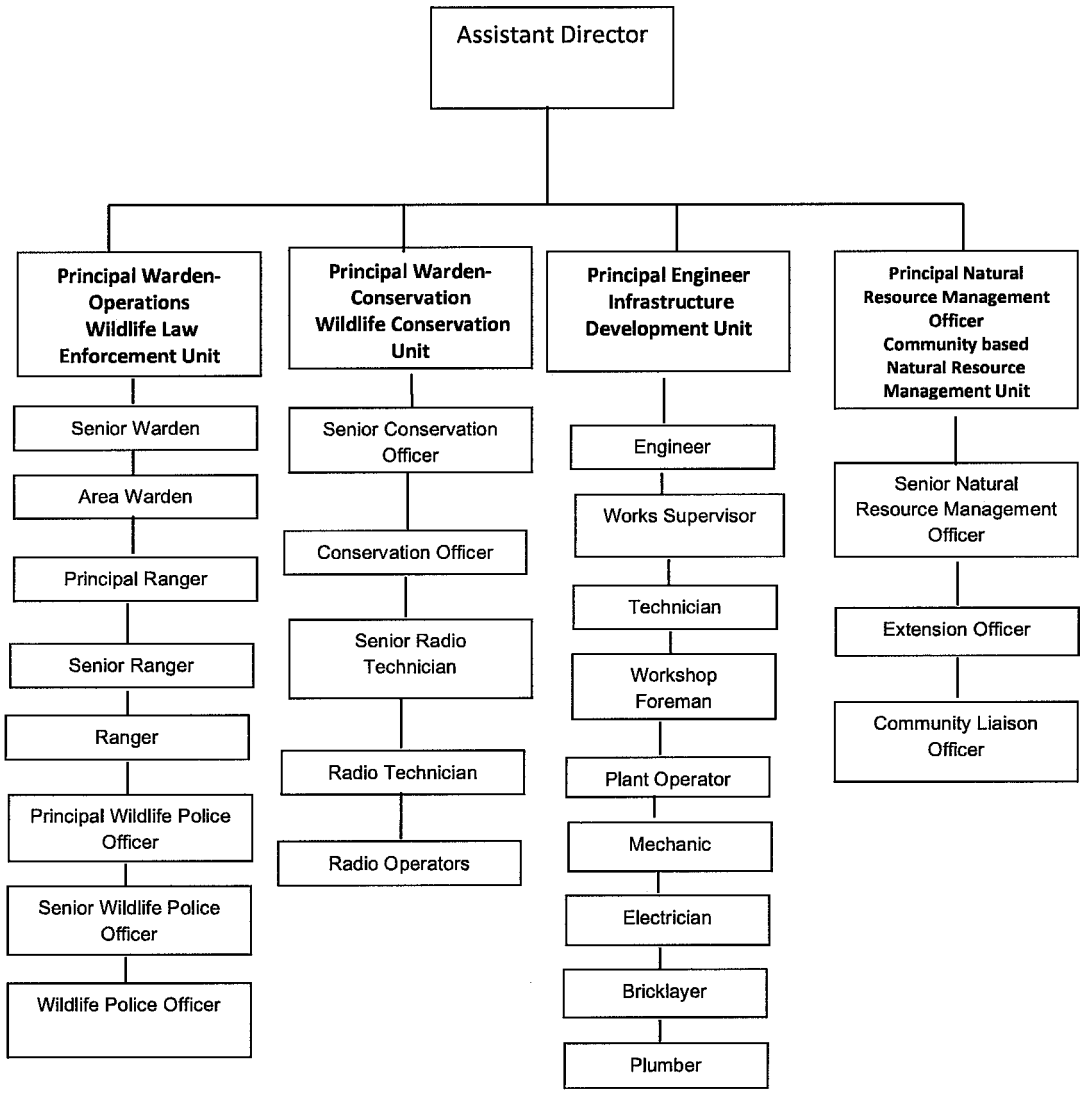


Figure 3. Organization of the Wildlife Conservation and Management Division DNPW

3.5.1 Anti-Poaching Operations

The following tables show the effort (Table 2) and results (Table 3) from anti-poaching operations carried out by the DNPW from 2016 - 2018.

Table 2: Zambia Law Enforcement Effort: 2016 – 2018

Activities	2016	2017	2018
No. of Patrols	12995	12261	15027
Staff Involved	2050	2050	2050
Patrol Man-days	240,824	197,169	260,772

Source: Conservation and Management DNPW

Table 3: Results from Law Enforcement Operations carried out by the Wildlife Law Enforcement Unit

s/n	Category	2012	2013	2014	2015	2016	2017	2018	2019 (up to September 2019l)
1	Poachers Arrested	1,437	1,625	1671	1,920	1920	391	2110	1428
2	Axes	129	196	70	218	69	29	250	143
3	Bicycle	269	320	144	358	75	89	293	370
4	Boats	37	9	18	11	34	10	32	15
5	Bush Meat Recovered (Kgs)	8,327.60	13,542.70	22831.4	29,427	20,704	4,925	77,158	16307
6	Elephant Poached	110	135	136	168	89	122	144	62
7	Home Made Guns (MLG)	188	258	252	295	229	53	358	125
8	Home Made Shot Guns	162	75	142	283	252	46	300	182
9	Hunting Spears	25	80	119	118	80	53	105	57
10	Military Rifles	18	21	21	33	26	3	21	4
11	Motor Bike	5	4	12	13	8		19	0
12	Motor Vehicles	20	17	16	29	6	3	42	11
14	Shot Guns	156	163	134	331	223	3	185	62
15	Snares	5,370	8,406	9885	7,666	9015	1494	8128	3475
16	Sport Rifles	74	22	32	105	59	3	21	24

Source: Conservation and Management DNPW

3.6 Stakeholder Involvement in Lion Conservation

3.6.1 Hunting Outfitters

Hunting companies and professional hunters provide significant support to conservation activities throughout the hunting areas of Zambia. Section 5 provides detailed information on their involvement in anti-poaching, habitat conservation, and community development. In particular hunting operators are at the forefront in the fight against poaching in Game Management Areas through their financial and logistical support to Community Resources Boards (CRBs).

3.6.2 Communities

Community Resources Boards are responsible for wildlife management in Game Management Areas including the employment of Community Scouts who are responsible for anti-poaching operations in these areas. In section 8 we provide a detailed description of Community Based Natural Resources Management in Zambia. Communities are considered as key partners in wildlife management in Zambia

3.6.3 Non-Governmental Organizations

There are several NGOs in Zambia supporting the government in conservation activities through support to anti-poaching units. In the key lion clusters of Luangwa, Kafue and Lower Zambezi

ecosystems, the Frankfurt Zoological Society (FZS) that has been active in the North Luangwa National Park for over 20 years, Conservation South Luangwa (CLS) (Formerly South Luangwa Conservation Society) in South Luangwa National Park and surrounding GMAs, Game Rangers International that has been active in the Kafue ecosystem since 2010 and Conservation Lower Zambezi (CLZ) is active in the Lower Zambezi National Park and surrounding GMAs. Other NGOs providing active support to DNPW in these areas include Panthera, which is supporting law enforcement in the Kafue NP along with the Nature Conservancy (TNC) and WWF – Zambia that are active in providing support to Community Natural Resource organisations in GMAs.

4.0 Zambia lion research

Because of the difficulties in estimating lion population numbers (see section 2), long term studies are recommended. Additionally, due to questions as to the validity of point-in-time estimates of lion population size, the concept of "population trend" is becoming more widely accepted for assessing lion populations. Thus, whereas focal studies may benefit from monitoring individuals, it is recommended that long-term "trends" should be the priority for lion population monitoring moving forward. In this regard, the Department of National Parks and Wildlife in conjunction with the ZLP and ZCP has instituted long-term studies to monitor trends in key areas for lion conservation in Zambia. Methods currently available for surveying lions and have been used in Zambia include:

1. Scat (Genetics), molecular analysis [DNA] (Creel & Rosenblatt, 2013; Curry, White & Derr, 2015)
2. Spoor; spotting and recording spoor by location and differences in sizes in spoor in transects (Midlane et al., 2014 and 2015).
3. Call-ups; playing recorded lion calls or wildlife distress calls at fixed survey points (MIdlane et al., 2015).
4. Mark-recapture studies of individuals [Pride observations, Photo profiles, Collaring and monitoring movements] (Yamazaki, 1996; Rosenblatt et al., 2014).
5. Scout sightings, community and operator interviews [Hunting and Photographic operators] (Leigh, 2005; Becker et al., 2012)

Unlike elephants and other large herbivores where aerial surveys are used with standardized methodologies such as the MIKE standards for aerial surveys (Craig, 2012), there are no standardized methods for lions and in most cases the methods listed above are used in combination. Lions have largely been estimated by 'guess estimates' using the above ways of observation and relating to the size of the area, and more recently by using models such as Possible Lion Occupancy (Midlane et al., 2014).

As stated in the previous sections, several research projects on lion are ongoing in Zambia. In partnership with the DNPW, the Zambia Lion Project (ZLP) initiated lion research in 2004. Research has focused on presence/absence surveys of lions throughout Zambia, and DNA has been collected from trophy and controlled lions and via biopsy darting of live animals throughout Zambia's parks and GMAs. Products of ZLP's DNA studies to date include several scientific publications describing 1) genetics of lions within Zambia's Lion Conservation Units (LCUs) (Dubach et al. 2013), 2) a perspective of Zambia's lions' genetics at the continental scale (Bertola et al., 2015), and an in-depth study that documents the genetic diversity of Zambia's lions throughout the country (Curry, White & Derr, 2015). As detailed above, ZLP in 2006 established a lion trophy monitoring program and has since worked with hunting operators and outfitters to gather data on trophy lion trophy hunting and trophy quality, specifically trophy lion age towards developing sustainable offtake. Two new scientific studies on age estimation of lions, resulting from the above described program, are now available. The first provides a method estimating age to within six months of age on average (White et al. 2016). The second

describes individual variation in lion teeth and places the issue of aging lion trophies into the practical context of trophy monitoring programs (White and Belant, 2016). The project ended in 2015.

The Zambia Carnivore Programme's (ZCP) current lion research efforts are focused in three areas the South Luangwa National Park, the Kafue National Park and the Liuwa Plain National Park. ZCP's seeks to document population trends and demographic vital rates of lions in these key lion areas. Products of ZCP's work include multiple publications on effects of trophy hunting in Zambia (Becker et al., 2012; Rosenblatt et al., 2014); lion abundance (Becker et al., 2012, Riggio et al., 2012, Rosenblatt et al., 2014) disease prevalence (Berestein et al., 2012 and 2013, Williams et al., 2014); effects of wire snaring (Becker et al., 2012, Watson et al., 2013) bush meat and prey depletion (Lindsey et al., 2012) habitat fragmentation, encroachment and degradation (Watson et al., 2013; Creel et al., 2013; Lindsey et al., 2014;) and policy (Creel et al., 2014).

This research and monitoring programme spanned through a prolonged period of hunting (2008 – 2012) and the closure of lion and leopard hunting between 2013 – 2015. Several key research findings have been published and are informing the evolving Zambian carnivore conservation strategy e.g.: Becker *et al.* (2012), Becker *et al.* (2013), Rosenblatt *et al.* (2014), Creel *et al.* (2016), Mweetwa *et al.* (2018) [1].Other lion studies have been done by independent researchers and graduate students (Carlson, 2004; Leigh, 2005; Midlane et al., 2014; 2015).

Zambia is committed to continuing and expanding further scientific surveys of Lions in order to assess the population status. Depending on the availability of funding, DNPW is planning surveys to be conducted in two areas: i) the corridor between South Luangwa National Park and Lower Zambezi National Park, comprising several GMAs and Open Game Ranches and ii) GMAs surrounding the eastern part of North Luangwa National Park. This will supplement the ongoing work of the Zambian Carnivore Programme in selected areas of South Luangwa and Kafue National Parks.

Additional genetic analyses are also being conducted by Zambia Lion Project, including assessments that will help inform DNPW in future efforts to translocate lions among different regions in Zambia in order to re-establish lion populations in historic lion range e.g., West Lunga complex.

In short, DNPW has an active research program that informs and supplements its active lion management and forms the foundation of the sport-hunting system. Overall the research capacity at DNPW needs to be further strengthened through specific research-oriented funding.

5.0 Utilization

5.1 Safari hunting in Zambia

Safari hunting in Zambia is consistent with the country's general tourism and wildlife policy. The mission of the Zambian wildlife policy is to conserve Zambia's wildlife for biodiversity and socio-economic enhancement. Sustainable utilization is the best management model to achieve the objectives of this mission outside National Parks, especially in areas where it is desirable that wilderness be maintained, and without attracting the high-human density and infrastructure typical of photographic tourism. Safari hunting is the most efficient land use in areas without species density and infrastructure because it offers high value with low impact on habitats. Large wilderness areas ensure high appreciation by clients because of the natural beauty and large variety of trophy animal species, some of them endemic to Zambia e.g., Cookson's wildebeest, black lechwe, and Kafue lechwe.

5.2 Lion hunting Areas

[1] See list of references and https://www.zambiacarnivores.org/publications/

Lion hunting in Zambia is carried out in hunting blocks located in Game Management Areas surrounding National Parks in the Luangwa, Kafue and Lower Zambezi ecosystem and in Open Game Ranches/Conservancies (Table 3). For the period 2005 to 2012 lion hunting was carried out in 21 Game Management Areas and 5 Open Game Ranches.

5.2.1 GMAs

Game Management Areas (GMA) are a category of protected areas in Zambia designed to form buffer zones between National Parks and Open Areas. The main land use forms in GMAs has been Safari and Resident hunting. However, a few GMAs have included photographic tourism. Settlement is allowed in designated areas defined by the GMA's General Management Plan. CBNRM in Zambia is implemented in GMAs through Community Resource Boards (CRBs) provided for by the Wildlife Act of 2015 (see section 8). There are 36 Game Management Areas covering 177,404 km^2.

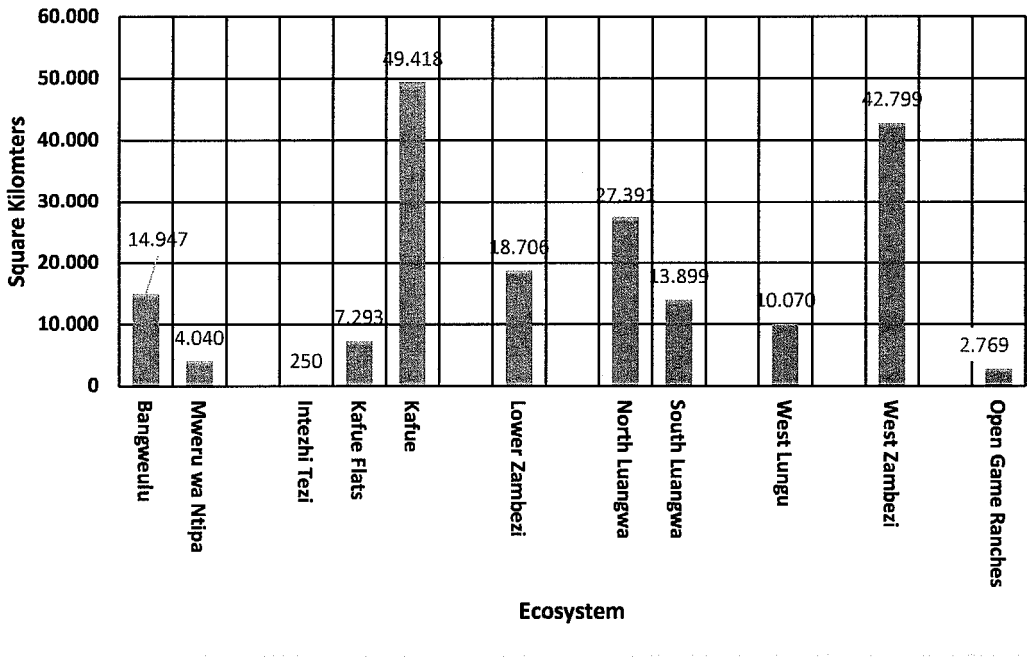


Figure 4: Area of GMAs (km^2) in each of the ecosystem clusters where hunting blocks are located

The GMAs are situated in various ecosystems across Zambia and serve as buffer zones to the major national park systems (Figure 3). The Kafue ecosystem (26%) and West Zambezi ecosystem (23%) make up much of the area followed by North and South Luangwa (21% combined). Table 5 summarises the area of land (188,130km^2) occupied by the different hunting block categories in the GMAs. Vacant hunting blocks make up 26% of the hunting area. Open Game Ranches occupy <2% of the overall hunting area (191,582km^2).

Table 4: Summary of hunting block categories

Category	Number Hunting Blocks	Total Area (km^2)	Percentage
Prime	14	25,325	13%
Secondary	14	48,359	25%

Understocked	3	28,216	15%
Specialised	5	37,633	20%
Vacant*	18	49,280	26%
Open Game Ranch	19	3,105	1.4%
Total	**66**	**191,918**	**100%**

**includes two secondary and two depleted blocks*

5.2.2 Open Game Ranches

Open Game Ranches are unfenced private wildlife estates outside public protected areas that are reserved by a person or local community for wildlife conservation and management. Game ranching in Zambia has evolved in the last ten years as one of the best conservation success stories. Started in areas that were severely depleted in terms of wildlife species and with widespread illegal activities such as poaching, illegal logging and mining, thanks to partnerships between private investors and local communities most of these areas have been rehabilitated and recolonised by wildlife including lion.

The concept of Open Game Ranches is unique in that the private sector and the community agree to protect wildlife on privately owned or communal lands. Unlike closed Game Ranches, Open Game Ranches are not fenced and the animals are free to move back and forth beyond the ranch boundary into the surrounding Game Management Areas. This avoids fragmenting habitats and blocking wildlife movement corridors. The wildlife is still considered as belonging to the state. In exchange for protecting the wildlife the Department of National Parks and Wildlife issues the Open Game Ranches annual non-resident hunting quotas. The anti-poaching efforts in these lands contribute directly to assisting the Department in protecting national parks and GMAs. In many instances the owners of the ranches have invested in these areas by restocking the areas with more game species thus improving the diversity.

Most of these Open Game Ranches, even though private sector driven have co-management agreements with local communities.

One example of an innovative partnership developing in the Open Game Ranches is Kaindu Community Game Ranch, close to Kafue National Park.

In 2002, DANIDA (Danish Aid Agency) created the Kaindu Natural Resources Trust (KNRT) and an existing farm, FARM 10415, was developed as an unfenced Game Ranch that was to be managed by the Trust for the benefit of the Kaindu community. The main objective was to create income from safari hunting since Kaindu was one of the few Kafue communities not attached to a Game Management Area (GMA) and did not benefit from any form of tourism. In 2005 this project floundered due to insufficient capacity and lack of financial resources.

In 2008 Royal Kafue Ltd., a development company, forged a direct partnership with KNRT which has 20% of the shares of the development company. As landlords, the Kaindu community is considered the investor. Farm 10415 was leased from KNRT with the objective of establishing a number of commercial models making best economic use of the property while keeping the environment sacrosanct. This agreement has the approval of the traditional leadership of Chief Kaindu, The Royal Establishment Committee, Mumbwa District Council, the District Commissioner, the Office of the President, and the then ZAWA. The enterprise has been sustained through the innovative nexus of direct ownership of land and management of wildlife and other natural resources by the local community. In 2010 Farm 10415 was registered with ZAWA as Kaindu Community Game Ranch.

The KNRT, a legal environment body representing the Kaindu people, has title to approximately 15,500 hectares of pristine wilderness and this was a tremendous advantage to the promoters as DANIDA

had initiated surveys and social studies had been implemented. The location was ideally suited due to its close proximity to both Lusaka and the Kafue National Park, which is hugely advantageous. The land and soils were deemed unfit for agriculture but adjoined game rich feeder areas from the adjacent Lunga Luswishi GMA to the north and both the Mushingashi Conservancy and Kafue National Park to the west. Unlike the first effort, this partnership has succeeded by active participation of skilled and well-resourced partners in a business enterprise, and by the community holding an equity stake as well as retaining title to the land. The Royal Kafue project was one of the first of its kind to be successfully implemented in Zambia and demonstrates an awareness of natural resources as assets. It has the potential to diminish the market for illegal wildlife products and can reverse the depletion of natural resources. So far, wildlife is recovering in the area, and the ranch has hosted several tourist safari hunters, thus generating revenue for the enterprise.

All Open Game Ranches increase the land available for wildlife conservation (lion included) and buffering the loss of wildlife habitats in the country. Example of these includes the Open Game Ranches located on the eastern banks of the Luangwa River southward of the South Luangwa NP such as Nyakolwe, Nyamvu and Munyamadzi Game Ranches. Zambia currently has 19 registered open Game ranches extending, according to official DNPW data, for over 3,100 km^2 (Table 6).

Table 5: List of Open Game Ranches in Zambia

S/n	Name	Location	Area (Ha)	Area (Sq.km)
1	Illinda Game Ranch	Kasempa	55,000	550
2	Mushingashi Game Ranch	Mumbwa	36,557	366
3	Nyakolwe Game Ranch	Sinda	24,800	248
4	Sitatunga Game Ranch	Kasempa	22,000	220
5	Mpyamanzi Conservancy	Nyimba	20,000	200
6	Munyamadzi Open Game Ranch	Nyimba	17,500	175
7	Kaindu Natural Resources Trust	Mumbwa	15,500	155
8	Musonweji Game Ranch	Mufumbwe	15,000	150
9	Chinamanama	Mpika	15,000	150
10	Nyamvu Game Ranch	Nyimba	12,000	120
11	Chipepo Royal Game Ranch	Gwembe	10,650	107
12	Nkalamu Game Ranch	Nyimba	6,000	60
13	Kanzutu Game ranch	Sandwe	3,100	31
14	Kazumba Game Ranch	Nyimba	750	8
15	Bangweulu Island	Samfya	500	5
16	Mulilanama Open Game ranch	Nyimba	350	4
17	Kalwelwa Game Ranch	Mwinilunga	350	4
18	Dongwe Game Ranch	Mufumbwe	31,000	310
19	Mbizi Game Ranch	Nyimba	15,000	150
TOTAL			310,557	3,105

5.3 Hunting Quotas

5.3.1 Quota allocation process

Zambia has a participatory quota setting process. The main scientific information used in the quota setting process for most species is derived from aerial surveys which are regularly done in the country and includes many ungulate species. Other information is taken from ground counts, patrol sightings,

local and expert opinion and hunting monitoring. Quota setting is done for each hunting block in GMAs for all types of hunting after close of hunting season and prior to the next hunting season. The quota for lion is set using information from scientific studies, field observations from professional hunters, operators and field officers and from hunting records. This allows CRBs and DNPW to review the previous hunting season's offtake (see also section 5.3.3.1). DNPW follows a bottom-up approach where CRBs submit a proposal of a quota to DNPW head office for adoption and approval. The following table illustrates the quota setting process.

Table 6: Institutions involved in Zambia's quota allocation process

Institution	Information provided by Institution for quota setting	Benefits for participating in quota setting
Community Resource Boards	Provides info on: - Observed trends of illegal offtake of wildlife - Human settlement patterns - Status, availability and distribution of wildlife in the area - Resource use in the area	- In depth understanding of how quotas are set - Improved knowledge of the relationships between safari hunting and other wildlife management activities in the same area - Improved sense of ownership of the quota
Department of National Parks and Wildlife	- Provides info on: - Wildlife populations - Trends of illegal offtake - Previous year's quota utilization - Law enforcement info in relation to illegal offtake - Monitors hunting activity - Facilitates quota setting workshops	- Enabling democratic and participatory environment for reaching consensus on quotas and allocations; - All key stakeholders to participate in setting quotas, thereby improving the sense of ownership; - Provides a platform for information exchange that can be used to arrive at quotas - Final approval of quotas for GMAs
Lease holders (Operators)/Professional Hunters	- Provides information on: - Wildlife population trends; - Safari sector performance - Competitiveness of the area - Resource use - Wildlife and other conflicts in the area - First-hand input in quota setting	- Opportunity to come up with a sustainable and economical quota for safari - Opportunity to participate in the process - Opportunity to have a long-term view of the sustainability of hunting in the area
Other organizations including some NGOs	- Provide financial support to CRBs and DNPW, - Provide technical support for wildlife population estimates	- Represents the interests of the communities including quota setting - Training on quota setting, facilitate workshops and provide technical assistance on wildlife management.

The quotas are compiled by the Research Unit in DNPW after feedback from the field staff, safari hunting outfitters and CRBs. Management approves the quotas before they are distributed to operators by the Licensing Unit. Quotas are verified by the Wildlife Conservation and Management Unit. To enhance transparency and accountability, the DNPW is now required to share the approved quotas with other government agencies, which include among others the Auditors General's office and Anti-Corruption Commission. This ensures that the quotas produced cannot be altered by any person and provides the sustainability and benefits of the system.

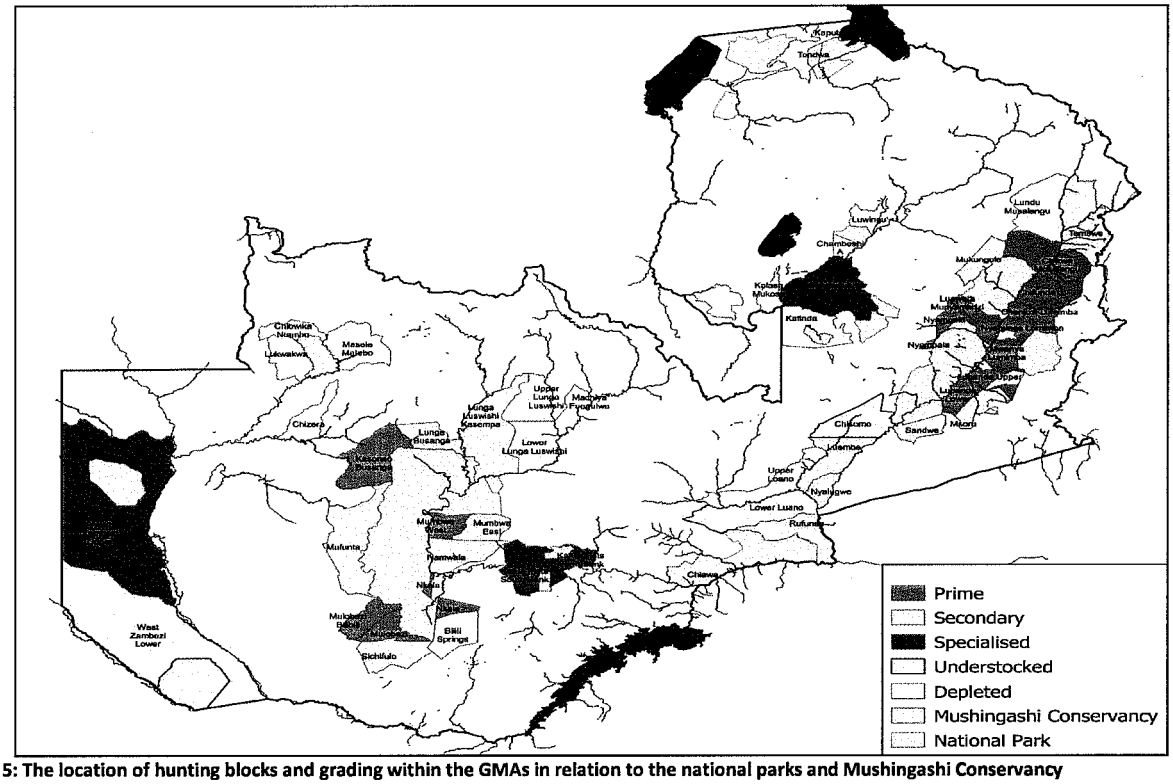


Figure 5: The location of hunting blocks and grading within the GMAs in relation to the national parks and Mushingashi Conservancy

The location of Open Game Ranches is not shown on this map

5.4 Status of block allocations

The DNPW is authorized in terms of the Act to grant hunting concessions in GMAs in agreement and in partnership with the villages, residents and traditional leaders (collectively known as the "local community) or their authorised representative. This is therefore a tripartite agreement between the local community, the outfitter and the DNPW (aka "the Parties"). Each partner is required to contribute services and resources. In practice the signature of the Chairperson(s) of the CRB (as the local community representative) is required to sign the Hunting Concession Agreement (HCA).

The HCA defines the following expressions and terms:

- **Annual animal quota** means the number of animals per species annually allocated to the hunting block
- **Classical Safari** means a hunting period of 14 – 28 days and which includes animal species such as cats and antelopes
- **Hunting Concession fee** means the fee agreed upon by the parties payable to the DNPW for the clients'[2] exclusive right to engage in safari hunting within the hunting block
- **Hunting Rights Fee** means the average fee agreed upon by the parties payable to the DNPW for the client to hunt in a hunting block other than the hunting block that is the subject of the agreement.
- **Mini Safari** means a hunting period of 7 days and which excludes animal species such as cats.
- **Prime Hunting Block** means all or part of a GMA that is deemed to accommodate more than 5 Classical Hunting Safaris with high quality trophies in one hunting season.
- **Secondary Hunting Block** means all or part of a GMA that is deemed to accommodate less than 5 Classical Hunting Safaris with high quality trophies in one hunting season.
- **Specialised Safaris** means a hunting safari of less than 5 days and which is restricted to plains game.

The HCA moreover lists numerous obligations that the outfitter must adhere to. For example, in terms of the agreement, the outfitter is required to pay for 60% of the total quota value up front to the DNPW irrespective of whether the animals are sold to clients or not. The DNPW reconciles the quota utilisation at the end of the year and any shortfall must be paid by the outfitter. The outfitter is also responsible for meeting the employment costs of the village scouts who are employed by the CRBs and is required to honour the cash pledges made in the tender document for community support (e.g. providing equipment to grade roads, installing solar panels at the chief's palace, sinking boreholes and providing clean drinking water, local training and employment etc.). The DNPW pay to the CRBs (via central Treasury) 50% of the animal licence fees to cover the operational costs of the CRBs.

The outfitters are also required to provide information on the number of animals hunted or quota utilization levels by end of year which is deposited with the licencing office and department of research in DNPW using the forms described in the legislation (Chomba and Nyirenda, 2015).

5.4.1 Obligations of the concessionaire in the hunting concession agreement

The awarded contracts to the concessionaires of a hunting area include 4 obligations, namely

Law Enforcement: - the concessionaire is obliged to support resource protection through the employment of Community Scouts, provision of logistical support such as vehicles, fuel, patrol rations, and equipment. This obligation is performed thoroughly by the concessionaires and

[2] "Client" means a person who is booked on a hunting tour by a holder (aka the outfitter) of a hunting licence.

their professional hunters with removal of snares, assistance in the arrest of poachers, illegal loggers, encroachers, and illegal miners.

Social and Community Development: - the concessionaire is obliged to support Community development through support to community social needs such as health and education. In this regard some concessionaires have agreed to support the employment of teachers and nurses, purchase of ambulances and building classrooms, clinics and houses for teachers and health personnel so that they are resident within the communities.

In addition to Community development obligations, concessionaires are obliged to provide 50 % of the meat from hunted animals to the local community. White and Belant (2015), estimated that sport hunting provides approximately 129.8 tonnes of meat annually to rural communities, which coincides with times of food scarcity in most of these rural communities. (See Section 6.1.3).

Infrastructure Development: - the concessionaire is obliged to support the Community in infrastructure development as agreed during the negotiations. Common infrastructure projects include boreholes, class rooms, community clinics and roads, and road maintenance and wildlife scout outposts.

Resource Monitoring and Fire Management: - the concessionaire is obliged to support resource monitoring. This is basically monitoring the status of the wildlife in their concession. This includes support to fire management, vegetation and habitat monitoring, game counts, quota setting and general support to the Community Resources Boards.

The above obligations are one of the components of the partnership in conservation of natural resources between the Communities, Safari Operators/professional hunters and the DNPW. Therefore, no hunting concession agreement is valid without the signature of the Chief/s or CRB. The following table illustrates the annual financial obligations of operators in the allocated blocks for the duration of their respective concession agreements.

Table 7: Current Annual financial obligations of hunting concessionaires to Communities in selected Game Management Areas (In Zambian Kwacha)

GMA	Status	Community Obligation	Law Enforcement	Infrastructure Development	Resource Monitoring
Chiawa	Secondary	150.000	150.000	100.000	50.000
Kasonso Busanga	Prime	420.000	120.000	95.000	20.000
Lumimba	Prime	385.000	187.750	140.625	36.500
Lunga Luswishi	Secondary	235.000	180.000	869.430	125.000
Lupande	Prime	580.000	127.000	100.000	30.000
Mulobezi	Secondary	250.000	45.000	50.000	25.000
Mumbwa	Prime	345.000	90.000	50.000	50.000
Mukungule	Secondary	100.000	50.000	20.000	20.000
Munyamadzi	Prime	425.000	165.000	117.000	110.000
Musalangu	Prime	510.250	230.000	150.000	59.500
Nkala	Prime	200.000	75.000	25.000	25.000
Sichifulo	Secondary	120.000	118.000	60.000	30.000
West Petauke	Prime	150.000	90.000	100.000	27.000
Total		3.870.250	1.627.750	1.877.055	608.000

Source: DNPW

On top of these financial obligations the concessionaire and professional hunters provide important voluntary contributions to increase the level of protection and social development in the hunting areas. These include additional contributions to law enforcement, community development, infrastructure and resource monitoring. Examples of three companies' voluntary contributions from safari outfitters in their blocks to communities located in the Luangwa and Kafue Ecosystems are listed in Table 9.

Table 8: Contributions of Safari Companies to Wildlife Conservation from the Luangwa and Kafue ecosystem (2008 - 2019)

Year	Other Contributions	Permanent Employees	Casual Employees	Snares Removed	Comments
2008	64,595,000.00	116	135	2,779	• Support to Traditional Ceremony, • Support to Community Youth Group, • Donation to Secondary School, • Donated 2 Hammer mills, • Donated Land rover, • Funded awareness meeting against snaring
2009	41,500,000.00	121	137	1,894	• Support to traditional Ceremony, • 1 Hammer mill • Cement and Iron sheets for community shelter, • Transport and lodging for CRB members to attend meetings
2010	60,500,000.00	121	139	1,664	• Support to Traditional Ceremonies • Sponsoring Community Members to International meeting • Settling Statutory Fees Arrears for CRB • Outboard Engine • Contribution towards Village scout training
2011	33,000,000.00	121	144	1,686	• Motor bike spares • Transport • Second hand Land Cruiser • Fertilizer and seed
2012	35,706,000.00	121	148	1,521	
2013	20,004,000.00	132	112	715	• Hunting Operations could not sustain contributions, • Service parts for vehicle
2014	20,000,000.00	132	215	544	• Spares for truck • Hunting operations could not sustain contributions
2015	5,000.00	213	230	401	• Supported law enforcement operations, • No hunting but met concession agreement obligations
2016	450,000.00	296	480	2,071	• Support to traditional Ceremony, • 2 Hammer mills • Cement and Iron sheets for mothers' shelter • Transport and lodging for CRB members attending meetings • Support to law enforcement operations
2017	650,000.00	311	504	1,850	• Support to traditional Ceremony, • Cement and Iron sheets to schools • Transport and lodging for CRB members attending meetings • Support to law enforcement operations • Provided clothing materials to communities

2018	650,000.00	360	554	1,610	• Support to law enforcement operations • Transport to local communities • Donation of school materials • Support to traditional ceremonies • Spares and repair of anti-poaching vehicles • Funded awareness meetings in CBNRM
2019	580,000.00	368	571	1,942	• Support law enforcement operations • Building materials to schools • Spares and maintenance of the hummer mills • Support to traditional ceremonies • Damming water points

Source: DNPW

5.4.2 Tender process for hunting blocks

All hunting blocks operate under a hunting concession agreement with a safari outfitter. Safari hunts operate from 1st May to 31st December each year, however, between August and the end of December recreational hunting by citizens and residents is also allowed in these blocks on a bid basis, managed by the DNPW.

The classification of hunting blocks into Prime, Secondary, Understocked and Depleted is based on the number of Classical (i.e. 14 – 28-day hunts) and Mini (i.e. 7 – 10-day hunts). Quotas for Prime hunting blocks are set to achieve at least five classic safaris and seven mini-hunts per season. Similar, but slightly reduced requirements apply to secondary hunting areas.

The process to acquire a hunting block changed after 1991 when the government policy shifted from directly allocating HCA's administratively to an Open Tender System. The initial tenure period also gradually increased from three-year tenure, followed by a five-year tenure to 10 years for prime and secondary blocks and 15 years for understocked blocks, which prevails today (Chomba and Nyirenda, 2015). The tender process is therefore driven by these parameters with bidders tendering for blocks offering a pre-determined number of hunts. In this open tender system, interested bidders are invited to purchase solicitation documents from the DNPW HQ at Chilanga (see http://mpoto.info/tendersportal/tender-for-the-granting-of-safari-hunting-concessions-in-the-hunting-blocks/). The selection criteria is not necessarily based on the highest bidder but on other supporting evidence such as: a) evidence of a company's ability to market a given HCA, b) pledges to the local community living near to or within the area of the HCA, c) company's financial status, d) assets available to operate a safari camp, e) evidence to show that the company has agents to help with overseas bookings, f) marketing ability, g) wildlife management inputs pledged, and h) proof of qualified professional hunters among others. There are currently 54 occupied and vacant hunting blocks under the control of the DNPW that have been awarded via this tender process and are into their third year of tenure.

5.4.3 Compliance to obligations of the concession agreement

The Hunting Concession Agreement has provisions specifying the mechanism of monitoring the implementation of the agreement. Mechanisms include annual evaluations at the end of the hunting season, and before the beginning of the next hunting season that involve the Department, CRBs and representatives of the concessionaire. A concession holder who does not comply with the obligations can have their concession terminated before the end of the agreement's term.

5.5 Quota setting and GMA Management

The transformation of the former DNPW to ZAWA in 1999 ushered in new wildlife policies that promoted community-based natural resource management (CBNRM). The Community Resource Boards (CRBs) established under this policy framework were now able to benefit from the use of wildlife in the GMAs but had to also assume responsibility for the management of these areas. A proportion of the income from the sale of the quotas set by the (then) ZAWA and latterly the DNPW to "joint venture" partners were intended to cover these costs. The opportunity to take on important wildlife management roles, such as quota setting, required that CRBs (and outfitters) develop new skills to recommend annual quotas to ZAWA (and now DNPW). To assist this process, ZAWA produced a "Quota Setting and Monitoring of Hunting Manual" (ZAWA, 2004) that guided participants through the relationship between quota setting and monitoring of hunting. This manual draws on experiences from Zimbabwe and other regional countries and uses the "Adaptive Management Process" approach to set and adjust quotas. This process relies heavily on monitoring of population trends, trophy quality and hunting effort to adjust quotas[3]. It is therefore important to gather data and adopt a systematic approach to monitor hunting to establish robust indices that can feed back into this process.

5.5.1 Trend in overall quota allocations

The DNPW is required to set quotas for eight different categories of hunters across the 52 hunting blocks involving 42 mammal species and subspecies. It also allocates quotas to 12 Open Game Ranches. Reconciling and maintaining track of this database presents a challenge, especially as each outfitter is required to apply for individual licences for each hunting client. The overall quota allocations have not fluctuated significantly over the years. The notable exception is the drastic reduction of the lion quota because of the recommendations of the CITES NDF (Table 10).

Table 9: Trend in the quota set by ZAWA and DNPW for all species and key classic and mini hunt trophies

Year	2003	2004	2005	2006	2007	2008	2016	2017	2018	2019
Total quota	3360	4420	4350	4622	4539	3733	4863	3691	4535	3728
Buffalo	240	358	321	343	341	335	351	362	364	403
Leopard	112	130	122	91	99	91	76	106	112	128
Lion	108	135	123	110	117	115	24	35	31	33

5.5.2 Quota allocation across ecosystems

The magnitude of the Zambian hunting industry can be gauged by the number of key species (lion, leopard, buffalo and hippo) allocated on quota and the number of hunting clients that visit the country. The total number of animals allocated on quota for 2018 (4535) in each of the major ecosystems and Open Game Ranches is provided in Figure 5.

[3] Where possible, the DNPW also draws on aerial survey data to support its decisions regarding quotas.

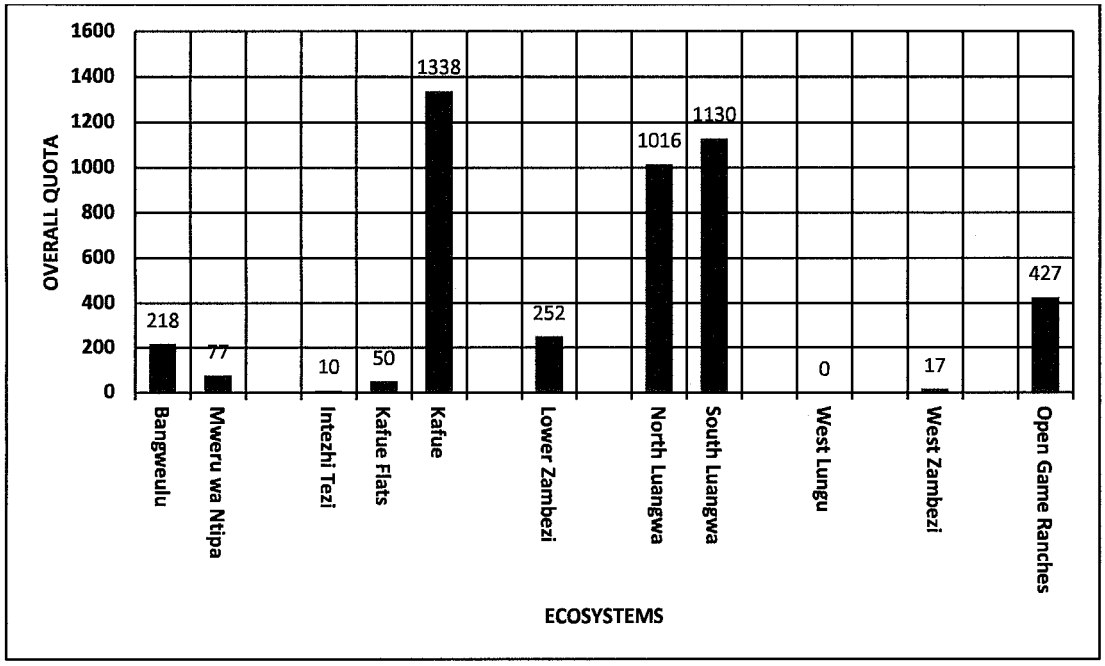


Figure 6: Overall quota allocation (4535 animals) per ecosystem in 2018

Overall, the species rich Luangwa ecosystem is the recipient of approximately 50% of the quota allocation followed by the Kafue ecosystem. When split across the various hunting categories, the non-resident hunter quota receives 2884 animals (or 63% of the overall quota) with less than 20% reserved for citizens and bona fide GMA residents (Figure 6).

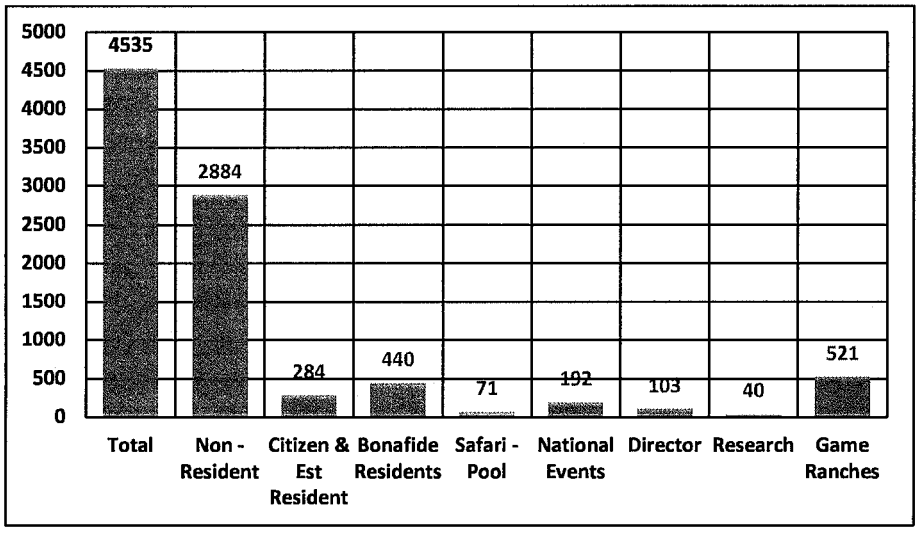


Figure 7: Total quota allocation by category in 2018. 63% is allocated to the non-resident quota.

The distribution of the lion quota between the different hunting categories is provided in Figure 7 while the distribution of the quota across the ecosystems is provided in Figure 8.

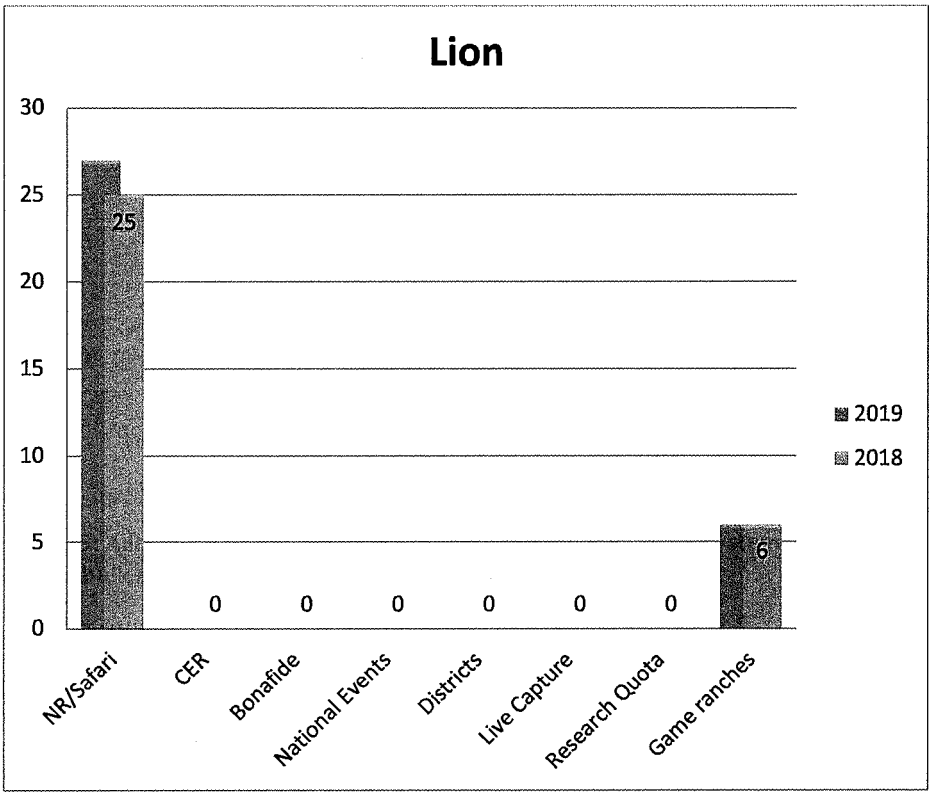


Figure 8: Allocation of the lion quota by hunting category in 2018 and 2019.

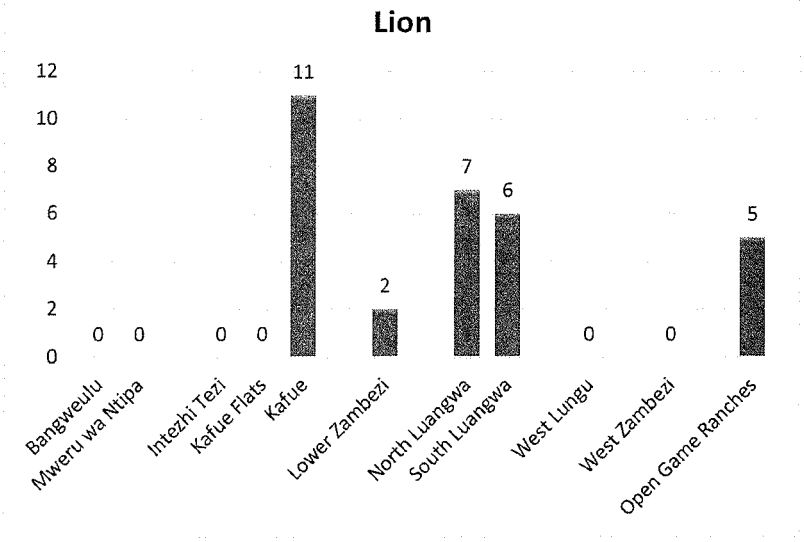


Figure 9: Allocation of the 2018 lion quota across the major ecosystems. Kafue and Luangwa take up the bulk of the lion quota.

5.5.3 Utilisation of Quota

All professional hunters (PH) and outfitters (where appropriate) are required to complete a "Form ZAWA 14" giving details of a completed hunting safari in terms of SI 46 of 2003. This form records the

details of the PH, hunting client, area hunted, dates, list of species killed/wounded, GPS location, foreign currency charged to client and trophy measurements. The forms are deposited with the licencing office and Department of Research in the DNPW at the end of each hunting safari. Chomba and Nyirenda (2015) provide some data to illustrate the average percentage utilisation of the top 10 of the 41 species on offer to non-resident hunters (Table 11).

Table 10: Ranked top 10 species utilisation levels for non-resident quotas recorded between 2003 - 2011 (adapted from Chomba and Nyirenda, 2015).

Species	Average percentage utilisation 2003 - 2011	Rank
Black lechwe	67	1
Kafue lechwe	65	2
Cookson's wildebeest	63	3
Buffalo	57	4
Lion	57	5
Puku	55	6
Leopard	55	7
Common waterbuck	48	8
Greater kudu	48	9
Defassa waterbuck	47	10

5.6. Value of 2018 quota

The value of each species offered on quota is defined by the animal licence fee charges listed in the Zambia Wildlife (Licences and Fees) Regulations, 2003 (SI No. 46 of 2003). These fees have remained relatively stable in United States dollar terms but have been periodically amended to accommodate exchange rate fluctuations in the local currency.

These fees are under review by the DNPW in collaboration with the SHOAZ taking into consideration the depressed international market for safari hunting, competition from neighbouring countries and the cost of doing business In Zambia.

5.6.1 Income generation of the 2018 quota

The overall value (in US$) of the 2018 quota is summarised in Table 12. The total income due to the DNPW from the sale of 100% of the quota is US$3,224,940 from the 188,813km^2. The 14 prime hunting blocks produce 64% of these fees ($2,066,140) or $82/km^2. However, the overall income of $17/km^2 falls short of the $50/km^2 that is generally regarded as the minimum expenditure needed to manage IUCN Category IV protected areas such as the GMAs. Moreover, realistically the DNPW can expect to receive approximately 60% of these fees ($1,934,964) that it shares 50% with CRBs. By comparison the open game ranches generate $194/km^2.

Table 11: Overall income (US$) generated from the sale of 100% of the 2018 quota allocated to prime, secondary, understocked and specialised hunting blocks

Individual Fees (Non- resident)	Number Hunting Blocks	Total Income (US$)	Total Area (km^2)	Income/km^2
Prime	14	$2,066,140	25,325	$82
Secondary	14	$985,170	48,359	$20
Understocked	3	$39,040	28,216	$1
Specialised	5	$134,590	37,633	$4
Vacant	18	$0	49,280	$0
Sub-total - DNPW	***54***	***$3,224,940***	***188,813***	***$17***
Open Game Ranch	19	$537,370	3,105	$173
Total Income	66	**$3,762,310**	**191,918**	$19.6

The potential contribution of animal license fees of the seven main species is provided in Table 13. These species make up the bags of "classic" and "mini" hunts and collectively contribute 57% ($2,138,600) of the overall animal license fees ($3,726,310). Individually, buffalo contribute 15% of this amount underlining the importance of this species to the Zambian hunting industry. Leopard and lion collectively contribute 11% while sable and roan contribute 14% of these fees.

The 2018 lion quota was valued at US$130,200, equivalent to US$0.56cents/$km^2$, highlighting the call by Creel *et al.* (2016) to review the hunting fees to maintain revenues for conservation of hunting areas. A Regulation is in preparation by DNPW to update the current animal fees as set by statutory instrument No. 60 of 2007.

Table 12: Total animal licence fee income (US$) and overall contribution of the 2018 lion quota.

Ecosystem	% Area	Area (km^2)	Income per 1000km^2	Total Animal Licence Fees[1]	Lion	Total Lion Income	Lion per 1000km^2
North Luangwa	15%	27,391	US$31,779	US$870,450	7	US$29,400	0.26
South Luangwa	7%	13,899	US$73,516	US$1,021,800	6	US$25,200	0.43
Kafue	30%	56,961	US$16,955	US$965,770	10	US$42,000	0.18
Lower Zambezi	10%	18,706	US$9,957	US$186,260	2	US$8,400	0.11
Bangweulu	10%	18,987	US$9,104	US$172,860	0	0	0.00
West Lunga	5%	10,070	US$0	US$0	0	0	0.00
West Zambezi	23%	42,799	US$182	US$7,800	0	0	0.00
Total	**100%**	**188,813**	**US$17,080**	**US$3,224,940**	**25**	US$105,000	**0.13**
OGR's		*2,769*	*US$194,066*	*US$537,370*	*6*	US$25,200	*2.17*
Total		**191,582**	**US$19,638**	**US$3,762,310**	**31**	**US$130,200**	**0.16**
N + S Luangwa	*22%*	*41,290*	*US$45,828*	*US$1,892,250*	*13*	US$54,600	*0.31*

[1] *Include Lion*

Table 13: Potential gross income (US$2,138,600) of seven main species that contribute to Classic and Mini Hunts that define the block categories

Block Category	Buffalo	Elephant Male	Hippopotamus	Leopard	Lion	Roan Antelope	Sable Antelope	
Individual Fees (Non- resident)	US$1,600	US$10,000	US$1,600	US$2,650	US$4,200	US$4,000	US$3,000	
Total quota	*364*	*27*	*212*	*112*	*31*	*67*	*84*	**Total**
Primary	US$411,200	US$160,000	US$206,400	US$161,650	US$63,000	US$104,000	US$102,000	US$1,208,250
Secondary	US$86,400	US$50,000	US$49,600	US$71,550	US$33,600	US$68,000	US$78,000	US$577,700
Understocked	US$3,200	US$10,000	US$14,400	US$0	US$0	US$8,000	US$0	US$27,600
Specialised	US$0	US$0	US$0	US$0	US$0	US$0	US$0	US$8,000
Open Game Ranch	US$52,800	US$30,000	US$48,000	US$45,050	US$25,200	US$68,000	US$48,000	US$317,050
Vacant	US$0	US$0	US$0	US$0	US$0	US$0	US$0	US$0
Total Income	**US$582,400**	**US$270,000**	**US$339,200**	**US$296,800.00**	**US$130,200**	**US$268,000**	**US$252,000**	**US$2,138,600**
% of total value ($3,726,310)	15%	7%	9%	8%	3%	7%	7%	

5.7. Lion Quotas and utilization Pre-Moratorium (2005 – 2012)

Zambia issued a total of 683 lions on quota for the period 2005 to 2015 in 21 Game Management Areas and 5 Open Game Ranches (Table 14). For this period the highest number of lions issued on quota was 117 issued in 2005 and the lowest was 55 issued in 2011 (Table 14). The quotas were generally based on the levels of utilization of the previous year's lion quotas and in some instances the quota was fixed in the concession agreements. This level of utilization may have been locally unsustainable considering that lions like most large carnivores have low adult mortality rates (Murray et al., 2010). However, the trend during the period 2005 – 2012 was towards a low offtake quota. This was attributable to two factors: 1) a decrease in allocated quota by ZAWA (now DNPW), and 2) greater selectivity by hunters engaged in the voluntary age-based trophy selection program.

To address this concern, by 2012 the country's lion quota had been reduced by 58 per cent. Although offtake overall was decreasing through greater selectivity, the program was voluntary and a high offtake of males was still of concern in two of the Game Management Areas (Lupande and Lumimba) (Yamazaki, 1996; Rosenblatt et al., 2014).

Moreover, during this same period Zambia took measures in protecting lion populations in the Lower Zambezi and Nsumbu Complex. Following the results of studies undertaken in the Lower Zambezi (Leigh, 2005 referred to in Becker et al., 2012), the DNPW (then ZAWA) discontinued lion hunting in Chiawa Game Management Area. In the same vein due to uncertainty about the lion populations in Tondwa and Luano GMAs lion hunting was discontinued in these areas in 2006 and 2009 respectively. Thus, for the Lower Zambezi ecosystem, lion hunting has only continued in Rufunsa GMA. However, for this particular GMA lion hunting was only allowed because of the high levels of human lion conflict with 10 lions killed in an effort to mitigate conflict during the period 2005 to 2016 (Refer to Section 7.2 below)

Research by Packer et al., 2011 in the Serengeti recommends lion harvest rates of 1 lion/1000 km^2 in high lion density areas and 1 lion/2000 km^2 in low density areas. This was to be in lieu of adopting a five/six-year aging approach. However, recent research seems to suggest that this may not be the case across all ecosystem, due to differences in population demographic rates (Creel et al., 2016 in review). In any case, a review of Zambia's offtake rates for the period 2005 to 2012 indicates that harvest rate of 1 lion/1000 km^2 was only exceeded in 4 of the 21 Game Management Areas in which lion hunting was conducted for the period 2005 to 2012 (Table 15). Three of these were in the Luangwa ecosystem and one in the Kafue ecosystem. For the other 17 Game Management Areas the harvest rates were far below the rate of 1 lion /1000 km^2 despite some areas being in high lion density areas. For some areas, lion hunting was stopped altogether.

Harvest rates in Open Game Ranches were greater than 1 lion/1000km^2. However, Open Game Ranches are typically managed with high levels of protection and large prey bases per km^2.

Table 14: Zambia lion Allocated Quotas for the period 2005 to 2012

s/n	Hunting Area	Area (sq.km)	2005	2006	2007	2008	2009	2010	2011	2012
1	Lupande GMA	4,840	12	10	12	8	10	8	6	7
2	Lumimba GMA	4,500	14	11	14	14	10	12	7	9
3	Munyamadzi GMA	3,300	10	10	9	6	5	5	5	6
4	Mukungule GMA	2,402	3	3	3	2	1	1	1	1
5	Chisomo GMA	3,390	2	2	2	1	0	1	0	0
6	Musalangu GMA	17,350	13	12	13	13	12	12	6	9
7	Sandwe GMA	1,530	3	3	3	3	1	0	0	1
8	West Petauke GMA	4,140	6	4	4	5	5	5	4	4
9	Luano GMA	8,930	3	1	2	1	1	0	0	0
10	Chiawa GMA	2,334	2	0	0	0	0	0	0	0
11	Rufunsa GMA	3,179	2	2	2	2	1	2	1	1
12	Mumbwa GMA	3,370	7	5	6	6	4	5	4	5
13	Nkala/Bilili GMA	3,274	4	3	4	3	2	2	2	2
14	Mulobezi GMA	3,430	8	5	5	3	5	4	4	5
15	Namwala GMA	3,600	2	2	2	3	2	2	1	2
16	Kasonso Busanga GMA	7,780	4	4	3	4	3	3	3	3
17	Lunga Luswishi GMA	13,340	7	7	7	6	6	6	4	5
18	Sichifulo GMA	5,175	3	3	2	2	2	0	1	1
19	West Zambezi GMA	38,070	3	4	4	4	1	0	0	0
20	Mufunta GMA	5,104	0	0	0	0	0	0	1	1
21	Tondwa GMA	540	2	1	0	0	0	0	0	0
22	Mushingashi Game Ranch	365	2	2	3	3	2	2	2	2
23	Nyakolwe Game Ranch	248	3	0	1	3	2	2	1	2
24	Munyamadzi Game Ranch	180	2	2	2	1	1	1	1	1
25	Nyamvu Game Ranch	120	0	0	0	0	0	1	1	1
26	Kaindu Natural Resource Trust	106	0	0	0	0	0	0	0	1
	Total	**137,517**	**117**	**96**	**103**	**93**	**76**	**74**	**55**	**69**

Table 15: Lion harvest rates in Zambia 2005 – 2012 (Lions /1000 km²)

Hunting Area	Area (sq.km)	2005	2006	2007	2008	2009	2010	2011	2012
Lumimba GMA	4,500	2.22	1.33	2.89	2.89	2.00	2.00	1.11	2.00
Munyamadzi GMA	3,300	2.73	-	1.82	1.82	1.21	1.52	1.21	1.21
Lupande GMA	4,840	1.86	0.62	2.27	1.24	1.65	1.03	1.24	1.03
Musalangu GMA	17,350	0.46	0.17	0.69	0.46	0.52	0.40	0.29	0.35
Mukungule GMA	2,402	-	-	0.42	0.42	0.42	0.42	-	-
Chisomo GMA	3,390	0.59	-	-	0.29	-	-	-	-
Sandwe GMA	1,530	1.96	-	-	1.31	-	-	-	0.65
West Petauke GMA	4,140	0.48	-	-	0.48	-	0.48	0.72	0.48
Nkala/Bilili GMA	3,274	0.61	-	0.61	0.31	0.31	-	0.31	0.31
Mumbwa GMA	3,370	1.19	0.30	1.19	1.48	1.19	1.19	1.19	1.48
Mulobezi GMA	3,430	0.87	-	0.87	0.87	0.29	0.87	0.58	0.58
Lunga Luswishi GMA	13,340	0.30	0.30	0.30	0.37	0.45	0.37	0.30	0.37
Sichifulo GMA	5,175	0.19	-	-	0.19	-	-	0.19	0.19
Kasonso Busanga GMA	7,780	0.26	-	0.39	0.39	0.26	0.26	0.26	0.13
Namwala GMA	3,600	-	-	0.28	0.56	0.56	0.28	-	-
Mufunta GMA	5,104	-	-	-	-	-	-	0.20	-
Rufunsa GMA	3,179	0.31	0.31	0.31	0.31	0.31	-	0.31	0.31
Luano GMA	8,930	-	-	-	-	-	-	-	-
Chiawa GMA	2,334	0.43	-	-	-	-	-	-	-
West Zambezi GMA	38,070	-	-	0.03	0.05	-	-	-	-
Tondwa GMA	540	-	-	-	-	-	-	-	-
Kaindu GR	106	-	-	-	-	-	-	-	9.43
Nyakolwe GR	248	13.04	-	4.35	8.70	8.70	4.35	4.35	8.70
Mushingashi GR	365	2.74	2.74	5.48	8.22	2.74	-	5.48	2.74
Munyamadzi GR	180	-	5.56	11.11	5.56	5.56	5.56	5.56	-
Nyamvu GR	120	-	-	-	-	-	8.33	-	-

5.8 Development of Lion Hunting Quotas and guidelines for hunting lions after the moratorium

In line with the procedures of the quota allocation process outlined, and with additional measures described in this section and subsections, the DNPW established a quota for 2016 of 24 lions (Table 16). This is the lowest hunting quota that the country has had in the last 10 years. The quota is much more conservative than the thresholds of 1 lion/2000km^2 for low density areas and 1.0 lion/1000km^2 for high density areas.

Zambia's lion population could sustainably handle higher offtakes, but DNPW chose to reopen hunting slowly to allow for careful monitoring and implementation of an age-based guideline for legal lion trophies.

Table 16: Lion Hunting Quota for 2016

s/n	Hunting Area	Area (sq.km)	Quota	lions / 1000 sq.km
1	Musalangu GMA	17,350	4	0.23
2	Lupande GMA	4,840	2	0.41
3	Lumimba GMA	4,500	3	0.67
4	Munyamadzi GMA	3,300	2	0.61
5	Kasonso Busanga	7,780	1	0.13
6	Mulobezi GMA	3,430	2	0.58
7	Nkala/Bilili GMA	3274	1	0.31
8	Mumbwa GMA	3,370	1	0.3
9	West Petauke GMA	3,227	1	0.31
10	Sichifulo GMA	5,175	1	0.19
11	Lunga Luswishi GMA	13,340	2	0.15
12	Rufunsa GMA	3,179	1	0.31
13	Mufunta GMA	5,104	1	0.2
14	Open Game Ranches	2,556	2	0.78
	TOTAL	**80,425**	**24**	0.3

Source: Research, DNPW

5.8.1 Guidelines for Hunting Lion

The DNPW in conjunction with several stakeholders hosted workshops in 2015 and 2016 where presentations were made on the status of lion and on the need to implement an age-based hunting system for lion in Zambia. These meetings were used to inform the stakeholders on the impacts of lion and leopard hunting, and to review options for the management of the large carnivores.

The guidelines for the hunting of lion were formulated through a participatory process and introduced at the start of the 2016 hunting season. The guidelines also provided the terms and conditions applicable to the outfitters that voluntarily to abided to these guidelines. All outfitters who harvested trophy lions were required to submit a "Lion Sighting Form" that captures data on pride size and location, and a "Lion Hunt Return Form (or Trophy Size Record Form)" that captures data related to the actual hunting of the lion and includes a set of photographs of the physical features and teeth of the trophy. These data were then used to assess the age of the trophies.

In reopening lion hunting in 2016 following a three-year moratorium, DNPW consulted independent lion experts to get advice and held a workshop with stakeholders in April 2016. This resulted in the formulation of guidelines on lion hunting in Zambia. The guidelines are considered as part of an adaptive process to manage lion hunting in the country and were finalized with relevant stakeholders in a participatory manner.

The guidelines have been revised in 2019 from those developed in 2016 for lion and in 2018 for lion and leopard and are meant as an instrument to provide technical guidance on the scientific methodologies to be used on lion aging and on some methodologies for lion and leopard hunting and status monitoring. These guidelines also incorporate details pertaining to the monitoring of leopard hunting and status.

The lion aging system outlined in the Non-detriment and enhancement finding produced by Department of National Parks and Wildlife (DNPW) in 2016 (DNPW 2016) and in previous guidelines was therefore an experimental one, introduced to test the response of the hunting stakeholders, DNPW relevant staff and ultimately lion populations to an age-based system for lion harvest.

Consequently, after the 2016-2019 experimental period, DNPW is now introducing a legally binding regulation that will enter into force for the 2020 season.

The Guidelines shall be regularly updated to reflect advance in scientific knowledge in order to guide technically the implementation of the regulations.

The new management approach to Lion hunting in Zambia is based on three pillars, i) a conservative, precautionary quota, well below one of the recommended thresholds for sustainability, ii) an age–based harvest limit and strong monitoring of lion offtakes, and iii) significant and direct community benefits. This will ensure that lion hunting in Zambia is sustainable and does not negatively affect the population. In addition, in the hunting concession agreements signed in 2015 no hunting outfitter has been guaranteed a lion on quota, it is made clear that the quota for any species shall be based on scientific methods including the latest available survey and aging techniques.

5.8.2 Application of the ageing methodology

It is possible, with adequate training, to age lions with relatively good precision using physical characteristics. However, under field and hunting conditions, ageing can be inaccurate, particularly in the 5–7-year age range for lion (Miller *et al.* 2016). Nonetheless, the DNPW and the Zambian safari hunting industry have taken on board the research findings and are implementing age-based trophy selection programmes. The result following the moratorium has been a marked reduction in the number of under aged lions taken as trophies. This is due to multiple factors including:

- Greater awareness by professional hunters and their clients of the importance of selecting older, non-breeding lions as trophies.
- Resources to help teach professionals and clients to age lions.
- Adoption of age minimums by DNPW as part of their management programme.
- Inspection of lion trophies by DNPW, and oversite.
- Programmes by other independent stakeholders/external reviewers to determine which individual trophies meet minimum age standards.
- Significant reduction in allocated quotas in response to best available information and employing the precautionary principle.
- Reduction in utilised quotas since development and implementation of all the best guidelines in lion trophy hunting practices.
- SHOAZ and PHAZ working closely with the DNPW to develop and legislate hunting guidelines.

- The increasing use of camera traps provides professional hunters the opportunity to seek second opinions through social media on the acceptability (or not) of a potential trophy before it is hunted.

The best available science (Miller *et al.* 2016) determined that professional hunters and biologists were most proficient at aging lions when differentiating between age classes. However, despite the available research, there is no evidence that even experts can confidently distinguish between a lion that is 5 versus 6 versus 7 versus 8 years of age, even using the best available aging techniques, on live or post-mortem animals. Thus, while it may seem appropriate to fix the acceptable minimum age of a lion trophy, it is not possible to precisely allocate an age to a trophy (i.e. 4 years vs 5 years vs 5.5 years vs 6 years vs 7 years etc.). Moreover, since best practice hunting guidelines for carnivores are being entrenched in legislation, there is a risk of litigation should the DNPW impose penalties for allegedly hunting under-aged animals that are later challenged in court by a professional hunter or client. To address this, the DNPW is developing post-mortem monitoring techniques that place the trophy into one of four age categories rather than assign a specific age class that can be later disputed (Table 17). This approach is described in the revised Zambian hunting guidelines that is being enshrined into law as a regulation (DNPW, 2019)

Table 17: Age categories defining lion trophies as described in the DNPW hunting guidelines

Age Category	**Male Lion**
Category 1 *(Adult)*	A male lion judged to be of 7 years old or above
Category 2 *(Prime Adult)*	A male lion judged to be older than 5 and less than 7 years old
Category 3 *(Young)*	A male lion judged to be above 4 years old, but below the age of 5 years old.
Category 4 *(Under age)*	A male lion judged to be 4 years old and below

The current status of the science that places a trophy in an age category relies on four parameters: i) physical features of the live animal, ii) rate of suture coalescence, iii) degree of wear on the teeth and iv) the Cementum Enamel Junction (CEJ) Measure of post mortem examination. The quantitative CEJ measurement has been applied successfully to ageing mountain lion, cougars and tigers (see Table 16) but has yet to be thoroughly tested with African lion. The remaining parameters are all subjective and depend on the experience of the professional hunter (for physical features and social behaviour) and on scientific experience with skull morphology. In all these instances, the absence of a wide range of known age lion skulls from across the region is a serious drawback. Without this material, it is not possible to benchmark the age of hunting trophies against reliable known age material. A fifth parameter, the Cementum Annuli Analysis (CAA) and the pulp/tooth ratio of the second premolar (PM^2), initially showed promise but after further scrutiny has proved to be too variable and produced conflicting age class assignments in determining whether a lion was deemed to be ≥5≤6-years-old to be used as a reliable indicator to age lion (White and Belant, 2016, White *et al.* 2016 and 2017).

To overcome the level of subjectivity, and to account for the wide range of variability and age within a population, the following approach has been adopted to distinguish between unacceptable, marginal and acceptable trophies. The approach must also accommodate the small sample sizes and the reality that a precise age is difficult to measure.

To access the age category of a trophy using the parameters described above requires assigning a score of 1 – 5 to each of the suture characteristics and to each of the teeth wear indices. However, because skulls of individual animals exhibit different characteristics depending on the age and the environment in which they lived, it is not possible to rely on only one of the four ageing parameters. All four parameters must be taken into consideration: the physical features may place a 5 – 6-year-old lion in "7-year" category and vice versa. Similarly, the rate of coalescence of sutures may suggest an older animal than the degree of wear on the incisors and molars. It is also feasible that a suture may exhibit a greater degree of coalescence than another depending on the age of the animal. For example, the *Interfrontal suture* may show evidence of being *open in places but has begun coalescing in places* giving it a score of 2, but the *maxillo-premaxillary* shows evidence of *coalescing along entire length but still visible* giving it a score of 3. The same situation applies to the incisors and molars depending on (for example) the type of diet that the animal has fed on. Scores are therefore applied to each of the suture and molar categories to give a total that can then be allocated to an age category as follows:

Age Category	Total suture and tooth wear	Classification
Category 1	>21	Acceptable
Category 2	≥ 16 <20.5	
Category 3	>13.5 <15.5	Marginal
Category 4	<13.5	Unacceptable
	Cementum/Dentine Ratio (CEJ)[1]	
Unacceptable	<13%	
Marginal	>13% <14%	
Acceptable	>14%	

[1] Note that this ratio is still "work in progress" and requires further refinement and testing against a larger sample size from across the region and known age material

A suture/tooth wear score:

- Greater than 21 places the trophy in Category 1 which is deemed to represent trophies that are 7 years and older.
- Greater than 16 and less than 20.5 places the trophy in Category 2 and although deemed to be acceptable, caution is required with scores closer to 16 than 20.
- Scores falling between >13.5 and <15.5 places the trophy in Category 3. Such trophies are of marginal age and require further closer investigation, including examination of the photographic evidence.
- Scores lower than 13.5 would place the trophy in Category 4 and classified as unacceptable.

Because the suture and tooth wear patterns are qualitatively assessed, applying these criteria still introduce a level of subjectivity in that they may classify the trophy as "acceptable" but the CEJ measurement may suggest that the age is "marginal". Similarly, the suture and tooth wear patterns may indicate that the animal is of "marginal" age but the CEJ measurement places the trophy in the "acceptable" category. Applying this approach provides a degree of objectivity to the ageing process and introduces a more flexible approach to managing the hunting of these iconic carnivores. When combined with the regulations, the authorities can apply penalties for hunting unacceptable trophies, and adjust quotas downwards when professional hunters persistently produce marginal trophies. To improve this decision-making process, four other monitoring indices are in the process of being developed. These are:

- Assessment of prey base densities i.e. animals/km^2, biomass/km^2
- Population structure of the lion i.e. number of prides, coalition male groups etc.
- Sex ratio of adult males to females.
- Other anthropogenic pressures i.e. illegal wildlife trade, snaring etc.

5.9 Mechanism for monitoring trophy hunting in Zambia

5.9.1 Quota monitoring

As explained in section 5.3.1 quotas are allocated to the hunting companies in a participatory process. The final quotas are issued by the licensing unit. The produced quotas are distributed to the CRBs, Hunting companies and DNPW field stations. During the hunting season wildlife officers accompany hunters on all hunts. The officer records activities related to the hunt on specified forms i.e., Safari Hunting monitoring forms, trophy measurement forms, and a client questionnaire. The officer endorses used licenses ensuring that they cannot be used again. The law requires that all harvested trophies are to be registered.

5.9.2 Lion Hunting Monitoring

Apart from the procedures described in section 5.5.1 above, the DNPW is introducing a monitoring system specific for lions. This monitoring system as explained in section 3.1 will be based on a statutory instrument which is in preparation, which will introduce a mandatory sampling system that requires trophy lions meet or exceed a minimum age as one measure for harvesting trophy lions. The monitoring system will be based on specific forms (Figures 9 and 10) that will help ensure proper compliance with the provisions of the law, including confirmation of legal licenses and collection of data associated with the hunt including but not limited to location, date, participants, and photos, as requested by DNPW. The monitoring system will be complemented by regular surveys for lions throughout the GMAs.

LION SIGHTING FORM

Game Management/Open Area: ..... Hunting Block: .....Name of recorder: .....

Sighting #	Date (dd/mm/yy)	Time	Pride Size and Structure						Pride Identity	GPS Location (in decimal degrees)		Activity	Photos (Y/N)
			# Cubs	# AM	# AF	# SAM	# SAF	Total #		Latitude	Longitude		

Clear pictures of lions indicating whisker spot patterns are required for every sighting.

AM = Male; AF = Female; SAM = Sub Adult Male; SAF = Sub Adult Female

Notes

Age estimate in the field: Mane characteristics, nose pigmentation, skin coloration, leg markings, whiskers, colour and wear of teeth (in the lab).

Activities: These may include; resting, feeding, walking, chasing/hunting etc.

Pride Identity: Identity code can be any name given to a particular pride or coalition of males.

Figure 10: Example of lion sighting form used by Professional Hunters

LION HUNTING RETURN FORM (2 PAGES)

PLEASE FILL OUT ONE FORM FOR EACH LION HUNT

FORM NO.	YEAR

GENERAL DATA ON THE HUNT

HUNTING AREA		DATE OF HARVEST:	
HUNTING OPERATOR		CLIENT NAME AND SURNAME:	
CLIENT NATIONALITY:		HUNTING LICENSE AND GMA PERMIT Nos.	
PROFESSIONAL HUNTER		**CELLULAR NUMBER**	
EMAIL ADDRESS		**SIGNATURE:**	

COURSE OF THE SAFARI

Number of hunting days:	xx days				
Have you effectively looked for a **lion to hunt during** the Safari?	☐ Yes			☐ No	
Number of hunting days before lion was harvested:					
Estimated number of kilometers covered during the Safari:	By car	By foot	Total		
Number of different solitary lions seen during the Safari:					
Number of different **lion** prides seen during the Safari:					
Total number of different individual lions seen during the Safari (solitary + in pride)	Adult Male	Adult Female	Sub-adult	Cub	Total
	+	+	+	+	=
Number of different "trophy lions" seen **during** the Safari:					

IF A LION WAS HARVESTED

Date of harvest:	
Hunting days needed for harvesting the lion	
Location of harvest (GPS in decimal degrees)	
GPS S:	
GPS E:	
Give your own estimate of the lion's age:	
Condition of the lion harvested:	☐ Healthy ☐ Wounds ☐ Thin ☐ Snares

GO TO PAGE 2 FOR PICTURES AND BIOLOGICAL SAMPLES

Page 2 lion hunting form (Please include pictures of trophy with the same view of the examples below)

TROPHY MEASUREMENT AND PHOTOGRAPHY

Total length (A-B: tip of the nose to end of the tail): cm

Shoulder height (C: tip of scapula to back of plantar pad): cm



Side view showing the entire body with the hunter positioned directly behind for scale



Side view of the head, neck and shoulder showing mane development



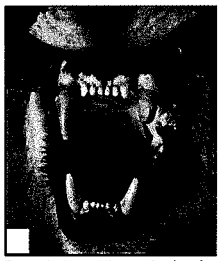
Head down, showing mane development on head and shoulder



Head up, showing mane development on throat and chest



Face head, showing shape and scarces



Frontal view of the teeth, showing coloration and wear on canines and incisors. At time of hunt for color!



Nose, not too close and clearly showing the pigmentation. At time of hunt for color!

BIOLOGICAL SAMPLING

Please note that two blood and two skin samples are required per lion.

Blood sample: Place the filter paper on bullet wound or another source of blood until blood soaks through, air dry for 10-15 minutes in the shade, place in a small plastic bag inside the larger plastic bag and store in a cool place.

Skin sample: Cut a small piece of skin (3-4mm), place it into a tub filled with alcohol 70 or 90° (ethanol) and put the tub in the larger plastic bag.

...thanks for your help!

Ensure all data are accurate and no blank spaces are left. Page 1 and 2 must be completed even if a lion hunt was unsuccessful. Ensure GPS coordinates are provided throughout.
RETURN THE FORM TO DNPW VIA EMAIL TO info@dnpw.mota.gov.zm AND COPIED TO AN ASSIGNED RESEARCH OFFICER AS SOON AS THE HUNTING IS COMPLETED AND MAINTAIN THE PRINTED AND SIGNED ORIGINAL IN A SAFE PLACE.

Figure 11: Lion Trophy record form

5.10. Lion quota allocation and utilization 2016 - 2018

As reported in section 5.8.1, the guidelines for the hunting of lion that were formulated through a participatory process were introduced at the start of the 2016 hunting season. All outfitters who harvested trophy lions submitted returns that were used to assess the age of the trophies. The hunting guidelines were first implemented on a voluntary and experimental basis in the 2016 season when 24 lions were allocated on quota (1 in the Lower Zambezi ecosystem, 11 in the Kafue ecosystem and 12 in the Luangwa ecosystem). In total 18 lions were considered as hunted in 2016 (17 lions were hunted, and one was wounded). Of the 17 lions killed, 3 were from the Kafue ecosystem, with the remainder hunted in the Luangwa ecosystem. The 17 lion trophies were assessed by a "Lion Ageing Committee" consisting of DNPW staff, SHOAZ and independent carnivore researchers (DNPW, 2017). The results of this assessment showed that 5 of the 17 lions were under age and 2 were classified as marginal (Table 18). These results were discussed with SHOAZ highlighting where and how its members could avoid hunting unacceptable trophies using the available ageing tools.

In 2017, 34 lions were allocated on quota and 21 harvested (16 in Luangwa, 3 in Kafue and 2 on open game ranches). No lions were hunted from the Lower Zambezi (DNPW 2018a). A "Lion Ageing Committee" appointed by the DNPW assessed the returns for 21 lion trophies and found that no under aged (unacceptable) trophies were recorded although 2 were regarded as marginal. The remaining 19 trophies were classified as Category 1 (5 trophies) and Category 2 (14 trophies). The 2018 lion ageing assessment identified 7 Category I, 15 Category II and 2 Category III trophies (Table 18).

Table 18: Summary of the number of lions harvested between 2016 and 2018 and classified into categories according to the criteria defined in the hunting guidelines.

Age Category	Number harvested			Classification
	2016	2017	2018	
Category I (Adult ≥7 years)	5	5	7	Acceptable
Category II (Prime Adult 5 - 7 years)	5	14	15	
Category III (Young 4 – 5 years)	2	2	2	Marginal
Category IV (Under age < 4 years)	5	0	0	Unacceptable
Total lion harvested	**17**	**21**	***24***	
Total Quota allocated	***24***	***34***	***31***	

Data for the 2019 hunting season are still under analysis and the aging Panel will meet in the first months of 2020. In 2019, 33 lions were allocated on quota and 21 harvested as of December 2019.

The allocation per hunting block of the quota for 2018 and 2019 is spatially illustrated in Figure 11 and provided in Table 19. This data confirms that the DNPW is adhering to the recommended guidelines of setting lion quotas at ~0.5 lion shot/1,000km^2. Overall 30 lions were allocated in 2018 across the GMAs (188,813km^2) that equates to 0.16 lion/1,000km^2 and 33 lions were allocated in 2019 (0.17 lion/1,000km^2) which is well below the recommended thresholds.

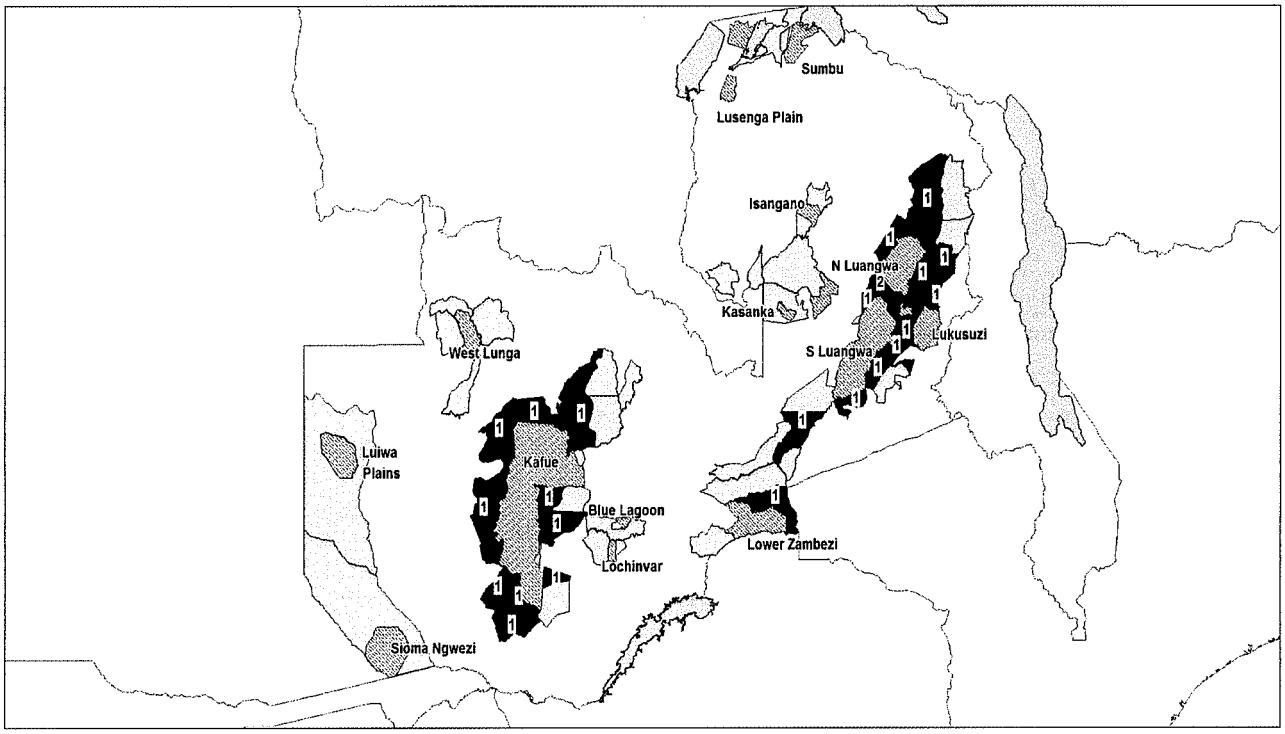


Figure 12: 2018 quota allocation of lion across the occupied hunting blocks in the GMAs. Note that quotas allocated to OGR is not shown

Note: The vacant GMAs are shown in green. No lions were allocated to these blocks

Table 19: Allocation of lion quotas per hunting block and OPG's – 2018 and 2019

GMA	Hunting Block	Status	Operator	Area (km²)	Lion Quota 2018	Lion Quota 2019	Quota adjustement	Lion Taken 2018/2019
Musalangu	Chifunda	Prime	Muchinga Adventures	1676	1	1	1/0	2/1
Munyamadzi	Nyampala	Prime	Baobab Safaris	1801	1	1	1/2	2/3
Lumimba	Mwanya Lumimba	Prime	Mvu Safaris	1587	1	1	1/1	2/2
Lupande	Lupande Lower	Prime	Kwalata	1522	1	1	1/1	2/1
Munyamadzi	Luawata Munyamadzi	Prime	Sitatunga Game Ranching	1003	2	1	1/0	2/1
Chikwa	Chikwa/Fulaza	Prime	Ivory Safaris	3102	1	1	0/1	1/1
Lupande	Lupande Upper	Prime	Westgate Investments	1203	1	1	0/1	1/2
Lumimba	Nyaminga Lumimba	Prime	Paya kakuli	956	1	1	0/0	0/0
Kasonso Busanga	Kasonso Busanga	Prime	Ntengu Safaris	4701	1	1	0/0	0/0
Lumimba	Chanjuzi Lumimba	Prime	Impanga Safaris	1617	1	1		0/1
Mulobezi	Mulobezi	Prime	Mulobezi Outfitters	1732	1	1	0/1	0/1
Nkala	Nkala	Prime	Luansefwa Safaris	1110	1	1	0/1	0/0
Mumbwa	Mumbwa West	Prime	Mangomba Safaris	1441	1	1	1/0	2/1
Mulubezi	Mulobezi Bilibili	Prime	Tandala Safaris	1874	1	1	0/0	1/1
Lunga Luswishi	Lunga Luswishi Kasempa	Secondary	Pro Hunt Zambia Ltd	6981	1	1	0/0	1/0
Musalangu	Lundu Musalangu	Secondary	Freestop	6184	1	1	0/0	1/1
West Petauke	Luembe	Secondary	Mopane Safaris	3134	1	1	0/0	1/1
Sandwe	Sandwe	Secondary	Zambezi Portland	1530	1	1	0/0	1/0
Mufunta	Mufunta	Secondary	Mvu Safaris	6394	1	1	1/0	0/0
Tondwa	Tondwa	Secondary	Baobab Safaris	440		0	0/0	0/0
Sichifulo	Sichifulo	Secondary	Mulimo Agriculture & Hardware Distributors	3040	1	1	0/0	1/0
Namwala	Namwala	Secondary	Nsonga Game Management Safaris	3173	1	1	0/0	1/0
Mukungule	Mukungule	Secondary	Busanga Trails	1824	1	1	0/0	0/0
Lunga Luswishi	Lunga Busanga	Secondary	Southgate Investments	2138	1	1	0/0	0/0
Rufunsa	Rufunsa	Secondary	Nyampala Safaris	3225	1	1	0/0	0/0
Chiawa	Chiawa	Secondary	DJR Investment Ltd	2394		1	0/0	0/0
Musalangu	Tembwe	Secondary	Kazunga Investments	6743		1	0/0	0/1
West Petauke	Nyalugwe	Secondary	Mbeza	1159		0	0/0	0/0
Bangweulu	Bangweulu	Specialised	Pool	6632		0	0/0	0/0
Chisomo	Chisomo	Understocked	Sable Transport	3611		0	0/0	0/0
Open Area	Itezhitezhi	Open Area	Open	250		0	0/0	0/0
West Zambezi	West Zambezi Upper	Specialised	Pool	23458		0	0/0	0/0
Kafue Flats	Kafue Flats North Bank	Specialised	Pool	5175		0	0/0	0/0
Kafue Flats	Kafue Flats South Bank	Specialised	Pool	2118		0	0/0	0/0
Luano	Lower Luano	Understocked	Makasa Safaris Ltd	5264		0	0/0	0/0
West Zambezi	West Zambezi Lower	Understocked	Zambelozi Limited	19341		0	0/0	0/0

GMA	Hunting Block	Status	Operator	Area (km^2)	Lion Quota 2018	Lion Quota 2019	Quota adjustement	Lion Taken 2018/2019
Open Game Ranches	Nyakolwe	OGR	Sable Transport	561	1	1	0/0	1/1
	Nyamvu	OGR	Makasa Safaris Ltd	128	1	1	0/0	1/0
	Kazumba	OGR	Private	198	1	1	0/0	0/0
	Kaindu	OGR	Kaindu NR Trust (Community)	607	1	1	0/0	1/1
	Munyamadzi	OGR	Private	110	0	1	0/0	0/0
	Mushingashi/Kashikoto	OGR	Private	372		0	0/0	0/0
	Nkalamu	OGR	Private	N/A		0	0/0	0/0
	Ilinda	OGR	Private	445		0	0/0	0/0
	Chinama OPG	OGR	Private	N/A		0	0/0	0/0
	Mbizi CGR	OGR	Private	198	1	1	0/0	0/1
	Pia Manzi CGR	OGR	Private	150	1	1	0/0	0/0
Mumbwa	Mumbwa East	Secondary	VACANT	1929			0/0	
Lupande	Msoro	Secondary	VACANT	1689			0/0	
Bangweulu	Kafinda		VACANT	3860			0/0	
Bangweulu	Mansa		VACANT	2070			0/0	
Bangweulu	Luwingu		VACANT	1090			0/0	
Bangweulu	Kalasa Mukoso		VACANT	675			0/0	
Bangweulu	Chambeshi A		VACANT	620			0/0	
Kafue	Bilili Springs	Depleted	VACANT	3080			0/0	
Kafue	Machiya Fungulwe	Depleted	VACANT	1530			0/0	
Lunga Luswishi	Lunga Luswishi Upper	Depleted	VACANT	3314			0/0	
Lunga Luswishi	Lunga Luswishi Lower	Depleted	VACANT	6981			0/0	
Luano	Upper Loano		VACANT	3530			0/0	
Kaputa	Kaputa		VACANT	3600			0/0	
Masele Matebo	Masele Matebo		VACANT	3700			0/0	
Lukwakwa	Lukwakwa		VACANT	2540			0/0	
Chizera	Chizera		VACANT	2280			0/0	
Chibwika Ntambu	Chibwika Ntambu		VACANT	1550			0/0	
Musalangu	Faluza		VACANT	5242			0/0	
			Total	**191,582**	**31**	**30**	**6/8**	**24/21**

Quotas for lion were allocated in the period 2016-2019, on the basis of four criteria; biological richness (prime /secondary) Size of hunting block 1lion/sq. km), category of the hunting area (public protected area or private), and the previous performance of the hunting area. All hunting areas are allocated 1 lion each. Prime areas were however given chance for a second lion depending on the quality of trophy harvested with the first lion. The system of allocating lion quotas encourages harvesting lions above seven years. A small prime area with a first harvest of seven and above could be given a chance to hunt a second lion. A big prime area with a first harvest of borderline age may not be allowed a second lion. In the table above Nyampala is a rich area and was allocated the second lion. The third lion was harvested as a human wildlife conflict animal. Such situations are rare and incidental.

5.11 International Trade

The African lion is included in Appendix II of the Convention on International Trade in Endangered Species of wild fauna and flora (CITES). Legal utilization of lion in Zambia occurs under sport (safari) hunting.

Other exports recorded in Zambia include parts and derivatives such as specimens for scientific purposes. Note that due to the lag time associated with trophy preparation and export, CITES trade data may not accurately reflect offtake on a year to year basis.

A Statutory Instrument is under preparation, which seeks to regulate the importation and captive uses of lion, leopard and cheetah in Zambia. This includes banning the holding of, breeding, commercial use (walking and petting) in captivity of all large cats other than for temporary veterinary purposes. In addition, animals currently being held in captivity in Zambia will be required to be castrated or spayed to eliminate further breeding, and all commercial uses of captive-held cats will be phased out as there is little or no value to conservation attached to these activities (Hunter et al., 2013). Particular care will be taken to avoid the "dumping" of captive-held cats into wild areas for any reason, especially for hunting or 'release' as means for the owners to avoid the penalties or costs associated with authorized disposition of their animals. By taking these steps, Zambia will ensure that it does not become a hosting for activities associated with captive-bred lions that negatively impact wild lion populations and their conservation (Williams et al., 2015).

Worldwide, there is growing concern over use of lion parts, especially in illegal trade. Unknown volumes of wild lion and lion parts are illegally utilized in Zambia. Lion parts are allegedly sought, traded and used for charms, magic and medicinal purposes. The level of illegal use of lion parts in Zambia is currently unknown, but is not considered to be significant, however impacts of trade in lion bones and other body parts is recognized as being potentially detrimental to wild lion populations.

To address the regional increase in lion skins and parts trafficking, and ascertain whether Zambia is also involved, the DNPW is working alongside long-term partners Wildlife Crime Prevention and the Zambian Carnivore Programme (ZCP) to determine trends and patterns of trafficking in big cats and to help combat these activities. To date all Intelligence and Investigations Units in the country have been trained and equipped to take samples from all seized big cat skins in order to trace their origin, inform anti-trafficking work, and evaluate the impact on Zambia's cat populations. Genetics samples from over 10 years of long-term intensive studies on big cats by DNPW-ZCP and samples from trophy-hunted lions and leopards are utilized to provide the baseline information for tracing these samples to their origin in addition to the ecological data they provide on dispersal, connectivity and genetic diversity. In addition, DNPW and partners are working with government labs and TRACE to enable the capacity to rapidly identify seized wildlife products by species for criminal prosecutions.

6.0 Involvement of the hunting sector in Lion Conservation

6.1 Benefits of lion hunting in Zambia

Sustainable utilization has demonstrated ecological, economic and social benefits and is a critical component of DNPW's overall lion management strategy.

It is for these reasons that DNPW is committed to improving lion management strategies throughout Zambia thereby achieving maximum benefits for lions and people

6.1.1 Ecological Benefits

Lion hunting is an essential component of the tourism industry that maintains wildlife areas as suitable habitats for wildlife. In Zambia, GMAs and Open Game Ranches (there are also Open Areas and Fenced Game Ranches) where safari hunting is conducted represent nearly 180,000 km^2 as compared to about

64,000 km^2 in national parks that are strictly protected. Without the incentives provided by hunting, this habitat could be lost and converted to other, less optimal land uses that do not include wildlife.

Trophy hunting, by definition, targets post-breeding males. By ensuring that offtake is sustainable (including the targeting of non-breeding males of certain minimum age, without dependent young), hunting provides maximum benefits while ensuring minimal negative effects on the remainder of the lion population.

Conservation of a species requires conserving the genetic variability and viability of a population rather than focusing on individual animals. While individual deaths serve to inform on sources of mortality, disease and more, loss of specific individuals do not affect population trends. However, humans (photo-tourists) may become emotionally attached to individuals, often because they are unaware of the cycles of life and death in nature. By better educating tourists and locals on the realities of population versus individual losses and gains, a more comprehensive understanding of the ecological, economic and social benefits associated with sustainable hunting of lions can be obtained. This is one of the objectives of DNPW and it should be the objective of all stakeholders who seek to conserve Zambia's wild lion populations.

6.1.2. Economic Benefits

- Lion hunting is the mainstay of safari hunting in Zambia; it attracts tourist hunters and brings income to the communities and the nation; particularly to wildlife conservation.
- DNPW devolves 50 percent of the Game Fees and 20% of the Concession Fees to rural communities to improve their livelihoods.
- Safari Operators provide:
  - Creation of employment
  - Financial support to anti-poaching
  - Provision of Health care
  - Provision of Education
  - Infrastructure development
  - Provision of meat (see below)

The remaining part of revenues are used by DNPW for wildlife conservation including lion itself through, inter alia, support to Law enforcement including anti-poaching and prosecutions and resource monitoring.

For further details, refer to this section and sections 8 and 9.

6.1.3. Social Benefits

- Lion–human conflicts occur on the interface between communities and lion range. Often, this results in "problem animals" being removed through lethal means. Increased conflict may indicate either increase in lion numbers or in human population, and require a reduction in lion numbers and/or redress in human settlement patterns.
- Lion hunting increases revenue to communities and places a value directly on the presence of living with lions thereby providing local people with tangible benefits for conserving wildlife.

For further details, refer to this section and sections 7, 8 and 9.

In particular, the economic and social benefits of sport hunting to rural communities through the provisioning of game meat have been illustrated in a recently published study (White and Belant, 2015). Provisioning of game meat to rural communities by the sport hunting sector in Zambia for three game management areas (GMAs) was on average > 6,000 kgs per GMA of fresh game meat annually from hunting operators. In most of the GMAs, provisioning of meat exceeded what was required in

the lease agreements. Provisioning of game meat peaked during the end of the dry season (September–October) coincident with when rural Zambians are most likely to encounter food shortages. Extrapolating the results across all GMAs estimated 129,771 kgs of fresh game meat provisioned annually by the sport hunting sector to rural communities in Zambia at an approximate value for the meat alone of >US$600,000 exclusive of distribution costs. During the hunting moratorium (2013–2014), this supply of meat was halted, adversely affecting rural communities previously reliant on this food source. The paper recommended that proposed alternatives to sport hunting should consider protein provisioning in addition to other benefits (e.g., employment, community pledges, and anti-poaching funds) that rural Zambian communities receive from the sport hunting sector.

The hunting sector's support is crucial to the government's actions in conserving wildlife and habitats. It cannot be stressed enough the crucial role that safari hunting plays in wildlife conservation in Zambia. During the 2013 to 2016 moratorium on lion hunting (leopard hunting was stopped only in 2013 and 2014) the government was forced to subsidize the operations of ZAWA, Community Resource Boards and wildlife management (see section 9.0 below).

6.2 Transparency

The Wildlife Act of 2015 established a Wildlife Management Licensing Committee whose task is to supervise and grant, renew and revoke licenses, permits and certificates related to hunting. The committee is composed of several members appointed by the Minister of Tourism and Arts selected from different institutions including representatives from Ministries responsible for environment, lands, fisheries, forests, finance, tourism, chiefs, and mines. Other officials will come from the Attorney General's office, Ant-Corruption Commission, and Tourism Council of Zambia. This committee will enhance transparency on the administrative processes related to licensing.

7.0 Threats and Mitigation

Threats to the persistence of lion populations in Zambia include habitat encroachment and fragmentation, bush meat poaching/snaring, human lion conflict and prey depletion.

7.1 Mitigation of Habitat Loss, Encroachment and Fragmentation

With 20 National Parks and 36 Game Management Areas, Zambia has close to 35% of it land mass set aside for wildlife conservation. Including national and local forests and national heritage sites this land mass is well over 40 % of the country's total land area. The threat of habitat encroachment, deforestation and fragmentation to the ecological functionality and connectivity of the protected areas has been the focus of government for several years. For example, the Government through the Forestry Department initiated the Integrated Land-use Assessment (ILUA) project in 2008 whose main purpose was to build up forest related land use resource inventories support national planning capacity and contribute to formulating development policies (GoZ, 2013).

In 2017, the government launched the Zambia Integrated Forest Landscape Project (ZIFLP) that encompasses a series of investments from the BioCarbon Fund, Global Environmental Facility and the International Development Agency that lead ultimately to results-based payments for carbon storage and reduced carbon emissions resulting from reduced deforestation and degradation. The objective of this project is to improve landscape management and increase the flow of benefits for targeted rural communities in the Eastern Province living in proximity to the South Luangwa National Park (GoZ, 2017,

https://www.gtai.de/GTAI/Content/DE/Trade/Fachdaten/PRO/2017/06/Anlagen/PRO201706095001.pdf?v=1).

The wildlife management sub-component of this project will specifically support some activities around National Parks with respect to improving wildlife management practices and promoting practices which will maximize opportunities for rural communities from adjacent wildlife resources. Some specific activities designed to minimize negative impacts include:

- Consultations with adjacent communities adjacent to the protected areas and establishment of co-management processes and instruments
- Mitigation of human-wildlife conflict (HWC) where necessary
- Support to incipient ecotourism initiatives such as local ecotourism strategies, community training, infrastructure
- Awareness-raising activities
- Supporting local involvement and management of game management areas so as to maximize returns from photo safaris and hunting, both a potentially important source of funding to communities
- Improved management of subsistence hunting, where legally allowed, to provide food but to ensure sustainable management of game resources
- Possible extension of COMACO model[4] where communities receive support for agricultural investments but are financially compensated for simultaneously protecting wildlife resources

Other related projects, such as the United States Agency for International Development (USAID) funded Community Forests Program that established the largest REDD+ program in the country (see https://www.biocarbonpartners.com/our-work/community-forests-programme/), target deforestation and better land use practices. The Community Forests Program operates through six primary objectives:

1. Empowering communities to work with governmental and non-governmental entities to lessen the drivers of deforestation;
2. Establishing and improving joint forest and natural resource participatory forest management plans among communities, traditional leaders, the Zambia Forestry Department, and the Department of National Parks and Wildlife;
3. Promoting and enabling innovative sustainable livelihoods for forest-dependent communities;
4. Implementing pay-for-performance and/or revenue-sharing programs based on measuring, reporting, and verification methodologies for forest conservation and carbon sequestration;
5. Providing households with the knowledge, tools, and technologies needed to shift their livelihoods to a more sustainable and profitable low-emissions pathway; and
6. Generating awareness, promoting action, and continuously engaging to dispel misconceptions among local stakeholders and national policymakers on the potential of REDD+ in Zambia.

Two projects that benefit from this initiative are the Luangwa Community Forests Project geared to benefit more than 17,000 families in Eastern and Lusaka provinces to better manage and conserve 1 million hectares by expanding REDD+ activities; The Lower Zambezi REDD+ Project which is Zambia's first Verified Carbon Standard verified REDD+ project that forms part of the trans-frontier conservation area with Zimbabwe and is important for elephant, lion and other wildlife populations.

[4] The COMACO Model helps small-scale farmers become good stewards of their land and better neighbours to national protected areas by using market incentives and effective training methods to encourage the adoption of skills that protect soils and reduce threats to forests and wildlife habitat. Through its growing capacity to leverage change in farming and land use practices, COMACO has reduced some of the key drivers of forest degradation, deforestation, wildlife poaching, and soil degradation.

Both these programmes are being carried out in close partnership with the Forestry Department and the DNPW.

Similar projects operate in the Kafue ecosystem such as the Global Environmental Facility (GEF) funded "Strengthening Management Effectiveness and Generating Multiple Environmental Benefits within and around the Greater Kafue National Park in Zambia" (https://www.thegef.org/project/strengthening-management-effectiveness-and-generating-multiple-environmental-benefits-within). Parts of this programme are being implemented by The Nature Conservancy (TNC) in partnership with the DNPW, Forestry, Fisheries, communities and the private sector to protect wildlife and support sustainable growth in Zambia (see https://www.nature.org/en-us/about-us/where-we-work/africa/zambia/.).

7.1.1 General Management Plans

The majority of the GMAs in which lion hunting occurs have a General Management Plan (GMP) in place. Only West Petauke Game Management Area (GMA) in the Luangwa ecosystem, and Rufunsa GMA in Lower Zambezi do not have General Management Plans (GMPs) at present. Musalangu, Lupande, Munyamadzi, Sandwe and Mulobezi GMAs have GMPs either as drafts or undergoing the ratification process. A General Management Plan (GMP) outlines the basic management and development guidelines for a GMA or Open Area after the systematic assessment of land and water potential, alternatives for land use, economic and social conditions in order to provide the best land use options for addressing land use conflicts / problems and achieving identified land use management objectives over a 10-year period. It is prepared through a highly consultative, interactive and participatory Strategic Planning Process (SPP) involving all key stakeholders. The GMP emphasises the commitment of all concerned, affected and interested stakeholders to balance between the preservation and utilization of the protected area's biodiversity in order to ensure the long-term survival of the natural resources including wildlife resources in a way that benefits the local communities. As such the final document is ratified by a Community Resources Boards, their patrons (who are usually the chiefs in these areas) and the DNPW. Table 20 below gives the status of GMPs for critical areas in the lion range ecosystems.

Table 20: Status of General Management Plans in Zambia's lion hunting Areas

s/n	GMA	Ecosystem	Status	Date Ratified
1	Musalangu GMA	Luangwa	In preparation	-
2	Lupande GMA	Luangwa	In preparation	-
3	Lumimba GMA	Luangwa	Ratified	2016
4	Munyamadzi GMA	Luangwa	In preparation	-
5	West Petauke GMA	Luangwa	No GMP	-
6	Sandwe GMA	Luangwa	In preparation	-
7	Kasonso Busanga	Kafue	Ratified	2014
8	Mulobezi GMA	Kafue	In preparation	-
9	Nkala GMA	Kafue	Ratified	2014
10	Mumbwa GMA	Kafue	Ratified	2014
11	Sichifulo GMA	Kafue	Ratified	2014
12	Lunga Luswishi GMA	Kafue	Ratified	2018
13	Mufunta GMA	Kafue	Ratified	2014
14	Rufunsa GMA	Lower Zambezi	No GMP	-

Source: Planning Unit DNPW

7.1.3 Open Game Ranches and Trans-frontiers Conservation Areas

As detailed in section 5.2.2 Open Game Ranches are privately owned lands bordering GMAs or National Parks that stock wildlife. These areas, regulated in the Wildlife Act 2015, further buffer the National Parks and GMAs from encroachment and ensure movement corridors are protected. These

are new models of wildlife conservation in the country that the Zambian government is supporting to ensure sustainable use of wildlife resources and protection of habitats.

In the most recent conservation developments, establishment of the Kavango-Zambezi Transboundary Park (KAZA) by Peace Parks seeks to protect a contiguous habitat of over 280,000km^2 that includes the whole of Kafue NP ecosystem and the Sioma Ngwezi National Park region as part of an international effort to maintain connectivity of viable habitats for all species, including lions. Other proposed Trans – frontier Parks include the Liuwa - Mussuma between Zambia and Angola and the Mana Pools - Lower Zambezi between Zambia and Zimbabwe.

In general, due to the increase in donor funding and increased number of economic opportunities availed through tourists' lodges, protected areas in general attract a lot of immigrants on their boundary areas (Wittemyer et al., 2008). Zambia has not been spared from the phenomenon, Mfuwe the gateway town to the South Luangwa National Park has seen increased population growth and increased infrastructure development unlike other areas in the ecosystem devoid of photographic tourist's lodge (Twakundine Simpamba Senior Ecologist SLNP pers. comm.). This has caused habitat loss. Because hunting concessions usually have one operator over a large area and are located in areas that are not easily accessible, Safari hunting helps in buffering protected areas from the effects of immigration, while at the same time providing economic support to rural communities and maintaining habitat. In general, the Safari hunting sector is extremely supportive of initiatives aimed at maintaining wild areas. Their presence acts as a deterrent to would be squatters. They also act as monitors and able to immediately inform the CRBs or the Department of illegal settlements in GMAs.

7.2 Human Lion Conflict

Human-Lion conflicts (HLC) are not uncommon in Zambia. Fortunately, retaliatory killings by livestock owners are not as common as in East Africa. Therefore, direct lion poaching is not believed to be significant. ZAWA (now DNPW) developed an adaptive system that includes a procedure whereby reported cases of lion damages are investigated by field officers and complete reports are reviewed by the most senior officer for immediate feedback. Interventions include; scaring lions through blasting, or killing the animals suspected to be responsible for the attack on livestock and humans. This approach is considered incompatible with sustainable conservation of wildlife, and may contribute to the decline in the lion populations. DNPW is committed to implement the best practices on HLC including for example the HLC toolkit developed by the Niassa Carnivore Project. This will be done through the development of a specific policy on Human Wildlife Conflict that the department, pending the availability of funding, would like to devise as soon as possible.

In the period 2008 to 2016 at least 10 people have been reported as having died as a result of being attacked by lions and a further 16 having been injured as a result of a lion attack.

In 2018, 236 cases of lion damage to livestock or threat to human lives were reported to DNPW compared to 36 cases in 2017-

Seventy-two lions have been killed as a result of human lion conflict since 2002. Development of a specific policy to address Human Wildlife Conflict, as described above, is anticipated to greatly reduce the number of lions killed as problems through increased use of non-lethal strategies to deal with conflicts. As table 21 shows the number of lions killed on control spiked in the period 2013 to 2015.

Table 21: Control of Problem Lions in Zambia 2002-2018

Year	lions controlled
2002	2
2003	4
2004	1
2005	0
2007	5
2008	8
2009	2
2010	5
2011	3
2012	8
2013	5
2014	10
2015	14
2016	1
2017	1
2018	3

This could be a result of the hunting moratorium where lions cannot be hunted by tourist hunters thus leading to increased conflicts. Movement of lions out of the National Parks and GMAs into regions where they become "problems" is likely to be exacerbated by high lion densities that occur in the absence of sport hunting. Rather than just controlling them for the sake of reducing conflict, it would be beneficial if these lions were hunted through safari hunting because of the increase in tolerance by rural communities toward lions generated by the revenues from sport hunting which are also used to protect lion habitat and to implement other mitigation measures.

The Lower Zambezi and Luangwa ecosystems accounted for 70 % of the lions killed on control. The levels of lethal control in the Lower Zambezi is particularly high with Rufunsa GMA accounting for 42 % of the animals killed in this ecosystem. The high levels of conflict in the Rufunsa GMA could be as a result of high human settlements along the river, thus there is competition for resources between wildlife and people. Considering the lower density of lions recorded from studies in the Lower Zambezi, lion hunting in this GMA is strategically meant to increase tolerance of lions and then contributing to solve problem animal conflict and bring communities on side by providing revenue that contributes to their livelihood strategies.

7.3 Bush meat poaching and prey depletion

Poverty and the necessity for rural people to obtain some income are the main drivers of bush meat poaching in Zambia. Bushmeat poaching with wire snares continues to pose one of the greatest threats to large carnivores in Zambia, both in its impacts on prey populations, and in snaring bycatch of wild dogs, big cats and hyenas. DNPW-ZCP research indicates that prey depletion is not likely to be uniform, but rather impacts the larger species first, resulting in a progressive decrease in snare sizes to target increasingly smaller herbivore species. While larger snares for buffalo and other species are unlikely to pose as much of a threat for large carnivores, smaller snares are much more likely to catch, maim, and kill.

In the Luangwa DNPW continued to work with ZCP and Conservation South Luangwa (CSL) to mitigate snaring by-catch through intensive monitoring of collared wild dog and lion groups through ground, aerial and satellite/ GPS tracking, coupled with data-directed anti-snaring patrols, field-based veterinarians. In 2018, five wild dogs, three lions, and 1 hyena were snared, with four wild dogs, 2 lions and 1 hyena successfully darted and rescued by DNPW and ZCP/CSL Wildlife Veterinarians. The

data collected by field teams was also provided daily to anti-snaring teams which targeted areas of high risk and high use by large carnivores, and this support assisted in the removal of 478 snares.

Similarly, in the Kafue ecosystem, DNPW working with ZCP and Panthera through their newly-formed anti-poaching units, as well as with hunting operators' anti-poaching units confirmed no reports of snared carnivores in 2018, with one lion treated for an old snare injury.

As illustrated in section 7.3.1 below, results of the recent aerial surveys have shown an overall stable to increasing population of key prey species in the Kafue and Luangwa ecosystems.

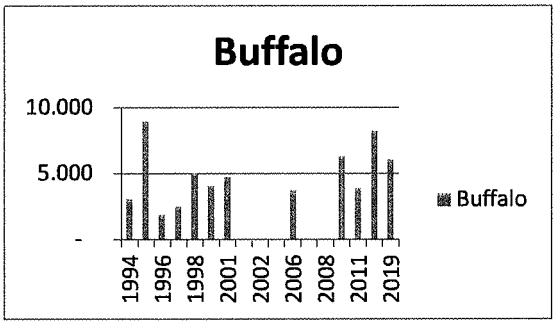
7.3.1 Prey Availability and abundance

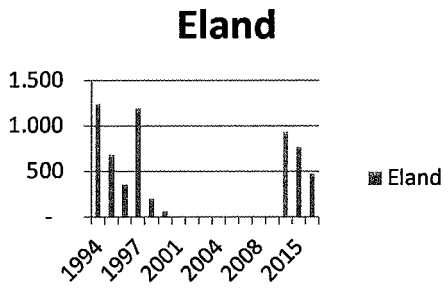
Abundance of prey species is highly correlated with lion density (Hayward, 2007; Périquet et al, 2014). Protected areas with healthy prey population support healthy populations of lions. Therefore, prey abundance is a good indicator of the status of lion populations.

The 2015 aerial survey (DPNW 2016a) of large mammals in Zambia indicated that for the majority of key wildlife species in the Kafue ecosystem, their numbers have been increasing over the period 2006 to 2015.

In 2019 an aerial survey was carried out through funding from GEF5 hosted by UNDP in the Kafue ecosystem. The objective of the survey was to continue monitoring the population status of large terrestrial herbivores in the Kafue ecosystem. The survey report is still being drafted but preliminary data are shown in figure 13.

For the Luangwa and Lower Zambezi ecosystems the data are still the ones of 2015 (DPNW 2016a) and are shown in figures 13 and 14 below. Trends for the Luangwa system have been stable to increasing. The only exception being the Lower Zambezi ecosystem where there has been a significant decrease in one of the main lion preys, the buffalo. The causes of this decline are being investigated.





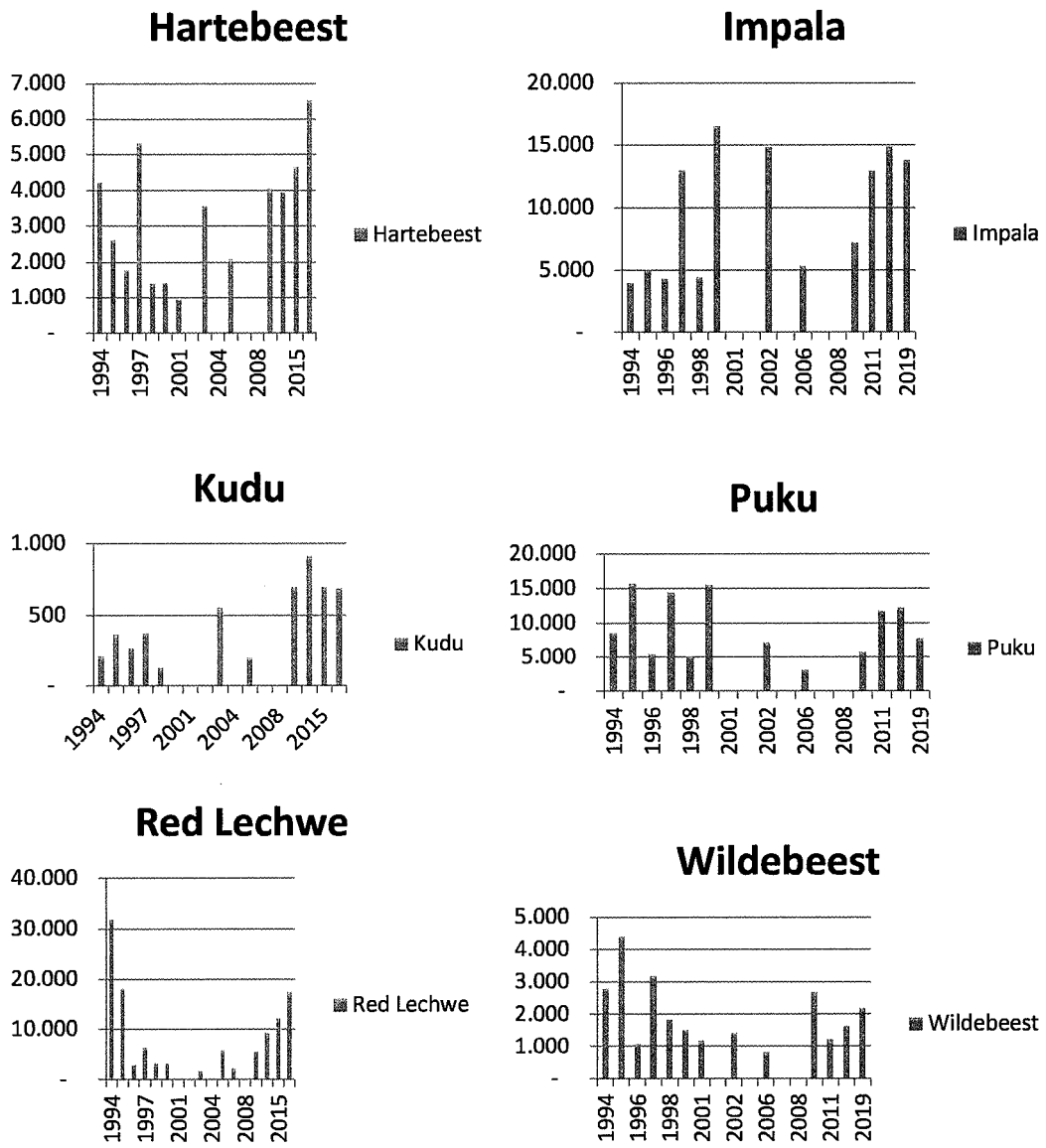


Figure 13: Population trends for selected species in the Kafue National Park 1994-2019 (Source DNPW 2019, in review)

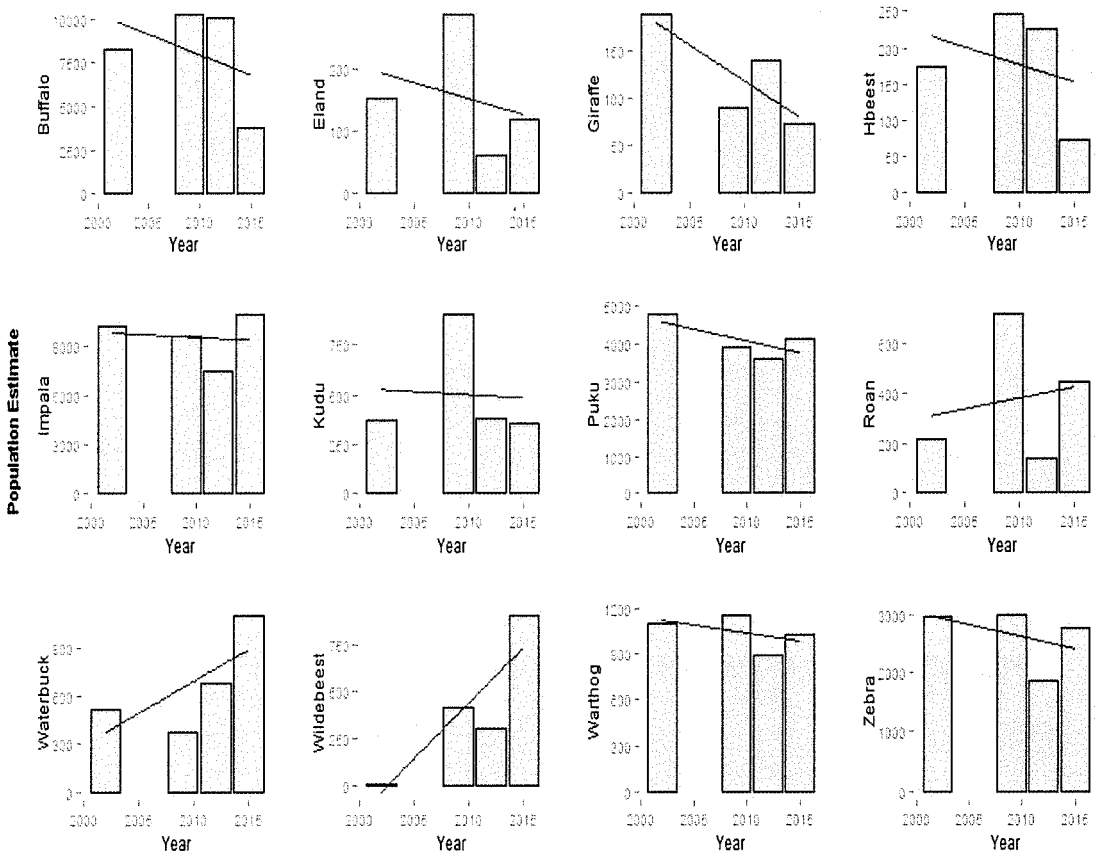


Figure 14:Ungulate population trends in South Luangwa National Park

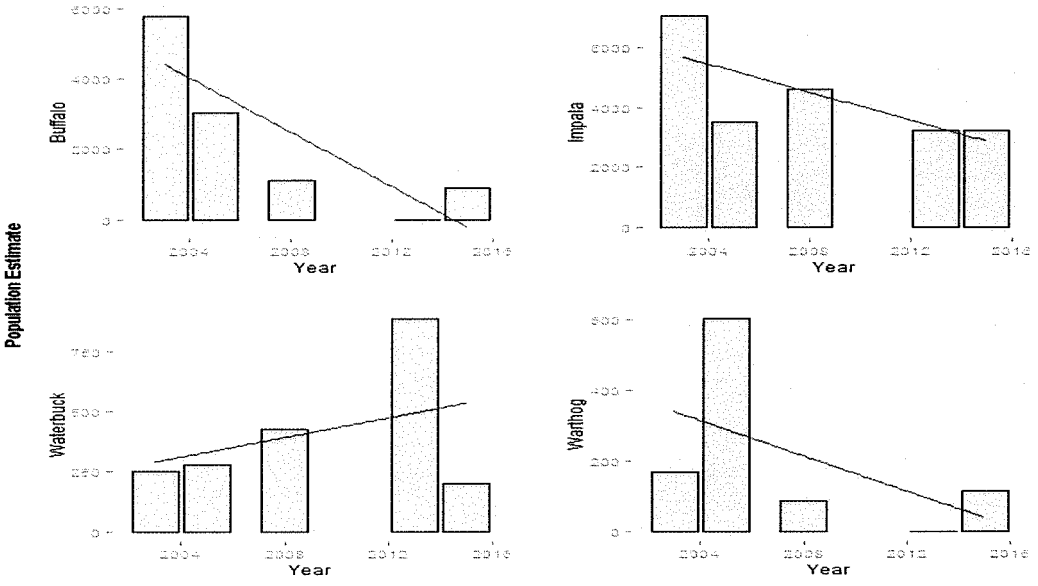


Figure 15: Population trends for buffalo, impala, waterbuck and warthog in the Lower Zambezi National Park

Figure 16 below is a comparison of ungulate abundance in the Luangwa ecosystem between GMAs and the 4 National Parks (South Luangwa, North Luangwa, Lukusuzi and Luambe National Parks). Buffalo and wildebeest were more abundant in the GMAs than in the National Parks. These findings underscore the importance of GMAs as habitat for populations of some species, in particular, buffalo and wildebeest and the need to maintain the habitats intact.

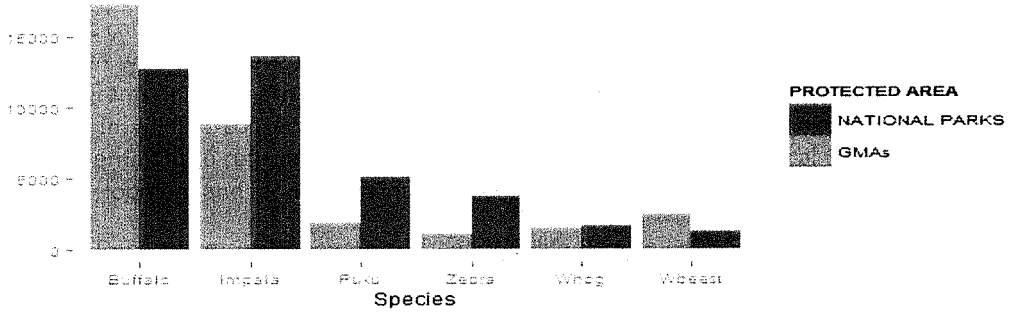


Figure 16 Species abundance in the Luangwa ecosystem National Parks vs GMAs

Importantly, ground surveys are highly recommended as an inexpensive yet reliable methodology to ascertain wildlife status, abundance and densities in wildlife estates in Africa.

Schuette et al. (2018) documented the importance of ground-based surveys for long-term wildlife population monitoring. Ground- based ungulate counts should also be expanded into adjacent game management areas in a standardized and compulsory way to inform management actions-.

8.0 Community Based Natural Resources Management (CBNRM)

8.1 CBNRM in Zambia

The origin of CBNRM in Zambia owes much to a program that came to be known as the Administrative Management Design Program for Game Management Areas (ADMADE), which commenced in 1987. Funded by the United States Aid for International Development (USAID), ADMADE established the principle that communities had the right to participate in wildlife management and that it was the most effective way to achieve conservation. The program could be considered as one of the first CBNRM programs in Southern Africa. The theory behind the program, was to encourage rural participation in wildlife conservation. Rather than all taxes on safari hunting going to the state treasury, government to returned a portion of some revenue streams to a local GMA committee for its use in development and for investments in wildlife management.

In 1999, the Department of National Parks and Wildlife Service (NPWS) was transformed into the Zambia Wildlife Authority (ZAWA) - a statutory body established by the Zambia Wildlife Act number 12 of 1998. The Act gave birth to Community Resources Boards (CRBs), based on the ADMADE model and they were legally mandated to co- manage wildlife resources in Zambia.

Following the 1998 Zambia Wildlife Policy, local communities residing in chiefdoms and geographic areas which are contiguous to any wildlife estate or any open area are encouraged and assisted to apply and register as Community Resources Boards (CRBs) with the DNPW. Management of all CRBs established for the purpose of enhancing management and sustainable use of wildlife resources

outside National Parks is done through a democratically elected representation of the local community themselves, but day to day operations of any CRB should be through a secretariat. The elections are done according to Village Action Groups and it is from those elected in these Action Groups that form members of the CRB. The chief of the area is regarded as the patron of such CRBs. DNPW cooperates with all registered CRB's and provides the technical input that assists them to develop management strategies. It is the responsibility of DNPW to work with CRBs and other stakeholders in the preparation of general management plans using a participatory planning process and format developed by the Department and adopted to meet local condition requirements.

All meetings of the CRBs are conducted in a democratic way, decision reached through consensus, and minutes of all their transactions and deliberations recorded. DNPW, District Council and non- governmental organisations (if present in the area) are called to the meeting to provide the appropriate technical input that will assist CRBs make informed decisions about the rational and sustainable utilization of natural resources in their area.

8.2 Community Benefits

The Zambia wildlife Act No. 12 of 1998 introduced rights to benefit from natural resources. The Zambia Wildlife Act No. 14 of 2015 allows greater participation of local communities, thus establishing their rights to use and manage natural resources in GMAs and Open Areas. This includes provisions for participation in developing management plans. In particular, as provided for by the 2015 Wildlife Act, a local community in a chiefdom in a Game Management Area, or in an open area or a particular chiefdom with common interests in the wildlife and natural resources in that area, may apply to DNPW for registration as a Community Resources Board (CRB). According to the Zambia Wildlife Act No. 14 of 2015 the CRB have the following functions:

i. negotiate, in conjunction with the Department, co-management agreements with hunting outfitters and photographic tour operators;
ii. manage the wildlife under its jurisdiction within quotas specified by the Department;
iii. appoint community scouts to exercise and perform the duties of a wildlife police officer under the supervision of a wildlife police officer in the area falling under the board's jurisdiction;
iv. in consultation with the Director, develop and implement management plans which reconcile the various uses of land in areas falling under the board's jurisdiction; and
v. Perform such other functions as the Minister or Director may direct or delegate to it.

From the revenues generated, members of local communities have been employed by CRBs as Community Scouts, funded also through obligations under the Concession Agreement (see section 5.4.1.), to assist DNPW with law enforcement and monitoring of wildlife resources. These scouts also help in assess crop damage and problem animal controls in their communities, where they also conduct environmental awareness among the local populace.

There are currently seventy-six (75) registered CRBs which employ approximately 750 Community Scouts operating in various GMAs in Zambia with a total monthly wage bill of ZMW 359,779.50 (USD 38,853.13). An additional 79 support staff (these include Book Keepers and Administrative officers) are employed by CRBs across Zambia. In some GMAs revenues from hunting are used to pay teachers and medical staff as in the case for Nabwalya CRB while others offer student scholarships which range from secondary school to tertiary education.

The revenues the local communities obtain allows them access to social amenities and various rural development projects. The projects span construction of bole- holes, schools, clinics, and feeder roads, as well as crop damage counter-measures including solar and chili pepper fences. More

residents benefit indirectly from participating in wildlife management and accessing the resource, depending on the ability of the wildlife sector to generate funds. It has to be noted that local communities have limited benefits from non-consumptive tourism.

Animal fees are shared:

i. 5% of the funds go to the CRB patron (traditional leader or Chief);
ii. 45% of the funds go to the CRB in the form of community funds; and
iii. 50% of the funds go to ZAWA in the form of conservation funds.

Concession fees are shared:

i. 5% of the funds go to the CRB patron (traditional leader or Chief);
ii. 15% of the funds go to the CRB in the form of community funds; and
iii. 80% of the funds go to ZAWA in the form of conservation funds.

According to the "Guideline on the use of Community funds accrued from wildlife management" the communities are expected to be utilised as follows:

i. 45% of the funds go to wildlife management, including resource protection and patrols:
ii. 35% of the funds go to community projects such as construction of clinics, roads, schools, and wells; and
iii. 20% of the funds go to administration of the CRBs.

GMAs were created in 1971 under the 1968 Act as a planning framework to promote integrated community and biodiversity development on customary land. They are not a distinct category of protected state land but are buffer areas to national parks that are established in consultation with local communities for the sustainable utilisation of wildlife. Although all land is vested in the President, the Land Act (Chapter 184 of 1995) provides for the recognition of customary tenure, and as such customary land cannot be alienated unless it is with the Chief's consent and then only after consulting affected bodies or persons. In the case of GMAs the consent of the DNPW is also required.

The 2015 Wildlife Act allows for the co-management of the GMAs between the DNPW and a Community Resource Board (CRB) and devolves responsibility for wildlife management to the CRB. All forms of land use in GMAs are subject to provisions of management plans developed by CRBs (Zambia Wildlife Act, 2015, Part V, Section 32(2) and Section 33 (2d)) and it is through this that ADMADE, the Community Based Natural Resource Management (CBNRM) programme, evolved.

In terms of SI 89 of 2004, 50% of game licenses fees and 20% of concession fees are allocated to the CRBs for community development out of which 5% goes directly to the chiefs. Currently these funds are deposited by the DNPW with the central treasury who then disburse these funds to the CRBs in quarterly tranches. The CRB are encouraged to spend these funds in the following ratios: law enforcement – 45%; community projects – 35%; administration – 20% but in general, the CRBs enjoy wide latitude in deciding how the funds are used.

In 2019 an impasse manifested between the Government of the Republic of Zambia through the Department of National Parks and Wildlife and the Community Resource Boards (CRB) through their representatives in the National CRB Forum regarding the non-payment of community shares from hunting revenue.

In fact, Ministry of Treasury, due to budget issues, has not yet disbursed in full the revenues due to CRBs.

In order to resolve this situation a Roadmap has been drafted by DNPW to include not only the urgent payments of delayed revenues to CRB but a complete and comprehensive reform of CBRNM in the country with new Regulations on revenue sharing and a new policy of CBRNM in order to bring Zambia to an upper level in terms of Community based conservation.

8.3 Governance of CRBs

The CRBs are based on the following institutional structure: a cluster of villages (500 – 1000 people) establish a Village Action Group (VAG) composed of five to ten elected representatives. Each VAG elects its representative to sit on the CRB that serves for a fixed term of three years. The CRB is comprised of:

(a) not more than ten but not less than seven representatives;
(b) one representative of the Council in the area;
(c) a representative of a Chief in whose area a board is established to represent that Chief;
(d) a person seconded by the Minister in accordance with the Act.

The Chief in whose area the board is established is the patron of that board and the board members elect a chairperson[5]. The board may invite non-voting individuals to sit on the board, and a DNPW officer is assigned to the CRB as its unit leader. CRB's are managed by an executive board elected by the local residents through the VAGs. The local chief is the Patron of the CRB. The board has a Chairperson, Vice Chairperson, Community Development Chairperson, Vice Community Development Chairperson, Finance Management Chairperson, Vice Finance Management Chairperson, Natural Resources Management Chairperson, Vice Natural Resources Management Chairperson and two committee members. A secretariat is responsible for the day-to-day administration of the board's activities. The Board has powers to invite anyone to participate in its meetings. Each executive member represents a VAG which also has a structure of not less than 7 members from neighbouring villages and households.

Decision-making follows a 'bottom up approach'. The board calls for general meetings in VAGs to get the input of the community of each decision before it is approved by the board and the Patron depending on relevancy and priority. A needs assessment is undertaken for all community projects at the VAG level before any implementation is approved (Zambia National CRB Association, Lusaka Zambia). There is a wealth of literature describing the functioning of this system highlighting the strengths and weaknesses and its impact on household benefits.

8.4 Contribution of hunting revenues to CRBs

Altogether there are 76 active and inactive registered CRBs (see Annex 2). These are located as follows:

- Central Region - 7
- Eastern Region - 15
- Northern Region - 21
- Western Region - 34

Table 23 provides a summary of the income disbursed to CRBs registered with the Zambia National CRB Association in the four regions of Zambia (approximately USD1 million/year). Each CRB on average

[5] There are instances where a single CRB may be formed to cover more than one chiefdom.

is receiving approximately US$14,000/year and together these CRBs employ957 community scouts to patrol the ~149,00km^2, which is equivalent to 156km^2/scout representing an investment of approximately $3.00/km^2 in wildlife protection.

A condition of the Hunting Concession Agreements (HCA) is that the outfitter pledges support to the CRBs for community development. Therefore, in addition to the revenue paid by the DNPW from game licenses and concession fees, the individual outfitters also pledge amounts varying from US$77,800 to US$17,600 per year. The bulk of these funds are channeled towards community projects (53%) followed by law enforcement (22%). Although relatively little funding (8%) is invested in resource monitoring, technical and financial support to undertake research is provided by local and international NGOs (e.g. ZCP, FZS, CLZ, CSL) thus releasing funds for community projects.

Table 22: Total disbursement of Game License (50%) and Concession fee (20%) to CRBs. (Data source: Zambia National CRB Association, Lusaka)

Number of Community Scouts	Km^2 per Scout	Number of National Parks	Number of GMAs	GMA Area (km^2)	Active CRBs	Inactive CRBs	Income (ZMK)			
							2016	2017	2018	2019 (partial)
318	298	7	17	94,718	27	4	3,391,105	2,668,619	2,900,000	1,120,000
73	198	2	3	14,453	6	2	-	212,942	179,794	110,000
337	74	7	11	24,887	17	4	3,528,664	3,345,699	4,850,250	3,300,000
206	73	4	5	15,010	12	4	3,597,423	2,894,259	3,200.000	2,470,000
TOTAL 957	**156**	**20**	**36**	**149,068**	**62**	**14**	**11,502,192**	**10,521,519**	**11,130,044**	**7,000,000**
						USD	***1,117,803***	***1,106,364***	***1,011,823***	***477,815.70***

Ave Exchange rate USD/ZMK: ZMK10.29 in 2016, ZMK9.51 in 2017 while ZMK11.00 in 2018 and 14.65 in 2019 (http://www.boz.zm/average-exchange-rates.htm)

8.4.1 Community Livelihoods and Development through CRB projects

Most communities in the regions depend on subsistence farming growing crops such as maize, groundnuts, cassava, beans, rice and pumpkins. Cash crops include cotton, soya beans and tobacco while communities residing along the major rivers and streams use income generated from fishing for home use and trade. The communities in the Eastern region also engage in livestock rearing and many households keep pigs, goats and chickens. In all regions the production and commercial sale of charcoal is an important economic activity.

Funds accessed by the CRBs from animal/concession fees and tourism levies are allocated to implement a variety of community projects such as installation of water wells, building teachers houses, clinics and support to orphans and scholarships. The selection of community projects is done at the VAG level where project proposals are submitted and assessed to determine the most viable and beneficial projects. Some CRBs allocate funds to support income generating projects e.g. growing vegetables for re-sale, poultry and goat-breeding projects. In 2016, several CRBs in understocked or depleted GMAs did not receive enough funds to allow implementation of multiple community development projects. In these circumstances, the CRBs partner with NGOs who support community programmes including payment for community scouts. A sample of the type of community projects that are supported is provided in Table 23.

Table 23: List of community projects implemented by CRBs in the four regions using funds from hunting blocks. (Source: Zambia CRB Association, Lusaka)

Central Region	Northern Region	Western Region	Eastern Region
• VIP Toilets at Kabwadu, Chiawa, VAGs • Market shelter in Muguramano VAG • Banana Boat in Chisakila VAG • Goat pass-on project	• Grinding mill and spares • 1x3 classroom block • Goat rearing project for ladies • New staff house roofing materials • Two poultry projects • 1x2 classroom block at Musipazi • 10 x staff house's • Radio room construction • Completed a mother's shelter at Nabwalya clinic • Drilled 7 boreholes • Chaya clinic construction	• Teachers house construction, Chonzo and Moomba VAGs • Classroom block-Mabwe VAG • Classroom block-Kalole VAG • Rehabilitation of CRB office and stores Room • 1x3 classroom block Babizhi, Lubanda primary school, Baanga primary school • Mothers Shelter • 3 x staff teachers house's • VIP Toilets • Construction of classroom block at Zingwamba primary school • Market shelter • Construction of health post/clinic	• 6 x staff Houses • 3 x CRB Offices • 3 x Teachers House Mkasanga school, Mwanya school, Yakobe school • 3 x Community scouts houses at Chikwinda wildlife camp • 5 x water boreholes • Furniture at Mkasanga Clinic • Student sponsorship • 2 x purchase of banana Boat • 3 x installation of Solar fences • 2 x VIP toilets at Malama Clinic • Purchase of 90,000 Bricks • Rehabilitation of Machesa wildlife Camp • Construction 4 x mothers' shelters • Procurement of 3 Maize shelters • Construction of Guest House • Rehabilitation of CRB office • Gardening • Electrification of office and hammer mill • Rehabilitation of 1 x 3 classroom block • Construction 2 x VIP toilets at Nsefu clinic • Construction sanitation system at Kawaza school

9.0 Revenues and Expenditures from Trophy Hunting

The fee revenues discussed in this section relate to revenues of DNPW, part of which are shared with communities. But a foreign client contributes far more to Zambia's economy than permit and

concession fees. A foreign client pays to the operator a daily fee, and hunting a lion are often sold as a package together with other species such as buffalo, hippo, and impala. Therefore, the foreign client pays for more than just lion and for a significant period of time.

In addition to the daily fees, clients will often pay observers fees and taxes not imposed by DNPW, such as firearms taxes to the Treasury.

Safari hunting also generates "multiplier" impact due to the client's travel, tipping, eating in restaurants, purchase of souvenirs, and taxidermy requirements. The multiplier spending also generates tax revenue for the country's general Treasury. In short, the revenues generated by tourist safari hunting are many times greater than the fees directed to DNPW which are summarized here.

9.1 Animal and hunting fees

Hunting license fees in Zambia are statutory, the current hunting animal fee for a lion is US $4,200.00 to the outfitter. In addition to animal fees the hunting outfitter pays concession fees and outfitters fees annually. The department charges GMA Area fees per hunt and annual Professional Hunter fees. Other minor fees include certificate of valuation of trophies, certificate of ownership of trophies, permit to export, handling fees, and the CITES security stamp.

A foreign client pays a fee above this depending on what the outfitter charges. The department does not deal with the foreign client directly. It should be noted that hunting a lion is sold as a package together with other species such as buffalo, hippo, and impala among others. Therefore, the foreign client pays for more than just lion.

9.2 DNPW income and expenditure

The DNPW generates income from consumptive and non-consumptive activities as well as from the sale of several different permits and licenses. Up until 2015 ZAWA received an annual grant from central government to meet some of its administrative and operational costs. This grant was discontinued after the formation of the DNPW and instead the central government met the costs of employment but not administrative and operational costs which are covered by income generated from consumptive and non-consumptive activities.

No hunting occurred in 19 of the 33 hunting blocks in 2013 and 2014 that led to reduced revenues from Animal Fees and Hunting Concession Agreement fees (Figure 17). A breakdown of the ZAWA/DNPW income revenues from 2010 to 2018 is provided in Table 24. On average hunting revenues accounted for approximately 28% of all the revenues that ZAWA received in the three years (2010 - 2012) before the moratorium that reduced to an average of 3% during the moratorium (2013 – 2015). The revenues from consumptive tourism has since returned to approximately 35% of the overall income following the resumption of lion and leopard hunting.

The contribution of non-consumptive tourism averaged 39% per annum between 2010 – 2015 but increased to approximately 66% per annum in 2016 - 2018 (Table 24). The revenue income deficit during the moratorium was partially offset by increased grant allocations to ZAWA which saw income almost triple from ZMW 64 million (=US$15 million) in 2010 to ZMW 190 million (=US$20 million) by the end of 2015. However, the grants were discontinued with the establishment of the DNPW in 2015 resulting in the overall income to the DNPW dropping to approximately US$10 million despite the re-introduction of hunting and an increase in revenues from non-consumptive tourism (Table 25).

A summary of expenses for the period 2010 to 2018 is provided in Table 25. Revenues generated from consumptive and non-consumptive utilization are allocated to general wildlife management and conservation activities. Revenues from consumptive utilization (but not non-consumptive utilization)

are also shared with CRBs. Over the period 2010 to 2018, salaries[6] on average accounted for 73% of all expenses while operational (11%) and administration (8%) costs accounted for the balance. Income over expenditure in 2018 suggests that the DNPW is operating at a deficit of approximately US$2 million. This underlines the importance of regulated hunting to the conservation of the extensive GMA system and thus conservation of habitats for the major carnivore and ungulate species.

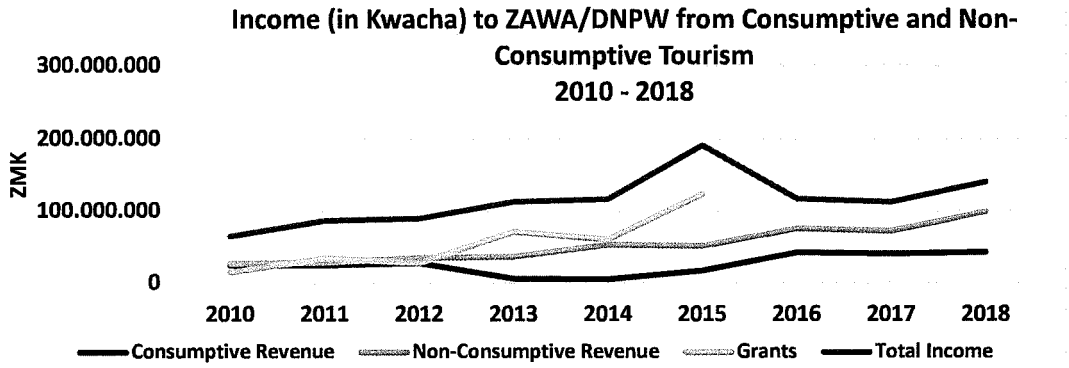


Figure 17: Comparison of income from Consumptive and Non-Consumptive Revenues and the impact of the hunting ban in 2013 – 2014

9.2.1 Value of Hunting Concession Agreements

The DNPW raises an annual concession fee for each hunting block secured under tender. The values paid per hunting block – some are higher than others – are made public in the national government gazette. The annual concession fees increase at approximately 3.3%/annum raising $1,188,416 in 2019. The 14 Prime blocks contribute 73% of this amount at an average of $61,776/block while the Secondary blocks average $35,951. Prior to the commencement of the hunting season, outfitters are required to pay to the DNPW for an outfitter's license (US$2,500 for secondary areas and US$3,000 for prime areas), one third of 60% of trophy quota value in advance, and lodge a once off US$50,000 performance bond guarantee and public liability insurance. They are also required to pay the cash pledges as declared in their tender documents to local CRBs for law enforcement, fire management, infrastructure and resource monitoring.

[6] Central Government cover the costs of DNPW salaries but do not meet administrative and operational costs. The DNPW is required to cover these expenses from funds raised through consumptive and non-consumptive tourism.

Table 24: Total ZAWA/DNPW Revenues (ZMW) 2010 – 2018 (Source: DNPW Accounts Unit)

Description	2010	2011	2012	2013	2014	2015	2016	2017	2018
Consumptive	19,999,001	21,318,331	24,742,842	2,654,472	3,785,328	12,711,064	37,436,461	40,456,087	53,545,600
Non-Consumptive	29,860,488	31,346,109	36,973,932	39,013,739	52,812,299	54,543,604	79,191,104	71,356,480	86,930,832
Grants	14,254,780	33,717,778	27,247,240	70,688,875	59,506,322	122,866,591	0	0	0
Other Income[1]	254,572	65,625	252,594	64,314	110,403	442,312	N/A	N/A	N/A
Total Income (ZMW)	**64,368,841**	**86,447,843**	**89,216,608**	**112,421,400**	**116,214,352**	**190,563,571**	**116,627,565**	**111,812,567**	**140,476,432**
Total Income (US$)	***$15,223,596***	***$17,810,653***	***$17,387,070***	***$20,896,153***	***$14,250,843***	***$19,799,959***	***$10,236,590***	***$10,408,477***	***$11,921,148***
Non-Consumptive	46%	36%	41%	35%	45%	29%	68%	64%	62%
Consumptive	31%	25%	28%	2%	3%	7%	32%	36%	38%
Total % Contribution	**77%**	**61%**	**69%**	**37%**	**49%**	**35%**	**100%**	**100%**	**100%**

Note: *The figures for consumptive income are actual but non-consumptive amounts are based on the percentage trend calculated from the total income.*

[1]*Other Income: Cites tags/stamps, Import/Export permits, Certificate of Ownership, Sale of Trophies, Permit - animals in Captivity, Crocodile Eggs /Live Capture, Crocodile Eggs / Live Capture, Trophy Dealers' License*

Table 25: ZAWA/DNPW Expenditures (ZMW) 2010 - 2017 (Source: DNPW Accounts Unit)

Description	2010	2011	2012	2013	2014	2015	2016	2017	2018
Operational Expenses	7,729,077	10,012,021	9,789,236	8,336,135	11,284,084	10,664,712	18,202,514	21,744,667	22,966,629
Salary Related Expenses	52,087,642	56,396,245	79,251,728	59,809,879	66,526,576	119,473,738	87,900,775	105,337,112	109,518,679
Administrative Expenses	6,324,166	6,603,338	10,511,912	9,130,591	7,935,295	16,660,015	8,835,450	9,203, 594	14,489,958
Staff Training, Workshops and Transfers	1,206,917	1,660,735	2,229,534	755,587	1,343,203	3,667,097	421,392	438,950	
Animal Surveys and Control	93,358	472,550	12,166	1,135,281	9,505	49,494	513,140	534,521	1,584,939
Repair and Maintenances	2,518,924	2,728,577	2,740,956	2,277,535	3,389,423	4,189,049	1,506,962	1,569,753	
Consultancy and Legal Fess	2,430,375	3,594,930	1,099,026	830,955	1,825,94	900,438	1,448,174	1,508,515	
Other Expenses	571,983	1,393,469	592,732	728,672	894,165	941,403			15,757,730
Total Expenditure (ZMW)	**72,962,447**	**82,861,869**	**106,227,293**	**83,004,639**	**93,208,201**	**156,545,949**	**118,828,409**	**140,337,112**	**164,317,935**
Total Expenditure (US$)	***$17,256,032***	***$17,071,843***	***$20,702,215***	***$15,428,359***	***$11,429,702***	***$16,265,456***	***$10,429,761***	***$13,063,788***	***$13,942,210***
Salary Related Expenses	71%	68%	75%	72%	71%	76%	74%	75%	
Operational expenses	11%	12%	9%	10%	12%	7%	15%	15%	67%
Administrative Expenses	9%	8%	10%	11%	9%	11%	7%	1%	14%
Other Expenses[1]	9%	12%	6%	7%	8%	6%	3%	9%	9%

[1]*Other expenses include: Staff Training, Workshops and Transfers, Animal Surveys and Control, Repair and Maintenances, Consultancy and Legal Fees, Other Expenses*

10.0 Evaluation against the U.S. Endangered Species Act (50 CFR 17.32) permit issuance criteria

Individuals requesting authorisation to import lion trophies into the USA do so under the 50 CFR 17.32 ruling and are required to provide information in their application (as listed in form 3-200-20) showing that the hunting of the lion meets the requirements for issuance criteria under 50 CFR 17.32. These are:

a) *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;*

The DNPW has built on its 10-year conservation strategy and the recommendations of the carnivore research programme to put in place a hunting programme that contributes positively to the conservation of lion throughout their range in Zambia. Moreover, by adhering to the 2012 IUCN Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives, Ver. 1.0 (IUCN SSC 2012) that were analysed in the 2016 Enhancement and Non-Detriment Findings for African Lion Sport Hunting in Zambia. Ministry of Tourism and Arts (DNPW, 2016), the DNPW is adopting best practices to implement and enforce sound governance systems to ensure the long-term conservation of its wild lion populations. Conservative quotas and an age-based monitoring system is demonstrating that sufficient oversight is being applied to ensure that removing acceptable aged lion trophies from the wild is not impacting on the current status of the lions in the wild three years after the moratorium.

b) *The probable direct and indirect effect which issuing the permit would have on the wild populations of the wildlife sought to be covered by the permit;*

The DNPW working together with several stakeholders has implemented the Conservation Strategy and Action Plan for Lion, that is going to be revised in 2020 and that has achieved its goals in producing a sustainable management framework for lions.

Overall the very limited offtake in the last four years (17 lions in 2016, 21 lions in 2017, 24 lions in 2018 and 21 lions in 2019) could not have any significant impact on the wild populations, being guided mainly by age-based restrictions that were successfully tested in the period concerned and that will become mandatory from the 2020 hunting season.

Funds generated from hunting and from safari outfitter obligations are distributed to the 76 CRBs, who in turn are investing in various social services, including law enforcement. Furthermore, by enforcing the experimental hunting guidelines, and monitoring the off-take of lions, the DNPW has succeeded in greatly reducing the number of under-aged lion trophies.

c) *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;*

The DNPW continues to work closely with several local and international NGOs (WWF, ZCP, The Nature Conservancy, CLZ, GRI, Panthera) as well as with the local hunting associations (SHOAZ, PHAZ) to advance its understanding for the sustainable conservation of the large carnivores and herbivores and their habitats.

d) *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;*

The Zambia lion management programme is based on a precautionary quota, age-based harvest and monitoring pf population status including the impact of illegal hunting. Communities continue to benefit from 50% of all animal fees via a network of CRBs that are coordinate through a national CBNRM Forum. Funds to drive these programmes are generated by the legal hunting activities of hunters from the USA, Europe and elsewhere in the world, which are being reinvested in conservation activities by Government and hunting operators providing benefits to people, habitat and wildlife.

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

The DNPW continues to benefit from the input of a robust scientific community and from the conclusions of several science-based hunting programmes for lion. The decision by the DNPW to only re-introduce the hunting of lion after considering the recommendations of the scientific community has received the support of scientists and the general public.

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

The DNPW continues to receive support to meet its administrative obligations and ensure that staff are paid by central government. Fees generated from the sale of animal licences are the primary source of funding to meet operational costs and deliver on its conservation objectives. These are under review to improve its operational budget while maintaining conservative quotas.

11.0 Conclusions and Non-detriment findings

The CITES Scientific Authority of Zambia has considered the population of lion in Zambia; the quota-setting system and current precautionary quota; the newly implemented age-based harvest policy; the limited offtake; the adaptive management of lion; and the substantial revenues generated for DNPW operations, anti-poaching, and community development. The Scientific Authority has considered the current threats to lion, including loss of habitat and human-lion conflicts, and potential of safari hunting to mitigate those threats.

Sustainable development and the need to fight poverty is the first and foremost priority of the Zambian government to also achieve wildlife conservation. The depletion of wildlife is slowly reducing in Zambia due to important investments made by the government, private sector, and donors.

In general, protection is important if done in parallel with poverty reduction strategies which shall include consumptive and non-consumptive wildlife utilization. In this regard, trophy hunting is one of the components that the Zambian government is using in its wildlife conservation strategies because of the high level off benefits, tangible and intangible, that it can produce. Safari Operators need a good and healthy wildlife population in order for the sector to be viable. To achieve that they are supporting the government in actions not only to increase protection of habitats and wildlife, but also in community development.

The new management approach to lion hunting in Zambia is based on three pillars, i) a conservative, precautionary quota, well below one of the recommended thresholds for sustainability, ii) an age–based harvest limit and strong monitoring of lion offtakes, and iii) significant and direct community benefits. This will ensure that lion hunting in Zambia is sustainable and does not negatively affect the population.

Zambia has spent considerable resources to improve lion hunting and is experiencing a successful partnership with all stakeholders to ensure sustainability of the offtakes and financial and socials returns to conservation.

The DNPW has built on its 10-year conservation strategy and the recommendations of the carnivore research programme to put in place a hunting programme that contributes positively to the conservation of lion throughout their range in Zambia. Moreover, by adhering to the 2012 IUCN/SSC" Guiding principles on trophy hunting" (see DNPW 2016, Appendix 1), the DNPW is adopting best practices to implement and enforce sound governance systems to ensure the long-term conservation of its wild lion populations. Conservative quotas and an age-based monitoring system is demonstrating that sufficient oversight is being applied to ensure that removing acceptable aged lion trophies from the wild is not impacting on the current status of the lions in the wild four years after the moratorium.

Funds generated from hunting and from safari outfitter obligations are distributed to communities that continue to benefit from 50% of all animal fees via a network of CRBs that are investing in various social services, including law enforcement and are coordinated through a national CBNRM Forum.

Overall, the added value of lion hunting cannot in any case be measured only in financial terms. The value generated by hunting to habitat protection, law enforcement and social benefits are some of the immaterial components of the lion hunting's contribution to conservation. Income from hunting of all species continues to be important for the DNPW to undertake a wide range of conservation activities both inside and outside of its protected areas. The participation of the US and other nationalities hunters in the Zambian hunting industry is therefore key to contributing to the overall management and conservation of lions.

The DNPW continues to benefit from the input of a robust scientific community and from the conclusions of several science-based hunting programmes for lion. The decision by the DNPW to only re-introduce the hunting of lion after considering the recommendations of the scientific community has received the support of scientists and the general public and continues to receive support to meet its administrative obligations and ensure that staff are paid by central government. Fees generated from the sale of animal licences are a critical source of funding to meet operational costs and deliver on its conservation objectives. These are under review to improve its operational budget while maintaining conservative quotas.

Zambia has taken on board the international concerns regarding the long-term conservation of its lion populations. At the same time, it must be cognizant of the threat posed by the expanding communities residing in the GMAs and the significant land use changes that this brings. It also must balance the level of management it can afford within its limited resources and for this reason, it continues to work closely with a wide range of stakeholders to provide sound scientific information on population trends, impact of hunting and whether the management practices and legal protection that are employed are contributing to the long-term survival of lion, their prey and habitat.

The DNPW is implementing an adaptive management strategy that limits the off-take of lions. To support this approach, it is implementing a robust age-based monitoring programme and proactively addressing illegal wildlife trade using both its resources and those of civil society.

For some time now, Zambia like other southern African range states has embraced all they have been asked to implement best practices on large carnivores. It is understood that our practices are even stronger than similar ones used in northern hemisphere countries. The management and administrative systems are in place and are being tested. What remains now are seeking solutions how these best practices can be implemented in the most practical way and solve problems related

to human overpopulation land use planning in wild areas devoted to hunting, unregulated bushmeat hunting, etc. The DNPW has taken on board the best practice recommendations to sustainably manage its large carnivore populations. The recent decision to introduce strict parameters for lion quota allocations is paying dividends.

Let us now change the focus of our efforts to deal with all of the other problems facing lion conservation as effectively as we have worked to ensure sustainability of safari hunting. For example, habitat loss has to receive much more attention than safari hunting in public perception if we want to conserve Africa's biodiversity. Hunting can reduce habitat loss and this fact should be prioritized in international agendas and not criticized in an uninformed way.

The impact of the introduction of the experimental age-based restrictions on lion hunting coupled with monitoring the off-take of lions, has successfully reduced to a great extent the number of under-aged lion trophies. Awarding in most cases one lion per hunting block means that quotas are extremely conservative and the sample size is small relative to the areas being hunted. Data for lion hunting monitoring suggests that the hunting sector has responded positively with fewer under-aged trophies harvested in 2017 and 2018. Although knowledge on prey densities in the GMAs is not completely known progress are underway to determine it with more ground-based surveys undertaken each year and whose results can then be linked to estimating potential densities of predators.

Upon considering the above and in accordance with Article IV of CITES and CITES Resolution Conf.16.7, the Scientific Authority concludes that the low level of off-take generated by safari hunting is not detrimental to the survival of the lion in Zambia and the amount of revenues generated by this low level of off-take are of crucial importance for the conservation of the species also because of the benefits it provides to rural communities. Safari hunting provides a net benefit to the species, it does not pose a threat to the species, and it is not a detriment to the survival of the species. In fact, the Scientific Authority of Zambia finds the regulated safari hunting of lion in Zambia enhances the survival of the species. The newly-developed lion management systems, Statutory Instruments and hunting reforms employ an adaptive management approach thereby ensuring long-term sustainability, health and enjoyment of Zambia's wild lion populations.

The CITES Scientific Authority of Zambia underlines that it expects CITES Parties to implement CITES Resolution Conf. 2.11 with particular reference to paragraph b) that states: "*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*".

12.0 References

Ansell, W. F. H. (1978). *The mammals of Zambia* (No. 1). National Parks & Wildlife Service.

Bauer, H. and van der Merwe, S. 2002. *The African Lion Database*. The African Lion Working Group, IUCN/SSC.

Bauer, H., & Van Der Merwe, S. (2004). Inventory of free-ranging lions Panthera leo in Africa. Oryx, 38(01), 26-31.

Bauer, H., Packer, C., Funston, P.F., Henschel, P. & 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. Downloaded on 29 March 2016.Contains supplementary material.

Bauer, H., Chapron, G., Nowell, K., Henschel, P... & Packer, C. 2015b. Lion Panthera leo populations are declining rapidly across Africa, except in intensively managed areas. Proc. Natl. Acad. Sci. USA 112(48):14894-14899.

Becker, M., McRobb, R., Watson, F., Droge, E., Kanyembo, B., Murdoch, J., & Kakumbi, C. (2013). Evaluating wire-snare poaching trends and the impacts of by-catch on elephants and large carnivores. Biological Conservation, 158, 26-36.

Becker, M. S., Watson, F. G., Droge, E., Leigh, K., Carlson, R. S., & Carlson, A. A. (2013). Estimating past and future male loss in three Zambian lion populations. The Journal of Wildlife Management, 77(1), 128-142.

Becker & Mweetwa (2015), Management of Big Cats in Zambia: An Overview of Research and Recommendations: Presentation to ZAWA, September 2015.

Begg. C. M., Miller J. R. B. and Begg K. S. 2018. Effective implementation of age restrictions increases selectivity of sport hunting of the African lion. Journal of Applied Ecology 55: 139–46.

Berentsen, A.R., Dunbar, M.R., Becker, M.S., M'soka, J., Droge, E., Sakuya, N.M., Matandiko, W., McRobb, R. and Hanlon, C.A., 2013. Rabies, canine distemper, and canine parvovirus exposure in large carnivore communities from two Zambian ecosystems. Vector-Borne and Zoonotic Diseases, 13(9), pp.643-649.

Bertola LD, Tensen L, van Hooft P, White PA, Driscoll CA, et al. (2016). Autosomal and mtDNA Markers Affirm the Distinctiveness of Lions in West and Central Africa. PLoS ONE 10(10): e0137975 doi: 10.1371/journal.pone.0137975.

Bertola LD, Tensen L, van Hooft P, White PA, Driscoll CA, et al. (2016) Correction: Autosomal and mtDNA Markers Affirm the Distinctiveness of Lions in West and Central Africa. PLoS ONE 11(3): e0149059. doi: 10.1371/journal.pone.0149059

Carlson, A.A. (2004) African Wild Dog Conservation Project, Kafue National Park, Zambia. 2004 Annual Report. Conservation and Research for Endangered Species. Zoological Society of San Diego

Chardonnet, Ph.(Ed) 2002. Conservation of the African Lion: Contribution to a Status Survey. International Foundation for the Conservation of Wildlife, France & Conservation Force, USA.

Chomba, C. and Nyirenda, V. 2015. Status of Trophy Hunting in Zambia for the Period 2003 – 2012: Is Hunting Justified in Zambia? Global Journal of Biology, Agriculture and Health Science, Vol 4(3): 137 – 153.

Craig, G.C. 2012 Monitoring the Illegal Killing of Elephants: Aerial Survey Standards for the MIKE Programme. Version 2.0. CITES MIKE programme, Nairobi

Creel, S., & Rosenblatt, E. (2013). Using pedigree reconstruction to estimate population size: genotypes are more than individually unique marks. *Ecology and evolution*, *3*(5), 1294-1304.

Creel, S., Becker, M. S., Durant, S. M., M'soka, J., Matandiko, W., Dickman, A. J.,& Rosenblatt, E. (2013). Conserving large populations of lions–the argument for fences has holes. Ecology letters, 16(11), 1413.

Creel, S., M'soka, J., Droge, E, Rosenblatt, Eli, Becker, M., Matandiko, W, Simpamba, T (2016). Assessing the sustainability of African lion trophy hunting, with recommendations for policy. Ecological Applications. In Review

CSL (2016), Annual Report to the Department of National Parks and Wildlife. Mfuwe, Zambia

Curry, C. J., White, P. A., & Derr, J. N. (2015). Mitochondrial Haplotype Diversity in Zambian Lions: Bridging a Gap in the Biogeography of an Iconic Species. PloS one, 10(12), e0143827.

Curry CJ, White PA, Derr JN (2019) Genetic analysis of African lions (Panthera leo) in Zambia support movement across anthropogenic and geographical barriers. PLoS ONE 14(5): e0217179. https://doi.org/10.1371/journal. pone.0217179 <

Cushman SA, Elliot NB, Bauer D, Kesch K, Bahaa-el-din L, Bothwell H, et al. 2018. Prioritizing core areas, corridors and conflict hotspots for lion conservation in southern Africa. PLoS ONE 13(7):e0196213. https://doi.org/10.1371/journal.pone.0196213

DNPW, 2016. Enhancement and Non-Detriment Findings for African Lion Sport Hunting in Zambia. Ministry of Tourism and Arts. Research Unit, CITES Scientific Authority Zambia, Department of National Parks & Wildlife, P/Bag 1, Chilanga.

DPNW 2016a, Report on the 2015 aerial census of elephants and other large mammals in Zambia: Part II Population estimates for other large mammals and birds, Department of National Parks and Wildlife (In Review). Chilanga, Zambia

DNPW, 2017. Review of the Harvest of African Lion (Panthera leo) and the Implementation of Age-based Hunting Guidelines during the 2016 Hunting Season. Internal report, February 2017, Chilanga.

DNPW, 2018 Report on the larger ungulate and predator count of Lower Luano Game Management Area
Research Unit DNPW December 2018

DNPW, 2018a. Results of the 2017 Hunted Lions. Internal memo, May 2018, Department of National Parks and Wildlife, Chilanga.

DNPW, 2019. Revised Guidelines for Lion and Leopard Hunting, December 2019. Chilanga, Zambia.

DNPW, 2019a. Results of the 2018 Hunted Lions. Internal memo, June 2019, Department of National Parks and Wildlife, Chilanga.

Dunham, K.M. In print. Aerial survey of lechwe, puku and other large herbivores on the Busanga Plains of Kafue National Park (Zambia), 2017.

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.

GoZ, 2013. Support to "Phase II of Integrated Land Use Assessment (ILUA) in the Republic of Zambia" ("the Project"), within the GCP/GLO/194/MUL "Strengthening Forest Resources Management and Enhancing its Contribution to Sustainable Development, Land Use and Livelihoods". Ministry of Tourism, Environment and Natural Resources.

GoZ, 2017. ZAMBIA INTEGRATED FOREST LANDSCAPE PROJECT. Ministry of National Development Planning. Interim Inter-Ministerial Climate Change Secretariat, Lusaka, Zambia.

Hayward, M. W., O'Brien, J., & Kerley, G. I. (2007). Carrying capacity of large African predators: predictions and tests. Biological Conservation, 139(1), 219-229.

Hunter, L.T., White, P., Henschel, P., Frank, L., Burton, C., Loveridge, A., Balme, G., Breitenmoser, C. and Breitenmoser, U. (2013). Walking with lions: why there is no role for captive-origin lions Panthera leo in species restoration. Oryx, 47(01), pp.19-24.

IUCN SSC (2012). IUCN SSC Guiding principles on trophy hunting as a tool for creating conservation incentives. Ver. 1.0. IUCN, Gland.

Leigh, K. A. (2005). The ecology and conservation biology of the endangered African wild dog (Lycaon pictus) in the Lower Zambezi, Zambia.

Lindsey, P.A., Balme, G., Becker, M., Begg, C., Bento, C., Bocchino, C., Dickman, A., Diggle, R.W., Eves, H., Henschel, P. and Lewis, D., 2013. The bushmeat trade in African savannas: Impacts, drivers, and possible solutions. Biological Conservation, 160, pp.80-96.

Lindsey, P.A., Nyirenda, V.R., Barnes, J.I., Becker, M.S., McRobb, R., Tambling, C.J., Taylor, W.A., Watson, F.G. and t'Sas-Rolfes, M., 2014. Underperformance of African protected area networks and the case for new conservation models: insights from Zambia. PLoS one, 9(5), p. e94109.

Macdonald, D. 2016. Report on Lion Conservation with Particular Respect to the Issue of Trophy Hunting. Wildlife Conservation Research Unit (WILDCRU), Department of Zoology, University of Oxford, England. 80 pages.

Midlane, N., O'Riain, M. J., Balme, G. A., Robinson, H. S., & Hunter, L. T. B. (2014). On tracks: A spoor-based occupancy survey of lion Panthera leo distribution in Kafue National Park, Zambia. Biological Conservation, 172, 101-108.

Midlane, N., O'Riain, M. J., Balme, G. A., & Hunter, L. T. (2015). To track or to call: comparing methods for estimating population abundance of African lions Panthera leo in Kafue National Park. Biodiversity and Conservation, 24(6), 1311-1327.

MoTA, 2018. National Parks and Wildlife Policy, August 2018. Ministry of Tourism and Arts, Lusaka, Zambia. 40 pages.

Mweetwa T, Christianson D, Becker M, Creel S, Rosenblatt E, Merkle J, et al. (2018) Quantifying lion (Panthera leo) demographic response following a three-year moratorium on trophy hunting. PLoS ONE 13(5): e0197030. https://doi.org/10.1371/journal.pone.0197030

Murray, D.L., Smith, D.W., Bangs, E.E., Mack, C., Oakleaf, J.K., Fontaine, J., Boyd, D., Jiminez, M., Niemeyer, C., Meier, T.J. and Stahler, D., 2010. Death from anthropogenic causes is partially compensatory in recovering wolf populations. Biological Conservation, 143(11), pp.2514-2524.

Périquet, S., Fritz, H., & Revilla, E. (2015). The Lion King and the Hyaena Queen: large carnivore interactions and coexistence. Biological Reviews, 90(4), 1197-1214.

Riggio, J. S. (2011). The African lion (Panthera leo leo): a continent-wide species distribution study and population analysis (Doctoral dissertation, Duke University).

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Becker, M., Dickman, A., Funston, P., Groom, R., Henschel, P., de Iongh, H. and Lichtenfeld, L. (2013). The size of savannah Africa: a lion's (Panthera leo) view. Biodiversity and Conservation, 22(1), pp.17-35.

Riggio, J., Caro, T., Dollar, L., Durant, S.M., Jacobson, A.P., Kiffner, C., Pimm, S.L., & van Aarde, R.J. (2015). Lion populations may be declining in Africa but not as Bauer et al. suggest. Proc. Natl. Acad. Sci. doi: 10.1073/pnas.1521506113.

Rosenblatt, E., Becker, M.S., Creel, S., Droge, E., Mweetwa, T., Schuette, P.A., Watson, F., Merkle, J. and Mwape, H. (2014). Detecting declines of apex carnivores and evaluating their causes: An example with Zambian lions. Biological Conservation, 180, pp.176-186.

Schaller, G. B. (2009). The Serengeti lion: a study of predator-prey relations. University of Chicago Press.

Schuette, P., Namukonde, N. Becker, M.S., Watson, FGR, Creel, S., Chifunte, C., Matandiko, W., Millhouser, P., Rosenblatt, E., Sanguinetti, C. 2018. Boots on the ground: in defence of low-tech, inexpensive, and robust survey methods for Africa's under-funded protected areas. Biodivers Conserv. https://doi.org/10.1007/s10531-018-1529-7

Watson, F. G., Becker, M. S., Milanzi, J., & Nyirenda, M. (2015). Human encroachment into protected area networks in Zambia: implications for large carnivore conservation. Regional Environmental Change, 15(2), 415-429.

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

Watson, F., Becker, M. S., McRobb, R., & Kanyembo, B. (2013). Spatial patterns of wire-snare poaching: Implications for community conservation in buffer zones around National Parks. Biological conservation, 168, 1-9.

White, P. A., & Belant, J. L. (2015). Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia. PloS one, 10(2), e0117237.

White, P. A., & Belant, J. L. (2016). Individual variation in dental characteristics for estimating age of African lions. Wildlife Biology, 22(3):71-77.

White, P. A., Ikanda, D., Ferrante, L., Chardonnet, P., Mesochina, P., & Cameriere, R. (2016). Age estimation of African Lions Panthera leo by ratio of tooth areas. PLoS ONE, 11(4): e0153648. doi: 10.1371/journal.pone.0153648.

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. Cambridge, UK and Wild-CRU, Oxford, UK: TRAFFIC.

Wittemyer, G., Elsen, P., Bean, W. T., Burton, A. C. O., & Brashares, J. S. (2008). Accelerated human population growth at protected area edges. Science, 321(5885), 123-126.

Yamazaki, K. (1996). Social variation of lions in a male-depopulated area in Zambia. The Journal of wildlife management, 490-497.

ZAWA. 2010. Zambia's Conservation Strategy and Action Plan for the African Lion. Chilanga, Zambia.

ZCP – Zambia Carnivore Program 2013 to 2018 - Annual Reports to the Zambia Wildlife Authority. Mfuwe,

Annex 1 National Parks and Wildlife Policy, August 2018.

This annex is transmitted by email as PDF

Annex 2: List of CRBs registered in each region

CRB	GMA	Status	Category
WESTERN REGION			
Chikanta	Bbilili	Not active	Open
Chibwika	Chibwika/Ntambu	Active	Open
Ntambu	Chibwika/Ntambu	Active	Open
Kaingu	Namwala	Active	Secondary
Shimbizhi	Namwala	Active	Secondary
Chilyabufu	Namwala	Active	Secondary
Shakumbila	Kafue Flats	Active	Secondary
Muwezwa	Kafue Flats	Active	Secondary
Mwanchingwala	Kafue Flats	Not active	Depleted
Hamusonde	Kafue Flats	Not active	Depleted
Mungaila	Kafue Flats	Not active	Depleted
Nalubamba	Kafue Flats	Not active	Depleted
Choongo	Kafue Flats	Not active	Depleted
Kasempa	Lunga Luswishi and	Active	Secondary
Mubambe	Kasonso Busanga	Active	secondary
Siachitema	Sichifulo/Bbilili	Active	Secondary
Nyawa	Sichifulo	Active	Secondary
Moomba	Mulobezi	Active	Prime
Sesheke West	West Zambezi	Active	Depleted
Mufulani	West Zambezi Lower	Active	Open???
Lewanika	West Zambezi	Active	Prime
Chizela	Chizera	Not active	Open
Chibuluma	Mumbwa	Active	Secondary
Kabulwebulwe	Mumbwa	Active	Secondary
Mulendema	Mumbwa	Active	Secondary
Sikufele	Lukwakwa	Active	Open
Kaindu	Open Area	Active	Open
Musungwa	Nkala	Active	Secondary
Shezongo	Nkala/Bbilili	Active	Secondary
Musele	Musele Mateo	Active	Open
Mateo	Musele Mateo	Active	Open
Ngonye	West Zambezi	Active	Open
Kahare	Mufunta	Active	Secondary
CENTRAL REGION			
Mboshya	Luano	Not active	Open
Mboroma	Luano	Not active	Open
Shikabeta	Luano	Active	Secondary
Mphuka	Rufunsa	Active	Secondary
Mburuma	Rufunsa	Active	Depleted
Mpanshya	Rufunsa	Active	Depleted
Chiawa	Chiawa	Active	Secondary
NORTHERN REGION			
Chitambo	Kafinda	Active	Open
Chiundaponde	Bangweulu	Active	Prime

Kopa	Bangweulu	Active	Prime
Kabinga	Bangweulu	Active	Prime
Nsamba	Bangweulu	Active	Prime
Bwalya Mponda	Bangweulu	Active	Prime
Kalasa Mukoso	Bangweulu	Not active	Secondary
Nsama	Tondwa	Active	Secondary
Chifunda	Musalangu	Active	Prime
Chikwa	Musalangu	Active	Prime
Kambombo	Musalangu	Active	Secondary
Tembwe	Musalangu	Active	Secondary
Lundu	Musalangu	Active	Secondary
Mukungule	Mukungule	Active	Secondary
Kazembe	Lumimba	Active	Prime
Nabwalya	Munyamadzi	Active	Prime
Kaputa	Kaputa	Active	Secondary
Chisomo	Chisomo	Not active	secondary
Mpumba (North park)		Active	Open
EASTERN REGION			
Nyalugwe	West Petauke		Secondary
Luembe	West Petauke	Active	Prime
Sandwe	Sandwe	Active	Secondary
Chitungulu	Lumimba	Active	Primary
Mwanya	Lumimba	Active	Prime
Nsefu	Lupande	Active	Prime
Jumbe	Lupande	Active	Prime
Munkhanya	Lupande	Active	Prime
Malama	Lupande	Active	Prime
Kakumbi	Lupande	Active	Prime
Msoro	Lupande	Active	Secondary
Mwape	Open Area	Active	Open
Zumwanda	Open Area	Active	Open
Mwasemphangwe	Open Area	Active	Open
Chikomeni	Open Area	Active	Open
Chinunda	Open Area	Active	Open

ROYAL KAFUE

E-MAIL CONTAINING

LINK TO VIDEO

Andrew Baldry (b) (6) 4/8/2020 6:33 AM

Re: Zambia lion trophy - Helm

To Tammy Piker <permits@conservationforce.org>

Hi Tammy,

Note we are not a Government concession and have implemented a new model in Zambia that resuscitates and reclaims communal land for international safari hunting. We are considered private and self-policed. Have a look at this short film and this land was once abandoned and abused. We partnered with the Kaindu community of whom I lease these lands. I will fill out the questionnaire for you and send soonest. Could we attach link to the film?

https://www.youtube.com/watch?v=GCzFBrK59cg

Regards

Andrew Baldry

APPLICANT:

CHARLES HELM

NOTICE OF REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed Lion Trophy from Zambia.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email:

(b) (6) [redacted]

SIGNATURE

Charles Minoe Helm

PRINT FULL NAME

January 14, 2021

DATE

CONFIRMATION LETTER TO ROYAL KAFUE FOR HUNTING RIGHTS TO KAINDU CHIEFDOM

The Director.
Royal Kafue Ltd,

Dear Sir,

REPUBLIC OF ZAMBIA
HIS ROYAL HIGHNESS
CHIEF KAINDU NO. 7
CHITUMBA AREA
P.O. BOX 830001
MUMBWA

Ref:- Confirmation of Andrew Bandsby to do hunting rights in Kaindu Chiefdom.

In view of the above subject matter the bearer mentioned above has been granted the hunting rights by Chiefdom Administration.

Therefore, any assistance to be rendered to him will be most welcome.

So please take this as an official notification

Yours faithfully,
His Royal Highness
Chief Kaindu Mumbwa

REPUBLIC OF ZAMBIA
HIS ROYAL HIGHNESS
CHIEF KAINDU NO.
09 OCT 2016
CHITUMBA AREA
P.O. BOX 830001
MUMBWA

ROYAL KAFUE
AND THE
KAINDU NATURAL RESOURCE
TRUST ARTICLE

Royal Kafue and the Kaindu Natural Resources Trust

By Jim Wojciehowski

The year was 2007. The noise echoing across the water carried a disturbing message.

The mixture of human voices and cattle, coupled with rising smoke from campfires and drying racks, explained the complete lack of wildlife.

PH Andrew Baldry witnessed the spectacle from across the river in the Lunga Luswishi Game Management Area (GMA). He watched a piece of wild Africa rapidly being depleted of its resources with no plan for the future.

The land was owned by the Kaindu community and the title held by a trust – the Kaindu Natural Resources Trust, initially formed by the Danish International Development Agency; but the project floundered when the donors pulled out. The squatters that Baldry observed were not from the community.

Baldry, a fully licensed professional hunter for over 15 years, was very aware of the African adage: "If it pays, it stays." If the local game did not produce a sustained income for the local community, little could be done to stem the poaching and the rapid depletion of the area's wildlife resources.

Andrew made a plan to revive the once flourishing Eden. With the backing of the local community and chief, the concept eventually evolved into Royal Kafue, which would host its first-ever safari in June 2012.

With adequate financial backing, at least for the start-up, Andrew entered into a lease agreement with the community Trust, and instituted anti-poaching patrols by hiring local scouts who would be led by an infamous ex-commercial bush poacher, Green. Who is better suited to outwit a poacher than someone who knows all the tricks of the trade? Green's amazing tracking skills and knowledge of the local habitat also qualified him as head tracker once the safari camp opened for operation.

I first contacted Andrew about hunting together in the Luangwa Valley in 2010. The topic of what would become Royal Kafue came up via e-mail.

Royal Kafue was already in the works, but Andrew felt it would take at least four years for the area to begin to rebound; initially, he didn't want to inject any hunting pressure into the mix. But he was delighted with the rapid returning of game. He knew cats wouldn't return unless ample prey and cover existed.



After allowing the game in the "Kafue Royal" area several years to recover, in 2012 PH Andrew Baldry (L) successfully hunted lion with Jim Wojciehowski (R), generating income from hunting for the Kaindu Natural Resources Trust.

He'd secured a lion and a leopard on quota, plus a limited number of plains game. His assessment of the conditions was totally honest: "Expect game to be difficult to see in June and July. I plan on leaving the majority of the tall grass to give the cats cover."

I sent my money, including a sizable amount to cover trophy fees. It was obvious this start-up was financially taxing with no large financial backers. The many Skype conversations with Andrew gave me a feeling of trust in this man, as well as a drive to be part of this project, myself.

A partnership of need brought together PH Andrew Baldry, my wife Joyce, and me; but the true benefactor of this alliance is the wildlife of Royal Kafue and the community of Kaindu.

By the time we arrived in camp in June 2012, the game had returned in numbers far exceeding the hopes of Andrew and Green. They had prepared the area perfectly by selective burning, interspacing these areas with lush grass cover. Even the once transient buffalo population remained resident for our entire 21-day safari. And with the buffalo came the lion.

We heard lion regularly calling at night, and on the 15th morning in camp, while enjoying coffee in the predawn coolness, we heard them as they moved toward camp. As the light increased, the sound became louder.

We quickly grabbed our rifles and headed down the road on foot to try and intercept the moving chorus. The calls came from a hunting coalition of four mature lions – three males and a female. The group had decimated one of our baits; on their way to water, they were now approaching camp.

The lions hid as we passed on foot. The sound of brush moving behind our group made us turn in time to see two large, heavy-maned mature males and a lioness emerge from cover. The cats deemed us to be insignificant and crossed an open area into the tall grass. A fourth lion revealed himself to be a brute of a male and, with Andrew's challenging grunt, he stopped to evaluate the source of the call.

My frontal shot buckled the cat, and he spun to retreat noisily into cover. We found him dead 100 yards on, in deep cover, after a tense side-by-side follow-up on foot.

Luckily, the chairman and treasurer of the Kaindu Trust, Boniface and Joshua, were in camp and able to join the celebration. Later, they privately thanked me for helping to finance the start-up and contributing to its success. I assured them PH Andrew Baldry alone had earned their gratitude for the implementation of his vision.

Two months after the hunt, Andrew told me of his plans to sink boreholes to provide permanent water for the game. He is looking to attract like-minded investors to further the cause of Royal Kafue for the benefit of the game and the people of Kaindu.

Jim Wojciehowski is a physician assistant living in Alaska. An avid hunter/conservationist, he discovered the magic of Africa on his first trip in 2010. This was his third safari.

ROYAL KAFUE
OPERATOR ENHANCEMENT
REPORT
2020

OPERATOR ENHANCEMENT QUESTIONNAIRE

1. OPERATOR INFORMATION

Name of Area Operator: Royal Kafue LTD

Years in business: 10 years

Name of Company conducting hunt: Royal Kafue LTD

Closest town to hunt location: Kaindu, Mumbwa District

Country where hunt will take place: Zambia

2. CONCESSION

Name of Concession: Kaindu Community Game Ranch

Area in Km^2: 650

Land tenure: 99 year lease

Government Lease	Communit y Yes	Private Ranch Yes	Private Conservancy Yes

Length of Concession Agreement: 99 year communal lease agreement

Can it be renewed? Yes Yes No

Length of Renewal, if applicable: 99 years

Estimated total amount received in trophy fees last year, if applicable: $150,000

Are there any special obligations under the Concession Agreement such as annual reporting, poaching control, community investment, community employment, etc.? If so, please explain below:

Communal project. Self managed. Self policed. Private

Please provide the Concession location and nearest City: Lusaka the capital city of Zambia

Please attach a map or maps with the boundaries marked and showing the nearest City

If the Concession borders a National Park, please provide Park name: Kafue National Park boundary is 20 kilometres from the unfenced project area

Description of general and distinctive habitat features and any water features:

Kafue River. Kafue river basin. Miombo woodland. Terminalia. Open savannah

3. COMMUNITIES IN THE CONCESSION

Are there any communities living in the Concession? Yes No No

If so, estimated number of people or villages in the Concession? None

Are there communities bordering this Concession? Yes Yes No

If so, estimated number of people or Villages around the Concession? 25,000

4. RELEVANT GAME POPULATIONS IN THE CONCESSION:[1]

SPECIES NAME	RELATIVE ABUNDANCE			ESTIMATED POPULATION	3-YEAR TREND			HOW IS IT MONITORED?
	DENSE	AVG.	SPARSE		UP	DOWN	STABLE	
ELEPHANT	Dense			100 - 200 transient	Up			Self
LION		Avg.		50 transient	Up			Self
LEOPARD		Avg.		20	Up			Self
PREY SPECIES	Dense			2,000 - 2,500	Up			Self

[1] The FWS Import Permit Application form asks the applicant: "9. a. Do you have any information regarding the population status or trend on the species hunted?"

5. LOCAL COMMUNITY PARTICIPATION

Total employment number: 30

Please identify the number and type of all employees:

EMPLOYEE TYPE	TOTAL NUMBER OF THIS TYPE	NUMBER OF THIS TYPE WHO ARE LOCAL/FROM NEARBY COMMUNITIES
PROFESSIONAL HUNTERS	Self	All
TRACKERS	2	All
ANTI-POACHING SCOUTS/ RANGERS	20	All
OTHER ANTI-POACHING		
COOKS/HOUSEKEEPERS	8	All
COMMUNITY COORDINATORS	11 but not employees	All
MANAGERS	1	All
BIOLOGISTS	occasional visitor	
OTHERS: _____		

6. Number of staff employed in the off-season: 22

a. Please identify the number and type of staff that are engaged when the season is not open: Mainly scouts

EMPLOYEE TYPE	TOTAL NUMBER OF THIS TYPE	NUMBER OF LOCALS /FROM NEARBY COMMUNITIES	WHEN EMPLOYED?
ANTI-POACHING STAFF	20	All	2010
MANAGERS	1	All	2018
MAINTENANCE	4	All	2010
ROAD OPENING /CONSTRUCTION	0		

COMMUNITY RELATIONS PERSONNEL	11	All	Not employed
OTHERS:			

7. ANTI-POACHING EFFORTS:[2]

Number of Anti-Poaching staff: 20

Are Anti-Poaching Patrols conducted during the hunting season, off-season, or both?

Hunting season: 20 Off-season: 20 Both seasons: 20

Months during which Anti-Poaching Patrols are conducted: All year

Number of Anti-Poaching Patrols per month: continous

Description of Anti-Poaching equipment, vehicles, etc.:

2 vehicles, 3 boats, 3 motorcycles

[2] The new FWS Import Permit Application asks for activities that provide a "conservation benefit" to the species. The FWS considers anti-poaching a "conservation benefit."

7. ANTI-POACHING EFFORTS: *[CONTINUATION]*

f. Who is responsible for organizing and coordinating anti-poaching from prevention through successful prosecution?

The arresting scout. Poachers must be processed within 48 hours by law.

Do you offer rewards to poaching informants leading to arrest? Yes Yes No

Do you offer rewards to poaching informants upon conviction? Yes No No

Please describe the company's anti-poaching expenditures below:

TYPE OF EXPENSE	SPENDING 2017	SPENDING 2018	SPENDING 2019	REMARKS
SALARIES FOR ANTI-POACHING SCOUTS	$40,000	$40,000	$40,000	Includes equipment, firearms and food.
EQUIPMENT	$10,000	$10,000	£10,000	Maintenance and replacements
VEHICLES	$10,000	$10,000	$10,000	Maintenance,spare parts,tires etc
PETROL	$2,000	$3,000	$4,000	Rise in fuel costs
REWARDS PAID	$500	$500	$500	
COMMUNAL PAYMENTS	$15,000	$17,000	$20,000	Based on 20% safari incomes
OTHER: _____				
TOTALS	$77,500	$80,500	$84,500	

What currency are the expenditures given in? Zambian Kwacha

8. ANTI-POACHING RESULTS:

CATEGORY	2017	2018	2019	REMARKS
POACHING INCIDENTS DISCOVERED	10	5	2	
ELEPHANT CARCASSES OBSERVED	0	3	0	

LION CARCASSES OBSERVED	1	0	0	
LEOPARD CARCASSES OBSERVED	0	0	0	
IVORY POACHERS ARRESTED	1	1	0	
MEAT POACHERS ARRESTED	9	4	2	
OTHER POACHERS ARRESTED	0	0	0	
POACHERS CONVICTED	1	1	0	
SNARES/GIN TRAPS COLLECTED	10	0	0	
FIREARMS CONFISCATED	1	1	1	
VEHICLES CONFISCATED	0	0	1	Motorbike
BICYCLES CONFISCATED	0	0	0	
BOATS/NETS CONFISCATED	10	10	4	
TUSKS RECOVERED	0	0	0	
OTHER: _____				

9. COMMUNITY INVESTMENT:[3]

Does the Company contribute money or goods/services to local communities?

Yes Yes No

If so, what percentage or amount is shared, how often, and why (e.g.: required by law, required by contract, voluntary contribution)?

Royal Kafue pays its partners the communal Trust (landlords) 20% of gross income

Does the Company provide game meat to nearby communities? Yes Yes No

If so, please estimate the amount and/or value of meat contributed in prior year and describe the meat contribution program:

$20,000

If the Company performs problem animal activities for surrounding communities (e.g.: patrolling fields during the harvest, chasing away problem animals, conducting PAC hunts or PAC killings), please describe.

We control poaching within a 10 kilometre radius of the game ranch.

Please describe any consolation payments made to local residents damaged by game species

No compensation within the stated project area boundary

What currency are the expenditures reported in? Zambian Kwacha

SPECIES	DAMAGE CAUSED	CONSOLATION PAID 2017	CONSOLATION PAID 2018	CONSOLATION PAID 2019
ELEPHANT	Yes	0	0	0
LION	Yes	0	0	0
LEOPARD	No	0	0	0
OTHER				

Please describe any community projects paid for by the Company:

[USE SEPARATE SHEET]

What currency are the expenditures reported in? US$

[3] The new FWS Import Permit Application asks for activities that provide a "conservation benefit" to the species. The FWS considers community investment a "conservation benefit."

TYPE OF PROJECT	SPENDING 2017	SPENDING 2018	SPENDING 2019	REMARKS
EDUCATION (E.G.: CLASSROOMS, OFFICES)	$7,500	$8,500	$10,000	
EDUCATION (E.G.: SCHOOL FEES, SCHOOL SUPPLIES)				
HEALTH (E.G.: CLINICS, OFFICES)	$7,500	$8,500	$10,000	
HEALTH (E.G.: MEDICAL SALARIES, EQUIPMENT)				
COMMUNITY SCOUT SALARIES				
OTHER COMMUNITY ANTI-POACHING				

9. COMMUNITY INVESTMENT: *[CONTINUATION]*

TYPE OF PROJECT	SPENDING 2017	SPENDING 2018	SPENDING 2019	REMARKS
LOCAL GOVERNMENT ACTIVITIES				SEE ABOVE
WATER INFRASTRUCTURE IMPROVEMENTS				
SPORTS TEAMS FUNDED				
CONSTRUCTION MATERIALS DONATED				
OTHER: _____				
OTHER: _____				
TOTALS				

10. How many U.S. Clients did the Company have in the past three years, what percentage of the Company's clients were from the U.S., and what fees did they pay?

	HUNTING ELEPHANT	HUNTING LION	HUNTING LEOPARD	HUNTING ALL SPECIES

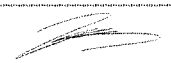
NUMBER OF U.S. CLIENTS	**2017:** 6	**2017:**	**2017:**	**2017:**
	2018: 6	**2018:**	**2018:**	**2018:**
	2019: 6	**2019:**	**2019:**	**2019:**
PERCENTAGE OF U.S. CLIENTS	**2017:** 80%	**2017:**	**2017:**	**2017:**
	2018: 80%	**2018:**	**2018:**	**2018:**
	2019: 80%	**2019:**	**2019:**	**2019:**
TROPHY FEES PAID BY U.S. CLIENTS	**2017:** $45,000	**2017:**	**2017:**	**2017:**
	2018: $45,000	**2018:**	**2018:**	**2018:**
	2019: $55,000	**2019:**	**2019:**	**2019:**

11. Approximate Dollar amount and/or percentage of Company's revenue from U.S. Clients: $ $150,000

12. OTHER INFORMATION: Please provide a narrative of other enhancement information about the operation, such as any special Hunting Policies (e.g.: aging, size, resting areas), Concession Improvements (e.g.: digging and maintaining boreholes, restocking), Management Activities, Research, etc.
[USE SEPARATE SHEET]

13. I declare that the foregoing is true and correct:

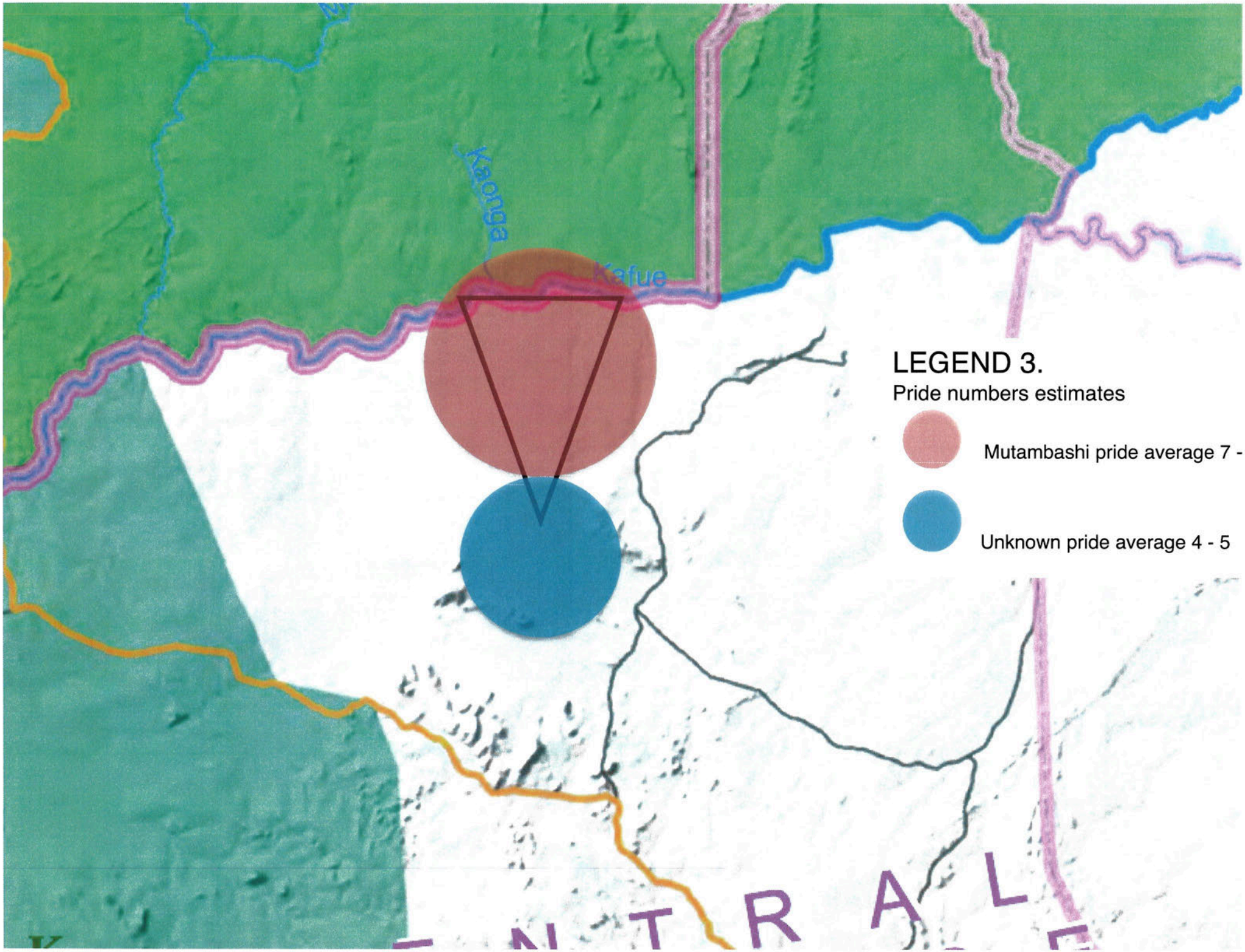
Royal Kafue LTD	**TELEPHONE:**	+260 97 5315144
CONCESSION NAME	**EMAIL:**	kafueroyal@gmail.com
Kaindu Community Game Ranch		Managing Director/PH
OPERATOR – FULL NAME (PLEASE PRINT)		**TITLE**
ANDREW BALDRY		**MANAGING DIRECTOR/PH**

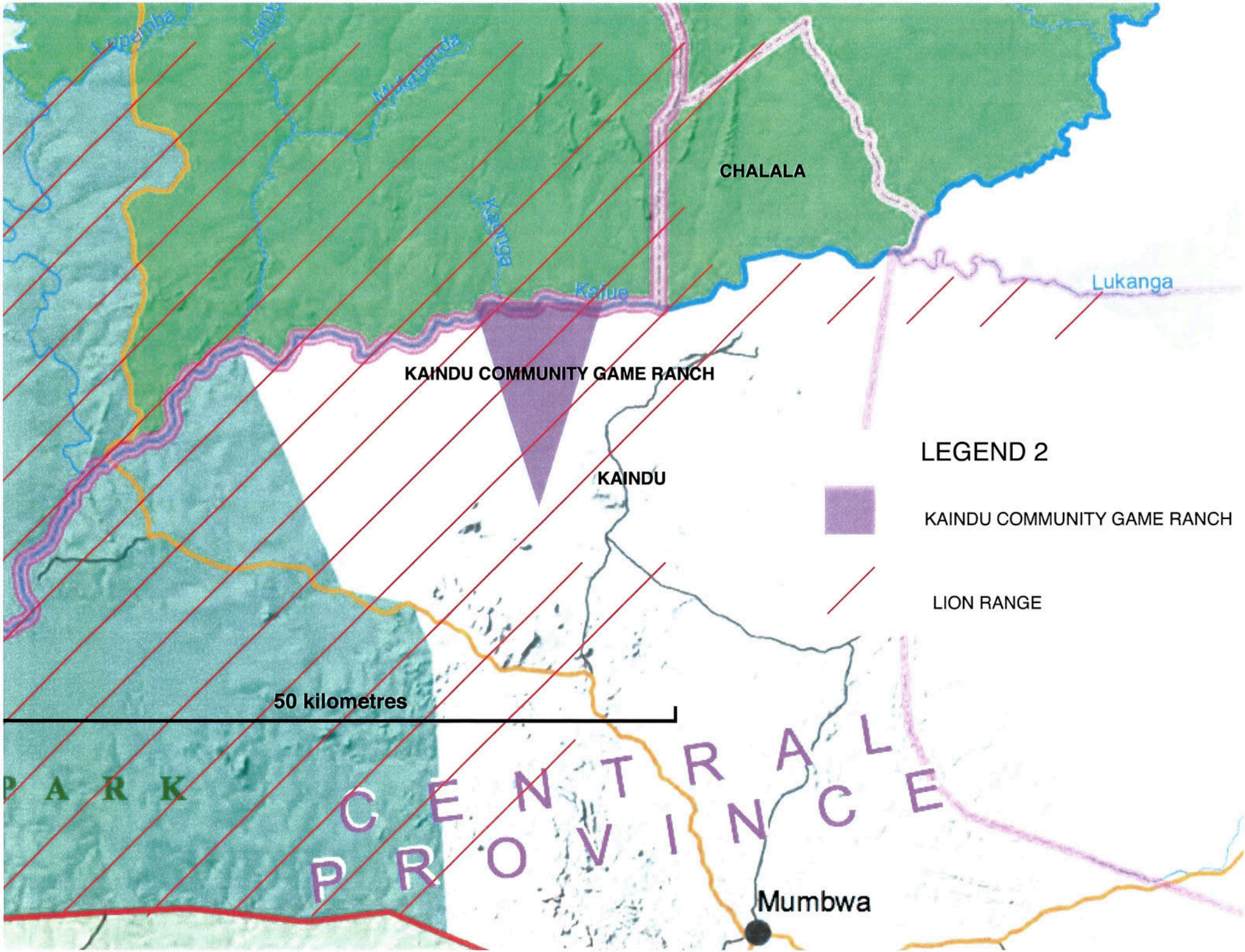


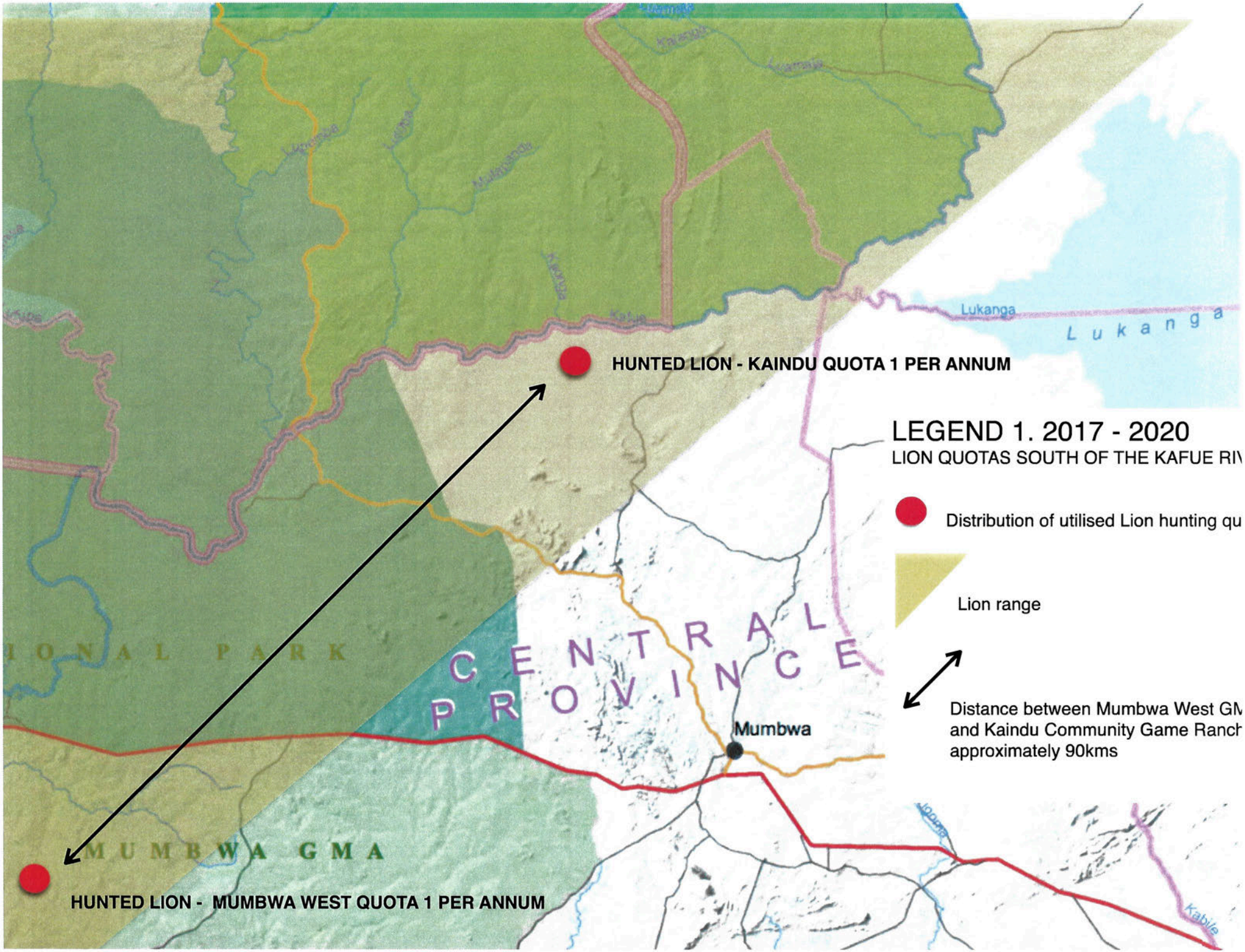
NONE

MAPS OF KAINDU COMMUNITY GAME RANCH AND AREA OF HUNT


00 200 KM
100 200 Miles
007 Geology.com
Nchelenge
Kolwezi
Likasi
Mansa
Lake Bangweu
Mwinilunga
Kipushi
Lubumbashi
Solwezi
Chingola
Mufulira
Kitwe
Ndola
Luanshya
Kapiri Mposhi
ZAMBIA
Kaindu Community Game Ranch
Kabwe
Mumbwa
Mongu
Lusaka
Kabompo
Zambezi
Kafue
Luapula
Luali


Kaonga
Kafue
LEGEND 3.
Pride numbers estimates
Mutambashi pride average 7 -
Unknown pride average 4 - 5


CHALALA
KAINDU COMMUNITY GAME RANCH
KAINDU
Kafue
Lukanga
LEGEND 2
KAINDU COMMUNITY GAME RANCH
LION RANGE
50 kilometres
CENTRAL
PROVINCE
Mumbwa


HUNTED LION - KAINDU QUOTA 1 PER ANNUM
LEGEND 1. 2017 - 2020
LION QUOTAS SOUTH OF THE KAFUE RIV
Distribution of utilised Lion hunting qu
Lion range
Distance between Mumbwa West GM
and Kaindu Community Game Ranch
approximately 90kms
Mumbwa
CENTRAL PROVINCE
MUMBWA GMA
HUNTED LION - MUMBWA WEST QUOTA 1 PER ANNUM
Lukanga
Lukanga
Kabila

HISTORY OF KAINDU COMMUNITY GAME RANCH

The History of Kaindu Community Game Ranch

1. 2009 I was invited by Chief Kaindu to look at his substantial customary lands on the Kafue River east of the Kafue National Park with a view to develop and invest for safari hunting and other sectors of Tourism.

Note - I rejected the offer as the land had been encroached and populated mainly by poachers. I counted small villages of in excess 700 people. Natural resource abuse was commonplace.

2. 2010 I was again invited by the Kaindu authorities who had assured me that they had removed all squatters from the designated project area and had demarcated a 45,000 acre hunting zone. I recorded only 6 Puku and some tracks of the larger species mainly antelope and a few buffalo. I agreed to dedicate one year to anti poaching to see if it was at all viable. My communal scouts made a series of arrests and recovered over 1,000 snares. We recovered a number of automatic weapons and home made shotguns

3. 2012 The nomadic species had returned and the Game count was some 1000 mostly from the Park and other privately protected areas. Predators were evident. I formed the Kaindu Natural Resources Trust a legal registered body who were to be the landlords and we designed a formal agreement and registered Royal Kafue LTD as the development company with a 20% shareholding to the Trust who represented the Kaindu community. A 99 year lease agreement was signed.

We applied to the Zambian Wildlife Authority ZAWA to be assessed for unfenced game ranch status. The game ranch was registered and Royal Kafue was awarded a small conservative quota of 20 animals.

Today we have achieved a flourishing communal wildlife estate from the hunting finances. This is the first model of its kind in Zambia whereas a community owns a registered game ranch. Their lands have been declared extremely desirable and valued at three million dollars. The off take is now numbered at 70 animals which includes 8 Buffalo. In ten years 3 Lions in excess of 9 years old have been hunted. We target a mature Leopard every other year. We do not hunt elephant as they have sought sanctuary here. We can boast one of the largest concentrations of the southern Roan antelope in Africa and 1,500 Puku which is the areas maximum carrying capacity. The Buffalo herd has grown to 500 at the last count. The annual aerial animal counts are conducted by the Wildlife authority in conjunction with private sector.

Royal Kafue has been awarded the hunting rights to the entire Chiefdom being some 750,000 acres. We have created another 120,000 acre hunting zone across the Kafue river known as Chalala. This land requires investment and rejuvenation.

Royal Kafue LTD has set non hunting zones to attract other sectors of Tourism and currently courting investors to enhance the model.

All projects have been entirely funded by hunters dollars and only recently The Nature Conservancy has funded some of the costs for anti poaching both sides of the river. TNC currently pays for 12 game scouts and have invested in a base camp for anti poaching.

Hence Chief Kaindu can rightly claim to be the architect of communal game ranching. A first for Zambia. The Kaindu authorities have dedicated much land to conservation and can now populate other areas with wildlife from the initial project area.

Please see Youtube 'Frank Louw The Royal Kafue Project' as a visual and the achievements of the Kaindu community.

APPLICANT:

GREYSON PONDER

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Greyson Ponder (b) (6) , Antioch, IL 60002

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

panthera leo, lion

b. Sex (if known).

male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

N/A

b. Date wildlife is to be hunted:

N/A

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

N/A

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

Lower Lupande hunting block, Zambia. Nearest City Mfuwe . See attached map

b. Date wildlife was hunted:

October 22nd, 2020

c. Approximate age of animal:

Approximately 7 years of age.

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

Kwalata Safaris. P.H.- WH van Noordwyk

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

Kwalata Safaris - 6980 Katanga Road, Lusaka, Zambia

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

~~Please find included~~ Attached

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	
Business Name:	Kwalata Safaris
Address:	6980 Katanga Road
City:	Lusaka
State/Province:	
Country, Postal Code:	Zambia

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.
See attached
11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):	WH van Noordwyk
E-mail:	werner@vannoordwyksafaris.com
Phone number:	+ 27 824927362

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature: _[redacted]_ Date: 1/16/21

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

APPLICANT:

GREYSON PONDER

HUNTER RETURN FORM

LION

LEOPARD AND LION HUNT RETURN FORM

(Each animal hunted should be accompanied by a separate data sheet and all requirements should be in triplicate)

Name of Professional Hunter: WH van Niekerk | Hunting Outfitter: Kuvukata Safaris

DETAILS OF CLIENT

Name of client: Greyson W Ponder | Nationality: USA

Country of Residence: USA

Address: (b) (6) Antioch, Illinois, USA 60002

GMA permit No: 007102 | Non Resident Hunting Licence No: 007102

DETAILS OF HUNT AND TROPHY MEASUREMENTS

Name of GMA: Lower Lupande

Name of Hunting Block: Lower Lupande | Hunting period: From (Date): 10/10/2020 To (Date) 30/10/20

Date Killed or wounded	Species	Sex (M/F)	Killed or Wounded	Age Estimate	GPS Location (in decimal degrees) Latitude	GPS Location (in decimal degrees) Longitude	Trophy for Export? Y/N
22/10/20	Lion	M	Killed	4-7	36L 0357614	8538734	

Date measured (DD/MM/YY)	Total length (Nose to tip of tail - cm)	Tail length (cm)	Shoulder height (Shoulder to base of paw in cm)	Skull length (mm)	Skull width (mm)	Upper Left canine length (mm)	Upper Right canine length (mm)
22/10/20	251cm	78cm	67cm.	15 inches	7 inches	2 1/4 inch 6cm	6 cm

PHOTOS & TISSUE SAMPLES (tick in space provided for photos taken - photo)

1. Whole body from the side ✓
2. Mane from the top ✓
3. Face & head from the top ✓
4. Face & Chest ✓
5. Nose ✓
6a. Teeth front before cleaning ✓
6b. Teeth front after cleaning ✓
7. Teeth from side ✓
8. Lower Jaw from side ✓
9. Ridges on the back of canines ✓
10. Tissue samples taken ✓

Note: Photo names should indicate species, photo #, date of hunt, and hunting block e.g. Li10205160 H means Whole body photo of lion hunted on 2 May 2016 in Chilanga Hunting Block

Le20205160H implies Mane from top photo of leopard hunted on 2 May 2016 in Chilanga Hunting Block

Form submitted by:..... Date submitted to DNPW:..... Receiving Officer:..... Date:.....

APPLICANT:

GREYSON PONDER

HUNTING PERMITS

Serial No. 555555

NPW FORM 5B

S/No.: .....

0007102

REPUBLIC OF ZAMBIA

THE ZAMBIA WILDLIFE ACT
(ACT NO. 14 OF 2015)

THE ZAMBIA WILDLIFE
(LICENCES AND FEES) REGULATION, 2007

Appendix 2 Second Schedule(3)
PERMIT TO HUNT IN A GAME MANAGEMENT AREA

Station of issue..... Chilanga ..... Date of Issue..... 08/10/2020 .....

DETAILS OF PERMIT HOLDER

Full name: Ponder Greyson West ..... NRC/Passport No. (b) (6) [redacted]

Tel/Mobile No.:..... E-mail address.....

Postal Address: Box 35225 LSK ..... Residential Address: LSK .....

DETAILS OF FIREARMS

Firearm Licence No(s) 1.: 892 ..... 2. ..... 3. .....

Calibre(s) 1.: 500 ..... 2. #16 ..... 3. 7mm .....

DETAILS OF LICENCES, HUNTING AREA & HUNTING TYPE

Resident/Non Resident Hunting Licence No (s) .....

Bird Hunting Licence No. 000536 .....

Hunting Type..... Non Resident .....

is hereby authorised to hunt in ..... Lupande .....Game Management Area,

..... Lower Lupande .....Hunting block for .....days from 10/10/2020

to 27/10/2020 ..... (Dates inclusive)

Amount Paid..... #150 .....

GRZ Receipt No. 0069349

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
- 8 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

..... Chairperson of the Committee

Note: Original copy to Permit Holder - Duplicate copy to Accounts - Triplicate to Commercial - Quadruplicate to be retained in Parent Book

NPW FORM 7

Original

REPUBLIC OF ZAMBIA

S/No.: 0005316

THE ZAMBIA WILDLIFE ACT
(ACT NO. 14 of 2015)
THE ZAMBIA WILDLIFE
(LICENCES AND FEES) REGULATIONS, 2007)
Regulation 5(2)
BIRD HUNTING LICENCE

Station of issue: Chilanga Date of issue: 08/10/2020

DETAILS OF LICENSEE

Full Name: Ponder Greyson West NRC/Passport No: (b) (6)

Tel/Mobile No: E-mail address:

Postal Address: Box 35225 LSK Residential Address: LSK

DETAILS OF FIREARM(S)

Firearm Licence No(s) 1: 892 2: 3:

Calibre of Firearm(s) 1: 550 2: 416 3: 7mm

The above named licensee is authorized to hunt birds of species specified in column 1 except during the seasons specified in column 2.

Common Name (Column 1)	Closed season (Column 2)
Fulvous Whistling Duck	1st January to 31st May
White-faced Whistling Duck	1st January to 31st May
White-Backed Duck	1st January to 31st May
Egyptian Goose	1st January to 31st October
Spur-Winged Goose	1st January to 31st May
Knob Billed Duck	1st January to 31st May
African Pygmy Goose	1st January to 31st May
African Black Duck	1st January to 31st May
Yellow-Billed Duck	1st January to 31st May
Cape Teal	1st January to 31st May
Pintail	1st January to 31st May
Red-Billed Teal	1st January to 31st May
Hottentot Teal	1st January to 31st May
Garganey	1st January to 31st May
Northern Shoveler	1st January to 31st May
Cape Shoveler	1st January to 31st May
Southern Pochard	1st January to 31st May
qui Francolin	1st February to 30th June
White throated Francolin	1st February to 30th June
Crested Francolin	1st February to 30th June
Shelley's Francolin	1st February to 30th June
Red-winged Francolin	1st February to 30th June
Red-billed Francolin	1st February to 30th June
Natal Francolin	1st February to 30th June
Hildebrandits Francolin	1st February to 30th June
Swaisons' Francolin	1st February to 30th June
Red-necked Francolin	1st February to 30th June
Common quail	1st October to 31st March
Harlequin Quail	1st October to 31st March
Blue Quail	1st October to 31st March
Crested Guinea fowl	1st December to 3tht April
Helmeted Guinea fowl	1st December to 3tht April

Note: A maximum of six birds to be hunted within 21 days under Non-Resident Hunting.

Bird Hunting Licence Fees: $150

Application Fees Paid: -

Total Fees Paid: $150

GRZ Receipt No:

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
- 8 OCT 2020

Official Stamp COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

Chairperson of the Committee

Note: Original copy to Applicant - Duplicate to Accounts - Triplicate to Commercial - Quadruplicate to be retained in the book

ORIGINAL

NPW FORM 12

S/No. 0000318

REPUBLIC OF ZAMBIA

The Zambia Wildlife Act

(No. 14 of 2015)

(Licences and Fees) Regulations, 2007

(Regulation 7(5))

RECORD OF GAME AND/OR PROTECTED ANIMALS KILLED OR WOUNDED

Name of Professional Hunter: Wit van Noordwyk NRC/Passport No. 998733/11/2

Residential Address: Plot 2414 Freedom Way, Lusaka.

Name of Safari Company on behalf of which the Professional Hunter is submitting this return: Kavalata Safaris.

DETAILS OF CLIENT

Name of client: Greyson W Ponder NRC/Passport No: (b) (6)

Tel/Mobile No. Nationality: USA.

Postal Address. Residential Address. (b) (6) Illinois.

Type of Licence: Classic. Licence No.: 9007102.

Date of Issue: 8/10/2020. Place of Issue Chilanga.

Name of Hunting Block where hunting was conducted: Lower Lupande.

Hunting period From 10/10/2020 To

Date Killed or wounded	Species	Sex	Number killed	Number Wounded	GPS Location	Trophy for export Yes	Trophy for export No	Foreign currency value charged to client
12/10/20	Hippo	M	1			✓		
13/10/20	Buffalo	M	1			✓		
15/10/20	Warthog.	M	1			✓		
15/10/20.	Grysbok	M	1			✓		
16/10/20	Impala.	M	1			✓		

DETAILS OF TROPHY MEASUREMENTS

Species	Length of Skin	Length of Tusk	Average [illegible] horn	Length of Skull
Hippo		25 inch		
Buffalo		41,5 inch		
Warthog.		12 inch.		
Grysbuck		1,5 inch		
Impala		21,5 inch.		

Certification by -

(a) Client

I certify that the animals listed on this return were hunted or wounded by me during the period stated and that the total amount of foreign currency stated and paid by me to the safari company is the full amount I was charged.

(b) Professional Hunter

I certify that the animals listed in this return were actually hunted by the client in accordance with the terms and conditions of the Safari Hunting Licence and that the total foreign currency stated above is the full amount paid by the client for the hunt.

Date 30/10/20 Signature of Client (b) (6)

Date 30/10/20 Signature of Professional Hunter

Date 30/10/20. Name of Wildlife Police Officer Kenneth Siwale

Employment No. of W.P.O. 00 27 37 27

Signature of W.P.O. Siwale

Notes: Original copy to Committee ** Duplicate to Safari Company ** Triplicate to Commercial ** Quadruplicate to be retained in the book

ORIGINAL

NPW FORM 12

S/No. 0000319

REPUBLIC OF ZAMBIA

The Zambia Wildlife Act

(No. 14 of 2015)

(Licences and Fees) Regulations, 2007

(Regulation 7(5))

RECORD OF GAME AND/OR PROTECTED ANIMALS KILLED OR WOUNDED

Name of Professional Hunter: Wilhan Noordwyk NRC/Passport No. 798333/11/2.

Residential Address: Plot 2414 Freedom Way, Lusaka.

Name of Safari Company on behalf of which the Professional Hunter is submitting this return: Kwalata Safaris.

DETAILS OF CLIENT

Name of client: Greyson W Pander NRC/Passport No: (b) (6)

Tel/Mobile No. Nationality: USA.

Postal Address. Residential Address: (b) (6), Illinois.

Type of Licence: Classic. Licence No.: 007102.

Date of Issue: 8/10/2020. Place of Issue: Chilanga.

Name of Hunting Block where hunting was conducted: Lower Lupande.

Hunting period From 10/10/2020. To.

Date Killed or wounded	Species	Sex	Number killed	Number Wounded	GPS Location	Trophy for export Yes	Trophy for export No	Foreign currency value charged to client
17/10/20	Bushbuck	M	1			✓		
17/10/20	Puku	M	1					
22/10/20	Lion	M	1					
24/10/20	Zebra	M	1					
25/10/20	Crocodile	M	1					

DETAILS OF TROPHY MEASUREMENTS

Species	Length of Skin	Length of Tusk	Average [illegible] horn	Length of Skull
Bushbuck.			13 inch.	
Puku.			15.5 inch.	
Lion.				15 inch.
Zebra				
Crocodile.			4.21 m.	

Certification by -

(a) Client

I certify that the animals listed on this return were hunted or wounded by me during the period stated and that the total amount of foreign currency stated and paid by me to the safari company is the full amount I was charged.

(b) Professional Hunter

I certify that the animals listed in this return were actually hunted by the client in accordance with the terms and conditions of the Safari Hunting Licence and that the total foreign currency stated above is the full amount paid by the client for the hunt.

Date 30/10/20 Signature of Client (b) (6)

Date 30/10/20 Signature of Professional Hunter

Date 30/10/20 Name of Wildlife Police Officer Lemmy Siwale

Employment No. of W.P.O. GO 27 37 27

Signature of W.P.O. Siwale

Notes: Original copy to Committee ** Duplicate to Safari Company ** Triplicate to Commercial ** Quadruplicate to be retained in the book

Original

NPW FORM 2

0006341

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue..... Chilanga ..... Date of Issue..... 08.10.2020

DETAILS OF LICENSEE

Full Name..... Greyson W Ponder. ..... NRC No./Passport No..... (b) (6) [redacted]

Nationality..... USA ..... Age.....

Tel/Mobile No:..... E-mail.....

Full Name of Safari Company: Kwalata Safaris .....

Certificate of Incorporation No..... Date of Incorporation.....

Postal Address..... Box 35220 Lusaka ..... Residential Address.....

Firearm Licence/Tourist Firearm Import No..... 592 ..... Calibre of Firearm..... 500, 416, 7mm.....

Type of Hunt..... Classic .....

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Hippo	1st	M	Lupande	2020	1,600.00
			0069341		

Total Animals fees paid - the kwacha equivalent of US$ 1,600.00
Concession Fees paid - the kwacha equivalent of US$.....
Grand Total the kwacha equivalent of US$ 1,600.00

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
Official Stamp
- 8 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

C. Ndaya
Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006338

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue..... Chilanga ..... Date of Issue..... 08. 10. 2020 .....

DETAILS OF LICENSEE

Full Name..... Greyson W Ponder ..... NRC No./Passport No (b) (6) .....

Nationality..... USA ..... Age.....

Tel/Mobile No:..... E-mail.....

Full Name of Safari Company: Kwalata Safaris .....

Certificate of Incorporation No..... Date of Incorporation.....

Postal Address Box 35285 Lusaka ..... Residential Address.....

Firearm Licence/Tourist Firearm Import No..... 893 ..... Calibre of Firearm..... 500, 416, 7mm .....

Type of Hunt..... Classic .....

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Buffalo	1st	M	Lower Lupande	2020	1,600.00
			0069349		

Total Animals fees paid - the kwacha equivalent of US$ 1,600.00
Concession Fees paid - the kwacha equivalent of US$
Grand Total the kwacha equivalent of US$ 1,600.00

Official Stamp
MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
- 8 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

C. Mwape
Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006345

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue..... Chilanga ..... Date of Issue..... 08 · 10 · 2020 .....

DETAILS OF LICENSEE

Full Name..... Greyson W Ponder ..... NRC No./Passport No. (b) (6) .....

Nationality..... USA ..... Age.....

Tel/Mobile No:..... E-mail.....

Full Name of Safari Company: Kwalata Safaris .....

Certificate of Incorporation No..... Date of Incorporation.....

Postal Address..... Box 35225 Lusaka ..... Residential Address.....

Firearm Licence/Tourist Firearm Import No. 892 ..... Calibre of Firearm. 500, 416, 7mm .....

Type of Hunt..... Classic .....

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Warthog	1st	M	Lower Lupande	2020	360·00
			0069349		

Total Animals fees paid - the kwacha equivalent of ..... US$ 360·00

Concession Fees paid - the kwacha equivalent of ..... US$.....

Grand Total the kwacha equivalent of ..... US$ 360·00

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS
AND WILDLIFE
Official Stamp
- 8 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

C. Ndlovu
Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006410

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue..... Chilanga ..... Date of Issue..... 14 · 10 · 2020 .....

DETAILS OF LICENSEE

Full Name..... Greyson Mpondel ..... NRC No./Passport No..... (b) (6) .....

Nationality..... USA ..... Age.....

Tel/Mobile No:..... E-mail.....

Full Name of Safari Company: Kwalata Safaris .....

Certificate of Incorporation No..... Date of Incorporation.....

Postal Address..... Box 35225 Lusaka ..... Residential Address.....

Firearm Licence/Tourist Firearm Import No..... 892 ..... Calibre of Firearm..... 500, 416, 7mm .....

Type of Hunt..... Classic. .....

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Oryx bok	1 of	M	Lower Lupande	2020	250·00

Total Animals fees paid - the kwacha equivalent of US$ 250·00
Concession Fees paid - the kwacha equivalent of US$.....
Grand Total the kwacha equivalent of US$ 250·00

Official Stamp

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
14 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

Chairperson of the Committee

*Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006342

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue: Chilanga Date of Issue: 08·10·2020

DETAILS OF LICENSEE

Full Name: Greyson W Pander NRC No./Passport No: (b) (6)

Nationality: USA Age:

Tel/Mobile No: E-mail:

Full Name of Safari Company: Kwalata Safaris

Certificate of Incorporation No. Date of Incorporation:

Postal Address: Box 39889 Lusaka Residential Address:

Firearm Licence/Tourist Firearm Import No. 892 Calibre of Firearm: 500, 416, 7mm

Type of Hunt: Classic

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Impala	1*	M	Lower Lupande	2020	120·00
1			0069349		

Total Animals fees paid - the kwacha equivalent of US$ 180·00

Concession Fees paid - the kwacha equivalent of US$

Grand total the kwacha equivalent of US$ 180·00

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
Official Stamp
- 8 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

C. Kay
Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006434

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue..... Chilanga ..... Date of Issue..... 16. 10. 2020

DETAILS OF LICENSEE

Full Name..... Greyson W Ponder ..... NRC No./Passport No..... (b) (6) .....

Nationality..... USA. ..... Age.....

Tel/Mobile No:..... E-mail.....

Full Name of Safari Company: Kwalata Bayaio .....

Certificate of Incorporation No. ..... Date of Incorporation.....

Postal Address..... Box 35225 Lusaka. ..... Residential Address.....

Firearm Licence/Tourist Firearm Import No..... 892 ..... Calibre of Firearm..... 500, 416, 7mm .....

Type of Hunt..... Classic. .....

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Bushbuck	1	M	Lower Luangwa	2020	380.00
			0069236		

Total Animals fees paid - the kwacha equivalent of US$ 380.00
Concession Fees paid - the kwacha equivalent of US$.....
Grand Total the kwacha equivalent of US$ 380.00

Official Stamp
PRIVATE BAG 1, CHILANGA
COMMERCIAL OFFICE
16 OCT 2020
MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS
AND WILDLIFE

Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006433

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue: Chilanga Date of Issue: 16·10·2020

DETAILS OF LICENSEE

Full Name: Greyson W Ponder NRC No./Passport No.: (b) (6) [redacted]

Nationality: U.S.A. Age:

Tel/Mobile No: E-mail:

Full Name of Safari Company: Kwalata Safaris

Certificate of Incorporation No. Date of Incorporation

Postal Address: Box 35229 Lusaka Residential Address:

Firearm Licence/Tourist Firearm Import No.: 892 Calibre of Firearm: 300, 416, 7mm

Type of Hunt: Classic

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Puku	1	M	Lower Lupande	2020	420·00
			0069236		

Total Animals fees paid - the kwacha equivalent of US$ 420·00
Concession Fees paid - the kwacha equivalent of US$ —
Grand Total the kwacha equivalent of US$ 420·00

Official Stamp
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
16 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006470

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue: Chilanga Date of Issue: 21/10/2020

DETAILS OF LICENSEE

Full Name: Greyson W Ponder NRC No./Passport No.: (b) (6) [redacted]

Nationality: USA Age:

Tel/Mobile No: E-mail:

Full Name of Safari Company: Kwalala Saf

Certificate of Incorporation No. Date of Incorporation

Postal Address: Box 39225 Residential Address:

Firearm Licence/Tourist Firearm Import No.: 892 Calibre of Firearm: 500, 416, 7mm.

Type of Hunt: Classic

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Lion	1st	M	Lower Lupande	2020	4200
1			0069360		

Total Animals fees paid - the kwacha equivalent of US$ 4200

Concession Fees paid - the kwacha equivalent of US$ —

Grand Total the kwacha equivalent of US$ 4200

Official Stamp

Chairperson of the Committee

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
21 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

****Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006343

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue..... Chilanga ..... Date of Issue..... 08·10·2020 .....

DETAILS OF LICENSEE

Full Name..... Greyson W Ponder ..... NRC No./Passport No..... (b) (6) .....

Nationality..... USA ..... Age.....

Tel/Mobile No:..... E-mail.....

Full Name of Safari Company:..... Kwalata Safaris .....

Certificate of Incorporation No. ..... Date of Incorporation.....

Postal Address..... Box 35225 Lusaka ..... Residential Address.....

Fircarm Licence/Tourist Fircarm Import No..... 892 ..... Calibre of Firearm..... 500, 416, 7mm .....

Type of Hunt..... Classic .....

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Zebra	NS+	M	Lower Lupande	2020	$20.00
			0069349		
/					

Total Animals fees paid - the kwacha equivalent of US$..... $20.00 .....
Concession Fees paid - the kwacha equivalent of US$.....
Grand Total the kwacha equivalent of US$..... $20.00 .....

..... C. Ndhlovu .....
Chairperson of the Committee

Official Stamp
MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
- 8 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

Original

NPW FORM 2

0006340

S/No.....

REPUBLIC OF ZAMBIA
Zambia Wildlife Act, 2015
(No. 14 of 2015)

THE ZAMBIA WILDLIFE
(Licences and Fees) Regulations, 2007
(Regulations 3 (2))

HUNTING LICENCE - NON RESIDENT

Station of Issue..... Chilanga ..... Date of Issue..... 08·10·2020.....

DETAILS OF LICENSEE

Full Name..... Greyson W Ponder ..... NRC No./Passport No..... (b) (6) .....

Nationality..... USA ..... Age.....

Tel/Mobile No:..... E-mail.....

Full Name of Safari Company: Kwalata Safaris .....

Certificate of Incorporation No. ..... Date of Incorporation.....

Postal Address. Box 35825 Lusaka ..... Residential Address.....

Firearm Licence/Tourist Firearm Import No..... 892 ..... Calibre of Firearm..... 500, 416, 7mm .....

Type of Hunt..... Classic .....

Any other relevant information, which may be considered in support of this application (e.g. previous hunting licences held or previous hunting experience.

The above named Safari Hunting Outfitter and its bona fide Clients are authorised by this licence under the guidance of the Professional Hunter to hunt the following Game and/or protected animals within the Game Management Area or hunting block specified hereunder and for the specified period and upon payment of the fees specified below:

Species of Animals	Number	Sex	Hunting Area	Hunting Period	*Fees - The Kwacha equivalent of US$*
Crocodile	1ct	M	Lower Lupande	2020	1,600·00
1			0069349		

Total Animals fees paid - the kwacha equivalent of US$ 1,600·00
Concession Fees paid - the kwacha equivalent of US$ —
Grand Total the kwacha equivalent of US$ 1,600·00

MINISTRY OF TOURISM AND ARTS
DEPARTMENT OF NATIONAL PARKS AND WILDLIFE
- 8 OCT 2020
COMMERCIAL OFFICE
PRIVATE BAG 1, CHILANGA, ZAMBIA
Official Stamp

C. Mwiya
Chairperson of the Committee

*Note: Original copy to Licensee ***Duplicate to Accounts***Triplicate to Commercial*** Quadruplicate to be retained in the book*

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
SHANE MAHONEY
RENEE SNIDER

January 22, 2021

Department of the Interior
U.S. Fish and Wildlife Service
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803
ATTN: Darcy Vargas

Applicant:	Greyson Ponder
RE:	USFWS Import Permit Application 3.200.20
Date of Hunt:	October 22nd, 2020
Species/Country:	Lion/ Zambia

Ms. Vargas,

Enclosed please find an application to import a sport-hunted lion trophy for Mr. Greyson Ponder. Mr. Ponder took his lion, about 7 years of age, in the Lower Lupande GMA, located in the southern Luangwa area of Zambia in October of 2020.

The Luangwa is considered the most important lion cluster in Zambia according to the Enhancement and Non-Detriment findings for African lion sport-hunting in Zambia, attached, where they have a density of lion ranging from 12.4-13.8 lions/ 100km^2. From 2013-2015 there was a moratorium on trophy hunting, where large increases in lion abundance occurred, demonstrating the robust fecundity of lion. Since the end of the moratorium the lion population in the Luangwa region is stable and potentially increasing. No reports of lions being poached have been reported in the Lupande hunting block in the last three years. The National Lion Conservation Strategy and Action plan set up in 2010 was designed to guide lion management and conservation in Zambia addressing all major threats and concerns to lion as identified by the U.S. Fish and Wildlife Service. In 2020 DNPW was planning to update this plan but it was delayed due to COVID-19.

We have included the Operator's Enhancement Report from Kwalata Safaris. Kwalata holds a GMA for their hunting land, where they must pay a designated amount for community obligations, boreholes, law enforcement, village scout salaries, fire management, and infrastructure repair. As well, much of their income from trophy fees goes towards their year-round anti-poaching efforts. The trophy fees for this lion were $4,200 U.S. Dollars and Kwalata only allows 2 lions to be hunted a year. In 2019 none were taken.

We have also provided a document entitled, "Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia". In this research article the author, Paula White, gives insight into the lease agreements of sport hunting operators with the Zambia Wildlife Authority that require them to annually provide local communities a percentage of the meat obtained through sport hunting free of charge. White quantified the benefits of sport hunting to rural Zambian communities documenting the comprehensive benefits that hunting brings to the area, over and above just money from the hunting itself. It is estimated that about 129,771 kgs of fresh game meat is provisioned annually by the sport hunting industry to rural communities in Zambia at an approximate value of $600,000 US Dollars (1). In Zambia, 48% percent of the population were undernourished in 2012-2014, coinciding with the time of the hunting moratorium (2). Without the addition of game, most Zambian residents would rarely meet the recommended protein requirements and would suffer malnourishment. The positive benefits of sport hunting to Zambia and its people have literally been lifesaving.

Applicant: Greyson Ponder
3.200.20 – Import Permit Application

Please refer to the documents and responses included and previously submitted to the DMA by Conservation Force, Zambia's wildlife authorities, professional hunters, and Safari operators.

If you have any questions about this import application, please do not hesitate to contact us.

Sincerely,

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Greyson Ponder W/ attachments

Enclosures:

a. FWS Permit Application Form for Import of Sport-Hunted Trophy
b. Notice of Representation
c. Copy of Hunting Permits/Licenses
d. Hunter Return Form - Lion
e. Operator Enhancement Report
f. Enhancement and Non-Detriment Findings for African lion sport-hunting in Zambia
g. The surprising benefits of Lion Safari hunting
h. Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia

APPLICANT:

GREYSON PONDER

NOTICE

OF

REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed LION Trophy from ZAMBIA.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

(b) (6) [redacted]

SIGNATURE

Greyson West Ponder

PRINT FULL NAME

1/16/21

DATE

APPLICANT:

GREYSON PONDER

OPERATOR ENHANCEMENT REPORT

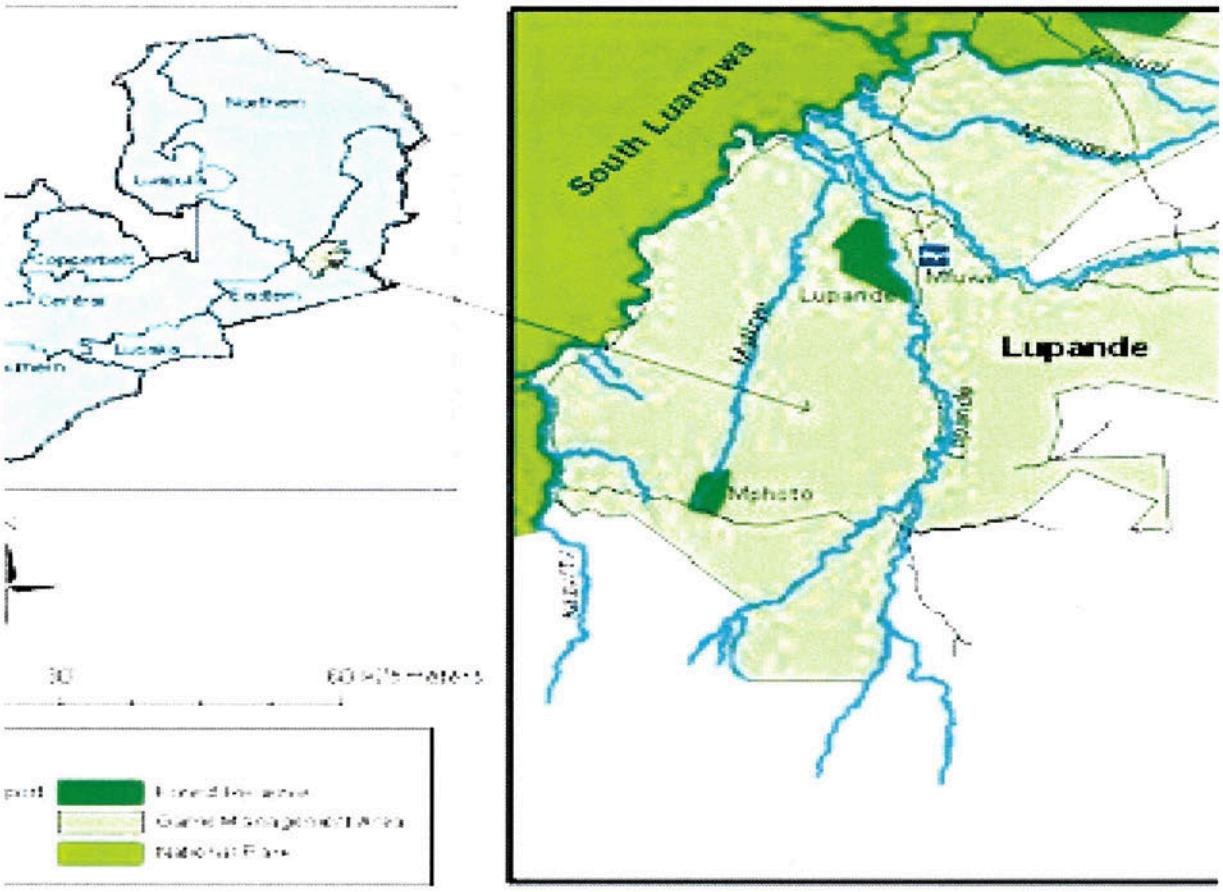
OMB Control No. 1018-0093
Expires 08/31/2023

ANNEX I OPERATOR ENHANCEMENT QUESTIONAIRE

Operator Information

a. Name of Area Operator: ____**KWALATA SAFARIS**_____
b. Years in business: _____**SIX YEARS**_____
c. Name of company conducting hunt: _____**KWALATA SAFARIS**_____
d. Country: _____**ZAMBIA**_____ Concession

a. Name of Concession: ____**LOWER LUPANDE**_____
b. Area in km^2: _____**1511KM2**_____
c. Land tenure:
__X__ Government Lease (6 MA) mul
_____ Community
_____ Private Ranch
_____ Private Conservancy
d. Length of concession agreement:__**SEVEN YEARS**_____
e. Can the concession be renewed? _____**YES**_____
f. Length of renewal, if applicable: _____**SEVEN YEARS**_____
g. Estimated trophy fees: _____
h. Are there are special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed: ____
YES, WE NEED TO PAY COMMUNITY OBLIGATIONS OF ZMK 180,000 PER ANNUM_AND OTHER PAYMENTS LISTED BELOW___
ZMK 100,000 BOREHOLES FOR THE CONCESSION PERIOD
ZMK 97,000 PER ANNUM TOWARDS LAW ENFORCEMENT
ZMK 45,000 PER ANNUM TOWARDS VILLAGE SCOUTS SALARIES
ZMK 10,000 PER ANNUM TOWARDS FIRE MANAGEMENT
ZMK 70,000 PER ANNUM TOWARDS INFRASTRUCTURE
ZMK 20,000 PER ANNUM TOWARDS RESOURCE MONITORING
_____
i. Provide concession location and nearest city: _____**NEAREST TOWN IS MFUWE**_____
j. Please attach a map or maps with marked boundaries and nearest city



k. If the concession borders a National Park, provide park name: __**SOUTH LUANGWA NATIONAL PARK**___

l. Describe general and distinctive habitat/water features: _____
__LAGOONS,MOUNTAINS,RIVERS-THE LUANGWA RIVER FLOWS THROUGH THE CONCESSION_____
_____

Communities in the Concession

a. Are there any communities living in the concession? Yes_**X**___ No ____
b. If so, estimated number of people/villages in the concession: ____**APPROXIMATELY 300**_____
c. Are there communities bordering this concession? Yes __**X**__ No ____
d. If so, estimated number of peoples/villages around the concession: __**SPARSE**_____

Relevant Game Populations in the Concession

Species	Relative Abundance (Dense, Average, or Sparse)	Estimated Population	3-Year Trend (Up, Down, or Stable)	How is it Monitored?
Elephant		**600 and above**	**up**	**Patrol data and observations**

Lion	**sparse**		**up**	**Trail cameras,Patrol Data and Observations**
Prey Species (if applicable)	**DENSE**			
Other: _____			**10,000 AND MORE**	**Patrol data and observations**

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application.
b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports.

Local Community Participation

a. Total employment number: _____33_____
b. Total employment in the off-season:___17_____
c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	4		
Trackers	3	3	
Anti-poaching Scouts/Rangers	4	4	4
Other Anti-poaching	12	12	12
Cooks/Housekeepers	5	5	
Community Coordinators	1	1	1
Managers	1	1	
Biologists	0		
Others: _____	3	3	3

Anti-Poaching Efforts

a. Number of anti-poaching staff: _____**18**_____
b. Are patrols conducted during the hunting season, off-season, or both? _____**BOTH**_____
c. Months patrols are conducted: ____**JANAUARY TO DECEMBER**_____
d. Number of patrols per month: _____**THREE PATROLS**_____
e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: ___**50%**_____
f. Description of anti-poaching equipment, vehicles, gear, etc. _____
_____**TWO 4X4 LANDCRUISERS, SATELLITE PHONES AND FIREARMS**_____
_____
g. Do government-sponsored game scouts conduct patrols? ____YES_____
h. If so, do they have the ability to arrest? _**YES, WE WORK IN COLLABORATION WITH THEM**_____
i. Do you offer rewards to poaching informants leading to arrest? Yes __**X**__ No ____
j. Do you offer rewards to poaching informants upon conviction? Yes__**X**__ No ____
k. Please describe the operator's anti-poaching expenditures over the past 3 years below:

Type of Expense	Year 1 (__2017___) Spending	Year 2 (_2018____) Spending	Year 3 (___2019__) Spending	Remarks
Scout Salaries	157,500	157,500	157,500	
Equipment	50,000	50,000	50,000	
Vehicles				
Fuel	63,000	61,080	59,030	
Rewards	40,222	38,700	30,200	
Others:_____				
Totals	**310,722**	**307,280**	**296730**	

l. What currency are the expenditures given in? _____**ZAMBIAN KWACHA**_____

Anti-Poaching Results

Type	Year 1 (_2017___)	Year 2 (_2018___)	Year 3 (_2019___)	Remarks
Poaching Incidents Discovered	87	98	77	THIS INCLUDES STATISTICS FROM AUTHORITIES AND GUN SHOTS HEARD IN CAMP
Elephant Carcasses Observed	2	1	0	THESE DIED AFTER BEING TRAPPED IN SNARES AND TUSKS REMOVED
Lion Carcasses Observed	NIL	NIL	NIL	
Leopard Carcasses Observed	NIL	NIL	NIL	
Ivory Poachers Observed	3	3	0	THESE WERE SPOTTED WITH IVORY TUSKS,WE APPREHENDED SOME
Bush Meat Poachers Observed	62	51	58	THESE WANTED MEAT FOR MEAT
Illegal Logging Observed	113	205	98	PEOPLE ARE LOOKING FOR MUKULA TO SELL IN CHINA
Other Poachers Observed	2	8	0	THESE WERE DOING IT FOR FUN
Poachers Convicted	1	0	0	THE JUDICIAL PROCESS IS SLOW.

Snares/Traps Collected	289	277	276	NUMBERS ARE REDUCING BECAUSE OF OUR ROBUST PATROLS
Firearms Confiscated	7	12	3	THESE WERE GIVEN TO THE AUTHORITIES
Vehicles Confiscated	0	0	0	
Bicycles Confiscated	3	3	1	THESE ARE THE COMMON MODE OF TRANSPORT
Boats/Nets Confiscated	0	0	0	
Tusks Recovered	0	1		ITS HARD TO RECEOVER BECAUSE THEY CUT THEM INTO SMALLER PIECES.
Others: _____				

Community Investment

a. Does the company give money or goods/services to local communities? Yes **_X___** No ____
b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e. more than required by law)? **__10% OF THE TOTAL REVENUE FROM THE SAFARI IS SHARED WITH THE COMMUNITY___**
c. Does the company provide game meat to nearby communities? Yes **__X__** No ____
d. If so, estimate the amount/value of meat contributed in the last year and describe that distribution program: **__50% OF EADIBLE MEAT WAS GIVEN TO THE COMMUNITY**_____
e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling field during harvest, PAC hunts, insurance programs); please describe. **_WE COMPENSATE VILLAGERS IF THEIR FIELDS HAVE BEEN DAMAGED BY ELEPHANTS.**_____
_____
f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (__2017__)	Consolation Paid, Year 2 (__2018__)	Consolation Paid, Year 3 (_2019___)	Remarks
Elephant	VEGETABLE FIELDS WERE DESTROYED	47,000	33,700	41,000	
Lion					
Leopard					
Other: _____					

g. What currency are the expenditures reported in? _____**ZAMBIAN KWACHA**_____
h. Describe any community projects paid for by the company:

Product/Service	Spending, Year 1 (_2017___)	Spending, Year 2 (_2018___)	Spending, Year 3 (_2019___)	Remarks
Education (classrooms, offices)	120,000	98,000	105,000	RENOVATIONS WERE DONE TO SCHOOLS
Education (supplies, fees)	50,000			WE SCHOOL FEES FOR THE UNDERPRIVILEDGED
Health (clinics, offices)	47,500			BOUGHT MATTRESSES FOR THE HEALTH POST IN THE GMA
Health (equipment, salaries)				
Product/Service	**Spending, Year 1 (__2017__)**	**Spending, Year 2 (_2018___)**	**Spending, Year 3 (__2019__)**	**Remarks**
Community Scout Salaries	157,500	157,500	157,500	
Community Anti-Poaching	58,000	71,000	71,200	FUNDS WERE USED FOR RATIONS AND INCENTIVES AFTER VILLAGERS CATCH A POACHER
Local Government Activities				
Infrastructure Improvements				
Sports Teams Funded				
Construction Materials Donated				
Other: _____				
Other: _____				
TOTALS	**433,000**	**326,500**	**228,700**	

i. What currency are the expenditures reported in? **ZAMBIAN KWACHA**

j. Include receipts and photographs of projects, if available.

Company Clientele

a. How many U.S. clients did the company have in the past 3 years (indicate years), what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	Lion	All Species
Number of U.S. Clients	2017(2) 2018(2) 2019(2)	2017(2) 2018(2) 2019(0)	2017(3) 2018(3) 2014(4)

Percentage of Clients from the U.S.	2017(75%) 2018 (75%) 2019(50%)	2017(75%) 2018 (75%) 2019(50%)	2017(75%) 2018 (75%) 2019(50%)
Trophy Fees Paid by U.S. Clients			

b. Approximate amount/percentage of company's revenue from U.S. clientele: __67%_____

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
__NEED TO HAVE PASSED PROFESSIONAL HUNTERS EXAM FROM THE AUTHORITIES_____
_____

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology, if available): _____
_____LION ITS 7 YEARS. ELEPHANT THE TUSKS SHOULD BE ATLEAST MINIMUM 15KGS._____

c. Are there hunt return forms that must be reported to officials? If so, please include a copuy of these forms or confirmation of their receipt for the past 3 years.

Other Information

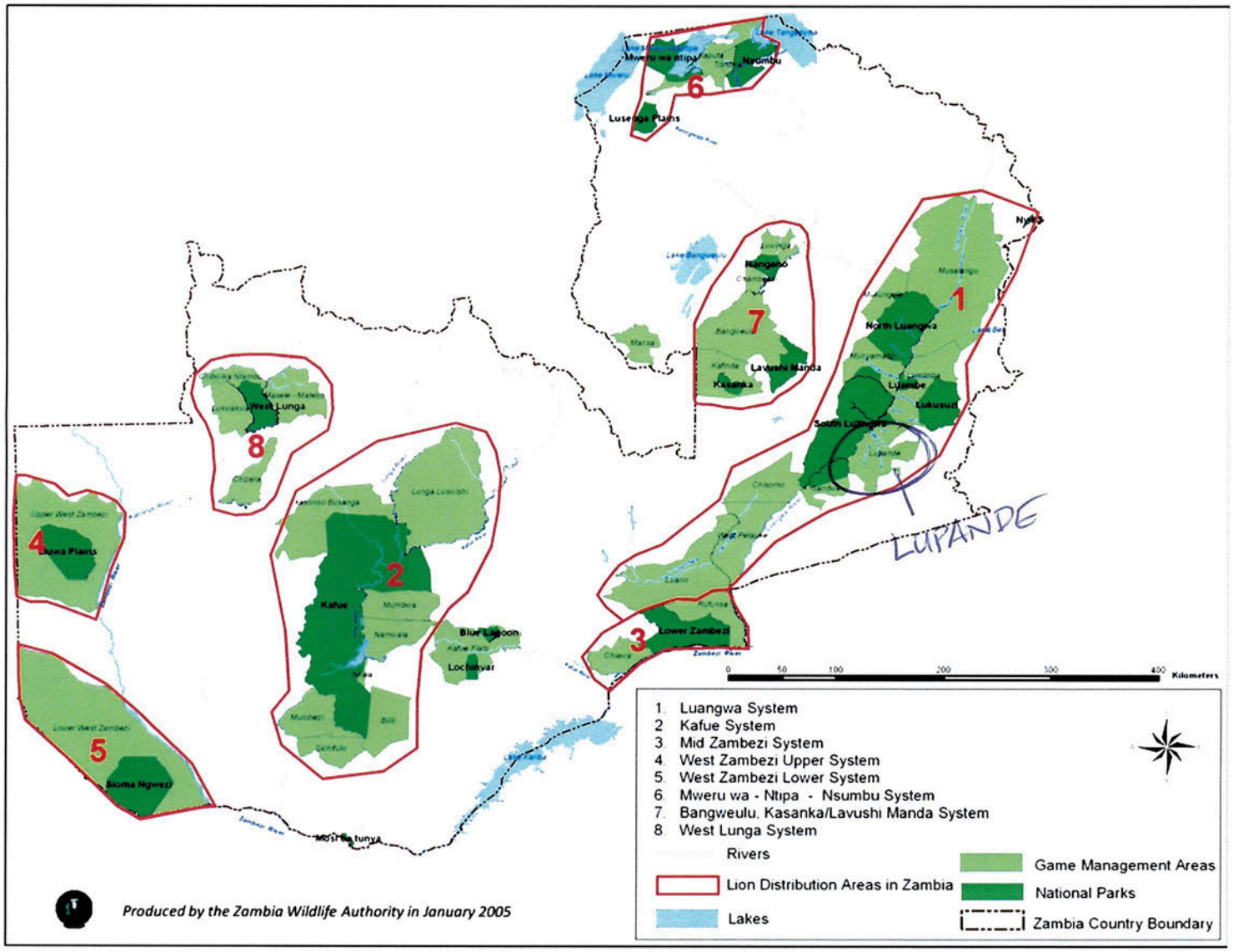
Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

I declare that the foregoing is true and correct.

X_____

Sign Name and Date

PETER CHIPMAN-DIRECTOR Name and Title


6
Mweru wa ntipa
Nsumbu
Luseiga Plains
7
Bangweulu
Kasanka
Lavushi Manda
1
North Luangwa
Luambe
Lukusuzi
South Luangwa
LUPANDE
8
West Lunga
4
Liuwa Plains
2
Kafue
Blue Lagoon
Lochinvar
3
Lower Zambezi
5
Sioma Ngwezi
0 50 100 200 300 400 Kilometers
1. Luangwa System
2. Kafue System
3. Mid Zambezi System
4. West Zambezi Upper System
5. West Zambezi Lower System
6. Mweru wa - Ntipa - Nsumbu System
7. Bangweulu, Kasanka/Lavushi Manda System
8. West Lunga System
Rivers
Lion Distribution Areas in Zambia
Lakes
Game Management Areas
National Parks
Zambia Country Boundary
Produced by the Zambia Wildlife Authority in January 2005

APPLICANT:
GREYSON PONDER

THE SURPRISING BENEFITS OF LION SAFARI HUNTING

THE SURPRISING BENEFITS OF LION SAFARI HUNTING (Rev. May 29, 2018)

Experts agree on the primary threats to African lion: loss of suitable habitat, loss of prey base, and conflict with humans and livestock.[i] These interrelated threats overlap. They are exacerbated by expanding human populations.[ii] Few lion still exist without management intervention to contend with these threats. Tourist safari hunting is an important management intervention that greatly counteracts those threats.

Tourist safari hunting[iii] protects and secures the largest share of lion and prey habitat. It underwrites most poaching control, incentivizes rural community tolerance, supports rural livelihoods, and significantly funds management authority operating budgets. It provides these benefits in parts of Southern and Eastern Africa where the most lion continue to exist. The benefits[iv] of tourist safari hunting counter the foremost threats to lion. Those benefits overwhelmingly account for the survival of most lion, habitat, and prey as well as the most lion population growth. Safari hunting is essential to maintain lion outside of national park boundaries as well as lion in parks when inevitably ranging beyond park boundaries.

Habitat Secured by Tourist Safari Hunting

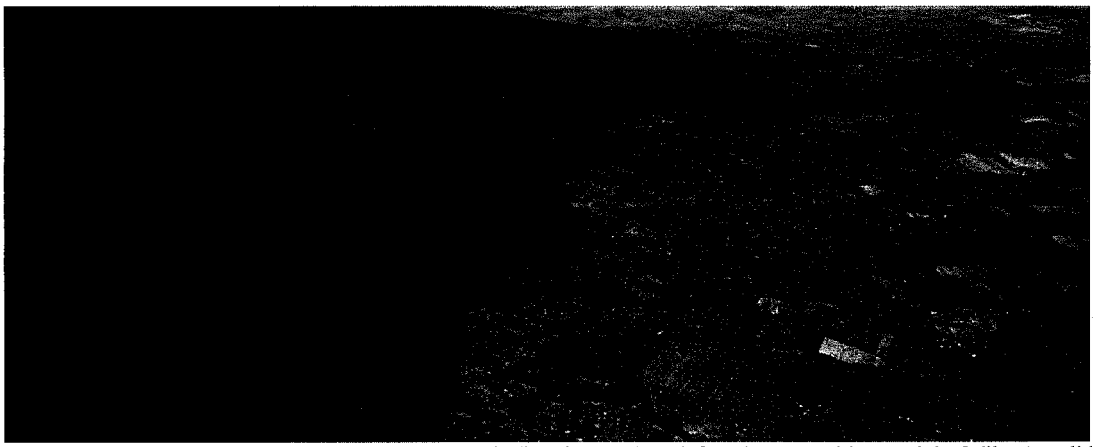
Habitat loss is the "most powerful" threat impacting lion.[v] "In the face of expanding human and livestock populations, protecting habitat and prey populations is likely the most important single factor in the conservation of lions in Africa."[vi] The leading lion ecologists agree that the "most important benefit from an African conservation perspective is that trophy hunting maintains vast areas of land for wildlife, which is invaluable in an ever more human-dominated world."[vii]

Most lion owe their existence to countries that rely on safari hunting as a conservation tool, with Tanzania representing the world's largest lion population and Mozambique, Namibia, South Africa, and Zimbabwe assessed as having "increasing" lion populations by the IUCN *Red List*.[viii] In Tanzania, for example, approximately 56.8% of the lion found in protected areas are found in hunting areas.[ix] Put simply, most lion rely on hunting area habitat thus would probably cease to exist but for hunting. "Love it or hate it, lions needed trophy hunting as much as trophy hunting needed lions."[x]

The Ratio of Hunting Areas to National Parks in Hunting Countries with the Most Lion[xi]

Country	Tanzania	Zimbabwe	Zambia	Mozambique
Size of Hunting Areas (km²)	304,000	88,000	180,000	134,425
Size of National Parks (km²)	58,000	28,000	64,000	87,806
Ratio of Hunting to National Park Areas	+5:1	3.14:1	2.81:1	1.48:1

3240 S 1-10 Service Rd. W, Suite 200, Metairie, Louisiana 70001-6911, USA
Telephone: *(504)* 837-1233 • Fax (504) 837-1145 • E-mail: jjj@conservationforce.org
www.conservationforce.org



Habitat contrast between Ibanda Game Reserve, Tanzania (hunting area) on left and communities on right (Mike Angelides)

Poaching Control

Safari hunting benefits the lion through financial support for anti-poaching, putting "boots on the ground," and as discussed in the next section, reducing rural communities' reliance on bush meat poaching.[xii] Hunting operators occupy their areas, pay hunting area lease, game, and other fees that government wildlife management authorities use to conduct anti-poaching patrols and purchase necessary equipment.[xiii] Government management authorities typically direct most of their budget to ranger staff costs, and rely on these hunting fees to pay salaries and equip rangers. For example:

- **Tanzania:** The Tanzania Wildlife Protection Fund (TWPF) underwrites conservation efforts inside and outside protected areas in Tanzania. Over 80% of the fund is utilized for poaching control and conservation activities. Through 2016, approximately 80% of funding for the TWPF and the Tanzania Wildlife Division came from hunting fees.[xiv]

- **Zimbabwe:** The Zimbabwe Parks and Wildlife Management Authority (ZPWMA) directs almost 80% of its budget to staff costs and more to equipment and training.[xv]

- **Mozambique:** According to Mozambique's National Administration of Conservation Areas, "Sport Hunting Revenues are used essentially to improve law enforcement in protected areas, hunting blocks and community programs such as Tchuma and Chipanje Chetu." From 2013-2015, this administration spent MTM 126,581,000 on poaching control.[xvi]

- **Namibia:** Hunting fees (hunting area and game) are deposited in the Game Products Trust Fund (GPTF), a statutory fund used to support conservation and rural community livelihood efforts in Namibia. From September 2012 to March 2015, the GPTF has spent N$ 27,915,463.80 on poaching control activities.[xvii]

Further, hunting operators employ their own anti-poaching patrols to cover their hunting areas, reducing the government's patrol burden.[xviii] Operator expenses and contributions for their anti-poaching teams include: paying salaries for scouts and rewards for anti-poaching achievements; supplying rations and fuel for field patrols; providing equipment such as automobiles, boats, all-terrain vehicles, GPS, tents, and uniforms; and otherwise underwriting and coordinating financial and logistical support for on-the-ground anti-poaching units. The poaching control contributions detailed below describe only a sample of overall contributions by hunting operators. Their actual contributions are significantly higher.

- **Tanzania:** In 2016, Conservation Force audited 27 hunting operators, documenting the largely unreported benefits provided by safari hunting and lion hunting. Eleven operators maintain specific patrol records and recorded 7,170 patrol days in the 2013-2015 period (19.6 years of anti-poaching patrols). Operators reporting anti-poaching results accounted for 1,409 poachers arrested; 6,223 snares and gin traps collected; 171 firearms and 1,557 rounds of ammunition confiscated; 22 vehicles and 12 motorcycles seized; 670 bicycles seized; over 1,118 knives, machetes, spears, bows, and arrows confiscated; 65 canoes seized; and 216 fishing nets confiscated. In the 2013-2015 period, the operators spent approximately $6.7 million on anti-poaching and related road opening activities.[xix]

- **Zimbabwe:** A recent ZPWMA survey of 18 hunting operators indicated that on average each hunting operator spends over $87,000 on law enforcement in their hunting areas annually. All the sampled outfitters have lion on their hunting quota.[xx] In Zimbabwe's communal areas, hunting operators lease concessions, pay fees, and share revenues with rural district councils and villages. The councils' share is directed in part to law enforcement and from 2010 to 2015, rural district councils spent almost $1.8 million on law enforcement.[xxi]

- **Zambia:** In Zambia, a small sample of four hunting operators spent ~$202,000 on poaching control in their hunting areas in 2015.[xxii]

- **Mozambique:** In the 2013-2015 period, a sample of 13 hunting operators spent over $1.2 million on anti-poaching.[xxiii]



2015 poaching control results by Rio Save Safaris in Coutada 9, Mozambique (Neil Duckworth)

Rural Community Programs

Rural communities bear the burden of living with dangerous and destructive wildlife which kill or injure family members and destroy their crops and livestock. "No one ever forgets a lion attack."[xxiv]

Rural people must have incentives to tolerate lion and steward prey. Communities may choose to exploit wildlife and habitat illegally through commercial bush meat poaching or logging if they are unable to

legally benefit from the wildlife. They retaliate more against dangerous wildlife, like lion, if they do not benefit from the species.[xxv] Government-sponsored community-based natural resource management[xxvi] programs (CBNRM) and voluntary hunting operator contributions provide cash, game meat, infrastructure improvement, and other benefits to rural communities to incentivize tolerance and control poaching. The community programs below are examples of CBNRM and operator contributions:

- **Tanzania:** Tanzania's Wildlife Management Area (WMA) program has increased the amount of protected habitat available for lion and other species by incentivizing the use of land for conservation over other land uses. There are currently 21 WMAs and another 17 being gazetted. Approximately 500,000 households participate in WMAs and receive a share of block fees, game fees, conservation fees, and other fees. $1,337,717 in revenue was generated by safari hunting in WMAs from 2011 to 2014.[xxvii]

  From 2013 to 2015, a sample of hunting operators spent over $3.125 million on community programs. This included over $250,000 for health care, $337,000 for education, $231,000 in cash from game fees, and $24,000 to build six local government offices.[xxviii]

- **Zimbabwe:** Under CAMPFIRE, approximately 800,000 households (25% of Zimbabwe's population) benefits primarily (over 90%) from safari hunting. Between 1994 and 2012, $21.5 million was allocated to CAMPFIRE communities. From 2010 to 2015, CAMPFIRE wards utilized almost $3 million for assistance to wildlife victims, food security, direct cash benefits, and social services (rehabilitating and building schools and clinics, etc.). An estimated 550,000 kilograms of hunted game meat was also distributed to CAMPFIRE communities during this period. Because of these incentives, poaching and problem animal control in CAMPFIRE areas is relatively low.[xxix]

  In the 2013 to 2015 period, Charlton McCallum Safaris paid over $1.05 million into the CAMPFIRE program of which over $470,000 accrued directly into ward accounts. These funds were used to construct schools, nurses' houses, toilet facilities, and other incentivizers.[xxx]

- **Zambia:** Hunting operators in Game Management Areas contract with the government wildlife authority and local Community Resource Board (CRB) and must commit to anti-poaching and community investment. Under these agreements and Zambian law, 50% of game fees and 20% of lease payments are distributed to the CRB, and 50% of hunted game meat is distributed to local communities—an average of 129.8 tons of game meat per year. Hunting operators are further required to hire 80% of their staff from local communities. From 2010 to 2015, 34,330,042.68 Zambian Kwacha has been distributed to rural communities.[xxxi]

  In 2015 alone, a sample of four Zambian hunting operators contributed $99,900 to rural communities in their Game Management Areas.[xxxii]

- **Mozambique:** In Mozambique, 20% of hunting fees are distributed to the local communities. By decree communities formally register with the Ministry to receive revenue that is distributed through dedicated bank accounts. There are presently 45 registered communities under this program. Moreover, communities such as the Tchuma Tchato provide a higher revenue share.[xxxiii]

  A sample of 13 Mozambican hunting operators invested $830,000 in community projects from 2013 to 2015. For example, one operator constructed 43 homes and drilled 13 boreholes to improve the livelihoods of surrounding communities.[xxxiv]

- **Namibia:** The community conservancy system provides over 165,182 km^2 in habitat and benefits over 195,000 people. Most conservancies depend on safari hunting to fund their operations and to incentivize participation through distribution of game meat. The conservancy system has benefited lion and many other species by extending available habitat and prey, and has benefitted rural Namibians by generating N$ 111 million in returns to communities and 5,147 jobs. The GPTF has made over N$ 11 million in grants for programs aimed at mitigating human-wildlife conflict.[xxxv]



Community game scout training, CAMPFIRE Program (Director Charles Jonga)

Management Authority Operating Revenue

Safari hunting generates a significant amount of operating revenue for wildlife authorities to use for law enforcement, problem animal control, compensation payments for lion damage, monitoring, planning, and other management. Wildlife authorities benefit from fees paid to hunt specific game (license or game fees), additional daily fees charged for hunters and observers, concession lease fees, professional hunter licensing fees, firearm and ammunition fees, taxes, etc.[xxxvi]

- **Tanzania:** Through 2016, over 74% of the revenue generated to TWPF is comprised of 25% of the total proceeds of harvested game in Game Reserves and Open Areas. TWPF is a principal funding source for governmental rural community support and anti-poaching in Tanzania's protected areas.[xxxvii]

- **Zimbabwe:** From 2010 to 2015, safari hunting revenue accounted for ~22% of total ZPWMA revenue (over $5 million annually).[xxxviii]

- **Zambia:** The Zambian government suspended hunting from 2013 to 2014 (for most species) and 2013 to 2015 (lion and leopard). That caused a significant decrease in revenue generated from safari hunting. Prior to the suspension, safari revenue accounted for 32% of the management authority's annual revenue.[xxxix]

- **Mozambique:** Mozambique's Central Treasury retains 20% of safari hunting revenue. Twenty percent of the remaining revenue is allocated to rural communities from where the revenue accrued. The balance is allocated to Mozambique's National Administration of Conservation Areas. From 2013 to 2015, safari revenue was MTM 126,581,000.[xl]

- **Namibia:** The exact revenue generated by safari hunting for the GPTF is unknown, however, the fund is comprised of revenue collected from the sales wildlife and wildlife products on state lands.[xli]

Additional Lion Conservation Benefits of Tourist Safari Hunting

Hundreds of hunting-based conservation organizations and foundations have long provided tens of millions of dollars for lion conservation. Examples include the following:

- **Conservation Force:** For the past decade, Conservation Force (IUCN member) has spent up to $200,000 annually towards regional, national, and local lion action plans, population status surveying from Kruger National Park to Benin Complex, lion aging, and a plethora of research and publications such as *Conservation of the African Lion: Contribution to a Status Survey.*[xlii]

- **Dallas Safari Club and Dallas Safari Club Foundation:** Dallas Safari Club (IUCN member) and Dallas Safari Club Foundation funded $1,064,997 from 2007-2017 towards direct lion conservation initiatives such as lion genetic research, monitoring, surveys to the Tanzania Lion Illumination Project, Texas A&M Foundation, WildCru, Zambia Lion Project, et al.[xliii]

- **Safari Club International and Safari Club International Foundation:** Safari Club International Foundation (IUCN member) has contributed $300,611 towards the Tanzania Lion Project from 2014-2015 (total project investment estimated at $423,000), and $250,000 for the Zambia Lion Project from 2011-2015.[xliv] In one fundraising event alone, Safari Club International raised over $1.4 million for African lion conservation.[xlv]

Conclusion

Safari hunting is the foremost force against the extirpation of lion. Most lion depend on habitat designated as hunting areas and protected by the occupancy of hunting operators and operator revenue. Lion prey also depend on that habitat and stewardship. Further, safari hunting incentivizes greater tolerance of lion by rural communities and reduces poaching through the distribution of tangible community benefits. Lion populations are healthiest and most numerous in the countries where hunted. As long as there is safari hunting, there will be lion, but in the absence of safari hunting most lion will probably be lost to the three primary threats. Lion need tourist safari hunting as much as safari hunters need lion.

---

[i] Chardonnet, P. (ed.), 2002, *Conservation of the African Lion: Contribution to a Status Survey*, p. 103-113; IUCN, 2006, *Regional Conservation Strategy for the Lion Panthera leo in Eastern and Southern Africa* (2006), p. 23; IUCN, 2006, *Conservation Strategy for Lion in West and Central Africa*, p. 18; Bauer, H. et al., 2016, *Panthera leo* in *Red List of Threatened Species*, p. 2; Macdonald, D., 2016, *Report on Lion Conservation with Particular Respect to the Issue of Trophy Hunting*, p. 32; USFWS, 2015, *Listing Two Lion Subspecies: Final Rule*, p. 80007; USFWS, 2017, *Enhancement Finding for Lions Taken as Sport-hunted Trophies in Zimbabwe during 2016, 2017 and 2018*, p. 8.

[ii] *IUCN 2006*, p. 23.

[iii] Defined as managed, licensed, regulated safari hunting by non-resident hunters for the hunter's personal enjoyment and use. It is the key part of the user-pay sustainable use system. Also called "sport hunting" to distinguish it from hunting for commercial purposes, "safari hunting" for short, "licensed, regulated hunting" because that is what it is, "big game hunting" to distinguish it from small game hunting, and "conservation hunting" because of the management purpose, design and effect. We do not use the term "trophy hunting" because it has come to be misused and is indicative of too small a component of the values of a safari hunt.

[iv] Defined as a positive conservation contribution to lion or lion habitat, prey, and lion perpetuation. It is enhancement. It is above and beyond a non-detriment, no net loss, or sustainability determination.

[v] *Chardonnet*, p. 103.

[vi] Loveridge, A.J., 2009, *Science and Recreational Hunting of Lions*, p. 120.

[vii] Dickman, A., 2018, *Ending trophy hunting could actually be worse for endangered species*, http://www.cnn.com/2017/11/24/opinions/trophy-hunting-decline-of-species-opinion-dickman/index.html; *see also* Loveridge, p. 120 ("Substantial areas of well-connected habitat with abundant natural prey populations are crucial for healthy, self-sustaining lion populations… In the face of expanding human and livestock populations, protected habitat and prey populations is likely the most important single factor in the conservation of lions in Africa."); *Macdonald*, p. 34 ("The protection of wildlife habitat is the primary benefit associated with trophy hunting, as it reduces the major threat of habitat loss—conversion to other forms of land use such agriculture and livestock"); Packer, C., 2015, *Lions in the Balance*, p. 31 ("the simple truth of the matter was that [hunters] controlled four times as much of lion habitat in Africa than was protected by the national parks. So 80 percent of the lions left in the world were in their hands").

[viii] *Macdonald*, p. 27; *Bauer*, p. 7-8.

[ix] *Tanzania Lion NDF*, p. 9.

[x] *Packer*, p. 42.

[xi] These hunting countries manage the most lion. Tanzania alone has more lion than the rest of Africa. Namibia is not included although its increasing lion population is attributed to safari hunting because it is not a high population area. South Africa has 11,000 lion but is excluded as an outlier because approximately 8,000 are captive bred, not wild.

[xii] *Macdonald*, p. 35.

[xiii] *Macdonald*, p. 35.

[xiv] *Tanzania Lion NDF*, p. 61.

[xv] *Zimbabwe Lion NDF*, p. 26-27.

[xvi] Mozambique National Administration of Conservation Areas, 2016, *Response to your letter dated 2 Feb 2016 on African Lion in Mozambique*, p. 10.

[xvii] Game Products Trust Fund, Website, http://www.gptf.org.na.

[xviii] *Tanzania Lion NDF*, p. 11, 16-17.

[xix] Conservation Force, 2016, *Tanzania Lion Enhancement Summary Report*, http://docs.wixstatic.com/ugd/87ac64_dcddf23899b847d7acbc0b9774eab119.pdf, p. 2-4.

[xx] *Zimbabwe Lion NDF*, p. 28-29.

[xxi] *CAMPFIRE Report*, p. 16.

[xxii] Conservation Force, 2016, *RE: Zambian Operator Enhancement Report Summary*, p. 1.

[xxiii] *Mozambique Lion NDF*, p. 19.

[xxiv] *Packer*, p. 42 ("Lions were mean, vicious, terrible, horrible, awful animals; local people hated them....").

[xxv] Naidoo, R., 2016, *Complementary benefits of tourism and hunting to communal conservancies in Namibia*, p. 2; *Loveridge*, p. 120; *Lindsey*, p. 463; *Macdonald*, p. 42.

[xxvi] "CBNRM aims to create the right incentives and conditions for an identified group of resource users within defined areas to use natural resources sustainably. This means enabling the resource users to benefit (economically) from resource management and providing strong rights and tenure over land and the resources. CBNRM also

supports the development of accountable decision-making bodies that can represent community members and act in their interests. CBNRM promotes conservation through the sustainable use of natural resources, enables communities to generate income that can be used for rural development, and promotes democracy and good governance in local institutions." USAID, *What is Community-Based Natural Resource Management (CBNRM)?*, p. 1.

[xxvii] USAID, 2013, *Tanzania Wildlife Management Areas Evaluation: Final Evaluation Report*, p. 12, 74; Wambura, G., 2016, *The Role of Local Communities in Enhancing Wildlife Conservation in Tanzania Presentation*, p. 8, 23-24, 38; *Tanzania Lion NDF*, p. 45.

[xxviii] *Conservation Force Tanzania Lion Report*, p. 5-7.

[xxix] *CAMPFIRE Report*, p. 5-7, 10-11, 21; Jonga, C., 2017, *CAMPFIRE Association Press Statement on Lifting of the Suspension of Elephant Trophy Imports into America*, https://www.campfirezimbabwe.org/index.php/news-spotlight/26-press-statement-21-november-2017 ("Despite [human life and crop] losses, the poaching of elephant in CAMPFIRE areas is relatively low").

[xxx] Conservation Force, 2017, *Request for Reconsideration of Denial of Permit Application PRT-04846C and PRT-04205C*, p. 14.

[xxxi] *Zambia Lion NDF*, p. 27-28, 43, 45, 49. (Note that this figure would be higher, but hunting was suspended in 2013 and 2014, and lion hunting was suspended from 2013 to 2015. Zambia's communities played a major role in lifting the suspension.) *See also* Onishi, N., 2016, *A Hunting Ban Saps a Village's Livelihood*, The New York Times, https://www.nytimes.com/2015/09/13/world/a-hunting-ban-saps-a-villages-livelihood.html.

[xxxii] *Conservation Force Zambia Report*, p. 2.

[xxxiii] *Mozambique ANAC Response*, p. 9, 11.

[xxxiv] *Mozambique Lion NDF*, p. 19; McDonald Safaris, 2016, *McDonald Safaris Operator Report*, p. 1.

[xxxv] Namibian Association of CBNRM Support Organisations, 2016, *The State of Community Conservation in Namibia: A review of communal conservancies, community forests and other CBNRM initiatives annual report 2016*, p. 7; Game Products Trust Fund, Website, http://www.gptf.org.na; *see also Macdonald*, p. 26 ("This community-based conservation model is thought to be one of the key factors behind Namibia's expanding population of free-roaming lions.").

[xxxvi] *Lindsey*, 462-464.

[xxxvii] *Tanzania Lion NDF*, p. 47.

[xxxviii] *Zimbabwe Lion NDF*, p. 27.

[xxxix] *Zambia Lion NDF*, p. 46-47.

[xl] *Mozambique ANAC Response*, p. 9-10.

[xli] Game Products Trust Fund, Website, http://www.gptf.org.na/about-us.php.

[xlii] Jackson, J., 14 Dec. 2017, personal communication; *see also* Conservation Force, Website, http://www.conservationforce.org/brochures-posters-reports.

[xliii] Mason, C., 13 Dec. 2017, personal communication.

[xliv] Safari Club International Foundation Department of Conservation, *Safari Club International Foundation Conservation Highlights*, unpaginated.

[xlv] Safari Club International, Website, https://www.safariclub.org/what-we-do/media/hunt-forever-blog/hunt-forever/2013/02/13/hunters-can-save-lions-and-lion-hunting.

APPLICANT:

GREYSON PONDER

PROVISIONING OF GAME MEAT TO RURAL COMMUNITIES AS A BENEFIT OF SPORT HUNTING IN ZAMBIA

PLOS | ONE

RESEARCH ARTICLE

Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia

Paula A. White[1]*, **Jerrold L. Belant**[2]

1 Center for Tropical Research, Institute of the Environment and Sustainability, University of California Los Angeles, Los Angeles, California, United States of America, **2** Carnivore Ecology Laboratory, Forest and Wildlife Research Center, Mississippi State University, Starkville, Mississippi, United States of America

* paw@carnivoreconservation.com

Abstract

Sport hunting has reportedly multiple benefits to economies and local communities; however, few of these benefits have been quantified. As part of their lease agreements with the Zambia Wildlife Authority, sport hunting operators in Zambia are required to provide annually to local communities free of charge i.e., provision a percentage of the meat obtained through sport hunting. We characterized provisioning of game meat to rural communities by the sport hunting industry in Zambia for three game management areas (GMAs) during 2004–2011. Rural communities located within GMAs where sport hunting occurred received on average > 6,000 kgs per GMA of fresh game meat annually from hunting operators. To assess hunting industry compliance, we also compared the amount of meat expected as per the lease agreements versus observed amounts of meat provisioned from three GMAs during 2007–2009. In seven of eight annual comparisons of these GMAs, provisioning of meat exceeded what was required in the lease agreements. Provisioning occurred throughout the hunting season and peaked during the end of the dry season (September–October) coincident with when rural Zambians are most likely to encounter food shortages. We extrapolated our results across all GMAs and estimated 129,771 kgs of fresh game meat provisioned annually by the sport hunting industry to rural communities in Zambia at an approximate value for the meat alone of >US$600,000 exclusive of distribution costs. During the hunting moratorium (2013–2014), this supply of meat has halted, likely adversely affecting rural communities previously reliant on this food source. Proposed alternatives to sport hunting should consider protein provisioning in addition to other benefits (e.g., employment, community pledges, anti-poaching funds) that rural Zambian communities receive from the sport hunting industry.

CrossMark
click for updates

OPEN ACCESS

Citation: White PA, Belant JL (2015) Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia. PLoS ONE 10(2): e0117237. doi:10.1371/journal.pone.0117237

Academic Editor: Asim Zia, University of Vermont, UNITED STATES

Received: April 3, 2014

Accepted: December 22, 2014

Published: February 18, 2015

Copyright: © 2015 White, Belant. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Data Availability Statement: All relevant data are within the paper.

Funding: These authors have no support or funding to report.

Competing Interests: The authors have declared that no competing interests exist.

Introduction

Sport hunting in Africa represents an important form of revenue-generating tourism [1],[2]. Additional reported benefits include conservation of biodiversity through protection of large tracts of land that might otherwise be converted to agricultural or domestic livestock use [3–7] and selective hunting of potentially dangerous or destructive species that can increase local people's tolerance for coexistence [8–10]. However, others report that sport hunting contributes little to rural economies or livelihoods [11].

Employment, revenues from hunting fees and licenses, contributions to community capital projects, and funding of anti-poaching scouts are potential benefits that rural communities may receive from sport hunting [12],[13]. Access to game meat has been described as the most tangible benefit to rural communities [14]; however, comparatively little effort has been made to characterize meat provisioning. Notable exceptions are Namibian communal conservancies that report annually on game meat revenues attributable to sport hunting [15], and the comprehensive summary of game meat distributions in Africa compiled by TRAFFIC which considered sport hunting in addition to game ranching and culling [14]. In Zambia, a 1971 report based on household surveys estimated that sport hunting provided 112 tonnes of dressed game meat to rural Zambians countrywide [16] (cited in [12]). We are unaware of more recent studies in Zambia, including studies that quantified provisioning at the GMA scale. In addition, we found no record of previous attempts to examine the patterns or scope of meat distributions.

Food security in developing nations is a primary focus of aide organizations worldwide [17–21]. In Zambia, 48% of the population was undernourished in 2012–2014 [22] and 19% of Zambian households were recently classified as chronically food insecure [20] defined as a continuously inadequate diet caused by the inability to acquire food [23]. Food shortage is defined as an individual receiving less than 2,200 kilocalories per day [18]. Donor aide programs provide supplemental food typically consisting of maize, sorghum, or other cereals. Although high-protein cereals are being developed [24], at present recommended daily protein requirements (50 gm/day)[25] are rarely met in Zambia [22],[26].

As part of their official lease agreements with the Zambia Wildlife Authority (ZAWA), sport hunting operators in Zambia are required to provide to rural communities a proportion of game animals harvested by clients each year. This meat is distributed free of charge to villages that reside within game management areas (GMAs) where sport hunting occurs. To legally obtain protein outside of GMAs, rural Zambians must raise their own livestock, fish, or purchase meat. Livestock husbandry is costly and precluded in some areas due to diseases [27], inadequate grazing, or presence of tsetse flies *Glossina* spp. [28]. To fish legally requires purchasing a permit and access to lakes, rivers, or seasonal ponds. Purchasing meat is expensive: about US$10/kg for beef, US$7/kg for chicken, and US$15/kg for dried fish (i.e., kapenta *Limnothrisa* sp.). Most (64%) Zambians live on less than US$1.00/day [29]. Thus, high expense makes obtaining animal protein cost prohibitive for most rural Zambians.

Obtaining sufficient amounts of protein is a widespread problem faced by rural people in many parts of Africa. Alternatives for meeting the protein requirements are being explored in other countries. In particular, game ranching, communal conservancies [30],[31], and other forms of community-based wildlife conservation programs [32] show promise. However, despite a few earlier attempts, these programs in Zambia are limited in scope, highly localized, and poorly developed [14], meaning that currently most rural Zambians do not have access to meat through these means.

Presently, the only other alternative for rural Zambians to obtain meat is illegally through poaching of wild animals or purchase of poached meat (herein referred to as bushmeat). Global concerns over the prevalence and extent of bushmeat poaching are increasing rapidly [33],[34].

Studies cite the unsustainable nature of the bushmeat trade [34] and the loss of potential income that results from poaching compared to the value of the same animals to photographic tourism or sport hunting [35].

We quantified the annual provisioning of fresh game meat by the sport hunting industry to rural communities in Zambia. Specifically, we characterized the expected and observed amounts of meat provisioned and the timing and spatial extent of meat distributions to rural communities. Finally, we discuss meat provisioning in the context of rural livelihoods, in particular food security and bushmeat poaching, in relation to Zambia's 2013–2014 hunting moratorium.

Methods

Zambia Wildlife Authority ranks GMAs as prime, secondary, or understocked based on species occurrence and animal abundance [36]. Prime GMAs include species that are fairly abundant and include highly valued trophies (e.g., African lion *Panthera leo*, leopard *P. pardus*, roan antelope *Hippotragus equinus*, and sable antelope *H. niger*) and that can accommodate five or more classical safaris and seven or more mini safaris per hunting season. Secondary GMAs include species less abundant but that generally can sustain three to four classical safaris and a minimum of five mini safaris per hunting season. Understocked GMAs contain species assemblages that are intact but with populations low enough that no hunting quota or only a minimum hunting quota is allowed [37]. Quotas are set annually for each GMA based on their ranking, an evaluation of the hunting operators' performance in the GMA during the previous season, and input from regional ZAWA scouts, ZAWA ecologists and representatives of the rural communities located within the GMAs. We obtained quotas from 2007 to 2009 from ZAWA for each of 30 GMAs in Zambia where sport hunting occurred. These 30 GMAs cover 84,033km^2 and represent 11% of Zambia's total land area. We excluded non-edible trophy species (African lion, leopard, spotted hyena *Crocuta crocuta*, Nile crocodile *Crocodylus niloticus*, small carnivores, and primates) from all calculations.

Sport hunting operators in each GMA are mandated by their lease agreements to utilize (i.e., hunt) $\geq$ 60% of their annual quota and distribute $\geq$ 50% of all game animals harvested each year to rural communities located in the GMA where the hunting occurred. Thus, 60% of the allocated quota of game species represents the estimated minimum number of edible animals harvested annually by sport hunters in Zambia; half of which represents the minimum amount of game meat that communities may expect to receive in a given year.

We collected data on meat provisioning from three GMAs (1 prime, 1 secondary, 1 understocked). During the study, each GMA was operated by individual hunting companies under a ten-year (2002–2012) lease agreement with ZAWA and the local communities. Zambia's sport hunting season occurred each year from 1 May to 31 December; however, sport hunting declines during the hottest months (mid-October to early November) and is typically discontinued when the rainy season begins in late November (P. White, personal observation).

We used reported live [38] and dressed weights [25] of game species to estimate harvested biomass. We used body weights for subspecies that occurred in Zambia when available. For species whose dressed weights were not available, we used conversion rates from a closely related species within the same genus. Reported dressed weights excluded offal; however, rural Zambians routinely consume organ meats (e.g., heart, liver, kidneys) in addition to skeletal muscle and bones which are boiled for additional nutrition (P. White, personal observation). Thus, dressed carcass weights represent minimum estimates of the amount of edible meat.

For each of the three GMAs sampled, we calculated the annual amount of meat expected through provisioning during 2007–2009 (data for 2008–2009 only were available for the

understocked GMA). We converted the number and species of animals represented by 50% of the utilized quota to kgs using the same dressed weight calculations as were applied to meat distribution logs (below). We also estimated the expected mean annual amount of meat provisioned in all GMAs where sport hunting occurred during 2007–2009. We excluded GMAs not hunted during the previous lease period, specialized GMAs, private game ranches, and conservancies. We used 60% of the allocated quotas at 50% distribution and converted these values to dressed weights to estimate the total kgs of meat expected to be provisioned countrywide.

We estimated the amount of meat provisioned annually during the 2005–2011 hunting seasons for the sampled prime and secondary GMAs and for five seasons during 2004–2011 for the understocked GMA. We obtained this information from meat distribution logs provided to ZAWA by hunting operators. Logs included date, species, portion of carcass distributed (e.g., half, whole), and generally a description of the recipient location (e.g., name of village, clinic, school, game scout post). Each log entry represented one animal or portion of an animal distributed to one location as verified by signature of the receiving party. We calculated dressed weights (kgs) from species and amount of provisioned meat as described previously.

To assess performance of the sport hunting industry in meeting its meat provisioning requirements, we compared annual expected and observed amounts (kgs) of provisioned meat in the three sampled GMAs during 2007–2009. We also summarized the amount (kgs) of meat provisioned and number of distribution events by month and year. When possible, we determined locations of distribution events using Google Earth, survey charts, and 1:250,000 scale topographic maps (Surveyor General, Lusaka, Zambia) and estimated distances from the recipients' locations to the provisioning hunting camp to determine the spatial extent of meat provisioning.

We used generalized linear mixed-effects models in program R (version 3.0.2; R Development Core Team 2013) [39] to estimate differences in response variables among GMAs and months. Response variables were the amount of meat provisioned and number of distribution events; explanatory variables were GMA and month. We included year as a random effect. We used least-squares difference means tests to compare differences among GMAs and months. We report means with ± 1 standard deviation and set statistical significance at $\alpha = 0.05$.

Results

Mean expected annual amount (kgs) of meat distributed countrywide was 129,771 ± 15,862 kgs during 2007–2009, representing 2,359 ± 320 individual animals of 20 species (Table 1). The mean expected annual amount of meat provisioned from 2007 to 2009 was greater for the prime (6187.3 ± 262.1 kgs) and secondary (5810.0 ± 248.6 kgs) GMAs than for the understocked (1204.0 ± 0 kgs) GMA. Similarly, the observed amount of meat provisioned annually during 2004–2011 varied among GMAs ($F_{2,16} = 21.97$, $P < 0.001$), with the prime (5832.1 ± 1579.9 kgs; $n = 7$) and secondary (6495.0 ± 1876.1 kgs; $n = 7$) GMAs provisioning greater ($P < 0.05$) amounts of meat than the understocked (973.4 ± 390.3 kgs; $n = 5$) GMA. Considering paired 2007–2009 data only, the observed amounts (kgs) of meat provisioned in prime and secondary GMAs exceeded what was expected each year (Fig. 1). In the understocked GMA, observed amounts exceeded expectations in one of two years.

The mean annual number of distribution events varied among GMAs ($F_{2,16} = 17.32$, $P < 0.001$), with more distribution events ($P < 0.05$) in the prime GMA (39.3 ± 8.7) than in the secondary (24.9± 8.9) and understocked (13.8 ± 8.1) GMAs. Annual number of distribution events in the secondary and understocked GMAs were similar ($P > 0.05$). The timing of distributions varied across months ($F_{5,95} = 7.13$, $P < 0.001$) with more distribution events during

Table 1. Mean (± SD) annual harvest quotas and expected amounts (kgs) of dressed meat provisioned during normal hunting seasons in Zambia, 2007–2009.

	Allocated Quota Countrywide		Mandatory 60% Utilization of Allocated Quota		Mandatory 50% Distribution of Utilized Quota		Expected Dressed Meat Provisioned (kg)	
Species	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Cape buffalo (*Syncerus caffer*)	295.3	20.6	177.2	12.4	88.6	6.2	31,718.8	2217.6
Bushbuck (*Tragelaphus scriptus*)	160.0	24.3	96.0	14.6	48.0	7.3	1344	204.4
Bush pig (*Potamochoerus larvatus*)	56.7	21.1	34.0	12.7	17.0	6.3	629	234.5
Common duiker (*Sylvicapra grimmia*)	95.7	22.3	57.4	13.4	28.7	6.7	315.7	73.6
Eland (*Taurotragus oryx*)	46.3	15.5	27.8	9.3	13.9	4.7	5740.7	1920.8
Lichtenstein's hartebeest (*Alcelaphus buselaphus*)	89.3	17.2	53.6	10.3	26.8	5.2	2572.8	496.6
Hippopotamus (*Hippopotamus amphibious*)	206.3	23.2	123.8	13.9	61.9	7.0	53853	6067.0
Impala (*Aepyceros melampus*)	344.7	18.9	206.8	11.3	103.4	5.7	3308.8	181.2
Greater kudu (*Tragelaphus strepsiceros*)	117.0	21.4	70.2	12.8	35.1	6.4	4598.1	840.1
Red lechwe (*Kobus leche*)	15.7	4.6	9.4	2.8	4.7	1.4	324.3	95.6
Oribi (*Ourebia ourebi*)	48.3	9.5	29.0	5.7	14.5	2.8	116	22.7
Puku (*Kobus vardoni*)	191.7	10.3	115.0	6.2	57.5	3.1	2357.5	126.2
Southern reedbuck (*Redunca arundinum*)	67.3	11.0	40.4	6.6	20.2	3.3	585.8	95.8
Roan (*Hippotragus equinus*)	45.7	13.6	27.4	8.2	13.7	4.1	2041.3	608.5
Sable (*Hippotragus niger*)	61.3	11.9	36.8	7.2	18.4	3.6	2318.4	451.0
Sitatunga (*Tragelaphus spekei*)	24.3	2.3	14.6	1.4	7.3	0.7	459.9	43.6
Warthog (*Phacochoerus africanus*)	182.0	30.1	109.2	18.1	54.6	9.0	2948.4	487.9
Waterbuck (*Kobus ellipsiprymnus*)	102.0	25.0	61.2	15.0	30.6	7.5	4375.8	1071.6
Wildebeest (*Connochaetes taurinus*)	74.3	18.0	44.6	10.8	22.3	5.4	3122	756.4
Zebra (*Equus quagga*)	135.7	19.6	81.4	11.8	40.7	5.9	7041.1	1017.5
Totals	2359.7	320.6	1415.8	192.4	707.9	96.2	129,771.4	15,861.5

Expected dressed meat provisioned calculated using live and dressed weights of game species after Skinner & Smithers (1990) and Bothma & du Toit (2010), respectively.

doi:10.1371/journal.pone.0117237.t001

July and September and fewer during May (Fig. 2). There was no interaction between GMA and month ($F_{10,95} = 1.32$, $P = 0.233$).

The observed amount (kgs) of meat provisioned each month varied among GMAs ($F_{10,95} = 1.24$, $P = 0.277$) with greater amounts of meat provisioned from the prime and secondary

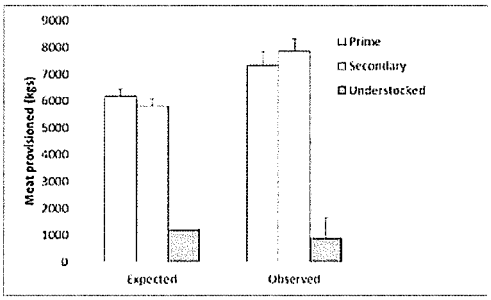


Fig 1. Expected versus observed amounts (kgs) of meat provisioned in each of three Game Management Areas (GMA), Zambia.

doi:10.1371/journal.pone.0117237.g001

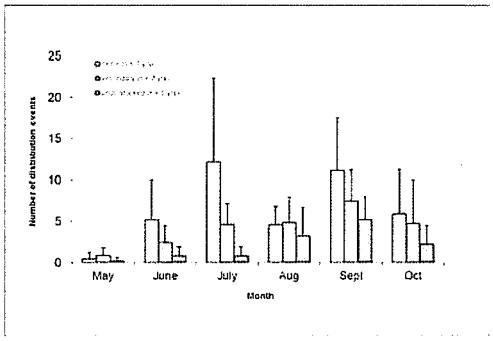


Fig 2. Mean (± SD) number of meat distribution events by month for three Game Management Areas, Zambia.

doi:10.1371/journal.pone.0117237.g002

GMAs than from the understocked GMA ($P < 0.05$; Fig. 3). Overall, mean total amounts (kgs) of meat provisioned were greatest in September and least in May ($F_{5,95} = 6.15$, $P < 0.001$). There was no interaction between GMA and month ($F_{10,95} = 1.32$, $P = 0.233$). In the prime GMA, mean meat provisioning in July and September exceeded 1,700 kgs/month. In the secondary GMA, mean monthly provisioning was 1,800 kgs in September and exceeded 1,250 kgs/month during July–October. The greatest mean monthly amount of meat provisioned in the understocked GMA was in September (> 400 kgs).

Distribution logs contained locations of meat recipients in 62% ($n = 518$) of entries, including 63% ($n = 275$) in the prime GMA, 78% ($n = 174$) in the secondary GMA, and 16% ($n = 69$) in the understocked GMA. Remaining entries were received by community-appointed liason officers who oversaw onward distribution. To assess the spatial extent of meat provisioning, we determined specific locations for 336 distribution events in relation to the locations of hunting camps that supplied the meat. Meat provisioning extended to > 50 km from sport hunting camps with most (70%) occurring within 20 km of camps (Fig. 4).

Discussion

In Zambia, provisioning of fresh game meat by sport hunting operators constituted an important source of protein for rural communities, with actual meat provisioned exceeding 6,000 kgs annually in the sampled prime and secondary GMAs. Meat provisioning by the hunting industry appeared reliable across years and exceeded expectation in each GMA and in every year

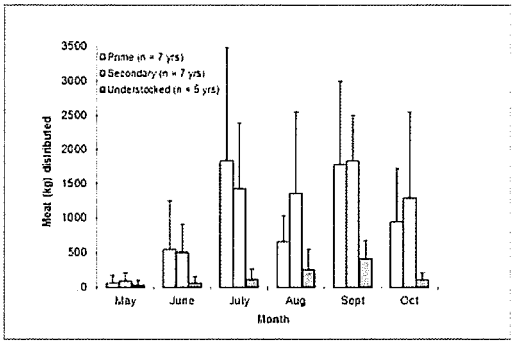


Fig 3. Mean (±SD) amount (kgs) of meat distributed by month for three Game Management Areas, Zambia.

doi:10.1371/journal.pone.0117237.g003

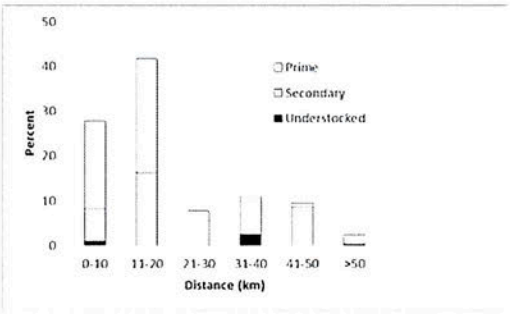


Fig 4. Distances from sport hunting camps of meat provisioned from three Game Management Areas, Zambia.

doi:10.1371/journal.pone.0117237.g004

except one (understocked GMA in 2009). Variations in the amount and timing of distributions appeared influenced in part by unpredictable short-term perturbations. For example, eruption of the Icelandic volcano and subsequent disruption to international flights in 2010 [40] caused the abrupt cancellation of numerous hunts and lowered the amount of meat distributed in some months that year (PHAZ, personal communication).

The provisioning of greater amounts of meat than expected resulted when operators successfully hunted more than the minimum 60% required of their annually allocated quota (P. White, unpublished data). These results illustrate a potential conflict of interest; ZAWA receives revenues based on GMA ranking (prime GMAs carry the highest fees) as well as the number of animal licenses sold. Therefore, ZAWA could be motivated to rank GMAs as high as possible and to allocate larger quotas in order to receive greater revenues from hunting operators [37]. Local communities also receive a portion of each animal license fee, and receive more meat when allocated quotas are high, especially for large-bodied species. Thus, community representatives engaged in quota setting exercises may also be motivated to support high quotas.

Likewise, hunting operators may be motivated to sell as many hunts as possible each year to maximize profits, especially in prime GMAs where fees are greater. However, an operator's future success is gauged on quality of trophies obtained in previous years. Trophy quality is judged on size and age rather than number of animals shot [41]. Further, lease periods of $\geq$ 10 years help promote good stewardship because holders of longer-term leases have a vested interest in conserving wildlife populations [42]. Zambian Wildlife Authority requirements of a minimum annual harvest could promote shooting of immature animals if allocated quotas are excessive. Despite existing protocols for post-season meetings designed to set quotas in accordance with best available information, allocated quotas are subject to later change by ZAWA's head office sometimes without consulting regional ecologists, hunting operators, or local communities. Subsequently, hunting operators occasionally request reduced quotas for certain species if they believe the allocated quota to be excessive in their GMA (PHAZ, personal communication). A more standardized methodololgy for monitoring trends in game population abundance, preferably including estimates of precision, could simplify setting of quotas and help ensure sustainable harvest.

The amount of meat and frequency of meat distributions was generally greater during months (e.g., September) when rural people are most likely to experience food shortages i.e., when alternative sources of food are exhausted and prior to annual crop production [43]. With a hunting moratorium in place since January 2013 throughout most of Zambia's GMAs, game meat supplied by the sport hunting industry has been almost eliminated. Over 60% of Zambia's

human population was classified as rural in 2013 and 83% of rural Zambian households are poor [44]. Most (20 of 30) of the GMAs analyzed in this study are in three of Zambia's poorest and most remote provinces (Northwestern, Eastern, and Southern) [44]. Zambia's poorest families whose crop production is insufficient to support themselves rely on income from casual labor to purchase food during shortages [43]. Food is the largest expenditure for Zambia's rural poor [45] for whom casual labor constitutes a major source of income [46]. However, most employment opportunities provided by sport hunting camps each year were lost during the current moratorium. This included casual work (road clearing, camp building) as well as seasonal jobs that lasted throughout the hunting season (camp staff, trackers and skinners, drivers and mechanics, etc.). In addition, commodities normally purchased by hunting camps from local communities (e.g., thatching grass, vegetables, maize meal) were not needed (P. White, unpublished data). Thus, in addition to the loss of provisioned meat, many rural people may lack the financial resources to legally purchase meat. During the similar time period (February 2013–February 2014) inflation in Zambia increased 7.6% [47]. The rate of inflation has since increased to 8.1% (November 2013–November 2014) with the cost of food contributing the most to the annual increase [48]. Zambia's poorest provinces have experienced the highest inflation rates countrywide [48].

In the absence of sport hunting, rural communities need alternatives to reliably and legally obtain meat. Solutions must be appropriate to local situations however [34], and consider the needs of humans and wildlife to avoid adverse effects [49–51]. Domestic livestock are excluded from many parts of Zambia due to tsetse flies [28] and can cause habitat degradation if overstocked [52]. Game ranching can provide a source of meat and African game meat has a greater protein content ($>$ 20% per 100g) than domestic species ($<$ 20% per 100g) [25]. But whereas sport hunting operators provision free meat as part of their lease agreements, ranchers may expect fair or subsidized prices for their product [53]. A shift to greater reliance on wild fisheries can result in depletion of fish stocks [33]; Zambia's native fish stocks are showing evidence of severe depletion [54],[55]. Communal conservancies that incorporate game and domestic stock could provide rural people with protein and income. These programs require considerable start-up investment and maintenance and a sport hunting component is often needed to ensure success, especially in the early stages [56],[57]. The most profitable conservancies include a sport hunting component [7],[15]; however, the income received by individuals is inversely related to human population density [10]. Benefits to residents diminish when conservation-benefit programs result in an influx of immigrants seeking to share in returns [58],[59].

Where alternative sources of food and income are not available, incidents of bushmeat poaching increase during the late dry season [35],[60],[61]. Many hunters sell bushmeat to obtain cash to purchase other foods [34], material goods [60], or to enhance their farming efforts thereby increasing the income potential of their crops [62]. Whether hunting for food or cash, expanding human populations coupled with the unsustainable hunting methods favored by bushmeat poachers have caused widespread concerns for the viability of wildlife populations and entire species [34],[63],[64]. Studies of bushmeat hunters in Zambia [60] and buyers in Zimbabwe [53] concluded that increasing the supply of free meat would help reduce bushmeat poaching.

Those most dependent on bushmeat for food are often the most remote and marginalized groups [33],[34],[49]. In Zambia, poor families are more likely to live $\geq$ 20 km from the nearest markets than families that are not poor [45]. Most of Zambia's GMAs are located in the poorest and most remote provinces [44]. Sport hunting operators in Zambia provisioned meat to at least 50 km from their hunting camps, which were situated in remote areas on average 84 km from the nearest towns (N = 32 camps). While the price of bushmeat can vary with distance to

source [65], average cost of bushmeat in Zambia in 2012 was US$4.75/kg of fresh game meat (P. White, unpublished data). Thus, the estimated replacement cost of game meat exceeds US $27,700/year for each prime GMA, US$30,850/year for each secondary GMA, and US$4,620/year for each understocked GMA. Countrywide, the estimated annual cost to purchase the equivalent of 129,771 kgs of fresh game meat is US$616,412, excluding butchering and delivery costs. At > 20% protein per 100g game meat, this is equivalent to 519,084 people days of protein per year. This figure is based on the recommended daily protein requirement of 50 gm/day [25] being fulfilled entirely by animal protein. In fact, Zambians on average obtain less than 20% of their dietary energy from animal protein [66]. Thus, although meat provisioned by sport hunting operators represents a small percentage of protein requirements for Zambians, it appears an effective means of distributing fresh, high quality meat to some of the most remote areas of the country with the greatest protein needs, thereby partially alleviating protein deficiencies in rural Africans. Elsewhere in Africa (e.g., Selous Game Reserve, Tanzania) where communities may be located too far from sport hunting camps to facilitate distribution of fresh meat, alternative sources of protein may be required.

The recent moratorium on sport hunting throughout much of Zambia created a crisis situation [67]. Bushmeat poaching is a serious problem in Zambia [14],[37] and the severity and rate of poaching has escalated during the current hunting closure [68]. Similarly, accelerated loss of wildlife occurred during previous (2000–2002) hunting closures in Zambia [4] and elsewhere (Kenya [9],[69]). Zambia's human population continues to increase (2.8% in 2010) [70]. From 1987–1997, Zambia's wildlife sector underperformed with regards its potential to supply game meat to rural people [14]. This included game ranching and cropping schemes in addition to sport hunting.

We characterized and quantified meat provisioning in Zambia. Large-scale sport hunting also occurs in the African countries of Namibia, Mozambique, Tanzania and Zimbabwe. In all five countries, over 60% of the total population is rural, with at least 25% of the population in each country categorized as undernourished [22]. With the exception of Namibia, each of these countries has lower than average GDPs compared to the mean for all African countries [71]. Globally, Zambia, Mozambique and Tanzania each rank in the bottom 20 of food supply of meat [66]. As in Zambia, most hunting areas in these other four countries are located in rural regions [72]. National governments and wildlife authorities are responsible for establishing hunting quotas and lease agreements including meat distribution requirements, thus extrapolation of meat provisioning in Zambia to other countries would be speculative, and wider-scale estimates are beyond the scope of this paper. However, the detailed information we provide for Zambia may serve as a template for future investigations of expected meat distributions in other countries or regions where hunting occurs.

While the amount of game meat provisioned annually by Zambia's sport hunting industry is substantial, a multi-use approach that incorporates sport hunting, game ranching, and communal conservancies for additional sources of protein and income in rural areas will likely be required to keep pace with the growing demand for meat and jobs. It is vital that Zambia's GMAs be afforded sound custody unless and until viable alternatives offering the same or greater benefits than sport hunting provided can be implemented.

Acknowledgments

This research was conducted under Zambia Employment Permit No. 008872 in partnership with Zambia Wildlife Authority who generously provided details of quotas. We thank members of the Professional Hunters Association of Zambia, Safari Hunter and Operator Association of Zambia, and numerous individuals who provided information. We thank D. Boyd,

E. Boydston and three anonymous reviewers for comments on an earlier draft of this manuscript.

Author Contributions

Conceived and designed the experiments: PAW. Performed the experiments: PAW. Analyzed the data: PAW JLB. Contributed reagents/materials/analysis tools: JLB. Wrote the paper: PAW JLB.

References

1. Booth VR (2009) A comparison of prices of hunting tourism in Southern and Eastern Africa. Budapest, Hungary: Joint Publication of FAO and CIC. 40 p. PMID: 25506961
2. Barnett R, Patterson C (2005) Sport hunting in the Southern African development community (SADC) region: An overview. Johannesburg, South Africa: TRAFFIC East/Southern Africa. 116 p. PMID: 25275211
3. Lewis D, Alpert P (1997) Trophy hunting and wildlife conservation in Zambia. Conservation Biology 11: 59–68.
4. Lewis DJ, Jackson JJ (2005) Safari hunting and conservation on communal land in southern Africa. In: Woodroffe R, Thirgood S, Rabinowitz A, editors. People and wildlife: Conflict or coexistence? Cambridge, UK: Cambridge University Press. pp. 239–251.
5. 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.
6. Lindsey PA, Roulet PA, Romanach SS (2007) Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa. Biological Conservation 134: 455–469. PMID: 17709564
7. Loveridge AJ, Reynolds JC, Milner-Gulland EJ (2007) Does sport hunting benefit conservation? In: Macdonald D, Service K, editors. Key topics in conservation biology. Malden, Massachusetts: Blackwell Publishing Ltd. pp. 222–238.
8. Bond I (1994) Importance of elephant hunting to CAMPFIRE revenue in Zimbabwe. TRAFFIC Bulletin 14: 117–119.
9. Norton-Griffiths M (1998) The economics of wildlife conservation policy in Kenya. In: Milner-Gulland E, Mace R, editors. Conservation of biological resources. Oxford, UK: Blackwell Science. pp. 279–293.
10. Leader-Williams N, Hutton JM (2005) Does extractive use provide opportunities to offset conflicts between people and wildlife? In: Woodroffe R, Thirgood S, Rabinowitz A, editors. People and wildlife: Conflict or coexistence? Cambridge, UK: Cambridge University Press. pp. 140–161.
11. Campbell R (2013) The $200 million question: how much does trophy hunting really contribute to African communities? A report for the African Lion Coalition. Melbourne, Australia: Economists at Large. doi: 10.1007/s13197-013-0993-z PMID: 25593984
12. Astle WL (1999) A history of wildlife conservation and management in the mid-Luangwa valley, Zambia. Bristol, UK: British Empire and Commonwealth Museum. 149 p. PMID: 25506965
13. Jackson JJ (1996) An international perspective on trophy hunting. In: Leader-Williams N, Kayera JA, Overton GL, editors. Tourist hunting in Tanzania. Gland, Switzerland and Cambridge, UK: IUCN. pp. 7–11.
14. Barnett R (1997) Food for Thought: The utilization of wildlife meat in East and Southern Africa. Nairobi, Kenya: TRAFFIC East/Southern Africa. 264 p. PMID: 25165803
15. NASCO (2013) The state of community conservation in Namibia: A review of communal conservancies, community forests and other CBNRM initiatives (2012 Annual Report). Windhoek, Namibia. 64 p. Available: http://nasco.org.na. Accessed 2014 Mar 11.
16. Stier JC (1973) Safari hunting in the Luangwa valley. Mimeograph. Department of Wildlife, Fisheries and National Parks. Chilanga, Zambia.
17. UN (2011) United Nations 2000 Millennium Declaration. Country development cooperation strategy 2011–2015. Resolution adopted by the General Assembly A/RES/55/2 Fifty-fifth session agenda item 60(b), 18 September 2000. Available: http://www.usaid.gov/zambia. Accessed 2013 Dec 12.
18. von Braun J, Vargas Hill R, Pandya-Lorch R, editors (2009) The poorest and hungry: Assessments, analyses, and actions. IFPRI 2020 Book. Washington, DC: International Food Policy Research Institute. 584 p. Available: http://www.ifpri.org. Accessed 2013 Dec 2.
19. WFP (2010) World Food Programme. Available: http://www.WFP.org. Accessed 2014 Mar 5.

20. FTF (2011) Zambia FY 2011–2015 multi-year strategy. Feed The Future. Available: http://www.feedthefuture.gov. Accessed 2014 Jan 2.
21. GAFSP (2013) Increasing incomes, reducing hunger. Annual Report. Washington, DC: Global Agriculture and Food Security Programme. Available: http://www.GAFSPFUND.ORG. Accessed 2014 Jan 29.
22. FAO (2014) Statistical Yearbook 2014 Africa Food and Agriculture. Report. Accra, Ghana: Food and Agriculture Organization of the United Nations, Regional Office for Africa. Available: http://www.fao.org. Accessed 2014 Nov 30.
23. WB (1986) Poverty and hunger: Issues and options for food security in developing countries. World Bank Policy Study. Washington, DC: World Bank.
24. Henley EC, Taylor JRN, Obukosia SD (2010) The importance of dietary protein in human health: Combating protein deficiency in sub-Saharan Africa through transgenic biofortified sorghum. In: Taylor SL, editors. Advances in food and nutrition research. Burlington, Massachusetts: Academic Press. pp. 21–52. doi: 10.1016/S1043-4526(10)60002-2 PMID: 20691952
25. Bothma JdP, du Toit JG (2010) Game ranch management. Pretoria, South Africa: Van Schaik Publishers. 979 p. PMID: 25506974
26. FAO (2010) Food balance sheets. FAO Statistics Division. Rome, Italy: Food and Agriculture Organization of the United Nations. Available: http://www.fao.org/statistics. Accessed 2014 Mar 6. PMID: 25506974
27. Lewis D (2005) Synergies between animal husbandry and wildlife conservation: perspectives from Zambia. In: Osofsky SA, Cleaveland S, Karesh WB, Kock MD, Nyhus PJ, Starr L, Yang A, editors. Conservation and development interventions at the wildlife/livestock interface: Implications for wildlife, livestock and human health. Gland, Switzerland and Cambridge, UK: IUCN. pp. 153–156.
28. Marks SA (2005) Large mammals and a brave people: Subsistence hunters in Zambia. New Brunswick, New Jersey: Transaction Publishers. 285 p. PMID: 25275211
29. ZCSO (2012) Zambia Central Statistical Office. Available: http://www.zamstats.gov.zm. Accessed 2014 Jan 1.
30. 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, editors. CITES and CBNRM Proceedings of an international symposium on "The relevance of CBNRM to the conservation and sustainble use of CITES-listed species in exporting countries". Vienna, Austria: IUCN, Gland, Switzerland and IIED, London, UK. pp. 59–70.
31. Shurter S (2013) Gnusletter. IUCN Antelope Specialist Group. doi: 10.1007/s13197-013-0993-z PMID: 25593984
32. Baldus RD (2009) A practical summary of experiences after three decades of community-based wildlife conservation in Africa "What are the lessons learnt?" Budapest, Hungary: Joint Publication of FAO and CIC. 128 p. PMID: 25506961
33. Bennett EL (2002) Is there a link between wild meat and food security? Conservation Biology 16: 590–592.
34. Milner-Gulland EJ, Bennett EL, the SBC 2002 Annual Meeting Wild Meat Group (2003) Wild meat: the bigger picture. Trends in Ecology and Evolution 18: 351–357.
35. Lindsey PA, Balme G, Becker M, Begg C, Bento C, et al. (2013) The bushmeat trade in African savannas: Impacts, drivers, and possible solutions. Biological Conservation 160: 80–96.
36. Nyirenda VR, Liwena S, Kaumba Chaka H (2008) Atlas of the national parks of Zambia. Lusaka, Zambia: New Horizon Printing Press. 47 p. PMID: 25506952
37. Simasiku P, Simwanza HI, Tembo G, Bandyopadhyay S, Pavy J (2008) The impact of wildlife management policies on communities and conservation in game management areas in Zambia. Lusaka, Zambia: Natural Resources Consultative Forum. 37 p. PMID: 25506952
38. Skinner JD, Smithers RHN (1990) The mammals of southern African subregion. Pretoria, South Africa: University of Pretoria. 771 p. PMID: 25144095
39. R Development Core Team (2013) R: A language and environment for statistical computing. Vienna, Austria. Available: http://www.Rproject.org. Accessed 2014 Mar 11.
40. Wikipedia (2014) Air travel disruption after the 2010 Eyjafjallajokull eruption. Available: http://en.wikipedia.org/w/index.php/600193963. Accessed 2014 Mar 18.
41. Damm GR (2008) Recreational trophy hunting: "What do we know and what should we do?" In: Baldus RD, Damm GR, Wollscheid K, editors. Best practices in sustainable hunting—a guide to best practices from around the world. CIC Technical Series Publication No.1. Budapest, Hungary: International Council for Game and Wildlife Conservation. pp. 5–11.

42. Baldus RD, Cauldwell AE (2004) Tourist hunting and its role in development of wildlife management areas in Tanzania. Dar es Salaam, Tanzania: GTZ—Wildlife Programme Tanzania. PMID: 25057686

43. FEWS (2014) Food Security Outlook Update. Available: http://www.fews.net. Accessed 2014 Mar 21.

44. IFAD (2014) International Fund for Agricultural Development. Available: http://ruralpovertyportal.org. Accessed 2014 Nov 30.

45. Ahmed AU, Hill RV, Smith LC, Frankenberger T (2007) The poorest and hungry: characteristics and causes. In: von Braun J, Hill RV, Pandya-Lorch R, editors. The poorest and hungry: Assessments, analyses, and actions: IFPRI 2020 book. Washington, DC: International Food Policy Research Institute. pp. 107–115. Available: http://www.ifpri.org. Accessed 2013 Dec 2.

46. ZVAC (2004) Zambia livelihood map rezoning and baseline profiling. Lusaka, Zambia.

47. ZCSO (2014) The Monthly February 2014. Zambia Central Statistical Office. Available: http://www.zamstats.gov.zm. Accessed 2014 Mar 25. doi: 10.1016/j.fsigen.2014.12.009 PMID: 25596557

48. ZCSO (2014) The Monthly November 2014. Zambia Central Statistical Office. Available: http://www.zamstats.gov.zm. Accessed 2014 Nov 30. doi: 10.1016/j.fsigen.2014.12.009 PMID: 25596557

49. Bennett EL, Blencowe E, Brandon K, Brown D, Burn RW, et al. (2006) Hunting for consensus: Reconciling bushmeat harvest, conservation, and development policy in West and Central Africa. Conservation Biology 21: 884–887.

50. CBD (2011) Incentive measures for the conservation and sustainable use of biological diversity: Case studies and lessons learned. CBD Technical Series No.56. Montreal, Canada: Secretariat of the Convention on Biological Diversity. 65 p. doi: 10.1016/j.recot.2011.11.003 PMID: 23594804

51. Gubbi S (2010) Are conservation funds degrading wildlife habitats? Economic and Political Weekly Vol XLV 26 June 2010, pp. 22–25.

52. Kgosikoma EO, Mojeremane W, Harvie BA (2013) Grazing management systems and their effects on savanna ecosystem dynamics: A review. Journal of Ecology and the Natural Environment 5: 88–94.

53. Lindsey PA, Romanach SS, Matema S, Matema C, Mupamhadzi I, et al. (2011) Dynamics and underlying causes of illegal bushmeat trade in Zimbabwe. Oryx 45: 84–95.

54. Haller T, Merten S (2008) "We are Zambians: Don't Tell Us How to Fish!" Institutional Change, Power Relations and Conflicts in the Kafue Flats Fisheries in Zambia. Human Ecology 36: 699–715.

55. IRIN (2014) Zambia: mosquito-net fishing threatens Lake Tanganyika. IRIN Humanitarian news and analysis. Available: http://www.irinnews.org/report/86565. Accessed 2014 Mar 18.

56. Weaver LC, Petersen T (2008) Namibia communal area conservancies. In: Baldus RD, Damm GR, Wollscheid K, editors. Best practices in sustainable hunting—A guide to best practices from around the world. CIC Technical Series Publication No. 1. Budapest, Hungary: International Council for Game and Wildlife Conservation. pp. 48–52.

57. Child BA, Musengezi J, Parent GD, Child GFT (2012) The economics and institutional economics of wildlife on private land in Africa. Pastoralism: Research, Policy and Practice 2:18. Available: http://www.pastoralismjournal.com/content/2/1/18.

58. Oates JF (1999) Myth and reality in the rain forest: How conservation strategies are failing in West Africa. Berkeley, California: University of California Press. 338 p. PMID: 25506965

59. Ahmed J, Bergstrom C, Bryceson I, Child B, Francis J, et al. (2001) Lessons learned: Case studies in sustainable use. International Union for the Conservation of Nature.

60. Brown T, Marks S (2007) Livelihoods, hunting and the game meat trade in northern Zambia. In: Davies G, Brown D, editors. Bushmeat and livelihoods: Wildlife management and poverty reduction. Malden, Massachusetts: Blackwell Publishing Ltd. pp. 92–105.

61. Becker M, McRobb R, Watson F, Droge E, Kanyembo B, et al. (2013) Evaluating wire-snare poaching trends and the impacts of by-catch on elephants and large carnivores. Biological Conservation 158: 26–26.

62. Lewis DM (2007) Can wildlife and agriculture coexist outside of protected areas in Africa? A hopeful model and a case study in Zambia. In: Davies G, Brown D, editors. Bushmeat and livelihoods: Wildlife management and poverty reduction. Malden, Massachusetts: Blackwell Publishing Ltd. pp. 177–196.

63. Davies G, Brown D (2007) Bushmeat and livelihoods: Wildlife management and poverty reduction. Malden, Massachusetts: Blackwell Publishing Ltd. 274 p. doi: 10.1093/jxb/erm028 PMID: 25506957

64. Nasi R, Brown D, Wilkie D, Bennett E, Tutin C, et al. (2008) Conservation and use of wildlife-based resources: The bushmeat crisis. Montreal, Canada and Bogor, Indonesia: Secretariat of the Convention on Biological Diversity and Center for International Forestry Research. 50 p. PMID: 25506952

65. Brashares JS, Golden CD, Weinbaum KZ, Barrett CB, Okello GV (2011) Economic and geographic drivers of wildlife consumption in rural Africa. Proceedings of the National Academy of Sciences 108: 13931–13936. doi: 10.1073/pnas.1011526108 PMID: 21873180

66. FAO (2014) Food and Nutrition in Numbers. Rome, Italy: Food and Agriculture Organization of the United Nations. Available: http://www.fao.org. Accessed 2014 Nov 30. doi: 10.1016/j.fsigen.2014.12.009 PMID: 25596557

67. Bulletin and Record (2013) The killing fields of Zambia. Special Report. November 2013, Vol. 2. Lusaka, Zambia: Original Publishers Ltd.

68. SLCS (2013) Oct, Nov, Dec Newsletter. South Luangwa Conservation Society. Available: http://www.slcszambia.org.

69. King A (2011) No reason to conserve: Exploring the drivers and performance of wildlife conservation in Kenya. Community-based conservation: Case studies. In: Abensperg-Traun M, Roe D, O'Criodain C, editors. 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: IUCN, Gland, Switzerland and London, UK. pp. 78–85.

70. ZCSO (2014) Zambia in Figures: 1964–2014. Report. Lusaka, Zambia: Central Statistical Office. Available: http://wwwzamstats.gov.zm. Accessed 2014 Nov 30.

71. OECD (2012) African Economic Outlook. Organisation for Economic Co-operation and Development. Available: http://www.oecd-ilibrary.org. Accessed 2014 Dec 1. doi: 10.1016/j.asjsur.2012.06.010 PMID: 25554668

72. AfricaHunting (2014) Hunting Information by Country. Available: http://www.AfricaHunting.com. Accessed 2014 Dec 1.

APPLICANT:

GREYSON PONDER

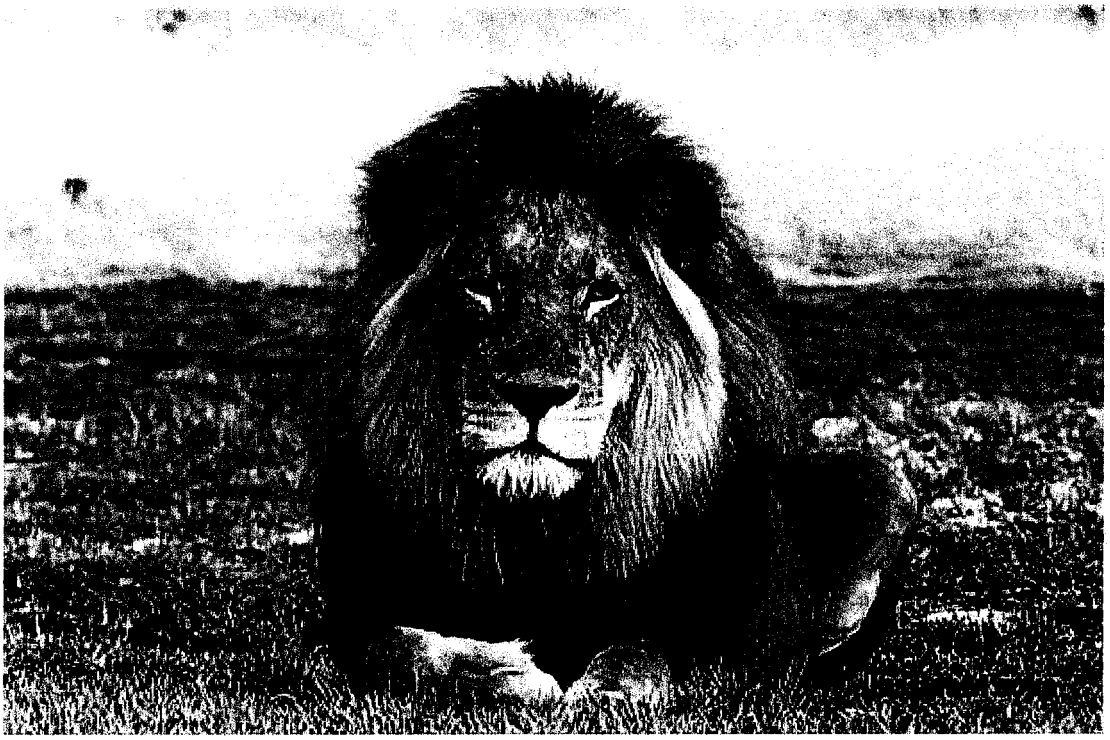
ENHANCEMENT AND NON-DETRIMENT FINDINGS FOR AFRICAN LION SPORT HUNTING IN ZAMBIA

"CONSERVE WILDLIFE"

MINISTRY OF TOURISM AND ARTS

DEPARTMENT OF NATIONAL PARKS & WILDLIFE

ENHANCEMENT AND NON-DETRIMENT FINDINGS FOR AFRICAN LION SPORT HUNTING IN ZAMBIA



MAY, 2016
UPDATED JANUARY 2020

Department of National Parks & Wildlife
P/Bag 1,
Chilanga
Tel: (260) 211 278335, 211 278365
Fax: (260) 211 278365, 211 278244
Email: info@dnpw.mota.gov.zm

TABLE OF CONTENTS

1.0 INTRODUCTION 6

2.0 BIOLOGICAL STATUS 6

2.1 DISTRIBUTION 6

2.2 POPULATION STATUS 7
2.2.1 LUANGWA ECOSYSTEM 8
2.2.2 KAFUE ECOSYSTEM 10
2.2.3 LOWER ZAMBEZI ECOSYSTEM 11
2.3 GENETIC VARIABILITY 11

3.0 CONSERVATION AND MANAGEMENT 12

3.1 LEGISLATION AND POLICY 12
3.2 PRIMARY LEGISLATION RELATED TO HUNTING 13
3.2.1 CLASSES OF LICENSES 13
3.2.2 THE WILDLIFE FUND 14
3.3 SUPPORTING STATUTORY INSTRUMENTS (SIS) 14
3.4 ZAMBIA'S CONSERVATION STRATEGY AND ACTION PLAN FOR THE AFRICAN LION 15
3.4.1 OTHER SPECIES CONSERVATION PLANS AND STRATEGIES THAT INTERACT WITH LION CONSERVATION STRATEGY 16
3.5 DNPW ORGANIZATION AND ACTIVITIES 17
3.5.1 ANTI-POACHING OPERATIONS 19
3.6 STAKEHOLDER INVOLVEMENT IN LION CONSERVATION 20
3.6.1 HUNTING OUTFITTERS 20
3.6.2 COMMUNITIES 20
3.6.3 NON-GOVERNMENTAL ORGANIZATIONS 20

4.0 ZAMBIA LION RESEARCH 21

5.0 UTILIZATION 22

5.1 SAFARI HUNTING IN ZAMBIA 22
5.2 LION HUNTING AREAS 22
5.2.1 GMAS 23
5.2.2 OPEN GAME RANCHES 24
5.3 HUNTING QUOTAS 25
5.3.1 QUOTA ALLOCATION PROCESS 25
5.4 STATUS OF BLOCK ALLOCATIONS 28
5.4.1 OBLIGATIONS OF THE CONCESSIONAIRE IN THE HUNTING CONCESSION AGREEMENT 28

5.4.2 TENDER PROCESS FOR HUNTING BLOCKS 31
5.4.3 COMPLIANCE TO OBLIGATIONS OF THE CONCESSION AGREEMENT 31
5.5 QUOTA SETTING AND GMA MANAGEMENT 32
5.5.1 TREND IN OVERALL QUOTA ALLOCATIONS 32
5.5.2 QUOTA ALLOCATION ACROSS ECOSYSTEMS 32
5.5.3 UTILISATION OF QUOTA 34
5.6. VALUE OF 2018 QUOTA 35
5.6.1 INCOME GENERATION OF THE 2018 QUOTA 35
5.7. LION QUOTAS AND UTILIZATION PRE-MORATORIUM (2005 – 2012) 38
5.8 DEVELOPMENT OF LION HUNTING QUOTAS AND GUIDELINES FOR HUNTING LIONS AFTER THE MORATORIUM 41
5.9 MECHANISM FOR MONITORING TROPHY HUNTING IN ZAMBIA 45
5.9.1 QUOTA MONITORING 45
5.9.2 LION HUNTING MONITORING 45
5.10. LION QUOTA ALLOCATION AND UTILIZATION 2016 - 2018 48
5.11 INTERNATIONAL TRADE 52

6.0 INVOLVEMENT OF THE HUNTING SECTOR IN LION CONSERVATION 52

6.1 BENEFITS OF LION HUNTING IN ZAMBIA 52
6.1.1 ECOLOGICAL BENEFITS 52
6.1.2. ECONOMIC BENEFITS 53
6.1.3. SOCIAL BENEFITS 53
6.2 TRANSPARENCY 54

7.0 THREATS AND MITIGATION 54

7.1 MITIGATION OF HABITAT LOSS, ENCROACHMENT AND FRAGMENTATION 54
7.1.1 GENERAL MANAGEMENT PLANS 56
7.1.3 OPEN GAME RANCHES AND TRANS-FRONTIERS CONSERVATION AREAS 56
7.2 HUMAN LION CONFLICT 57
7.3 BUSH MEAT POACHING AND PREY DEPLETION 58
7.3.1 PREY AVAILABILITY AND ABUNDANCE 59

8.0 COMMUNITY BASED NATURAL RESOURCES MANAGEMENT (CBNRM) 62

8.1 CBNRM IN ZAMBIA 62
8.2 COMMUNITY BENEFITS 63
8.3 GOVERNANCE OF CRBS 65
8.4 CONTRIBUTION OF HUNTING REVENUES TO CRBS 65
8.4.1 COMMUNITY LIVELIHOODS AND DEVELOPMENT THROUGH CRB PROJECTS 66

9.0 REVENUES AND EXPENDITURES FROM TROPHY HUNTING 67

9.1 ANIMAL AND HUNTING FEES 68
9.2 DNPW INCOME AND EXPENDITURE 68
9.2.1 VALUE OF HUNTING CONCESSION AGREEMENTS 69

10.0 EVALUATION AGAINST THE U.S. ENDANGERED SPECIES ACT (50 CFR 17.32) PERMIT ISSUANCE CRITERIA 72

11.0 CONCLUSIONS AND NON-DETRIMENT FINDINGS 73

12.0 REFERENCES 75

ANNEX 1 NATIONAL PARKS AND WILDLIFE POLICY, AUGUST 2018. 80

ANNEX 2: LIST OF CRBS REGISTERED IN EACH REGION 81

LIST OF FIGURES

Figure 1. Distribution of lion in Zambia 7
Figure 2: Organization Structure for the Department of National Parks and Wildlife 17
Figure 3. Organization of the Wildlife Conservation and Management Division DNPW 19
Figure 4: Area of GMAs (km^2) in each of the ecosystem clusters where hunting blocks are located 23
Figure 5: The location of hunting blocks and grading within the GMAs in relation to the national parks and Mushingashi Conservancy 27
Figure 6: Overall quota allocation (4535 animals) per ecosystem in 2018 33
Figure 7: Total quota allocation by category in 2018. 63% is allocated to the non-resident quota. 33
Figure 8: Allocation of the lion quota by hunting category in 2018 and 2019. 34
Figure 9: Allocation of the 2018 lion quota across the major ecosystems. Kafue and Luangwa take up the bulk of the lion quota. 34
Figure 10: Example of lion sighting form used by Professional Hunters 45
Figure 11: Lion Trophy record form 47
Figure 12: 2018 quota allocation of lion across the occupied hunting blocks in the GMAs. Note that quotas allocated to OGR is not shown 49
Figure 13: Population trends for selected species in the Kafue National Park 1994-2019 (Source DNPW 2019, in review) 60
Figure 14:Ungulate population trends in South Luangwa National Park 61
Figure 15: Population trends for buffalo, impala, waterbuck and warthog in the Lower Zambezi National Park 61
Figure 16 Species abundance in the Luangwa ecosystem National Parks vs GMAs 62
Figure 17: Comparison of income from Consumptive and Non-Consumptive Revenues and the impact of the hunting ban in 2013 – 2014 69

LIST OF TABLES

Table 1. Previous lion population estimates for Zambia 8
Table 2: Zambia Law Enforcement Effort: 2016 – 2018 19

Table 3: Results from Law Enforcement Operations carried out by the Wildlife Law Enforcement Unit.....20
Table 4: Summary of hunting block categories.....23
Table 5: List of Open Game Ranches in Zambia.....25
Table 6: Institutions involved in Zambia's quota allocation process.....26
Table 7: Current Annual financial obligations of hunting concessionaires to Communities in selected Game Management Areas (In Zambian Kwacha).....29
Table 8: Contributions of Safari Companies to Wildlife Conservation from the Luangwa and Kafue ecosystem (2008 - 2019).....30
Table 9: Trend in the quota set by ZAWA and DNPW for all species and key classic and mini hunt trophies..32
Table 10: Ranked top 10 species utilisation levels for non-resident quotas recorded between 2003 - 2011 (adapted from Chomba and Nyirenda, 2015)......35
Table 11: Overall income (US$) generated from the sale of 100% of the 2018 quota allocated to prime, secondary, understocked and specialised hunting blocks.....36
Table 12: Total animal licence fee income (US$) and overall contribution of the 2018 lion quota......36
Table 13: Potential gross income (US$2,138,600) of seven main species that contribute to Classic and Mini Hunts that define the block categories.....37
Table 14: Zambia lion Allocated Quotas for the period 2005 to 2012.....39
Table 15: Lion harvest rates in Zambia 2005 – 2012 (Lions /1000 km^2).....40
Table 16: Lion Hunting Quota for 2016.....41
Table 17: Age categories defining lion trophies as described in the DNPW hunting guidelines.....43
Table 18: Summary of the number of lions harvested between 2016 and 2018 and classified into categories according to the criteria defined in the hunting guidelines......48
Table 19: Allocation of lion quotas per hunting block and OPG's – 2018 and 2019.....50
Table 20: Status of General Management Plans in Zambia's lion hunting Areas.....56
Table 21: Control of Problem Lions in Zambia 2002-2018.....58
Table 22: Total disbursement of Game License (50%) and Concession fee (20%) to CRBs. (Data source: Zambia National CRB Association, Lusaka).....66
Table 23: List of community projects implemented by CRBs in the four regions using funds from hunting blocks. (Source: Zambia CRB Association, Lusaka).....67
Table 24: Total ZAWA/DNPW Revenues (ZMW) 2010 – 2018 (Source: DNPW Accounts Unit).....70
Table 25: ZAWA/DNPW Expenditures (ZMW) 2010 - 2017 (Source: DNPW Accounts Unit).....71

1.0 Introduction

Zambia's policy on conservation is based on sustainable utilization as a way to enhance the economic and ecological importance of biodiversity. In this regard, lion has an important role not only as an apex terrestrial carnivore in the Zambian ecosystem but, also as a potential provider of economic benefits to the people of Zambia especially those living in rural communities. Zambia realizes the threats that the species is facing, and therefore the need of having strategies, programmes and plans on lion conservation. In this vein, the Zambian government through the then Zambia Wildlife Authority (now Department of National Parks and Wildlife - DNPW) formulated a lion conservation strategy (2010) and more recently (2019) has revised the guidelines on hunting of lion in Zambia, which were drafted in 2016.

Importantly, the Zambian government in the recent past has promulgated a suspension of, inter alia, lion trophy hunting from 2013 to 2015, but the suspension was lifted in 2016 after data collection on Zambia's lion population showed that a limited offtake is sustainable and impacted rural communities requested that the suspension be lifted due the detrimental impact on their livelihoods and increased human-livestock-lion conflict without hunting revenues.

In 2015, major legal reforms occurred in the wildlife sector with the review of the Zambia Wildlife Act No. 12 of 1998. The reforms give new impetus to the structure of wildlife conservation in the country. To strengthen the lion management programme, DNPW needs additional resources to reinvest into lion research, protection and conservation. Sustainable utilization, in the form of highly selective and well-monitored sport hunting, can provide the needed revenues to achieve these goals. The proceeds from lion sport hunting are re-invested into conservation and sustainable development in local communities. In this way, sustainable sport-hunting of lions provides direct benefits to both conservation of Zambia's wild lion populations and the people living with the lions in their areas thereby promoting conservation ethics at the national and local level.

Since the re-introduction of trophy hunting for lion in 2016, the DNPW is implementing an adaptive management strategy that limits the off-take of lions. To support this approach, it has experimented a robust age-based monitoring programme, that will become binding for the 2020 hunting season.

In doing so the DNPW has drawn on the lessons learnt from the responses of scientific community (e.g. Macdonald, 2016) and the conclusions of FWS enhancement findings (USFWS 2017) to guide its implementation of the science-based Zambian *Conservation Strategy and Action Plan for African Lion* (ZAWA, 2009). This strategy is the platform being used to introduce best practices in conservation of lions (and other large carnivores) to ensure their long-term sustainability in Zambia and will be updated in 2020.

This enhancement and non-detriment finding provides an update to the *Enhancement and Non Detriment Findings for African Lion Sport Hunting in Zambia* prepared in May 2016 (DNPW, 2016).

2.0 Biological status

2.1 Distribution

There are three main clusters of lion populations in Zambia; Kafue, Luangwa and Lower Zambezi ecosystems, the latter two of which share connectivity through the intervening game management areas. Cushman *et al.* (2018) rank the Kafue and Lower Zambezi ecosystems as the second and third most important dispersal areas for lion in the region but draw attention to the threats facing the

corridors linking these areas that are addressed in the Kavango Zambezi Transfrontier Park (KAZA) Large Carnivore Conservation Strategy (in press).The historical distribution of lion prior to the 1960s is recorded as occurring throughout Zambia (Ansell, 1978), although this very general statement is likely to be reflective of historic habitat porosity, low human density and popular perceptions as opposed to being documented through systematic surveys. Current distribution of the species is restricted to National parks and the surrounding game management areas with a few lion sightings and dispersers reported each year in open areas. In addition to stronghold populations in the three main clusters, smaller numbers of lions exist in Liuwa Plains, Sioma Ngwezi, Nsumbu and the Lavushi Manda National Parks. The Kazungula and Siavonga Open Areas have vagrant populations shared with other countries. Historically, lions occurred in the West Lunga complex, although no recent sightings have been reported from that area. In contrast, lions have been documented in the Bangweulu Swamp area in recent years (Fig 1). The Lower Zambezi Population is the only significant population that is likely to be transboundary, although lions are known to move between countries in the Kavango Zambezi Transfrontier Park (KAZA).

The total lion range in Zambia is about 148,000 km^2, representing about a 63 % of Zambia's protected area network (230,000 km^2).

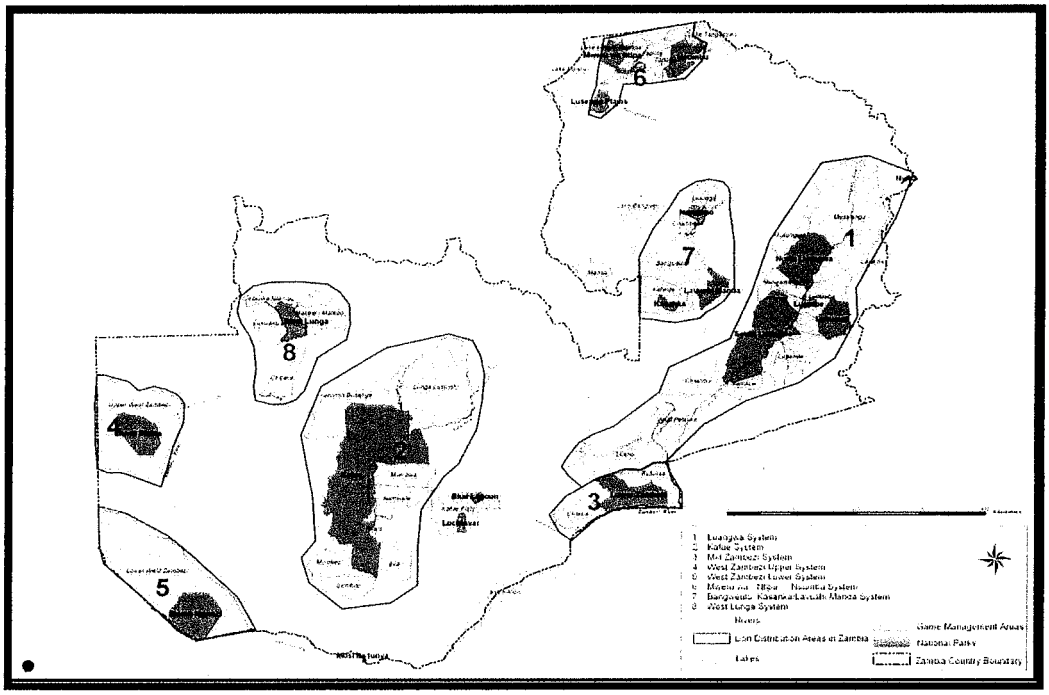


Figure 1. Distribution of lion in Zambia

2.2 Population status

Low density, broad and clumped distribution, largely nocturnal activity pattern, and the difficulty of observing lions in areas outside of those heavily visited by photo-tourists, makes the precise inventory of lion populations a difficult task (Schaller, 1972). These difficulties may be overcome in areas where lions are habituated to humans, but represent significant hurdles in areas where lions are heavily affected by human persecution such that they may lead to gross underestimates (Bauer & Van Der Merwe, 2004).

Previous lion estimates for the country have typically relied on expert opinion e.g., Chardonnet, 2002; Bauer and Van Der Merwe, 2004; Riggio, 2011; Riggio et al., 2013. Bauer and Van Der Merwe, 2004 gave a total national estimate of 1,500 lions, without breaking it down into component ecosystem populations. Table 1, presents the estimated lion populations according to Chardonnet, (2002) and Riggio (2011). There are subtle differences in the estimates between the two in that areas looked at differed in terms of area size. For example, whereas Chardonnet, 2002 estimated lion population for Nsumbu National Park, Riggio, 2011 included Lusenga Plains National Park in their estimate.

Table 1. Previous lion population estimates for Zambia

Protected Area	2002	2011
Nsumbu Complex	39	<50
Bangweulu		<50
Luangwa Ecosystem	1,633	
Petauke Corridor	165	425 - 835
Lower Zambezi NP and Kariba shore	183	
Kafue Ecosystem	1026	250 - 500
West Lunga	153	153
LPNP, SNNP & West Zambezi GMA	376	
LPNP		3
SNNP		<50

Source: Chardonnet, 2002 and Riggio, 2011.

Due to varying estimates, the Zambia Wildlife Authority (now DNPW) continues to work closely with the Zambia Carnivore Programme (ZCP) that, starting from 2007 is monitoring lion populations in South Luangwa National Park (SLNP) and the adjoining Game Management Areas (GMAs), Kafue National Park (KNP) and Liuwa Plains (ZCP, 2018). Intensive monitoring areas have been instituted within the larger Luangwa and Kafue ecosystems specifically aimed at estimating the status of the lion populations in these key ecosystems.

Overall, estimates are based on observed numbers in the field and have not taken into consideration effort and detection to vigorously estimate the population size for the study area. But indicators are that the moratorium on hunting has stabilized prides in the study area and improved cub survival and number of male coalitions. Therefore, the estimate of 1,200 lions present in Zambia given by Macdonald, 2016 should be considered also as a guess estimate.

The sections below give a summary of the results in each of the core lion areas.

2.2.1 Luangwa Ecosystem

The Luangwa ecosystem can be divided into two parts; the Upper Luangwa consisting of South Luangwa, North Luangwa, Lukusuzi, Nyika, and Luambe National Parks with the surrounding Musalangu, Lupande, Munyamadzi, Mukungule and Sandwe Game Management Areas. The other area is what is considered as the Corridor Area (linking South Luangwa National Park with Lower Zambezi National Park) consisting of West Petauke, Chisomo and Luano GMAs with the surrounding Open Game Ranches (OGRs). The Luangwa is considered as the most important lion cluster in the

country (ZAWA, 2009, DNPW 2016). The density of lion in this ecosystem is likely affected by the topography, with the valley section having more prey density than the plateau and escarpment sections.

Yamazaki 1996, studied 63 lions in 6 prides in a 355 km^2 portion of the Luangwa Valley, the Nsefu sector and part of the Lumimba and Lupande Game Management Areas. He reported population densities ranging from 12.4 – 13.8 lions /100km^2. He found that the status of the male lion population in the study area was affected by high harvest rate.

A more recent field study (Rosenblatt et al 2014), found for a portion of (2776km^2 study area) South Luangwa NP, a minimum density of 3.4 lion/100km^2 and a maximum density of 8.83 lion /100km^2. The IUCN Red List Assessment (Bauer et al 2015) for lion report in Table 3 of the Supporting Information a decline of 28% in the Luangwa population Such Table 3 caption is the following: *Inferred Lion population trend based on interpolated census data from 1993-2014 in 47 monitored Lion subpopulations (note that these are study subpopulations not necessarily representing total site subpopulation).* In fact, the data shown above is only for a small portion of the South Luangwa NP and not for the whole ecosystem.

In reality the Rosenblatt et al., 2014 study referenced above report an initial population estimate in 2008 of 102 (95%CL 90 - 123) lions and a final population estimate in 2012 of 94 lions (95%CL 92 - 106) a 9.21% decline i.e., about a 2% decline per year (2008-2012) and not a 28% decline as suggested and inferred by the IUCN data. A published rebuttal to the IUCN data and to a subsequent publication by Bauer et al. (2015b) that relied on the IUCN data, points out several errors in data analyses and draws a very different conclusion to claims of continent-wide species decline. (Riggio et al. 2015)

The Zambian Carnivore Programme has continued with field studies in the same study area of Rosenblatt 2014 (2776km^2 study area), to analyse, inter alia, lion demography in the area. In 2013, ZCP reported preliminary lion numbers were high. This was based on intensive monitoring of 13 prides and 13 coalitions collectively comprising 141 individuals, with 3 adjacent prides of 20 animals each and a number of new male coalitions (ZCP, 2014). This implies that the study population together with pride in adjacent areas was at least 200 lions. In 2014, ZCP indicated it was monitoring 15 prides and 13 coalitions, with a total of 166 individual lions identified and re-sighted.

In 2018 ZCP monitored 215 individuals in 19 prides and 17 coalitions across the same study area of 2776km^2 which included South Luangwa National Park and the adjacent Lupande and Lumimba Game Management Areas. Study is also being expanded northwards into North Luangwa National Park and southwards into the Open Game Ranches in response to changing spatial dynamics by some study prides and conducted additional survey and monitoring work in collaboration with the DNPW.

ZCP together with the DNPW published a peer-reviewed paper in 2018 (Mweetwa et al. (2018) evaluating 8 years of Luangwa lion demography, spanning both the three-year hunting moratorium and five years prior.

This study monitored 386 individual lions within and around SLNP for five years (2008–2012) with trophy hunting, and for three years (2013–2015) during the moratorium. These data are used to estimate the effects of hunting on lion survival, recruitment, and abundance. It concluded that hunting lowered the subadult and adult male survival by 17% and 14% in subadult and adult males respectively, with smaller effects on adult female and cub survival. Large increases in lion abundance occurred during the hunting moratorium, with the study population approximately doubling by the last year of the moratorium. More cubs were produced each year of the moratorium than in any year with trophy hunting, and lion demographics shifted from a senescent and male-depleted population to a much younger population with >29% of all known adults being male. While the moratorium was

controversial, it has contributed to creating the desired changes in the lion population and demonstrates that by applying a rigorous management programme, lion populations will recover rapidly.

This study provides valuable lessons of the effects of trophy hunting on populations within protected areas that can move freely across the boundaries and emphasises that sustainable hunting of large carnivores is dependent on sound conservative harvest policies and that these policies should also consider prey density that links lion offtake with production. It is important to note that the study reached the same conclusions of the 2016 NDF i.e. that any sustainable harvesting strategy must consist of conservative quotas, age-based harvesting, and systematic monitoring to address the inherent uncertainty that accompanies the understanding of demography in naturally sparse large carnivores.

No intensive research has been conducted in the corridor area (refer to first paragraph in this section), but, a first animal count was conducted by DNPW (DNPW 2018) from 1st October to 10th October, 2018 in Lower Luano GMA in order to ascertain the current status of wildlife species. This count was done by transect line using known tracks for the larger ungulates and point sample counts (call-ins) for the predators. Seven lions responded to the call-ins while five lions were found on the way to call-ins. The report concluded that there is need to conduct follow-up calling counts in Lower Luano GMA as well as an in-depth analysis of the individuals on the photographs from the camera traps in order to distinguish the individual so as not to ensure double counts happened. Additionally, there is a need for validation of calling-station survey by means of GPS radio-collars data and that the population size and density of wild animals in general in the Lower Luano GMA was fair to low but all indications were that is was a recovering population.

Based on the current data, the lion population in the Luangwa Ecosystem is considered to be stable and potentially increasing.

2.2.2 Kafue Ecosystem

The Kafue National Park and surrounding Game Management Areas cover an area of approximately 66,000km^2. The earliest intensive studies on lion in the Kafue ecosystem were carried out between 2003 and 2005 by Ron and Anne Carlson (Becker et al., 2012). Since then a number of studies have been initiated to determine abundance and vital rates (Midlane et al., 2014, 2015 and ZCP, 2014).

The study by Anne and Ron Carlson covered an area of 4,720km^2 in northern Kafue National Park bordering the Lunga Luswishi and Kasonso Busanga GMAs (Becker et al., 2012). Population data was collected from 107 individually identified animals in 13 prides and 4 coalitions. The density of lion ranged between 1.5 adults/100km^2 and 1.8 lions/100km^2. The study population age structure was 21% cubs, 11% sub-adults, and 68% adults. The adult sex ratio was 3 females to 1 male. Mean pride size ranged from 2 to 7 adult females. Adult males comprised 17% of the observed population.

Midlane et al., 2015 estimated 228 lions (95 % CI 179 – 277) and 264 (95 % CI 204 – 325) for an 11,000 km^2 study area in northern Kafue. Estimated population density was 2.08 lions/100 km^2 in 2010 (95 % CI 1.63–2.53) and 2.41/100 km^2 (95 % CI 1.86–2.96) in 2011. Midlane et al's 2015 density of lion was higher than the estimated density by Becker et al, 2012. However, differences in methods and categorization of age classes preclude comparison.

In 2013, ZAWA (now DNPW) in collaboration with ZCP initiated intensive monitoring study of lions in northern Kafue covering the same intensive study area of Midlane et al's 2015 study, to monitor not

only monitor abundance and trends, but to also estimate vital rates for this population. At the close of the 2014 season, there were 56 uniquely identified lions in 9 collared prides and 6 male coalitions, with several other unknown adults nomadic through the area (ZCP, 2014). Building on Carlson's and Midlane's studies the ZCP study represents a long term effort to provide demographic vital rates for this population of lions.

In 2018 ZCP (ZCP 2018) intensively monitored 15 prides and 15 coalitions totalling 173 lions across Northern and Central Kafue in 2018 extending the study area to the remote Kasonso-Busanga GMA. This important area has been, in the past, heavily depleted from poaching but has seen substantial investment that led to amazing recovery of wildlife through the excellent work of the concessionaire of the hunting block.

It is believed that the lion population in this ecosystem is stable or possibly increasing.

2.2.3 Lower Zambezi Ecosystem

The third significant lion cluster in Zambia is represented by the Lower Zambezi system, composed of the Lower Zambezi NP, and the Chiawa and Rufunsa GMAs. This system is linked to the Luangwa ecosystem through Luano, West Petauke, and Chisomo GMAs and the Open Game ranches in the open areas east of the Luangwa River.

Chardonnet 2002, estimated the population in Lower Zambezi National Park and Kariba Shore area (9140 km^2) lion population at 183 lions (range 128-238). Riggio et al., 2012 estimate for the area included areas in Zimbabwe, thus cannot be included. Intensive studies undertaken for the periods 2001 – 2003 and 2006 – 2009 estimated for a 695 km^2 section of the Lower Zambezi National Park a density ranging from 1.7 lion/100km^2 to 5.2 lion 100/km^2 and 2.2 lions/100km^2 to 5.2 lions /100km^2. The study population ranged from 11 to 34 adults lions (Leigh, 2005). The population consisted of 4–37% cubs, 0–28% sub-adults, 7–46% adult males, and 31–50% adult females. Becker's study from 2012 was the last intensive lion study of the Lower Zambezi National Park. However routine monitoring through scout patrols as for all other Parks in Zambia continues in the area. This routine monitoring indicates the population in this area is recovering.

2.2.4 Liuwa Plains

The initiatives to re-establish a wild lion population in the Liuwa Plains has progressed over the last few years. A female introduced in 2011 to bond with the iconic "Lady Liuwa" was apparently killed defending her cubs by an introduced male. These cubs survived and thanks to restoration efforts by DNPW, African Parks, the Barotse Royal Establishment and ZCP, the lion population has stabilised and the Liuwa pride at the end of 2018 was twelve lions strong. (ZCP 2018)

2.3 Genetic Variability

The Zambia Lion Project (ZLP) conducted an analysis of DNA sequence diversity of Zambian lion from samples collected during the period 2004 – 2012 (Curry et al., 2015). The study revealed genes that link Southern African with East African lion populations among the Zambian lion population. This suggests that Zambia may serve as a bridge connecting these lion populations. Overall gene diversity throughout the Zambian lion population was 0.7319 +/- 0.0174 with eight haplotypes found; three haplotypes previously described and the remaining five novel. These five genes, have only been reported in Zambia so far. Genetic diversity of Zambian lions is much higher than comparable areas in eastern and southern Africa were genetic diversity has been studied (Curry et al., 2015). The

conclusion from this study is that Zambian lions represent a genetically diverse and healthy population.

More recently, nuclear and mitochondrial DNA results from 409 lions (Curry et al. 2019) found that although African lions in Zambia consist of two highly diverse eastern and western sub-populations, there is more movement between the populations than previously thought. Population assignment analysis identifies two populations with little evidence of admixture assigning lions to either the eastern or western sub-populations. A high occurrence of private alleles and clear evidence for a Wahlund effect further justify the presence of a highly structured population. But, while mitochondrial DNA analysis still shows little to no matrilineal gene flow (FST = 0.53) between sub-populations, microsatellite analysis suggests there is gene flow (FST = 0.04) with low but significant isolation-by-distance and an average of 6 migrants per generation. Evidence of isolation-by-distance is also found in factorial correspondence analysis with the Lower Zambezi National Park and eastern corridor clusters overlapping isolated clusters of the Luangwa Valley and western sub- population. From this evidence, the Luangwa Valley appears separated from the western sub-population with some dispersal through the southern regions of the eastern sub-population. Both the eastern and western sub-populations have high heterozygosity (0.68 and 0.69, respectively) and genetic diversity (0.47 and 0.50, respectively) values, indicative of genetically healthy populations.

3.0 Conservation and Management

3.1 Legislation and Policy

In 2015, the Zambia Wildlife Act No. 12 of 1998 was repealed and replaced with the Zambia Act No. 14 of 2015. The wildlife Act of 2015 provided for the transformation of the Zambia Wildlife Authority (ZAWA) into a government department - the Department of National Parks and Wildlife (DNPW). The DNPW was consequently established and commenced operating in January 2016. The act is the principal legislation guiding the management of wildlife in Zambia, and the department is the only government department responsible for the management of wildlife (lions inclusive) in Zambia. The Act also provides for the promotion of opportunities for the equitable and sustainable use of public wildlife estates; provides for the establishment, control and co-management of Community Partnership Parks for the conservation and restoration of ecological structures for non-consumptive forms of recreation and environmental education; provides for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas; enhances the benefits of Game Management Areas to local communities and wildlife; involves local communities in the management of Game Management Areas; and provides for the development and implementation of management plans. Crucially to ensure the sustainability of the wildlife sector, the Act provides for the setting up of a Wildlife Fund, were funds from licensing and donors will be deposited.

The act provides for stiffer penalties related to poaching and enforcing all wildlife related violations in Zambia. Hunting of all wild animals without a permit is illegal. Further, it is a criminal offence to hunt, kill, capture or be in possession of a lion specimen without a license. Lion is considered a protected species under the Zambia Wildlife Act and therefore attracts stiffer penalties without option of a fine. Other legislation includes the regulations (Private Wildlife Estates) and Statutory Instruments already in force implementing the 1998 Act (These are CITES, Hunting, Elephant Hunting).

The Government of the Republic Zambia formally approved the new policy for National Parks and Wildlife in August 2018 replacing the former one dated 1998 (Annex 1)

The principal objective of the Policy is to promote the conservation of wildlife as an environmental good for socio-economic benefits to the country. The specific objectives of this Policy are:

a) To create enabling conditions for effective conservation of wildlife and sustainable growth of the sector;

b) Improve population of wildlife in depleted areas by reintroduction of wildlife species in protected areas and other conservation lands and conserve wildlife using Ecosystem/Landscape Management Approach;
c) To devolve wildlife user rights, costs and benefits to community and private land owners;
d) To unlock the economic potential of wildlife and performance of the sector;
e) To minimalize Human-Wildlife Conflict;
f) To build capacity for wildlife management and conservation in the Sector;
g) To develop and promote research as a planning and management tool in wildlife management;
h) To mainstream multilateral environmental agreements in the conservation of wildlife;
i) To Mainstream Climate Change and other emerging issues;
j) Gender Mainstreaming, HIV and AIDS and Youth Empowerment;
k) To promote private sector and community participation in wildlife conservation.

Other statutory instruments are in preparation for the implementation of the 2015 Wildlife Act including a specific statutory instrument on lion hunting.

3.2 Primary legislation related to hunting

The Zambia Wildlife Act No. 14 of 2015 makes provision for the following types of licences and permits under Section 39: (a) hunting licence (for non-resident, citizen, resident and bona fide residents of GMAs); (b) bird licence and (c) professional hunter's licence. The following permits are issued under this section (a) fishing permit; (b) capture permit; (c) professional guide's permit; (d) photographic tour operator's permit; and (e) commercial photographic permit. Much of the content of the Act is devoted to the administration and management of hunting as described under the following Parts:

- Part II, Section 7 of the Act establishes the Wildlife Management Licensing Committee which is responsible for considering applications for licenses, permits and certificates and grants: renewing or refusing to grant or renew licenses, permits and certificates; and terminating, suspending or revoking licenses, permits and certificates. The application for the licenses recognised under the Act are in prescribed forms that require payment of prescribed fees under a specific Regulation. The creation of a Licensing Committee ensures transparency and accountability in the award of licenses by ensuring the discretion to award licenses exists in more than one individual.
- Part IV, Section 31 deals with the restriction of hunting of wild animals in GMAs.
- Part V, Sections 32 – 35 refer to Community Resource Boards, their functions and financial provisions.
- Part VI, Sections 36 – 38 refer to the definition of "Game Animals" and "Protected Animals" and their use.
- Part VII, Sections 39 – 57 deals with the licenses and permits that are required to utilise wildlife in Zambia. Section 48 specifically deals with Hunting Concessions.
- Parts VIII, IX, X and XI provide the provisions for the hunting of wildlife, killing of wildlife, ownership of trophies and trade (Sections 58 – 108) and form the bulk of the Act.
- The remaining parts cover the Wildlife Development Fund, Enforcement, Offences and Penalties and General Provisions.

3.2.1 Classes of licenses

The 2015 Wildlife Act provides for the following types of licences *(a)* hunting licence; *(b)* bird licence; and *(c)* professional hunter's licence. The Act has substantially reduced the number of licences that can be issued and has gone a step further and classified some of the old licences to permits. Section

39 makes provision for the issuance of the following permits *(a)* fishing permit; *(b)* capture permit; *(c)* professional guide's permit; *(d)* photographic tour operator's permit; and *(e)* commercial photographic permit. The new Act has done away with Resident and Non-Resident licences. However, these activities will be undertaken under a hunting license issued to national and *bonafide* residents of hunting areas. The special licence has been replaced with a capture permit.

3.2.1.1 Procedure for obtaining a licence

Under the Zambia Wildlife Act No. 14 of 2015, section 7 establishes the Wildlife Management Licensing Committee which shall be responsible for; considering applications for licenses, permits and certificates and grant, renewing or refusing to grant or renew licenses, permits and certificates; and terminating, suspending or revoking licenses, permits and certificates. The application for the licenses recognised under the Act is in a prescribed form requires payment of a prescribed fee under a specific Regulation. The creation of a Licensing Committee ensures transparency and accountability in the award of licenses by ensuring the discretion to award licenses exists in more than one individual.

3.2.2 The Wildlife Fund

The Zambia Wildlife Act No 14 of 2015, in section 109, establishes the Wildlife Development Fund for purposes of development of research, conservation and management. Whereas in the repealed Act the Authority was responsible for the disbursement of funds, under the provisions of the current Act, the Minister responsible for wildlife manages and administers the Fund through the Fund Committee, which is about to be established.

The DNPW is liaising with the Ministry of Finance on the mechanism for sharing revenue with local communities. Currently there are regulations namely Statutory Instrument No. 89 of 2004, which provides that the Department pays into a fund established by a Community Resource Board 50% of the total revenue earned from Animals fees and 20% of concession fees from that particular GMA.

3.3 Supporting Statutory Instruments (SIs)

The following Statutory Instruments were approved and published in 2016

Statutory Instrument No. 41 of 2016 – The Zambia Wildlife (Game Animals) Order, 2016

The purpose of the Statutory Instrument which was issued in accordance with Section 146 of the Zambia Wildlife Act No.14 of 2015 was to pass the Zambia Wildlife (Game Animals) Order, 2016, which repealed and replaced the Zambia Wildlife (Game Animals) Order, 2015 and to provide a current schedule of game animals.

Statutory Instrument No. 42 of 2016 – The Zambia Wildlife (Protected Animals) Order, 2016

The objective of the Statutory Instrument was to pass the Zambia Wildlife (Protected Animals) Order, 2016. The Zambia Wildlife Act in Subsection (1) of Section 36 required the Minister to specify animals as either game or protected. Therefore, the Zambia Wildlife (Protected Animals) Order, 2016 repealed and replaced the Zambia Wildlife (Protected Animals) Order, 1993 and to provide a current schedule of protected animals.

Statutory Instrument No. 43 of 2016 – The Zambia Wildlife (Export Prohibition) Order, 2016

The objective of the Statutory Instrument was to pass the Zambia Wildlife (Export Prohibition) Order, 2016. The Zambia Wildlife Act in Subsection 103 prohibits the exportation of wild animals or meat of wild animals without an export permit. Therefore, the export prohibition order sought to limit the categories of wild animals that could be exported.

A number of statutory instruments have been drafted to compliment the operation of the new Act. Some of the pertinent ones include;

a) **The Zambia Wildlife (Granting of Hunting Concessions) Regulations,**
This SI provides for the Department a clear procedure for the advertisement, evaluation, negotiation and award of Hunting Concession Agreements to successful bidders, which ensures transparency in the award of these agreements.

b) **The Zambia Wildlife (Lion and Leopard Sport Hunting) Regulations, 2020**

This SI places certain conditions for hunting of Lions in Game Management Areas, including but not limited to: age-based regulations for lions, banning the hunting of female lions, minimum length for leopard and monitoring systems for both species. It is being discussed with Ministry of Justice and should be approved and published in February 2020.

c) **The Zambia Wildlife (Conducting of Ecological Assessments or Research on Wildlife) Regulations**

This SI regulates ecological research on wildlife, outlines the procedure for obtaining permission to conduct such research, and sets the fees to be charged for research activities

d) **The Zambia Wildlife (Elephant Sport Hunting) Regulations**

The revised SI on Elephant Sport Hunting will provide for additional procedures to hunt elephant for sport hunting, the designated areas for sport hunting, ownership and export of ivory from elephant sport hunting. These regulations ensure elephant hunting is carefully managed and sustainable.

e) **The Zambia Wildlife (Licenses and Fees) Regulations**

This particular SI is under consideration, the Department is still using the 2007 edition for purposes of pricing and issuance of licenses. The new permit under the new Act have not yet been captured under this SI.

3.4 Zambia's Conservation Strategy and Action Plan for the African lion

Zambia developed a ten-year Conservation Strategy and Action Plan for the African lion in 2010. Zambia's vision as stated in the Strategy is to have a secure, viable and well managed wild population of lion that will support conservation of biodiversity that is in harmony with human development. The Strategy's mission is to galvanize stakeholder cooperation in the conservation and management of the African lion in its natural habitats in the country thereby contributing to biodiversity conservation, socio-economic development and spiritual well-being of local communities, the general public and the country as a whole, with the ultimate goal of securing, restoring and maintaining viability and genetic diversity of lion populations.

Since the approval of the strategy and in accordance with its section 6.0 several actions have been carried out by the Zambian government and its cooperating partners to implement the relevant objectives and targets of the strategy. In particular research has been initiated, management actions taken to address research and monitoring, local community benefits, human lion conflict, land use planning and zoning and trade. Specific actions taken are described in the relevant sections below.

A voluntary program to assess and age lions taken as trophies was established by ZAWA (now DNPW) in partnership with the Zambia Lion Project (ZLP). Since 2005, this program has obtained DNA samples of lions (trophies and living) across Zambia and, from 2006-2012, obtained tooth samples to estimate

age of lions taken as trophies. The establishment of trophy lion sampling protocols, and the cooperation of Zambia's hunting fraternity in participating in these studies, represent a strong base from which future sampling of trophy lion (and leopard) will be conducted. In addition, results from the past sampling demonstrate the performance of the hunting sector during the past lease period (prior to age-based selection regulations), and provide a baseline for comparing future performance. Further, new studies are continually improving the accuracy of estimating the age of wild lions, which will provide additional tools to assist authorities in trophy age enforcement.

The conservation strategy noted that monitoring of hunting and illegal offtake was problematic and information was dispersed in various units of the Zambia Wildlife Authority. To address this, ZAWA (now DNPW) in 2013 set up a Conservation Unit whose main responsibility is monitoring hunting, human wildlife conflict, private wildlife estates and the effectiveness of law enforcement. Through this unit data are flowing regularly on hunting and other activities. The Conservation Unit serves as a centralized repository for these data providing for long-term monitoring of progress and trends.

The strategy requested for proper monitoring of lion diseases and health. This has been accomplished through the veterinary unit of the DNPW which is regularly sampling lion specimens for diseases and assisting law enforcement officers in the treatment of injured lions due to illegal activities, such as snaring. In addition, the DNPW authorized ZCP, South Luangwa Conservation Society (SLCS), and Game Rangers International (GRI), three NGOs working in the Luangwa and Kafue ecosystems to employ veterinarians that are field based and help in monitoring wildlife health and removal of wire snares. Of the twelve ecologists that were employed by DNPW since 2010, three are devoting 70 per cent of their work time to lion related issues.

In implementing the strategy, several additional lions related studies have been initiated with a number of stakeholders such as the Zambia Carnivore Programme (ZCP), Kafue Lion Project, Zambia Lion Project (ZLP) and WWF – Zambia (See section 4.0)

The Strategy has recently been effectively updated through the development of new guidelines governing lion hunting in Zambia. The guidelines (see section 5.3.3.2) are now in the process of being transformed into a Statutory Instrument on lion hunting which will also include provisions for monitoring lion hunting through an age-based system. As described above, the protocol for sampling and age estimation of trophy lions is already well-established, and significant improvements have been made for estimating lion age (among others see White and Belant 2016, White et al. 2016). At a participatory workshop held on 11th April, 2016 in Lusaka, these guidelines were discussed with key stakeholders in lion conservation in Zambia in order to obtain the maximum participation which is key to the success of its implementation.

Zambia's Lion Conservation Strategy and Action Plan was devised to guide lion management and conservation in Zambia for ten years and its goals address the same issues of concern (scientific management, human-lion conflict, and protection of suitable habitat) as the U.S. Fish and Wildlife Service identified in its threatened Endangered Species Act listing of the lion. DNPW is implementing the plan adapting it to management challenges and on knowledge generated through on-going monitoring and research. In 2020 DNPW is planning to hold a workshop to update and review the Conservation Strategy and Action Plan for the African lion.

3.4.1 Other Species Conservation Plans and Strategies that interact with lion Conservation strategy

Zambia recognizes that the effective conservation of wildlife is through the conservation of ecosystems and not protected areas or species. Large carnivores engage in wide ranging behavior and depend on intact ecosystems with a wide array of prey species. Well conserved large carnivore populations are an indication of intact ecosystems. And the conservation of other species that require

large, intact ecosystems can simultaneously benefit large carnivores like lion by ensuring habitat and prey base are protected.

In this regard, conservation strategies for wild dog and cheetah (DNPW, 2019) and rhino (DNPW, 2019) have recently been launched and elephant conservation strategy is currently undergoing review with the support of WWF-Zambia and the Nature Conservancy. Because of the reliance of these species on intact ecosystems, the effective conservation of these species would contribute to the successful conservation of lion as well. In addition, the DNPW is mandated by law to develop General Management Plans (GMPs) for all protected areas to guide the development and management of these areas. GMPS are discussed in section 7.1.1 below.

The hunting concession agreements (sections 5.4) that are signed by the Hunting Concession Holder, DNPW and the Community commit all the parties to proper management of habitat, fire and wildlife. These are key sections to the agreement among these three parties.

3.5 DNPW Organization and activities

The Department is responsible for the control and management of National Parks and Game Management Areas. In addition, the department is also responsible for conservation of objects of aesthetic, pre-historical, geographical, archaeological and scientific interests in national parks and Game Management areas in order to promote cultural and natural heritage and scientific studies. The organization structure of DNPW is shown in Figure 2.

The core function of the Department of National Park and Wildlife (DNPW) as provided under section 5 of the Zambia Wildlife Act No. 14 of 2015 is 'the effective and sustainable conservation and administration of protected areas which include National Parks, Bird and Wildlife Sanctuaries and Game Management Areas (GMAs) and the development of sustainable tourism in these areas. In GMAs, DNPW co-manages the wildlife resource in partnership with local communities.

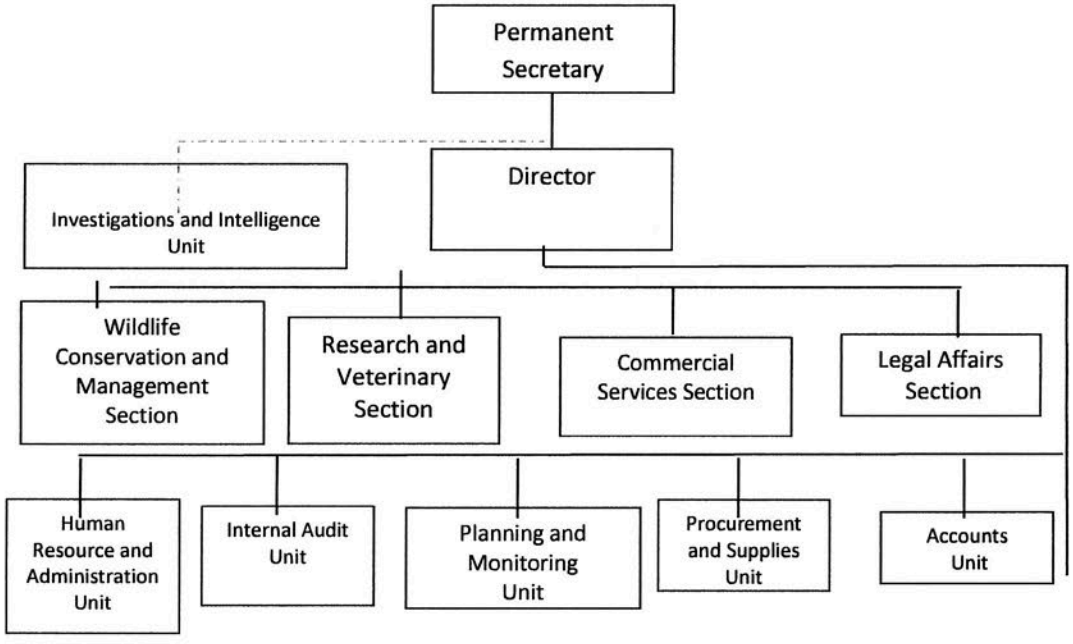


Figure 2: **Organization Structure for the Department of National Parks and Wildlife**

Within DPNW law enforcement is under the section of Wildlife Conservation and Management (see Figure 2).

This Section is responsible for the general enforcement of wildlife laws. It is responsible for the conservation and management of wildlife and development of infrastructure in protected areas. The section's functions are outlined below:

- Detect and investigate wildlife crimes;
- Manage and mitigate human wildlife conflicts;
- Regulate operations of private wildlife estates (nature conservancies/game ranches);
- Facilitate infrastructure development in protected areas;
- Sensitize the general public on wildlife conservation;
- Manage eco systems and landscapes and conserve specific species;
- Formulate and implement park regulations;
- Promote regional and international cooperation in the area of wildlife management, conservation and law enforcement; and
- Facilitate the training of Wildlife Police Officers

The section is headed by an Assistant Director who is assisted by Principal Warden- Operations, Principal Warden- Conservation, Principal Engineer, and Principal Natural Resources Management officer. The section is organized in four units as follows:

The Wildlife Law Enforcement Unit is responsible for enforcing wildlife laws, detection and investigation of wildlife crimes. Currently the Unit has a staff compliment of 1,525 Wildlife Police Officers covering an estimated 236,376 km^2 of wildlife estates (equivalent to approximately 155 km^2/Wildlife Police Officer. There was no recruitment of Wildlife Police Officers in 2016, however, in 2017 the World Wide Fund - Zambia trained and contracted 25 Wildlife Police Officers for Sioma Ngwezi. Their contracts ended in December 2017 and these WPOs were absorbed into the Civil Service mainstream in 2018. The DNPW also recruited a further275 Wildlife Police Officers in 2018 (179 new recruits and 96 Village Scouts who have since been replaced). The current WPO establishment for the DNPW is 2,700 of which 1,525 have been employed. Authority to recruit a further 1,000 Wildlife Police Officers in 2019 and 175 Wildlife Police Officers in 2020 has been submitted to central government.

The DNPW is directly involved in a broader programme to combat wildlife trafficking and illegal trade in wildlife and wildlife products (see https://www.wildlifecrimeprevention.com).

The **Wildlife Conservation Unit** is responsible for regulation of operations of private wildlife estates, management of ecosystems, landscapes and conservation of specific species as well as formulating and implementing park regulations. The Unit also manages and mitigates human wildlife conflicts and is responsible for facilitating the training of Wildlife Police Officers.

The **Infrastructure Development Unit** is responsible for construction and maintenance of infrastructure in protected areas, as well as maintenance of equipment plant and machinery.

The **Community Based Natural Resources Management Unit** is responsible for co-managing Game Management Areas with local communities and facilitating their economic and social well-being. The functions of the Unit include the following:

- Provide technical support to Community Resource Boards on the management of human and natural resources in Game Management Areas and open areas;
- Train village scouts and Community Resources Board members (see section 8);

- Facilitate the election of Village Action Groups and Community Resources Board members; and
- Monitor projects and the utilisation of funds disbursed to Community Resources Boards (CRBs).

Furthermore, an Investigations Unit is responsible for carrying out investigations and intelligence services related to wildlife crimes. The Unit is falls directly under the office of the Director National Parks.

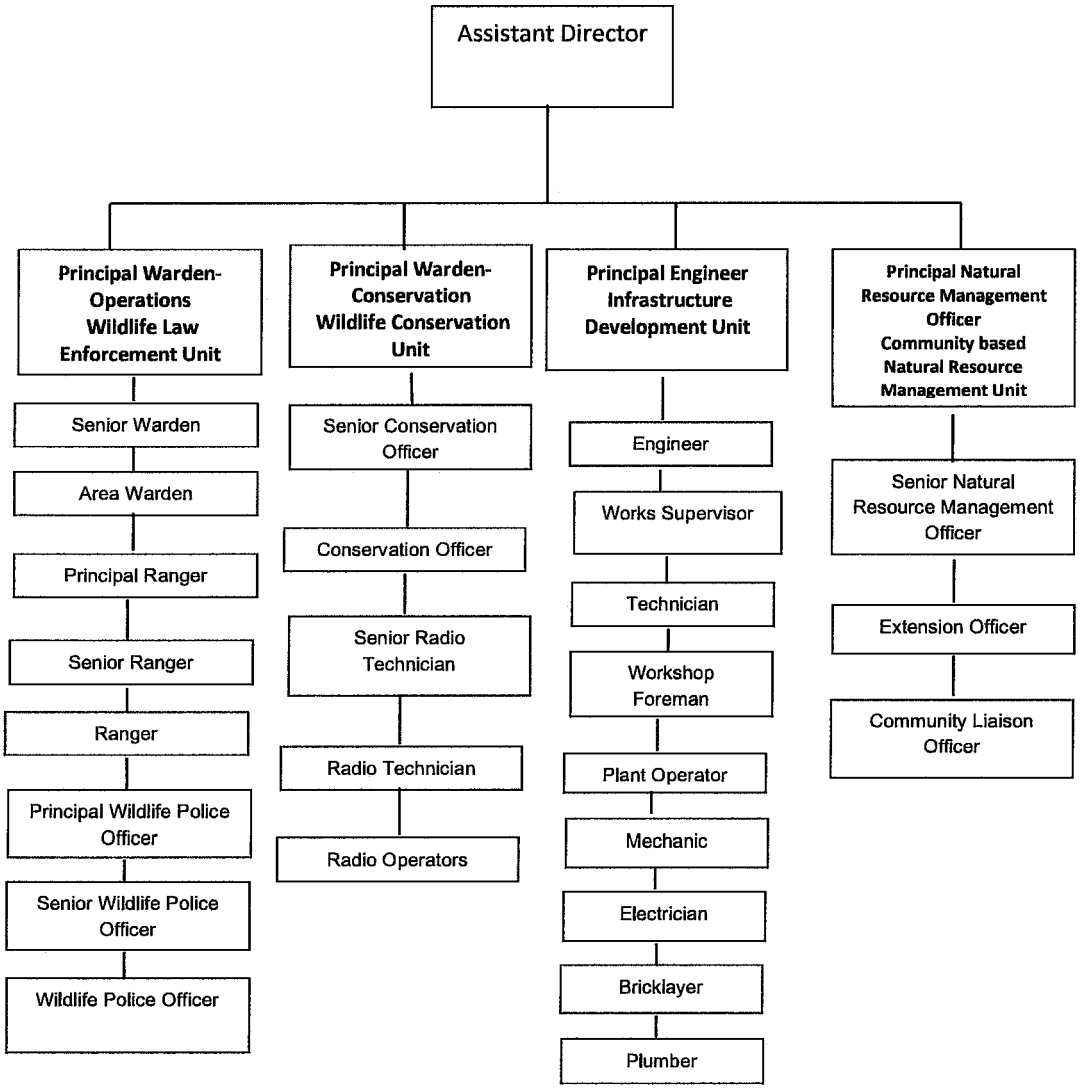


Figure 3. Organization of the Wildlife Conservation and Management Division DNPW

3.5.1 Anti-Poaching Operations

The following tables show the effort (Table 2) and results (Table 3) from anti-poaching operations carried out by the DNPW from 2016 - 2018.

Table 2: Zambia Law Enforcement Effort: 2016 – 2018

Activities	2016	2017	2018
No. of Patrols	12995	12261	15027
Staff Involved	2050	2050	2050
Patrol Man-days	240,824	197,169	260,772

Source: Conservation and Management DNPW

Table 3: Results from Law Enforcement Operations carried out by the Wildlife Law Enforcement Unit

s/n	Category	2012	2013	2014	2015	2016	2017	2018	2019 (up to September 2019l)
1	Poachers Arrested	1,437	1,625	1671	1,920	1920	391	2110	1428
2	Axes	129	196	70	218	69	29	250	143
3	Bicycle	269	320	144	358	75	89	293	370
4	Boats	37	9	18	11	34	10	32	15
5	Bush Meat Recovered (Kgs)	8,327.60	13,542.70	22831.4	29,427	20,704	4,925	77,158	16307
6	Elephant Poached	110	135	136	168	89	122	144	62
7	Home Made Guns (MLG)	188	258	252	295	229	53	358	125
8	Home Made Shot Guns	162	75	142	283	252	46	300	182
9	Hunting Spears	25	80	119	118	80	53	105	57
10	Military Rifles	18	21	21	33	26	3	21	4
11	Motor Bike	5	4	12	13	8		19	0
12	Motor Vehicles	20	17	16	29	6	3	42	11
14	Shot Guns	156	163	134	331	223	3	185	62
15	Snares	5,370	8,406	9885	7,666	9015	1494	8128	3475
16	Sport Rifles	74	22	32	105	59	3	21	24

Source: Conservation and Management DNPW

3.6 Stakeholder Involvement in Lion Conservation

3.6.1 Hunting Outfitters

Hunting companies and professional hunters provide significant support to conservation activities throughout the hunting areas of Zambia. Section 5 provides detailed information on their involvement in anti-poaching, habitat conservation, and community development. In particular hunting operators are at the forefront in the fight against poaching in Game Management Areas through their financial and logistical support to Community Resources Boards (CRBs).

3.6.2 Communities

Community Resources Boards are responsible for wildlife management in Game Management Areas including the employment of Community Scouts who are responsible for anti-poaching operations in these areas. In section 8 we provide a detailed description of Community Based Natural Resources Management in Zambia. Communities are considered as key partners in wildlife management in Zambia

3.6.3 Non-Governmental Organizations

There are several NGOs in Zambia supporting the government in conservation activities through support to anti-poaching units. In the key lion clusters of Luangwa, Kafue and Lower Zambezi

ecosystems, the Frankfurt Zoological Society (FZS) that has been active in the North Luangwa National Park for over 20 years, Conservation South Luangwa (CLS) (Formerly South Luangwa Conservation Society) in South Luangwa National Park and surrounding GMAs, Game Rangers International that has been active in the Kafue ecosystem since 2010 and Conservation Lower Zambezi (CLZ) is active in the Lower Zambezi National Park and surrounding GMAs. Other NGOs providing active support to DNPW in these areas include Panthera, which is supporting law enforcement in the Kafue NP along with the Nature Conservancy (TNC) and WWF – Zambia that are active in providing support to Community Natural Resource organisations in GMAs.

4.0 Zambia lion research

Because of the difficulties in estimating lion population numbers (see section 2), long term studies are recommended. Additionally, due to questions as to the validity of point-in-time estimates of lion population size, the concept of "population trend" is becoming more widely accepted for assessing lion populations. Thus, whereas focal studies may benefit from monitoring individuals, it is recommended that long-term "trends" should be the priority for lion population monitoring moving forward. In this regard, the Department of National Parks and Wildlife in conjunction with the ZLP and ZCP has instituted long-term studies to monitor trends in key areas for lion conservation in Zambia. Methods currently available for surveying lions and have been used in Zambia include:

1. Scat (Genetics), molecular analysis [DNA] (Creel & Rosenblatt, 2013; Curry, White & Derr, 2015)
2. Spoor; spotting and recording spoor by location and differences in sizes in spoor in transects (Midlane et al., 2014 and 2015).
3. Call-ups; playing recorded lion calls or wildlife distress calls at fixed survey points (MIdlane et al., 2015).
4. Mark-recapture studies of individuals [Pride observations, Photo profiles, Collaring and monitoring movements] (Yamazaki, 1996; Rosenblatt et al., 2014).
5. Scout sightings, community and operator interviews [Hunting and Photographic operators] (Leigh, 2005; Becker et al., 2012)

Unlike elephants and other large herbivores where aerial surveys are used with standardized methodologies such as the MIKE standards for aerial surveys (Craig, 2012), there are no standardized methods for lions and in most cases the methods listed above are used in combination. Lions have largely been estimated by 'guess estimates' using the above ways of observation and relating to the size of the area, and more recently by using models such as Possible Lion Occupancy (Midlane et al., 2014).

As stated in the previous sections, several research projects on lion are ongoing in Zambia. In partnership with the DNPW, the Zambia Lion Project (ZLP) initiated lion research in 2004. Research has focused on presence/absence surveys of lions throughout Zambia, and DNA has been collected from trophy and controlled lions and via biopsy darting of live animals throughout Zambia's parks and GMAs. Products of ZLP's DNA studies to date include several scientific publications describing 1) genetics of lions within Zambia's Lion Conservation Units (LCUs) (Dubach et al. 2013), 2) a perspective of Zambia's lions' genetics at the continental scale (Bertola et al., 2015), and an in-depth study that documents the genetic diversity of Zambia's lions throughout the country (Curry, White & Derr, 2015). As detailed above, ZLP in 2006 established a lion trophy monitoring program and has since worked with hunting operators and outfitters to gather data on trophy lion trophy hunting and trophy quality, specifically trophy lion age towards developing sustainable offtake. Two new scientific studies on age estimation of lions, resulting from the above described program, are now available. The first provides a method estimating age to within six months of age on average (White et al. 2016). The second

describes individual variation in lion teeth and places the issue of aging lion trophies into the practical context of trophy monitoring programs (White and Belant, 2016). The project ended in 2015.

The Zambia Carnivore Programme's (ZCP) current lion research efforts are focused in three areas the South Luangwa National Park, the Kafue National Park and the Liuwa Plain National Park. ZCP's seeks to document population trends and demographic vital rates of lions in these key lion areas. Products of ZCP's work include multiple publications on effects of trophy hunting in Zambia (Becker et al., 2012; Rosenblatt et al., 2014); lion abundance (Becker et al., 2012, Riggio et al., 2012, Rosenblatt et al., 2014) disease prevalence (Berestein et al., 2012 and 2013, Williams et al., 2014); effects of wire snaring (Becker et al., 2012, Watson et al., 2013) bush meat and prey depletion (Lindsey et al., 2012) habitat fragmentation, encroachment and degradation (Watson et al., 2013; Creel et al., 2013; Lindsey et al., 2014;) and policy (Creel et al., 2014).

This research and monitoring programme spanned through a prolonged period of hunting (2008 – 2012) and the closure of lion and leopard hunting between 2013 – 2015. Several key research findings have been published and are informing the evolving Zambian carnivore conservation strategy e.g.: Becker *et al.* (2012), Becker *et al.* (2013), Rosenblatt *et al.* (2014), Creel *et al.* (2016), Mweetwa *et al.* (2018) [1].Other lion studies have been done by independent researchers and graduate students (Carlson, 2004; Leigh, 2005; Midlane et al., 2014; 2015).

Zambia is committed to continuing and expanding further scientific surveys of Lions in order to assess the population status. Depending on the availability of funding, DNPW is planning surveys to be conducted in two areas: i) the corridor between South Luangwa National Park and Lower Zambezi National Park, comprising several GMAs and Open Game Ranches and ii) GMAs surrounding the eastern part of North Luangwa National Park. This will supplement the ongoing work of the Zambian Carnivore Programme in selected areas of South Luangwa and Kafue National Parks.

Additional genetic analyses are also being conducted by Zambia Lion Project, including assessments that will help inform DNPW in future efforts to translocate lions among different regions in Zambia in order to re-establish lion populations in historic lion range e.g., West Lunga complex.

In short, DNPW has an active research program that informs and supplements its active lion management and forms the foundation of the sport-hunting system. Overall the research capacity at DNPW needs to be further strengthened through specific research-oriented funding.

5.0 Utilization

5.1 Safari hunting in Zambia

Safari hunting in Zambia is consistent with the country's general tourism and wildlife policy. The mission of the Zambian wildlife policy is to conserve Zambia's wildlife for biodiversity and socio-economic enhancement. Sustainable utilization is the best management model to achieve the objectives of this mission outside National Parks, especially in areas where it is desirable that wilderness be maintained, and without attracting the high-human density and infrastructure typical of photographic tourism. Safari hunting is the most efficient land use in areas without species density and infrastructure because it offers high value with low impact on habitats. Large wilderness areas ensure high appreciation by clients because of the natural beauty and large variety of trophy animal species, some of them endemic to Zambia e.g., Cookson's wildebeest, black lechwe, and Kafue lechwe.

5.2 Lion hunting Areas

[1] See list of references and https://www.zambiacarnivores.org/publications/

Lion hunting in Zambia is carried out in hunting blocks located in Game Management Areas surrounding National Parks in the Luangwa, Kafue and Lower Zambezi ecosystem and in Open Game Ranches/Conservancies (Table 3). For the period 2005 to 2012 lion hunting was carried out in 21 Game Management Areas and 5 Open Game Ranches.

5.2.1 GMAs

Game Management Areas (GMA) are a category of protected areas in Zambia designed to form buffer zones between National Parks and Open Areas. The main land use forms in GMAs has been Safari and Resident hunting. However, a few GMAs have included photographic tourism. Settlement is allowed in designated areas defined by the GMA's General Management Plan. CBNRM in Zambia is implemented in GMAs through Community Resource Boards (CRBs) provided for by the Wildlife Act of 2015 (see section 8). There are 36 Game Management Areas covering 177,404 km^2.

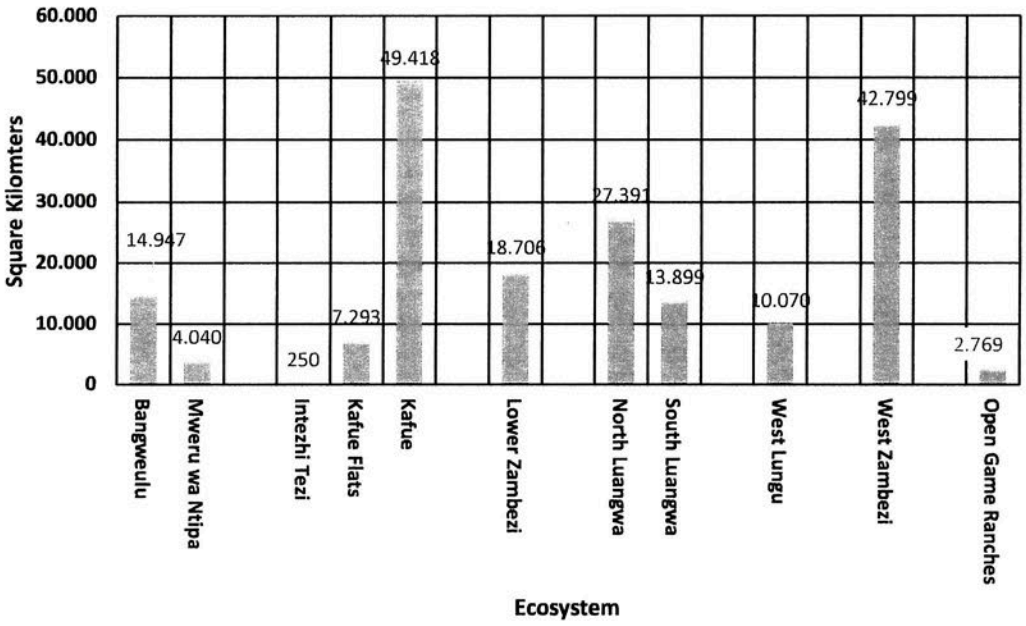


Figure 4: Area of GMAs (km^2) in each of the ecosystem clusters where hunting blocks are located

The GMAs are situated in various ecosystems across Zambia and serve as buffer zones to the major national park systems (Figure 3). The Kafue ecosystem (26%) and West Zambezi ecosystem (23%) make up much of the area followed by North and South Luangwa (21% combined). Table 5 summarises the area of land (188,130km^2) occupied by the different hunting block categories in the GMAs. Vacant hunting blocks make up 26% of the hunting area. Open Game Ranches occupy <2% of the overall hunting area (191,582km^2).

Table 4: Summary of hunting block categories

Category	Number Hunting Blocks	Total Area (km^2)	Percentage
Prime	14	25,325	13%
Secondary	14	48,359	25%

Understocked	3	28,216	15%
Specialised	5	37,633	20%
Vacant*	18	49,280	26%
Open Game Ranch	19	3,105	1.4%
Total	**66**	**191,918**	**100%**

**includes two secondary and two depleted blocks*

5.2.2 Open Game Ranches

Open Game Ranches are unfenced private wildlife estates outside public protected areas that are reserved by a person or local community for wildlife conservation and management. Game ranching in Zambia has evolved in the last ten years as one of the best conservation success stories. Started in areas that were severely depleted in terms of wildlife species and with widespread illegal activities such as poaching, illegal logging and mining, thanks to partnerships between private investors and local communities most of these areas have been rehabilitated and recolonised by wildlife including lion.

The concept of Open Game Ranches is unique in that the private sector and the community agree to protect wildlife on privately owned or communal lands. Unlike closed Game Ranches, Open Game Ranches are not fenced and the animals are free to move back and forth beyond the ranch boundary into the surrounding Game Management Areas. This avoids fragmenting habitats and blocking wildlife movement corridors. The wildlife is still considered as belonging to the state. In exchange for protecting the wildlife the Department of National Parks and Wildlife issues the Open Game Ranches annual non-resident hunting quotas. The anti-poaching efforts in these lands contribute directly to assisting the Department in protecting national parks and GMAs. In many instances the owners of the ranches have invested in these areas by restocking the areas with more game species thus improving the diversity.

Most of these Open Game Ranches, even though private sector driven have co-management agreements with local communities.

One example of an innovative partnership developing in the Open Game Ranches is Kaindu Community Game Ranch, close to Kafue National Park.

In 2002, DANIDA (Danish Aid Agency) created the Kaindu Natural Resources Trust (KNRT) and an existing farm, FARM 10415, was developed as an unfenced Game Ranch that was to be managed by the Trust for the benefit of the Kaindu community. The main objective was to create income from safari hunting since Kaindu was one of the few Kafue communities not attached to a Game Management Area (GMA) and did not benefit from any form of tourism. In 2005 this project floundered due to insufficient capacity and lack of financial resources.

In 2008 Royal Kafue Ltd., a development company, forged a direct partnership with KNRT which has 20% of the shares of the development company. As landlords, the Kaindu community is considered the investor. Farm 10415 was leased from KNRT with the objective of establishing a number of commercial models making best economic use of the property while keeping the environment sacrosanct. This agreement has the approval of the traditional leadership of Chief Kaindu, The Royal Establishment Committee, Mumbwa District Council, the District Commissioner, the Office of the President, and the then ZAWA. The enterprise has been sustained through the innovative nexus of direct ownership of land and management of wildlife and other natural resources by the local community. In 2010 Farm 10415 was registered with ZAWA as Kaindu Community Game Ranch.

The KNRT, a legal environment body representing the Kaindu people, has title to approximately 15,500 hectares of pristine wilderness and this was a tremendous advantage to the promoters as DANIDA

had initiated surveys and social studies had been implemented. The location was ideally suited due to its close proximity to both Lusaka and the Kafue National Park, which is hugely advantageous. The land and soils were deemed unfit for agriculture but adjoined game rich feeder areas from the adjacent Lunga Luswishi GMA to the north and both the Mushingashi Conservancy and Kafue National Park to the west. Unlike the first effort, this partnership has succeeded by active participation of skilled and well-resourced partners in a business enterprise, and by the community holding an equity stake as well as retaining title to the land. The Royal Kafue project was one of the first of its kind to be successfully implemented in Zambia and demonstrates an awareness of natural resources as assets. It has the potential to diminish the market for illegal wildlife products and can reverse the depletion of natural resources. So far, wildlife is recovering in the area, and the ranch has hosted several tourist safari hunters, thus generating revenue for the enterprise.

All Open Game Ranches increase the land available for wildlife conservation (lion included) and buffering the loss of wildlife habitats in the country. Example of these includes the Open Game Ranches located on the eastern banks of the Luangwa River southward of the South Luangwa NP such as Nyakolwe, Nyamvu and Munyamadzi Game Ranches. Zambia currently has 19 registered open Game ranches extending, according to official DNPW data, for over 3,100 km^2 (Table 6).

Table 5: List of Open Game Ranches in Zambia

S/n	Name	Location	Area (Ha)	Area (Sq.km)
1	Illinda Game Ranch	Kasempa	55,000	550
2	Mushingashi Game Ranch	Mumbwa	36,557	366
3	Nyakolwe Game Ranch	Sinda	24,800	248
4	Sitatunga Game Ranch	Kasempa	22,000	220
5	Mpyamanzi Conservancy	Nyimba	20,000	200
6	Munyamadzi Open Game Ranch	Nyimba	17,500	175
7	Kaindu Natural Resources Trust	Mumbwa	15,500	155
8	Musonweji Game Ranch	Mufumbwe	15,000	150
9	Chinamanama	Mpika	15,000	150
10	Nyamvu Game Ranch	Nyimba	12,000	120
11	Chipepo Royal Game Ranch	Gwembe	10,650	107
12	Nkalamu Game Ranch	Nyimba	6,000	60
13	Kanzutu Game ranch	Sandwe	3,100	31
14	Kazumba Game Ranch	Nyimba	750	8
15	Bangweulu Island	Samfya	500	5
16	Mulilanama Open Game ranch	Nyimba	350	4
17	Kalwelwa Game Ranch	Mwinilunga	350	4
18	Dongwe Game Ranch	Mufumbwe	31,000	310
19	Mbizi Game Ranch	Nyimba	15,000	150
TOTAL			310,557	3,105

5.3 Hunting Quotas

5.3.1 Quota allocation process

Zambia has a participatory quota setting process. The main scientific information used in the quota setting process for most species is derived from aerial surveys which are regularly done in the country and includes many ungulate species. Other information is taken from ground counts, patrol sightings,

local and expert opinion and hunting monitoring. Quota setting is done for each hunting block in GMAs for all types of hunting after close of hunting season and prior to the next hunting season. The quota for lion is set using information from scientific studies, field observations from professional hunters, operators and field officers and from hunting records. This allows CRBs and DNPW to review the previous hunting season's offtake (see also section 5.3.3.1). DNPW follows a bottom-up approach where CRBs submit a proposal of a quota to DNPW head office for adoption and approval. The following table illustrates the quota setting process.

Table 6: Institutions involved in Zambia's quota allocation process

Institution	Information provided by Institution for quota setting	Benefits for participating in quota setting
Community Resource Boards	Provides Info on: - Observed trends of illegal offtake of wildlife - Human settlement patterns - Status, availability and distribution of wildlife in the area - Resource use in the area	- In depth understanding of how quotas are set - Improved knowledge of the relationships between safari hunting and other wildlife management activities in the same area - Improved sense of ownership of the quota
Department of National Parks and Wildlife	- Provides info on: - Wildlife populations - Trends of illegal offtake - Previous year's quota utilization - Law enforcement info in relation to illegal offtake - Monitors hunting activity - Facilitates quota setting workshops	- Enabling democratic and participatory environment for reaching consensus on quotas and allocations; - All key stakeholders to participate in setting quotas, thereby improving the sense of ownership; - Provides a platform for information exchange that can be used to arrive at quotas - Final approval of quotas for GMAs
Lease holders (Operators)/Professional Hunters	- Provides information on: - Wildlife population trends; - Safari sector performance - Competitiveness of the area - Resource use - Wildlife and other conflicts in the area - First-hand input in quota setting	- Opportunity to come up with a sustainable and economical quota for safari - Opportunity to participate in the process - Opportunity to have a long-term view of the sustainability of hunting in the area
Other organizations including some NGOs	- Provide financial support to CRBs and DNPW, - Provide technical support for wildlife population estimates	- Represents the interests of the communities including quota setting - Training on quota setting, facilitate workshops and provide technical assistance on wildlife management.

The quotas are compiled by the Research Unit in DNPW after feedback from the field staff, safari hunting outfitters and CRBs. Management approves the quotas before they are distributed to operators by the Licensing Unit. Quotas are verified by the Wildlife Conservation and Management Unit. To enhance transparency and accountability, the DNPW is now required to share the approved quotas with other government agencies, which include among others the Auditors General's office and Anti-Corruption Commission. This ensures that the quotas produced cannot be altered by any person and provides the sustainability and benefits of the system.

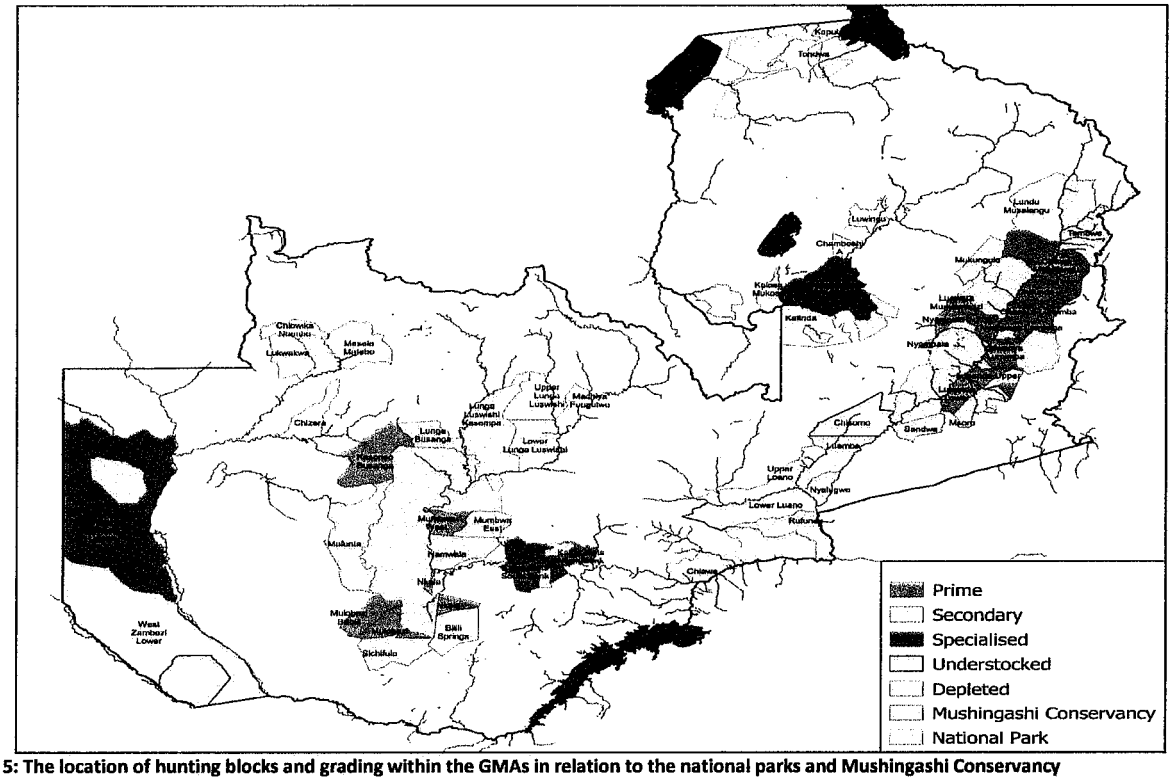


Figure 5: The location of hunting blocks and grading within the GMAs in relation to the national parks and Mushingashi Conservancy

The location of Open Game Ranches is not shown on this map

5.4 Status of block allocations

The DNPW is authorized in terms of the Act to grant hunting concessions in GMAs in agreement and in partnership with the villages, residents and traditional leaders (collectively known as the "local community) or their authorised representative. This is therefore a tripartite agreement between the local community, the outfitter and the DNPW (aka "the Parties"). Each partner is required to contribute services and resources. In practice the signature of the Chairperson(s) of the CRB (as the local community representative) is required to sign the Hunting Concession Agreement (HCA).

The HCA defines the following expressions and terms:

- **Annual animal quota** means the number of animals per species annually allocated to the hunting block
- **Classical Safari** means a hunting period of 14 – 28 days and which includes animal species such as cats and antelopes
- **Hunting Concession fee** means the fee agreed upon by the parties payable to the DNPW for the clients'[2] exclusive right to engage in safari hunting within the hunting block
- **Hunting Rights Fee** means the average fee agreed upon by the parties payable to the DNPW for the client to hunt in a hunting block other than the hunting block that is the subject of the agreement.
- **Mini Safari** means a hunting period of 7 days and which excludes animal species such as cats.
- **Prime Hunting Block** means all or part of a GMA that is deemed to accommodate more than 5 Classical Hunting Safaris with high quality trophies in one hunting season.
- **Secondary Hunting Block** means all or part of a GMA that is deemed to accommodate less than 5 Classical Hunting Safaris with high quality trophies in one hunting season.
- **Specialised Safaris** means a hunting safari of less than 5 days and which is restricted to plains game.

The HCA moreover lists numerous obligations that the outfitter must adhere to. For example, in terms of the agreement, the outfitter is required to pay for 60% of the total quota value up front to the DNPW irrespective of whether the animals are sold to clients or not. The DNPW reconciles the quota utilisation at the end of the year and any shortfall must be paid by the outfitter. The outfitter is also responsible for meeting the employment costs of the village scouts who are employed by the CRBs and is required to honour the cash pledges made in the tender document for community support (e.g. providing equipment to grade roads, installing solar panels at the chief's palace, sinking boreholes and providing clean drinking water, local training and employment etc.). The DNPW pay to the CRBs (via central Treasury) 50% of the animal licence fees to cover the operational costs of the CRBs.

The outfitters are also required to provide information on the number of animals hunted or quota utilization levels by end of year which is deposited with the licencing office and department of research in DNPW using the forms described in the legislation (Chomba and Nyirenda, 2015).

5.4.1 Obligations of the concessionaire in the hunting concession agreement

The awarded contracts to the concessionaires of a hunting area include 4 obligations, namely

Law Enforcement: - the concessionaire is obliged to support resource protection through the employment of Community Scouts, provision of logistical support such as vehicles, fuel, patrol rations, and equipment. This obligation is performed thoroughly by the concessionaires and

[2] "Client" means a person who is booked on a hunting tour by a holder (aka the outfitter) of a hunting licence.

their professional hunters with removal of snares, assistance in the arrest of poachers, illegal loggers, encroachers, and illegal miners.

Social and Community Development: - the concessionaire is obliged to support Community development through support to community social needs such as health and education. In this regard some concessionaires have agreed to support the employment of teachers and nurses, purchase of ambulances and building classrooms, clinics and houses for teachers and health personnel so that they are resident within the communities.

In addition to Community development obligations, concessionaires are obliged to provide 50 % of the meat from hunted animals to the local community. White and Belant (2015), estimated that sport hunting provides approximately 129.8 tonnes of meat annually to rural communities, which coincides with times of food scarcity in most of these rural communities. (See Section 6.1.3).

Infrastructure Development: - the concessionaire is obliged to support the Community in infrastructure development as agreed during the negotiations. Common infrastructure projects include boreholes, class rooms, community clinics and roads, and road maintenance and wildlife scout outposts.

Resource Monitoring and Fire Management: - the concessionaire is obliged to support resource monitoring. This is basically monitoring the status of the wildlife in their concession. This includes support to fire management, vegetation and habitat monitoring, game counts, quota setting and general support to the Community Resources Boards.

The above obligations are one of the components of the partnership in conservation of natural resources between the Communities, Safari Operators/professional hunters and the DNPW. Therefore, no hunting concession agreement is valid without the signature of the Chief/s or CRB. The following table illustrates the annual financial obligations of operators in the allocated blocks for the duration of their respective concession agreements.

Table 7: Current Annual financial obligations of hunting concessionaires to Communities in selected Game Management Areas (In Zambian Kwacha)

GMA	Status	Community Obligation	Law Enforcement	Infrastructure Development	Resource Monitoring
Chiawa	Secondary	150.000	150.000	100.000	50.000
Kasonso Busanga	Prime	420.000	120.000	95.000	20.000
Lumimba	Prime	385.000	187.750	140.625	36.500
Lunga Luswishi	Secondary	235.000	180.000	869.430	125.000
Lupande	Prime	580.000	127.000	100.000	30.000
Mulobezi	Secondary	250.000	45.000	50.000	25.000
Mumbwa	Prime	345.000	90.000	50.000	50.000
Mukungule	Secondary	100.000	50.000	20.000	20.000
Munyamadzi	Prime	425.000	165.000	117.000	110.000
Musalangu	Prime	510.250	230.000	150.000	59.500
Nkala	Prime	200.000	75.000	25.000	25.000
Sichifulo	Secondary	120.000	118.000	60.000	30.000
West Petauke	Prime	150.000	90.000	100.000	27.000
Total		3.870.250	1.627.750	1.877.055	608.000

Source: DNPW

On top of these financial obligations the concessionaire and professional hunters provide important voluntary contributions to increase the level of protection and social development in the hunting areas. These include additional contributions to law enforcement, community development, infrastructure and resource monitoring. Examples of three companies' voluntary contributions from safari outfitters in their blocks to communities located in the Luangwa and Kafue Ecosystems are listed in Table 9.

Table 8: Contributions of Safari Companies to Wildlife Conservation from the Luangwa and Kafue ecosystem (2008 - 2019)

Year	Other Contributions	Permanent Employees	Casual Employees	Snares Removed	Comments
2008	64,595,000.00	116	135	2,779	• Support to Traditional Ceremony, • Support to Community Youth Group, • Donation to Secondary School, • Donated 2 Hammer mills, • Donated Land rover, • Funded awareness meeting against snaring
2009	41,500,000.00	121	137	1,894	• Support to traditional Ceremony, • 1 Hammer mill • Cement and Iron sheets for community shelter, • Transport and lodging for CRB members to attend meetings
2010	60,500,000.00	121	139	1,664	• Support to Traditional Ceremonies • Sponsoring Community Members to International meeting • Settling Statutory Fees Arrears for CRB • Outboard Engine • Contribution towards Village scout training
2011	33,000,000.00	121	144	1,686	• Motor bike spares • Transport • Second hand Land Cruiser • Fertilizer and seed
2012	35,706,000.00	121	148	1,521	
2013	20,004,000.00	132	112	715	• Hunting Operations could not sustain contributions, • Service parts for vehicle
2014	20,000,000.00	132	215	544	• Spares for truck • Hunting operations could not sustain contributions
2015	5,000.00	213	230	401	• Supported law enforcement operations, • No hunting but met concession agreement obligations
2016	450,000.00	296	480	2,071	• Support to traditional Ceremony, • 2 Hammer mills • Cement and Iron sheets for mothers' shelter • Transport and lodging for CRB members attending meetings • Support to law enforcement operations
2017	650,000.00	311	504	1,850	• Support to traditional Ceremony, • Cement and Iron sheets to schools • Transport and lodging for CRB members attending meetings • Support to law enforcement operations • Provided clothing materials to communities

2018	650,000.00	360	554	1,610	• Support to law enforcement operations • Transport to local communities • Donation of school materials • Support to traditional ceremonies • Spares and repair of anti-poaching vehicles • Funded awareness meetings in CBNRM
2019	580,000.00	368	571	1,942	• Support law enforcement operations • Building materials to schools • Spares and maintenance of the hummer mills • Support to traditional ceremonies • Damming water points

Source: DNPW

5.4.2 Tender process for hunting blocks

All hunting blocks operate under a hunting concession agreement with a safari outfitter. Safari hunts operate from 1st May to 31st December each year, however, between August and the end of December recreational hunting by citizens and residents is also allowed in these blocks on a bid basis, managed by the DNPW.

The classification of hunting blocks into Prime, Secondary, Understocked and Depleted is based on the number of Classical (i.e. 14 – 28-day hunts) and Mini (i.e. 7 – 10-day hunts). Quotas for Prime hunting blocks are set to achieve at least five classic safaris and seven mini-hunts per season. Similar, but slightly reduced requirements apply to secondary hunting areas.

The process to acquire a hunting block changed after 1991 when the government policy shifted from directly allocating HCA's administratively to an Open Tender System. The initial tenure period also gradually increased from three-year tenure, followed by a five-year tenure to 10 years for prime and secondary blocks and 15 years for understocked blocks, which prevails today (Chomba and Nyirenda, 2015). The tender process is therefore driven by these parameters with bidders tendering for blocks offering a pre-determined number of hunts. In this open tender system, interested bidders are invited to purchase solicitation documents from the DNPW HQ at Chilanga (see http://mpoto.info/tendersportal/tender-for-the-granting-of-safari-hunting-concessions-in-the-hunting-blocks/). The selection criteria is not necessarily based on the highest bidder but on other supporting evidence such as: a) evidence of a company's ability to market a given HCA, b) pledges to the local community living near to or within the area of the HCA, c) company's financial status, d) assets available to operate a safari camp, e) evidence to show that the company has agents to help with overseas bookings, f) marketing ability, g) wildlife management inputs pledged, and h) proof of qualified professional hunters among others. There are currently 54 occupied and vacant hunting blocks under the control of the DNPW that have been awarded via this tender process and are into their third year of tenure.

5.4.3 Compliance to obligations of the concession agreement

The Hunting Concession Agreement has provisions specifying the mechanism of monitoring the implementation of the agreement. Mechanisms include annual evaluations at the end of the hunting season, and before the beginning of the next hunting season that involve the Department, CRBs and representatives of the concessionaire. A concession holder who does not comply with the obligations can have their concession terminated before the end of the agreement's term.

5.5 Quota setting and GMA Management

The transformation of the former DNPW to ZAWA in 1999 ushered in new wildlife policies that promoted community-based natural resource management (CBNRM). The Community Resource Boards (CRBs) established under this policy framework were now able to benefit from the use of wildlife in the GMAs but had to also assume responsibility for the management of these areas. A proportion of the income from the sale of the quotas set by the (then) ZAWA and latterly the DNPW to "joint venture" partners were intended to cover these costs. The opportunity to take on important wildlife management roles, such as quota setting, required that CRBs (and outfitters) develop new skills to recommend annual quotas to ZAWA (and now DNPW). To assist this process, ZAWA produced a "Quota Setting and Monitoring of Hunting Manual" (ZAWA, 2004) that guided participants through the relationship between quota setting and monitoring of hunting. This manual draws on experiences from Zimbabwe and other regional countries and uses the "Adaptive Management Process" approach to set and adjust quotas. This process relies heavily on monitoring of population trends, trophy quality and hunting effort to adjust quotas[3]. It is therefore important to gather data and adopt a systematic approach to monitor hunting to establish robust indices that can feed back into this process.

5.5.1 Trend in overall quota allocations

The DNPW is required to set quotas for eight different categories of hunters across the 52 hunting blocks involving 42 mammal species and subspecies. It also allocates quotas to 12 Open Game Ranches. Reconciling and maintaining track of this database presents a challenge, especially as each outfitter is required to apply for individual licences for each hunting client. The overall quota allocations have not fluctuated significantly over the years. The notable exception is the drastic reduction of the lion quota because of the recommendations of the CITES NDF (Table 10).

Table 9: Trend in the quota set by ZAWA and DNPW for all species and key classic and mini hunt trophies

Year	2003	2004	2005	2006	2007	2008	2016	2017	2018	2019
Total quota	3360	4420	4350	4622	4539	3733	4863	3691	4535	3728
Buffalo	240	358	321	343	341	335	351	362	364	403
Leopard	112	130	122	91	99	91	76	106	112	128
Lion	108	135	123	110	117	115	24	35	31	33

5.5.2 Quota allocation across ecosystems

The magnitude of the Zambian hunting industry can be gauged by the number of key species (lion, leopard, buffalo and hippo) allocated on quota and the number of hunting clients that visit the country. The total number of animals allocated on quota for 2018 (4535) in each of the major ecosystems and Open Game Ranches is provided in Figure 5.

[3] Where possible, the DNPW also draws on aerial survey data to support its decisions regarding quotas.

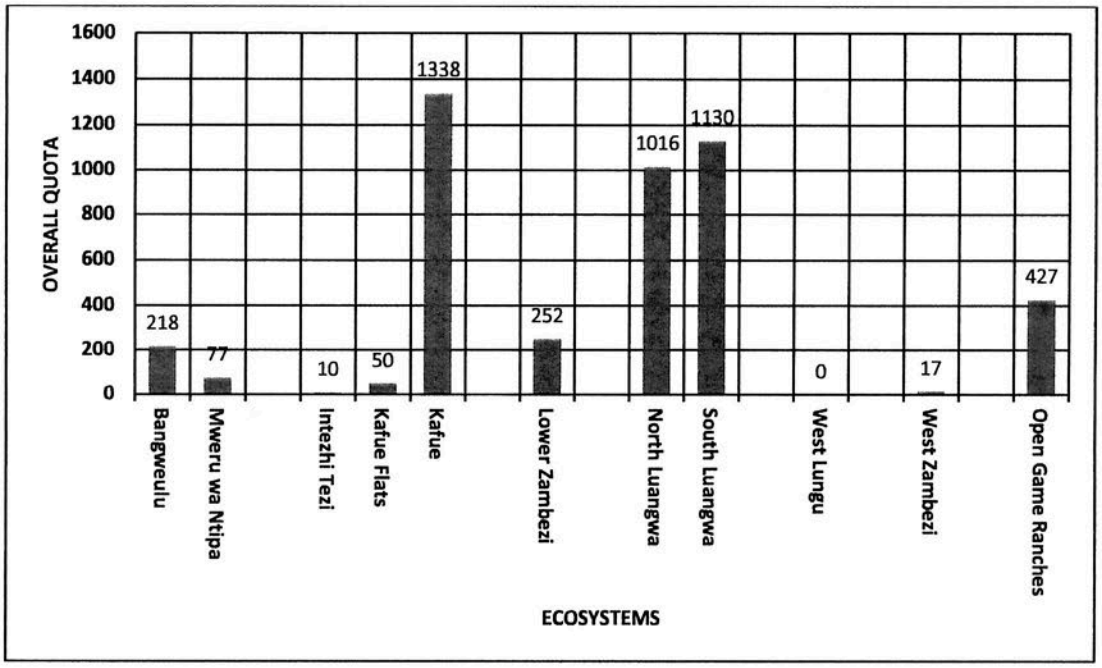


Figure 6: Overall quota allocation (4535 animals) per ecosystem in 2018

Overall, the species rich Luangwa ecosystem is the recipient of approximately 50% of the quota allocation followed by the Kafue ecosystem. When split across the various hunting categories, the non-resident hunter quota receives 2884 animals (or 63% of the overall quota) with less than 20% reserved for citizens and bona fide GMA residents (Figure 6).

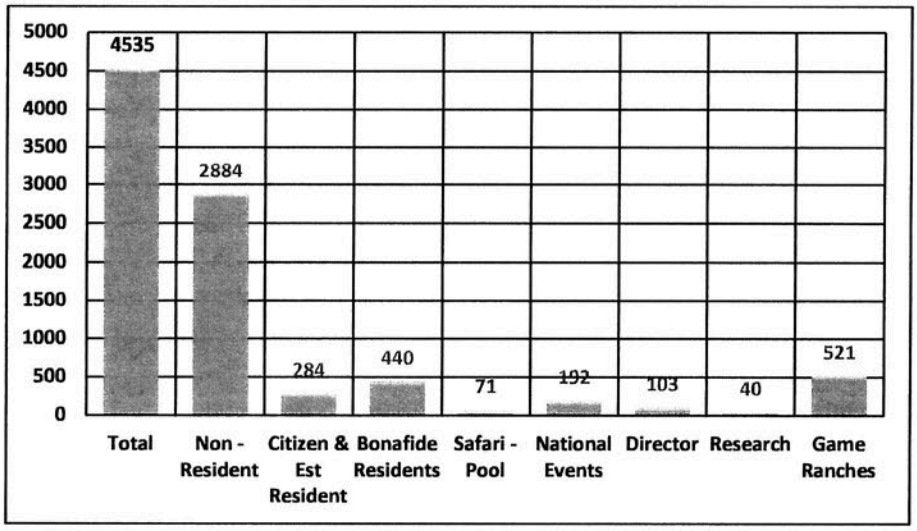


Figure 7: Total quota allocation by category in 2018. 63% is allocated to the non-resident quota.

The distribution of the lion quota between the different hunting categories is provided in Figure 7 while the distribution of the quota across the ecosystems is provided in Figure 8.

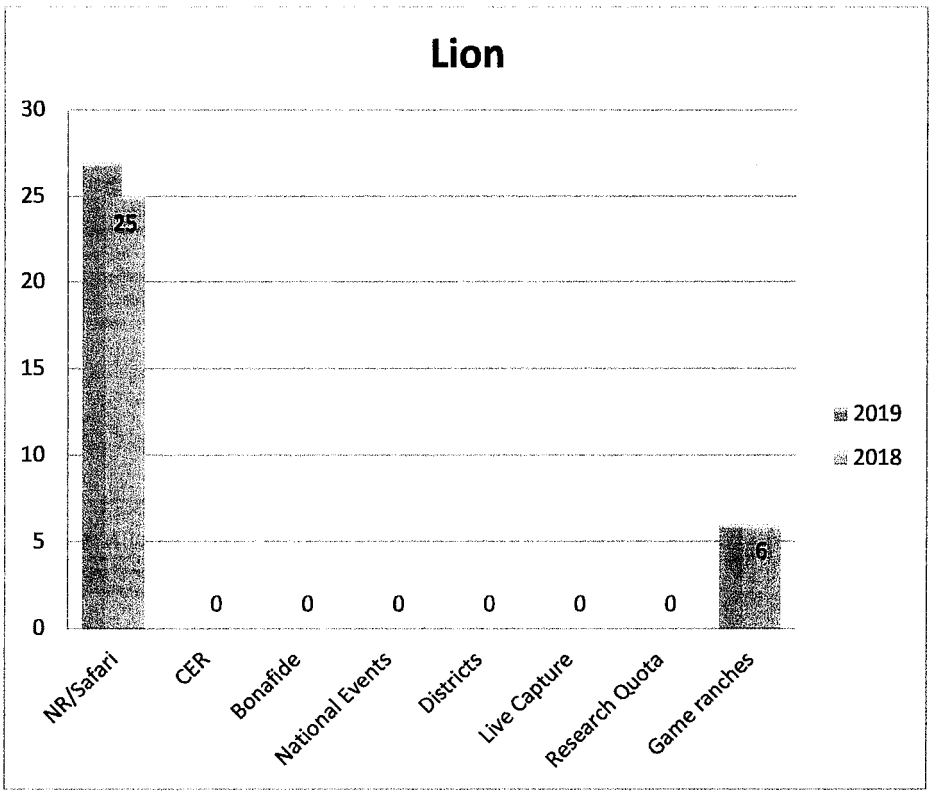


Figure 8: Allocation of the lion quota by hunting category in 2018 and 2019.

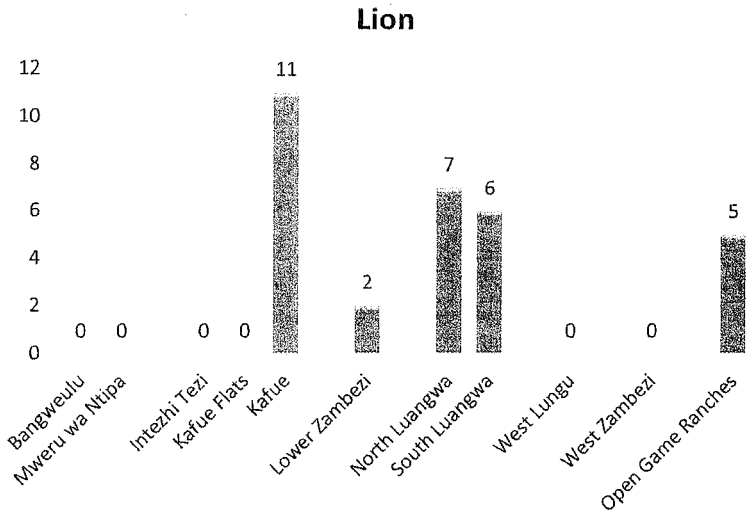


Figure 9: Allocation of the 2018 lion quota across the major ecosystems. Kafue and Luangwa take up the bulk of the lion quota.

5.5.3 Utilisation of Quota

All professional hunters (PH) and outfitters (where appropriate) are required to complete a "Form ZAWA 14" giving details of a completed hunting safari in terms of SI 46 of 2003. This form records the

details of the PH, hunting client, area hunted, dates, list of species killed/wounded, GPS location, foreign currency charged to client and trophy measurements. The forms are deposited with the licencing office and Department of Research in the DNPW at the end of each hunting safari. Chomba and Nyirenda (2015) provide some data to illustrate the average percentage utilisation of the top 10 of the 41 species on offer to non-resident hunters (Table 11).

Table 10: Ranked top 10 species utilisation levels for non-resident quotas recorded between 2003 - 2011 (adapted from Chomba and Nyirenda, 2015).

Species	Average percentage utilisation 2003 - 2011	Rank
Black lechwe	67	1
Kafue lechwe	65	2
Cookson's wildebeest	63	3
Buffalo	57	4
Lion	57	5
Puku	55	6
Leopard	55	7
Common waterbuck	48	8
Greater kudu	48	9
Defassa waterbuck	47	10

5.6. Value of 2018 quota

The value of each species offered on quota is defined by the animal licence fee charges listed in the Zambia Wildlife (Licences and Fees) Regulations, 2003 (SI No. 46 of 2003). These fees have remained relatively stable in United States dollar terms but have been periodically amended to accommodate exchange rate fluctuations in the local currency.

These fees are under review by the DNPW in collaboration with the SHOAZ taking into consideration the depressed international market for safari hunting, competition from neighbouring countries and the cost of doing business In Zambia.

5.6.1 Income generation of the 2018 quota

The overall value (in US$) of the 2018 quota is summarised in Table 12. The total income due to the DNPW from the sale of 100% of the quota is US$3,224,940 from the 188,813km^2. The 14 prime hunting blocks produce 64% of these fees ($2,066,140) or $82/km^2. However, the overall income of $17/km^2 falls short of the $50/km^2 that is generally regarded as the minimum expenditure needed to manage IUCN Category IV protected areas such as the GMAs. Moreover, realistically the DNPW can expect to receive approximately 60% of these fees ($1,934,964) that it shares 50% with CRBs. By comparison the open game ranches generate $194/km^2.

Table 11: Overall income (US$) generated from the sale of 100% of the 2018 quota allocated to prime, secondary, understocked and specialised hunting blocks

Individual Fees (Non- resident)	Number Hunting Blocks	Total Income (US$)	Total Area (km^2)	Income/km^2
Prime	14	$2,066,140	25,325	$82
Secondary	14	$985,170	48,359	$20
Understocked	3	$39,040	28,216	$1
Specialised	5	$134,590	37,633	$4
Vacant	18	$0	49,280	$0
Sub-total - DNPW	***54***	***$3,224,940***	***188,813***	***$17***
Open Game Ranch	19	$537,370	3,105	$173
Total Income	66	**$3,762,310**	**191,918**	$19.6

The potential contribution of animal license fees of the seven main species is provided in Table 13. These species make up the bags of "classic" and "mini" hunts and collectively contribute 57% ($2,138,600) of the overall animal license fees ($3,726,310). Individually, buffalo contribute 15% of this amount underlining the importance of this species to the Zambian hunting industry. Leopard and lion collectively contribute 11% while sable and roan contribute 14% of these fees.

The 2018 lion quota was valued at US$130,200, equivalent to US$0.56cents/$km^2$, highlighting the call by Creel *et al.* (2016) to review the hunting fees to maintain revenues for conservation of hunting areas. A Regulation is in preparation by DNPW to update the current animal fees as set by statutory instrument No. 60 of 2007.

Table 12: Total animal licence fee income (US$) and overall contribution of the 2018 lion quota.

Ecosystem	% Area	Area (km^2)	Income per 1000km^2	Total Animal Licence Fees[1]	Lion	Total Lion Income	Lion per 1000km^2
North Luangwa	15%	27,391	US$31,779	US$870,450	7	US$29,400	0.26
South Luangwa	7%	13,899	US$73,516	US$1,021,800	6	US$25,200	0.43
Kafue	30%	56,961	US$16,955	US$965,770	10	US$42,000	0.18
Lower Zambezi	10%	18,706	US$9,957	US$186,260	2	US$8,400	0.11
Bangweulu	10%	18,987	US$9,104	US$172,860	0	0	0.00
West Lunga	5%	10,070	US$0	US$0	0	0	0.00
West Zambezi	23%	42,799	US$182	US$7,800	0	0	0.00
Total	**100%**	**188,813**	**US$17,080**	**US$3,224,940**	**25**	US$105,000	**0.13**
OGR's		*2,769*	*US$194,066*	*US$537,370*	*6*	US$25,200	*2.17*
Total		**191,582**	**US$19,638**	**US$3,762,310**	**31**	**US$130,200**	**0.16**
N + S Luangwa	*22%*	*41,290*	*US$45,828*	*US$1,892,250*	*13*	US$54,600	*0.31*

[1] *Include Lion*

Table 13: Potential gross income (US$2,138,600) of seven main species that contribute to Classic and Mini Hunts that define the block categories

Block Category	Buffalo	Elephant Male	Hippopotamus	Leopard	Lion	Roan Antelope	Sable Antelope	
Individual Fees (Non- resident)	US$1,600	US$10,000	US$1,600	US$2,650	US$4,200	US$4,000	US$3,000	
Total quota	*364*	*27*	*212*	*112*	*31*	*67*	*84*	**Total**
Primary	US$411,200	US$160,000	US$206,400	US$161,650	US$63,000	US$104,000	US$102,000	US$1,208,250
Secondary	US$86,400	US$50,000	US$49,600	US$71,550	US$33,600	US$68,000	US$78,000	US$577,700
Understocked	US$3,200	US$10,000	US$14,400	US$0	US$0	US$8,000	US$0	US$27,600
Specialised	US$0	US$0	US$0	US$0	US$0	US$0	US$0	US$8,000
Open Game Ranch	US$52,800	US$30,000	US$48,000	US$45,050	US$25,200	US$68,000	US$48,000	US$317,050
Vacant	US$0	US$0	US$0	US$0	US$0	US$0	US$0	US$0
Total Income	**US$582,400**	**US$270,000**	**US$339,200**	**US$296,800.00**	**US$130,200**	**US$268,000**	**US$252,000**	**US$2,138,600**
% of total value ($3,726,310)	15%	7%	9%	8%	3%	7%	7%	

5.7. Lion Quotas and utilization Pre-Moratorium (2005 – 2012)

Zambia issued a total of 683 lions on quota for the period 2005 to 2015 in 21 Game Management Areas and 5 Open Game Ranches (Table 14). For this period the highest number of lions issued on quota was 117 issued in 2005 and the lowest was 55 issued in 2011 (Table 14). The quotas were generally based on the levels of utilization of the previous year's lion quotas and in some instances the quota was fixed in the concession agreements. This level of utilization may have been locally unsustainable considering that lions like most large carnivores have low adult mortality rates (Murray et al., 2010). However, the trend during the period 2005 – 2012 was towards a low offtake quota. This was attributable to two factors: 1) a decrease in allocated quota by ZAWA (now DNPW), and 2) greater selectivity by hunters engaged in the voluntary age-based trophy selection program.

To address this concern, by 2012 the country's lion quota had been reduced by 58 per cent. Although offtake overall was decreasing through greater selectivity, the program was voluntary and a high offtake of males was still of concern in two of the Game Management Areas (Lupande and Lumimba) (Yamazaki, 1996; Rosenblatt et al., 2014).

Moreover, during this same period Zambia took measures in protecting lion populations in the Lower Zambezi and Nsumbu Complex. Following the results of studies undertaken in the Lower Zambezi (Leigh, 2005 referred to in Becker et al., 2012), the DNPW (then ZAWA) discontinued lion hunting in Chiawa Game Management Area. In the same vein due to uncertainty about the lion populations in Tondwa and Luano GMAs lion hunting was discontinued in these areas in 2006 and 2009 respectively. Thus, for the Lower Zambezi ecosystem, lion hunting has only continued in Rufunsa GMA. However, for this particular GMA lion hunting was only allowed because of the high levels of human lion conflict with 10 lions killed in an effort to mitigate conflict during the period 2005 to 2016 (Refer to Section 7.2 below)

Research by Packer et al., 2011 in the Serengeti recommends lion harvest rates of 1 lion/1000 km^2 in high lion density areas and 1 lion/2000 km^2 in low density areas. This was to be in lieu of adopting a five/six-year aging approach. However, recent research seems to suggest that this may not be the case across all ecosystem, due to differences in population demographic rates (Creel et al., 2016 in review). In any case, a review of Zambia's offtake rates for the period 2005 to 2012 indicates that harvest rate of 1 lion/1000 km^2 was only exceeded in 4 of the 21 Game Management Areas in which lion hunting was conducted for the period 2005 to 2012 (Table 15). Three of these were in the Luangwa ecosystem and one in the Kafue ecosystem. For the other 17 Game Management Areas the harvest rates were far below the rate of 1 lion /1000 km^2 despite some areas being in high lion density areas. For some areas, lion hunting was stopped altogether.

Harvest rates in Open Game Ranches were greater than 1 lion/1000km^2. However, Open Game Ranches are typically managed with high levels of protection and large prey bases per km^2.

Table 14: Zambia lion Allocated Quotas for the period 2005 to 2012

s/n	Hunting Area	Area (sq.km)	2005	2006	2007	2008	2009	2010	2011	2012
1	Lupande GMA	4,840	12	10	12	8	10	8	6	7
2	Lumimba GMA	4,500	14	11	14	14	10	12	7	9
3	Munyamadzi GMA	3,300	10	10	9	6	5	5	5	6
4	Mukungule GMA	2,402	3	3	3	2	1	1	1	1
5	Chisomo GMA	3,390	2	2	2	1	0	1	0	0
6	Musalangu GMA	17,350	13	12	13	13	12	12	6	9
7	Sandwe GMA	1,530	3	3	3	3	1	0	0	1
8	West Petauke GMA	4,140	6	4	4	5	5	5	4	4
9	Luano GMA	8,930	3	1	2	1	1	0	0	0
10	Chiawa GMA	2,334	2	0	0	0	0	0	0	0
11	Rufunsa GMA	3,179	2	2	2	2	1	2	1	1
12	Mumbwa GMA	3,370	7	5	6	6	4	5	4	5
13	Nkala/Bilili GMA	3,274	4	3	4	3	2	2	2	2
14	Mulobezi GMA	3,430	8	5	5	3	5	4	4	5
15	Namwala GMA	3,600	2	2	2	3	2	2	1	2
16	Kasonso Busanga GMA	7,780	4	4	3	4	3	3	3	3
17	Lunga Luswishi GMA	13,340	7	7	7	6	6	6	4	5
18	Sichifulo GMA	5,175	3	3	2	2	2	0	1	1
19	West Zambezi GMA	38,070	3	4	4	4	1	0	0	0
20	Mufunta GMA	5,104	0	0	0	0	0	0	1	1
21	Tondwa GMA	540	2	1	0	0	0	0	0	0
22	Mushingashi Game Ranch	365	2	2	3	3	2	2	2	2
23	Nyakolwe Game Ranch	248	3	0	1	3	2	2	1	2
24	Munyamadzi Game Ranch	180	2	2	2	1	1	1	1	1
25	Nyamvu Game Ranch	120	0	0	0	0	0	1	1	1
26	Kaindu Natural Resource Trust	106	0	0	0	0	0	0	0	1
	Total	**137,517**	**117**	**96**	**103**	**93**	**76**	**74**	**55**	**69**

Table 15: Lion harvest rates in Zambia 2005 – 2012 (Lions /1000 km^2)

Hunting Area	Area (sq.km)	2005	2006	2007	2008	2009	2010	2011	2012
Lumimba GMA	4,500	2.22	1.33	2.89	2.89	2.00	2.00	1.11	2.00
Munyamadzi GMA	3,300	2.73	-	1.82	1.82	1.21	1.52	1.21	1.21
Lupande GMA	4,840	1.86	0.62	2.27	1.24	1.65	1.03	1.24	1.03
Musalangu GMA	17,350	0.46	0.17	0.69	0.46	0.52	0.40	0.29	0.35
Mukungule GMA	2,402	-	-	0.42	0.42	0.42	0.42	-	-
Chisomo GMA	3,390	0.59	-	-	0.29	-	-	-	-
Sandwe GMA	1,530	1.96	-	-	1.31	-	-	-	0.65
West Petauke GMA	4,140	0.48	-	-	0.48	-	0.48	0.72	0.48
Nkala/Bilili GMA	3,274	0.61	-	0.61	0.31	0.31	-	0.31	0.31
Mumbwa GMA	3,370	1.19	0.30	1.19	1.48	1.19	1.19	1.19	1.48
Mulobezi GMA	3,430	0.87	-	0.87	0.87	0.29	0.87	0.58	0.58
Lunga Luswishi GMA	13,340	0.30	0.30	0.30	0.37	0.45	0.37	0.30	0.37
Sichifulo GMA	5,175	0.19	-	-	0.19	-	-	0.19	0.19
Kasonso Busanga GMA	7,780	0.26	-	0.39	0.39	0.26	0.26	0.26	0.13
Namwala GMA	3,600	-	-	0.28	0.56	0.56	0.28	-	-
Mufunta GMA	5,104	-	-	-	-	-	-	0.20	-
Rufunsa GMA	3,179	0.31	0.31	0.31	0.31	0.31	-	0.31	0.31
Luano GMA	8,930	-	-	-	-	-	-	-	-
Chiawa GMA	2,334	0.43	-	-	-	-	-	-	-
West Zambezi GMA	38,070	-	-	0.03	0.05	-	-	-	-
Tondwa GMA	540	-	-	-	-	-	-	-	-
Kaindu GR	106	-	-	-	-	-	-	-	9.43
Nyakolwe GR	248	13.04	-	4.35	8.70	8.70	4.35	4.35	8.70
Mushingashi GR	365	2.74	2.74	5.48	8.22	2.74	-	5.48	2.74
Munyamadzi GR	180	-	5.56	11.11	5.56	5.56	5.56	5.56	-
Nyamvu GR	120	-	-	-	-	-	8.33	-	-

5.8 Development of Lion Hunting Quotas and guidelines for hunting lions after the moratorium

In line with the procedures of the quota allocation process outlined, and with additional measures described in this section and subsections, the DNPW established a quota for 2016 of 24 lions (Table 16). This is the lowest hunting quota that the country has had in the last 10 years. The quota is much more conservative than the thresholds of 1 lion/2000km^2 for low density areas and 1.0 lion/1000km^2 for high density areas.

Zambia's lion population could sustainably handle higher offtakes, but DNPW chose to reopen hunting slowly to allow for careful monitoring and implementation of an age-based guideline for legal lion trophies.

Table 16: Lion Hunting Quota for 2016

s/n	Hunting Area	Area (sq.km)	Quota	lions / 1000 sq.km
1	Musalangu GMA	17,350	4	0.23
2	Lupande GMA	4,840	2	0.41
3	Lumimba GMA	4,500	3	0.67
4	Munyamadzi GMA	3,300	2	0.61
5	Kasonso Busanga	7,780	1	0.13
6	Mulobezi GMA	3,430	2	0.58
7	Nkala/Bilili GMA	3274	1	0.31
8	Mumbwa GMA	3,370	1	0.3
9	West Petauke GMA	3,227	1	0.31
10	Sichifulo GMA	5,175	1	0.19
11	Lunga Luswishi GMA	13,340	2	0.15
12	Rufunsa GMA	3,179	1	0.31
13	Mufunta GMA	5,104	1	0.2
14	Open Game Ranches	2,556	2	0.78
	TOTAL	**80,425**	**24**	0.3

Source: Research, DNPW

5.8.1 Guidelines for Hunting Lion

The DNPW in conjunction with several stakeholders hosted workshops in 2015 and 2016 where presentations were made on the status of lion and on the need to implement an age-based hunting system for lion in Zambia. These meetings were used to inform the stakeholders on the impacts of lion and leopard hunting, and to review options for the management of the large carnivores.

The guidelines for the hunting of lion were formulated through a participatory process and introduced at the start of the 2016 hunting season. The guidelines also provided the terms and conditions applicable to the outfitters that voluntarily to abided to these guidelines. All outfitters who harvested trophy lions were required to submit a "Lion Sighting Form" that captures data on pride size and location, and a "Lion Hunt Return Form (or Trophy Size Record Form)" that captures data related to the actual hunting of the lion and includes a set of photographs of the physical features and teeth of the trophy. These data were then used to assess the age of the trophies.

In reopening lion hunting in 2016 following a three-year moratorium, DNPW consulted independent lion experts to get advice and held a workshop with stakeholders in April 2016. This resulted in the formulation of guidelines on lion hunting in Zambia. The guidelines are considered as part of an adaptive process to manage lion hunting in the country and were finalized with relevant stakeholders in a participatory manner.

The guidelines have been revised in 2019 from those developed in 2016 for lion and in 2018 for lion and leopard and are meant as an instrument to provide technical guidance on the scientific methodologies to be used on lion aging and on some methodologies for lion and leopard hunting and status monitoring. These guidelines also incorporate details pertaining to the monitoring of leopard hunting and status.

The lion aging system outlined in the Non-detriment and enhancement finding produced by Department of National Parks and Wildlife (DNPW) in 2016 (DNPW 2016) and in previous guidelines was therefore an experimental one, introduced to test the response of the hunting stakeholders, DNPW relevant staff and ultimately lion populations to an age-based system for lion harvest.

Consequently, after the 2016-2019 experimental period, DNPW is now introducing a legally binding regulation that will enter into force for the 2020 season.

The Guidelines shall be regularly updated to reflect advance in scientific knowledge in order to guide technically the implementation of the regulations.

The new management approach to Lion hunting in Zambia is based on three pillars, i) a conservative, precautionary quota, well below one of the recommended thresholds for sustainability, ii) an age–based harvest limit and strong monitoring of lion offtakes, and iii) significant and direct community benefits. This will ensure that lion hunting in Zambia is sustainable and does not negatively affect the population. In addition, in the hunting concession agreements signed in 2015 no hunting outfitter has been guaranteed a lion on quota, it is made clear that the quota for any species shall be based on scientific methods including the latest available survey and aging techniques.

5.8.2 Application of the ageing methodology

It is possible, with adequate training, to age lions with relatively good precision using physical characteristics. However, under field and hunting conditions, ageing can be inaccurate, particularly in the 5–7-year age range for lion (Miller *et al.* 2016). Nonetheless, the DNPW and the Zambian safari hunting industry have taken on board the research findings and are implementing age-based trophy selection programmes. The result following the moratorium has been a marked reduction in the number of under aged lions taken as trophies. This is due to multiple factors including:

- Greater awareness by professional hunters and their clients of the importance of selecting older, non-breeding lions as trophies.
- Resources to help teach professionals and clients to age lions.
- Adoption of age minimums by DNPW as part of their management programme.
- Inspection of lion trophies by DNPW, and oversite.
- Programmes by other independent stakeholders/external reviewers to determine which individual trophies meet minimum age standards.
- Significant reduction in allocated quotas in response to best available information and employing the precautionary principle.
- Reduction in utilised quotas since development and implementation of all the best guidelines in lion trophy hunting practices.
- SHOAZ and PHAZ working closely with the DNPW to develop and legislate hunting guidelines.

- The increasing use of camera traps provides professional hunters the opportunity to seek second opinions through social media on the acceptability (or not) of a potential trophy before it is hunted.

The best available science (Miller *et al.* 2016) determined that professional hunters and biologists were most proficient at aging lions when differentiating between age classes. However, despite the available research, there is no evidence that even experts can confidently distinguish between a lion that is 5 versus 6 versus 7 versus 8 years of age, even using the best available aging techniques, on live or post-mortem animals. Thus, while it may seem appropriate to fix the acceptable minimum age of a lion trophy, it is not possible to precisely allocate an age to a trophy (i.e. 4 years vs 5 years vs 5.5 years vs 6 years vs 7 years etc.). Moreover, since best practice hunting guidelines for carnivores are being entrenched in legislation, there is a risk of litigation should the DNPW impose penalties for allegedly hunting under-aged animals that are later challenged in court by a professional hunter or client. To address this, the DNPW is developing post-mortem monitoring techniques that place the trophy into one of four age categories rather than assign a specific age class that can be later disputed (Table 17). This approach is described in the revised Zambian hunting guidelines that is being enshrined into law as a regulation (DNPW, 2019)

Table 17: Age categories defining lion trophies as described in the DNPW hunting guidelines

Age Category	**Male Lion**
Category 1 *(Adult)*	A male lion judged to be of 7 years old or above
Category 2 *(Prime Adult)*	A male lion judged to be older than 5 and less than 7 years old
Category 3 *(Young)*	A male lion judged to be above 4 years old, but below the age of 5 years old.
Category 4 *(Under age)*	A male lion judged to be 4 years old and below

The current status of the science that places a trophy in an age category relies on four parameters: i) physical features of the live animal, ii) rate of suture coalescence, iii) degree of wear on the teeth and iv) the Cementum Enamel Junction (CEJ) Measure of post mortem examination. The quantitative CEJ measurement has been applied successfully to ageing mountain lion, cougars and tigers (see Table 16) but has yet to be thoroughly tested with African lion. The remaining parameters are all subjective and depend on the experience of the professional hunter (for physical features and social behaviour) and on scientific experience with skull morphology. In all these instances, the absence of a wide range of known age lion skulls from across the region is a serious drawback. Without this material, it is not possible to benchmark the age of hunting trophies against reliable known age material. A fifth parameter, the Cementum Annuli Analysis (CAA) and the pulp/tooth ratio of the second premolar (PM^2), initially showed promise but after further scrutiny has proved to be too variable and produced conflicting age class assignments in determining whether a lion was deemed to be ≥5≤6-years-old to be used as a reliable indicator to age lion (White and Belant, 2016, White *et al.* 2016 and 2017).

To overcome the level of subjectivity, and to account for the wide range of variability and age within a population, the following approach has been adopted to distinguish between unacceptable, marginal and acceptable trophies. The approach must also accommodate the small sample sizes and the reality that a precise age is difficult to measure.

To access the age category of a trophy using the parameters described above requires assigning a score of 1 – 5 to each of the suture characteristics and to each of the teeth wear indices. However, because skulls of individual animals exhibit different characteristics depending on the age and the environment in which they lived, it is not possible to rely on only one of the four ageing parameters. All four parameters must be taken into consideration: the physical features may place a 5 – 6-year-old lion in "7-year" category and vice versa. Similarly, the rate of coalescence of sutures may suggest an older animal than the degree of wear on the incisors and molars. It is also feasible that a suture may exhibit a greater degree of coalescence than another depending on the age of the animal. For example, the *Interfrontal suture* may show evidence of being *open in places but has begun coalescing in places* giving it a score of 2, but the *maxillo-premaxillary* shows evidence of *coalescing along entire length but still visible* giving it a score of 3. The same situation applies to the incisors and molars depending on (for example) the type of diet that the animal has fed on. Scores are therefore applied to each of the suture and molar categories to give a total that can then be allocated to an age category as follows:

Age Category	Total suture and tooth wear	Classification
Category 1	>21	Acceptable
Category 2	≥ 16 <20.5	
Category 3	>13.5 <15.5	Marginal
Category 4	<13.5	Unacceptable
	Cementum/Dentine Ratio (CEJ)[1]	
Unacceptable	<13%	
Marginal	>13% <14%	
Acceptable	>14%	

[1] Note that this ratio is still "work in progress" and requires further refinement and testing against a larger sample size from across the region and known age material

A suture/tooth wear score:

- Greater than 21 places the trophy in Category 1 which is deemed to represent trophies that are 7 years and older.
- Greater than 16 and less than 20.5 places the trophy in Category 2 and although deemed to be acceptable, caution is required with scores closer to 16 than 20.
- Scores falling between >13.5 and <15.5 places the trophy in Category 3. Such trophies are of marginal age and require further closer investigation, including examination of the photographic evidence.
- Scores lower than 13.5 would place the trophy in Category 4 and classified as unacceptable.

Because the suture and tooth wear patterns are qualitatively assessed, applying these criteria still introduce a level of subjectivity in that they may classify the trophy as "acceptable" but the CEJ measurement may suggest that the age is "marginal". Similarly, the suture and tooth wear patterns may indicate that the animal is of "marginal" age but the CEJ measurement places the trophy in the "acceptable" category. Applying this approach provides a degree of objectivity to the ageing process and introduces a more flexible approach to managing the hunting of these iconic carnivores. When combined with the regulations, the authorities can apply penalties for hunting unacceptable trophies, and adjust quotas downwards when professional hunters persistently produce marginal trophies. To improve this decision-making process, four other monitoring indices are in the process of being developed. These are:

- Assessment of prey base densities i.e. animals/km^2, biomass/km^2
- Population structure of the lion i.e. number of prides, coalition male groups etc.
- Sex ratio of adult males to females.
- Other anthropogenic pressures i.e. illegal wildlife trade, snaring etc.

5.9 Mechanism for monitoring trophy hunting in Zambia

5.9.1 Quota monitoring

As explained in section 5.3.1 quotas are allocated to the hunting companies in a participatory process. The final quotas are issued by the licensing unit. The produced quotas are distributed to the CRBs, Hunting companies and DNPW field stations. During the hunting season wildlife officers accompany hunters on all hunts. The officer records activities related to the hunt on specified forms i.e., Safari Hunting monitoring forms, trophy measurement forms, and a client questionnaire. The officer endorses used licenses ensuring that they cannot be used again. The law requires that all harvested trophies are to be registered.

5.9.2 Lion Hunting Monitoring

Apart from the procedures described in section 5.5.1 above, the DNPW is introducing a monitoring system specific for lions. This monitoring system as explained in section 3.1 will be based on a statutory instrument which is in preparation, which will introduce a mandatory sampling system that requires trophy lions meet or exceed a minimum age as one measure for harvesting trophy lions. The monitoring system will be based on specific forms (Figures 9 and 10) that will help ensure proper compliance with the provisions of the law, including confirmation of legal licenses and collection of data associated with the hunt including but not limited to location, date, participants, and photos, as requested by DNPW. The monitoring system will be complemented by regular surveys for lions throughout the GMAs.

LION SIGHTING FORM

Game Management/Open Area: ..... Hunting Block: .....Name of recorder: .....

Sighting #	Date (dd/mm/yy)	Time	Pride Size and Structure						Pride Identity	GPS Location (in decimal degrees)		Activity	Photos (Y/N)
			# Cubs	# AM	# AF	# SAM	# SAF	Total #		Latitude	Longitude		

Clear pictures of lions indicating whisker spot patterns are required for every sighting.

AM = Male; AF = Female; SAM = Sub Adult Male; SAF = Sub Adult Female

Notes

Age estimate in the field: Mane characteristics, nose pigmentation, skin coloration, leg markings, whiskers, colour and wear of teeth (in the lab).

Activities: These may include; resting, feeding, walking, chasing/hunting etc.

Pride Identity: Identity code can be any name given to a particular pride or coalition of males.

Figure 10: Example of lion sighting form used by Professional Hunters

LION HUNTING RETURN FORM (2 PAGES)

PLEASE FILL OUT ONE FORM FOR EACH LION HUNT

FORM NO.	YEAR

"CONSERVE WILDLIFE"

GENERAL DATA ON THE HUNT

HUNTING AREA		DATE OF HARVEST:	
HUNTING OPERATOR		CLIENT NAME AND SURNAME:	
CLIENT NATIONALITY:		HUNTING LICENSE AND GMA PERMIT Nos.	
PROFESSIONAL HUNTER		**CELLULAR NUMBER**	
EMAIL ADDRESS		**SIGNATURE:**	

COURSE OF THE SAFARI

Number of hunting days:	xx days				
Have you effectively looked for a **lion to hunt during** the Safari?	☐ Yes	☐ No			
Number of hunting days before lion was harvested:					
Estimated number of kilometers covered during the Safari:	By car	By foot	Total		
Number of different solitary lions seen during the Safari:					
Number of different **lion** prides seen during the Safari:					
Total number of different individual lions seen during the Safari (solitary + in pride)	Adult Male	Adult Female	Sub-adult	Cub	Total
	+	+	+	+	=
Number of different "trophy lions" seen **during** the Safari:					

IF A LION WAS HARVESTED

Date of harvest:	
Hunting days needed for harvesting the lion	
Location of harvest (GPS in decimal degrees)	GPS S:
	GPS E:
Give your own estimate of the lion's age:	
Condition of the lion harvested:	☐ Healthy ☐ Wounds ☐ Thin ☐ Snares

GO TO PAGE 2 FOR PICTURES AND BIOLOGICAL SAMPLES

Page 2 lion hunting form (Please include pictures of trophy with the same view of the examples below)

TROPHY MEASUREMENT AND PHOTOGRAPHY

Total length (A-B: tip of the nose to end of the tail): cm

Shoulder height (C: tip of scapula to back of plantar pad): cm



Side view showing the entire body with the hunter positioned directly behind for scale



Side view of the head, neck and shoulder showing mane development



Head down, showing mane development on head and shoulder



Head up, showing mane development on throat and chest



Face head, showing shape and scarces



Frontal view of the teeth, showing coloration and wear on canines and incisors. At time of hunt for color!



Nose, not too close and clearly showing the pigmentation. At time of hunt for color!

BIOLOGICAL SAMPLING

Please note that two blood and two skin samples are required per lion.

Blood sample: Place the filter paper on bullet wound or another source of blood until blood soaks through, air dry for 10-15 minutes in the shade, place in a small plastic bag inside the larger plastic bag and store in a cool place.

Skin sample: Cut a small piece of skin (3-4mm), place it into a tub filled with alcohol 70 or 90° (ethanol) and put the tub in the larger plastic bag.

...thanks for your help!

Ensure all data are accurate and no blank spaces are left. Page 1 and 2 must be completed even if a lion hunt was unsuccessful. Ensure GPS coordinates are provided throughout.
RETURN THE FORM TO DNPW VIA EMAIL TO info@dnpw.mota.gov.zm AND COPIED TO AN ASSIGNED RESEARCH OFFICER AS SOON AS THE HUNTING IS COMPLETED AND MAINTAIN THE PRINTED AND SIGNED ORIGINAL IN A SAFE PLACE.

Figure 11: Lion Trophy record form

5.10. Lion quota allocation and utilization 2016 - 2018

As reported in section 5.8.1, the guidelines for the hunting of lion that were formulated through a participatory process were introduced at the start of the 2016 hunting season. All outfitters who harvested trophy lions submitted returns that were used to assess the age of the trophies. The hunting guidelines were first implemented on a voluntary and experimental basis in the 2016 season when 24 lions were allocated on quota (1 in the Lower Zambezi ecosystem, 11 in the Kafue ecosystem and 12 in the Luangwa ecosystem). In total 18 lions were considered as hunted in 2016 (17 lions were hunted, and one was wounded). Of the 17 lions killed, 3 were from the Kafue ecosystem, with the remainder hunted in the Luangwa ecosystem. The 17 lion trophies were assessed by a "Lion Ageing Committee" consisting of DNPW staff, SHOAZ and independent carnivore researchers (DNPW, 2017). The results of this assessment showed that 5 of the 17 lions were under age and 2 were classified as marginal (Table 18). These results were discussed with SHOAZ highlighting where and how its members could avoid hunting unacceptable trophies using the available ageing tools.

In 2017, 34 lions were allocated on quota and 21 harvested (16 in Luangwa, 3 in Kafue and 2 on open game ranches). No lions were hunted from the Lower Zambezi (DNPW 2018a). A "Lion Ageing Committee" appointed by the DNPW assessed the returns for 21 lion trophies and found that no under aged (unacceptable) trophies were recorded although 2 were regarded as marginal. The remaining 19 trophies were classified as Category 1 (5 trophies) and Category 2 (14 trophies). The 2018 lion ageing assessment identified 7 Category I, 15 Category II and 2 Category III trophies (Table 18).

Table 18: Summary of the number of lions harvested between 2016 and 2018 and classified into categories according to the criteria defined in the hunting guidelines.

Age Category	Number harvested			Classification
	2016	2017	2018	
Category I (Adult ≥7 years)	5	5	7	Acceptable
Category II (Prime Adult 5 - 7 years)	5	14	15	
Category III (Young 4 – 5 years)	2	2	2	Marginal
Category IV (Under age < 4 years)	5	0	0	Unacceptable
Total lion harvested	**17**	**21**	***24***	
Total Quota allocated	***24***	***34***	***31***	

Data for the 2019 hunting season are still under analysis and the aging Panel will meet in the first months of 2020. In 2019, 33 lions were allocated on quota and 21 harvested as of December 2019.

The allocation per hunting block of the quota for 2018 and 2019 is spatially illustrated in Figure 11 and provided in Table 19. This data confirms that the DNPW is adhering to the recommended guidelines of setting lion quotas at ~0.5 lion shot/1,000km^2. Overall 30 lions were allocated in 2018 across the GMAs (188,813km^2) that equates to 0.16 lion/1,000km^2 and 33 lions were allocated in 2019 (0.17 lion/1,000km^2) which is well below the recommended thresholds.

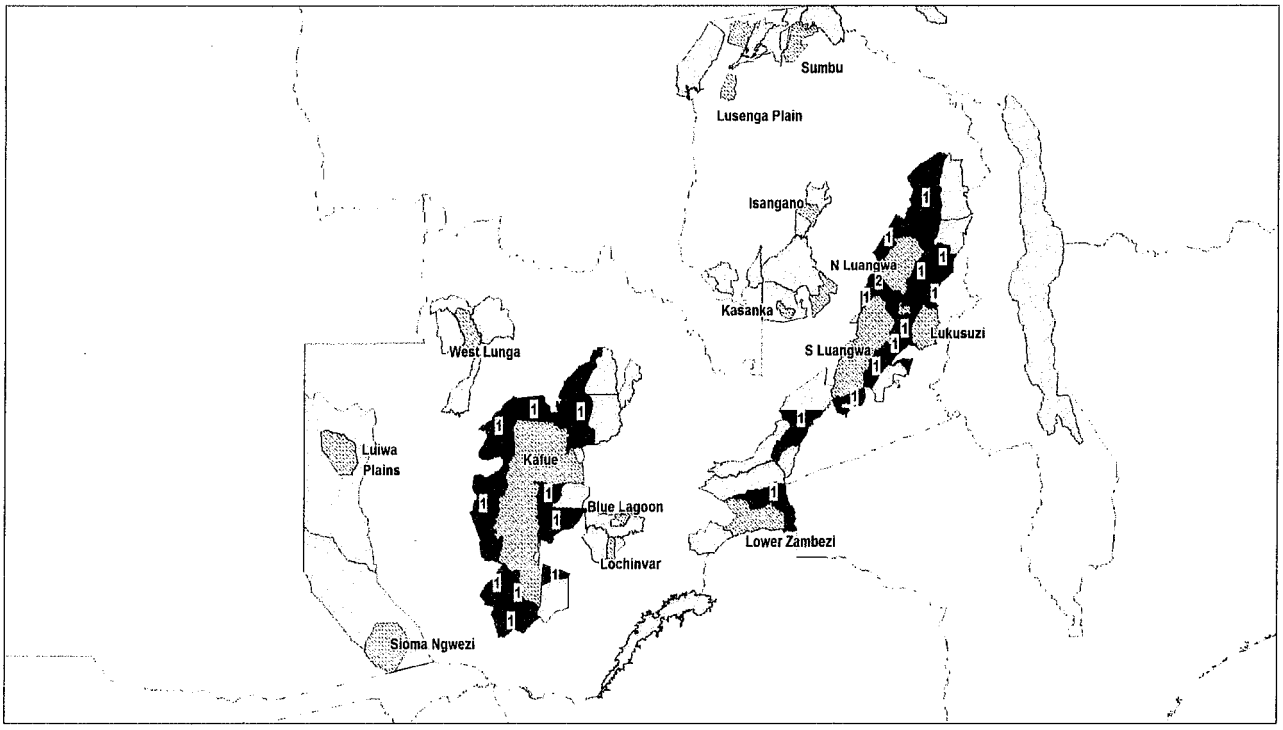


Figure 12: 2018 quota allocation of lion across the occupied hunting blocks in the GMAs. Note that quotas allocated to OGR is not shown

Note: The vacant GMAs are shown in green. No lions were allocated to these blocks

Table 19: Allocation of lion quotas per hunting block and OPG's – 2018 and 2019

GMA	Hunting Block	Status	Operator	Area (km²)	Lion Quota 2018	Lion Quota 2019	Quota adjustement	Lion Taken 2018/2019
Musalangu	Chifunda	Prime	Muchinga Adventures	1676	1	1	1/0	2/1
Munyamadzi	Nyampala	Prime	Baobab Safaris	1801	1	1	1/2	2/3
Lumimba	Mwanya Lumimba	Prime	Mvu Safaris	1587	1	1	1/1	2/2
Lupande	Lupande Lower	Prime	Kwalata	1522	1	1	1/1	2/1
Munyamadzi	Luawata Munyamadzi	Prime	Sitatunga Game Ranching	1003	2	1	1/0	2/1
Chikwa	Chikwa/Fulaza	Prime	Ivory Safaris	3102	1	1	0/1	1/1
Lupande	Lupande Upper	Prime	Westgate Investments	1203	1	1	0/1	1/2
Lumimba	Nyaminga Lumimba	Prime	Paya kakuli	956	1	1	0/0	0/0
Kasonso Busanga	Kasonso Busanga	Prime	Ntengu Safaris	4701	1	1	0/0	0/0
Lumimba	Chanjuzi Lumimba	Prime	Impanga Safaris	1617	1	1		0/1
Mulobezi	Mulobezi	Prime	Mulobezi Outfitters	1732	1	1	0/1	0/1
Nkala	Nkala	Prime	Luansefwa Safaris	1110	1	1	0/1	0/0
Mumbwa	Mumbwa West	Prime	Mangomba Safaris	1441	1	1	1/0	2/1
Mulubezi	Mulobezi Bilibili	Prime	Tandala Safaris	1874	1	1	0/0	1/1
Lunga Luswishi	Lunga Luswishi Kasempa	Secondary	Pro Hunt Zambia Ltd	6981	1	1	0/0	1/0
Musalangu	Lundu Musalangu	Secondary	Freestop	6184	1	1	0/0	1/1
West Petauke	Luembe	Secondary	Mopane Safaris	3134	1	1	0/0	1/1
Sandwe	Sandwe	Secondary	Zambezi Portland	1530	1	1	0/0	1/0
Mufunta	Mufunta	Secondary	Mvu Safaris	6394	1	1	1/0	0/0
Tondwa	Tondwa	Secondary	Baobab Safaris	440		0	0/0	0/0
Sichifulo	Sichifulo	Secondary	Mulimo Agriculture & Hardware Distributors	3040	1	1	0/0	1/0
Namwala	Namwala	Secondary	Nsonga Game Management Safaris	3173	1	1	0/0	1/0
Mukungule	Mukungule	Secondary	Busanga Trails	1824	1	1	0/0	0/0
Lunga Luswishi	Lunga Busanga	Secondary	Southgate Investments	2138	1	1	0/0	0/0
Rufunsa	Rufunsa	Secondary	Nyampala Safaris	3225	1	1	0/0	0/0
Chiawa	Chiawa	Secondary	DJR Investment Ltd	2394		1	0/0	0/0
Musalangu	Tembwe	Secondary	Kazunga Investments	6743		1	0/0	0/1
West Petauke	Nyalugwe	Secondary	Mbeza	1159		0	0/0	0/0
Bangweulu	Bangweulu	Specialised	Pool	6632		0	0/0	0/0
Chisomo	Chisomo	Understocked	Sable Transport	3611		0	0/0	0/0
Open Area	Itezhitezhi	Open Area	Open	250		0	0/0	0/0
West Zambezi	West Zambezi Upper	Specialised	Pool	23458		0	0/0	0/0
Kafue Flats	Kafue Flats North Bank	Specialised	Pool	5175		0	0/0	0/0
Kafue Flats	Kafue Flats South Bank	Specialised	Pool	2118		0	0/0	0/0
Luano	Lower Luano	Understocked	Makasa Safaris Ltd	5264		0	0/0	0/0
West Zambezi	West Zambezi Lower	Understocked	Zambelozi Limited	19341		0	0/0	0/0

GMA	Hunting Block	Status	Operator	Area (km^2)	Lion Quota 2018	Lion Quota 2019	Quota adjustement	Lion Taken 2018/2019
Open Game Ranches	Nyakolwe	OGR	Sable Transport	561	1	1	0/0	1/1
	Nyamvu	OGR	Makasa Safaris Ltd	128	1	1	0/0	1/0
	Kazumba	OGR	Private	198	1	1	0/0	0/0
	Kaindu	OGR	Kaindu NR Trust (Community)	607	1	1	0/0	1/1
	Munyamadzi	OGR	Private	110	0	1	0/0	0/0
	Mushingashi/Kashikoto	OGR	Private	372		0	0/0	0/0
	Nkalamu	OGR	Private	N/A		0	0/0	0/0
	Ilinda	OGR	Private	445		0	0/0	0/0
	Chinama OPG	OGR	Private	N/A		0	0/0	0/0
	Mbizi CGR	OGR	Private	198	1	1	0/0	0/1
	Pia Manzi CGR	OGR	Private	150	1	1	0/0	0/0
Mumbwa	Mumbwa East	Secondary	VACANT	1929			0/0	
Lupande	Msoro	Secondary	VACANT	1689			0/0	
Bangweulu	Kafinda		VACANT	3860			0/0	
Bangweulu	Mansa		VACANT	2070			0/0	
Bangweulu	Luwingu		VACANT	1090			0/0	
Bangweulu	Kalasa Mukoso		VACANT	675			0/0	
Bangweulu	Chambeshi A		VACANT	620			0/0	
Kafue	Bilili Springs	Depleted	VACANT	3080			0/0	
Kafue	Machiya Fungulwe	Depleted	VACANT	1530			0/0	
Lunga Luswishi	Lunga Luswishi Upper	Depleted	VACANT	3314			0/0	
Lunga Luswishi	Lunga Luswishi Lower	Depleted	VACANT	6981			0/0	
Luano	Upper Loano		VACANT	3530			0/0	
Kaputa	Kaputa		VACANT	3600			0/0	
Masele Matebo	Masele Matebo		VACANT	3700			0/0	
Lukwakwa	Lukwakwa		VACANT	2540			0/0	
Chizera	Chizera		VACANT	2280			0/0	
Chibwika Ntambu	Chibwika Ntambu		VACANT	1550			0/0	
Musalangu	Faluza		VACANT	5242			0/0	
			Total	**191,582**	**31**	**30**	**6/8**	**24/21**

Quotas for lion were allocated in the period 2016-2019, on the basis of four criteria; biological richness (prime /secondary) Size of hunting block 1lion/sq. km), category of the hunting area (public protected area or private), and the previous performance of the hunting area. All hunting areas are allocated 1 lion each. Prime areas were however given chance for a second lion depending on the quality of trophy harvested with the first lion. The system of allocating lion quotas encourages harvesting lions above seven years. A small prime area with a first harvest of seven and above could be given a chance to hunt a second lion. A big prime area with a first harvest of borderline age may not be allowed a second lion. In the table above Nyampala is a rich area and was allocated the second lion. The third lion was harvested as a human wildlife conflict animal. Such situations are rare and incidental.

5.11 International Trade

The African lion is included in Appendix II of the Convention on International Trade in Endangered Species of wild fauna and flora (CITES). Legal utilization of lion in Zambia occurs under sport (safari) hunting.

Other exports recorded in Zambia include parts and derivatives such as specimens for scientific purposes. Note that due to the lag time associated with trophy preparation and export, CITES trade data may not accurately reflect offtake on a year to year basis.

A Statutory Instrument is under preparation, which seeks to regulate the importation and captive uses of lion, leopard and cheetah in Zambia. This includes banning the holding of, breeding, commercial use (walking and petting) in captivity of all large cats other than for temporary veterinary purposes. In addition, animals currently being held in captivity in Zambia will be required to be castrated or spayed to eliminate further breeding, and all commercial uses of captive-held cats will be phased out as there is little or no value to conservation attached to these activities (Hunter et al., 2013). Particular care will be taken to avoid the "dumping" of captive-held cats into wild areas for any reason, especially for hunting or 'release' as means for the owners to avoid the penalties or costs associated with authorized disposition of their animals. By taking these steps, Zambia will ensure that it does not become a hosting for activities associated with captive-bred lions that negatively impact wild lion populations and their conservation (Williams et al., 2015).

Worldwide, there is growing concern over use of lion parts, especially in illegal trade. Unknown volumes of wild lion and lion parts are illegally utilized in Zambia. Lion parts are allegedly sought, traded and used for charms, magic and medicinal purposes. The level of illegal use of lion parts in Zambia is currently unknown, but is not considered to be significant, however impacts of trade in lion bones and other body parts is recognized as being potentially detrimental to wild lion populations.

To address the regional increase in lion skins and parts trafficking, and ascertain whether Zambia is also involved, the DNPW is working alongside long-term partners Wildlife Crime Prevention and the Zambian Carnivore Programme (ZCP) to determine trends and patterns of trafficking in big cats and to help combat these activities. To date all Intelligence and Investigations Units in the country have been trained and equipped to take samples from all seized big cat skins in order to trace their origin, inform anti-trafficking work, and evaluate the impact on Zambia's cat populations. Genetics samples from over 10 years of long-term intensive studies on big cats by DNPW-ZCP and samples from trophy-hunted lions and leopards are utilized to provide the baseline information for tracing these samples to their origin in addition to the ecological data they provide on dispersal, connectivity and genetic diversity. In addition, DNPW and partners are working with government labs and TRACE to enable the capacity to rapidly identify seized wildlife products by species for criminal prosecutions.

6.0 Involvement of the hunting sector in Lion Conservation

6.1 Benefits of lion hunting in Zambia

Sustainable utilization has demonstrated ecological, economic and social benefits and is a critical component of DNPW's overall lion management strategy.

It is for these reasons that DNPW is committed to improving lion management strategies throughout Zambia thereby achieving maximum benefits for lions and people

6.1.1 Ecological Benefits

Lion hunting is an essential component of the tourism industry that maintains wildlife areas as suitable habitats for wildlife. In Zambia, GMAs and Open Game Ranches (there are also Open Areas and Fenced Game Ranches) where safari hunting is conducted represent nearly 180,000 km^2 as compared to about

64,000 km^2 in national parks that are strictly protected. Without the incentives provided by hunting, this habitat could be lost and converted to other, less optimal land uses that do not include wildlife.

Trophy hunting, by definition, targets post-breeding males. By ensuring that offtake is sustainable (including the targeting of non-breeding males of certain minimum age, without dependent young), hunting provides maximum benefits while ensuring minimal negative effects on the remainder of the lion population.

Conservation of a species requires conserving the genetic variability and viability of a population rather than focusing on individual animals. While individual deaths serve to inform on sources of mortality, disease and more, loss of specific individuals do not affect population trends. However, humans (photo-tourists) may become emotionally attached to individuals, often because they are unaware of the cycles of life and death in nature. By better educating tourists and locals on the realities of population versus individual losses and gains, a more comprehensive understanding of the ecological, economic and social benefits associated with sustainable hunting of lions can be obtained. This is one of the objectives of DNPW and it should be the objective of all stakeholders who seek to conserve Zambia's wild lion populations.

6.1.2. Economic Benefits

- Lion hunting is the mainstay of safari hunting in Zambia; it attracts tourist hunters and brings income to the communities and the nation; particularly to wildlife conservation.
- DNPW devolves 50 percent of the Game Fees and 20% of the Concession Fees to rural communities to improve their livelihoods.
- Safari Operators provide:
  - Creation of employment
  - Financial support to anti-poaching
  - Provision of Health care
  - Provision of Education
  - Infrastructure development
  - Provision of meat (see below)

The remaining part of revenues are used by DNPW for wildlife conservation including lion itself through, inter alia, support to Law enforcement including anti-poaching and prosecutions and resource monitoring.

For further details, refer to this section and sections 8 and 9.

6.1.3. Social Benefits

- Lion–human conflicts occur on the interface between communities and lion range. Often, this results in "problem animals" being removed through lethal means. Increased conflict may indicate either increase in lion numbers or in human population, and require a reduction in lion numbers and/or redress in human settlement patterns.
- Lion hunting increases revenue to communities and places a value directly on the presence of living with lions thereby providing local people with tangible benefits for conserving wildlife.

For further details, refer to this section and sections 7, 8 and 9.

In particular, the economic and social benefits of sport hunting to rural communities through the provisioning of game meat have been illustrated in a recently published study (White and Belant, 2015). Provisioning of game meat to rural communities by the sport hunting sector in Zambia for three game management areas (GMAs) was on average > 6,000 kgs per GMA of fresh game meat annually from hunting operators. In most of the GMAs, provisioning of meat exceeded what was required in

the lease agreements. Provisioning of game meat peaked during the end of the dry season (September–October) coincident with when rural Zambians are most likely to encounter food shortages. Extrapolating the results across all GMAs estimated 129,771 kgs of fresh game meat provisioned annually by the sport hunting sector to rural communities in Zambia at an approximate value for the meat alone of >US$600,000 exclusive of distribution costs. During the hunting moratorium (2013–2014), this supply of meat was halted, adversely affecting rural communities previously reliant on this food source. The paper recommended that proposed alternatives to sport hunting should consider protein provisioning in addition to other benefits (e.g., employment, community pledges, and anti-poaching funds) that rural Zambian communities receive from the sport hunting sector.

The hunting sector's support is crucial to the government's actions in conserving wildlife and habitats. It cannot be stressed enough the crucial role that safari hunting plays in wildlife conservation in Zambia. During the 2013 to 2016 moratorium on lion hunting (leopard hunting was stopped only in 2013 and 2014) the government was forced to subsidize the operations of ZAWA, Community Resource Boards and wildlife management (see section 9.0 below).

6.2 Transparency

The Wildlife Act of 2015 established a Wildlife Management Licensing Committee whose task is to supervise and grant, renew and revoke licenses, permits and certificates related to hunting. The committee is composed of several members appointed by the Minister of Tourism and Arts selected from different institutions including representatives from Ministries responsible for environment, lands, fisheries, forests, finance, tourism, chiefs, and mines. Other officials will come from the Attorney General's office, Ant-Corruption Commission, and Tourism Council of Zambia. This committee will enhance transparency on the administrative processes related to licensing.

7.0 Threats and Mitigation

Threats to the persistence of lion populations in Zambia include habitat encroachment and fragmentation, bush meat poaching/snaring, human lion conflict and prey depletion.

7.1 Mitigation of Habitat Loss, Encroachment and Fragmentation

With 20 National Parks and 36 Game Management Areas, Zambia has close to 35% of it land mass set aside for wildlife conservation. Including national and local forests and national heritage sites this land mass is well over 40 % of the country's total land area. The threat of habitat encroachment, deforestation and fragmentation to the ecological functionality and connectivity of the protected areas has been the focus of government for several years. For example, the Government through the Forestry Department initiated the Integrated Land-use Assessment (ILUA) project in 2008 whose main purpose was to build up forest related land use resource inventories support national planning capacity and contribute to formulating development policies (GoZ, 2013).

In 2017, the government launched the Zambia Integrated Forest Landscape Project (ZIFLP) that encompasses a series of investments from the BioCarbon Fund, Global Environmental Facility and the International Development Agency that lead ultimately to results-based payments for carbon storage and reduced carbon emissions resulting from reduced deforestation and degradation. The objective of this project is to improve landscape management and increase the flow of benefits for targeted rural communities in the Eastern Province living in proximity to the South Luangwa National Park (GoZ, 2017,

https://www.gtai.de/GTAI/Content/DE/Trade/Fachdaten/PRO/2017/06/Anlagen/PRO201706095001.pdf?v=1).

The wildlife management sub-component of this project will specifically support some activities around National Parks with respect to improving wildlife management practices and promoting practices which will maximize opportunities for rural communities from adjacent wildlife resources. Some specific activities designed to minimize negative impacts include:

- Consultations with adjacent communities adjacent to the protected areas and establishment of co-management processes and instruments
- Mitigation of human-wildlife conflict (HWC) where necessary
- Support to incipient ecotourism initiatives such as local ecotourism strategies, community training, infrastructure
- Awareness-raising activities
- Supporting local involvement and management of game management areas so as to maximize returns from photo safaris and hunting, both a potentially important source of funding to communities
- Improved management of subsistence hunting, where legally allowed, to provide food but to ensure sustainable management of game resources
- Possible extension of COMACO model[4] where communities receive support for agricultural investments but are financially compensated for simultaneously protecting wildlife resources

Other related projects, such as the United States Agency for International Development (USAID) funded Community Forests Program that established the largest REDD+ program in the country (see https://www.biocarbonpartners.com/our-work/community-forests-programme/), target deforestation and better land use practices. The Community Forests Program operates through six primary objectives:

1. Empowering communities to work with governmental and non-governmental entities to lessen the drivers of deforestation;
2. Establishing and improving joint forest and natural resource participatory forest management plans among communities, traditional leaders, the Zambia Forestry Department, and the Department of National Parks and Wildlife;
3. Promoting and enabling innovative sustainable livelihoods for forest-dependent communities;
4. Implementing pay-for-performance and/or revenue-sharing programs based on measuring, reporting, and verification methodologies for forest conservation and carbon sequestration;
5. Providing households with the knowledge, tools, and technologies needed to shift their livelihoods to a more sustainable and profitable low-emissions pathway; and
6. Generating awareness, promoting action, and continuously engaging to dispel misconceptions among local stakeholders and national policymakers on the potential of REDD+ in Zambia.

Two projects that benefit from this initiative are the Luangwa Community Forests Project geared to benefit more than 17,000 families in Eastern and Lusaka provinces to better manage and conserve 1 million hectares by expanding REDD+ activities; The Lower Zambezi REDD+ Project which is Zambia's first Verified Carbon Standard verified REDD+ project that forms part of the trans-frontier conservation area with Zimbabwe and is important for elephant, lion and other wildlife populations.

[4] The COMACO Model helps small-scale farmers become good stewards of their land and better neighbours to national protected areas by using market incentives and effective training methods to encourage the adoption of skills that protect soils and reduce threats to forests and wildlife habitat. Through its growing capacity to leverage change in farming and land use practices, COMACO has reduced some of the key drivers of forest degradation, deforestation, wildlife poaching, and soil degradation.

Both these programmes are being carried out in close partnership with the Forestry Department and the DNPW.

Similar projects operate in the Kafue ecosystem such as the Global Environmental Facility (GEF) funded "Strengthening Management Effectiveness and Generating Multiple Environmental Benefits within and around the Greater Kafue National Park in Zambia" (https://www.thegef.org/project/strengthening-management-effectiveness-and-generating-multiple-environmental-benefits-within). Parts of this programme are being implemented by The Nature Conservancy (TNC) in partnership with the DNPW, Forestry, Fisheries, communities and the private sector to protect wildlife and support sustainable growth in Zambia (see https://www.nature.org/en-us/about-us/where-we-work/africa/zambia/.).

7.1.1 General Management Plans

The majority of the GMAs in which lion hunting occurs have a General Management Plan (GMP) in place. Only West Petauke Game Management Area (GMA) in the Luangwa ecosystem, and Rufunsa GMA in Lower Zambezi do not have General Management Plans (GMPs) at present. Musalangu, Lupande, Munyamadzi, Sandwe and Mulobezi GMAs have GMPs either as drafts or undergoing the ratification process. A General Management Plan (GMP) outlines the basic management and development guidelines for a GMA or Open Area after the systematic assessment of land and water potential, alternatives for land use, economic and social conditions in order to provide the best land use options for addressing land use conflicts / problems and achieving identified land use management objectives over a 10-year period. It is prepared through a highly consultative, interactive and participatory Strategic Planning Process (SPP) involving all key stakeholders. The GMP emphasises the commitment of all concerned, affected and interested stakeholders to balance between the preservation and utilization of the protected area's biodiversity in order to ensure the long-term survival of the natural resources including wildlife resources in a way that benefits the local communities. As such the final document is ratified by a Community Resources Boards, their patrons (who are usually the chiefs in these areas) and the DNPW. Table 20 below gives the status of GMPs for critical areas in the lion range ecosystems.

Table 20: Status of General Management Plans in Zambia's lion hunting Areas

s/n	GMA	Ecosystem	Status	Date Ratified
1	Musalangu GMA	Luangwa	In preparation	-
2	Lupande GMA	Luangwa	In preparation	-
3	Lumimba GMA	Luangwa	Ratified	2016
4	Munyamadzi GMA	Luangwa	In preparation	-
5	West Petauke GMA	Luangwa	No GMP	-
6	Sandwe GMA	Luangwa	In preparation	-
7	Kasonso Busanga	Kafue	Ratified	2014
8	Mulobezi GMA	Kafue	In preparation	-
9	Nkala GMA	Kafue	Ratified	2014
10	Mumbwa GMA	Kafue	Ratified	2014
11	Sichifulo GMA	Kafue	Ratified	2014
12	Lunga Luswishi GMA	Kafue	Ratified	2018
13	Mufunta GMA	Kafue	Ratified	2014
14	Rufunsa GMA	Lower Zambezi	No GMP	-

Source: Planning Unit DNPW

7.1.3 Open Game Ranches and Trans-frontiers Conservation Areas

As detailed in section 5.2.2 Open Game Ranches are privately owned lands bordering GMAs or National Parks that stock wildlife. These areas, regulated in the Wildlife Act 2015, further buffer the National Parks and GMAs from encroachment and ensure movement corridors are protected. These

are new models of wildlife conservation in the country that the Zambian government is supporting to ensure sustainable use of wildlife resources and protection of habitats.

In the most recent conservation developments, establishment of the Kavango-Zambezi Transboundary Park (KAZA) by Peace Parks seeks to protect a contiguous habitat of over 280,000km^2 that includes the whole of Kafue NP ecosystem and the Sioma Ngwezi National Park region as part of an international effort to maintain connectivity of viable habitats for all species, including lions. Other proposed Trans – frontier Parks include the Liuwa - Mussuma between Zambia and Angola and the Mana Pools - Lower Zambezi between Zambia and Zimbabwe.

In general, due to the increase in donor funding and increased number of economic opportunities availed through tourists' lodges, protected areas in general attract a lot of immigrants on their boundary areas (Wittemyer et al., 2008). Zambia has not been spared from the phenomenon, Mfuwe the gateway town to the South Luangwa National Park has seen increased population growth and increased infrastructure development unlike other areas in the ecosystem devoid of photographic tourist's lodge (Twakundine Simpamba Senior Ecologist SLNP pers. comm.). This has caused habitat loss. Because hunting concessions usually have one operator over a large area and are located in areas that are not easily accessible, Safari hunting helps in buffering protected areas from the effects of immigration, while at the same time providing economic support to rural communities and maintaining habitat. In general, the Safari hunting sector is extremely supportive of initiatives aimed at maintaining wild areas. Their presence acts as a deterrent to would be squatters. They also act as monitors and able to immediately inform the CRBs or the Department of illegal settlements in GMAs.

7.2 Human Lion Conflict

Human-Lion conflicts (HLC) are not uncommon in Zambia. Fortunately, retaliatory killings by livestock owners are not as common as in East Africa. Therefore, direct lion poaching is not believed to be significant. ZAWA (now DNPW) developed an adaptive system that includes a procedure whereby reported cases of lion damages are investigated by field officers and complete reports are reviewed by the most senior officer for immediate feedback. Interventions include; scaring lions through blasting, or killing the animals suspected to be responsible for the attack on livestock and humans. This approach is considered incompatible with sustainable conservation of wildlife, and may contribute to the decline in the lion populations. DNPW is committed to implement the best practices on HLC including for example the HLC toolkit developed by the Niassa Carnivore Project. This will be done through the development of a specific policy on Human Wildlife Conflict that the department, pending the availability of funding, would like to devise as soon as possible.

In the period 2008 to 2016 at least 10 people have been reported as having died as a result of being attacked by lions and a further 16 having been injured as a result of a lion attack.

In 2018, 236 cases of lion damage to livestock or threat to human lives were reported to DNPW compared to 36 cases in 2017-

Seventy-two lions have been killed as a result of human lion conflict since 2002. Development of a specific policy to address Human Wildlife Conflict, as described above, is anticipated to greatly reduce the number of lions killed as problems through increased use of non-lethal strategies to deal with conflicts. As table 21 shows the number of lions killed on control spiked in the period 2013 to 2015.

Table 21: Control of Problem Lions in Zambia 2002-2018

Year	lions controlled
2002	2
2003	4
2004	1
2005	0
2007	5
2008	8
2009	2
2010	5
2011	3
2012	8
2013	5
2014	10
2015	14
2016	1
2017	1
2018	3

This could be a result of the hunting moratorium where lions cannot be hunted by tourist hunters thus leading to increased conflicts. Movement of lions out of the National Parks and GMAs into regions where they become "problems" is likely to be exacerbated by high lion densities that occur in the absence of sport hunting. Rather than just controlling them for the sake of reducing conflict, it would be beneficial if these lions were hunted through safari hunting because of the increase in tolerance by rural communities toward lions generated by the revenues from sport hunting which are also used to protect lion habitat and to implement other mitigation measures.

The Lower Zambezi and Luangwa ecosystems accounted for 70 % of the lions killed on control. The levels of lethal control in the Lower Zambezi is particularly high with Rufunsa GMA accounting for 42 % of the animals killed in this ecosystem. The high levels of conflict in the Rufunsa GMA could be as a result of high human settlements along the river, thus there is competition for resources between wildlife and people. Considering the lower density of lions recorded from studies in the Lower Zambezi, lion hunting in this GMA is strategically meant to increase tolerance of lions and then contributing to solve problem animal conflict and bring communities on side by providing revenue that contributes to their livelihood strategies.

7.3 Bush meat poaching and prey depletion

Poverty and the necessity for rural people to obtain some income are the main drivers of bush meat poaching in Zambia. Bushmeat poaching with wire snares continues to pose one of the greatest threats to large carnivores in Zambia, both in its impacts on prey populations, and in snaring bycatch of wild dogs, big cats and hyenas. DNPW-ZCP research indicates that prey depletion is not likely to be uniform, but rather impacts the larger species first, resulting in a progressive decrease in snare sizes to target increasingly smaller herbivore species. While larger snares for buffalo and other species are unlikely to pose as much of a threat for large carnivores, smaller snares are much more likely to catch, maim, and kill.

In the Luangwa DNPW continued to work with ZCP and Conservation South Luangwa (CSL) to mitigate snaring by-catch through intensive monitoring of collared wild dog and lion groups through ground, aerial and satellite/ GPS tracking, coupled with data-directed anti-snaring patrols, field-based veterinarians. In 2018, five wild dogs, three lions, and 1 hyena were snared, with four wild dogs, 2 lions and 1 hyena successfully darted and rescued by DNPW and ZCP/CSL Wildlife Veterinarians. The

data collected by field teams was also provided daily to anti-snaring teams which targeted areas of high risk and high use by large carnivores, and this support assisted in the removal of 478 snares.

Similarly, in the Kafue ecosystem, DNPW working with ZCP and Panthera through their newly-formed anti-poaching units, as well as with hunting operators' anti-poaching units confirmed no reports of snared carnivores in 2018, with one lion treated for an old snare injury.

As illustrated in section 7.3.1 below, results of the recent aerial surveys have shown an overall stable to increasing population of key prey species in the Kafue and Luangwa ecosystems.

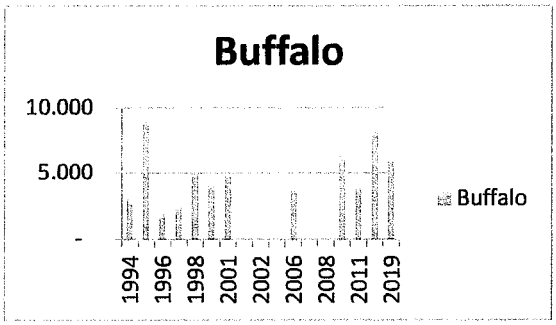
7.3.1 Prey Availability and abundance

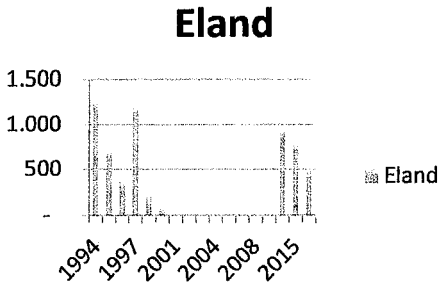
Abundance of prey species is highly correlated with lion density (Hayward, 2007; Périquet et al, 2014). Protected areas with healthy prey population support healthy populations of lions. Therefore, prey abundance is a good indicator of the status of lion populations.

The 2015 aerial survey (DPNW 2016a) of large mammals in Zambia indicated that for the majority of key wildlife species in the Kafue ecosystem, their numbers have been increasing over the period 2006 to 2015.

In 2019 an aerial survey was carried out through funding from GEF5 hosted by UNDP in the Kafue ecosystem. The objective of the survey was to continue monitoring the population status of large terrestrial herbivores in the Kafue ecosystem. The survey report is still being drafted but preliminary data are shown in figure 13.

For the Luangwa and Lower Zambezi ecosystems the data are still the ones of 2015 (DPNW 2016a) and are shown in figures 13 and 14 below. Trends for the Luangwa system have been stable to increasing. The only exception being the Lower Zambezi ecosystem where there has been a significant decrease in one of the main lion preys, the buffalo. The causes of this decline are being investigated.





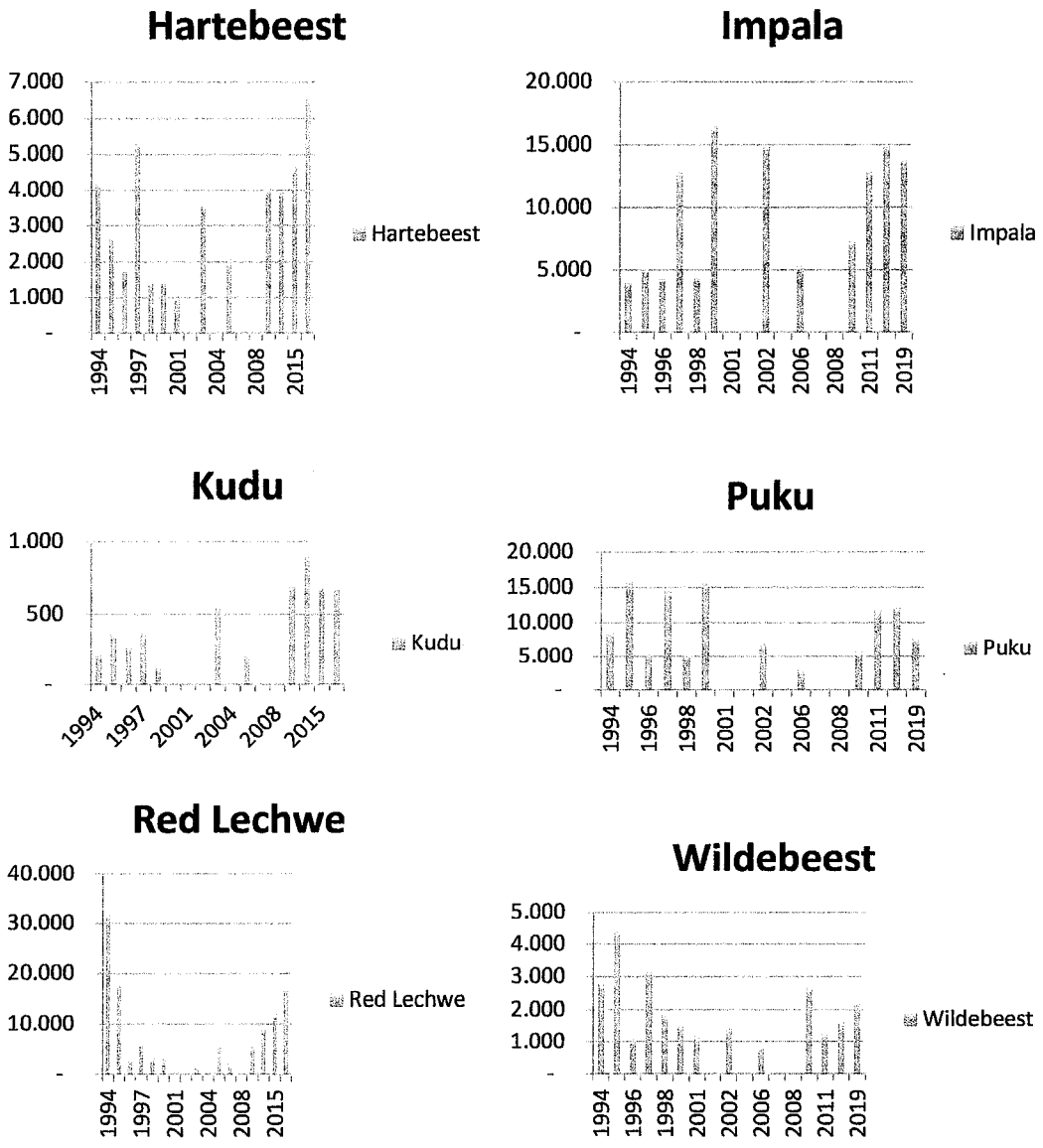


Figure 13: Population trends for selected species in the Kafue National Park 1994-2019 (Source DNPW 2019, in review)

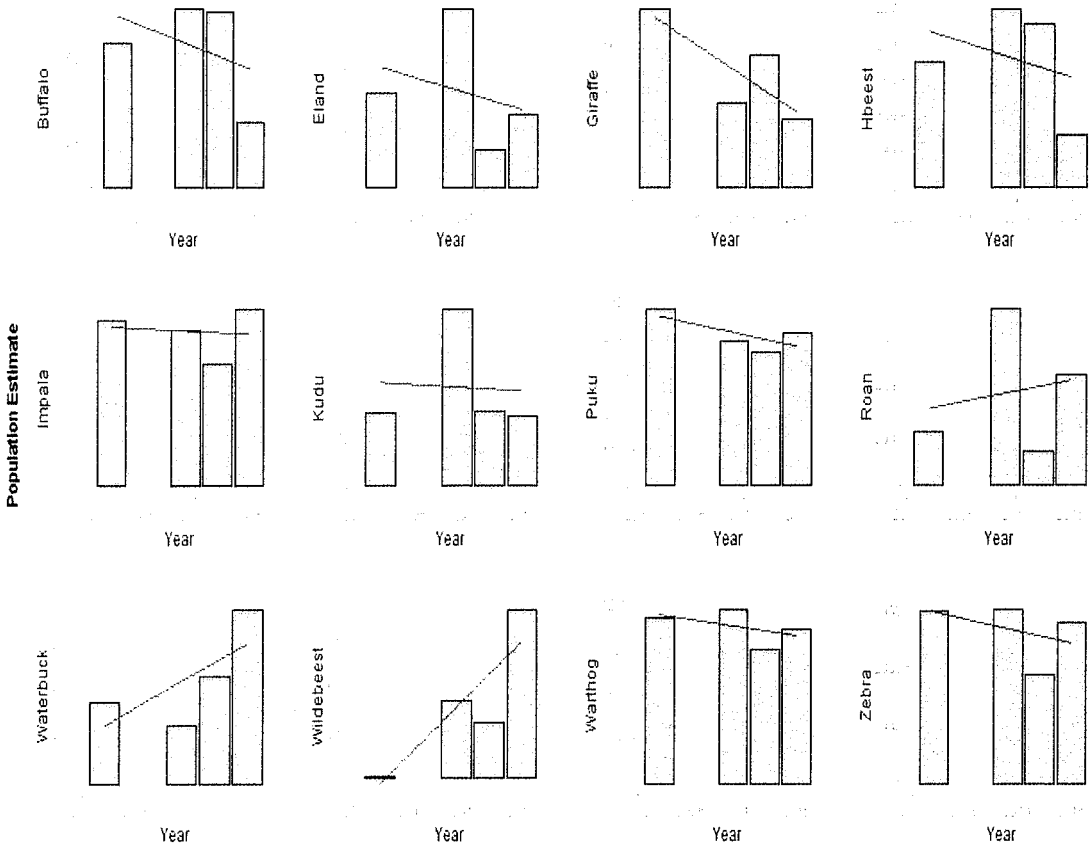


Figure 14:Ungulate population trends in South Luangwa National Park

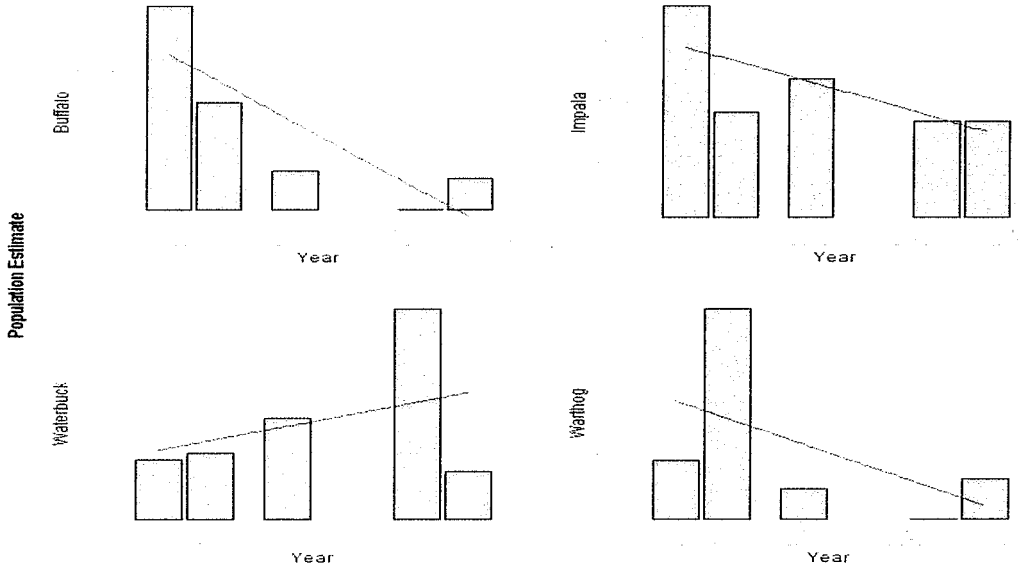


Figure 15: Population trends for buffalo, impala, waterbuck and warthog in the Lower Zambezi National Park

Figure 16 below is a comparison of ungulate abundance in the Luangwa ecosystem between GMAs and the 4 National Parks (South Luangwa, North Luangwa, Lukusuzi and Luambe National Parks). Buffalo and wildebeest were more abundant in the GMAs than in the National Parks. These findings underscore the importance of GMAs as habitat for populations of some species, in particular, buffalo and wildebeest and the need to maintain the habitats intact.

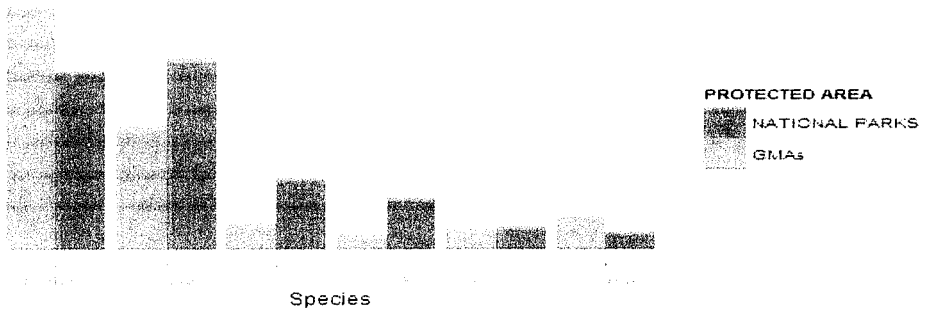


Figure 16 Species abundance in the Luangwa ecosystem National Parks vs GMAs

Importantly, ground surveys are highly recommended as an inexpensive yet reliable methodology to ascertain wildlife status, abundance and densities in wildlife estates in Africa.

Schuette et al. (2018) documented the importance of ground-based surveys for long-term wildlife population monitoring. Ground- based ungulate counts should also be expanded into adjacent game management areas in a standardized and compulsory way to inform management actions-.

8.0 Community Based Natural Resources Management (CBNRM)

8.1 CBNRM in Zambia

The origin of CBNRM in Zambia owes much to a program that came to be known as the Administrative Management Design Program for Game Management Areas (ADMADE), which commenced in 1987. Funded by the United States Aid for International Development (USAID), ADMADE established the principle that communities had the right to participate in wildlife management and that it was the most effective way to achieve conservation. The program could be considered as one of the first CBNRM programs in Southern Africa. The theory behind the program, was to encourage rural participation in wildlife conservation. Rather than all taxes on safari hunting going to the state treasury, government to returned a portion of some revenue streams to a local GMA committee for its use in development and for investments in wildlife management.

In 1999, the Department of National Parks and Wildlife Service (NPWS) was transformed into the Zambia Wildlife Authority (ZAWA) - a statutory body established by the Zambia Wildlife Act number 12 of 1998. The Act gave birth to Community Resources Boards (CRBs), based on the ADMADE model and they were legally mandated to co- manage wildlife resources in Zambia.

Following the 1998 Zambia Wildlife Policy, local communities residing in chiefdoms and geographic areas which are contiguous to any wildlife estate or any open area are encouraged and assisted to apply and register as Community Resources Boards (CRBs) with the DNPW. Management of all CRBs established for the purpose of enhancing management and sustainable use of wildlife resources

outside National Parks is done through a democratically elected representation of the local community themselves, but day to day operations of any CRB should be through a secretariat. The elections are done according to Village Action Groups and it is from those elected in these Action Groups that form members of the CRB. The chief of the area is regarded as the patron of such CRBs. DNPW cooperates with all registered CRB's and provides the technical input that assists them to develop management strategies. It is the responsibility of DNPW to work with CRBs and other stakeholders in the preparation of general management plans using a participatory planning process and format developed by the Department and adopted to meet local condition requirements.

All meetings of the CRBs are conducted in a democratic way, decision reached through consensus, and minutes of all their transactions and deliberations recorded. DNPW, District Council and non- governmental organisations (if present in the area) are called to the meeting to provide the appropriate technical input that will assist CRBs make informed decisions about the rational and sustainable utilization of natural resources in their area.

8.2 Community Benefits

The Zambia wildlife Act No. 12 of 1998 introduced rights to benefit from natural resources. The Zambia Wildlife Act No. 14 of 2015 allows greater participation of local communities, thus establishing their rights to use and manage natural resources in GMAs and Open Areas. This includes provisions for participation in developing management plans. In particular, as provided for by the 2015 Wildlife Act, a local community in a chiefdom in a Game Management Area, or in an open area or a particular chiefdom with common interests in the wildlife and natural resources in that area, may apply to DNPW for registration as a Community Resources Board (CRB). According to the Zambia Wildlife Act No. 14 of 2015 the CRB have the following functions:

i. negotiate, in conjunction with the Department, co-management agreements with hunting outfitters and photographic tour operators;
ii. manage the wildlife under its jurisdiction within quotas specified by the Department;
iii. appoint community scouts to exercise and perform the duties of a wildlife police officer under the supervision of a wildlife police officer in the area falling under the board's jurisdiction;
iv. in consultation with the Director, develop and implement management plans which reconcile the various uses of land in areas falling under the board's jurisdiction; and
v. Perform such other functions as the Minister or Director may direct or delegate to it.

From the revenues generated, members of local communities have been employed by CRBs as Community Scouts, funded also through obligations under the Concession Agreement (see section 5.4.1.), to assist DNPW with law enforcement and monitoring of wildlife resources. These scouts also help in assess crop damage and problem animal controls in their communities, where they also conduct environmental awareness among the local populace.

There are currently seventy-six (75) registered CRBs which employ approximately 750 Community Scouts operating in various GMAs in Zambia with a total monthly wage bill of ZMW 359,779.50 (USD 38,853.13). An additional 79 support staff (these include Book Keepers and Administrative officers) are employed by CRBs across Zambia. In some GMAs revenues from hunting are used to pay teachers and medical staff as in the case for Nabwalya CRB while others offer student scholarships which range from secondary school to tertiary education.

The revenues the local communities obtain allows them access to social amenities and various rural development projects. The projects span construction of bole- holes, schools, clinics, and feeder roads, as well as crop damage counter-measures including solar and chili pepper fences. More

residents benefit indirectly from participating in wildlife management and accessing the resource, depending on the ability of the wildlife sector to generate funds. It has to be noted that local communities have limited benefits from non-consumptive tourism.

Animal fees are shared:

i. 5% of the funds go to the CRB patron (traditional leader or Chief);
ii. 45% of the funds go to the CRB in the form of community funds; and
iii. 50% of the funds go to ZAWA in the form of conservation funds.

Concession fees are shared:

i. 5% of the funds go to the CRB patron (traditional leader or Chief);
ii. 15% of the funds go to the CRB in the form of community funds; and
iii. 80% of the funds go to ZAWA in the form of conservation funds.

According to the "Guideline on the use of Community funds accrued from wildlife management" the communities are expected to be utilised as follows:

i. 45% of the funds go to wildlife management, including resource protection and patrols:
ii. 35% of the funds go to community projects such as construction of clinics, roads, schools, and wells; and
iii. 20% of the funds go to administration of the CRBs.

GMAs were created in 1971 under the 1968 Act as a planning framework to promote integrated community and biodiversity development on customary land. They are not a distinct category of protected state land but are buffer areas to national parks that are established in consultation with local communities for the sustainable utilisation of wildlife. Although all land is vested in the President, the Land Act (Chapter 184 of 1995) provides for the recognition of customary tenure, and as such customary land cannot be alienated unless it is with the Chief's consent and then only after consulting affected bodies or persons. In the case of GMAs the consent of the DNPW is also required.

The 2015 Wildlife Act allows for the co-management of the GMAs between the DNPW and a Community Resource Board (CRB) and devolves responsibility for wildlife management to the CRB. All forms of land use in GMAs are subject to provisions of management plans developed by CRBs (Zambia Wildlife Act, 2015, Part V, Section 32(2) and Section 33 (2d)) and it is through this that ADMADE, the Community Based Natural Resource Management (CBNRM) programme, evolved.

In terms of SI 89 of 2004, 50% of game licenses fees and 20% of concession fees are allocated to the CRBs for community development out of which 5% goes directly to the chiefs. Currently these funds are deposited by the DNPW with the central treasury who then disburse these funds to the CRBs in quarterly tranches. The CRB are encouraged to spend these funds in the following ratios: law enforcement – 45%; community projects – 35%; administration – 20% but in general, the CRBs enjoy wide latitude in deciding how the funds are used.

In 2019 an impasse manifested between the Government of the Republic of Zambia through the Department of National Parks and Wildlife and the Community Resource Boards (CRB) through their representatives in the National CRB Forum regarding the non-payment of community shares from hunting revenue.

In fact, Ministry of Treasury, due to budget issues, has not yet disbursed in full the revenues due to CRBs.

In order to resolve this situation a Roadmap has been drafted by DNPW to include not only the urgent payments of delayed revenues to CRB but a complete and comprehensive reform of CBRNM in the country with new Regulations on revenue sharing and a new policy of CBRNM in order to bring Zambia to an upper level in terms of Community based conservation.

8.3 Governance of CRBs

The CRBs are based on the following institutional structure: a cluster of villages (500 – 1000 people) establish a Village Action Group (VAG) composed of five to ten elected representatives. Each VAG elects its representative to sit on the CRB that serves for a fixed term of three years. The CRB is comprised of:

(a) not more than ten but not less than seven representatives;
(b) one representative of the Council in the area;
(c) a representative of a Chief in whose area a board is established to represent that Chief;
(d) a person seconded by the Minister in accordance with the Act.

The Chief in whose area the board is established is the patron of that board and the board members elect a chairperson[5]. The board may invite non-voting individuals to sit on the board, and a DNPW officer is assigned to the CRB as its unit leader. CRB's are managed by an executive board elected by the local residents through the VAGs. The local chief is the Patron of the CRB. The board has a Chairperson, Vice Chairperson, Community Development Chairperson, Vice Community Development Chairperson, Finance Management Chairperson, Vice Finance Management Chairperson, Natural Resources Management Chairperson, Vice Natural Resources Management Chairperson and two committee members. A secretariat is responsible for the day-to-day administration of the board's activities. The Board has powers to invite anyone to participate in its meetings. Each executive member represents a VAG which also has a structure of not less than 7 members from neighbouring villages and households.

Decision-making follows a 'bottom up approach'. The board calls for general meetings in VAGs to get the input of the community of each decision before it is approved by the board and the Patron depending on relevancy and priority. A needs assessment is undertaken for all community projects at the VAG level before any implementation is approved (Zambia National CRB Association, Lusaka Zambia). There is a wealth of literature describing the functioning of this system highlighting the strengths and weaknesses and its impact on household benefits.

8.4 Contribution of hunting revenues to CRBs

Altogether there are 76 active and inactive registered CRBs (see Annex 2). These are located as follows:

- Central Region - 7
- Eastern Region - 15
- Northern Region - 21
- Western Region - 34

Table 23 provides a summary of the income disbursed to CRBs registered with the Zambia National CRB Association in the four regions of Zambia (approximately USD1 million/year). Each CRB on average

[5] There are instances where a single CRB may be formed to cover more than one chiefdom.

is receiving approximately US$14,000/year and together these CRBs employ957 community scouts to patrol the ~149,00km^2, which is equivalent to 156km^2/scout representing an investment of approximately $3.00/km^2 in wildlife protection.

A condition of the Hunting Concession Agreements (HCA) is that the outfitter pledges support to the CRBs for community development. Therefore, in addition to the revenue paid by the DNPW from game licenses and concession fees, the individual outfitters also pledge amounts varying from US$77,800 to US$17,600 per year. The bulk of these funds are channeled towards community projects (53%) followed by law enforcement (22%). Although relatively little funding (8%) is invested in resource monitoring, technical and financial support to undertake research is provided by local and international NGOs (e.g. ZCP, FZS, CLZ, CSL) thus releasing funds for community projects.

Table 22: Total disbursement of Game License (50%) and Concession fee (20%) to CRBs. (Data source: Zambia National CRB Association, Lusaka)

Number of Community Scouts	Km^2 per Scout	Number of National Parks	Number of GMAs	GMA Area (km^2)	Active CRBs	Inactive CRBs	Income (ZMK)			
							2016	2017	2018	2019 (partial)
318	298	7	17	94,718	27	4	3,391,105	2,668,619	2,900,000	1,120,000
73	198	2	3	14,453	6	2	-	212,942	179,794	110,000
337	74	7	11	24,887	17	4	3,528,664	3,345,699	4,850,250	3,300,000
206	73	4	5	15,010	12	4	3,597,423	2,894,259	3,200.000	2,470,000
TOTAL 957	**156**	**20**	**36**	**149,068**	**62**	**14**	**11,502,192**	**10,521,519**	**11,130,044**	**7,000,000**
						USD	***1,117,803***	***1,106,364***	***1,011,823***	***477,815.70***

Ave Exchange rate USD/ZMK: ZMK10.29 in 2016, ZMK9.51 in 2017 while ZMK11.00 in 2018 and 14.65 in 2019 (http://www.boz.zm/average-exchange-rates.htm)

8.4.1 Community Livelihoods and Development through CRB projects

Most communities in the regions depend on subsistence farming growing crops such as maize, groundnuts, cassava, beans, rice and pumpkins. Cash crops include cotton, soya beans and tobacco while communities residing along the major rivers and streams use income generated from fishing for home use and trade. The communities in the Eastern region also engage in livestock rearing and many households keep pigs, goats and chickens. In all regions the production and commercial sale of charcoal is an important economic activity.

Funds accessed by the CRBs from animal/concession fees and tourism levies are allocated to implement a variety of community projects such as installation of water wells, building teachers houses, clinics and support to orphans and scholarships. The selection of community projects is done at the VAG level where project proposals are submitted and assessed to determine the most viable and beneficial projects. Some CRBs allocate funds to support income generating projects e.g. growing vegetables for re-sale, poultry and goat-breeding projects. In 2016, several CRBs in understocked or depleted GMAs did not receive enough funds to allow implementation of multiple community development projects. In these circumstances, the CRBs partner with NGOs who support community programmes including payment for community scouts. A sample of the type of community projects that are supported is provided in Table 23.

Table 23: List of community projects implemented by CRBs in the four regions using funds from hunting blocks. (Source: Zambia CRB Association, Lusaka)

Central Region	Northern Region	Western Region	Eastern Region
• VIP Toilets at Kabwadu, Chiawa, VAGs • Market shelter in Muguramano VAG • Banana Boat in Chisakila VAG • Goat pass-on project	• Grinding mill and spares • 1x3 classroom block • Goat rearing project for ladies • New staff house roofing materials • Two poultry projects • 1x2 classroom block at Musipazi • 10 x staff house's • Radio room construction • Completed a mother's shelter at Nabwalya clinic • Drilled 7 boreholes • Chaya clinic construction	• Teachers house construction, Chonzo and Moomba VAGs • Classroom block-Mabwe VAG • Classroom block-Kalole VAG • Rehabilitation of CRB office and stores Room • 1x3 classroom block Babizhi, Lubanda primary school, Baanga primary school • Mothers Shelter • 3 x staff teachers house's • VIP Toilets • Construction of classroom block at Zingwamba primary school • Market shelter • Construction of health post/clinic	• 6 x staff Houses • 3 x CRB Offices • 3 x Teachers House Mkasanga school, Mwanya school, Yakobe school • 3 x Community scouts houses at Chikwinda wildlife camp • 5 x water boreholes • Furniture at Mkasanga Clinic • Student sponsorship • 2 x purchase of banana Boat • 3 x installation of Solar fences • 2 x VIP toilets at Malama Clinic • Purchase of 90,000 Bricks • Rehabilitation of Machesa wildlife Camp • Construction 4 x mothers' shelters • Procurement of 3 Maize shelters • Construction of Guest House • Rehabilitation of CRB office • Gardening • Electrification of office and hammer mill • Rehabilitation of 1 x 3 classroom block • Construction 2 x VIP toilets at Nsefu clinic • Construction sanitation system at Kawaza school

9.0 Revenues and Expenditures from Trophy Hunting

The fee revenues discussed in this section relate to revenues of DNPW, part of which are shared with communities. But a foreign client contributes far more to Zambia's economy than permit and

concession fees. A foreign client pays to the operator a daily fee, and hunting a lion are often sold as a package together with other species such as buffalo, hippo, and impala. Therefore, the foreign client pays for more than just lion and for a significant period of time.

In addition to the daily fees, clients will often pay observers fees and taxes not imposed by DNPW, such as firearms taxes to the Treasury.

Safari hunting also generates "multiplier" impact due to the client's travel, tipping, eating in restaurants, purchase of souvenirs, and taxidermy requirements. The multiplier spending also generates tax revenue for the country's general Treasury. In short, the revenues generated by tourist safari hunting are many times greater than the fees directed to DNPW which are summarized here.

9.1 Animal and hunting fees

Hunting license fees in Zambia are statutory, the current hunting animal fee for a lion is US $4,200.00 to the outfitter. In addition to animal fees the hunting outfitter pays concession fees and outfitters fees annually. The department charges GMA Area fees per hunt and annual Professional Hunter fees. Other minor fees include certificate of valuation of trophies, certificate of ownership of trophies, permit to export, handling fees, and the CITES security stamp.

A foreign client pays a fee above this depending on what the outfitter charges. The department does not deal with the foreign client directly. It should be noted that hunting a lion is sold as a package together with other species such as buffalo, hippo, and impala among others. Therefore, the foreign client pays for more than just lion.

9.2 DNPW income and expenditure

The DNPW generates income from consumptive and non-consumptive activities as well as from the sale of several different permits and licenses. Up until 2015 ZAWA received an annual grant from central government to meet some of its administrative and operational costs. This grant was discontinued after the formation of the DNPW and instead the central government met the costs of employment but not administrative and operational costs which are covered by income generated from consumptive and non-consumptive activities.

No hunting occurred in 19 of the 33 hunting blocks in 2013 and 2014 that led to reduced revenues from Animal Fees and Hunting Concession Agreement fees (Figure 17). A breakdown of the ZAWA/DNPW income revenues from 2010 to 2018 is provided in Table 24. On average hunting revenues accounted for approximately 28% of all the revenues that ZAWA received in the three years (2010 - 2012) before the moratorium that reduced to an average of 3% during the moratorium (2013 – 2015). The revenues from consumptive tourism has since returned to approximately 35% of the overall income following the resumption of lion and leopard hunting.

The contribution of non-consumptive tourism averaged 39% per annum between 2010 – 2015 but increased to approximately 66% per annum in 2016 - 2018 (Table 24). The revenue income deficit during the moratorium was partially offset by increased grant allocations to ZAWA which saw income almost triple from ZMW 64 million (=US$15 million) in 2010 to ZMW 190 million (=US$20 million) by the end of 2015. However, the grants were discontinued with the establishment of the DNPW in 2015 resulting in the overall income to the DNPW dropping to approximately US$10 million despite the re-introduction of hunting and an increase in revenues from non-consumptive tourism (Table 25).

A summary of expenses for the period 2010 to 2018 is provided in Table 25. Revenues generated from consumptive and non-consumptive utilization are allocated to general wildlife management and conservation activities. Revenues from consumptive utilization (but not non-consumptive utilization)

are also shared with CRBs. Over the period 2010 to 2018, salaries[6] on average accounted for 73% of all expenses while operational (11%) and administration (8%) costs accounted for the balance. Income over expenditure in 2018 suggests that the DNPW is operating at a deficit of approximately US$2 million. This underlines the importance of regulated hunting to the conservation of the extensive GMA system and thus conservation of habitats for the major carnivore and ungulate species.

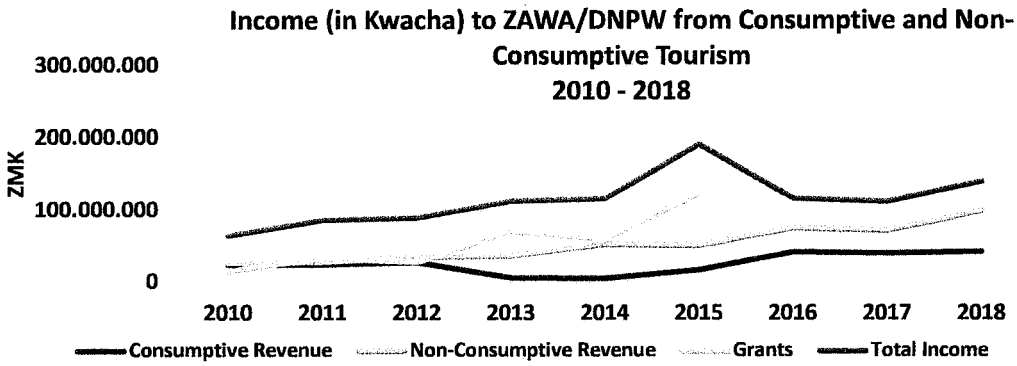


Figure 17: Comparison of income from Consumptive and Non-Consumptive Revenues and the impact of the hunting ban in 2013 – 2014

9.2.1 Value of Hunting Concession Agreements

The DNPW raises an annual concession fee for each hunting block secured under tender. The values paid per hunting block – some are higher than others – are made public in the national government gazette. The annual concession fees increase at approximately 3.3%/annum raising $1,188,416 in 2019. The 14 Prime blocks contribute 73% of this amount at an average of $61,776/block while the Secondary blocks average $35,951. Prior to the commencement of the hunting season, outfitters are required to pay to the DNPW for an outfitter's license (US$2,500 for secondary areas and US$3,000 for prime areas), one third of 60% of trophy quota value in advance, and lodge a once off US$50,000 performance bond guarantee and public liability insurance. They are also required to pay the cash pledges as declared in their tender documents to local CRBs for law enforcement, fire management, infrastructure and resource monitoring.

[6] Central Government cover the costs of DNPW salaries but do not meet administrative and operational costs. The DNPW is required to cover these expenses from funds raised through consumptive and non-consumptive tourism.

Table 24: Total ZAWA/DNPW Revenues (ZMW) 2010 – 2018 (Source: DNPW Accounts Unit)

Description	2010	2011	2012	2013	2014	2015	2016	2017	2018
Consumptive	19,999,001	21,318,331	24,742,842	2,654,472	3,785,328	12,711,064	37,436,461	40,456,087	53,545,600
Non-Consumptive	29,860,488	31,346,109	36,973,932	39,013,739	52,812,299	54,543,604	79,191,104	71,356,480	86,930,832
Grants	14,254,780	33,717,778	27,247,240	70,688,875	59,506,322	122,866,591	0	0	0
Other Income[1]	254,572	65,625	252,594	64,314	110,403	442,312	N/A	N/A	N/A
Total Income (ZMW)	**64,368,841**	**86,447,843**	**89,216,608**	**112,421,400**	**116,214,352**	**190,563,571**	**116,627,565**	**111,812,567**	**140,476,432**
Total Income (US$)	***$15,223,596***	***$17,810,653***	***$17,387,070***	***$20,896,153***	***$14,250,843***	***$19,799,959***	***$10,236,590***	***$10,408,477***	***$11,921,148***
Non-Consumptive	46%	36%	41%	35%	45%	29%	68%	64%	62%
Consumptive	31%	25%	28%	2%	3%	7%	32%	36%	38%
Total % Contribution	**77%**	**61%**	**69%**	**37%**	**49%**	**35%**	**100%**	**100%**	**100%**

Note: *The figures for consumptive income are actual but non-consumptive amounts are based on the percentage trend calculated from the total income.*

[1]*Other Income: Cites tags/stamps, Import/Export permits, Certificate of Ownership, Sale of Trophies, Permit - animals in Captivity, Crocodile Eggs /Live Capture, Crocodile Eggs / Live Capture, Trophy Dealers' License*

APPLICANT:

BLAZE BARTLING

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Blaze Bartling -(b) (6) Marietta, OK 73448

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Panthera leo, lion

b. Sex (if known).

male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

N/A

b. Date wildlife is to be hunted:

N/A

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

N/A

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

Matetsi Safari Area - Unit #3, Matabeleland North, Zimbabwe - nearest city, Victoria Falls

b. Date wildlife was hunted:

November 24th, 2020

c. Approximate age of animal:

Over 6 years of age

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

Vexford Safaris, P.H.- Fidelis Muchenje

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

Matabeleland Taxidermist - 16 Birmingham Rd, Belmont, Bulawayo, Zimbabwe

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

See permits provided

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	
Business Name:	Freight Consultants
Address:	3 Trojan St., Belmont
City:	Bulawayo
State/Province:	Zimbabwe
Country, Postal Code:	

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.

See attached

11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):	Fidelis Muchenje
E-mail:	vexfordsafari@gmail.com
Phone number:	+263 (0) 773 068 498

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature: (b) (6) _____ Date: _____

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

APPLICANT:

BLAZE BARTLING

HUNTING PERMITS

HUNTING RETURN FORM - TRAS2
APPLICATION FOR HUNTING NP/CITES

Issued in terms of Exchange Control Act (Chapter 22:05),
The Parks and Wild Life Act (Chapter 20:14) and the Tourism Act (Chapter 14:20)

0000083064
PRE_ACQUITTED

1. DETAILS OF THE SAFARI OPERATOR

Name of Operator	Vexford Investments (Pvt) Ltd	**Client's Full Name**	Bartling Blaze William
ZTA (HOP) No.	HOP0305	**Passport Number**	(b) (6)
		Country of Issue	UNITED STATES
Address	Plot 1 Tarquinnia farm Karoi vexfordsafari@gmail.com	**Address**	(b) (6) Marietta Oklahoma 73448 USA
Name of Professional Hunter	FIDELIS MUCHENJE	**Licence No.**	197
Telephone		**Fax**	0

Number of Accompanying Guests	0
Are the trophies being exported after tanning and mounting?	No
Are the trophies being exported after primary treatment?	No

Name of Processing Agent or Taxidermist	MATABELELAND TAXIDERMIST	**Address**	16 BIRMINGHAM RD BELMONT BULAWAYO
Name of Shipping Agent	FREIGHT CONSULTANTS	**Address**	3 TROJAN STREET BELMONT, BULAWAYO
Name of Foreign Agent		**Address**	

2. HUNTING AREAS

	Hunting Area Name	Province	Signature of Land Authority
1	Matetsi Safari Area - Unit 3	Matabeleland North	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Date of Safari From	22-11-2020
Date of Safari To	08-12-2020
Daily Rate Charged For Big Game USD	350.00
Daily Rate Charged For Plains Game USD	350.00
Daily Rate Charged for Non hunting guests USD	.00
Number of Accompanying Guests	0

ZPWMA
Date Stamp

3. DETAILS OF DEPOSITS

(All inclusive of Daily Rate, Trophy Fees, Processing, Handling charges and any other incidentals)

(I) Safari Operator

	Value Date	ECA Number	ECA Date	Currency	Invoice Amount	Amount Paid
1	12-JAN-2021	DMS/1298	29-JAN-2021	USD	30,895	30,895
2						
3						
4						

(II) Taxidermist

	Value Date	ECA Number	ECA Date	Currency	Invoice Amount	Amount Paid
1						
2						
3						
4						

4. FINANCIAL DATA

Total Daily rate	5,950.00	**Total Guests rate**	.00
Less Commission	.00	**Total Trophy fees**	24,945.00
Other fees (Incidentals)	.00	**Grand Total USD**	30,895.00
Percentage Commission Charged	.00	**Total Processing Fees**	.00

5. DETAILS OF SPECIES HUNTED

	SPECIES	SEX	W/K	CONCESSION/FARM	GRID REF	DATE SHOT	SCI TROPHY SIZE	TROPHY FEES
1	IMPALA	M	Killed	Matetsi Safari Area - Unit 3	0380906 7951332	26-NOV-2020	49.4	80
2	IMPALA	M	Killed	Matetsi Safari Area - Unit 3	0382375 7949704	29-NOV-2020	49.3	80
3	IMPALA	M	Killed	Matetsi Safari Area - Unit 3	0383284 7952001	27-NOV-2020	51.8	80
4	IMPALA	M	Killed	Matetsi Safari Area - Unit 3	0381959 7943228	29-NOV-2020	49.4	80
5	ZEBRA	M	Killed	Matetsi Safari Area - Unit 3	0783475 795466	07-DEC-2020		550
6	ZEBRA	M	Killed	Matetsi Safari Area - Unit 3	0380906 7951332	26-NOV-2020		550
7	BUFFALO	M	Killed	Matetsi Safari Area - Unit 3	0382911 7149800	22-NOV-2020	98.10	3,500
8	LEOPARD	M	Killed	Matetsi Safari Area - Unit 3	038354 7950617	07-DEC-2020	13.74	2,500
9	GIRAFFE	M	Killed	Matetsi Safari Area - Unit 3	0383754 7950617	22-NOV-2020		850
10	LION	M	Killed	Matetsi Safari Area - Unit 3	0383754 7950617	24-NOV-2020	23.94	5,000
11	KUDU	M	Wounded	Matetsi Safari Area - Unit 3	0376414 7955812	28-NOV-2020		600
12	ELEPHANT - WITH TUSKS	M	Killed	Matetsi Safari Area - Unit 3	0374697 7949826	25-NOV-2020		11,000
13	JACKAL	M	Killed	Matetsi Safari Area - Unit 3	0385887 7952993	28-NOV-2020		75
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

I .....hereby certify that the information given in this return is, to the best of my knowledge, true and correct.

Signature of Foreign Client _____ Date _____

Signature of Professional Hunter _____ Date _____

Signature of Safari Operator _____ Date _____

APPLICANT:

BLAZE BARTLING

HUNT RETURN FORM

SECTION A: LEOPARD HUNT RETURN FORM

1. TR2 SERIAL NUMBER: 83064
2. HUNTING OUTFITTER: YEXFORD SAFARIS
3. PROFESSIONAL HUNTER: FIDELIS MUCHENJE
4. PROPERTY/CONCESSION/CAMPFIRE AREA NAME: MATETSI UNIT 3
5. MINIMUM NUMBER OF DAYS BOOKED FOR LEOPARD HUNT: 17
6. i) BAIT & BLIND ☑ ii) ON FOOT ☐ iii) HOUNDS ☐
7. i) RIFLE ☑ ii) SHOTGUN ☐ iii) HANDGUN ☐ iv) BOW ☐
8. i) SUCCESSFUL HUNT ☑ ii) FAILED HUNT ☐

Only complete questions 9-10 if a hunt was unsuccessful

9. WAS A LEOPARD WOUNDED DURING A FAILED HUNT Y N
10. IF HUNT FAILED, WHAT WAS THE REASON?

Complete 11-14 for both successful and unsuccessful hunts

11. TOTAL NUMBER OF BAIT NIGHTS: 15
12. NUMBER OF LEOPARDS RECORDED ON BAITS

Sex/Age	Number	Evidence (sighting, tracks, trail camera)
Adult male		
Adult female		
Subadult male		
Subadult female		
Unknown		

13. DATE OF HUNT START: 22-11-2020

Complete questions 14-17 if a leopard was shot

14. HOW MANY DAYS INTO HUNT WAS LEOPARD SHOT: 16
15. GPS POSITION: 038 354 7950617
16. SKULL LENGTH (mm): 13.74 17. SKULL BREADTH (mm):
*Independent verification Y N (to be completed by ZPWMA)
18. ESTIMATED AGE OF LEOPARD TAKEN
i) <2 years ☐ ii) 2-3 years ☐ iii) 4-6 years ☑ iv) ≥7 years ☐

Complete questions 19-20 if a hound hunt

19. NUMBER OF DIFFERENT LEOPARD CHASED
20. ESTIMATED LENGTH OF ALL CHASES COMBINED (km)

COMMENTS

SECTION B: LION HUNT RETURN FORM

1. TR2 SERIAL NUMBER: 83064
2. HUNTING OUTFITTER: YEXFORD SAFARIS
3. PROFESSIONAL HUNTER: FIDELIS MUCHENJE
4. PROPERTY/CONCESSION/CAMPFIRE AREA NAME: MATETSI UNIT 3
5. MINIMUM NUMBER OF DAYS BOOKED FOR LION HUNT: 17
6. i) BAIT & BLIND ☑ ii) ON FOOT ☐
7. i) RIFLE ☑ ii) SHOTGUN ☐ iii) HANDGUN ☐ iv) BOW
8. i) SUCCESSFUL HUNT ☑ ii) FAILED HUNT ☐

Complete question 9 if a hunt was unsuccessful

9. WAS A LION WOUNDED DURING A FAILED HUNT Y N
10. IF HUNT FAILED, WHAT WAS THE REASON?
11. TOTAL NUMBER OF BAIT NIGHTS: 2
12. NUMBER OF LIONS RECORDED ON BAITS

Sex/Age	Number	Evidence (sighting, tracks, trail camera)
Adult male		
Adult female		
Subadult male		
Subadult female		
Unknown		

13. DATE OF HUNT START: 22-11-2020
14. NUMBER OF DAYS INTO HUNT LION SHOT: 3

Complete questions 14-18 if a trophy was taken

15. GPS POSITION: 0383754 7950617
16. SKULL LENGTH (mm): 23.94 17. SKULL BREADTH (mm):
*Independent verification Y N (to be completed by ZPWMA)
18. ESTIMATED AGE OF LION TAKEN
i) <4 years ☐ ii) 4-5 years ☐ iv) ≥6 years ☑
19. SEX OF LION HUNTED ☐ M F ☐

COMMENTS

Scanned with CamScanner

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
SHANE MAHONEY
RENEE SNIDER

February 8, 2021

Department of the Interior
U.S. Fish and Wildlife Service
Attn: Amy Brisendine
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803

APPLICANT: **Blaze Bartling**
RE: **Import Permit Application for a Sport-hunted Lion**
COUNTRY: **Zimbabwe**

Ms. Brisendine:

Enclosed you will find an import permit application for a sport-hunted lion trophy from Zimbabwe for Mr. Blaze Bartling. Mr. Bartling hunted with Vexford Safaris on November 24th, 2020 and took his lion in the Matetsi Safari Area- Unit 3 in the North Matabeleland region of Zimbabwe.

Zimbabwe values its wildlife and especially its lion population enormously. It prides itself as being one of very few countries in the world that still have viable, stable, and growing lion populations. A 2016 IUCN Red List assessment of African lion concluded that Zimbabwe is one of four range states with an increasing lion population. Zimbabwe has identified the major threats to its lion population: loss of habitat, loss of prey base, and human-wildlife conflict and addressed them all in their National Lion Conservation Strategy and Action Plan, which has just been updated in 2020 and will guide the country through 2025.

Regulated hunting is essential to Zimbabwe's wildlife management and conservation system. It allows the major threats to lions to be addressed by providing habitat security, anti-poaching measures, and guidance to communities on wildlife tolerance. Communities surrounding Safari areas have seen a better way of life since regulated hunting has begun. In what are often rural areas where tourists would usually not visit, thriving safari businesses have brought employment, education, infrastructure project funding, game meat distribution, and the ability to see wildlife as a value and not a hinderance. All of this creates a vested interest for the communities, safari operators, tourists, and the government to preserve and protect the native wildlife. Hunting fees in Zimbabwe cover most of the authority's operating expense. Mr. Bartling spent $30,000 in hunting fees for this trip, of which $5,000 of that were for just the lion. Lion fees alone can "underwrite the protection of over 18,000 km², two-thirds the size of the National Parks" according to the article written by Conservation Force, entitled "The Importance of Lion Hunting in Zimbabwe".

Vexford Safaris has a government lease hunting concession, they work collaboratively with the Zimbabwe Parks and Management Wildlife Authority (ZPWMA), an independent non-governmental conservation organization, on enacting the country wide lion management plan. ZPWMA has the mandate of governing and monitoring all trophy hunting activities in the three land categories, safari areas, CAMPFIRE areas, and private areas to safeguard its integrity and curb an illegal or underhanded activity. As an authority, ZPWMA ensures that (1) professional standards and ethics are maintained, (2) quotas are set using sound ecological and sustainable use principles as well as quota approval, (3) only set trophies meeting the minimum sizes are exported out of the country, (4) there is a centralized trophy hunting monitoring system, and (5) all trophy

hunting activities remain within bounds of the provisions under international conventions such as Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). ZPWMA together with the safari operators helps in antipoaching activities and habitat protection of these conservation areas. Please reference the narrative regarding enhancement and anti-poaching activity in the operator enhancement report provided for further information on Vexford Safaris.

The ZPWMA office at Matetsi Safari Area is involved in measuring, monitoring, and analyzing trophy quality and offtakes of all hunted animals. This is done to ensure that Safari hunting does not substantially alter natural selection or ecosystem processes. The limited quota, as further limited by age restrictions, ensures that hunting offtakes do not negatively affect natural processes. Zimbabwe administers a Hunt return form for all lions, which we have included, that confirms the age of the animal taken. Hunting quotas will be negatively adjusted for safari operators who take an animal that does not meet the quota, sex, and age-based requirements

Please refer to the documents and responses included and previously submitted to the DMA by Conservation Force, Zimbabwe's wildlife authorities, professional hunters, and Safari operators where you will find that the regulated well-managed hunting that was done on this safari is furthering the enhancement of the lion population in the area and the conservation work done by this operator in tandem with ZPWMA is aiding in the protection of the native wildlife and the communities surrounding it.

Please do not hesitate to contact us if you have any questions about this permit application.

Sincerely,



Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Blaze Bartling W/ attachments

Enclosures:

a. Notice of Representation,
b. FWS Permit Application Form for Import of Sport-Hunted Trophy,
c. Copy of Hunting Permits
d. Operator Enhancement Report- Vexford Safaris
e. Zimbabwe National Lion Conservation Strategy and Action Plan
f. The Important of Lion Hunting in Zimbabwe

APPLICANT:

BLAZE BARTLING

NOTICE OF REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed LION Trophy from ZIMBABWE

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

SIGNATURE (b) (6)

PRINT FULL NAME Blaze Barbera

DATE 2/8/21

APPLICANT:

BLAZE BARTLING

ZIMBABWE NATIONAL LION CONSERVATION STRATEGY AND ACTION PLAN (2020-2025)

ZIMBABWE NATIONAL LION CONSERVATION STRATEGY AND ACTION PLAN (2020-2025)



A male lion with cubs he has sired (Photo credit: Brent Stapelkamp)

Zimbabwe Parks and Wildlife Management Authority

Approval Page

The Zimbabwe Parks and Wildlife Management Authority Director General have approved the implementation of the Zimbabwe National Lion Conservation Strategy and Action Plan (2020-2025)

Signature: _____ Date: 07/08/2020

Mr. Fulton Mangwanya

DIRECTOR-GENERAL - ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY

FOREWORD BY DIRECTOR GENERAL OF ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY



Zimbabwe is privileged to be one of the few lion range states in Africa where large areas of land set aside as protected areas, still have viable, stable and growing lion populations. In some parts of Africa, lions have been completely wiped out either by hunters, or through habitat loss and other factors with the only record to indicate their existence in the past now left as anecdotal evidence. The lion is a powerful African symbol, it is a flagship species and yet its future is under threat. The conflict with local communities and the threat to livestock and human lives in many parts of the world including Zimbabwe is well documented. While its attraction in ecotourism as one of the most beautiful and graceful cats, and as a trophy animal in sport hunting, its economic benefits are huge. Its social and cultural values are an integral part of the Zimbabwean lifestyle, therefore efforts to ensure lion conservation need to be strengthened.

It is important for Zimbabwe have a strategy that guides conservation and management of this top predator. As a world leader in sustainable conservation, we have taken a lead in developing conservation strategies, which ensure sustainable use. I have no doubt that with the expertise gathered in this document encompassing the wildlife industry, technocrats, academia inter and non-governmental organizations, wildlife producers including local communities, etc., we will all join hands in the implementation of the conservation measures and activities.

Collaborative work on research and monitoring of lions needs to be strengthened to ensure that adaptive management is practiced and is also informed by sound science. Zimbabweans take pride in our rich wildlife heritage, let us continue working together to ensure that we effectively conserve our lions in all their range areas in the country for the present and future generations.

Implementation of this lion conservation strategy will go a long way in meeting our long-term strategies for biodiversity conservation and I invite you to partner with us and play your part on this noble cause.

SUMMARY

The first '*Conservation and Action Plan for the lion (Panthera leo) in Zimbabwe'* was developed in 2006 in response to the development of Africa wide conservation plans for the species. It has served Zimbabwe well but with increasing global and regional concerns and changing circumstances regarding the conservation of lions it was appropriate to revisit and update a National Lion Conservation Strategy and Action Plan. The major components of the earlier strategy have been brought forward, albeit in a different format, but with a greater focus of law enforcement, the extension of lion range within the country, and the recovery of some populations that have declined.

The strategy, therefore, focuses on the following long term and shorter-term goals, and five key components, in keeping with related plans for rhinos and elephants:

> ***Long-term Vision:*** *Lions conserved and managed sustainably for their aesthetic, cultural and ecological values and the socio-economic development of Zimbabwe.*
>
> ***Goal:*** *(Immediate objective or purpose)**:***
>
> *To secure and where possible, restore as many viable free ranging lion populations as possible in Zimbabwe, whilst mitigating their negative impacts and enhancing their value for the benefit of people through sustainable use.*
>
> ***Targets:*** *1. Ensure the persistence of key/core lion populations and other important populations including those of doubtful viability*
>
> *2. Human and livestock loss caused by lions reduced*
>
> *3. Optimise lion conservation-related net benefits to local communities/ landholders*
>
> *4. Review and enhance ethical sustainable use of lion*

In order to meet these goals and to effectively contribute to national policy objectives, the following five component and strategic objectives have been adopted as the primary focus for strategic action in achieving the immediate and long-term conservation of lions in Zimbabwe:

1. Protection and Law enforcement to ensure the effective security of all lion populations in Zimbabwe
2. Biological monitoring and management of lions to achieve viable populations that are within upper and lower acceptable limits to change in numbers and distribution
3. Implementing social, economic and cultural strategies to enhance the contribution of lions to rural livelihoods, protected area management and national development
4. Building conservation capacity and ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and finances are mobilised, available and used efficiently and effectively to lion conservation
5. Ensuring coordination, collaboration and programme management with local, and international stakeholders to implement these strategic objectives.

These strategic components can readily be framed as objectives, and outputs with a set of necessary and sufficient activities and key performance indicators that need to be implemented to achieve the outputs and targets. These are framed at a strategic level from which more detailed annual plans that fit available resources and requirements at local or cluster levels can be developed.

An overview of the main conservation plan is provided in the following Objectives Tree. The sets of key activities for each Output are provided in Section 4.

Objectives Tree

Long-term Vision: *Lions conserved and managed sustainably for their aesthetic, cultural and ecological values and the socio-economic development of Zimbabwe*

Goal: *(Immediate objective or purpose):*
To secure and where possible, restore as many viable free ranging lion populations as possible in Zimbabwe, whilst mitigating their negative impacts and enhancing their value for the benefit of people through sustainable use.
Targets: 1. Ensure the persistence of key/core lion populations and other important populations including those of doubtful viability
2. Human and livestock loss reduced
3. Optimise wildlife conservation-related net benefits to local communities/ landholders
4. Review and enhance ethical sustainable use of lion

Key Components	1. Protection and law enforcement	2. Biological Monitoring and Management	3. Social, Economic and Cultural Framework	4. Building Conservation Capacity	5. Coordination, collaboration and program management
Strategic Objectives	**Objective 1**. Ensuring effective protection of all lion populations in Zimbabwe	**Objective 2.** Implementing effective biological and ecological management to achieve viable populations that are within upper and lower acceptable limits to change in numbers and distribution	**Objective 3.** Implementing strategies that enhance the contribution of lions to livelihoods, protected area management and national pride and development	**Objective 4.** Ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and financing are mobilised, available and used efficiently and effectively for lion conservation	**Objective 5**. Ensuring effective coordination and collaboration with local, national, and international stakeholders to implement these strategic objectives,
Outputs	**Output #1:** Management, security and law enforcement actions to minimise, illegal losses of lions, their prey and their habitats, implemented	**Output #2:** Adaptive, evidence-based management to maintain viability of all lion sub-populations implemented	**Output #3:** Fair distribution of financial benefits from lions improved and tolerance for those living with lions increased	**Output #4:** Sufficient numbers of trained, equipped, motivated and effective personnel are deployed and operational	**Output #5:** Coordination mechanisms to assess and review adaptive lion population management and strategic planning established and operating

Table of Contents

FORWARD ii

SUMMARY ii

Objectives Tree i

ACRONYMS AND ABBREVIATIONS iii

ACKNOWLEDGEMENTS iii

1. Introduction and Background 1

1.1 Numbers, distribution and trends of lions in Zimbabwe 2

1.2 Targets for lion distribution, numbers, and connectivity in Zimbabwe 4

1.3 Implementation of the Strategy and Action Plan 5

1.3.1 Institutions and Roles 5

1.3.2 Funding and resource mobilisation 6

1.3.3 Coordination 6

1.3.4 Monitoring and evaluation 7

1.3.5 Links with continental and regional initiatives 7

1.3.6 Regional strategies within Zimbabwe 7

1.3.7 Protecting lions for the future 7

1.3.8 Human lion conflict 7

2. Logic and Structure of the Plan 9

3. Vision, Targets and Key Components 11

4. Action Plans 12

4.1 Protection and Law Enforcement 12

4.2 Biological Monitoring and Management 16

4.3 Social, Economic and Cultural Framework 18

4.4 Building Conservation Capacity 20

4.5 Coordination, Collaboration and Programme Management 23

5. Notes on Monitoring 25

6. Concluding Comment 26

7. References 28

8. ANNEXES 30

8.1 Terms of Reference for National Elephant and Lion Conservation Committee 30

8.2 Terms of Reference for the Lion Working Group 31

8.3 Terms of Reference for the Lion Coordinator 31

Approval Page ..... Error! Bookmark not defined.

ACRONYMS AND ABBREVIATIONS

CAMPFIRE	Communal Areas Management Plan for Indigenous Resources
CITES	Convention on International Trade in Endangered Species of Flora and Fauna
IUCN	International Union for the Conservation of Nature
KAZA	Kavango Zambezi Transfrontier Conservation Area
KPI	Key Performance Indicator
NDF	Non-Detriment Finding
RDC	Rural District Council
SADC	Southern Africa Development Community
SMART	Spatial Monitoring and Reporting Tool
SOAZ	Safari Operators Association of Zimbabwe
TFCA	Transfrontier Conservation Area
ZPHGA	Zimbabwe Professional Hunters and Guides Association
ZPWMA	Zimbabwe Parks and Wildlife Management Authority
ZRP	Zimbabwe Republic Police

Staff abbreviations *(used to indicate responsibilities in the action plans)*

DG	Director General
DDGCon	Deputy Director General Conservation
CM	Cluster Manager
AM	Area Manager
CE	Chief Ecologist
PRM	Public Relations Manager
HRM	Human Relations Manager
LC	Lion Coordinator
LWG	Lion Working Group

ACKNOWLEDGEMENTS

The support provided by the Lion Recovery Fund for the development of this conservation strategy and action plan is gratefully acknowledged, as is the contribution to its development by the participants in the consultative workshop on lion conservation and management held at Boulton Atlantica on the 12-14 of June 2019.

1. Introduction and Background

Lions have formed a powerful symbol as the 'king of beasts' for many cultures throughout the ages. They are now extinct in Europe, a remnant population remains in India and their numbers in Africa, their last stronghold, have declined drastically in most countries in recent decades. Four countries in southern Africa provide an exception to this trend. Lion populations are either stable or growing in Botswana, Namibia, South Africa and Zimbabwe. As a result, Zimbabwe shoulders both a national and an international responsibility to conserve its lions for the cultural, ecological, and economic benefits they provide. Given sufficient habitat, a viable prey base, and protection, it is clear that lion populations can recover remarkably quickly. Small founder populations of lions introduced to two larger well-stocked conservancies (formerly cattle ranches) in the South East Lowveld, for example, grew at more that 20% per annum over periods of 15-20 years.

Following the Rinderpest pandemic that swept through southern Africa in 1895, when both wild and domestic populations of cloven-hoofed animals collapsed, populations of large carnivores were also reduced to very low numbers. However, as both livestock and wild ungulate populations recovered, large carnivore recovery was curtailed by expanding agro-pastoralism and cattle ranching, and conflict with humans, where lions were killed. The first game reserves were established in 1928 and, even then, large mammal populations were still low and recovering. In Wankie Game Reserve (now Hwange National Park), for example, game populations were growing at about 13% per annum between 1937 and 1949[1]. If a similar growth rate prevailed during the previous ten years the likely prey biomass in 1928 would have supported less than 1 lion per 100 km^2, compared with 4 or more per 100 km^2 in 2019.

National long-term data on the trends and numbers of lions in the country are not available. Information available over the last three decades indicates an overall increase in lion numbers despite marked declines in some areas. Increases have occurred with the introduction of lions to two large conservancies, namely, Save Valley and Bubye Valley. A marked decline in lion numbers occurred in the Sebungwe region, primarily in Chizarira National Park and Chirisa Safari Area as a result of declines in prey populations due to poaching.

Primary factors constraining the growth and extension of lion populations in Zimbabwe are:

- Lack of available wild habitat into which lions can expand their range due to habitat fragmentation and land use change in neighbouring areas.
- Depleted prey bases in some protected areas.
- Conflict between lions and small-scale agro-pastoralists settled on the boundaries of protected areas and impacts of retaliatory killing of marauding lions.
- Scarcity of resources to implement conservation action.

Each of these constraints provides opportunities to be tackled and the primary purpose of this lion conservation strategy and action plan is to provide a framework for achieving effective and sustainable conservation of lions in Zimbabwe.

This plan builds on the 2006 Conservation Strategy and Action Plan and includes all of the primary elements of that plan, albeit in a different format. The 2006 strategy had its origins in renewed concerns about the conservation status of the African lion and proposals for the species to be listed on Appendix I at the 13th Conference of the Parties to CITES in Bangkok in 2004. The conference recommended a detailed examination of the issues relating to the conservation of the African Lion lions through a series

[1]/ Ted Davison, the first Warden, recorded the numbers of "head of game" seen per mile walked on his patrols in the park and included an annual figure in his reports for years 1937-1949. These figure increased at an annual rate of 13%.

of regional workshops. IUCN followed through on the recommendation and, together with other stakeholders organised a workshop for West and Central African countries in 2005 and another for East and Southern Africa countries in Johannesburg in 2006. A major recommendation of the workshop was that lion range states develop and implement national lion management plans. The Zimbabwe Parks and Wildlife Management Authority, together with IUCN, convened a workshop in October 2006 to develop a lion conservation strategy and action plan that has been in force since then.

Since 2006 there have been further failed proposals to list the African lion on CITES Appendix I and both the United States and the European Union have developed more stringent domestic measures surrounding the import of lion trophies from Africa. They require range states to provide evidence that trophy hunting is not detrimental to lion populations – the Non-Detriment Finding (NDF). The United States of America, in addition, requires that states provide evidence that that trophy hunting of lions enhances the conservation of the species in the wild. These international pressures have served to increase the amount and depth of research on lion ecology and on monitoring the impacts of trophy hunting. They have also served to stimulate the ongoing development of trophy hunting regulations and practices that minimise, if not remove, adverse impacts of trophy hunting on lion population dynamics.

Given the developments in lion research and increasing concerns, both national and international, regarding the conservation and management of lions the ZPWMA, with support from the Lion Recovery Fund, convened a stakeholder workshop in June 2019 to revisit and update the national lion conservation strategy and action plan. The proceedings of the June workshop were distributed in early August 2019.

1.1 Numbers, distribution and trends of lions in Zimbabwe

Recent estimates of the four regional populations indicate a current population of nearly 2,000 lions (Table 1). The lion population in Hwange NP is considered to be stable and this probably applies to that of Northwest Matabeleland. However, this population is contiguous with that in neighbouring Botswana and trends in that population may influence those in the Zimbabwe component.

Table 1. Estimates of the extent of lion range and the number of lions in four regions in Zimbabwe. (Source: NDF 2016)

Region	Area (km^2)	Estimated Number of Lions	Lions per 100 km^2
Northwest Matabeleland	24,863	737	3.0
Sebungwe	6,953	72	1.0
Lower Zambezi Valley	7,491	212	2.8
South East Lowveld	12,335	896	7.3
Total	**51,642**	**1,917**	**2.7**

Note: The figures for Lower Zambezi Valley cover only part of the overall protected area of ~ 12,000 km^2

The number of lions in the Sebungwe has declined with increasing habitat loss resulting from expanding settlement, increasing human population and agriculture in the region, encroachment into protected areas and depleted prey populations in protected areas. The human population in the districts covering the Sebungwe grew from 55,000 in 1950s to 750,000 in 2013 as result of immigration and following a boom in cotton production in the 1980s (Cumming and Lynam 1997). Wildlife habitat and wildlife numbers in both protected and CAMPFIRE areas recently declined markedly as reflected in the 75% decline of elephant from ~ 14,000 in 2006 to 3,500 in 2014. In the mid 1970s the Sengwa Wildlife Research Area (in the southern sector of Chirisa Safari Area) held a pride of at least 25 lions at a density

of 14 lions per 100 km^2 (Cumming 1975, and unpublished data). A recent camera trap survey found a single lion in Chirisa Safari Area – the result of uncontrolled bushmeat poaching and depleted prey populations (Unpublished Report). With appropriate management the protected areas of the Sebungwe provide a clear opportunity to recover lion populations in this region.

Gonarezhou National Park, a core protected area of the South East Lowveld, is experiencing increasing large herbivore populations and along with increasing lion numbers. The introduction of lions into the Save Valley Conservancy and Bubye Valley Conservancy resulted in these populations growing at more than 20% per annum over a period of two decades, resulting in the largest regional population on the country.

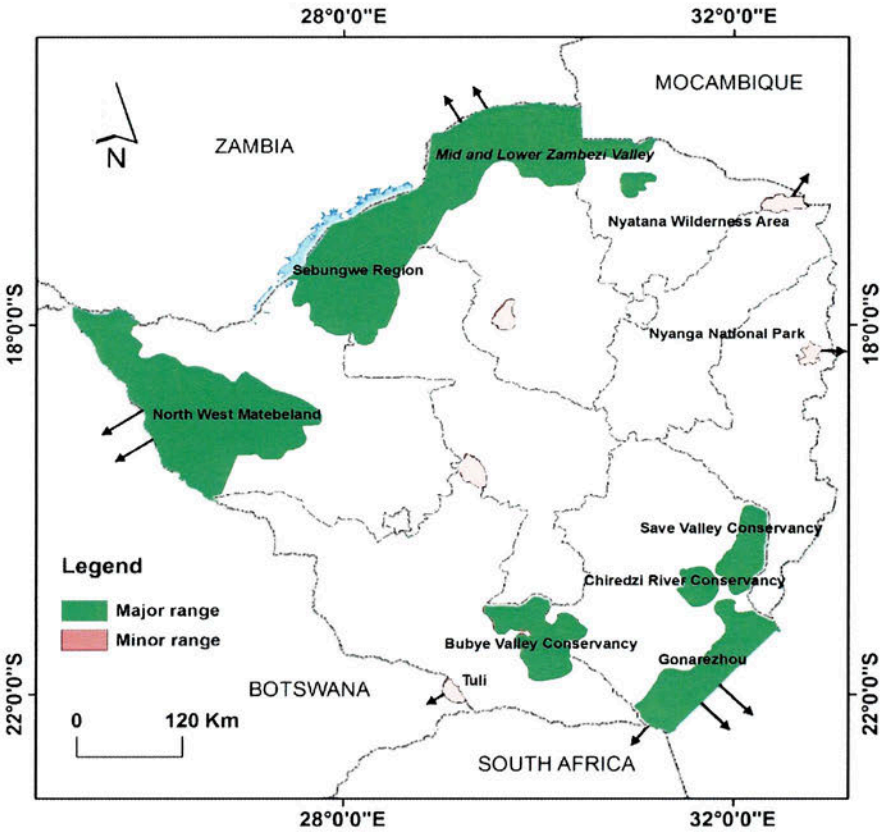


Figure 1. The current major and minor ranges of lions in Zimbabwe

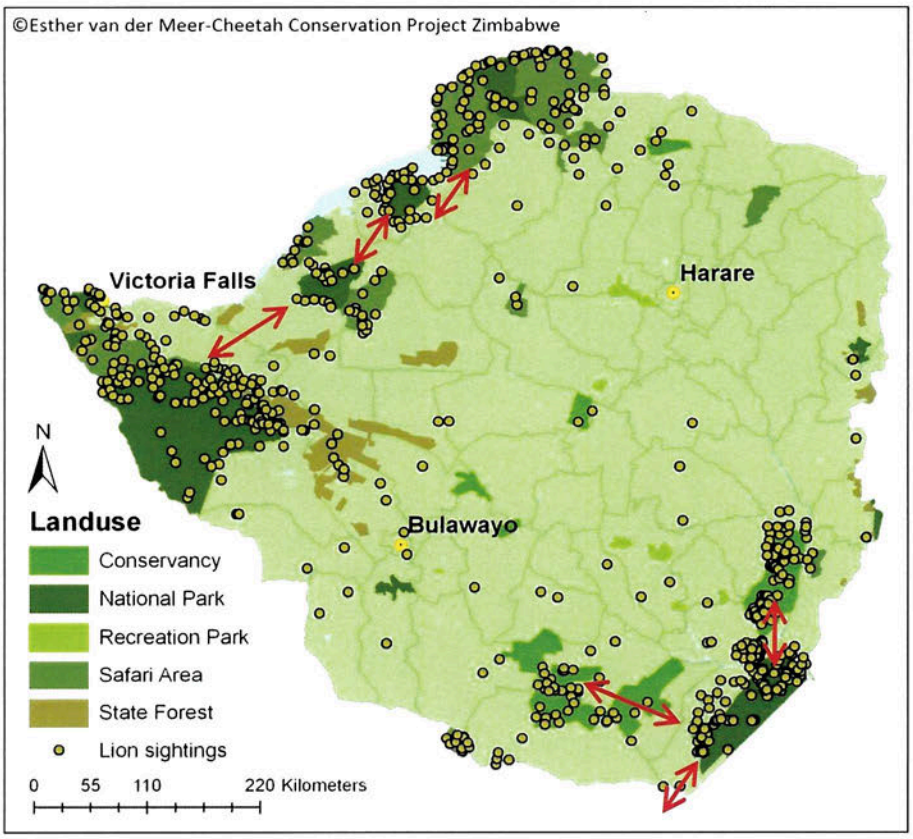


Figure 2. Distribution of lion sightings in Zimbabwe and an indication of potential corridors (red arrows) (Source: Lion NDF, 2016)

1.2 Targets for lion distribution, numbers, and connectivity in Zimbabwe

The recent map of lion sightings in Zimbabwe (Fig. 2) reveals four clusters of lions, one in Northwest Matabeleland, a second with few sightings in the Sebungwe south of Lake Kariba, a third in the Mid-Zambezi Valley, and a fourth in the South East Lowveld. Options for extending viable populations of lions to other areas in the country are limited. The open unmanaged populations in the Northwest and the Lower Zambezi Valley appear to be stable. The lion population in the South East Lowveld has grown rapidly although it has recently been curtailed in the fenced Bubye Valley Conservancy. As indicated above, the Sebungwe lion population is depleted but with improved management of its four protected areas, an opportunity exists for recovery of lion numbers.

Opportunities to maintain connectivity between the three northern lion populations exist but may rapidly close and will require urgent attention. Connectivity between the presently somewhat isolated populations of Bubye Valley Conservancy and Gonarezhou National Park may be achieved through the inclusion of lions in Nuanetsi Ranch and the creation of linking corridors. Similarly, options still remain to link the Save Valley lion population to Gonarezhou and through to Kruger National Park via the Sengwe-Tshipise Wilderness Corridor (Fig. 1).

The question of establishing Thresholds of Potential Concern, or setting limits to change, for lion populations in the country was discussed at some length during the June workshop. The general consensus was that open lion populations, those in large unfenced areas, did not need to be managed and that populations should be allowed to fluctuate. Population growth in fenced populations, where

dispersal and density dependent regulation is likely to be compromised, may need to be controlled and guidelines for this eventuality need to be developed. While the focus has tended to be on the management of lion population growth and perceptions of 'overpopulation', thresholds and specific action plans also need to be considered for populations that may be declining. In several cases lion population declines have been associated with declining available prey and attention needs to be directed at dynamics of preferred prey species namely, buffalo, giraffe, wildebeest and zebra (Hayward and Kerley, 2005). Disease issues relating to lions have been neglected but with increasing rural domestic dog populations and the incidence of rabies and distemper, attention will need to be directed at vaccination programmes in areas surrounding protected areas.

1.3 Implementation of the Strategy and Action Plan

1.3.1 Institutions and Roles

i) Zimbabwe Parks and Wildlife Management Authority

ZPWMA through the Parks and Wildlife Act, Chapter 20: 14, has a national mandate to manage wildlife in the country. By the same instrument it is appointed the lead agency in the conservation and management of lions, i.e. protection, monitoring, research, and sustainable use. It is also responsible for establishing collaborative arrangements with other governmental and non-governmental organisations to conserve and manage lions in the country.

ii) Intra-governmental organisations

ZPWMA works jointly with security organisations such as Zimbabwe Republic Police (ZRP), Zimbabwe Defence Forces, and the President's Office to protect lions, curb illegal killing, and control trade in lion products. ZPWMA works with these organisations through the Joint Operations Command as well as through direct bilateral arrangements with them and the Judiciary. ZPWMA also works with Customs at ports of exit and entry to improve control of illegal movement of wildlife products across boundaries.

iii) Inter-governmental organisations

ZPWMA works closely with sister organizations from neighbouring countries such as Zambia, Mozambique, South Africa and Botswana in wildlife protection, information sharing and lion monitoring through bilateral and regional arrangements (SADC). At international levels, ZPWMA is both the CITES Management Authority and CITES Scientific Authority and works with other countries through CITES and other inter-governmental agreements to control trade in lions and to protect lions. Both the Northwest Matabeleland and the Sebungwe regions fall within the Kavango-Zambezi Transfrontier Conservation Area (KAZA) and involve collaboration in the conservation and management of large carnivores within this framework. ZPWMA is also working with the Convention on Migratory Species and their African Carnivore Initiative that seeks to establish a task force to examine the illegal trade in carnivore products.

iv) Non-governmental organizations

Both local and international organizations partner with ZPWMA in lion management. They mobilize resources for protection, research and monitoring, and assist directly with lion monitoring and research programmes, information sharing, and advocacy.

v) Private sector

The corporate community participates in managing lions mainly through resource mobilization. Safari operators report poaching and assist in anti-poaching patrols. Through lease and trophy fees they

provide revenue to ZPWMA. They help develop infrastructure, provide funds to communities and supplement diets with meat from trophy animals.

Zimbabwe subscribes to the principle of sustainable utilisation of wildlife resources including the sport hunting of lions whereby offtakes are adaptively managed and monitored through a participatory and science-based process.

vi) Local Communities

Local communities are involved in lion management in CAMPFIRE areas, through sharing information, advocacy and wildlife protection. They report incidents of human-lion conflict and in some areas are actively engaged in "Lion Guardian" activities to minimise impacts of lions on their livestock.

1.3.2 Funding and resource mobilisation

Adequate and sustainable funding and provision of other resources are important to effective protection of lions. Resources are mobilized from within ZPWMA, by the private sector, and by intergovernmental and non-governmental organizations. Partnerships between ZPWMA and other stakeholders are some of the innovative measures being developed to secure funding for lion conservation. There may be a need for the Government to provide additional support to the conservation of lions and their prey base, particularly given the current levels bushmeat and commercial poaching, and anti-hunting sentiment in North America and Europe.

1.3.3 Coordination

i) ZPWMA

ZPWMA takes the lead in coordinating other institutions in lion conservation activities in the country. It will convene and chair the proposed Lion Management Committee meetings. Similar meeting are scheduled for rhinos and elephants and the possibility of amalgamating these meetings will be explored.

ii) Lion Coordinator

This Action Plan provides for the appointment of a Lion Coordinator within ZPWMA who will be responsible for coordinating lion conservation and management activities in the country. The Lion Coordinator will liaise with the International Conventions Office in ZPWMA on international matters affecting lion conservation and also liaise with the CAMPFIRE office for matters affecting the conservation of lions in CAMPFIRE districts. The draft Terms of Reference for the Lion Coordinator are provided in Annex 9.7.

iii) Lion Working Group

As reflected in the Proceedings of the June 2019 Workshop a Lion Working Group will be established to work on specific issues relating to lion conservation in the country and to annually to review progress in implementing the Action Plan. The National Committee will document that progress in implementation and any suggested revisions to the Action Plan and make their report available to the Director General of ZPWMA.

The Lion Working Group will meet at least twice in a year to review the implementation of the national plan, each regional plan, and local plans. The Working Group will strengthen links with various bodies at national and regional levels including within the TFCA framework. ZPWMA will convene and chair the Working Group meetings. The draft Terms of Reference for the Lion Working Group are provided in Annex 9.5.

1.3.4 Monitoring and evaluation

Monitoring the implementation of this Action Plan will be done using the Key Performance Indicators contained in Section 4. Monitoring the implementation will be done and reported on by the Lion Coordinator on a quarterly and annual basis. A major evaluation of progress will be done every two years and in 2025. Monitoring and evaluation will be done at each local area level, at the Cluster level, and at the National level.

1.3.5 Links with continental and regional initiatives

This Action Plan recognizes the existence of the East and Southern African Lion Action Plan, the KAZA Carnivore Conservation Strategy (that includes northwest Matabeleland and the Sebungwe), and initiatives that are currently taking place at a continental level, including by the African Union. These include the development of the Common Strategy on Combating Illegal Exploitation and Illegal Trade in Wild Fauna and Flora in Africa. At the SADC level initiatives involve developing a Plan of Action and implementing the SADC Protocol on Wildlife Conservation and Law Enforcement. This Action Plan will be reviewed periodically in the light of developments that are taking place in the SADC Region, Africa and beyond.

1.3.6 Regional strategies within Zimbabwe

The devolution of management oversight to Cluster levels, with more detailed action plans within the national plan, provides the basis for effective adaptive management at regional and local levels. An example of how this might be devolved to the regional level is provided in Annex 1.

1.3.7 Protecting lions for the future

Poaching and the illegal wildlife trade are serious concerns for all lion range states. Although the 2006 Conservation Strategy and Action Plan for Lion in Zimbabwe did not need to prioritise law enforcement, protecting the habitats and prey base for lions, and minimising the loss of lions to an increasing threat of trade in lion body parts, are now an important, if not primary, component of this Action Plan.

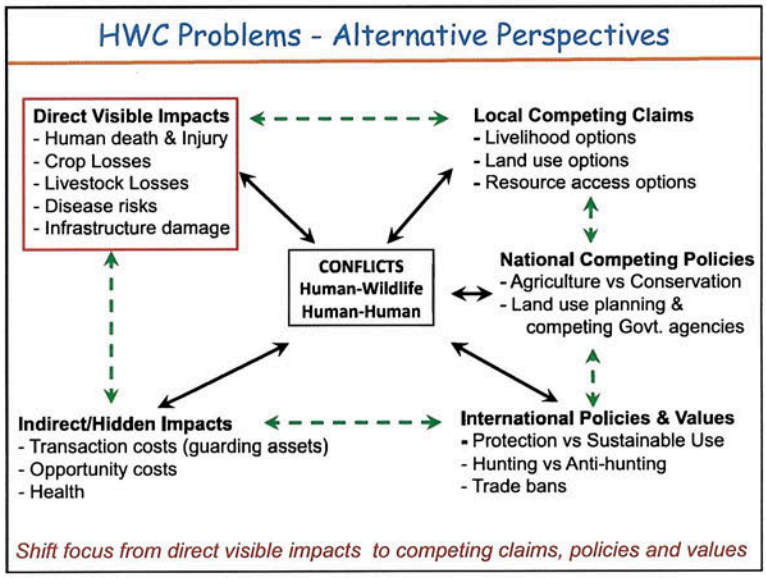
1.3.8 Human lion conflict

As Zimbabwe's human population grows, lions are being restricted to smaller areas and as human populations and settlement increase on the immediate boundaries of protected areas lions are increasingly likely to threaten livestock and occasionally, human lives. As a result, in many rural areas where lions occur in Zimbabwe, human-lion conflicts are likely to increase, creating negative attitudes towards the conservation of lions. These conflicts often occur among the poorest of rural farmers, which complicates the issue in social and economic terms. Unresolved conflicts stimulate poaching or retaliation. Poachers or retaliators can be seen as "local heroes" because they remove, the source of the conflict. A major challenge for lion conservation is keeping human-lion conflicts to a minimum.

Developing a Social, Economic, and Cultural Framework in which lion conservation takes place has been identified as a Key Component of this Action Plan in an effort to address and minimise human-lion conflicts and build an appreciation of the importance of conserving lions.

BOX 1: Towards a Comprehensive Strategy to Reduce Human-Lion Conflict

Conflict between people and wild animals tends to focus on the immediate and direct visible impacts of a wild animal on a person or on his/her belongings, such as domestic livestock or crops or on risks of contacting disease. While it is appropriate to minimise such direct conflicts it is also important to examine the wider circumstances and related issues that involve competing claims, policies, and values that contribute to the problem. The following diagramme provides a summary overview of the issues and complexities involved.



While lions do occasionally attack and injure or kill people, conflict between humans and lions most commonly revolves around the loss of livestock to predation by lions and other large carnivores (Kuiper et al 2015, Loveridge et al 2017). Measures to effectively reduce such losses have recently been developed and include herding practices, the use of predator proof mobile bomas, the positioning of flashing lights to keep predators away, and using vuvazelas (trumpets) to chase them away.

However, attention also needs to be directed to issues relating to land use planning, competing claims and policies, and dealing with international pressures that bear on the conservation, management and sustainable hunting lions, the equitable distribution of benefits that may be derived from lions through tourism.

2. Logic and Structure of the Plan

The strategic framework is based on the Logical Framework structure and the development of clearly stated objectives, outputs and the necessary and sufficient activities (or actions) required to achieve the outputs within a specified time frame. The structure requires a set of key performance indicators that are intended, as far as possible, be SMART, i.e. Specific, Measurable, Achievable, Realistic and Time-bound, and fit the usual requirements of results-based management. The five key components of the plan are:

1. Protection and law enforcement
2. Biological monitoring and management
3. Socio-economic and cultural sustainability
4. Building conservation capacity
5. Coordination, collaboration and programme management

Table 1. Structure of the Lion Strategic Plan

Long-term Vision	The long-term vision of the 2006 plan has been retained the draft and remains applicable to the period of this plan
Targets	The three targets included in the 2006 plan are retained
Key Components	The five key components are the primary themes or headings of the strategy under which the framework is organised. The seven Outputs and Responsibilities of the 2006 plan fall within the five components
Strategic Objectives	The strategic objectives reflect briefly but more explicitly the policy intention for the respective components
Outputs (expected outcomes)	The outputs are statements that reflect the expected results that will be realised during the time frame of the plan. Outputs are therefore expressed in the past tense.
Key Activities (Actions)	Key activities represent the necessary and sufficient actions that need to be completed to achieve the Outputs. They are those that are vital to achieve the Outputs and are those on which the major emphasis should be placed. *National level Activities can be cast as Outputs at sub-regional level, with more detailed and relevant time specific activities, KPIs, and budgets, at that level.*
Key Performance Indicators (KPIs)	The Key Performance Indicators (KPIs) provide a basis on which to measure and monitor the success or otherwise of the Strategic Objectives, Outputs, and Activities.
Means of Verifying the KPIs	It is clearly necessary for the verification and monitoring of KPIs that the manner in which they can be tracked and verified need to be clearly established. Equally important is the need for monitoring protocols to be standardised across local and Cluster levels so that national and sub-regional level KPIs and statistics can be compiled. This will then allow valid comparisons of performance across Clusters and local areas to be made
Implementation Strategy	As outlined in the previous section the ZPWMA will interact and collaborate with a wide range of agencies and stakeholders in the implementation of this plan

The top-level strategic components of the Action Plan encompassing the Long-term Vision, Targets, Key Components, Strategic Objectives and Outputs are summarised on page 17 in Section 3 below. The top-level components of the plan are then followed by a set of tables in Section 3 (page 10) that provide action plans for the expected Outputs (or outcomes) of each the five strategic components of the plan. The Activities and KPIs within these tables are set at a national strategic level. They will be taken up, as appropriate, during the development of Regional Action Plans for each of the four regional elephant populations in the country. **Activities** listed at the national level will, for the most part, form **Outputs** at the regional or local area level. These Outputs will, in turn, generate more detailed regional and local specific activities and actions with specific KPIs and means of verification.

3. Vision, Targets and Key Components

Long-term Vision: *Lions conserved and managed sustainably for their aesthetic, cultural and ecological values and the socio-economic development of Zimbabwe*

Goal: *(Immediate objective or purpose):*
To secure and where possible, restore as many viable free ranging lion populations as possible in Zimbabwe, whilst mitigating their negative impacts and enhancing their value for the benefit of people through sustainable use.

Targets: 1. Ensure the persistence of key/core lion populations and other important populations including those of doubtful viability
2. Human and livestock loss reduced
3. Optimise wildlife conservation-related net benefits to local communities/ landholders
4. Review and enhance ethical sustainable use of lion

Key Components	1. Protection and law enforcement	2. Biological Monitoring and Management	3. Social, Economic and Cultural Framework	4. Building Conservation Capacity	5. Coordination, collaboration and program management
Strategic Objectives	**Objective 1**. Ensuring effective protection of all lion populations in Zimbabwe	**Objective 2.** Implementing effective biological and ecological management to achieve viable populations that are within upper and lower acceptable limits to change in numbers and distribution	**Objective 3.** Implementing strategies that enhance the contribution of lions to livelihoods, protected area management and national pride and development	**Objective 4.** Ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and financing are mobilised, available and used efficiently and effectively for lion conservation	**Objective 5**. Ensuring effective coordination and collaboration with local, national, and international stakeholders to implement these strategic objectives,
Outputs	**Output #1:** Management, security and law enforcement actions to minimise, illegal losses of lions, their prey and their habitats, implemented	**Output #2:** Adaptive, evidence-based management to maintain viability of all lion sub-populations implemented	**Output #3:** Fair distribution of financial benefits from lions improved and tolerance for those living with lions increased	**Output #4:** Sufficient numbers of trained, equipped, motivated and effective personnel are deployed and operational	**Output #5:** Coordination mechanisms to assess and review adaptive lion population management and strategic planning established and operating

4. Action Plans

4.1 Protection and Law Enforcement

Objective: Ensuring effective protection of all lion populations in Zimbabwe
Output: Management, security and law enforcement actions to minimise, illegal losses of lions, their prey and their habitats, implemented
KPI: Illegal killing of lions maintained at less than 5% in all populations and less than 5% of lion habitat encroached by settlement by 2025
MV: National level monitoring data on illegal activity, including trophy hunting, successful convictions, carcass and poisoning records, status and trends of all lions populations, verified data on extent of encroachment, if any, and area of available habitat.
NOTE: Several of the activities listed here are part of the National Elephant Management Plan and lions, and other key species such as rhino, would be included within the purview of the activities indicated by the National Elephant Management Plan (NEMP).

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Ensure full compliance with hunting regulations, guidelines and quotas set and close loopholes in quota setting, quota transfers, and ageing of trophies	All Safari Operators and Professional Hunters complying with hunting regulations and guidelines No incidents of improper changes in quotas No transfers of quotas between hunting areas At least 90% of trophies at or above acceptable age	Records of non-compliance and penalties enforced Records of any changes in quotas and transfers Annual assessment of lion trophies	Immediate and ongoing	ZPWMA
2. For each key population establish a highly trained rapid response anti-poaching unit for deployment to areas under threat *(NEMP)*	1. An equipped rapid response unit established and operating jointly with ZRP in each region by June 2020.	Inception report for each unit Monthly reports of operation from each unit Number of joint operations	By June 2016	ZPWMA / ZRP DG, DDGCon, CMs
3. Appropriate informer systems established and supported at national, regional, national and local levels *(NEMP)*	1. An active informer system/network operating within each region at both regional and local levels by Jan. 2020 2. National level informer system targeting middle men and higher crime syndicates operating by Jan. 2020	Operational reports Records of arrests and successful prosecutions resulting from informer reports Records of payments for information	By January 2020	DG, ISM, CMs

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
4. Improve investigation and prosecution of crimes through collection and preservation of evidence, ballistics, and poison (policy, analysis and guidelines) evidence, professional prosecution of cases, provide information to legal profession *(NEMP)*	1. At least two of law enforcement staff trained in scene of crime collection and preservation of evidence, ballistics evidence, etc. in each area/station level 2. Percentage of investigations resulting in successful prosecutions from each region greater than in 2019 3. Monthly liaison sessions on wildlife crime and law enforcement held with members of the judiciary	Staff training records Monthly reports Court records Minutes of meetings with judiciary (prosecutors and magistrates)	Immediate and ongoing	ISM, CMs, AMs
5. Set up and maintain national and local intelligence databases and promote the use of SMART *(NEMP)*	1. National, regional and local databases recording and analysing illegal activity (nature, time and locality of activity and profiles of those involved if known) – using SMART	Inspection of operating SMART databases	Immediate and ongoing	ISM, CMs, AMs
6. Enhance international and transboundary collaboration in law enforcement *(NEMP)*	1. Quarterly meetings on law enforcement collaboration and activities between law enforcement agencies of neighbouring countries established at regional / transboundary park level by Mar. 2020. Broader collaboration with Interpol, TRAFFIC, and other international law enforcement entities	Minutes of meetings Record of joint cross border law enforcement activities Records of participation in workshops,	Mar. 2020 Immediate and ongoing	DG, CMs, ISM, AMs, TFCA Coordinator
7. Enhance social (community) involvement in law enforcement through incentive schemes and introduction of hotlines and toll-free lines for reporting wildlife crime *(NEMP)*	1. Incentive schemes (see Section 4.3) that encourage the public and members of rural communities to contribute to law enforcement (e.g. through informer hotline) established in each region 2. Larger number of incidents of community contribution to law enforcement (e.g. whistle blowers) by Dec. 2020 3. Number of hotlines established and assessment of their performance	Record and analysis of operating incentive schemes and hotline reports Record and analysis of performance of hotlines	Immediate and ongoing	CMs and AMs
8. Remove/Eliminate illegal settlement and their impacts in all wildlife areas *(NEMP)*	Illegal settlements reduced to less than 5% of wildlife areas by 2024 (i.e. state and community protected areas)	Records and maps of illegal settlements and of wildlife land recovered	Ongoing to 2024	DG, AMs, CE, CAMPFIRE Assoc., RDCs
9. Review, amend and enforce a full set of statutory regulations for hunting lions on park boundaries	Revised statutory instruments and guidelines completed and enforced by March 2020			

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
10. Establish an online database under ZPWMA to monitor all aspects of carnivore hunting	Online database operational and in use by Dec. 2019	Inspection of working database with up to date records.	By Dec 2019	DG, DDGCon, LC
11. Improve protection of lion prey base and revise/enforce regulations on the use of snares	Update regulations on the use of snares in place by June 2020 and being implemented by law enforcement agencies and judiciary	Copy of updated regulations and court case evidence of their use	By June 2020	ISM
12. Collect and submit tissue samples for genetic and isotopic analysis	Tissue samples collected and submitted for analysis with immediate effect	Record of tissue sampled collected and results of analysis	Immediate and ongoing	LC, CE

An example of a National level **Activity** being used as an **Output** at the regional level is provided below for Activity #4 from the table above. This provides the basis a national strategic activity to be defined more specifically to suit the local situation and in much greater detail at this level than is appropriate in the national Action Plan.

LAW ENFORCEMENT (at REGIONAL or LOCAL LEVEL)						
Output	**Activities**	**Key Performance Indicators**	**Means of Verification**	**Time Frame**	**Indicative Costs**	**Lead agency**
4. Appropriate Informer network, Investigation and Intelligence system strengthened	1. Recruit informers and contacts 2. Maintain hotline for whistle-blowers 3. Procurement of two vehicles and two motor bikes . Recruit and train investigators (6) and deploy strategically . Constant liaison with informers . Standardise rewards to informers	1. Number of arrests and successful convictions based on information from intelligence system 2. Number of incursions reported on/reacted to by local communities 3. Number of reports per informer leading to arrests and convictions	Validation of informer record Records and reports of training sessions Whistle-blower reports	Within one year and then ongoing	Vehicles Reward payments Telecommunications equipment Vehicle maintenance and fuel	ZPWMA

4.2 Biological Monitoring and Management

Objective: Implementing effective biological and ecological management to achieve viable populations that are within upper and lower acceptable limits to change in numbers and distribution
Output: Research, monitoring and adaptive, evidence-based management to maintain viability of all lion sub-populations implemented
KPIs: Lion populations within each sub-region are genetically and demographically viable and within the preferred upper and lower limits in 2024
MV: Results on population trends from agreed national monitoring plan and analyses of changes in population structure and viability,

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Monitor trends in all lion populations in accordance with a national monitoring plan	National lion monitoring plan developed and in place by March 2020 and in use in at least two areas by June 2020	1. Survey and patrol reports 2. Completed survey results for areas in which surveys took place	Monitoring plan by Mar 2020 and used by Jun 2020	DG, LC, CE, CMs, AMs
2. Use research findings, expert opinion and informed public opinion to establish ***thresholds of potential concern*** (TPCs) and associated indicators to initiate management action in respect of changing trends in lion populations, other large carnivores, and their prey	Thresholds of potential concern (TPCs) established for at least four key areas / habitats and selected indicators of change monitored every two years	Documented TPCs by Dec 2020 and their use in the selected areas by Dec 2022	By Dec 2020	LC, CE and CMs, and Conservancies
3. Carry out appropriate management actions when lion populations pass, or are projected to pass, TPCs	Management actions taken in relation to TPCs being passed (i.e. above or below threshold). (e.g. capture and translocation, changing hunting quotas, hunting moratorium)	Records of management actions considered, actions taken and results	Ongoing	DG, DDGCon, LC, CE, Conservancies
5. Monitor trophy quality and adjust quotas to minimise adverse impacts on lion population viability	1. Database and field recording protocols and forms established and operating by Dec. 2020 2. Annual analysis of trophies taken as % of quota, and trend in trophy quality and ages of trophies	Consolidated annual records of trophies taken Annual report of trophy quality by region for quota setting workshop	Dec. 2020, then annual and ongoing	DC, CE, CMs, SOAZ, ZPHGAZ, CAMPFIRE

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
6. Define current lion range and explore options for extending range, and recovery of lions, and maintaining connectivity between fragmented populations	1. Map of current lion range based on survey results and other information available by Oct 2020 2. Estimates every two years of range expansion / contraction for each region based on all available information 3. Use and effectiveness of corridors assessed from ground sightings and reports, movements of satellite collared animals	Current estimate of lion range and subsequent bi-annual estimates and associated maps Reports on lion locations in database from ground sightings, spoor transects, citizen science reports, satellite collar records.	Initial map by Dec. 2020 Immediate and assessments every 2 years	DC, CE, CMs, AMs in conjunction with SOAZ, ZPHGA and CAMPFIRE Association
7. Reporting to international monitoring systems (e.g. CITES, CMS)	Timely reports submitted as required with copies to regional and national levels	Copies of reports lodged at regional and national levels	Annual or as required by international obligations	DDGCon
8. Recognising the sensitivity of lion population dynamics to interventions (legal and illegal), use modelling to explore potential outcomes of alternative management strategies (e.g. Management Strategy Evaluation – MSE, including the extension and connectivity between lion populations in Zimbabwe and neighbouring countries	Number of instances in which models were used to project alternative outcomes of lion management actions and policies Potential use of MSE explored by June 2020 and if appropriate introduced in Dec 2020	Management and associated modelling reports	Ongoing	CE, Researchers and Stakeholders
9. Develop a Citizen Science program	Platform and database for citizens to submit records of carnivore sightings and photos in place and being used	Records in Citizen Science database	Immediate and ongoing	LC and Lion Working Group
10. Develop specific lion management plans for each population and review these at annual meetings and workshops	1. Specific lion management plans for each population in place by June 2020 2. Priority areas in which lion populations may be recovered identified and management plans developed and actioned by June 2020	Area specific lion management plans		LC and Lion Working Group
11. Enhance the prey base for lions				

4.3 Social, Economic and Cultural Framework

Objective: Implementing strategies that enhance the contribution of lions to livelihoods, protected area management and national pride and development
Output: Fair distribution of financial benefits from lions improved and tolerance for those living with lions increased
KPIs: 1. Annual assessment of lion derived benefits reveals that they are increasingly being dispersed more equitably between deserving stakeholders and the contribution to national development is assessed. 2. Trends in number of incidents of human-lion conflict decline annually
MV: Report on the annual assessment of the distribution of revenues from consumptive and non-consumptive use of lions of lions and record and annual analyses of Human-Lion Conflict incidents.

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Provide incentives and promote partnerships and joint venture opportunities to strengthen lion conservation, including across land use boundaries	1. Policy instruments that demonstrate and establish incentives to conserve elephants 2. Improved levels and growing trends of private and community investment in lion conservation measures 3. Number of poaching incidents/number of arrests based on prior information and leads from communities / land holders	Documented policies and list of operating partnerships / joint ventures that promote lion conservation and management Record of investments in lion conservation measures assembled by lion coordinator		DG, CA, RDCs, Private sector
2. Explore full range of Public-Private-Community Partnership to enhance management of both public and private protected areas	A full analysis of partnership options completed by June 2020 Development of policies for implementation	Report on options for PPCPs for public and private protected areas Policy documents	Analysis of options by June 2020 and ongoing policy development	DG, DDGCon, LC, Lion Working Group
2. Explore additional ethical lion-based tourism and sustainable utilization opportunities	Higher number of lion-based tourism and / or sustainable use projects established (e.g. PPCPs)	Record of projects initiated and their success rates	Ongoing	DG, CA, LC, RDCs, Private sector
3. Facilitate the transparent distribution of the benefits and costs of lion conservation and management	Policy instruments adopted that result in more transparent and equitable benefit distribution than benchmark assessed in 2019	Benchmark data and annual record of extent and distribution of lion derived benefits (revenue, development projects, products received by beneficiaries) and costs of lion conservation	Ongoing	DG, CA, LC, RDCs, Private sector

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
4. Implement effective techniques and land use strategies, and protocols to mitigate human-lion conflict: - Integrated land use planning - Education and awareness - Accountable incident reporting, data collection and analysis - Community driven tactical interventions. - Social security, tolerance funds, payments for Ecosystem Services	1. Higher levels of investment (funds and manpower) provided for mitigating human lion conflict by ZPWMA, communities and partners 2. Protocols for land use and HLC developed and implemented by June 2020 3. Declining trends in incidents of HLC 4. Lion distribution extended in community-based conservation areas by 2024	Records of human-lion conflict incidents (in HLC Database) Research report on strategies and protocols to develop wildlife-based land use system and mitigate HLC Records of lion distribution	Protocols developed by June 2020 and ongoing Research report by Dec. 2020	DG, LC CA, RDCs, Traditional Leaders, Private sector
6. Include information on lions and their conservation in school curricula and promote environmental education in rural areas adjacent to key lion populations	1. Number and quality of lion information packages developed and delivered to schools 2. Proportion of schools in, or neighbouring, lion areas receiving and using information on elephants	1. Information packages developed 2. Reports of delivery and use of lion conservation information packages	By June 2020 and Ongoing	ZPWMA Extension and Interpretation, NGOs, Ministry of Education
7. Develop and implement an effective communication strategy for local, regional and international audiences	Information strategy developed and launched by June 2016	Information strategy document	By June 2020 and ongoing	DG, PRM
8. Review and implement policy on captive lions	Review completed by July 2020 and updated policy completed by Dec 2020	Report and policy documents	By Dec 2020	DG, DDGCon, LC
9. Review the impact of policy disincentives (e.g. SI 26, investment policies) on the conservation of large carnivores and their contribution to national development	Review completed by March 2020	Review report	By Jun 2020	DG, LC, Consultant
10. Promote/publicise positive examples of best practice in lion conservation and management	Number of examples publicised	Record of articles publicised	Ongoing	ZPWMA

4.4 Building Conservation Capacity

Objective: Ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and financing are mobilised, available and used efficiently and effectively for lion conservation

Output: Sufficient numbers of trained, equipped, motivated and effective personnel are deployed and operational

KPI: Law enforcement, monitoring and research staff are trained equipped and deployed at levels that enable them to implement this action plan as specified in the previous three components

MV: KPIs for Components 1, 2, 3, and 5 are being met, individual staff training records, equipment registers, vehicle and staff deployments for lion conservation.

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Analyse current lion conservation capacity in ZPWMA, Forestry Commission, NGOs and Private Sector, and identify needs	Capacity assessment and needs report completed by June 2020	Capacity assessment report	By June 2020	ZPWMA, LWG
2. Secure funding to support the implementation of the lion conservation and management strategy	1. Funds and allocated budget for lion conservation meet annual requirements for effective conservation as measured by KPIs for activities 3-8 below and those of Components 1, 2, and 3 2. More than 75% of revenue derived from lion channelled into lion conservation and management	Record of funds available (USD) and investment by ZPWMA, Private sector, NGOS, and CAMPFIRE in lion conservation measures (Compiled annually by Lion Coordinator)	Ongoing	DG, LC
3. Establish sustainable funding programs to build and maintain necessary human resources to meet lion conservation objectives	1. Manpower density for protection of lions (No. of km^2/operational field person) 2. Level of effective deployment of field staff (e.g. record % of available man days spent on patrol in the field - see example of records envisaged under Section 8 Notes on monitoring, page 25)	Consolidated record of number of field personnel and days operational (law enforcement, research and monitoring, elephant management) for each area in the lion range compiled and reported on at annual planning meetings Records of vehicle months, VHF radio operation, fully functional stations, operating research facilities, compiled and consolidated at station, area and regional levels and reported on to the Lion Management Committees bi-annually	By June 2020 Immediate action for some key areas (e.g. Sebungwe and Zambezi Valley) and by June 2020 for all regions	DG, DDGCon, CM, LC

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
4. Initiate and/or maintain continuity in research and monitoring necessary for the conservation and adaptive management of lions and their prey	1. Number of research programs 2. Research-person days spent on monitoring / assessing lion populations in relation to TPCs 3. Research person days spent on monitoring lion population parameters in each population/region	Research reports and papers on lion conservation and management	Ongoing	DDGCon, CE, LC
5. Strengthen research capacity in ZPWMA and collaborate with other research institutions	1. Number of researchers (internal and external), budgets, equipment, vehicles, and active research programmes increased by more than 25% by Jul 2020 and 50% by July 2021	Staff register, budget allocations, Asset register, research permits issued, MOUs with collaborators, reports and published papers on lion conservation and management	Immediate and ongoing through 2019 and 2024	DDGCon, CE, LC
6. Establish training and in-service retraining of personnel in law enforcement, research and monitoring, education and awareness, community lion management, etc.	Increased levels (50 to 100%?) compared to July 2019 levels in: 1. Number of training days and programmes initiated 2. Number of staff trained (rangers, ecologists, extension officers) 3. Number of communities trained and implementing elephant management programmes 4. Number of lion conservation campaigns conducted	Record of staff training and re-training in staff files and annual summary report of training Record of communities trained Record of training programmes	Immediate and ongoing through to 2024	DDGCon, CE, LC, HRM
7. Strive to achieve best standards for lion management and hunting	1. Best standards for lion management in Zimbabwe, based on international standards, drafted and distributed to all practitioners	Record of best practices complied with/ not complied with	By June 2020 and ongoing	DG, DDGCon, CE, LC, HMS
8. Engage available external expertise	1. Number of expert driven decisions made from Consultations 2. Number of collaborative and outsourced projects with external experts	Reports and record of collaboration with external experts	Ongoing	CE, LC
9. Establish effective reporting procedures that enable capture/consolidation of data from field to Head Office levels	Implement SMART and/ equivalent effective data capture and management systems	Data base	Ongoing 2020-2025	ZPWMA

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
10. Promote an enabling environment for wildlife research in Zimbabwe	Review current policy, procedures and fees for research permits to increase ease of doing research in Parks and Wildlife Estate and other wildlife areas by August 2020	Review report and policy developed	By Aug 2020	ZPWMA/Research Council of Zimbabwe
11. Implement scene of crime training, including dealing with poisoned animals	At least two staff members per Area trained and available to attend to and record crime scenes	Staff training record and deployment, and reports from field stations	Ongoing	ZPWMA
12. Introduce training in the use of SMART	SMART introduced and operational from all field stations	Input to the central SMART Database	Ongoing	ZPWMA

4.5 Coordination, Collaboration and Programme Management

Objective: Ensuring effective coordination and collaboration with local, national, and international stakeholders to implement these strategic objectives
Output: Coordination mechanisms to assess and review adaptive lion population management and strategic planning established and operating
KPI: National Lion Coordinator appointed, national Lion Working Group established and active, regional lion conservation committees with appropriate stakeholder membership and participation appointed and active, and an information dissemination programme operational
MV: Lion Coordinator's quarterly report, minutes of meetings, and records of completed planned actions/activities, record of Lion Working Group meetings and activities.

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Establish a national lion conservation & management steering/implementing committee that includes stakeholder meetings at least bi-annually to review progress and to develop an annual implementation plan	1. National committee functional and meeting once a year (or more if required) 2. Committee meeting minutes, with actionable points approved, circulated within one month of meetings 3. Number of resolutions/action points, acted upon	Record of meetings, minutes, actions approved and completed	Immediate with first meeting by 30th Dec 2019	DDGCon, CE, LC
2. Strengthen links with neighbouring states to confer on the management of shared lion populations, particularly in relation to TFCA populations	1. Consultative meetings held with neighbouring states on shared lion populations at least twice each year 2. Joint cross border projects initiated and completed	Record of attendance at and reporting to regional and international elephant conservation bodies of which Zimbabwe is a member Record of project initiated/completed	Ongoing and projects initiated in 2020	DG, DDGCon, CE, TFCA Coordinator
4. Establish a full-time lion position to be responsible for coordinating the implementation of the lion conservation strategy	1. Lion Coordinator appointed with full terms of reference 2. Monthly reports from Lion Coordinator on implementation	Elephant manager's contract and date of appointment Record of reports by the person in the elephant management position	Immediate and by November 2020	DG
5. Strengthen coordination between the hunting industry and the lion conservation strategy and action plan	1. Regular meetings and a workshops convened with the hunting industry on hunting and lion management issues 2. Key issues resolved by June 2020	Record of meeting and workshop proceedings Record of lion hunting issues resolved	Immediate and ongoing	DDGCon, LC

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
6. Establish and implement an effective information dissemination and communication strategy, including regular progress reports on the implementation of the strategy	1. Outreach programmes conducted 2. Information packages produced on lion conservation 3. Research papers published	Reports, brochures, flyers, web site Published papers	Ongoing	ZPWMA, (PRM, CE)
7. Establish reporting procedures/protocols to achieve communication between all stakeholders	A communication platform in place and operating effectively	Reports received and disseminated to stakeholder	By March 2020	LC, Lion Working Group

5. Notes on Monitoring

Monitoring of a wide range of activities and actions will necessarily form an important, if not vital, component in the implementation of the action plans. It will require careful thought as to precisely what should be monitored and in the design of the recording protocols and forms that will be used. Ideally records should in a form that can be aggregated from field to head office level to provide local, regional and national level statistics of progress in lion conservation and management. The following table (adapted from the Zimbabwe rhino policy and management framework 2011-2016) provides an example of the data that needs to be compiled for each population to gauge progress in population status, performance and law enforcement.

SEE NOTES BELOW						
	Name of person completing this data form					
	Date on which this data from was completed					
	Name of area covered					
	Size of area in km²					
	YEAR	2020	2021	2022	2023	2024
	Date of population estimate					
	Lion population estimate (number) (as per National Monitoring Plan)					
	No of natural mortalities					
	No killed illegally					
	No killed on PAC					
	No killed on trophy hunts					
	No of carcasses found that died in previous years					
	Total mortalities					
1	No of lion poaching incursions/attempts detected					
	No of incursions/poaching attempts intercepted					
	Lion poachers arrested during the year					
	- How many were given bail					
	- How many were given jail sentences					
2	- Of these how many received mandatory sentences					
	Number of poachers killed during the year					
	Number of firearms recovered from poachers					
3	Total man-days spent on patrol					
4	Average number of staff available to patrol at any one time					
5	Total number of vehicle months available during the year					
6	% of the area that has secure HF radio communications					
7	% of the year that that the VHF system was functional					
8	Number of incursions reported on / reacted to by local community					
9	Hunting regulations infringements					

NOTES:

1	These are incursions into the area by poachers clearly intending to use firearms, poison, heavy snares, etc to kill elephants, rhinos, lions, or attempted incursions that were intercepted before they took place
2	Mandatory sentences for elephant / rhino / lion poachers or dealers are 9 years for first offence and 11 years on second
3	This is actual patrolling effort expressed in patrol man-days carried out per year (not total staff x 365 days)
4	This is the average number of men (including deployments from other areas) in the field at any one time
5	Each vehicle available for law enforcement operations should be multiplied by the number of months it was available for field operations
6	e.g. if only three-quarters of the area has VHF radio reception then this figure will be 75
7	e.g. if the VHF radio system was only functional for 3 months of the year then this figure would be 25
8	Refers to the number of times the local community (not paid informers) volunteered information on actual or potential incursions of elephant/rhino/lion poachers, and/or freely provided information/help leading to interception/ arrests
9	Refers to infringements of the regulations by safari operators/hunters/guides (e.g. shooting underage trophies, exceeding quotas, transfers of quotas from other areas, hunting from vehicles, baiting and hunting on park boundaries, etc.

Note that data required for items 3-9, are those that would be required for an assessment of law enforcement across the parks and wildlife estate and are part of the monitoring and reporting required under the rhino and elephant management plans.

6. Concluding Comment

This is an ambitious plan that mirrors many of the components that form part of the rhino and elephant conservation and management plans. All of these action plans involve overlapping activities, particularly in law enforcement, social, economic and cultural frameworks and in capacity building. There is thus a need to find ways of bringing these efforts together in a coordinated manner that will work at all levels, from national, to cluster, to local areas. This may entail appointing staff to specifically drive and coordinate the implementation of the suite of species-specific action plans at each level.

Establishing and maintain a Lion Working Group holds the promise of being able to draw on a wider range of scientific and technical expertise to assist ZPWMA in the implementation of this action plan and it will be important to nurture the voluntary input that this entails.

7. References

Cleaveland, S., Appel, M. G. J., Chalmers, W. S. K., Chillingworth, C., Kaare, M., & Dye, C. (2000). Serological and demographic evidence for domestic dogs as a source of canine distemper virus infection for Serengeti wildlife. *Veterinary Microbiology*, *72*(3), 217–227. doi: 10.1016/S0378-1135(99)00207-2

Cushman, S. A., Elliot, N. B., Bauer, D., Kesch, K., Bahaa-el-din, L., Bothwell, H., Flyman, M., Mtare, G., MacDonald, D.W. & Loveridge, A. J. (2018). Prioritizing core areas, corridors and conflict hotspots for lion conservation in southern Africa. *PLOS ONE*, *13*(7), e0196213. doi: 10.1371/journal.pone.0196213

Creel, S., Matandiko, W., Schuette, P., Rosenblatt, E., Sanguinetti, C., Banda, K., … Becker, M. (2018). Changes in African large carnivore diets over the past half-century reveal the loss of large prey. *Journal of Applied Ecology*, *55*(6), 2908–2916. doi: 10.1111/1365-2664.13227

Cumming, D. H. M. and Lynam, T. J. P. (1997). Land use changes, wildlife conservation and utilisation, and the sustainability of agro-ecosystems in the Zambezi Valley: Final technical report. Volume 1, 138pp. European Union Contract B7-5040/93/06. WWF Programme Office, Harare.

Davidson, Z., Valeix, M., Loveridge, A. J., Madzikanda, H., & Macdonald, D. W. (2011). Socio-spatial behaviour of an African lion population following perturbation by sport hunting. *Biological Conservation*, *144*(1), 114–121. doi: 10.1016/j.biocon.2010.08.005

Dures, S. G., Carbone, C., Loveridge, A. J., Maude, G., Midlane, N., Aschenborn, O., & Gottelli, D. (2019). A century of decline: Loss of genetic diversity in a southern African lion-conservation stronghold. *Diversity and Distributions*, *25*(6), 870–879. doi: 10.1111/ddi.12905

Funston, P. J., Groom, R. J., & Lindsey, P. A. (2013). Insights into the Management of Large Carnivores for Profitable Wildlife-Based Land Uses in African Savannas. *PLOS ONE*, *8*(3), e59044. doi: 10.1371/journal.pone.0059044

Hayward, M. W., & Kerley, G. I. H. (2005). Prey preferences of the lion (Panthera leo). *Journal of Zoology*, *267*, 309-322.

Hatton, I. A., McCann, K. S., Fryxell, J. M., Davies, T. J., Smerlak, M., Sinclair, A. R. E., & Loreau, M. (2015). The predator-prey power law: Biomass scaling across terrestrial and aquatic biomes. *Science*, *349*(6252), aac6284. doi: 10.1126/science.aac6284

Kuiper, T. R., Loveridge, A. J., Parker, D. M., Johnson, P. J., Hunt, J. E., Stapelkamp, B., Sibanda, L. & Macdonald, D. W. (2015). Seasonal herding practices influence predation on domestic stock by African lions along a protected area boundary. *Biological Conservation*, *191*, 546–554. doi: 10.1016/j.biocon.2015.08.012

Lichtenfeld, L. L., Trout, C., & Kisimir, E. L. (2014). Evidence-based conservation: predator-proof bomas protect livestock and lions. *Biodiversity and Conservation*, *24*(3), 483–491. doi: 10.1007/s10531-014-0828-x

Lindsey, P. A., Petracca, L. S., Funston, P. J., Bauer, H., Dickman, A., Everatt, K., … Hunter, L. T. B. (2017). The performance of African protected areas for lions and their prey. *Biological Conservation*, *209*, 137–149. doi: 10.1016/j.biocon.2017.01.011

Loveridge, A. J., Kuiper, T., Parry, R. H., Sibanda, L., Hunt, J. H., Stapelkamp, B., Sebele, L. & Macdonald, D. W. (2017). Bells, bomas and beefsteak: complex patterns of human-predator conflict at the wildlife-agropastoral interface in Zimbabwe. *PeerJ*, *5*, e2898. doi: 10.7717/peerj.2898

Loveridge, A. J., Searle, A. W., Murindagomo, F., & Macdonald, D. W. (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.

Rosenblatt, E., Becker, M. S., Creel, S., Droge, E., Mweetwa, T., Schuette, P. A., … Mwape, H. (2014). Detecting declines of apex carnivores and evaluating their causes: An example with Zambian lions. *Biological Conservation*, *180*, 176–186. doi: 10.1016/j.biocon.2014.10.006

Vucetich, J. A., Burnham, D., Johnson, P. J., Loveridge, A. J., Nelson, M. P., Bruskotter, J. T., & Macdonald, D. W. (2019). The value of argument analysis for understanding ethical considerations pertaining to

trophy hunting and lion conservation. *Biological Conservation*, *235*, 260–272. doi: 10.1016/j.biocon.2019.04.012

Whitman, K., Starfield, A. M., Quadling, H. S., & Packer, C. 2004). Sustainable trophy hunting of African lions. *Nature*, *428*(6979), 175–178. doi: 10.1038/nature02395

Williams, V. L., Loveridge, A. J., Newton, D. J., & Macdonald, D. W. (2017). Questionnaire survey of the pan-African trade in lion body parts. *PLOS ONE*, *12*(10), e0187060. doi: 10.1371/journal.pone.0187060

ZPWMA Lion NDF (2016)

8. ANNEXES

8.1 Terms of Reference for National Elephant and Lion Conservation Committee

Function: To annually review the National Lion Conservation and Strategy and Action Plan and progress in implementing the Action Plan; to review budget and policy decisions by the Lion Coordinator; to provide guidance to the Ministry of Environment, Tourism and Hospitality, and the Parks and Wildlife Management Authority on matters relating to the conservation and management of lions in Zimbabwe.

Role of Individual Group Members: The role of the individual members includes:

- Understanding the strategic implications and outcomes of initiatives being pursued through the Action Plan Outputs;
- Appreciating the significance of the Action Plan's implementation for major stakeholders and for the future of lion conservation;
- Being committed to and actively involved in, implementing the most efficient and effective Action Plan;
- Being willing to suggest changes to the Action Plan or any regional/local action plan to achieve efficiency and effectiveness.

Duties: The Committees primary responsibilities include:

- Agreeing and recommending on major technical decisions concerned with elephant and lion conservation and management;
- Developing recommendations on policy issues when appropriate;
- Overseeing the monitoring and implementation of the Action Plans;
- Advising the PWMA and the Elephant and Lion Coordinators on sourcing of funds;
- Monitoring funding, expenditure and effectiveness.

Composition: The members of the National Elephant and Lion Conservation Committee:

- Director ZPWMA (Chair);
- Elephant and Lion Coordinators (Secretarial);
- Representatives of ZPWMA, Ministry, CAMPFIRE, ZRP;
- Technical advisors
- Private sector, Wildlife Industry, and NGOs representatives

Time Frame: The Committee will meet at least once a year and can be called upon to meet more frequently as the need arises.

Minutes and Meeting Papers: The Coordinator(s) will record Minutes. Minutes will be circulated within one month of Committee meetings. The Coordinator(s) will keep a record of resolutions and action points up to date.

Recommended actions may be tabled without a meeting by a signed unanimous consent circulated, compiled, and maintained by the respective Coordinators.

Quorum Requirements: A quorum exists when [75%] of the Committee members are present.

8.2 Terms of Reference for the Lion Working Group

The function of the Lion Working Group will be to provide scientific and technical advice and guidance to the implementation of the National Lion Conservation Strategy and Action Plan and

- To meet and discuss priority lion conservation issues
- To review lion trophy hunting and provide recommendations to improve the sustainability and ethical practice of trophy hunting
- To make recommendations on captures and translocation and assist in the development of protocols to guide capture and translocation of lions
- To identify areas for lion recovery and connectivity and make appropriate recommendations
- To assist with recommendations on areas of excess and depleted lion populations
- To identify and help develop appropriate methods for problem animal management
- To assist in developing reports for international conventions and position statement with regard to lion conservation for the country

8.3 Terms of Reference for the Lion Coordinator

Function: To coordinate lion management in Zimbabwe; to work with stakeholders including the National and Regional Committees, ZPWMA, communities, private landowners, safari operators, and researchers

Duties: The Lion Coordinator's duties include:

- Coordinating major technical decisions concerned with lion conservation and management;
- Developing and implementing agreed lion policy;
- Ensuring the successful implementation of all required actions;
- Advising the Elephant and Lion Conservation Committee;
- Liaising with stakeholders;
- Collecting, collating and disseminating required reports under the Action Plan;

APPLICANT:

BLAZE BARTLING

OPERATOR ENHANCEMENT REPORT

ANNEX I OPERATOR ENHANCEMENT QUESTIONAIRE

Operator Information

a. Name of Area Operator: _Vexford Safaris_____
b. Years in business: _____11_____
c. Name of company conducting hunt: ____Vexford Safaris_____
d. Country: _____Zimbabwe_____ Concession

a. Name of Concession: _____Matetsi Unit 3_____
b. Area in km^2: _____355_____
c. Land tenure:
   _x___ Government Lease
   _____ Community
   _____ Private Ranch
   _____ Private Conservancy
d. Length of concession agreement:_____10 years_____
e. Can the concession be renewed? _____Yes_____
f. Length of renewal, if applicable: ____5_____
g. Estimated trophy fees: _____$350 000_____
h. Are there are special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed: _____No_____
   _____
i. Provide concession location and nearest city: ___ Matetsi Safari Area and _Victoria Falls Town_____
j. Please attach a map or maps with marked boundaries and nearest city
k. If the concession borders a National Park, provide park name: __Hwange National Park_____
l. Describe general and distinctive habitat/water features:

Matetsi Unit 3 is dominated by open Mopane woodland on basalt soils, stands of teak woodland on Kalahari sand, Combretum, mixed miombo and open savanna grassland. The area has numerous natural semi-permanent water sources for wildlife in the form of rivers springs and wet-grassland. These are supplanted by artificial pumped water from solar powered boreholes

_____

Communities in the Concession

a. Are there any communities living in the concession? Yes____ No __x__
b. If so, estimated number of people/villages in the concession: _____
c. Are there communities bordering this concession? Yes ____ No ____
d. If so, estimated number of peoples/villages around the concession: _____n/a_____

Relevant Game Populations in the Concession

Species	Relative Abundance (Dense, Average, or Sparse)	Estimated Population	3-Year Trend (Up, Down, or Stable)	How is it Monitored?
Elephant	Dense	330	x	Aerial counts
Lion	Average	40	X	Camera Trap survey and Spoor
Prey Species (if applicable)				
Other: _____				

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application.
b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports.

Local Community Participation

a. Total employment number: _____10_____
b. Total employment in the off-season:__5_____
c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	3	2	Nil
Trackers	6	6	2
Anti-poaching Scouts/Rangers	n/a		
Other Anti-poaching	n/a		
Cooks/Housekeepers	2	2	1
Community Coordinators			
Managers	1	1	1
Biologists			
Others: _____			

Anti-Poaching Efforts

a. Number of anti-poaching staff: _____23 National Parks Rangers dedicated for law enforcement_____
b. Are patrols conducted during the hunting season, off-season, or both? __Both_____
c. Months patrols are conducted: _____Right through the year_____
d. Number of patrols per month: _____ 270 Extended patrols and 30 local patrols with ad hoc Strategic patrols _____
e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: ____Nil, ZimParks handles the responsiblity_____
f. Description of anti-poaching equipment, vehicles, gear, etc. __4x4 Vehicle for Ranger deployments

g. Do government-sponsored game scouts conduct patrols? _____Yes_____
h. If so, do they have the ability to arrest? _____Yes_____
i. Do you offer rewards to poaching informants leading to arrest? Yes x____ No ____
j. Do you offer rewards to poaching informants upon conviction? Yes_x___ No ____
k. Please describe the operator's anti-poaching expenditures over the past 3 years below:

Type of Expense	Year 1 (__2018___) Spending	Year 2 (__2019___) Spending	Year 3 (_2020____) Spending	Remarks
Scout Salaries				
Equipment				
Vehicles	$20 000	$15 000		
Fuel	$1000	$1 500		
Rewards				
Others:_____	$1500	$2 500	$1000	
Totals				

l. What currency are the expenditures given in? _____USD_____

Anti-Poaching Results

Type	Year 1 (__2018__)	Year 2 (__2019_)	Year 3 (_2020__)	Remarks
Poaching Incidents Discovered		1	1	
Elephant Carcasses Observed			-	
Lion Carcasses Observed			-	
Leopard Carcasses Observed			-	
Ivory Poachers Observed			-	
Bush Meat Poachers Observed			-	
Illegal Logging Observed			2	
Other Poachers Observed			-	
Poachers Convicted			-	
Snares/Traps Collected			-	
Firearms Confiscated			-	
Vehicles Confiscated			-	
Bicycles Confiscated			-	
Boats/Nets Confiscated			-	
Tusks Recovered			1	
Others: _____				

Community Investment

a. Does the company give money or goods/services to local communities? Yes __x__ No ____

b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e. more than required by law)? _____arbitrary basis_____

c. Does the company provide game meat to nearby communities? Yes _x___ No ____

d. If so, estimate the amount/value of meat contributed in the last year and describe that distribution program: _: Around $ 15 000. The meat distribution is done through community leaders who have registers of the inhabitants. Settlement areas are allocated meat on a rotational basis
_____

e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling field during harvest, PAC hunts, insurance programs); please describe. _____
_____ This is mainly the task of ZimParks
_____

f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (____)	Consolation Paid, Year 2 (____)	Consolation Paid, Year 3 (____)	Remarks
Elephant					
Lion					
Leopard					
Other: _____					

g. What currency are the expenditures reported in? _____

h. Describe any community projects paid for by the company:

Product/Service	Spending, Year 1 (__2018__)	Spending, Year 2 (__2019__)	Spending, Year 3 (_2020___)	Remarks
Education (classrooms, offices)	1500	3000		
Education (supplies, fees)				
Health (clinics, offices)				
Health (equipment, salaries)				
Product/Service	**Spending, Year 1 (_2018___)**	**Spending, Year 2 (_2019___)**	**Spending, Year 3 (__2020__)**	**Remarks**
Community Scout Salaries				
Community Anti-Poaching				
Local Government Activities				
Infrastructure Improvements				
Sports Teams Funded	1500	2500		
Construction Materials Donated				
Other: _____				
Other: _____				

TOTALS	$3 000	$5 500		

i. What currency are the expenditures reported in? _____

j. Include receipts and photographs of projects, if available.

Company Clientele

a. How many U.S. clients did the company have in the past 3 years (indicate years), what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	**Lion**	**All Species**
Number of U.S. Clients	Year 1 (____):	Year 1 (____):	Year 1 (2):
	Year 2 (____):	Year 2 (____):	Year 2 (26):
	Year 3 (____):	Year 3 (____):	Year 3 (9):
Percentage of U.S. Clients	Year 1 (____):	Year 1 (____):	Year 1 (16%):
	Year 2 (____):	Year 2 (____):	Year 2 (65%):
	Year 3 (____):	Year 3 (____):	Year 3 (42.8%):
Trophy Fees Paid by U.S. Clients	Year 1 (____):	Year 1 (____):	Year 1 (_$240 000___):
	Year 2 (____):	Year 2 (____):	Year 2 (_$200 000___):
	Year 3 (____):	Year 3 (____):	Year 3 (__$180 000__):

b. Approximate amount/percentage of company's revenue from U.S. clientele: _____90 %_____

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
Bush-craft, Firearm handling and Ballistics, and Ethical hunting standards as well as experience of taking down the big and dangerous game _____
_____

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology, if available): _____
_____

c. Are there hunt return forms that must be reported to officials? If so, please include a copuy of these forms or confirmation of their receipt for the past 3 years.

d.

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology if available):

Sex and trophy requirements for hunted animals

- Old non-breeding male individuals are taken off as trophy animals
- No female lions are hunted or taken as trophy animals

Methodology for Lions and leopards age/sex requirements

Photographs of a hunted trophy animal are taken from different angles of the animal body for later age and trophy quality determination (See attached Leopard and Lion Hunt Return Form)

POINTS SYSTEM FOR ADAPTIVELY MANAGING LION QUOTAS IN ZIMBABWE

The points system used to adaptively manage lion quotas has been developed following similar systems that have been implemented in countries such as Tanzania and northern Mozambique. The lion quotas are set per the age of the lions harvested during the previous hunting season. This adaptive quota management system for lion hunting based on the ages of lions hunted was agreed on in July 2013 in Harare, Zimbabwe, during a meeting hosted Non-Detrimental and Enhancement Finding: Conservation and Management of Lion by the Zimbabwe Parks and Wildlife Management Authority (ZPWMA) and an independent non-governmental conservation organization. The approach adopted by Zimbabwe re cognizes four as opposed to three key age categories as shown in the example below:

Lions are aged by triangulating multiple different aging characteristics, including:

- The degree of facial scarring;
- The teeth colour and degree of wear;
- The mane development (particularly regarding the shape around the ear and the mohawk);
- Through post mortem analysis of the width of the pulp cavity of the second premolar (which becomes narrower with age).

c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years.

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

Hunting in Zimbabwe Matetsi Safari Area is strictly regulated and monitored in line with national hunting laws, regulations and ethics. All hunting activity are monitored to verify that quotas and sex/age restrictions of harvested animals are being met.

The legal and regulation framework applicable to the hunting, conservation and protection of all species includes:

- Parks and Wildlife Act; Chapter 20:14 (1996) as amended in 2001.
- Environmental Management Act; Chapter 20:27.
- Forest Act; Chapter 19:05.
- Statutory Instrument 362 of 1990: Parks and Wildlife (General) Regulations, 1990.
- Statutory Instrument 76 of 1998: Import and Export of Wildlife Products.
- Statutory Instrument 40 of 1994: Parks and Wildlife Act (General) Amendments.
- Statutory Instrument 26 of 1998: Parks & Wildlife Act (General) Amendment.
- Statutory Instrument 92 of 2009: Compensation Values for Wildlife.
- Statutory Instrument 93 of 2009: Compensation Values for Trapping of Animals.
- Trapping of Animals Control Act 20.16.

Further conservation strategies for individual and groups of similar species are available to guide conservation of species of conservation concern. These include the Lion Conservation strategy of 2006 and the National Elephant management Plan (2015-2020) which is reviewed every five years.

Maintenance of the concession

Law enforcement

Local, mobile (vehicle), extended and strategic patrols are conducted by ZPWMA rangers. The rangers use of Spatial Monitoring Reporting Tool (SMART) technology to collect and capture and produce reports on law enforcement

activities which enhances effectiveness and coverage of all concession area. Ranger support in the form of vehicle for deployment enhances timeous response to incursions across the concession which significantly reduce illegal offtake by poachers.

The concession undertakes fire management activities to: manage fuel load, improve habitat heterogeneity, control parasites and stimulate forage production and suppress unplanned veld fires during the dry season. Fire breaks along concession boundaries are carried out by ZPWMA in conjunction with the concession. The concession has an annual target of 50km2 of early block burning, minimum of 50km target of road grading and fire breaks.

Game water management is also a critical are of management given the high elephant numbers. Supplementary artificial game water is provided by means of solar power during the dry season. Care is taken to prevent the unplanned game water provisioning through guidance from Area Ecologist in order to maintain area integrity through limiting impact of high elephant densities during the drought months from surrounding protected area network (parks and forest estates). Veterinary matters such as diseases outbreak are managed and monitored by the ZPWMA Area Veterinary Doctor in conjunction with private wildlife veterinary institutions.

Research

Research in fire and habitat management, animal's survey is done by Area Ecologist and external researchers. The ZPWMA office at Matetsi Safari Area is involved in measuring, monitoring and analyzing trophy quality and offtakes of all hunted animals. This is done to ensure that Safari hunting does not substantially alter natural selection or ecosystem processes. The limited quota, as further limited by age restrictions, ensures that hunting offtakes do not negatively affect natural processes. This age-based policy for lions (Panthera leo) and Panthera pardus (leopard) was adopted in part to mitigate any social or population impacts from limited safari hunting.

Community involvement and out reach

The company support community involvement and outreach initiatives which are spear headed by ZPWMA through its Interpretation and Education Officers. This is done throughout the year. Awareness involve human wildlife conflict mitigation measures as well as co-existence, veld fire effects and management and zoonotic diseases.

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

I declare that the foregoing is true and correct.

X _____

Sign Name and Date

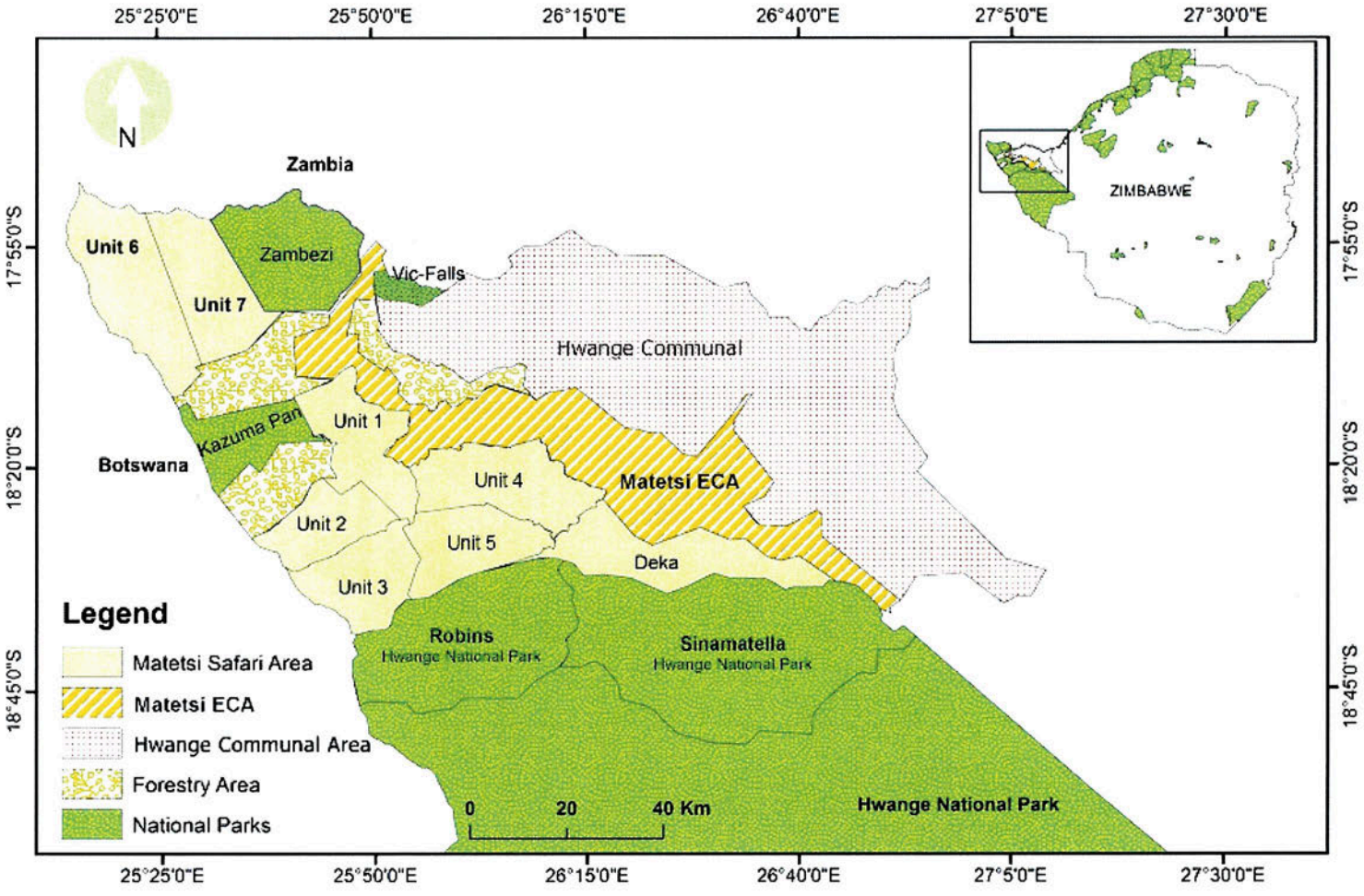
X _____

Print Name and Title

APPLICANT:

BLAZE BARTLING

MAP OF HUNT AREA


25°25'0"E
25°50'0"E
26°15'0"E
26°40'0"E
27°5'0"E
27°30'0"E
17°55'0"S
18°20'0"S
18°45'0"S
N
Zambia
Unit 6
Zambezi
Vic-Falls
Unit 7
Hwange Communal
Kazuma Pan
Unit 1
Botswana
Unit 4
Matetsi ECA
Unit 2
Unit 5
Deka
Unit 3
Robins
Hwange National Park
Sinamatella
Hwange National Park
Hwange National Park
0
20
40 Km
ZIMBABWE
Legend
Matetsi Safari Area
Matetsi ECA
Hwange Communal Area
Forestry Area
National Parks

APPLICANT:
BLAZE BARTLING

THE IMPORTANCE OF HUNTING IN ZIMBABWE

CONSERVATION FORCE

THE IMPORTANCE OF LION HUNTING IN ZIMBABWE

Media outlets are reporting that "Xanda," a six-year-old African lion and the alleged "son" of "Cecil," was recently killed in a lawful tourist hunt in northwestern Zimbabwe. The reports are inconsistent and biased. Most of all, they ignore the critical conservation role that regulated hunting plays in Zimbabwe. The facts below emphasize the importance of licensed, regulated lion hunting as a conservation tool in Zimbabwe and lion range states.

Habitat Security: Regulated hunting in Zimbabwe takes place in government safari areas and forest areas, communal areas in the CAMPFIRE program, and private conservancies. Hunting justifies the protection of nearly five times as much habitat as in National Parks (>130,000 km^2 compared to <28,000 km^2).

Zimbabwe is not alone. Hunting areas are more than five times the size of Tanzania's National Parks, more than 2.8 times the size of Zambia's National Parks, more than 2.5 times the size of South Africa's National and Provincial Parks, and more than 1.5 times the size of Mozambique's National Parks. Hunting mitigates the habitat loss identified as the single greatest threat to large carnivores like lion and leopard. It provides habitat for other game and essential lion prey.

Wildlife Authority Revenue: Regulated hunting contributes significant operating revenues to the wildlife authorities of range states like Zimbabwe. These revenues pay for law enforcement, monitoring, and other conservation activities. Hunting fees in Zimbabwe cover most of the authority's operating expense. Under the current quota, lion fees alone can underwrite the protection of over 18,000 km^2, two-thirds the size of the National Parks. In other African countries, hunting fees make up between 30% and 80% of the wildlife authority's operating budget.

Anti-Poaching: Many hunting operators maintain their own anti-poaching teams to support government enforcement efforts. This spreads the costs of law enforcement between the public and private sectors, and reduces the burden on under-resourced governments. According to a study of 18 hunting operators in Zimbabwe, 26% of company staff were engaged in law enforcement. Similarly, a study of 27 operators in Tanzania found they spent over $6.7 million in anti-poaching from 2013 to 2015 and patrolled more than 7,170 days in that period.

Community Tolerance: Regulated hunting increases the tolerance of rural communities living side-by-side with dangerous game like lion by generating tangible benefits, which improve community livelihoods. The CAMPFIRE program in Zimbabwe devolves control of wildlife on communal lands to rural district councils. These councils contract with safari operators and benefit from the fees paid for lion, elephant, and other hunts. At least 55% of these fees are deposited directly in village bank accounts. Another 41% goes to the district councils for community services.

Communities receive other benefits, such as consolation payments, infrastructure project funding, game meat distributions, and employment. This system creates value for species that otherwise face retaliation because they prey upon livestock (e.g., lion and leopard) or raid crops (e.g., elephant and buffalo). (Given these benefits, traditional leaders (chiefs) and CAMPFIRE representatives have spoken out against import restrictions on hunting trophies and calls to ban hunting by some international NGOs.)

Conclusion: Regulated hunting is essential to Zimbabwe's wildlife management and conservation system. This system is working. A 2016 IUCN *Red List* assessment of African lion concluded that Zimbabwe is one of four range states with an increasing lion population. This is an amazing achievement given Zimbabwe's rapidly growing human population and high human population density (26). Hunting takes place across a wide range of land, and in marginalized areas that are simply not appropriate for photographic tourism. If that land is to remain as habitat, there must an incentive for the rural people who would otherwise use it for farming and livestock. Hunting offtakes are low—only 33 lions hunted in 2016—but the incentives are high. This carefully-designed, sustainable-use based system benefits the lion and people of Zimbabwe.

APPLICANT:

MAURICE MOORE

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Maurice E. Moore-(b) (6) Dallas, Texas 75220

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

panthera leo, lion

b. Sex (if known).

male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

Chikwa Hunting block, Zambia - nearest town Mpika

b. Date wildlife is to be hunted:

October 15th - November 6th, 2021

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

Ivory Safaris

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

b. Date wildlife was hunted:

c. Approximate age of animal:

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

Not hunted yet

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

   Not hunted yet

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

   Name:

   Business Name:

   Address:

   City:

   State/Province:

   Country, Postal Code:

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.
    See attached
11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

    Name (Company/Professional Hunter):

    E-mail:

    Phone number:

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature: [redacted] Date: 2/3/21

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
SHANE MAHONEY
RENEE SNIDER

February 3, 2021

Department of the Interior
U.S. Fish and Wildlife Service
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803
ATTN: Darcy Vargas

Applicant:	Maurice E. Moore
RE:	USFWS Import Permit Application 3.200.20
Dates of Hunt:	October 15th- November 6th, 2021
Species/Country:	Lion/ Zambia

Ms. Vargas,

Enclosed please find an application to import a sport-hunted lion trophy for Mr. Maurice Moore. Mr. Moore will be hunting with Ivory Safaris in the Chikwa Hunting Block located in the Musalangu Game Management Area of the Luangwa ecosystem in October and November of this year. Musalangu is considered a "Prime" GMA, meaning it must have more than 5 classical hunting safaris with high quality trophies in one season. Prime GMA's produce far higher revenues for the country and for wildlife conservation.

The Luangwa is considered the most important lion cluster in Zambia according to *the Enhancement and Non-Detriment findings for African lion sport-hunting in Zambia*, attached, where they have a density of lion ranging from 12.4-13.8 lions/ 100km^2. From 2012-2014 there was a moratorium on trophy hunting, where large increases in lion abundance occurred, demonstrating the robust fecundity of lion. This also demonstrated that "the lack of revenue, and specifically lion hunting fees, reduced then-ZAWA's capacity for management and protection of lion and other species" (47). Since the end of the moratorium the lion population in the Luangwa region is "stable and potentially increasing" (4) as well communities are again well endowed by the revenue generated from Safari hunting.

We have included the Operator's Enhancement Report from Ivory Safaris. Ivory Safaris holds a government lease for their hunting land, where you will find In the Conservation Force fact sheet entitled, "The Surprising Benefits of Lion Safari Hunting" (attached), it states that "Hunting Operators in Game Management Areas contract with the government wildlife authority and local Community Resource Board (CRB) and must commit to anti-poaching and community investments. Under these agreements and Zambian law, 50% of game fees and 20 % of lease payments are distributed to the CRB, and 50 % of hunted game meat is distributed to local communities". Lion together with leopard are the main drivers of revenues generated for Safari hunting, which contribute far more to the Conservation of wildlife than just the permit and concession fees. These hunting trophy fees are generally what are applied to individual GMA anti-poaching initiatives, over and above the government or community appointed anti-poaching patrols. In Figure 9 in the Non-Detriment findings, you will see the drastic difference in total ZAWA revenues between the times when the lion and leopard moratorium were in effect versus not.

We have also provided a document entitled, "Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia". In this research article the author, Paula White, gives insight into the lease agreements of sport hunting operators with the Zambia Wildlife Authority that require them to annually provide local communities a percentage of the meat obtained through sport hunting free of charge. White quantified the

benefits of sport hunting to rural Zambian communities documenting the comprehensive benefits that hunting brings to the area, over and above just money from the hunting itself. It is estimated that about 129,771 kgs of fresh game meat is provisioned annually by the sport hunting industry to rural communities in Zambia at an approximate value of $600,000 US Dollars (1). In Zambia, 48% percent of the population were undernourished in 2012-2014, coinciding with the time of the hunting moratorium (2). Without the addition of game, most Zambian residents would rarely meet the recommended protein requirements and would suffer malnourishment. The dispersal of game meat also detracts locals from poaching to gain a valued source of protein. The positive benefits of sport hunting to Zambia and its people have literally been lifesaving.

Please refer to the documents and responses included and previously submitted to the DMA by Conservation Force, Zambia's wildlife authorities, professional hunters, and Safari operators when making an enhancement decision for the permit application.

If you have any questions about this import application, please do not hesitate to contact us.

Sincerely,

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Maurice Moore W/ attachments

Enclosures:

a. FWS Permit Application Form for Import of Sport-Hunted Trophy
b. Notice of Representation
c. Copy of Hunting Permits/Licenses
d. Hunter Return Form – Lion
e. Operator Enhancement Report
f. Enhancement and Non-Detriment Findings for African lion sport-hunting in Zambia
g. Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia
h. The surprising benefits of Lion Safari hunting

APPLICANT:

MAURICE MOORE

NOTICE OF REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed Lion Trophy from Zambia.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

(b) (6) [redacted]

SIGNATURE

Maurice Edwin Moore, III

PRINT FULL NAME

2/3/21

DATE

APPLICANT:

MAURICE MOORE

OPERATOR ENHANCEMENT REPORT

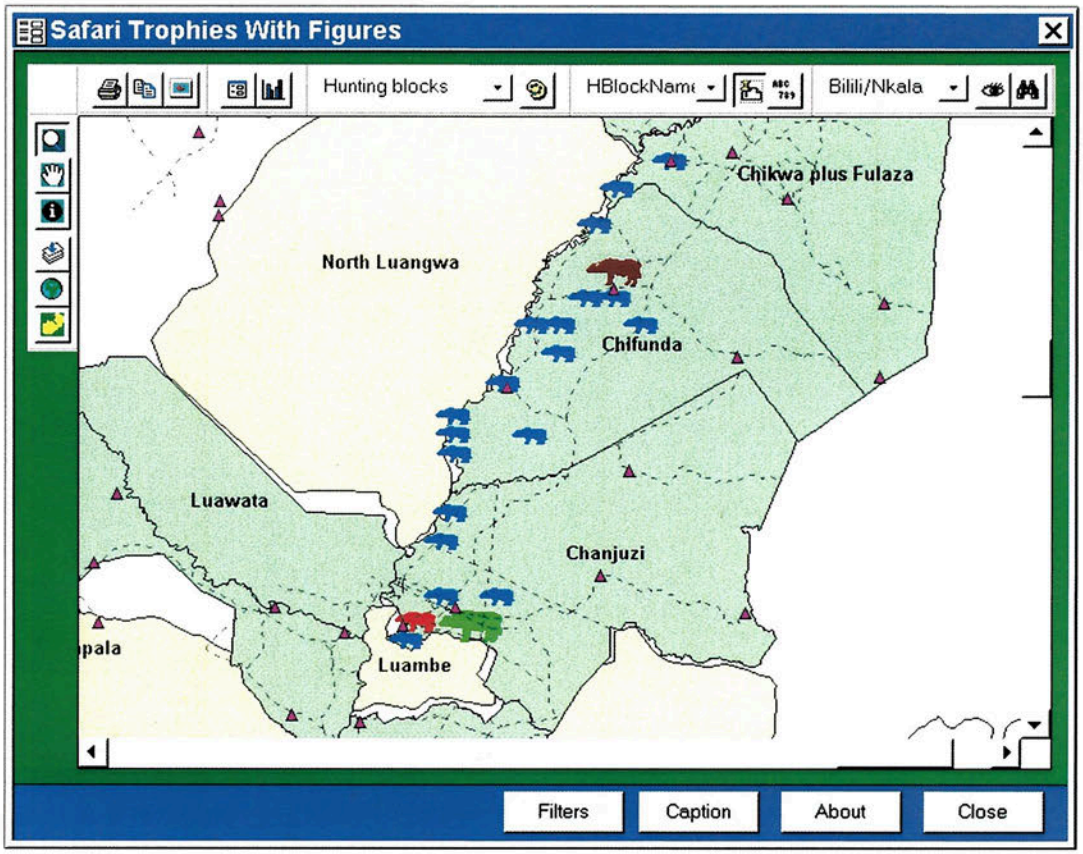
OPERATOR ENHANCEMENT QUESTIONNAIRE

1. **OPERATOR INFORMATION**
   a. Name of Area Operator: **IVORY SAFARIS**
   b. Years in business: **5 YEARS**
   c. Name of company conducting hunt: **IVORY SAFARIS**
   d. Country: **ZAMBIA**
   e. Email: **JEFFRANN@YAHOO.COM**

2. **CONCESSION**
   a. Name of Concession: **CHIKWA HUNTING BLOCK**
   b. Area in Km^2: **3102**
   c. Land tenure:
   __X__ Government ____Community ____Private Ranch ____ Private Conservancy ____ Lease
   d. Length of concession agreement: **SEVEN YEARS**
   e. Can it be renewed? **YES**
   f. Length of renewal, if applicable: **SEVEN YEARS**
   g. Estimated trophy fees:
   h. Are there any special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed):

   YES WE NEED TO PAY COMMUNITY OBLIGATIONS OF ZMW 145,000 PER ANNUM
   ZMW 90,000 PAYMENT TOWARDS LAW ENFORCEMENT TO CURB POACHING
   ZMW 45,000 PER ANNUM TOWARDS VILLAGE SCOUTS
   ZMW 15,000 PER ANNUM TOWARDS FIRE MANAGEMENT
   ZMW 24,500 PER ANNUM TOWARDS RESOURCE MONITORING

   i. Provide concession location and nearest city: NEAREST TOWN IS MPIKA
   j. Please attach a map or maps with marked boundaries and nearest city



k. If the concession border a National Park, provide park name: NORTH LUANGWA

NATIONAL PARK

1. Describe general and distinctive habitat/water features:
   LAGOONS,MOUNTAINS AND RIVERS-THE LUANGWA RIVER FLOWS THROUGH THE CONCESSION

3. **COMMUNITIES IN THE CONCESSION**
   a. Are there any communities living in the concession? __X__Yes ___No
   b. If so, estimated number of people/villages in the concession: ABOUT 300 PEOPLE
   c. Are there communities bordering this concession? ____ X Yes ____ No
   d. If so, estimated number of people/villages around the concession: SPARSE

4. **LOCAL COMMUNITY PARTICIPATION**
   a. Total employment number: 33
   b. Total employment in off-season: 17
   c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	4		
Trackers	3	3	
Anti-poaching Scouts/Rangers	4	4	4
Other Anti-poaching	12	12	12
Cooks/Housekeepers	5	5	
Community Coordinators	1	1	1
Managers	1	1	
Biologists	0		
Others: _/ SKINNERS	3	3	3

5. **ANTI-POACHING EFFORTS**
   a. Number of anti-poaching staff: 18
   b. Are patrols conducted during the hunting season, off season or both? BOTH
   c. Months patrols are conducted: JANUARY TO DECEMBER
   d. Number of patrols per month: THREE PATROLS
   e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: 50%
   f. Description of anti-poaching equipment, vehicles, gear, etc.TWO 4X4 LANDCRUISERS,SATELLITE PHONES,AND FIREARMS
   g. Do government-sponsored game scouts conduct patrols? YES

h. If so, do they have the ability to arrest? YES BECAUSE WE WORK IN COLLABORATION WITH THEM

i. Do you offer rewards to poaching informants leading to arrest? ___X_ Yes ____ No

j. Do you offer rewards to poaching informants upon conviction? __X__ Yes ____ No

k. Please describe the operator's anti-poaching expenditures for the past 3 years below:

Type of Expense	Year 1 (_2017_) Spending	Year 2 (_2018) Spending	Year 3 (_2019_) Spending	Remarks
Scout Salaries	157,500	157500	157500	SALARIES FOR 12 SCOUTS
Equipment	50,000	50,000	50,000	UNIFORMS,BOOTS,TORCHES,RAINCOATS
Vehicles				
Fuel	63,000	61080	59030	WE USE 300 LITRES OF FUEL EVERY MONTH FOR ANTIPOACHING.
Rewards	40,222	38700	30,200	REWARDS WERE IN FORM OF TELEVISION SETS,BICYCLES AND KITCHEN UTENSILS
Others:_____				
Totals	**310,722**	**307280**	**296,730**	

j. What currency are the expenditures given in? ZAMBIAN KWACHA

6. ANTI-POACHING RESULTS

Type	Year 1 (_2017___)	Year 2 (_2018___)	Year 3 (_2019___)	Remarks
Poaching Incidents Discovered	87	98	77	THIS INCLUDES STATISTICS FROM DNPW AND GUN SHOTS HEARD IN CAMP

Elephant Carcasses Observed	2	1	0	THESE DIED FROM BEING TRAPPED IN SNARES THEN TUSKS WERE REMOVED
Lion Carcasses Observed	NIL	NIL	NIL	
Leopard Carcasses Observed	NIL	NIL	NIL	
Ivory Poachers Observed	3	3	0	THESE WERE SPOTED WITH IVORY TUSKS. WE APPREHENDED SOME AND SOME ESCAPED
Bush Meat Poachers Observed	62	51	58	THESE WANTED MEAT FOR FOOD
Illegal Logging Observed	113	205	98	WE HAD A LOT OF PEOPLE LOOKING FOR A SPECIFIC TIMBER CALLED 'MUKULA' WHICH IS FETCHING A HIGH PRICE IN CHINA
Other Poachers Observed	2	8	0	THESE WERE DOING IT FOR FUN
Poachers Convicted	1	0	0	OUR JUDICIARY IS SLOW IN CONVICTING THESE CASES HENCE THE LONGER TIME IT TAKES TO PROSECUTE AND CONVICT
Snares/Traps Collected	289	277	276	DUE TO OUR ROBUST PATROLS THE NUMBERS KEEP REDUCING EACH YEAR
Firearms Confiscated	7	12	3	THESE WERE GIVEN TO THE AUTHORITIES
Vehicles Confiscated	0	0	0	
Bicycles Confiscated	3	3	1	THESE ARE THE COMMON MODE

				OF TRANSPORTATION
Boats/Nets Confiscated	0	0	0	
Tusks Recovered	0	1		IN MOST CASES THEY CUT THE TUSKS INTO SMALLER PIECES MAKING IT HARD TO RECOVER THE WHOLE TUSKS
Others: _____				

7. **RELEVANT GAME POPULATIONS IN THE CONCESSION**

Species	Relative Abundance			Estimated Population	3-Year Trend			How is it Monitored?
	Dense	Avg.	Sparse		Up	Down	Stable	
Elephant				600 AND ABOVE	X			PATROL DATA AND OBSERVATIONS
Lion			X		X			TRAIL CAMERAS, PATROL DATA AND OBSERVATIONS
Prey Species (if applicable)	X			10,000 AND MORE	X			OBSERVATIONS AND PATROL DATA
Other: _____								

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application.
b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports.

8. **COMMUNITY INVESTMENT**
   a. Does the company contribute money or goods/services to local communities?
_____X__Yes _____No
   b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e., more than required by law)?
MORE THAN 60% AS REQUIRED BY LAW

   c. Does the company provide game meat to nearby communities?

___X_____ Yes _____No

d. If so, estimate the amount/value of meat contributed in the last year and describe the distribution program:
ABOUT 50% OF EDIBLE MEAT FROM THE QUOTA IS GIVEN TO THE COMMUNITY.THE CARCASS IS GIVEN TO THE CHIEF TO SHARE WITH THE COMMUNITY

e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling fields during harvest, PAC hunts, insurance programs); please describe.
WE PARTROL FIELDS DURING HARVEST PERIOD TOGETHER WITH COMMUNITY SCOUTS

f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (2017__)	Consolation Paid, Year 2 (2018_)	Consolation Paid, Year 3 (2019__)	Remarks
Elephant	VEGETABLE FIELDS WERE DESTROYED	47,000	33,700	41,000	
Lion					
Leopard					
Other: _____					

g. What currency are the expenditures reported in? ZAMBIAN KWACHA

h. Describe any community projects paid for by the company:

Product	**Spending, Year 1 (_2017_)**	**Spending, Year 2 (2018___)**	**Spending, Year 3 (2019____)**	**Remarks**
Education (classrooms, offices)	120,000	98,000	105,000	THESE MONIES WERE SPENT TO RENOVATE THE SCHOOLS WHICH ARE IN A DEPLORABLE STATE
Education (supplies, fees)	50,000			SCHOOL USER FEES FOR PUPILS AT A NAMED SCHOOL ON THE REQUEST BY THE ADMINISTRATION

Health (clinics, offices)	47,500			BOUGHT MATRESSES FOR THE HEALTH FACILITY IN THE GMA
Health (equipment, salaries)				
Community Scout Salaries	157500	157500	157500	
Community Anti-Poaching	58,000	71,000	71,200	THESE FUNDS WERE USED FOR RATIONS AND INCENTIVES TO VILLAGERS WHEN THE APPREHEND A POACHER
Local Government Activities				
Infrastructure Improvements				
Sports Teams Funded				
Construction Materials Donated				
Other: _____				
Other: _____				
TOTALS	**433,000**	**326,500**	**228,700**	

i. What currency are the expenditures reported in? _____
j. Include receipts and photographs of projects, if available.

9. **COMPANY CLIENTELE**
   a. How many U.S. clients did the company have in the past 3 years, what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	**Lion**	**All Species**
Number of U.S. Clients	Year 1 (_2___):	Year 1 (__2__):	Year 1 (3____):
	Year 2 (__2__):	Year 2 (__2__):	Year 2 (_3___):
	Year 3 (__2_):	Year 3 (0____):	Year 3 (_4___):
Percentage of U.S. Clients	Year 1 (75%____):	Year 1 (__75%__):	Year 1 (__75%__):
	Year 2 (_75%___):	Year 2 (___75%_):	Year 2 (_75%___):
	Year 3 (_50%___):	Year 3 (__50%__):	Year 3 (__50%__):
Trophy Fees Paid by U.S. Clients	Year 1 (____):	Year 1 (____):	Year 1 (____):
	Year 2 (____):	Year 2 (____):	Year 2 (____):
	Year 3 (____):	Year 3 (____):	Year 3 (____):

b. Approximate amount/percentage of company's revenue from U.S. clientele: 67%

10. **HUNTING POLICIES**

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):

MORE THAN 5 YEARS EXPERIENCE.ABLE TO CARRY OUT ANTI POACHING ACTIVITIES AND SOUND JUDGEMENT OF TROPHIES

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology if available):

LION SHOULD BE SEVEN YEARS AND ABOVE

ELEPHANT SHOULD HAVE TUSKS WHICH ARE 2M LONG OR WEIGHING MORE THAN 15KILOS

c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years.

11. **OTHER INFORMATION**

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

I declare that the foregoing is true and correct:

Signature	**Date**
JEFFEREY LYNN RANN	DIRECTOR
Print-Full Name	**Title**

APPLICANT:

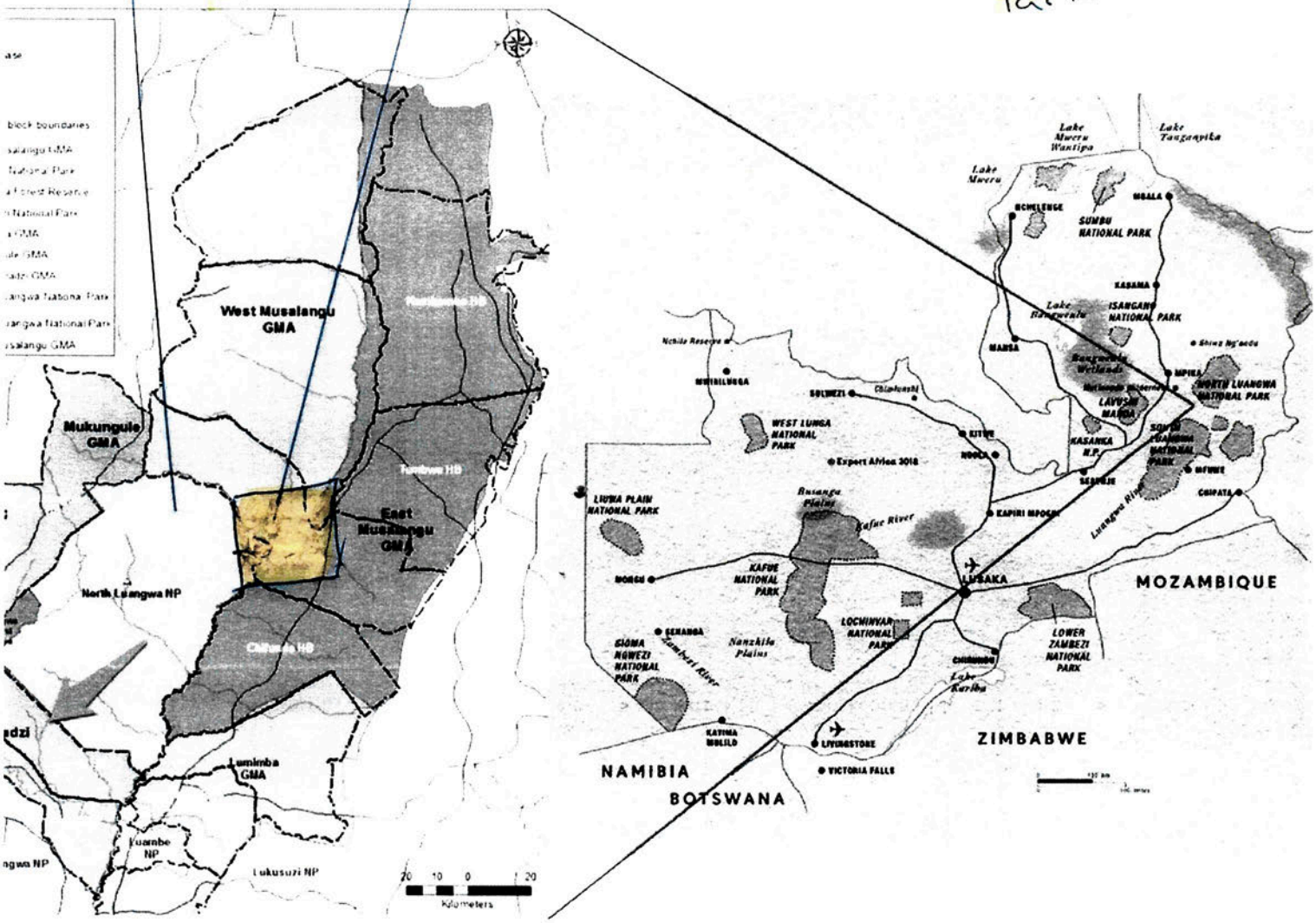
MAURICE MOORE

MAP OF HUNT AREA

North Luangwa National Park.

Chikwa Hunting Block

Chikwa HB Borders North Luangwa National Park.



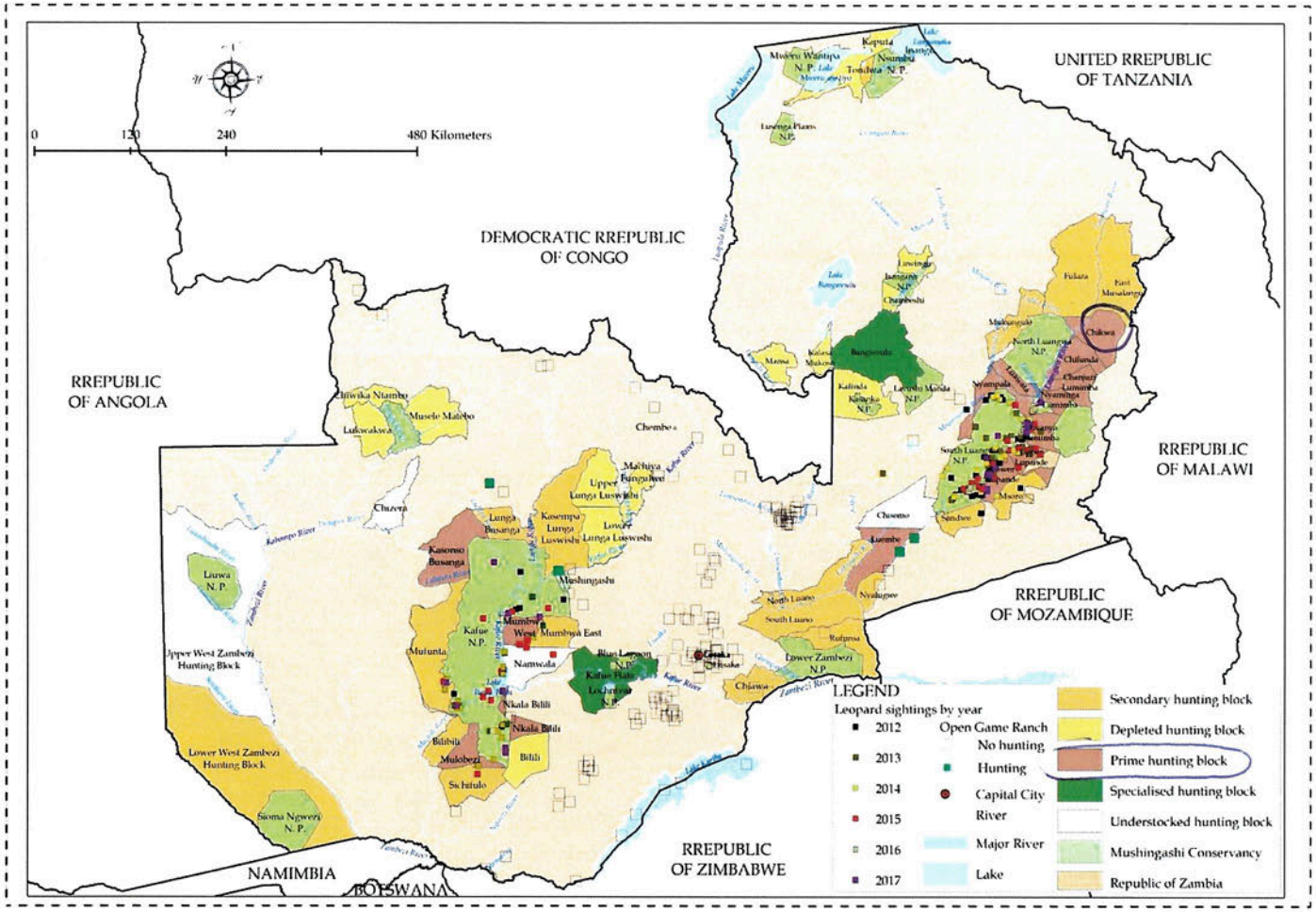


Figure 1. Location of primary and secondary hunting blocks in the GMAs. The location of the 26 open game ranches is provided together with those that have been allocated leopard on quota. The distribution of leopard siting recorded by patrols between 2012 – 2017 in South Luangwa and Kafue National Park and neighbouring GMAs are also indicated (Source: DNPW, Chilanga).

APPLICANT:
MAURICE MOORE

PROVISIONING OF GAME MEAT TO RURAL COMMUNITIES AS A BENEFIT OF SPORT-HUNTING IN ZAMBIA

PLOS | ONE

RESEARCH ARTICLE

Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia

Paula A. White[1]*, **Jerrold L. Belant**[2]

1 Center for Tropical Research, Institute of the Environment and Sustainability, University of California Los Angeles, Los Angeles, California, United States of America, **2** Carnivore Ecology Laboratory, Forest and Wildlife Research Center, Mississippi State University, Starkville, Mississippi, United States of America

* paw@carnivoreconservation.com

Abstract

Sport hunting has reportedly multiple benefits to economies and local communities; however, few of these benefits have been quantified. As part of their lease agreements with the Zambia Wildlife Authority, sport hunting operators in Zambia are required to provide annually to local communities free of charge i.e., provision a percentage of the meat obtained through sport hunting. We characterized provisioning of game meat to rural communities by the sport hunting industry in Zambia for three game management areas (GMAs) during 2004–2011. Rural communities located within GMAs where sport hunting occurred received on average > 6,000 kgs per GMA of fresh game meat annually from hunting operators. To assess hunting industry compliance, we also compared the amount of meat expected as per the lease agreements versus observed amounts of meat provisioned from three GMAs during 2007–2009. In seven of eight annual comparisons of these GMAs, provisioning of meat exceeded what was required in the lease agreements. Provisioning occurred throughout the hunting season and peaked during the end of the dry season (September–October) coincident with when rural Zambians are most likely to encounter food shortages. We extrapolated our results across all GMAs and estimated 129,771 kgs of fresh game meat provisioned annually by the sport hunting industry to rural communities in Zambia at an approximate value for the meat alone of >US$600,000 exclusive of distribution costs. During the hunting moratorium (2013–2014), this supply of meat has halted, likely adversely affecting rural communities previously reliant on this food source. Proposed alternatives to sport hunting should consider protein provisioning in addition to other benefits (e.g., employment, community pledges, anti-poaching funds) that rural Zambian communities receive from the sport hunting industry.

CrossMark
click for updates

OPEN ACCESS

Citation: White PA, Belant JL (2015) Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia. PLoS ONE 10(2): e0117237. doi:10.1371/journal.pone.0117237

Academic Editor: Asim Zia, University of Vermont, UNITED STATES

Received: April 3, 2014

Accepted: December 22, 2014

Published: February 18, 2015

Copyright: © 2015 White, Belant. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Data Availability Statement: All relevant data are within the paper.

Funding: These authors have no support or funding to report.

Competing Interests: The authors have declared that no competing interests exist.

Introduction

Sport hunting in Africa represents an important form of revenue-generating tourism [1],[2]. Additional reported benefits include conservation of biodiversity through protection of large tracts of land that might otherwise be converted to agricultural or domestic livestock use [3–7] and selective hunting of potentially dangerous or destructive species that can increase local people's tolerance for coexistence [8–10]. However, others report that sport hunting contributes little to rural economies or livelihoods [11].

Employment, revenues from hunting fees and licenses, contributions to community capital projects, and funding of anti-poaching scouts are potential benefits that rural communities may receive from sport hunting [12],[13]. Access to game meat has been described as the most tangible benefit to rural communities [14]; however, comparatively little effort has been made to characterize meat provisioning. Notable exceptions are Namibian communal conservancies that report annually on game meat revenues attributable to sport hunting [15], and the comprehensive summary of game meat distributions in Africa compiled by TRAFFIC which considered sport hunting in addition to game ranching and culling [14]. In Zambia, a 1971 report based on household surveys estimated that sport hunting provided 112 tonnes of dressed game meat to rural Zambians countrywide [16] (cited in [12]). We are unaware of more recent studies in Zambia, including studies that quantified provisioning at the GMA scale. In addition, we found no record of previous attempts to examine the patterns or scope of meat distributions.

Food security in developing nations is a primary focus of aide organizations worldwide [17–21]. In Zambia, 48% of the population was undernourished in 2012–2014 [22] and 19% of Zambian households were recently classified as chronically food insecure [20] defined as a continuously inadequate diet caused by the inability to acquire food [23]. Food shortage is defined as an individual receiving less than 2,200 kilocalories per day [18]. Donor aide programs provide supplemental food typically consisting of maize, sorghum, or other cereals. Although high-protein cereals are being developed [24], at present recommended daily protein requirements (50 gm/day)[25] are rarely met in Zambia [22],[26].

As part of their official lease agreements with the Zambia Wildlife Authority (ZAWA), sport hunting operators in Zambia are required to provide to rural communities a proportion of game animals harvested by clients each year. This meat is distributed free of charge to villages that reside within game management areas (GMAs) where sport hunting occurs. To legally obtain protein outside of GMAs, rural Zambians must raise their own livestock, fish, or purchase meat. Livestock husbandry is costly and precluded in some areas due to diseases [27], inadequate grazing, or presence of tsetse flies *Glossina* spp. [28]. To fish legally requires purchasing a permit and access to lakes, rivers, or seasonal ponds. Purchasing meat is expensive: about US$10/kg for beef, US$7/kg for chicken, and US$15/kg for dried fish (i.e., kapenta *Limnothrisa* sp.). Most (64%) Zambians live on less than US$1.00/day [29]. Thus, high expense makes obtaining animal protein cost prohibitive for most rural Zambians.

Obtaining sufficient amounts of protein is a widespread problem faced by rural people in many parts of Africa. Alternatives for meeting the protein requirements are being explored in other countries. In particular, game ranching, communal conservancies [30],[31], and other forms of community-based wildlife conservation programs [32] show promise. However, despite a few earlier attempts, these programs in Zambia are limited in scope, highly localized, and poorly developed [14], meaning that currently most rural Zambians do not have access to meat through these means.

Presently, the only other alternative for rural Zambians to obtain meat is illegally through poaching of wild animals or purchase of poached meat (herein referred to as bushmeat). Global concerns over the prevalence and extent of bushmeat poaching are increasing rapidly [33],[34].

Studies cite the unsustainable nature of the bushmeat trade [34] and the loss of potential income that results from poaching compared to the value of the same animals to photographic tourism or sport hunting [35].

We quantified the annual provisioning of fresh game meat by the sport hunting industry to rural communities in Zambia. Specifically, we characterized the expected and observed amounts of meat provisioned and the timing and spatial extent of meat distributions to rural communities. Finally, we discuss meat provisioning in the context of rural livelihoods, in particular food security and bushmeat poaching, in relation to Zambia's 2013–2014 hunting moratorium.

Methods

Zambia Wildlife Authority ranks GMAs as prime, secondary, or understocked based on species occurrence and animal abundance [36]. Prime GMAs include species that are fairly abundant and include highly valued trophies (e.g., African lion *Panthera leo*, leopard *P. pardus*, roan antelope *Hippotragus equinus*, and sable antelope *H. niger*) and that can accommodate five or more classical safaris and seven or more mini safaris per hunting season. Secondary GMAs include species less abundant but that generally can sustain three to four classical safaris and a minimum of five mini safaris per hunting season. Understocked GMAs contain species assemblages that are intact but with populations low enough that no hunting quota or only a minimum hunting quota is allowed [37]. Quotas are set annually for each GMA based on their ranking, an evaluation of the hunting operators' performance in the GMA during the previous season, and input from regional ZAWA scouts, ZAWA ecologists and representatives of the rural communities located within the GMAs. We obtained quotas from 2007 to 2009 from ZAWA for each of 30 GMAs in Zambia where sport hunting occurred. These 30 GMAs cover 84,033km^2 and represent 11% of Zambia's total land area. We excluded non-edible trophy species (African lion, leopard, spotted hyena *Crocuta crocuta*, Nile crocodile *Crocodylus niloticus*, small carnivores, and primates) from all calculations.

Sport hunting operators in each GMA are mandated by their lease agreements to utilize (i.e., hunt) $\geq$ 60% of their annual quota and distribute $\geq$ 50% of all game animals harvested each year to rural communities located in the GMA where the hunting occurred. Thus, 60% of the allocated quota of game species represents the estimated minimum number of edible animals harvested annually by sport hunters in Zambia; half of which represents the minimum amount of game meat that communities may expect to receive in a given year.

We collected data on meat provisioning from three GMAs (1 prime, 1 secondary, 1 understocked). During the study, each GMA was operated by individual hunting companies under a ten-year (2002–2012) lease agreement with ZAWA and the local communities. Zambia's sport hunting season occurred each year from 1 May to 31 December; however, sport hunting declines during the hottest months (mid-October to early November) and is typically discontinued when the rainy season begins in late November (P. White, personal observation).

We used reported live [38] and dressed weights [25] of game species to estimate harvested biomass. We used body weights for subspecies that occurred in Zambia when available. For species whose dressed weights were not available, we used conversion rates from a closely related species within the same genus. Reported dressed weights excluded offal; however, rural Zambians routinely consume organ meats (e.g., heart, liver, kidneys) in addition to skeletal muscle and bones which are boiled for additional nutrition (P. White, personal observation). Thus, dressed carcass weights represent minimum estimates of the amount of edible meat.

For each of the three GMAs sampled, we calculated the annual amount of meat expected through provisioning during 2007–2009 (data for 2008–2009 only were available for the

understocked GMA). We converted the number and species of animals represented by 50% of the utilized quota to kgs using the same dressed weight calculations as were applied to meat distribution logs (below). We also estimated the expected mean annual amount of meat provisioned in all GMAs where sport hunting occurred during 2007–2009. We excluded GMAs not hunted during the previous lease period, specialized GMAs, private game ranches, and conservancies. We used 60% of the allocated quotas at 50% distribution and converted these values to dressed weights to estimate the total kgs of meat expected to be provisioned countrywide.

We estimated the amount of meat provisioned annually during the 2005–2011 hunting seasons for the sampled prime and secondary GMAs and for five seasons during 2004–2011 for the understocked GMA. We obtained this information from meat distribution logs provided to ZAWA by hunting operators. Logs included date, species, portion of carcass distributed (e.g., half, whole), and generally a description of the recipient location (e.g., name of village, clinic, school, game scout post). Each log entry represented one animal or portion of an animal distributed to one location as verified by signature of the receiving party. We calculated dressed weights (kgs) from species and amount of provisioned meat as described previously.

To assess performance of the sport hunting industry in meeting its meat provisioning requirements, we compared annual expected and observed amounts (kgs) of provisioned meat in the three sampled GMAs during 2007–2009. We also summarized the amount (kgs) of meat provisioned and number of distribution events by month and year. When possible, we determined locations of distribution events using Google Earth, survey charts, and 1:250,000 scale topographic maps (Surveyor General, Lusaka, Zambia) and estimated distances from the recipients' locations to the provisioning hunting camp to determine the spatial extent of meat provisioning.

We used generalized linear mixed-effects models in program R (version 3.0.2; R Development Core Team 2013) [39] to estimate differences in response variables among GMAs and months. Response variables were the amount of meat provisioned and number of distribution events; explanatory variables were GMA and month. We included year as a random effect. We used least-squares difference means tests to compare differences among GMAs and months. We report means with ± 1 standard deviation and set statistical significance at $\alpha = 0.05$.

Results

Mean expected annual amount (kgs) of meat distributed countrywide was 129,771 ± 15,862 kgs during 2007–2009, representing 2,359 ± 320 individual animals of 20 species (Table 1). The mean expected annual amount of meat provisioned from 2007 to 2009 was greater for the prime (6187.3 ± 262.1 kgs) and secondary (5810.0 ± 248.6 kgs) GMAs than for the understocked (1204.0 ± 0 kgs) GMA. Similarly, the observed amount of meat provisioned annually during 2004–2011 varied among GMAs ($F_{2,16} = 21.97$, $P < 0.001$), with the prime (5832.1 ± 1579.9 kgs; $n = 7$) and secondary (6495.0 ± 1876.1 kgs; $n = 7$) GMAs provisioning greater ($P < 0.05$) amounts of meat than the understocked (973.4 ± 390.3 kgs; $n = 5$) GMA. Considering paired 2007–2009 data only, the observed amounts (kgs) of meat provisioned in prime and secondary GMAs exceeded what was expected each year (Fig. 1). In the understocked GMA, observed amounts exceeded expectations in one of two years.

The mean annual number of distribution events varied among GMAs ($F_{2,16} = 17.32$, $P < 0.001$), with more distribution events ($P < 0.05$) in the prime GMA (39.3 ± 8.7) than in the secondary (24.9± 8.9) and understocked (13.8 ± 8.1) GMAs. Annual number of distribution events in the secondary and understocked GMAs were similar ($P > 0.05$). The timing of distributions varied across months ($F_{5,95} = 7.13$, $P < 0.001$) with more distribution events during

Table 1. Mean (± SD) annual harvest quotas and expected amounts (kgs) of dressed meat provisioned during normal hunting seasons in Zambia, 2007–2009.

	Allocated Quota Countrywide		Mandatory 60% Utilization of Allocated Quota		Mandatory 50% Distribution of Utilized Quota		Expected Dressed Meat Provisioned (kg)	
Species	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Cape buffalo (*Syncerus caffer*)	295.3	20.6	177.2	12.4	88.6	6.2	31,718.8	2217.6
Bushbuck (*Tragelaphus scriptus*)	160.0	24.3	96.0	14.6	48.0	7.3	1344	204.4
Bush pig (*Potamochoerus larvatus*)	56.7	21.1	34.0	12.7	17.0	6.3	629	234.5
Common duiker (*Sylvicapra grimmia*)	95.7	22.3	57.4	13.4	28.7	6.7	315.7	73.6
Eland (*Taurotragus oryx*)	46.3	15.5	27.8	9.3	13.9	4.7	5740.7	1920.8
Lichtenstein's hartebeest (*Alcelaphus buselaphus*)	89.3	17.2	53.6	10.3	26.8	5.2	2572.8	496.6
Hippopotamus (*Hippopotamus amphibious*)	206.3	23.2	123.8	13.9	61.9	7.0	53853	6067.0
Impala (*Aepyceros melampus*)	344.7	18.9	206.8	11.3	103.4	5.7	3308.8	181.2
Greater kudu (*Tragelaphus strepsiceros*)	117.0	21.4	70.2	12.8	35.1	6.4	4598.1	840.1
Red lechwe (*Kobus leche*)	15.7	4.6	9.4	2.8	4.7	1.4	324.3	95.6
Oribi (*Ourebia ourebi*)	48.3	9.5	29.0	5.7	14.5	2.8	116	22.7
Puku (*Kobus vardoni*)	191.7	10.3	115.0	6.2	57.5	3.1	2357.5	126.2
Southern reedbuck (*Redunca arundinum*)	67.3	11.0	40.4	6.6	20.2	3.3	585.8	95.8
Roan (*Hippotragus equinus*)	45.7	13.6	27.4	8.2	13.7	4.1	2041.3	608.5
Sable (*Hippotragus niger*)	61.3	11.9	36.8	7.2	18.4	3.6	2318.4	451.0
Sitatunga (*Tragelaphus spekei*)	24.3	2.3	14.6	1.4	7.3	0.7	459.9	43.6
Warthog (*Phacochoerus africanus*)	182.0	30.1	109.2	18.1	54.6	9.0	2948.4	487.9
Waterbuck (*Kobus ellipsiprymnus*)	102.0	25.0	61.2	15.0	30.6	7.5	4375.8	1071.6
Wildebeest (*Connochaetes taurinus*)	74.3	18.0	44.6	10.8	22.3	5.4	3122	756.4
Zebra (*Equus quagga*)	135.7	19.6	81.4	11.8	40.7	5.9	7041.1	1017.5
Totals	2359.7	320.6	1415.8	192.4	707.9	96.2	129,771.4	15,861.5

Expected dressed meat provisioned calculated using live and dressed weights of game species after Skinner & Smithers (1990) and Bothma & du Toit (2010), respectively.

doi:10.1371/journal.pone.0117237.t001

July and September and fewer during May (Fig. 2). There was no interaction between GMA and month ($F_{10,95} = 1.32$, $P = 0.233$).

The observed amount (kgs) of meat provisioned each month varied among GMAs ($F_{10,95} = 1.24$, $P = 0.277$) with greater amounts of meat provisioned from the prime and secondary

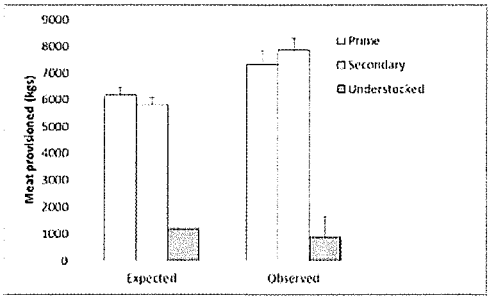


Fig 1. Expected versus observed amounts (kgs) of meat provisioned in each of three Game Management Areas (GMA), Zambia.

doi:10.1371/journal.pone.0117237.g001

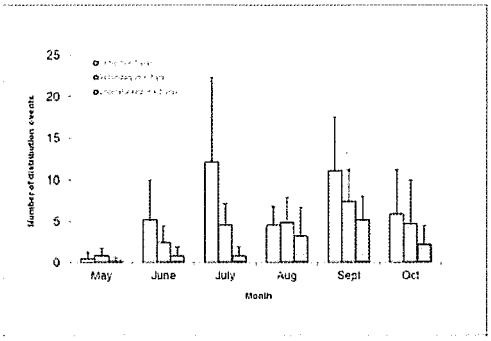


Fig 2. Mean (± SD) number of meat distribution events by month for three Game Management Areas, Zambia.

doi:10.1371/journal.pone.0117237.g002

GMAs than from the understocked GMA ($P < 0.05$; Fig. 3). Overall, mean total amounts (kgs) of meat provisioned were greatest in September and least in May ($F_{5,95} = 6.15$, $P < 0.001$). There was no interaction between GMA and month ($F_{10,95} = 1.32$, $P = 0.233$). In the prime GMA, mean meat provisioning in July and September exceeded 1,700 kgs/month. In the secondary GMA, mean monthly provisioning was 1,800 kgs in September and exceeded 1,250 kgs/month during July–October. The greatest mean monthly amount of meat provisioned in the understocked GMA was in September (> 400 kgs).

Distribution logs contained locations of meat recipients in 62% ($n = 518$) of entries, including 63% ($n = 275$) in the prime GMA, 78% ($n = 174$) in the secondary GMA, and 16% ($n = 69$) in the understocked GMA. Remaining entries were received by community-appointed liason officers who oversaw onward distribution. To assess the spatial extent of meat provisioning, we determined specific locations for 336 distribution events in relation to the locations of hunting camps that supplied the meat. Meat provisioning extended to > 50 km from sport hunting camps with most (70%) occurring within 20 km of camps (Fig. 4).

Discussion

In Zambia, provisioning of fresh game meat by sport hunting operators constituted an important source of protein for rural communities, with actual meat provisioned exceeding 6,000 kgs annually in the sampled prime and secondary GMAs. Meat provisioning by the hunting industry appeared reliable across years and exceeded expectation in each GMA and in every year

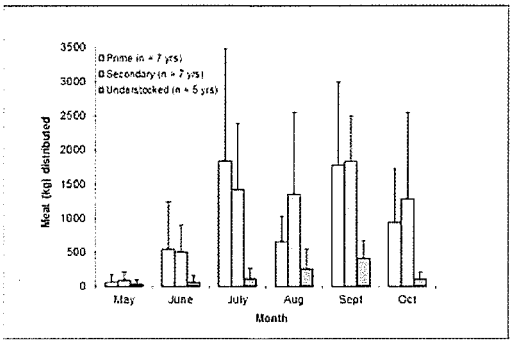


Fig 3. Mean (±SD) amount (kgs) of meat distributed by month for three Game Management Areas, Zambia.

doi:10.1371/journal.pone.0117237.g003

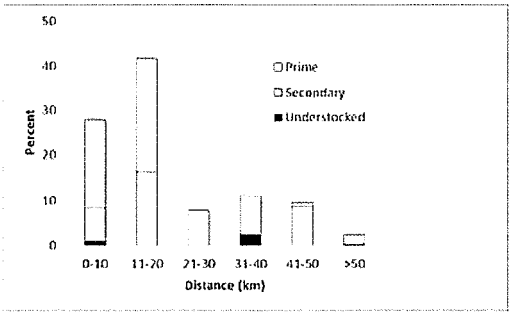


Fig 4. Distances from sport hunting camps of meat provisioned from three Game Management Areas, Zambia.

doi:10.1371/journal.pone.0117237.g004

except one (understocked GMA in 2009). Variations in the amount and timing of distributions appeared influenced in part by unpredictable short-term perturbations. For example, eruption of the Icelandic volcano and subsequent disruption to international flights in 2010 [40] caused the abrupt cancellation of numerous hunts and lowered the amount of meat distributed in some months that year (PHAZ, personal communication).

The provisioning of greater amounts of meat than expected resulted when operators successfully hunted more than the minimum 60% required of their annually allocated quota (P. White, unpublished data). These results illustrate a potential conflict of interest; ZAWA receives revenues based on GMA ranking (prime GMAs carry the highest fees) as well as the number of animal licenses sold. Therefore, ZAWA could be motivated to rank GMAs as high as possible and to allocate larger quotas in order to receive greater revenues from hunting operators [37]. Local communities also receive a portion of each animal license fee, and receive more meat when allocated quotas are high, especially for large-bodied species. Thus, community representatives engaged in quota setting exercises may also be motivated to support high quotas.

Likewise, hunting operators may be motivated to sell as many hunts as possible each year to maximize profits, especially in prime GMAs where fees are greater. However, an operator's future success is gauged on quality of trophies obtained in previous years. Trophy quality is judged on size and age rather than number of animals shot [41]. Further, lease periods of ≥ 10 years help promote good stewardship because holders of longer-term leases have a vested interest in conserving wildlife populations [42]. Zambian Wildlife Authority requirements of a minimum annual harvest could promote shooting of immature animals if allocated quotas are excessive. Despite existing protocols for post-season meetings designed to set quotas in accordance with best available information, allocated quotas are subject to later change by ZAWA's head office sometimes without consulting regional ecologists, hunting operators, or local communities. Subsequently, hunting operators occasionally request reduced quotas for certain species if they believe the allocated quota to be excessive in their GMA (PHAZ, personal communication). A more standardized methodololgy for monitoring trends in game population abundance, preferably including estimates of precision, could simplify setting of quotas and help ensure sustainable harvest.

The amount of meat and frequency of meat distributions was generally greater during months (e.g., September) when rural people are most likely to experience food shortages i.e., when alternative sources of food are exhausted and prior to annual crop production [43]. With a hunting moratorium in place since January 2013 throughout most of Zambia's GMAs, game meat supplied by the sport hunting industry has been almost eliminated. Over 60% of Zambia's

human population was classified as rural in 2013 and 83% of rural Zambian households are poor [44]. Most (20 of 30) of the GMAs analyzed in this study are in three of Zambia's poorest and most remote provinces (Northwestern, Eastern, and Southern) [44]. Zambia's poorest families whose crop production is insufficient to support themselves rely on income from casual labor to purchase food during shortages [43]. Food is the largest expenditure for Zambia's rural poor [45] for whom casual labor constitutes a major source of income [46]. However, most employment opportunities provided by sport hunting camps each year were lost during the current moratorium. This included casual work (road clearing, camp building) as well as seasonal jobs that lasted throughout the hunting season (camp staff, trackers and skinners, drivers and mechanics, etc.). In addition, commodities normally purchased by hunting camps from local communities (e.g., thatching grass, vegetables, maize meal) were not needed (P. White, unpublished data). Thus, in addition to the loss of provisioned meat, many rural people may lack the financial resources to legally purchase meat. During the similar time period (February 2013–February 2014) inflation in Zambia increased 7.6% [47]. The rate of inflation has since increased to 8.1% (November 2013–November 2014) with the cost of food contributing the most to the annual increase [48]. Zambia's poorest provinces have experienced the highest inflation rates countrywide [48].

In the absence of sport hunting, rural communities need alternatives to reliably and legally obtain meat. Solutions must be appropriate to local situations however [34], and consider the needs of humans and wildlife to avoid adverse effects [49–51]. Domestic livestock are excluded from many parts of Zambia due to tsetse flies [28] and can cause habitat degradation if overstocked [52]. Game ranching can provide a source of meat and African game meat has a greater protein content (> 20% per 100g) than domestic species (< 20% per 100g) [25]. But whereas sport hunting operators provision free meat as part of their lease agreements, ranchers may expect fair or subsidized prices for their product [53]. A shift to greater reliance on wild fisheries can result in depletion of fish stocks [33]; Zambia's native fish stocks are showing evidence of severe depletion [54],[55]. Communal conservancies that incorporate game and domestic stock could provide rural people with protein and income. These programs require considerable start-up investment and maintenance and a sport hunting component is often needed to ensure success, especially in the early stages [56],[57]. The most profitable conservancies include a sport hunting component [7],[15]; however, the income received by individuals is inversely related to human population density [10]. Benefits to residents diminish when conservation-benefit programs result in an influx of immigrants seeking to share in returns [58],[59].

Where alternative sources of food and income are not available, incidents of bushmeat poaching increase during the late dry season [35],[60],[61]. Many hunters sell bushmeat to obtain cash to purchase other foods [34], material goods [60], or to enhance their farming efforts thereby increasing the income potential of their crops [62]. Whether hunting for food or cash, expanding human populations coupled with the unsustainable hunting methods favored by bushmeat poachers have caused widespread concerns for the viability of wildlife populations and entire species [34],[63],[64]. Studies of bushmeat hunters in Zambia [60] and buyers in Zimbabwe [53] concluded that increasing the supply of free meat would help reduce bushmeat poaching.

Those most dependent on bushmeat for food are often the most remote and marginalized groups [33],[34],[49]. In Zambia, poor families are more likely to live ≥ 20 km from the nearest markets than families that are not poor [45]. Most of Zambia's GMAs are located in the poorest and most remote provinces [44]. Sport hunting operators in Zambia provisioned meat to at least 50 km from their hunting camps, which were situated in remote areas on average 84 km from the nearest towns ($N = 32$ camps). While the price of bushmeat can vary with distance to

source [65], average cost of bushmeat in Zambia in 2012 was US$4.75/kg of fresh game meat (P. White, unpublished data). Thus, the estimated replacement cost of game meat exceeds US $27,700/year for each prime GMA, US$30,850/year for each secondary GMA, and US$4,620/year for each understocked GMA. Countrywide, the estimated annual cost to purchase the equivalent of 129,771 kgs of fresh game meat is US$616,412, excluding butchering and delivery costs. At > 20% protein per 100g game meat, this is equivalent to 519,084 people days of protein per year. This figure is based on the recommended daily protein requirement of 50 gm/day [25] being fulfilled entirely by animal protein. In fact, Zambians on average obtain less than 20% of their dietary energy from animal protein [66]. Thus, although meat provisioned by sport hunting operators represents a small percentage of protein requirements for Zambians, it appears an effective means of distributing fresh, high quality meat to some of the most remote areas of the country with the greatest protein needs, thereby partially alleviating protein deficiencies in rural Africans. Elsewhere in Africa (e.g., Selous Game Reserve, Tanzania) where communities may be located too far from sport hunting camps to facilitate distribution of fresh meat, alternative sources of protein may be required.

The recent moratorium on sport hunting throughout much of Zambia created a crisis situation [67]. Bushmeat poaching is a serious problem in Zambia [14],[37] and the severity and rate of poaching has escalated during the current hunting closure [68]. Similarly, accelerated loss of wildlife occurred during previous (2000–2002) hunting closures in Zambia [4] and elsewhere (Kenya [9],[69]). Zambia's human population continues to increase (2.8% in 2010) [70]. From 1987–1997, Zambia's wildlife sector underperformed with regards its potential to supply game meat to rural people [14]. This included game ranching and cropping schemes in addition to sport hunting.

We characterized and quantified meat provisioning in Zambia. Large-scale sport hunting also occurs in the African countries of Namibia, Mozambique, Tanzania and Zimbabwe. In all five countries, over 60% of the total population is rural, with at least 25% of the population in each country categorized as undernourished [22]. With the exception of Namibia, each of these countries has lower than average GDPs compared to the mean for all African countries [71]. Globally, Zambia, Mozambique and Tanzania each rank in the bottom 20 of food supply of meat [66]. As in Zambia, most hunting areas in these other four countries are located in rural regions [72]. National governments and wildlife authorities are responsible for establishing hunting quotas and lease agreements including meat distribution requirements, thus extrapolation of meat provisioning in Zambia to other countries would be speculative, and wider-scale estimates are beyond the scope of this paper. However, the detailed information we provide for Zambia may serve as a template for future investigations of expected meat distributions in other countries or regions where hunting occurs.

While the amount of game meat provisioned annually by Zambia's sport hunting industry is substantial, a multi-use approach that incorporates sport hunting, game ranching, and communal conservancies for additional sources of protein and income in rural areas will likely be required to keep pace with the growing demand for meat and jobs. It is vital that Zambia's GMAs be afforded sound custody unless and until viable alternatives offering the same or greater benefits than sport hunting provided can be implemented.

Acknowledgments

This research was conducted under Zambia Employment Permit No. 008872 in partnership with Zambia Wildlife Authority who generously provided details of quotas. We thank members of the Professional Hunters Association of Zambia, Safari Hunter and Operator Association of Zambia, and numerous individuals who provided information. We thank D. Boyd,

E. Boydston and three anonymous reviewers for comments on an earlier draft of this manuscript.

Author Contributions

Conceived and designed the experiments: PAW. Performed the experiments: PAW. Analyzed the data: PAW JLB. Contributed reagents/materials/analysis tools: JLB. Wrote the paper: PAW JLB.

References

1. Booth VR (2009) A comparison of prices of hunting tourism in Southern and Eastern Africa. Budapest, Hungary: Joint Publication of FAO and CIC. 40 p. PMID: 25506961
2. Barnett R, Patterson C (2005) Sport hunting in the Southern African development community (SADC) region: An overview. Johannesburg, South Africa: TRAFFIC East/Southern Africa. 116 p. PMID: 25275211
3. Lewis D, Alpert P (1997) Trophy hunting and wildlife conservation in Zambia. Conservation Biology 11: 59–68.
4. Lewis DJ, Jackson JJ (2005) Safari hunting and conservation on communal land in southern Africa. In: Woodroffe R, Thirgood S, Rabinowitz A, editors. People and wildlife: Conflict or coexistence? Cambridge, UK: Cambridge University Press. pp. 239–251.
5. 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.
6. Lindsey PA, Roulet PA, Romanach SS (2007) Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa. Biological Conservation 134: 455–469. PMID: 17709564
7. Loveridge AJ, Reynolds JC, Milner-Gulland EJ (2007) Does sport hunting benefit conservation? In: Macdonald D, Service K, editors. Key topics in conservation biology. Malden, Massachusetts: Blackwell Publishing Ltd. pp. 222–238.
8. Bond I (1994) Importance of elephant hunting to CAMPFIRE revenue in Zimbabwe. TRAFFIC Bulletin 14: 117–119.
9. Norton-Griffiths M (1998) The economics of wildlife conservation policy in Kenya. In: Milner-Gulland E, Mace R, editors. Conservation of biological resources. Oxford, UK: Blackwell Science. pp. 279–293.
10. Leader-Williams N, Hutton JM (2005) Does extractive use provide opportunities to offset conflicts between people and wildlife? In: Woodroffe R, Thirgood S, Rabinowitz A, editors. People and wildlife: Conflict or coexistence? Cambridge, UK: Cambridge University Press. pp. 140–161.
11. Campbell R (2013) The $200 million question: how much does trophy hunting really contribute to African communities? A report for the African Lion Coalition. Melbourne, Australia: Economists at Large. doi: 10.1007/s13197-013-0993-z PMID: 25593984
12. Astle WL (1999) A history of wildlife conservation and management in the mid-Luangwa valley, Zambia. Bristol, UK: British Empire and Commonwealth Museum. 149 p. PMID: 25506965
13. Jackson JJ (1996) An international perspective on trophy hunting. In: Leader-Williams N, Kayera JA, Overton GL, editors. Tourist hunting in Tanzania. Gland, Switzerland and Cambridge, UK: IUCN. pp. 7–11.
14. Barnett R (1997) Food for Thought: The utilization of wildlife meat in East and Southern Africa. Nairobi, Kenya: TRAFFIC East/Southern Africa. 264 p. PMID: 25165803
15. NASCO (2013) The state of community conservation in Namibia: A review of communal conservancies, community forests and other CBNRM initiatives (2012 Annual Report). Windhoek, Namibia. 64 p. Available: http://nasco.org.na. Accessed 2014 Mar 11.
16. Stier JC (1973) Safari hunting in the Luangwa valley. Mimeograph. Department of Wildlife, Fisheries and National Parks. Chilanga, Zambia.
17. UN (2011) United Nations 2000 Millennium Declaration. Country development cooperation strategy 2011–2015. Resolution adopted by the General Assembly A/RES/55/2 Fifty-fifth session agenda item 60(b), 18 September 2000. Available: http://www.usaid.gov/zambia. Accessed 2013 Dec 12.
18. von Braun J, Vargas Hill R, Pandya-Lorch R, editors (2009) The poorest and hungry: Assessments, analyses, and actions. IFPRI 2020 Book. Washington, DC: International Food Policy Research Institute. 584 p. Available: http://www.ifpri.org. Accessed 2013 Dec 2.
19. WFP (2010) World Food Programme. Available: http://www.WFP.org. Accessed 2014 Mar 5.

20. FTF (2011) Zambia FY 2011–2015 multi-year strategy. Feed The Future. Available: http://www.feedthefuture.gov. Accessed 2014 Jan 2.
21. GAFSP (2013) Increasing incomes, reducing hunger. Annual Report. Washington, DC: Global Agriculture and Food Security Programme. Available: http://www.GAFSPFUND.ORG. Accessed 2014 Jan 29.
22. FAO (2014) Statistical Yearbook 2014 Africa Food and Agriculture. Report. Accra, Ghana: Food and Agriculture Organization of the United Nations, Regional Office for Africa. Available: http://www.fao.org. Accessed 2014 Nov 30.
23. WB (1986) Poverty and hunger: Issues and options for food security in developing countries. World Bank Policy Study. Washington, DC: World Bank.
24. Henley EC, Taylor JRN, Obukosia SD (2010) The importance of dietary protein in human health: Combating protein deficiency in sub-Saharan Africa through transgenic biofortified sorghum. In: Taylor SL, editors. Advances in food and nutrition research. Burlington, Massachusetts: Academic Press. pp. 21–52. doi: 10.1016/S1043-4526(10)60002-2 PMID: 20691952
25. Bothma JdP, du Toit JG (2010) Game ranch management. Pretoria, South Africa: Van Schaik Publishers. 979 p. PMID: 25506974
26. FAO (2010) Food balance sheets. FAO Statistics Division. Rome, Italy: Food and Agriculture Organization of the United Nations. Available: http://www.fao.org/statistics. Accessed 2014 Mar 6. PMID: 25506974
27. Lewis D (2005) Synergies between animal husbandry and wildlife conservation: perspectives from Zambia. In: Osofsky SA, Cleaveland S, Karesh WB, Kock MD, Nyhus PJ, Starr L, Yang A, editors. Conservation and development interventions at the wildlife/livestock interface: Implications for wildlife, livestock and human health. Gland, Switzerland and Cambridge, UK: IUCN. pp. 153–156.
28. Marks SA (2005) Large mammals and a brave people: Subsistence hunters in Zambia. New Brunswick, New Jersey: Transaction Publishers. 285 p. PMID: 25275211
29. ZCSO (2012) Zambia Central Statistical Office. Available: http://www.zamstats.gov.zm. Accessed 2014 Jan 1.
30. 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, editors. CITES and CBNRM Proceedings of an international symposium on "The relevance of CBNRM to the conservation and sustainble use of CITES-listed species in exporting countries". Vienna, Austria: IUCN, Gland, Switzerland and IIED, London, UK. pp. 59–70.
31. Shurter S (2013) Gnusletter. IUCN Antelope Specialist Group. doi: 10.1007/s13197-013-0993-z PMID: 25593984
32. Baldus RD (2009) A practical summary of experiences after three decades of community-based wildlife conservation in Africa "What are the lessons learnt?" Budapest, Hungary: Joint Publication of FAO and CIC. 128 p. PMID: 25506961
33. Bennett EL (2002) Is there a link between wild meat and food security? Conservation Biology 16: 590–592.
34. Milner-Gulland EJ, Bennett EL, the SBC 2002 Annual Meeting Wild Meat Group (2003) Wild meat: the bigger picture. Trends in Ecology and Evolution 18: 351–357.
35. Lindsey PA, Balme G, Becker M, Begg C, Bento C, et al. (2013) The bushmeat trade in African savannas: Impacts, drivers, and possible solutions. Biological Conservation 160: 80–96.
36. Nyirenda VR, Liwena S, Kaumba Chaka H (2008) Atlas of the national parks of Zambia. Lusaka, Zambia: New Horizon Printing Press. 47 p. PMID: 25506952
37. Simasiku P, Simwanza HI, Tembo G, Bandyopadhyay S, Pavy J (2008) The impact of wildlife management policies on communities and conservation in game management areas in Zambia. Lusaka, Zambia: Natural Resources Consultative Forum. 37 p. PMID: 25506952
38. Skinner JD, Smithers RHN (1990) The mammals of southern African subregion. Pretoria, South Africa: University of Pretoria. 771 p. PMID: 25144095
39. R Development Core Team (2013) R: A language and environment for statistical computing. Vienna, Austria. Available: http://www.Rproject.org. Accessed 2014 Mar 11.
40. Wikipedia (2014) Air travel disruption after the 2010 Eyjafjallajokull eruption. Available: http://en.wikipedia.org/w/index.php/600193963. Accessed 2014 Mar 18.
41. Damm GR (2008) Recreational trophy hunting: "What do we know and what should we do?" In: Baldus RD, Damm GR, Wollscheid K, editors. Best practices in sustainable hunting—a guide to best practices from around the world. CIC Technical Series Publication No.1. Budapest, Hungary: International Council for Game and Wildlife Conservation. pp. 5–11.

42. Baldus RD, Cauldwell AE (2004) Tourist hunting and its role in development of wildlife management areas in Tanzania. Dar es Salaam, Tanzania: GTZ—Wildlife Programme Tanzania. PMID: 25057686

43. FEWS (2014) Food Security Outlook Update. Available: http://www.fews.net. Accessed 2014 Mar 21.

44. IFAD (2014) International Fund for Agricultural Development. Available: http://ruralpovertyportal.org. Accessed 2014 Nov 30.

45. Ahmed AU, Hill RV, Smith LC, Frankenberger T (2007) The poorest and hungry: characteristics and causes. In: von Braun J, Hill RV, Pandya-Lorch R, editors. The poorest and hungry: Assessments, analyses, and actions: IFPRI 2020 book. Washington, DC: International Food Policy Research Institute. pp. 107–115. Available: http://www.ifpri.org. Accessed 2013 Dec 2.

46. ZVAC (2004) Zambia livelihood map rezoning and baseline profiling. Lusaka, Zambia.

47. ZCSO (2014) The Monthly February 2014. Zambia Central Statistical Office. Available: http://www.zamstats.gov.zm. Accessed 2014 Mar 25. doi: 10.1016/j.fsigen.2014.12.009 PMID: 25596557

48. ZCSO (2014) The Monthly November 2014. Zambia Central Statistical Office. Available: http://www.zamstats.gov.zm. Accessed 2014 Nov 30. doi: 10.1016/j.fsigen.2014.12.009 PMID: 25596557

49. Bennett EL, Blencowe E, Brandon K, Brown D, Burn RW, et al. (2006) Hunting for consensus: Reconciling bushmeat harvest, conservation, and development policy in West and Central Africa. Conservation Biology 21: 884–887.

50. CBD (2011) Incentive measures for the conservation and sustainable use of biological diversity: Case studies and lessons learned. CBD Technical Series No.56. Montreal, Canada: Secretariat of the Convention on Biological Diversity. 65 p. doi: 10.1016/j.recot.2011.11.003 PMID: 23594804

51. Gubbi S (2010) Are conservation funds degrading wildlife habitats? Economic and Political Weekly Vol XLV 26 June 2010, pp. 22–25.

52. Kgosikoma EO, Mojeremane W, Harvie BA (2013) Grazing management systems and their effects on savanna ecosystem dynamics: A review. Journal of Ecology and the Natural Environment 5: 88–94.

53. Lindsey PA, Romanach SS, Matema S, Matema C, Mupamhadzi I, et al. (2011) Dynamics and underlying causes of illegal bushmeat trade in Zimbabwe. Oryx 45: 84–95.

54. Haller T, Merten S (2008) "We are Zambians: Don't Tell Us How to Fish!" Institutional Change, Power Relations and Conflicts in the Kafue Flats Fisheries in Zambia. Human Ecology 36: 699–715.

55. IRIN (2014) Zambia: mosquito-net fishing threatens Lake Tanganyika. IRIN Humanitarian news and analysis. Available: http://www.irinnews.org/report/86565. Accessed 2014 Mar 18.

56. Weaver LC, Petersen T (2008) Namibia communal area conservancies. In: Baldus RD, Damm GR, Wollscheid K, editors. Best practices in sustainable hunting—A guide to best practices from around the world. CIC Technical Series Publication No. 1. Budapest, Hungary: International Council for Game and Wildlife Conservation. pp. 48–52.

57. Child BA, Musengezi J, Parent GD, Child GFT (2012) The economics and institutional economics of wildlife on private land in Africa. Pastoralism: Research, Policy and Practice 2:18. Available: http://www.pastoralismjournal.com/content/2/1/18.

58. Oates JF (1999) Myth and reality in the rain forest: How conservation strategies are failing in West Africa. Berkeley, California: University of California Press. 338 p. PMID: 25506965

59. Ahmed J, Bergstrom C, Bryceson I, Child B, Francis J, et al. (2001) Lessons learned: Case studies in sustainable use. International Union for the Conservation of Nature.

60. Brown T, Marks S (2007) Livelihoods, hunting and the game meat trade in northern Zambia. In: Davies G, Brown D, editors. Bushmeat and livelihoods: Wildlife management and poverty reduction. Malden, Massachusetts: Blackwell Publishing Ltd. pp. 92–105.

61. Becker M, McRobb R, Watson F, Droge E, Kanyembo B, et al. (2013) Evaluating wire-snare poaching trends and the impacts of by-catch on elephants and large carnivores. Biological Conservation 158: 26–26.

62. Lewis DM (2007) Can wildlife and agriculture coexist outside of protected areas in Africa? A hopeful model and a case study in Zambia. In: Davies G, Brown D, editors. Bushmeat and livelihoods: Wildlife management and poverty reduction. Malden, Massachusetts: Blackwell Publishing Ltd. pp. 177–196.

63. Davies G, Brown D (2007) Bushmeat and livelihoods: Wildlife management and poverty reduction. Malden, Massachusetts: Blackwell Publishing Ltd. 274 p. doi: 10.1093/jxb/erm028 PMID: 25506957

64. Nasi R, Brown D, Wilkie D, Bennett E, Tutin C, et al. (2008) Conservation and use of wildlife-based resources: The bushmeat crisis. Montreal, Canada and Bogor, Indonesia: Secretariat of the Convention on Biological Diversity and Center for International Forestry Research. 50 p. PMID: 25506952

65. Brashares JS, Golden CD, Weinbaum KZ, Barrett CB, Okello GV (2011) Economic and geographic drivers of wildlife consumption in rural Africa. Proceedings of the National Academy of Sciences 108: 13931–13936. doi: 10.1073/pnas.1011526108 PMID: 21873180

66. FAO (2014) Food and Nutrition in Numbers. Rome, Italy: Food and Agriculture Organization of the United Nations. Available: http://www.fao.org. Accessed 2014 Nov 30. doi: 10.1016/j.fsigen.2014.12.009 PMID: 25596557

67. Bulletin and Record (2013) The killing fields of Zambia. Special Report. November 2013, Vol. 2. Lusaka, Zambia: Original Publishers Ltd.

68. SLCS (2013) Oct, Nov, Dec Newsletter. South Luangwa Conservation Society. Available: http://www.slcszambia.org.

69. King A (2011) No reason to conserve: Exploring the drivers and performance of wildlife conservation in Kenya. Community-based conservation: Case studies. In: Abensperg-Traun M, Roe D, O'Criodain C, editors. 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: IUCN, Gland, Switzerland and London, UK. pp. 78–85.

70. ZCSO (2014) Zambia in Figures: 1964–2014. Report. Lusaka, Zambia: Central Statistical Office. Available: http://wwwzamstats.gov.zm. Accessed 2014 Nov 30.

71. OECD (2012) African Economic Outlook. Organisation for Economic Co-operation and Development. Available: http://www.oecd-ilibrary.org. Accessed 2014 Dec 1. doi: 10.1016/j.asjsur.2012.06.010 PMID: 25554668

72. AfricaHunting (2014) Hunting Information by Country. Available: http://www.AfricaHunting.com. Accessed 2014 Dec 1.

APPLICANT:

MAURICE MOORE

THE SURPRISING BENEFITS OF LION SAFARI HUNTING

THE SURPRISING BENEFITS OF LION SAFARI HUNTING (Rev. May 29, 2018)

Experts agree on the primary threats to African lion: loss of suitable habitat, loss of prey base, and conflict with humans and livestock.[i] These interrelated threats overlap. They are exacerbated by expanding human populations.[ii] Few lion still exist without management intervention to contend with these threats. Tourist safari hunting is an important management intervention that greatly counteracts those threats.

Tourist safari hunting[iii] protects and secures the largest share of lion and prey habitat. It underwrites most poaching control, incentivizes rural community tolerance, supports rural livelihoods, and significantly funds management authority operating budgets. It provides these benefits in parts of Southern and Eastern Africa where the most lion continue to exist. The benefits[iv] of tourist safari hunting counter the foremost threats to lion. Those benefits overwhelmingly account for the survival of most lion, habitat, and prey as well as the most lion population growth. Safari hunting is essential to maintain lion outside of national park boundaries as well as lion in parks when inevitably ranging beyond park boundaries.

Habitat Secured by Tourist Safari Hunting

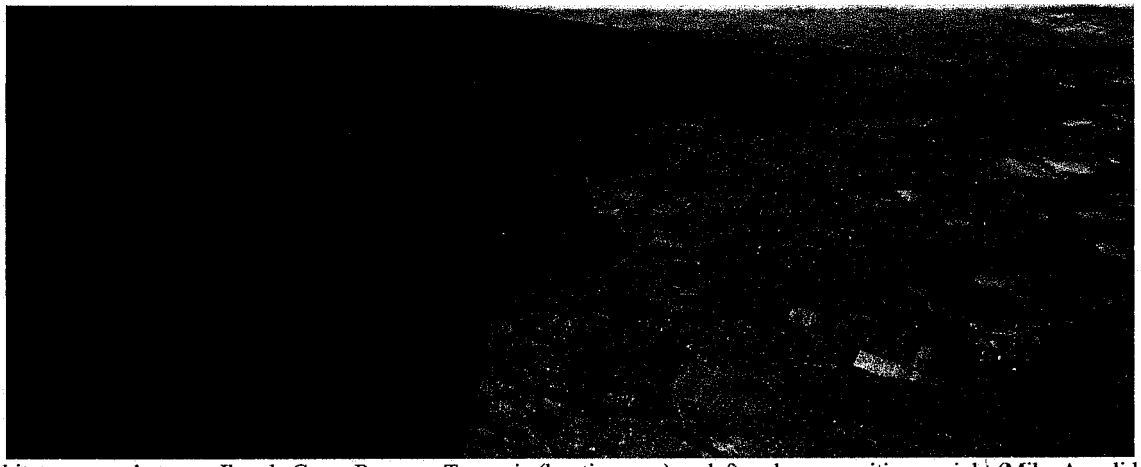
Habitat loss is the "most powerful" threat impacting lion.[v] "In the face of expanding human and livestock populations, protecting habitat and prey populations is likely the most important single factor in the conservation of lions in Africa."[vi] The leading lion ecologists agree that the "most important benefit from an African conservation perspective is that trophy hunting maintains vast areas of land for wildlife, which is invaluable in an ever more human-dominated world."[vii]

Most lion owe their existence to countries that rely on safari hunting as a conservation tool, with Tanzania representing the world's largest lion population and Mozambique, Namibia, South Africa, and Zimbabwe assessed as having "increasing" lion populations by the IUCN *Red List*.[viii] In Tanzania, for example, approximately 56.8% of the lion found in protected areas are found in hunting areas.[ix] Put simply, most lion rely on hunting area habitat thus would probably cease to exist but for hunting. "Love it or hate it, lions needed trophy hunting as much as trophy hunting needed lions."[x]

The Ratio of Hunting Areas to National Parks in Hunting Countries with the Most Lion[xi]

Country	Tanzania	Zimbabwe	Zambia	Mozambique
Size of Hunting Areas (km²)	304,000	88,000	180,000	134,425
Size of National Parks (km²)	58,000	28,000	64,000	87,806
Ratio of Hunting to National Park Areas	+5:1	3.14:1	2.81:1	1.48:1

3240 S. I-10 Service Rd. W., Suite 200, Metairie, Louisiana 70001-6911, USA
Telephone (504) 837-1233 • Fax (504) 837-1145 • E-mail: jjpr@conservationforce.org
www.conservationforce.org



Habitat contrast between Ibanda Game Reserve, Tanzania (hunting area) on left and communities on right (Mike Angelides)

Poaching Control

Safari hunting benefits the lion through financial support for anti-poaching, putting "boots on the ground," and as discussed in the next section, reducing rural communities' reliance on bush meat poaching.[xii] Hunting operators occupy their areas, pay hunting area lease, game, and other fees that government wildlife management authorities use to conduct anti-poaching patrols and purchase necessary equipment.[xiii] Government management authorities typically direct most of their budget to ranger staff costs, and rely on these hunting fees to pay salaries and equip rangers. For example:

- **Tanzania:** The Tanzania Wildlife Protection Fund (TWPF) underwrites conservation efforts inside and outside protected areas in Tanzania. Over 80% of the fund is utilized for poaching control and conservation activities. Through 2016, approximately 80% of funding for the TWPF and the Tanzania Wildlife Division came from hunting fees.[xiv]

- **Zimbabwe:** The Zimbabwe Parks and Wildlife Management Authority (ZPWMA) directs almost 80% of its budget to staff costs and more to equipment and training.[xv]

- **Mozambique:** According to Mozambique's National Administration of Conservation Areas, "Sport Hunting Revenues are used essentially to improve law enforcement in protected areas, hunting blocks and community programs such as Tchuma and Chipanje Chetu." From 2013-2015, this administration spent MTM 126,581,000 on poaching control.[xvi]

- **Namibia:** Hunting fees (hunting area and game) are deposited in the Game Products Trust Fund (GPTF), a statutory fund used to support conservation and rural community livelihood efforts in Namibia. From September 2012 to March 2015, the GPTF has spent N$ 27,915,463.80 on poaching control activities.[xvii]

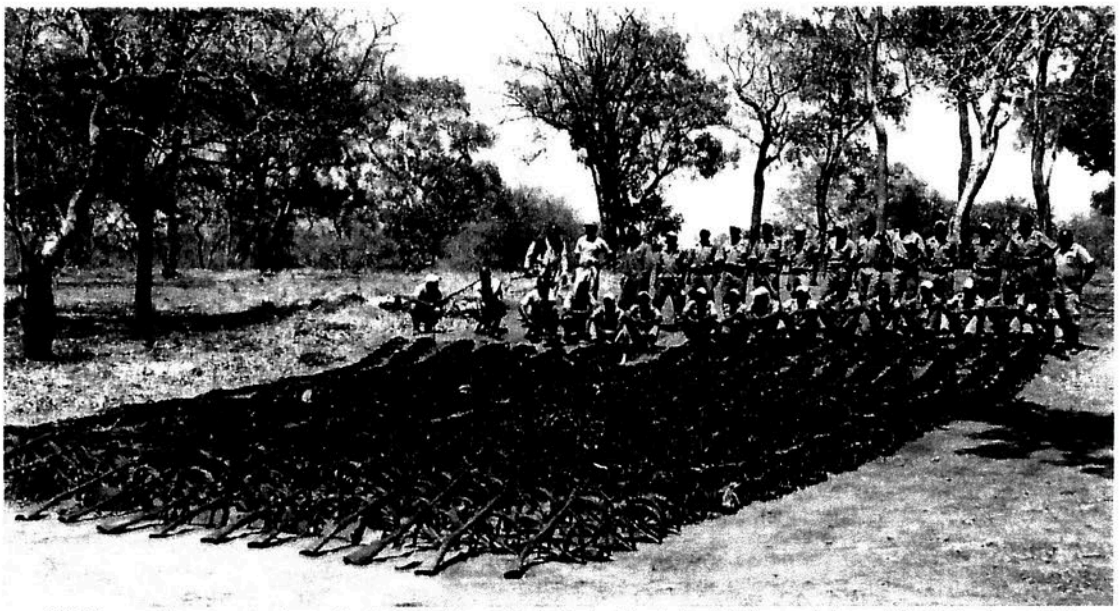
Further, hunting operators employ their own anti-poaching patrols to cover their hunting areas, reducing the government's patrol burden.[xviii] Operator expenses and contributions for their anti-poaching teams include: paying salaries for scouts and rewards for anti-poaching achievements; supplying rations and fuel for field patrols; providing equipment such as automobiles, boats, all-terrain vehicles, GPS, tents, and uniforms; and otherwise underwriting and coordinating financial and logistical support for on-the-ground anti-poaching units. The poaching control contributions detailed below describe only a sample of overall contributions by hunting operators. Their actual contributions are significantly higher.

- **Tanzania:** In 2016, Conservation Force audited 27 hunting operators, documenting the largely unreported benefits provided by safari hunting and lion hunting. Eleven operators maintain specific patrol records and recorded 7,170 patrol days in the 2013-2015 period (19.6 years of anti-poaching patrols). Operators reporting anti-poaching results accounted for 1,409 poachers arrested; 6,223 snares and gin traps collected; 171 firearms and 1,557 rounds of ammunition confiscated; 22 vehicles and 12 motorcycles seized; 670 bicycles seized; over 1,118 knives, machetes, spears, bows, and arrows confiscated; 65 canoes seized; and 216 fishing nets confiscated. In the 2013-2015 period, the operators spent approximately $6.7 million on anti-poaching and related road opening activities.[xix]

- **Zimbabwe:** A recent ZPWMA survey of 18 hunting operators indicated that on average each hunting operator spends over $87,000 on law enforcement in their hunting areas annually. All the sampled outfitters have lion on their hunting quota.[xx] In Zimbabwe's communal areas, hunting operators lease concessions, pay fees, and share revenues with rural district councils and villages. The councils' share is directed in part to law enforcement and from 2010 to 2015, rural district councils spent almost $1.8 million on law enforcement.[xxi]

- **Zambia:** In Zambia, a small sample of four hunting operators spent ~$202,000 on poaching control in their hunting areas in 2015.[xxii]

- **Mozambique:** In the 2013-2015 period, a sample of 13 hunting operators spent over $1.2 million on anti-poaching.[xxiii]



2015 poaching control results by Rio Save Safaris in Coutada 9, Mozambique (Neil Duckworth)

Rural Community Programs

Rural communities bear the burden of living with dangerous and destructive wildlife which kill or injure family members and destroy their crops and livestock. "No one ever forgets a lion attack."[xxiv]

Rural people must have incentives to tolerate lion and steward prey. Communities may choose to exploit wildlife and habitat illegally through commercial bush meat poaching or logging if they are unable to

legally benefit from the wildlife. They retaliate more against dangerous wildlife, like lion, if they do not benefit from the species.[xxv] Government-sponsored community-based natural resource management[xxvi] programs (CBNRM) and voluntary hunting operator contributions provide cash, game meat, infrastructure improvement, and other benefits to rural communities to incentivize tolerance and control poaching. The community programs below are examples of CBNRM and operator contributions:

- **Tanzania:** Tanzania's Wildlife Management Area (WMA) program has increased the amount of protected habitat available for lion and other species by incentivizing the use of land for conservation over other land uses. There are currently 21 WMAs and another 17 being gazetted. Approximately 500,000 households participate in WMAs and receive a share of block fees, game fees, conservation fees, and other fees. $1,337,717 in revenue was generated by safari hunting in WMAs from 2011 to 2014.[xxvii]

  From 2013 to 2015, a sample of hunting operators spent over $3.125 million on community programs. This included over $250,000 for health care, $337,000 for education, $231,000 in cash from game fees, and $24,000 to build six local government offices.[xxviii]

- **Zimbabwe:** Under CAMPFIRE, approximately 800,000 households (25% of Zimbabwe's population) benefits primarily (over 90%) from safari hunting. Between 1994 and 2012, $21.5 million was allocated to CAMPFIRE communities. From 2010 to 2015, CAMPFIRE wards utilized almost $3 million for assistance to wildlife victims, food security, direct cash benefits, and social services (rehabilitating and building schools and clinics, etc.). An estimated 550,000 kilograms of hunted game meat was also distributed to CAMPFIRE communities during this period. Because of these incentives, poaching and problem animal control in CAMPFIRE areas is relatively low.[xxix]

  In the 2013 to 2015 period, Charlton McCallum Safaris paid over $1.05 million into the CAMPFIRE program of which over $470,000 accrued directly into ward accounts. These funds were used to construct schools, nurses' houses, toilet facilities, and other incentivizers.[xxx]

- **Zambia:** Hunting operators in Game Management Areas contract with the government wildlife authority and local Community Resource Board (CRB) and must commit to anti-poaching and community investment. Under these agreements and Zambian law, 50% of game fees and 20% of lease payments are distributed to the CRB, and 50% of hunted game meat is distributed to local communities—an average of 129.8 tons of game meat per year. Hunting operators are further required to hire 80% of their staff from local communities. From 2010 to 2015, 34,330,042.68 Zambian Kwacha has been distributed to rural communities.[xxxi]

  In 2015 alone, a sample of four Zambian hunting operators contributed $99,900 to rural communities in their Game Management Areas.[xxxii]

- **Mozambique:** In Mozambique, 20% of hunting fees are distributed to the local communities. By decree communities formally register with the Ministry to receive revenue that is distributed through dedicated bank accounts. There are presently 45 registered communities under this program. Moreover, communities such as the Tchuma Tchato provide a higher revenue share.[xxxiii]

  A sample of 13 Mozambican hunting operators invested $830,000 in community projects from 2013 to 2015. For example, one operator constructed 43 homes and drilled 13 boreholes to improve the livelihoods of surrounding communities.[xxxiv]

- **Namibia:** The community conservancy system provides over 165,182 km^2 in habitat and benefits over 195,000 people. Most conservancies depend on safari hunting to fund their operations and to incentivize participation through distribution of game meat. The conservancy system has benefited lion and many other species by extending available habitat and prey, and has benefitted rural Namibians by generating N$ 111 million in returns to communities and 5,147 jobs. The GPTF has made over N$ 11 million in grants for programs aimed at mitigating human-wildlife conflict.[xxxv]



Community game scout training, CAMPFIRE Program (Director Charles Jonga)

Management Authority Operating Revenue

Safari hunting generates a significant amount of operating revenue for wildlife authorities to use for law enforcement, problem animal control, compensation payments for lion damage, monitoring, planning, and other management. Wildlife authorities benefit from fees paid to hunt specific game (license or game fees), additional daily fees charged for hunters and observers, concession lease fees, professional hunter licensing fees, firearm and ammunition fees, taxes, etc.[xxxvi]

- **Tanzania:** Through 2016, over 74% of the revenue generated to TWPF is comprised of 25% of the total proceeds of harvested game in Game Reserves and Open Areas. TWPF is a principal funding source for governmental rural community support and anti-poaching in Tanzania's protected areas.[xxxvii]

- **Zimbabwe:** From 2010 to 2015, safari hunting revenue accounted for ~22% of total ZPWMA revenue (over $5 million annually).[xxxviii]

- **Zambia:** The Zambian government suspended hunting from 2013 to 2014 (for most species) and 2013 to 2015 (lion and leopard). That caused a significant decrease in revenue generated from safari hunting. Prior to the suspension, safari revenue accounted for 32% of the management authority's annual revenue.[xxxix]

- **Mozambique:** Mozambique's Central Treasury retains 20% of safari hunting revenue. Twenty percent of the remaining revenue is allocated to rural communities from where the revenue accrued. The balance is allocated to Mozambique's National Administration of Conservation Areas. From 2013 to 2015, safari revenue was MTM 126,581,000.[xl]

- **Namibia:** The exact revenue generated by safari hunting for the GPTF is unknown, however, the fund is comprised of revenue collected from the sales wildlife and wildlife products on state lands.[xli]

Additional Lion Conservation Benefits of Tourist Safari Hunting

Hundreds of hunting-based conservation organizations and foundations have long provided tens of millions of dollars for lion conservation. Examples include the following:

- **Conservation Force:** For the past decade, Conservation Force (IUCN member) has spent up to $200,000 annually towards regional, national, and local lion action plans, population status surveying from Kruger National Park to Benin Complex, lion aging, and a plethora of research and publications such as *Conservation of the African Lion: Contribution to a Status Survey.*[xlii]

- **Dallas Safari Club and Dallas Safari Club Foundation:** Dallas Safari Club (IUCN member) and Dallas Safari Club Foundation funded $1,064,997 from 2007-2017 towards direct lion conservation initiatives such as lion genetic research, monitoring, surveys to the Tanzania Lion Illumination Project, Texas A&M Foundation, WildCru, Zambia Lion Project, et al.[xliii]

- **Safari Club International and Safari Club International Foundation:** Safari Club International Foundation (IUCN member) has contributed $300,611 towards the Tanzania Lion Project from 2014-2015 (total project investment estimated at $423,000), and $250,000 for the Zambia Lion Project from 2011-2015.[xliv] In one fundraising event alone, Safari Club International raised over $1.4 million for African lion conservation.[xlv]

Conclusion

Safari hunting is the foremost force against the extirpation of lion. Most lion depend on habitat designated as hunting areas and protected by the occupancy of hunting operators and operator revenue. Lion prey also depend on that habitat and stewardship. Further, safari hunting incentivizes greater tolerance of lion by rural communities and reduces poaching through the distribution of tangible community benefits. Lion populations are healthiest and most numerous in the countries where hunted. As long as there is safari hunting, there will be lion, but in the absence of safari hunting most lion will probably be lost to the three primary threats. Lion need tourist safari hunting as much as safari hunters need lion.

---

[i] Chardonnet, P. (ed.), 2002, *Conservation of the African Lion: Contribution to a Status Survey*, p. 103-113; IUCN, 2006, *Regional Conservation Strategy for the Lion Panthera leo in Eastern and Southern Africa* (2006), p. 23; IUCN, 2006, *Conservation Strategy for Lion in West and Central Africa*, p. 18; Bauer, H. et al., 2016, *Panthera leo* in *Red List of Threatened Species*, p. 2; Macdonald, D., 2016, *Report on Lion Conservation with Particular Respect to the Issue of Trophy Hunting*, p. 32; USFWS, 2015, *Listing Two Lion Subspecies: Final Rule*, p. 80007; USFWS, 2017, *Enhancement Finding for Lions Taken as Sport-hunted Trophies in Zimbabwe during 2016, 2017 and 2018*, p. 8.

[ii] *IUCN 2006*, p. 23.

[iii] Defined as managed, licensed, regulated safari hunting by non-resident hunters for the hunter's personal enjoyment and use. It is the key part of the user-pay sustainable use system. Also called "sport hunting" to distinguish it from hunting for commercial purposes, "safari hunting" for short, "licensed, regulated hunting" because that is what it is, "big game hunting" to distinguish it from small game hunting, and "conservation hunting" because of the management purpose, design and effect. We do not use the term "trophy hunting" because it has come to be misused and is indicative of too small a component of the values of a safari hunt.

[iv] Defined as a positive conservation contribution to lion or lion habitat, prey, and lion perpetuation. It is enhancement. It is above and beyond a non-detriment, no net loss, or sustainability determination.

[v] *Chardonnet*, p. 103.

[vi] Loveridge, A.J., 2009, *Science and Recreational Hunting of Lions*, p. 120.

[vii] Dickman, A., 2018, *Ending trophy hunting could actually be worse for endangered species*, http://www.cnn.com/2017/11/24/opinions/trophy-hunting-decline-of-species-opinion-dickman/index.html; *see also* Loveridge, p. 120 ("Substantial areas of well-connected habitat with abundant natural prey populations are crucial for healthy, self-sustaining lion populations... In the face of expanding human and livestock populations, protected habitat and prey populations is likely the most important single factor in the conservation of lions in Africa."); *Macdonald*, p. 34 ("The protection of wildlife habitat is the primary benefit associated with trophy hunting, as it reduces the major threat of habitat loss—conversion to other forms of land use such agriculture and livestock"); Packer, C., 2015, *Lions in the Balance*, p. 31 ("the simple truth of the matter was that [hunters] controlled four times as much of lion habitat in Africa than was protected by the national parks. So 80 percent of the lions left in the world were in their hands").

[viii] *Macdonald*, p. 27; *Bauer*, p. 7-8.

[ix] *Tanzania Lion NDF*, p. 9.

[x] *Packer*, p. 42.

[xi] These hunting countries manage the most lion. Tanzania alone has more lion than the rest of Africa. Namibia is not included although its increasing lion population is attributed to safari hunting because it is not a high population area. South Africa has 11,000 lion but is excluded as an outlier because approximately 8,000 are captive bred, not wild.

[xii] *Macdonald*, p. 35.

[xiii] *Macdonald*, p. 35.

[xiv] *Tanzania Lion NDF,* p. 61.

[xv] *Zimbabwe Lion NDF*, p. 26-27.

[xvi] Mozambique National Administration of Conservation Areas, 2016, *Response to your letter dated 2 Feb 2016 on African Lion in Mozambique*, p. 10.

[xvii] Game Products Trust Fund, Website, http://www.gptf.org.na.

[xviii] *Tanzania Lion NDF*, p. 11, 16-17.

[xix] Conservation Force, 2016, *Tanzania Lion Enhancement Summary Report*, http://docs.wixstatic.com/ugd/87ac64_dcddf23899b847d7acbc0b9774eab119.pdf, p. 2-4.

[xx] *Zimbabwe Lion NDF*, p. 28-29.

[xxi] *CAMPFIRE Report*, p. 16.

[xxii] Conservation Force, 2016, *RE: Zambian Operator Enhancement Report Summary*, p. 1.

[xxiii] *Mozambique Lion NDF*, p. 19.

[xxiv] *Packer*, p. 42 ("Lions were mean, vicious, terrible, horrible, awful animals; local people hated them....").

[xxv] Naidoo, R., 2016, *Complementary benefits of tourism and hunting to communal conservancies in Namibia*, p. 2; *Loveridge*, p. 120; *Lindsey*, p. 463; *Macdonald*, p. 42.

[xxvi] "CBNRM aims to create the right incentives and conditions for an identified group of resource users within defined areas to use natural resources sustainably. This means enabling the resource users to benefit (economically) from resource management and providing strong rights and tenure over land and the resources. CBNRM also

supports the development of accountable decision-making bodies that can represent community members and act in their interests. CBNRM promotes conservation through the sustainable use of natural resources, enables communities to generate income that can be used for rural development, and promotes democracy and good governance in local institutions." USAID, *What is Community-Based Natural Resource Management (CBNRM)?*, p. 1.

[xxvii] USAID, 2013, *Tanzania Wildlife Management Areas Evaluation: Final Evaluation Report*, p. 12, 74; Wambura, G., 2016, *The Role of Local Communities in Enhancing Wildlife Conservation in Tanzania Presentation*, p. 8, 23-24, 38; *Tanzania Lion NDF*, p. 45.

[xxviii] *Conservation Force Tanzania Lion Report*, p. 5-7.

[xxix] *CAMPFIRE Report*, p. 5-7, 10-11, 21; Jonga, C., 2017, *CAMPFIRE Association Press Statement on Lifting of the Suspension of Elephant Trophy Imports into America*, https://www.campfirezimbabwe.org/index.php/news-spotlight/26-press-statement-21-november-2017 ("Despite [human life and crop] losses, the poaching of elephant in CAMPFIRE areas is relatively low").

[xxx] Conservation Force, 2017, *Request for Reconsideration of Denial of Permit Application PRT-04846C and PRT-04205C*, p. 14.

[xxxi] *Zambia Lion NDF*, p. 27-28, 43, 45, 49. (Note that this figure would be higher, but hunting was suspended in 2013 and 2014, and lion hunting was suspended from 2013 to 2015. Zambia's communities played a major role in lifting the suspension.) *See also* Onishi, N., 2016, *A Hunting Ban Saps a Village's Livelihood*, The New York Times, https://www.nytimes.com/2015/09/13/world/a-hunting-ban-saps-a-villages-livelihood.html.

[xxxii] *Conservation Force Zambia Report*, p. 2.

[xxxiii] *Mozambique ANAC Response*, p. 9, 11.

[xxxiv] *Mozambique Lion NDF*, p. 19; McDonald Safaris, 2016, *McDonald Safaris Operator Report*, p. 1.

[xxxv] Namibian Association of CBNRM Support Organisations, 2016, *The State of Community Conservation in Namibia: A review of communal conservancies, community forests and other CBNRM initiatives annual report 2016*, p. 7; Game Products Trust Fund, Website, http://www.gptf.org.na; *see also Macdonald*, p. 26 ("This community-based conservation model is thought to be one of the key factors behind Namibia's expanding population of free-roaming lions.").

[xxxvi] *Lindsey*, 462-464.

[xxxvii] *Tanzania Lion NDF*, p. 47.

[xxxviii] *Zimbabwe Lion NDF*, p. 27.

[xxxix] *Zambia Lion NDF*, p. 46-47.

[xl] *Mozambique ANAC Response*, p. 9-10.

[xli] Game Products Trust Fund, Website, http://www.gptf.org.na/about-us.php.

[xlii] Jackson, J., 14 Dec. 2017, personal communication; *see also* Conservation Force, Website, http://www.conservationforce.org/brochures-posters-reports.

[xliii] Mason, C., 13 Dec. 2017, personal communication.

[xliv] Safari Club International Foundation Department of Conservation, *Safari Club International Foundation Conservation Highlights*, unpaginated.

[xlv] Safari Club International, Website, https://www.safariclub.org/what-we-do/media/hunt-forever-blog/hunt-forever/2013/02/13/hunters-can-save-lions-and-lion-hunting.

APPLICANT:

MAURICE MOORE

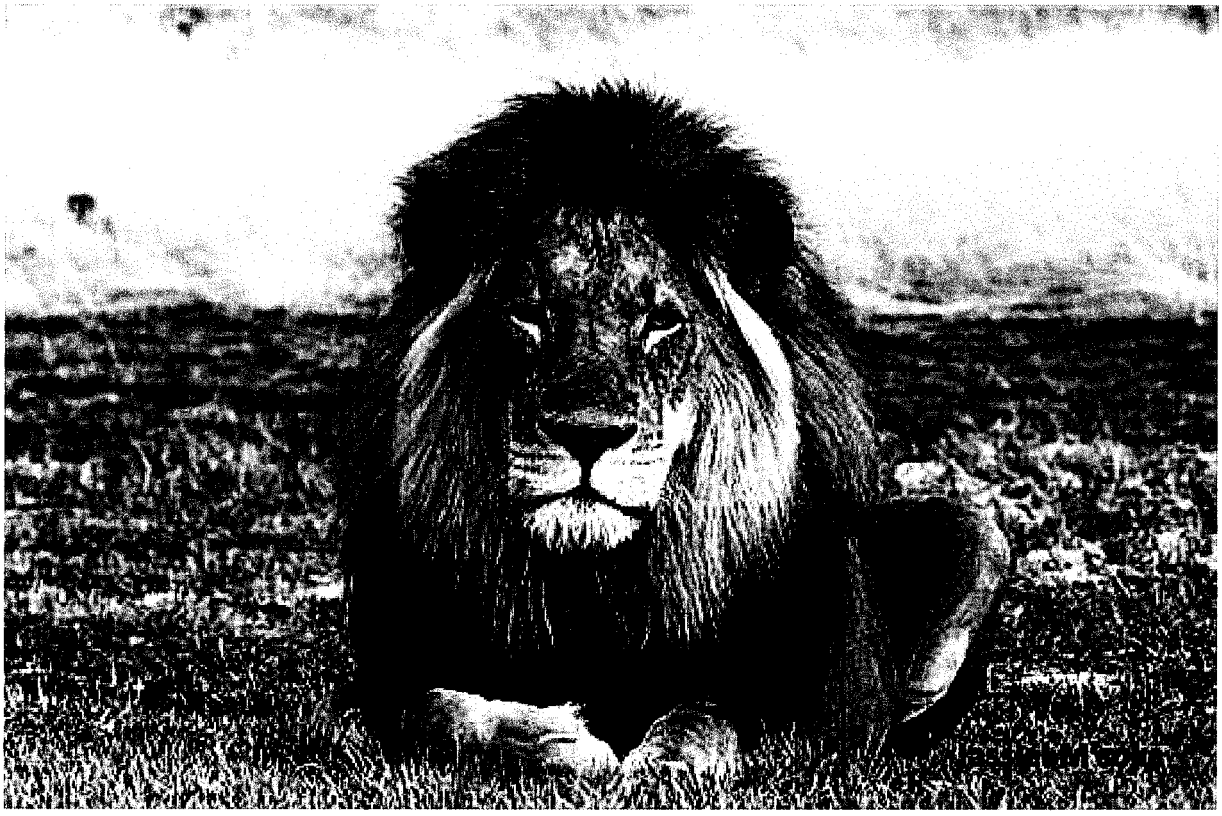
ENHANCEMENT AND NON-DETRIMENT FINDINGS FOR AFRICAN LION SPORT HUNTING IN ZAMBIA

"CONSERVE WILDLIFE"

MINISTRY OF TOURISM AND ARTS

DEPARTMENT OF NATIONAL PARKS & WILDLIFE

ENHANCEMENT AND NON-DETRIMENT FINDINGS FOR AFRICAN LION SPORT HUNTING IN ZAMBIA



MAY, 2016
UPDATED JANUARY 2020

Department of National Parks & Wildlife
P/Bag 1,
Chilanga
Tel: (260) 211 278335, 211 278365
Fax: (260) 211 278365, 211 278244
Email: info@dnpw.mota.gov.zm

TABLE OF CONTENTS

1.0 INTRODUCTION 6

2.0 BIOLOGICAL STATUS 6

2.1 DISTRIBUTION 6

2.2 POPULATION STATUS 7
2.2.1 LUANGWA ECOSYSTEM 8
2.2.2 KAFUE ECOSYSTEM 10
2.2.3 LOWER ZAMBEZI ECOSYSTEM 11
2.3 GENETIC VARIABILITY 11

3.0 CONSERVATION AND MANAGEMENT 12

3.1 LEGISLATION AND POLICY 12
3.2 PRIMARY LEGISLATION RELATED TO HUNTING 13
3.2.1 CLASSES OF LICENSES 13
3.2.2 THE WILDLIFE FUND 14
3.3 SUPPORTING STATUTORY INSTRUMENTS (SIS) 14
3.4 ZAMBIA'S CONSERVATION STRATEGY AND ACTION PLAN FOR THE AFRICAN LION 15
3.4.1 OTHER SPECIES CONSERVATION PLANS AND STRATEGIES THAT INTERACT WITH LION CONSERVATION STRATEGY 16
3.5 DNPW ORGANIZATION AND ACTIVITIES 17
3.5.1 ANTI-POACHING OPERATIONS 19
3.6 STAKEHOLDER INVOLVEMENT IN LION CONSERVATION 20
3.6.1 HUNTING OUTFITTERS 20
3.6.2 COMMUNITIES 20
3.6.3 NON-GOVERNMENTAL ORGANIZATIONS 20

4.0 ZAMBIA LION RESEARCH 21

5.0 UTILIZATION 22

5.1 SAFARI HUNTING IN ZAMBIA 22
5.2 LION HUNTING AREAS 22
5.2.1 GMAS 23
5.2.2 OPEN GAME RANCHES 24
5.3 HUNTING QUOTAS 25
5.3.1 QUOTA ALLOCATION PROCESS 25
5.4 STATUS OF BLOCK ALLOCATIONS 28
5.4.1 OBLIGATIONS OF THE CONCESSIONAIRE IN THE HUNTING CONCESSION AGREEMENT 28

5.4.2 TENDER PROCESS FOR HUNTING BLOCKS 31
5.4.3 COMPLIANCE TO OBLIGATIONS OF THE CONCESSION AGREEMENT 31
5.5 QUOTA SETTING AND GMA MANAGEMENT 32
5.5.1 TREND IN OVERALL QUOTA ALLOCATIONS 32
5.5.2 QUOTA ALLOCATION ACROSS ECOSYSTEMS 32
5.5.3 UTILISATION OF QUOTA 34
5.6. VALUE OF 2018 QUOTA 35
5.6.1 INCOME GENERATION OF THE 2018 QUOTA 35
5.7. LION QUOTAS AND UTILIZATION PRE-MORATORIUM (2005 – 2012) 38
5.8 DEVELOPMENT OF LION HUNTING QUOTAS AND GUIDELINES FOR HUNTING LIONS AFTER THE MORATORIUM 41
5.9 MECHANISM FOR MONITORING TROPHY HUNTING IN ZAMBIA 45
5.9.1 QUOTA MONITORING 45
5.9.2 LION HUNTING MONITORING 45
5.10. LION QUOTA ALLOCATION AND UTILIZATION 2016 - 2018 48
5.11 INTERNATIONAL TRADE 52

6.0 INVOLVEMENT OF THE HUNTING SECTOR IN LION CONSERVATION 52

6.1 BENEFITS OF LION HUNTING IN ZAMBIA 52
6.1.1 ECOLOGICAL BENEFITS 52
6.1.2. ECONOMIC BENEFITS 53
6.1.3. SOCIAL BENEFITS 53
6.2 TRANSPARENCY 54

7.0 THREATS AND MITIGATION 54

7.1 MITIGATION OF HABITAT LOSS, ENCROACHMENT AND FRAGMENTATION 54
7.1.1 GENERAL MANAGEMENT PLANS 56
7.1.3 OPEN GAME RANCHES AND TRANS-FRONTIERS CONSERVATION AREAS 56
7.2 HUMAN LION CONFLICT 57
7.3 BUSH MEAT POACHING AND PREY DEPLETION 58
7.3.1 PREY AVAILABILITY AND ABUNDANCE 59

8.0 COMMUNITY BASED NATURAL RESOURCES MANAGEMENT (CBNRM) 62

8.1 CBNRM IN ZAMBIA 62
8.2 COMMUNITY BENEFITS 63
8.3 GOVERNANCE OF CRBS 65
8.4 CONTRIBUTION OF HUNTING REVENUES TO CRBS 65
8.4.1 COMMUNITY LIVELIHOODS AND DEVELOPMENT THROUGH CRB PROJECTS 66

9.0 REVENUES AND EXPENDITURES FROM TROPHY HUNTING 67

9.1 ANIMAL AND HUNTING FEES 68
9.2 DNPW INCOME AND EXPENDITURE 68
9.2.1 VALUE OF HUNTING CONCESSION AGREEMENTS 69

10.0 EVALUATION AGAINST THE U.S. ENDANGERED SPECIES ACT (50 CFR 17.32) PERMIT ISSUANCE CRITERIA 72

11.0 CONCLUSIONS AND NON-DETRIMENT FINDINGS 73

12.0 REFERENCES 75

ANNEX 1 NATIONAL PARKS AND WILDLIFE POLICY, AUGUST 2018. 80

ANNEX 2: LIST OF CRBS REGISTERED IN EACH REGION 81

LIST OF FIGURES

Figure 1. Distribution of lion in Zambia 7
Figure 2: Organization Structure for the Department of National Parks and Wildlife 17
Figure 3. Organization of the Wildlife Conservation and Management Division DNPW 19
Figure 4: Area of GMAs (km^2) in each of the ecosystem clusters where hunting blocks are located....23
Figure 5: The location of hunting blocks and grading within the GMAs in relation to the national parks and Mushingashi Conservancy....27
Figure 6: Overall quota allocation (4535 animals) per ecosystem in 2018 33
Figure 7: Total quota allocation by category in 2018. 63% is allocated to the non-resident quota. 33
Figure 8: Allocation of the lion quota by hunting category in 2018 and 2019. 34
Figure 9: Allocation of the 2018 lion quota across the major ecosystems. Kafue and Luangwa take up the bulk of the lion quota. 34
Figure 10: Example of lion sighting form used by Professional Hunters 45
Figure 11: Lion Trophy record form 47
Figure 12: 2018 quota allocation of lion across the occupied hunting blocks in the GMAs. Note that quotas allocated to OGR is not shown 49
Figure 13: Population trends for selected species in the Kafue National Park 1994-2019 (Source DNPW 2019, in review) 60
Figure 14:Ungulate population trends in South Luangwa National Park 61
Figure 15: Population trends for buffalo, impala, waterbuck and warthog in the Lower Zambezi National Park 61
Figure 16 Species abundance in the Luangwa ecosystem National Parks vs GMAs 62
Figure 17: Comparison of income from Consumptive and Non-Consumptive Revenues and the impact of the hunting ban in 2013 – 2014 69

LIST OF TABLES

Table 1. Previous lion population estimates for Zambia 8
Table 2: Zambia Law Enforcement Effort: 2016 – 2018 19

Table 3: Results from Law Enforcement Operations carried out by the Wildlife Law Enforcement Unit.....20
Table 4: Summary of hunting block categories.....23
Table 5: List of Open Game Ranches in Zambia.....25
Table 6: Institutions involved in Zambia's quota allocation process.....26
Table 7: Current Annual financial obligations of hunting concessionaires to Communities in selected Game Management Areas (In Zambian Kwacha).....29
Table 8: Contributions of Safari Companies to Wildlife Conservation from the Luangwa and Kafue ecosystem (2008 - 2019).....30
Table 9: Trend in the quota set by ZAWA and DNPW for all species and key classic and mini hunt trophies..32
Table 10: Ranked top 10 species utilisation levels for non-resident quotas recorded between 2003 - 2011 (adapted from Chomba and Nyirenda, 2015)......35
Table 11: Overall income (US$) generated from the sale of 100% of the 2018 quota allocated to prime, secondary, understocked and specialised hunting blocks.....36
Table 12: Total animal licence fee income (US$) and overall contribution of the 2018 lion quota......36
Table 13: Potential gross income (US$2,138,600) of seven main species that contribute to Classic and Mini Hunts that define the block categories.....37
Table 14: Zambia lion Allocated Quotas for the period 2005 to 2012.....39
Table 15: Lion harvest rates in Zambia 2005 – 2012 (Lions /1000 km^2).....40
Table 16: Lion Hunting Quota for 2016.....41
Table 17: Age categories defining lion trophies as described in the DNPW hunting guidelines.....43
Table 18: Summary of the number of lions harvested between 2016 and 2018 and classified into categories according to the criteria defined in the hunting guidelines......48
Table 19: Allocation of lion quotas per hunting block and OPG's – 2018 and 2019.....50
Table 20: Status of General Management Plans in Zambia's lion hunting Areas.....56
Table 21: Control of Problem Lions in Zambia 2002-2018.....58
Table 22: Total disbursement of Game License (50%) and Concession fee (20%) to CRBs. (Data source: Zambia National CRB Association, Lusaka).....66
Table 23: List of community projects implemented by CRBs in the four regions using funds from hunting blocks. (Source: Zambia CRB Association, Lusaka).....67
Table 24: Total ZAWA/DNPW Revenues (ZMW) 2010 – 2018 (Source: DNPW Accounts Unit).....70
Table 25: ZAWA/DNPW Expenditures (ZMW) 2010 - 2017 (Source: DNPW Accounts Unit).....71

1.0 Introduction

Zambia's policy on conservation is based on sustainable utilization as a way to enhance the economic and ecological importance of biodiversity. In this regard, lion has an important role not only as an apex terrestrial carnivore in the Zambian ecosystem but, also as a potential provider of economic benefits to the people of Zambia especially those living in rural communities. Zambia realizes the threats that the species is facing, and therefore the need of having strategies, programmes and plans on lion conservation. In this vein, the Zambian government through the then Zambia Wildlife Authority (now Department of National Parks and Wildlife - DNPW) formulated a lion conservation strategy (2010) and more recently (2019) has revised the guidelines on hunting of lion in Zambia, which were drafted in 2016.

Importantly, the Zambian government in the recent past has promulgated a suspension of, inter alia, lion trophy hunting from 2013 to 2015, but the suspension was lifted in 2016 after data collection on Zambia's lion population showed that a limited offtake is sustainable and impacted rural communities requested that the suspension be lifted due the detrimental impact on their livelihoods and increased human-livestock-lion conflict without hunting revenues.

In 2015, major legal reforms occurred in the wildlife sector with the review of the Zambia Wildlife Act No. 12 of 1998. The reforms give new impetus to the structure of wildlife conservation in the country. To strengthen the lion management programme, DNPW needs additional resources to reinvest into lion research, protection and conservation. Sustainable utilization, in the form of highly selective and well-monitored sport hunting, can provide the needed revenues to achieve these goals. The proceeds from lion sport hunting are re-invested into conservation and sustainable development in local communities. In this way, sustainable sport-hunting of lions provides direct benefits to both conservation of Zambia's wild lion populations and the people living with the lions in their areas thereby promoting conservation ethics at the national and local level.

Since the re-introduction of trophy hunting for lion in 2016, the DNPW is implementing an adaptive management strategy that limits the off-take of lions. To support this approach, it has experimented a robust age-based monitoring programme, that will become binding for the 2020 hunting season.

In doing so the DNPW has drawn on the lessons learnt from the responses of scientific community (e.g. Macdonald, 2016) and the conclusions of FWS enhancement findings (USFWS 2017) to guide its implementation of the science-based Zambian *Conservation Strategy and Action Plan for African Lion* (ZAWA, 2009). This strategy is the platform being used to introduce best practices in conservation of lions (and other large carnivores) to ensure their long-term sustainability in Zambia and will be updated in 2020.

This enhancement and non-detriment finding provides an update to the *Enhancement and Non Detriment Findings for African Lion Sport Hunting in Zambia* prepared in May 2016 (DNPW, 2016).

2.0 Biological status

2.1 Distribution

There are three main clusters of lion populations in Zambia; Kafue, Luangwa and Lower Zambezi ecosystems, the latter two of which share connectivity through the intervening game management areas. Cushman *et al.* (2018) rank the Kafue and Lower Zambezi ecosystems as the second and third most important dispersal areas for lion in the region but draw attention to the threats facing the

corridors linking these areas that are addressed in the Kavango Zambezi Transfrontier Park (KAZA) Large Carnivore Conservation Strategy (in press).The historical distribution of lion prior to the 1960s is recorded as occurring throughout Zambia (Ansell, 1978), although this very general statement is likely to be reflective of historic habitat porosity, low human density and popular perceptions as opposed to being documented through systematic surveys. Current distribution of the species is restricted to National parks and the surrounding game management areas with a few lion sightings and dispersers reported each year in open areas. In addition to stronghold populations in the three main clusters, smaller numbers of lions exist in Liuwa Plains, Sioma Ngwezi, Nsumbu and the Lavushi Manda National Parks. The Kazungula and Siavonga Open Areas have vagrant populations shared with other countries. Historically, lions occurred in the West Lunga complex, although no recent sightings have been reported from that area. In contrast, lions have been documented in the Bangweulu Swamp area in recent years (Fig 1). The Lower Zambezi Population is the only significant population that is likely to be transboundary, although lions are known to move between countries in the Kavango Zambezi Transfrontier Park (KAZA).

The total lion range in Zambia is about 148,000 km^2, representing about a 63 % of Zambia's protected area network (230,000 km^2).

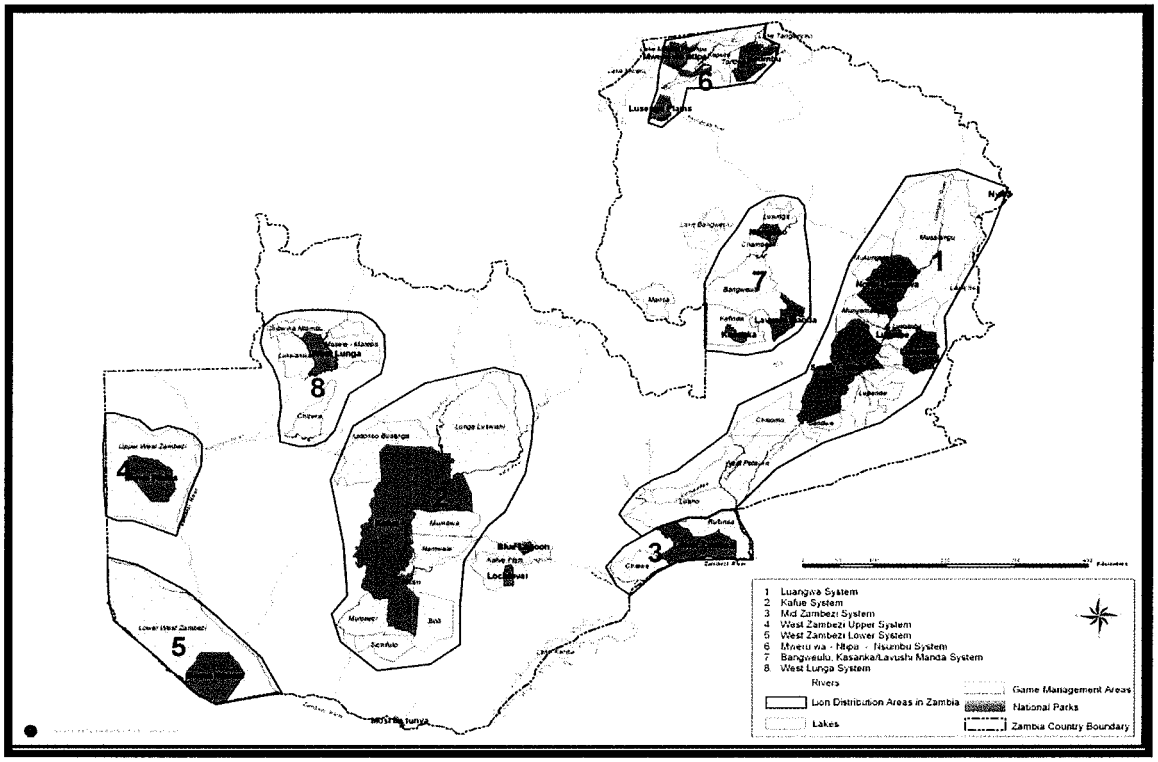


Figure 1. Distribution of lion in Zambia

2.2 Population status

Low density, broad and clumped distribution, largely nocturnal activity pattern, and the difficulty of observing lions in areas outside of those heavily visited by photo-tourists, makes the precise inventory of lion populations a difficult task (Schaller, 1972). These difficulties may be overcome in areas where lions are habituated to humans, but represent significant hurdles in areas where lions are heavily affected by human persecution such that they may lead to gross underestimates (Bauer & Van Der Merwe, 2004).

Previous lion estimates for the country have typically relied on expert opinion e.g., Chardonnet, 2002; Bauer and Van Der Merwe, 2004; Riggio, 2011; Riggio et al., 2013. Bauer and Van Der Merwe, 2004 gave a total national estimate of 1,500 lions, without breaking it down into component ecosystem populations. Table 1, presents the estimated lion populations according to Chardonnet, (2002) and Riggio (2011). There are subtle differences in the estimates between the two in that areas looked at differed in terms of area size. For example, whereas Chardonnet, 2002 estimated lion population for Nsumbu National Park, Riggio, 2011 included Lusenga Plains National Park in their estimate.

Table 1. Previous lion population estimates for Zambia

Protected Area	2002	2011
Nsumbu Complex	39	<50
Bangweulu		<50
Luangwa Ecosystem	1,633	
Petauke Corridor	165	425 - 835
Lower Zambezi NP and Kariba shore	183	
Kafue Ecosystem	1026	250 - 500
West Lunga	153	153
LPNP, SNNP & West Zambezi GMA	376	
LPNP		3
SNNP		<50

Source: Chardonnet, 2002 and Riggio, 2011.

Due to varying estimates, the Zambia Wildlife Authority (now DNPW) continues to work closely with the Zambia Carnivore Programme (ZCP) that, starting from 2007 is monitoring lion populations in South Luangwa National Park (SLNP) and the adjoining Game Management Areas (GMAs), Kafue National Park (KNP) and Liuwa Plains (ZCP, 2018). Intensive monitoring areas have been instituted within the larger Luangwa and Kafue ecosystems specifically aimed at estimating the status of the lion populations in these key ecosystems.

Overall, estimates are based on observed numbers in the field and have not taken into consideration effort and detection to vigorously estimate the population size for the study area. But indicators are that the moratorium on hunting has stabilized prides in the study area and improved cub survival and number of male coalitions. Therefore, the estimate of 1,200 lions present in Zambia given by Macdonald, 2016 should be considered also as a guess estimate.

The sections below give a summary of the results in each of the core lion areas.

2.2.1 Luangwa Ecosystem

The Luangwa ecosystem can be divided into two parts; the Upper Luangwa consisting of South Luangwa, North Luangwa, Lukusuzi, Nyika, and Luambe National Parks with the surrounding Musalangu, Lupande, Munyamadzi, Mukungule and Sandwe Game Management Areas. The other area is what is considered as the Corridor Area (linking South Luangwa National Park with Lower Zambezi National Park) consisting of West Petauke, Chisomo and Luano GMAs with the surrounding Open Game Ranches (OGRs). The Luangwa is considered as the most important lion cluster in the

country (ZAWA, 2009, DNPW 2016). The density of lion in this ecosystem is likely affected by the topography, with the valley section having more prey density than the plateau and escarpment sections.

Yamazaki 1996, studied 63 lions in 6 prides in a 355 km^2 portion of the Luangwa Valley, the Nsefu sector and part of the Lumimba and Lupande Game Management Areas. He reported population densities ranging from 12.4 – 13.8 lions /100km^2. He found that the status of the male lion population in the study area was affected by high harvest rate.

A more recent field study (Rosenblatt et al 2014), found for a portion of (2776km^2 study area) South Luangwa NP, a minimum density of 3.4 lion/100km^2 and a maximum density of 8.83 lion /100km^2. The IUCN Red List Assessment (Bauer et al 2015) for lion report in Table 3 of the Supporting Information a decline of 28% in the Luangwa population Such Table 3 caption is the following: *Inferred Lion population trend based on interpolated census data from 1993-2014 in 47 monitored Lion subpopulations (note that these are study subpopulations not necessarily representing total site subpopulation).* In fact, the data shown above is only for a small portion of the South Luangwa NP and not for the whole ecosystem.

In reality the Rosenblatt et al., 2014 study referenced above report an initial population estimate in 2008 of 102 (95%CL 90 - 123) lions and a final population estimate in 2012 of 94 lions (95%CL 92 - 106) a 9.21% decline i.e., about a 2% decline per year (2008-2012) and not a 28% decline as suggested and inferred by the IUCN data. A published rebuttal to the IUCN data and to a subsequent publication by Bauer et al. (2015b) that relied on the IUCN data, points out several errors in data analyses and draws a very different conclusion to claims of continent-wide species decline. (Riggio et al. 2015)

The Zambian Carnivore Programme has continued with field studies in the same study area of Rosenblatt 2014 (2776km^2 study area), to analyse, inter alia, lion demography in the area. In 2013, ZCP reported preliminary lion numbers were high. This was based on intensive monitoring of 13 prides and 13 coalitions collectively comprising 141 individuals, with 3 adjacent prides of 20 animals each and a number of new male coalitions (ZCP, 2014). This implies that the study population together with pride in adjacent areas was at least 200 lions. In 2014, ZCP indicated it was monitoring 15 prides and 13 coalitions, with a total of 166 individual lions identified and re-sighted.

In 2018 ZCP monitored 215 individuals in 19 prides and 17 coalitions across the same study area of 2776km^2 which included South Luangwa National Park and the adjacent Lupande and Lumimba Game Management Areas. Study is also being expanded northwards into North Luangwa National Park and southwards into the Open Game Ranches in response to changing spatial dynamics by some study prides and conducted additional survey and monitoring work in collaboration with the DNPW.

ZCP together with the DNPW published a peer-reviewed paper in 2018 (Mweetwa et al. (2018) evaluating 8 years of Luangwa lion demography, spanning both the three-year hunting moratorium and five years prior.

This study monitored 386 individual lions within and around SLNP for five years (2008–2012) with trophy hunting, and for three years (2013–2015) during the moratorium. These data are used to estimate the effects of hunting on lion survival, recruitment, and abundance. It concluded that hunting lowered the subadult and adult male survival by 17% and 14% in subadult and adult males respectively, with smaller effects on adult female and cub survival. Large increases in lion abundance occurred during the hunting moratorium, with the study population approximately doubling by the last year of the moratorium. More cubs were produced each year of the moratorium than in any year with trophy hunting, and lion demographics shifted from a senescent and male-depleted population to a much younger population with >29% of all known adults being male. While the moratorium was

controversial, it has contributed to creating the desired changes in the lion population and demonstrates that by applying a rigorous management programme, lion populations will recover rapidly.

This study provides valuable lessons of the effects of trophy hunting on populations within protected areas that can move freely across the boundaries and emphasises that sustainable hunting of large carnivores is dependent on sound conservative harvest policies and that these policies should also consider prey density that links lion offtake with production. It is important to note that the study reached the same conclusions of the 2016 NDF i.e. that any sustainable harvesting strategy must consist of conservative quotas, age-based harvesting, and systematic monitoring to address the inherent uncertainty that accompanies the understanding of demography in naturally sparse large carnivores.

No intensive research has been conducted in the corridor area (refer to first paragraph in this section), but, a first animal count was conducted by DNPW (DNPW 2018) from 1st October to 10th October, 2018 in Lower Luano GMA in order to ascertain the current status of wildlife species. This count was done by transect line using known tracks for the larger ungulates and point sample counts (call-ins) for the predators. Seven lions responded to the call-ins while five lions were found on the way to call-ins. The report concluded that there is need to conduct follow-up calling counts in Lower Luano GMA as well as an in-depth analysis of the individuals on the photographs from the camera traps in order to distinguish the individual so as not to ensure double counts happened. Additionally, there is a need for validation of calling-station survey by means of GPS radio-collars data and that the population size and density of wild animals in general in the Lower Luano GMA was fair to low but all indications were that is was a recovering population.

Based on the current data, the lion population in the Luangwa Ecosystem is considered to be stable and potentially increasing.

2.2.2 Kafue Ecosystem

The Kafue National Park and surrounding Game Management Areas cover an area of approximately 66,000km^2. The earliest intensive studies on lion in the Kafue ecosystem were carried out between 2003 and 2005 by Ron and Anne Carlson (Becker et al., 2012). Since then a number of studies have been initiated to determine abundance and vital rates (Midlane et al., 2014, 2015 and ZCP, 2014).

The study by Anne and Ron Carlson covered an area of 4,720km^2 in northern Kafue National Park bordering the Lunga Luswishi and Kasonso Busanga GMAs (Becker et al., 2012). Population data was collected from 107 individually identified animals in 13 prides and 4 coalitions. The density of lion ranged between 1.5 adults/100km^2 and 1.8 lions/100km^2. The study population age structure was 21% cubs, 11% sub-adults, and 68% adults. The adult sex ratio was 3 females to 1 male. Mean pride size ranged from 2 to 7 adult females. Adult males comprised 17% of the observed population.

Midlane et al., 2015 estimated 228 lions (95 % CI 179 – 277) and 264 (95 % CI 204 – 325) for an 11,000 km^2 study area in northern Kafue. Estimated population density was 2.08 lions/100 km^2 in 2010 (95 % CI 1.63–2.53) and 2.41/100 km^2 (95 % CI 1.86–2.96) in 2011. Midlane et al's 2015 density of lion was higher than the estimated density by Becker et al, 2012. However, differences in methods and categorization of age classes preclude comparison.

In 2013, ZAWA (now DNPW) in collaboration with ZCP initiated intensive monitoring study of lions in northern Kafue covering the same intensive study area of Midlane et al's 2015 study, to monitor not

only monitor abundance and trends, but to also estimate vital rates for this population. At the close of the 2014 season, there were 56 uniquely identified lions in 9 collared prides and 6 male coalitions, with several other unknown adults nomadic through the area (ZCP, 2014). Building on Carlson's and Midlane's studies the ZCP study represents a long term effort to provide demographic vital rates for this population of lions.

In 2018 ZCP (ZCP 2018) intensively monitored 15 prides and 15 coalitions totalling 173 lions across Northern and Central Kafue in 2018 extending the study area to the remote Kasonso-Busanga GMA. This important area has been, in the past, heavily depleted from poaching but has seen substantial investment that led to amazing recovery of wildlife through the excellent work of the concessionaire of the hunting block.

It is believed that the lion population in this ecosystem is stable or possibly increasing.

2.2.3 Lower Zambezi Ecosystem

The third significant lion cluster in Zambia is represented by the Lower Zambezi system, composed of the Lower Zambezi NP, and the Chiawa and Rufunsa GMAs. This system is linked to the Luangwa ecosystem through Luano, West Petauke, and Chisomo GMAs and the Open Game ranches in the open areas east of the Luangwa River.

Chardonnet 2002, estimated the population in Lower Zambezi National Park and Kariba Shore area (9140 km^2) lion population at 183 lions (range 128-238). Riggio et al., 2012 estimate for the area included areas in Zimbabwe, thus cannot be included. Intensive studies undertaken for the periods 2001 – 2003 and 2006 – 2009 estimated for a 695 km^2 section of the Lower Zambezi National Park a density ranging from 1.7 lion/100km^2 to 5.2 lion 100/km^2 and 2.2 lions/100km^2 to 5.2 lions /100km^2. The study population ranged from 11 to 34 adults lions (Leigh, 2005). The population consisted of 4–37% cubs, 0–28% sub-adults, 7–46% adult males, and 31–50% adult females. Becker's study from 2012 was the last intensive lion study of the Lower Zambezi National Park. However routine monitoring through scout patrols as for all other Parks in Zambia continues in the area. This routine monitoring indicates the population in this area is recovering.

2.2.4 Liuwa Plains

The initiatives to re-establish a wild lion population in the Liuwa Plains has progressed over the last few years. A female introduced in 2011 to bond with the iconic "Lady Liuwa" was apparently killed defending her cubs by an introduced male. These cubs survived and thanks to restoration efforts by DNPW, African Parks, the Barotse Royal Establishment and ZCP, the lion population has stabilised and the Liuwa pride at the end of 2018 was twelve lions strong. (ZCP 2018)

2.3 Genetic Variability

The Zambia Lion Project (ZLP) conducted an analysis of DNA sequence diversity of Zambian lion from samples collected during the period 2004 – 2012 (Curry et al., 2015). The study revealed genes that link Southern African with East African lion populations among the Zambian lion population. This suggests that Zambia may serve as a bridge connecting these lion populations. Overall gene diversity throughout the Zambian lion population was 0.7319 +/- 0.0174 with eight haplotypes found; three haplotypes previously described and the remaining five novel. These five genes, have only been reported in Zambia so far. Genetic diversity of Zambian lions is much higher than comparable areas in eastern and southern Africa were genetic diversity has been studied (Curry et al., 2015). The

conclusion from this study is that Zambian lions represent a genetically diverse and healthy population.

More recently, nuclear and mitochondrial DNA results from 409 lions (Curry et al. 2019) found that although African lions in Zambia consist of two highly diverse eastern and western sub-populations, there is more movement between the populations than previously thought. Population assignment analysis identifies two populations with little evidence of admixture assigning lions to either the eastern or western sub-populations. A high occurrence of private alleles and clear evidence for a Wahlund effect further justify the presence of a highly structured population. But, while mitochondrial DNA analysis still shows little to no matrilineal gene flow (FST = 0.53) between sub-populations, microsatellite analysis suggests there is gene flow (FST = 0.04) with low but significant isolation-by-distance and an average of 6 migrants per generation. Evidence of isolation-by-distance is also found in factorial correspondence analysis with the Lower Zambezi National Park and eastern corridor clusters overlapping isolated clusters of the Luangwa Valley and western sub- population. From this evidence, the Luangwa Valley appears separated from the western sub-population with some dispersal through the southern regions of the eastern sub-population. Both the eastern and western sub-populations have high heterozygosity (0.68 and 0.69, respectively) and genetic diversity (0.47 and 0.50, respectively) values, indicative of genetically healthy populations.

3.0 Conservation and Management

3.1 Legislation and Policy

In 2015, the Zambia Wildlife Act No. 12 of 1998 was repealed and replaced with the Zambia Act No. 14 of 2015. The wildlife Act of 2015 provided for the transformation of the Zambia Wildlife Authority (ZAWA) into a government department - the Department of National Parks and Wildlife (DNPW). The DNPW was consequently established and commenced operating in January 2016. The act is the principal legislation guiding the management of wildlife in Zambia, and the department is the only government department responsible for the management of wildlife (lions inclusive) in Zambia. The Act also provides for the promotion of opportunities for the equitable and sustainable use of public wildlife estates; provides for the establishment, control and co-management of Community Partnership Parks for the conservation and restoration of ecological structures for non-consumptive forms of recreation and environmental education; provides for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas; enhances the benefits of Game Management Areas to local communities and wildlife; involves local communities in the management of Game Management Areas; and provides for the development and implementation of management plans. Crucially to ensure the sustainability of the wildlife sector, the Act provides for the setting up of a Wildlife Fund, were funds from licensing and donors will be deposited.

The act provides for stiffer penalties related to poaching and enforcing all wildlife related violations in Zambia. Hunting of all wild animals without a permit is illegal. Further, it is a criminal offence to hunt, kill, capture or be in possession of a lion specimen without a license. Lion is considered a protected species under the Zambia Wildlife Act and therefore attracts stiffer penalties without option of a fine. Other legislation includes the regulations (Private Wildlife Estates) and Statutory Instruments already in force implementing the 1998 Act (These are CITES, Hunting, Elephant Hunting).

The Government of the Republic Zambia formally approved the new policy for National Parks and Wildlife in August 2018 replacing the former one dated 1998 (Annex 1)

The principal objective of the Policy is to promote the conservation of wildlife as an environmental good for socio-economic benefits to the country. The specific objectives of this Policy are:

a) To create enabling conditions for effective conservation of wildlife and sustainable growth of the sector;

b) Improve population of wildlife in depleted areas by reintroduction of wildlife species in protected areas and other conservation lands and conserve wildlife using Ecosystem/Landscape Management Approach;
c) To devolve wildlife user rights, costs and benefits to community and private land owners;
d) To unlock the economic potential of wildlife and performance of the sector;
e) To minimalize Human-Wildlife Conflict;
f) To build capacity for wildlife management and conservation in the Sector;
g) To develop and promote research as a planning and management tool in wildlife management;
h) To mainstream multilateral environmental agreements in the conservation of wildlife;
i) To Mainstream Climate Change and other emerging issues;
j) Gender Mainstreaming, HIV and AIDS and Youth Empowerment;
k) To promote private sector and community participation in wildlife conservation.

Other statutory instruments are in preparation for the implementation of the 2015 Wildlife Act including a specific statutory instrument on lion hunting.

3.2 Primary legislation related to hunting

The Zambia Wildlife Act No. 14 of 2015 makes provision for the following types of licences and permits under Section 39: (a) hunting licence (for non-resident, citizen, resident and bona fide residents of GMAs); (b) bird licence and (c) professional hunter's licence. The following permits are issued under this section (a) fishing permit; (b) capture permit; (c) professional guide's permit; (d) photographic tour operator's permit; and (e) commercial photographic permit. Much of the content of the Act is devoted to the administration and management of hunting as described under the following Parts:

- Part II, Section 7 of the Act establishes the Wildlife Management Licensing Committee which is responsible for considering applications for licenses, permits and certificates and grants: renewing or refusing to grant or renew licenses, permits and certificates; and terminating, suspending or revoking licenses, permits and certificates. The application for the licenses recognised under the Act are in prescribed forms that require payment of prescribed fees under a specific Regulation. The creation of a Licensing Committee ensures transparency and accountability in the award of licenses by ensuring the discretion to award licenses exists in more than one individual.
- Part IV, Section 31 deals with the restriction of hunting of wild animals in GMAs.
- Part V, Sections 32 – 35 refer to Community Resource Boards, their functions and financial provisions.
- Part VI, Sections 36 – 38 refer to the definition of "Game Animals" and "Protected Animals" and their use.
- Part VII, Sections 39 – 57 deals with the licenses and permits that are required to utilise wildlife in Zambia. Section 48 specifically deals with Hunting Concessions.
- Parts VIII, IX, X and XI provide the provisions for the hunting of wildlife, killing of wildlife, ownership of trophies and trade (Sections 58 – 108) and form the bulk of the Act.
- The remaining parts cover the Wildlife Development Fund, Enforcement, Offences and Penalties and General Provisions.

3.2.1 Classes of licenses

The 2015 Wildlife Act provides for the following types of licences *(a)* hunting licence; *(b)* bird licence; and *(c)* professional hunter's licence. The Act has substantially reduced the number of licences that can be issued and has gone a step further and classified some of the old licences to permits. Section

39 makes provision for the issuance of the following permits *(a)* fishing permit; *(b)* capture permit; *(c)* professional guide's permit; *(d)* photographic tour operator's permit; and *(e)* commercial photographic permit. The new Act has done away with Resident and Non-Resident licences. However, these activities will be undertaken under a hunting license issued to national and *bonafide* residents of hunting areas. The special licence has been replaced with a capture permit.

3.2.1.1 Procedure for obtaining a licence

Under the Zambia Wildlife Act No. 14 of 2015, section 7 establishes the Wildlife Management Licensing Committee which shall be responsible for; considering applications for licenses, permits and certificates and grant, renewing or refusing to grant or renew licenses, permits and certificates; and terminating, suspending or revoking licenses, permits and certificates. The application for the licenses recognised under the Act is in a prescribed form requires payment of a prescribed fee under a specific Regulation. The creation of a Licensing Committee ensures transparency and accountability in the award of licenses by ensuring the discretion to award licenses exists in more than one individual.

3.2.2 The Wildlife Fund

The Zambia Wildlife Act No 14 of 2015, in section 109, establishes the Wildlife Development Fund for purposes of development of research, conservation and management. Whereas in the repealed Act the Authority was responsible for the disbursement of funds, under the provisions of the current Act, the Minister responsible for wildlife manages and administers the Fund through the Fund Committee, which is about to be established.

The DNPW is liaising with the Ministry of Finance on the mechanism for sharing revenue with local communities. Currently there are regulations namely Statutory Instrument No. 89 of 2004, which provides that the Department pays into a fund established by a Community Resource Board 50% of the total revenue earned from Animals fees and 20% of concession fees from that particular GMA.

3.3 Supporting Statutory Instruments (SIs)

The following Statutory Instruments were approved and published in 2016

Statutory Instrument No. 41 of 2016 – The Zambia Wildlife (Game Animals) Order, 2016

The purpose of the Statutory Instrument which was issued in accordance with Section 146 of the Zambia Wildlife Act No.14 of 2015 was to pass the Zambia Wildlife (Game Animals) Order, 2016, which repealed and replaced the Zambia Wildlife (Game Animals) Order, 2015 and to provide a current schedule of game animals.

Statutory Instrument No. 42 of 2016 – The Zambia Wildlife (Protected Animals) Order, 2016

The objective of the Statutory Instrument was to pass the Zambia Wildlife (Protected Animals) Order, 2016. The Zambia Wildlife Act in Subsection (1) of Section 36 required the Minister to specify animals as either game or protected. Therefore, the Zambia Wildlife (Protected Animals) Order, 2016 repealed and replaced the Zambia Wildlife (Protected Animals) Order, 1993 and to provide a current schedule of protected animals.

Statutory Instrument No. 43 of 2016 – The Zambia Wildlife (Export Prohibition) Order, 2016

The objective of the Statutory Instrument was to pass the Zambia Wildlife (Export Prohibition) Order, 2016. The Zambia Wildlife Act in Subsection 103 prohibits the exportation of wild animals or meat of wild animals without an export permit. Therefore, the export prohibition order sought to limit the categories of wild animals that could be exported.

A number of statutory instruments have been drafted to compliment the operation of the new Act. Some of the pertinent ones include;

a) **The Zambia Wildlife (Granting of Hunting Concessions) Regulations,**
This SI provides for the Department a clear procedure for the advertisement, evaluation, negotiation and award of Hunting Concession Agreements to successful bidders, which ensures transparency in the award of these agreements.

b) **The Zambia Wildlife (Lion and Leopard Sport Hunting) Regulations, 2020**

This SI places certain conditions for hunting of Lions in Game Management Areas, including but not limited to: age-based regulations for lions, banning the hunting of female lions, minimum length for leopard and monitoring systems for both species. It is being discussed with Ministry of Justice and should be approved and published in February 2020.

c) **The Zambia Wildlife (Conducting of Ecological Assessments or Research on Wildlife) Regulations**

This SI regulates ecological research on wildlife, outlines the procedure for obtaining permission to conduct such research, and sets the fees to be charged for research activities

d) **The Zambia Wildlife (Elephant Sport Hunting) Regulations**

The revised SI on Elephant Sport Hunting will provide for additional procedures to hunt elephant for sport hunting, the designated areas for sport hunting, ownership and export of ivory from elephant sport hunting. These regulations ensure elephant hunting is carefully managed and sustainable.

e) **The Zambia Wildlife (Licenses and Fees) Regulations**

This particular SI is under consideration, the Department is still using the 2007 edition for purposes of pricing and issuance of licenses. The new permit under the new Act have not yet been captured under this SI.

3.4 Zambia's Conservation Strategy and Action Plan for the African lion

Zambia developed a ten-year Conservation Strategy and Action Plan for the African lion in 2010. Zambia's vision as stated in the Strategy is to have a secure, viable and well managed wild population of lion that will support conservation of biodiversity that is in harmony with human development. The Strategy's mission is to galvanize stakeholder cooperation in the conservation and management of the African lion in its natural habitats in the country thereby contributing to biodiversity conservation, socio-economic development and spiritual well-being of local communities, the general public and the country as a whole, with the ultimate goal of securing, restoring and maintaining viability and genetic diversity of lion populations.

Since the approval of the strategy and in accordance with its section 6.0 several actions have been carried out by the Zambian government and its cooperating partners to implement the relevant objectives and targets of the strategy. In particular research has been initiated, management actions taken to address research and monitoring, local community benefits, human lion conflict, land use planning and zoning and trade. Specific actions taken are described in the relevant sections below.

A voluntary program to assess and age lions taken as trophies was established by ZAWA (now DNPW) in partnership with the Zambia Lion Project (ZLP). Since 2005, this program has obtained DNA samples of lions (trophies and living) across Zambia and, from 2006-2012, obtained tooth samples to estimate

age of lions taken as trophies. The establishment of trophy lion sampling protocols, and the cooperation of Zambia's hunting fraternity in participating in these studies, represent a strong base from which future sampling of trophy lion (and leopard) will be conducted. In addition, results from the past sampling demonstrate the performance of the hunting sector during the past lease period (prior to age-based selection regulations), and provide a baseline for comparing future performance. Further, new studies are continually improving the accuracy of estimating the age of wild lions, which will provide additional tools to assist authorities in trophy age enforcement.

The conservation strategy noted that monitoring of hunting and illegal offtake was problematic and information was dispersed in various units of the Zambia Wildlife Authority. To address this, ZAWA (now DNPW) in 2013 set up a Conservation Unit whose main responsibility is monitoring hunting, human wildlife conflict, private wildlife estates and the effectiveness of law enforcement. Through this unit data are flowing regularly on hunting and other activities. The Conservation Unit serves as a centralized repository for these data providing for long-term monitoring of progress and trends.

The strategy requested for proper monitoring of lion diseases and health. This has been accomplished through the veterinary unit of the DNPW which is regularly sampling lion specimens for diseases and assisting law enforcement officers in the treatment of injured lions due to illegal activities, such as snaring. In addition, the DNPW authorized ZCP, South Luangwa Conservation Society (SLCS), and Game Rangers International (GRI), three NGOs working in the Luangwa and Kafue ecosystems to employ veterinarians that are field based and help in monitoring wildlife health and removal of wire snares. Of the twelve ecologists that were employed by DNPW since 2010, three are devoting 70 per cent of their work time to lion related issues.

In implementing the strategy, several additional lions related studies have been initiated with a number of stakeholders such as the Zambia Carnivore Programme (ZCP), Kafue Lion Project, Zambia Lion Project (ZLP) and WWF – Zambia (See section 4.0)

The Strategy has recently been effectively updated through the development of new guidelines governing lion hunting in Zambia. The guidelines (see section 5.3.3.2) are now in the process of being transformed into a Statutory Instrument on lion hunting which will also include provisions for monitoring lion hunting through an age-based system. As described above, the protocol for sampling and age estimation of trophy lions is already well-established, and significant improvements have been made for estimating lion age (among others see White and Belant 2016, White et al. 2016). At a participatory workshop held on 11th April, 2016 in Lusaka, these guidelines were discussed with key stakeholders in lion conservation in Zambia in order to obtain the maximum participation which is key to the success of its implementation.

Zambia's Lion Conservation Strategy and Action Plan was devised to guide lion management and conservation in Zambia for ten years and its goals address the same issues of concern (scientific management, human-lion conflict, and protection of suitable habitat) as the U.S. Fish and Wildlife Service identified in its threatened Endangered Species Act listing of the lion. DNPW is implementing the plan adapting it to management challenges and on knowledge generated through on-going monitoring and research. In 2020 DNPW is planning to hold a workshop to update and review the Conservation Strategy and Action Plan for the African lion.

3.4.1 Other Species Conservation Plans and Strategies that interact with lion Conservation strategy

Zambia recognizes that the effective conservation of wildlife is through the conservation of ecosystems and not protected areas or species. Large carnivores engage in wide ranging behavior and depend on intact ecosystems with a wide array of prey species. Well conserved large carnivore populations are an indication of intact ecosystems. And the conservation of other species that require

large, intact ecosystems can simultaneously benefit large carnivores like lion by ensuring habitat and prey base are protected.

In this regard, conservation strategies for wild dog and cheetah (DNPW, 2019) and rhino (DNPW, 2019) have recently been launched and elephant conservation strategy is currently undergoing review with the support of WWF-Zambia and the Nature Conservancy. Because of the reliance of these species on intact ecosystems, the effective conservation of these species would contribute to the successful conservation of lion as well. In addition, the DNPW is mandated by law to develop General Management Plans (GMPs) for all protected areas to guide the development and management of these areas. GMPS are discussed in section 7.1.1 below.

The hunting concession agreements (sections 5.4) that are signed by the Hunting Concession Holder, DNPW and the Community commit all the parties to proper management of habitat, fire and wildlife. These are key sections to the agreement among these three parties.

3.5 DNPW Organization and activities

The Department is responsible for the control and management of National Parks and Game Management Areas. In addition, the department is also responsible for conservation of objects of aesthetic, pre-historical, geographical, archaeological and scientific interests in national parks and Game Management areas in order to promote cultural and natural heritage and scientific studies. The organization structure of DNPW is shown in Figure 2.

The core function of the Department of National Park and Wildlife (DNPW) as provided under section 5 of the Zambia Wildlife Act No. 14 of 2015 is 'the effective and sustainable conservation and administration of protected areas which include National Parks, Bird and Wildlife Sanctuaries and Game Management Areas (GMAs) and the development of sustainable tourism in these areas. In GMAs, DNPW co-manages the wildlife resource in partnership with local communities.

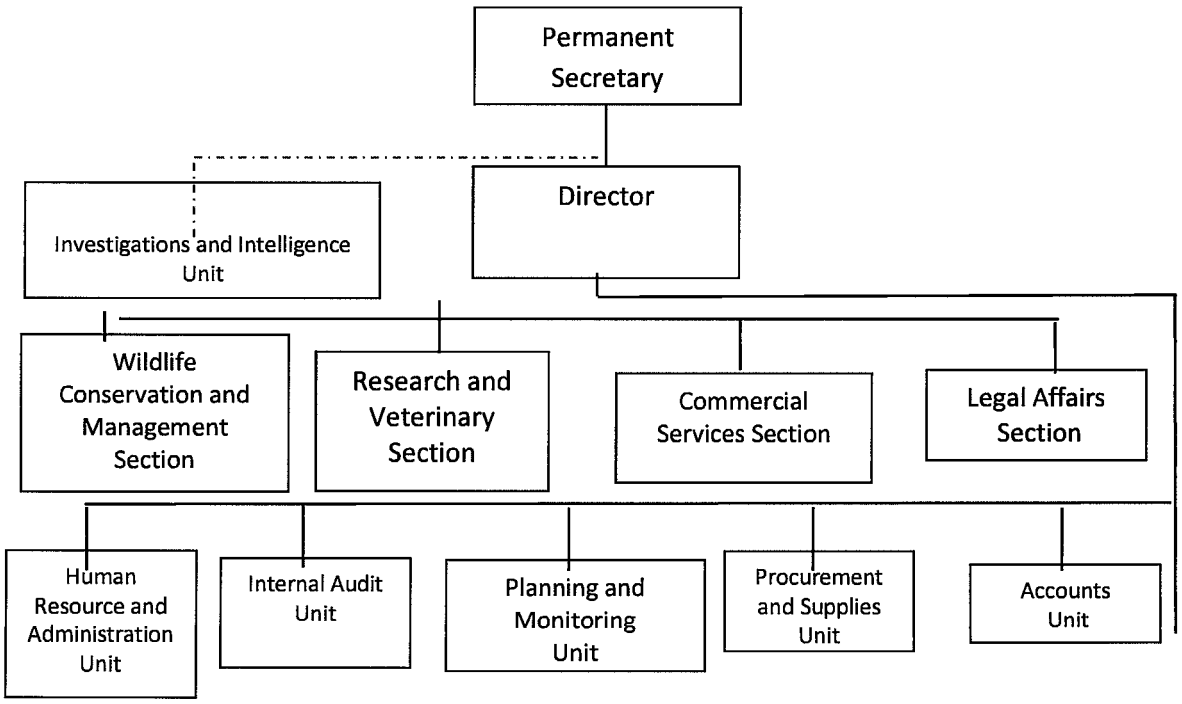


Figure 2: **Organization Structure for the Department of National Parks and Wildlife**

Within DPNW law enforcement is under the section of Wildlife Conservation and Management (see Figure 2).

This Section is responsible for the general enforcement of wildlife laws. It is responsible for the conservation and management of wildlife and development of infrastructure in protected areas. The section's functions are outlined below:

- Detect and investigate wildlife crimes;
- Manage and mitigate human wildlife conflicts;
- Regulate operations of private wildlife estates (nature conservancies/game ranches);
- Facilitate infrastructure development in protected areas;
- Sensitize the general public on wildlife conservation;
- Manage eco systems and landscapes and conserve specific species;
- Formulate and implement park regulations;
- Promote regional and international cooperation in the area of wildlife management, conservation and law enforcement; and
- Facilitate the training of Wildlife Police Officers

The section is headed by an Assistant Director who is assisted by Principal Warden- Operations, Principal Warden- Conservation, Principal Engineer, and Principal Natural Resources Management officer. The section is organized in four units as follows:

The Wildlife Law Enforcement Unit is responsible for enforcing wildlife laws, detection and investigation of wildlife crimes. Currently the Unit has a staff compliment of 1,525 Wildlife Police Officers covering an estimated 236,376 km^2 of wildlife estates (equivalent to approximately 155 km^2/Wildlife Police Officer. There was no recruitment of Wildlife Police Officers in 2016, however, in 2017 the World Wide Fund - Zambia trained and contracted 25 Wildlife Police Officers for Sioma Ngwezi. Their contracts ended in December 2017 and these WPOs were absorbed into the Civil Service mainstream in 2018. The DNPW also recruited a further275 Wildlife Police Officers in 2018 (179 new recruits and 96 Village Scouts who have since been replaced). The current WPO establishment for the DNPW is 2,700 of which 1,525 have been employed. Authority to recruit a further 1,000 Wildlife Police Officers in 2019 and 175 Wildlife Police Officers in 2020 has been submitted to central government.

The DNPW is directly involved in a broader programme to combat wildlife trafficking and illegal trade in wildlife and wildlife products (see https://www.wildlifecrimeprevention.com).

The **Wildlife Conservation Unit** is responsible for regulation of operations of private wildlife estates, management of ecosystems, landscapes and conservation of specific species as well as formulating and implementing park regulations. The Unit also manages and mitigates human wildlife conflicts and is responsible for facilitating the training of Wildlife Police Officers.

The **Infrastructure Development Unit** is responsible for construction and maintenance of infrastructure in protected areas, as well as maintenance of equipment plant and machinery.

The **Community Based Natural Resources Management Unit** is responsible for co-managing Game Management Areas with local communities and facilitating their economic and social well-being. The functions of the Unit include the following:

- Provide technical support to Community Resource Boards on the management of human and natural resources in Game Management Areas and open areas;
- Train village scouts and Community Resources Board members (see section 8);

- Facilitate the election of Village Action Groups and Community Resources Board members; and
- Monitor projects and the utilisation of funds disbursed to Community Resources Boards (CRBs).

Furthermore, an Investigations Unit is responsible for carrying out investigations and intelligence services related to wildlife crimes. The Unit is falls directly under the office of the Director National Parks.

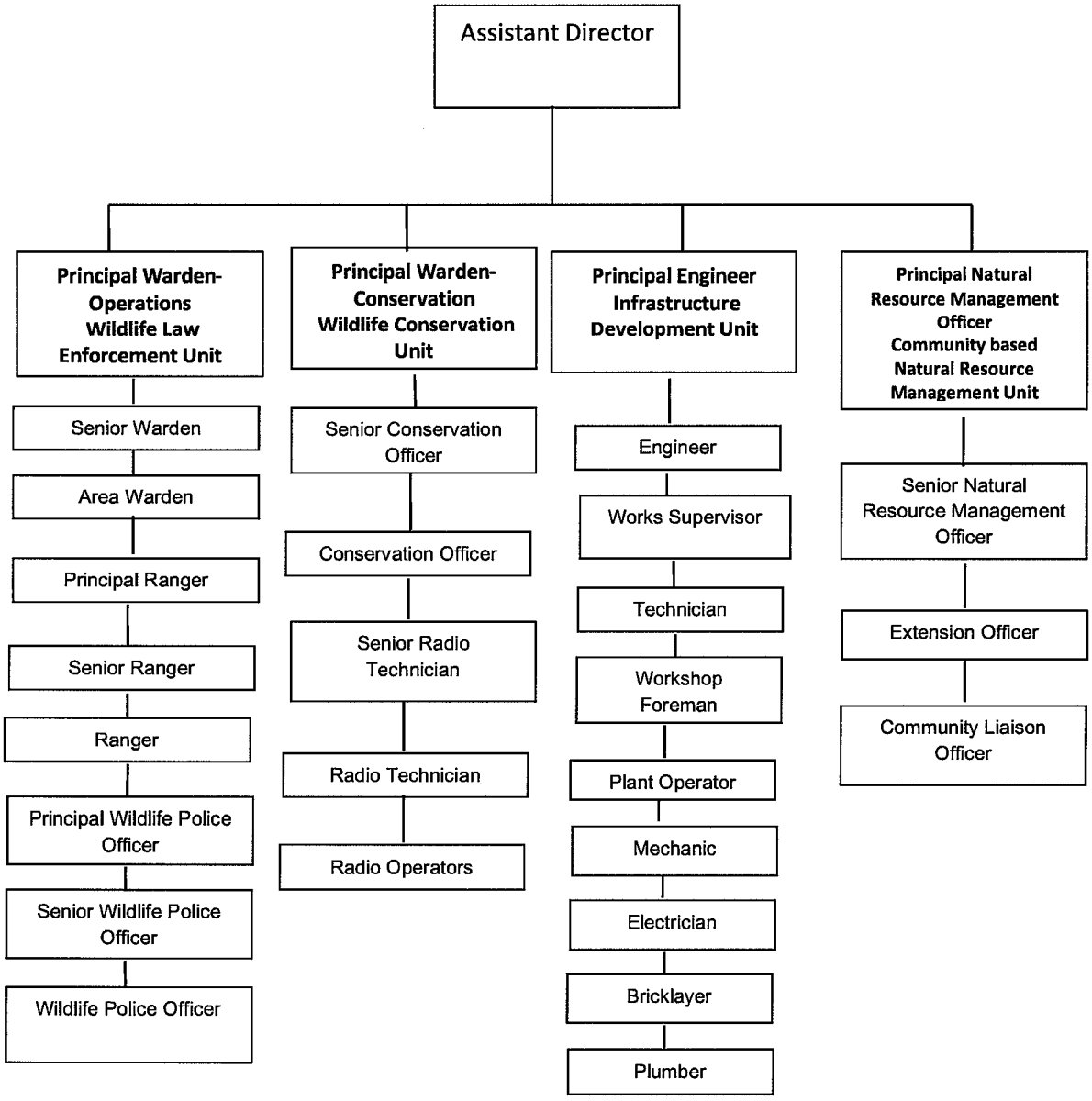


Figure 3. Organization of the Wildlife Conservation and Management Division DNPW

3.5.1 Anti-Poaching Operations

The following tables show the effort (Table 2) and results (Table 3) from anti-poaching operations carried out by the DNPW from 2016 - 2018.

Table 2: Zambia Law Enforcement Effort: 2016 – 2018

Activities	2016	2017	2018
No. of Patrols	12995	12261	15027
Staff Involved	2050	2050	2050
Patrol Man-days	240,824	197,169	260,772

Source: Conservation and Management DNPW

Table 3: Results from Law Enforcement Operations carried out by the Wildlife Law Enforcement Unit

s/n	Category	2012	2013	2014	2015	2016	2017	2018	2019 (up to September 2019l)
1	Poachers Arrested	1,437	1,625	1671	1,920	1920	391	2110	1428
2	Axes	129	196	70	218	69	29	250	143
3	Bicycle	269	320	144	358	75	89	293	370
4	Boats	37	9	18	11	34	10	32	15
5	Bush Meat Recovered (Kgs)	8,327.60	13,542.70	22831.4	29,427	20,704	4,925	77,158	16307
6	Elephant Poached	110	135	136	168	89	122	144	62
7	Home Made Guns (MLG)	188	258	252	295	229	53	358	125
8	Home Made Shot Guns	162	75	142	283	252	46	300	182
9	Hunting Spears	25	80	119	118	80	53	105	57
10	Military Rifles	18	21	21	33	26	3	21	4
11	Motor Bike	5	4	12	13	8		19	0
12	Motor Vehicles	20	17	16	29	6	3	42	11
14	Shot Guns	156	163	134	331	223	3	185	62
15	Snares	5,370	8,406	9885	7,666	9015	1494	8128	3475
16	Sport Rifles	74	22	32	105	59	3	21	24

Source: Conservation and Management DNPW

3.6 Stakeholder Involvement in Lion Conservation

3.6.1 Hunting Outfitters

Hunting companies and professional hunters provide significant support to conservation activities throughout the hunting areas of Zambia. Section 5 provides detailed information on their involvement in anti-poaching, habitat conservation, and community development. In particular hunting operators are at the forefront in the fight against poaching in Game Management Areas through their financial and logistical support to Community Resources Boards (CRBs).

3.6.2 Communities

Community Resources Boards are responsible for wildlife management in Game Management Areas including the employment of Community Scouts who are responsible for anti-poaching operations in these areas. In section 8 we provide a detailed description of Community Based Natural Resources Management in Zambia. Communities are considered as key partners in wildlife management in Zambia

3.6.3 Non-Governmental Organizations

There are several NGOs in Zambia supporting the government in conservation activities through support to anti-poaching units. In the key lion clusters of Luangwa, Kafue and Lower Zambezi

ecosystems, the Frankfurt Zoological Society (FZS) that has been active in the North Luangwa National Park for over 20 years, Conservation South Luangwa (CLS) (Formerly South Luangwa Conservation Society) in South Luangwa National Park and surrounding GMAs, Game Rangers International that has been active in the Kafue ecosystem since 2010 and Conservation Lower Zambezi (CLZ) is active in the Lower Zambezi National Park and surrounding GMAs. Other NGOs providing active support to DNPW in these areas include Panthera, which is supporting law enforcement in the Kafue NP along with the Nature Conservancy (TNC) and WWF – Zambia that are active in providing support to Community Natural Resource organisations in GMAs.

4.0 Zambia lion research

Because of the difficulties in estimating lion population numbers (see section 2), long term studies are recommended. Additionally, due to questions as to the validity of point-in-time estimates of lion population size, the concept of "population trend" is becoming more widely accepted for assessing lion populations. Thus, whereas focal studies may benefit from monitoring individuals, it is recommended that long-term "trends" should be the priority for lion population monitoring moving forward. In this regard, the Department of National Parks and Wildlife in conjunction with the ZLP and ZCP has instituted long-term studies to monitor trends in key areas for lion conservation in Zambia. Methods currently available for surveying lions and have been used in Zambia include:

1. Scat (Genetics), molecular analysis [DNA] (Creel & Rosenblatt, 2013; Curry, White & Derr, 2015)
2. Spoor; spotting and recording spoor by location and differences in sizes in spoor in transects (Midlane et al., 2014 and 2015).
3. Call-ups; playing recorded lion calls or wildlife distress calls at fixed survey points (Midlane et al., 2015).
4. Mark-recapture studies of individuals [Pride observations, Photo profiles, Collaring and monitoring movements] (Yamazaki, 1996; Rosenblatt et al., 2014).
5. Scout sightings, community and operator interviews [Hunting and Photographic operators] (Leigh, 2005; Becker et al., 2012)

Unlike elephants and other large herbivores where aerial surveys are used with standardized methodologies such as the MIKE standards for aerial surveys (Craig, 2012), there are no standardized methods for lions and in most cases the methods listed above are used in combination. Lions have largely been estimated by 'guess estimates' using the above ways of observation and relating to the size of the area, and more recently by using models such as Possible Lion Occupancy (Midlane et al., 2014).

As stated in the previous sections, several research projects on lion are ongoing in Zambia. In partnership with the DNPW, the Zambia Lion Project (ZLP) initiated lion research in 2004. Research has focused on presence/absence surveys of lions throughout Zambia, and DNA has been collected from trophy and controlled lions and via biopsy darting of live animals throughout Zambia's parks and GMAs. Products of ZLP's DNA studies to date include several scientific publications describing 1) genetics of lions within Zambia's Lion Conservation Units (LCUs) (Dubach et al. 2013), 2) a perspective of Zambia's lions' genetics at the continental scale (Bertola et al., 2015), and an in-depth study that documents the genetic diversity of Zambia's lions throughout the country (Curry, White & Derr, 2015). As detailed above, ZLP in 2006 established a lion trophy monitoring program and has since worked with hunting operators and outfitters to gather data on trophy lion trophy hunting and trophy quality, specifically trophy lion age towards developing sustainable offtake. Two new scientific studies on age estimation of lions, resulting from the above described program, are now available. The first provides a method estimating age to within six months of age on average (White et al. 2016). The second

describes individual variation in lion teeth and places the issue of aging lion trophies into the practical context of trophy monitoring programs (White and Belant, 2016). The project ended in 2015.

The Zambia Carnivore Programme's (ZCP) current lion research efforts are focused in three areas the South Luangwa National Park, the Kafue National Park and the Liuwa Plain National Park. ZCP's seeks to document population trends and demographic vital rates of lions in these key lion areas. Products of ZCP's work include multiple publications on effects of trophy hunting in Zambia (Becker et al., 2012; Rosenblatt et al., 2014); lion abundance (Becker et al., 2012, Riggio et al., 2012, Rosenblatt et al., 2014) disease prevalence (Berestein et al., 2012 and 2013, Williams et al., 2014); effects of wire snaring (Becker et al., 2012, Watson et al., 2013) bush meat and prey depletion (Lindsey et al., 2012) habitat fragmentation, encroachment and degradation (Watson et al., 2013; Creel et al., 2013; Lindsey et al., 2014;) and policy (Creel et al., 2014).

This research and monitoring programme spanned through a prolonged period of hunting (2008 – 2012) and the closure of lion and leopard hunting between 2013 – 2015. Several key research findings have been published and are informing the evolving Zambian carnivore conservation strategy e.g.: Becker *et al.* (2012), Becker *et al.* (2013), Rosenblatt *et al.* (2014), Creel *et al.* (2016), Mweetwa *et al.* (2018) [1].Other lion studies have been done by independent researchers and graduate students (Carlson, 2004; Leigh, 2005; Midlane et al., 2014; 2015).

Zambia is committed to continuing and expanding further scientific surveys of Lions in order to assess the population status. Depending on the availability of funding, DNPW is planning surveys to be conducted in two areas: i) the corridor between South Luangwa National Park and Lower Zambezi National Park, comprising several GMAs and Open Game Ranches and ii) GMAs surrounding the eastern part of North Luangwa National Park. This will supplement the ongoing work of the Zambian Carnivore Programme in selected areas of South Luangwa and Kafue National Parks.

Additional genetic analyses are also being conducted by Zambia Lion Project, including assessments that will help inform DNPW in future efforts to translocate lions among different regions in Zambia in order to re-establish lion populations in historic lion range e.g., West Lunga complex.

In short, DNPW has an active research program that informs and supplements its active lion management and forms the foundation of the sport-hunting system. Overall the research capacity at DNPW needs to be further strengthened through specific research-oriented funding.

5.0 Utilization

5.1 Safari hunting in Zambia

Safari hunting in Zambia is consistent with the country's general tourism and wildlife policy. The mission of the Zambian wildlife policy is to conserve Zambia's wildlife for biodiversity and socio-economic enhancement. Sustainable utilization is the best management model to achieve the objectives of this mission outside National Parks, especially in areas where it is desirable that wilderness be maintained, and without attracting the high-human density and infrastructure typical of photographic tourism. Safari hunting is the most efficient land use in areas without species density and infrastructure because it offers high value with low impact on habitats. Large wilderness areas ensure high appreciation by clients because of the natural beauty and large variety of trophy animal species, some of them endemic to Zambia e.g., Cookson's wildebeest, black lechwe, and Kafue lechwe.

5.2 Lion hunting Areas

[1] See list of references and https://www.zambiacarnivores.org/publications/

Lion hunting in Zambia is carried out in hunting blocks located in Game Management Areas surrounding National Parks in the Luangwa, Kafue and Lower Zambezi ecosystem and in Open Game Ranches/Conservancies (Table 3). For the period 2005 to 2012 lion hunting was carried out in 21 Game Management Areas and 5 Open Game Ranches.

5.2.1 GMAs

Game Management Areas (GMA) are a category of protected areas in Zambia designed to form buffer zones between National Parks and Open Areas. The main land use forms in GMAs has been Safari and Resident hunting. However, a few GMAs have included photographic tourism. Settlement is allowed in designated areas defined by the GMA's General Management Plan. CBNRM in Zambia is implemented in GMAs through Community Resource Boards (CRBs) provided for by the Wildlife Act of 2015 (see section 8). There are 36 Game Management Areas covering 177,404 km^2.

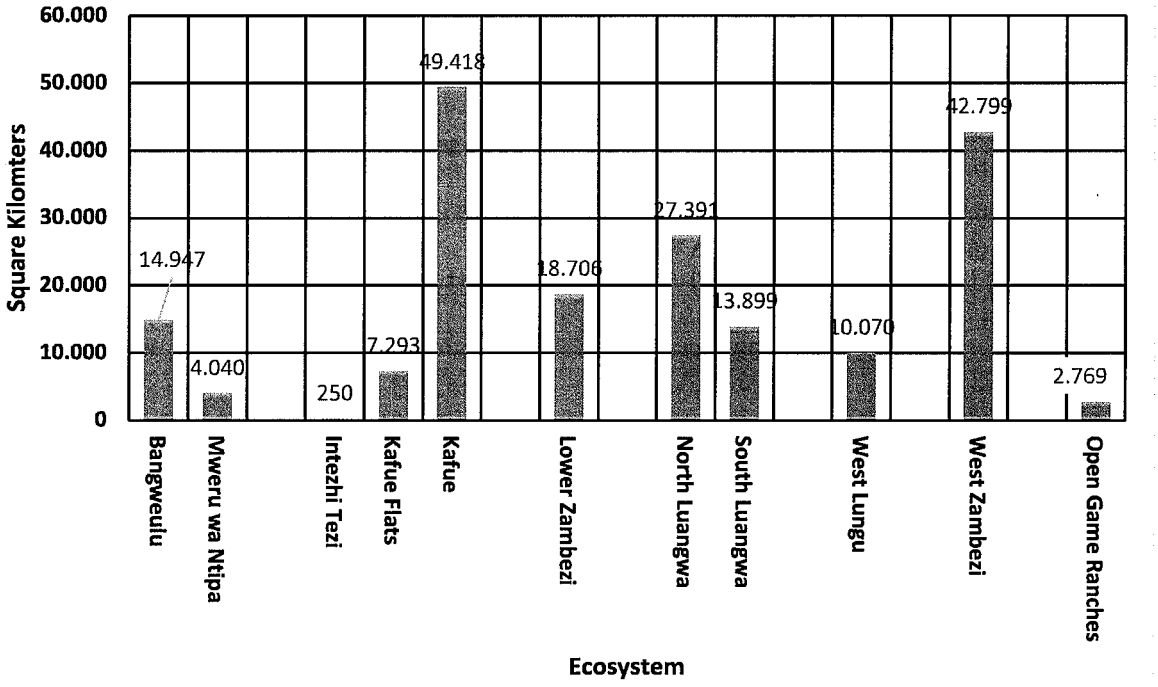


Figure 4: Area of GMAs (km^2) in each of the ecosystem clusters where hunting blocks are located

The GMAs are situated in various ecosystems across Zambia and serve as buffer zones to the major national park systems (Figure 3). The Kafue ecosystem (26%) and West Zambezi ecosystem (23%) make up much of the area followed by North and South Luangwa (21% combined). Table 5 summarises the area of land (188,130km^2) occupied by the different hunting block categories in the GMAs. Vacant hunting blocks make up 26% of the hunting area. Open Game Ranches occupy <2% of the overall hunting area (191,582km^2).

Table 4: Summary of hunting block categories

Category	Number Hunting Blocks	Total Area (km^2)	Percentage
Prime	14	25,325	13%
Secondary	14	48,359	25%

Understocked	3	28,216	15%
Specialised	5	37,633	20%
Vacant*	18	49,280	26%
Open Game Ranch	19	3,105	1.4%
Total	**66**	**191,918**	**100%**

**includes two secondary and two depleted blocks*

5.2.2 Open Game Ranches

Open Game Ranches are unfenced private wildlife estates outside public protected areas that are reserved by a person or local community for wildlife conservation and management. Game ranching in Zambia has evolved in the last ten years as one of the best conservation success stories. Started in areas that were severely depleted in terms of wildlife species and with widespread illegal activities such as poaching, illegal logging and mining, thanks to partnerships between private investors and local communities most of these areas have been rehabilitated and recolonised by wildlife including lion.

The concept of Open Game Ranches is unique in that the private sector and the community agree to protect wildlife on privately owned or communal lands. Unlike closed Game Ranches, Open Game Ranches are not fenced and the animals are free to move back and forth beyond the ranch boundary into the surrounding Game Management Areas. This avoids fragmenting habitats and blocking wildlife movement corridors. The wildlife is still considered as belonging to the state. In exchange for protecting the wildlife the Department of National Parks and Wildlife issues the Open Game Ranches annual non-resident hunting quotas. The anti-poaching efforts in these lands contribute directly to assisting the Department in protecting national parks and GMAs. In many instances the owners of the ranches have invested in these areas by restocking the areas with more game species thus improving the diversity.

Most of these Open Game Ranches, even though private sector driven have co-management agreements with local communities.

One example of an innovative partnership developing in the Open Game Ranches is Kaindu Community Game Ranch, close to Kafue National Park.

In 2002, DANIDA (Danish Aid Agency) created the Kaindu Natural Resources Trust (KNRT) and an existing farm, FARM 10415, was developed as an unfenced Game Ranch that was to be managed by the Trust for the benefit of the Kaindu community. The main objective was to create income from safari hunting since Kaindu was one of the few Kafue communities not attached to a Game Management Area (GMA) and did not benefit from any form of tourism. In 2005 this project floundered due to insufficient capacity and lack of financial resources.

In 2008 Royal Kafue Ltd., a development company, forged a direct partnership with KNRT which has 20% of the shares of the development company. As landlords, the Kaindu community is considered the investor. Farm 10415 was leased from KNRT with the objective of establishing a number of commercial models making best economic use of the property while keeping the environment sacrosanct. This agreement has the approval of the traditional leadership of Chief Kaindu, The Royal Establishment Committee, Mumbwa District Council, the District Commissioner, the Office of the President, and the then ZAWA. The enterprise has been sustained through the innovative nexus of direct ownership of land and management of wildlife and other natural resources by the local community. In 2010 Farm 10415 was registered with ZAWA as Kaindu Community Game Ranch.

The KNRT, a legal environment body representing the Kaindu people, has title to approximately 15,500 hectares of pristine wilderness and this was a tremendous advantage to the promoters as DANIDA

had initiated surveys and social studies had been implemented. The location was ideally suited due to its close proximity to both Lusaka and the Kafue National Park, which is hugely advantageous. The land and soils were deemed unfit for agriculture but adjoined game rich feeder areas from the adjacent Lunga Luswishi GMA to the north and both the Mushingashi Conservancy and Kafue National Park to the west. Unlike the first effort, this partnership has succeeded by active participation of skilled and well-resourced partners in a business enterprise, and by the community holding an equity stake as well as retaining title to the land. The Royal Kafue project was one of the first of its kind to be successfully implemented in Zambia and demonstrates an awareness of natural resources as assets. It has the potential to diminish the market for illegal wildlife products and can reverse the depletion of natural resources. So far, wildlife is recovering in the area, and the ranch has hosted several tourist safari hunters, thus generating revenue for the enterprise.

All Open Game Ranches increase the land available for wildlife conservation (lion included) and buffering the loss of wildlife habitats in the country. Example of these includes the Open Game Ranches located on the eastern banks of the Luangwa River southward of the South Luangwa NP such as Nyakolwe, Nyamvu and Munyamadzi Game Ranches. Zambia currently has 19 registered open Game ranches extending, according to official DNPW data, for over 3,100 km^2 (Table 6).

Table 5: List of Open Game Ranches in Zambia

S/n	Name	Location	Area (Ha)	Area (Sq.km)
1	Illinda Game Ranch	Kasempa	55,000	550
2	Mushingashi Game Ranch	Mumbwa	36,557	366
3	Nyakolwe Game Ranch	Sinda	24,800	248
4	Sitatunga Game Ranch	Kasempa	22,000	220
5	Mpyamanzi Conservancy	Nyimba	20,000	200
6	Munyamadzi Open Game Ranch	Nyimba	17,500	175
7	Kaindu Natural Resources Trust	Mumbwa	15,500	155
8	Musonweji Game Ranch	Mufumbwe	15,000	150
9	Chinamanama	Mpika	15,000	150
10	Nyamvu Game Ranch	Nyimba	12,000	120
11	Chipepo Royal Game Ranch	Gwembe	10,650	107
12	Nkalamu Game Ranch	Nyimba	6,000	60
13	Kanzutu Game ranch	Sandwe	3,100	31
14	Kazumba Game Ranch	Nyimba	750	8
15	Bangweulu Island	Samfya	500	5
16	Mulilanama Open Game ranch	Nyimba	350	4
17	Kalwelwa Game Ranch	Mwinilunga	350	4
18	Dongwe Game Ranch	Mufumbwe	31,000	310
19	Mbizi Game Ranch	Nyimba	15,000	150
TOTAL			310,557	3,105

5.3 Hunting Quotas

5.3.1 Quota allocation process

Zambia has a participatory quota setting process. The main scientific information used in the quota setting process for most species is derived from aerial surveys which are regularly done in the country and includes many ungulate species. Other information is taken from ground counts, patrol sightings,

local and expert opinion and hunting monitoring. Quota setting is done for each hunting block in GMAs for all types of hunting after close of hunting season and prior to the next hunting season. The quota for lion is set using information from scientific studies, field observations from professional hunters, operators and field officers and from hunting records. This allows CRBs and DNPW to review the previous hunting season's offtake (see also section 5.3.3.1). DNPW follows a bottom-up approach where CRBs submit a proposal of a quota to DNPW head office for adoption and approval. The following table illustrates the quota setting process.

Table 6: Institutions involved in Zambia's quota allocation process

Institution	Information provided by Institution for quota setting	Benefits for participating in quota setting
Community Resource Boards	Provides Info on: - Observed trends of illegal offtake of wildlife - Human settlement patterns - Status, availability and distribution of wildlife in the area - Resource use in the area	- In depth understanding of how quotas are set - Improved knowledge of the relationships between safari hunting and other wildlife management activities in the same area - Improved sense of ownership of the quota
Department of National Parks and Wildlife	- Provides info on: - Wildlife populations - Trends of illegal offtake - Previous year's quota utilization - Law enforcement info in relation to illegal offtake - Monitors hunting activity - Facilitates quota setting workshops	- Enabling democratic and participatory environment for reaching consensus on quotas and allocations; - All key stakeholders to participate in setting quotas, thereby improving the sense of ownership; - Provides a platform for information exchange that can be used to arrive at quotas - Final approval of quotas for GMAs
Lease holders (Operators)/Professional Hunters	- Provides information on: - Wildlife population trends; - Safari sector performance - Competitiveness of the area - Resource use - Wildlife and other conflicts in the area - First-hand input in quota setting	- Opportunity to come up with a sustainable and economical quota for safari - Opportunity to participate in the process - Opportunity to have a long-term view of the sustainability of hunting in the area
Other organizations including some NGOs	- Provide financial support to CRBs and DNPW, - Provide technical support for wildlife population estimates	- Represents the interests of the communities including quota setting - Training on quota setting, facilitate workshops and provide technical assistance on wildlife management.

The quotas are compiled by the Research Unit in DNPW after feedback from the field staff, safari hunting outfitters and CRBs. Management approves the quotas before they are distributed to operators by the Licensing Unit. Quotas are verified by the Wildlife Conservation and Management Unit. To enhance transparency and accountability, the DNPW is now required to share the approved quotas with other government agencies, which include among others the Auditors General's office and Anti-Corruption Commission. This ensures that the quotas produced cannot be altered by any person and provides the sustainability and benefits of the system.

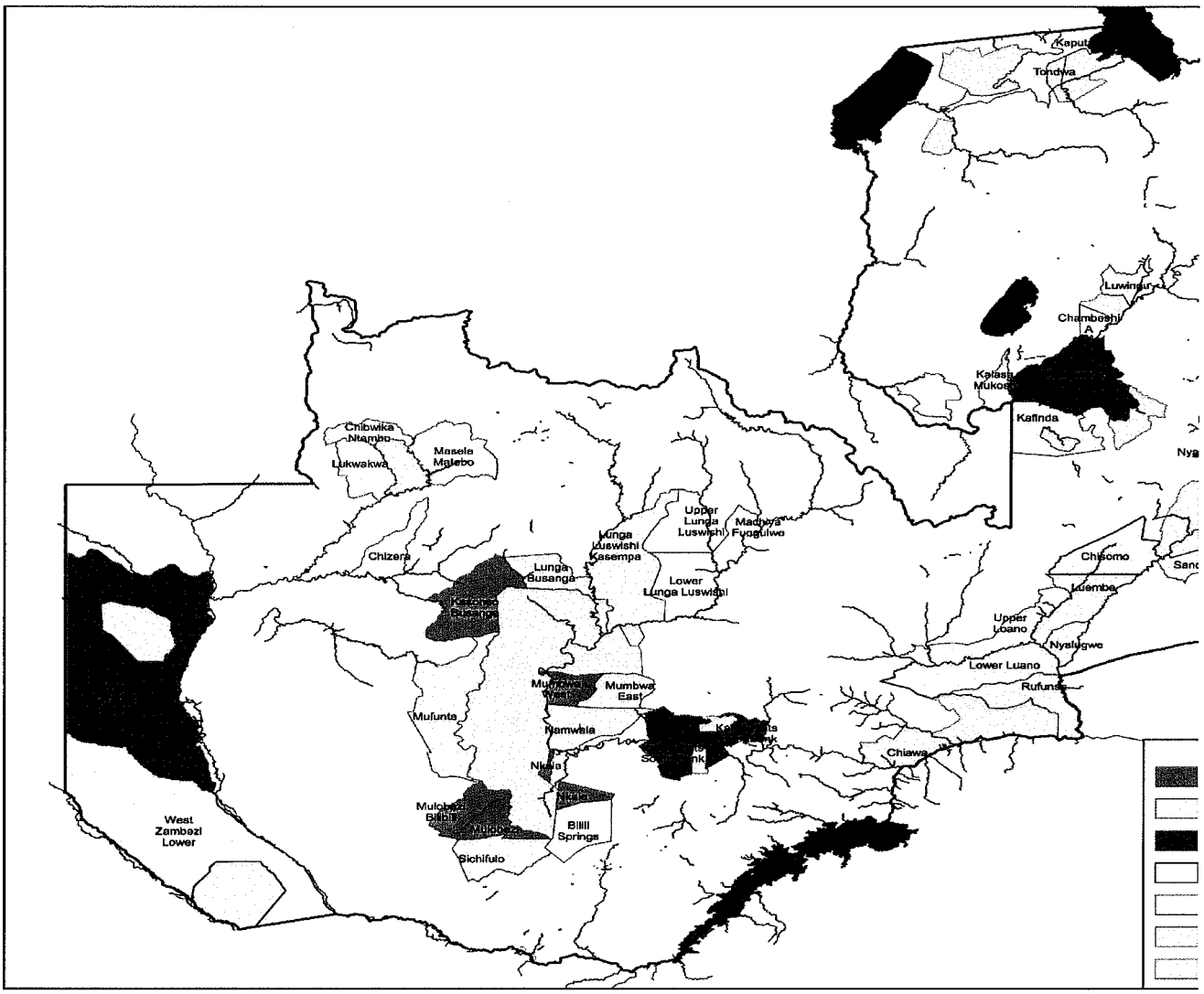


Figure 5: The location of hunting blocks and grading within the GMAs in relation to the national parks and Mushinga

The location of Open Game Ranches is not shown on this map

5.4 Status of block allocations

The DNPW is authorized in terms of the Act to grant hunting concessions in GMAs in agreement and in partnership with the villages, residents and traditional leaders (collectively known as the "local community) or their authorised representative. This is therefore a tripartite agreement between the local community, the outfitter and the DNPW (aka "the Parties"). Each partner is required to contribute services and resources. In practice the signature of the Chairperson(s) of the CRB (as the local community representative) is required to sign the Hunting Concession Agreement (HCA).

The HCA defines the following expressions and terms:

- **Annual animal quota** means the number of animals per species annually allocated to the hunting block
- **Classical Safari** means a hunting period of 14 – 28 days and which includes animal species such as cats and antelopes
- **Hunting Concession fee** means the fee agreed upon by the parties payable to the DNPW for the clients'[2] exclusive right to engage in safari hunting within the hunting block
- **Hunting Rights Fee** means the average fee agreed upon by the parties payable to the DNPW for the client to hunt in a hunting block other than the hunting block that is the subject of the agreement.
- **Mini Safari** means a hunting period of 7 days and which excludes animal species such as cats.
- **Prime Hunting Block** means all or part of a GMA that is deemed to accommodate more than 5 Classical Hunting Safaris with high quality trophies in one hunting season.
- **Secondary Hunting Block** means all or part of a GMA that is deemed to accommodate less than 5 Classical Hunting Safaris with high quality trophies in one hunting season.
- **Specialised Safaris** means a hunting safari of less than 5 days and which is restricted to plains game.

The HCA moreover lists numerous obligations that the outfitter must adhere to. For example, in terms of the agreement, the outfitter is required to pay for 60% of the total quota value up front to the DNPW irrespective of whether the animals are sold to clients or not. The DNPW reconciles the quota utilisation at the end of the year and any shortfall must be paid by the outfitter. The outfitter is also responsible for meeting the employment costs of the village scouts who are employed by the CRBs and is required to honour the cash pledges made in the tender document for community support (e.g. providing equipment to grade roads, installing solar panels at the chief's palace, sinking boreholes and providing clean drinking water, local training and employment etc.). The DNPW pay to the CRBs (via central Treasury) 50% of the animal licence fees to cover the operational costs of the CRBs.

The outfitters are also required to provide information on the number of animals hunted or quota utilization levels by end of year which is deposited with the licencing office and department of research in DNPW using the forms described in the legislation (Chomba and Nyirenda, 2015).

5.4.1 Obligations of the concessionaire in the hunting concession agreement

The awarded contracts to the concessionaires of a hunting area include 4 obligations, namely

Law Enforcement: - the concessionaire is obliged to support resource protection through the employment of Community Scouts, provision of logistical support such as vehicles, fuel, patrol rations, and equipment. This obligation is performed thoroughly by the concessionaires and

[2] "Client" means a person who is booked on a hunting tour by a holder (aka the outfitter) of a hunting licence.

their professional hunters with removal of snares, assistance in the arrest of poachers, illegal loggers, encroachers, and illegal miners.

Social and Community Development: - the concessionaire is obliged to support Community development through support to community social needs such as health and education. In this regard some concessionaires have agreed to support the employment of teachers and nurses, purchase of ambulances and building classrooms, clinics and houses for teachers and health personnel so that they are resident within the communities.

In addition to Community development obligations, concessionaires are obliged to provide 50 % of the meat from hunted animals to the local community. White and Belant (2015), estimated that sport hunting provides approximately 129.8 tonnes of meat annually to rural communities, which coincides with times of food scarcity in most of these rural communities. (See Section 6.1.3).

Infrastructure Development: - the concessionaire is obliged to support the Community in infrastructure development as agreed during the negotiations. Common infrastructure projects include boreholes, class rooms, community clinics and roads, and road maintenance and wildlife scout outposts.

Resource Monitoring and Fire Management: - the concessionaire is obliged to support resource monitoring. This is basically monitoring the status of the wildlife in their concession. This includes support to fire management, vegetation and habitat monitoring, game counts, quota setting and general support to the Community Resources Boards.

The above obligations are one of the components of the partnership in conservation of natural resources between the Communities, Safari Operators/professional hunters and the DNPW. Therefore, no hunting concession agreement is valid without the signature of the Chief/s or CRB. The following table illustrates the annual financial obligations of operators in the allocated blocks for the duration of their respective concession agreements.

Table 7: Current Annual financial obligations of hunting concessionaires to Communities in selected Game Management Areas (In Zambian Kwacha)

GMA	Status	Community Obligation	Law Enforcement	Infrastructure Development	Resource Monitoring
Chiawa	Secondary	150.000	150.000	100.000	50.000
Kasonso Busanga	Prime	420.000	120.000	95.000	20.000
Lumimba	Prime	385.000	187.750	140.625	36.500
Lunga Luswishi	Secondary	235.000	180.000	869.430	125.000
Lupande	Prime	580.000	127.000	100.000	30.000
Mulobezi	Secondary	250.000	45.000	50.000	25.000
Mumbwa	Prime	345.000	90.000	50.000	50.000
Mukungule	Secondary	100.000	50.000	20.000	20.000
Munyamadzi	Prime	425.000	165.000	117.000	110.000
Musalangu	Prime	510.250	230.000	150.000	59.500
Nkala	Prime	200.000	75.000	25.000	25.000
Sichifulo	Secondary	120.000	118.000	60.000	30.000
West Petauke	Prime	150.000	90.000	100.000	27.000
Total		3.870.250	1.627.750	1.877.055	608.000

Source: DNPW

On top of these financial obligations the concessionaire and professional hunters provide important voluntary contributions to increase the level of protection and social development in the hunting areas. These include additional contributions to law enforcement, community development, infrastructure and resource monitoring. Examples of three companies' voluntary contributions from safari outfitters in their blocks to communities located in the Luangwa and Kafue Ecosystems are listed in Table 9.

Table 8: Contributions of Safari Companies to Wildlife Conservation from the Luangwa and Kafue ecosystem (2008 - 2019)

Year	Other Contributions	Permanent Employees	Casual Employees	Snares Removed	Comments
2008	64,595,000.00	116	135	2,779	• Support to Traditional Ceremony, • Support to Community Youth Group, • Donation to Secondary School, • Donated 2 Hammer mills, • Donated Land rover, • Funded awareness meeting against snaring
2009	41,500,000.00	121	137	1,894	• Support to traditional Ceremony, • 1 Hammer mill • Cement and Iron sheets for community shelter, • Transport and lodging for CRB members to attend meetings
2010	60,500,000.00	121	139	1,664	• Support to Traditional Ceremonies • Sponsoring Community Members to International meeting • Settling Statutory Fees Arrears for CRB • Outboard Engine • Contribution towards Village scout training
2011	33,000,000.00	121	144	1,686	• Motor bike spares • Transport • Second hand Land Cruiser • Fertilizer and seed
2012	35,706,000.00	121	148	1,521	
2013	20,004,000.00	132	112	715	• Hunting Operations could not sustain contributions, • Service parts for vehicle
2014	20,000,000.00	132	215	544	• Spares for truck • Hunting operations could not sustain contributions
2015	5,000.00	213	230	401	• Supported law enforcement operations, • No hunting but met concession agreement obligations
2016	450,000.00	296	480	2,071	• Support to traditional Ceremony, • 2 Hammer mills • Cement and Iron sheets for mothers' shelter • Transport and lodging for CRB members attending meetings • Support to law enforcement operations
2017	650,000.00	311	504	1,850	• Support to traditional Ceremony, • Cement and Iron sheets to schools • Transport and lodging for CRB members attending meetings • Support to law enforcement operations • Provided clothing materials to communities

2018	650,000.00	360	554	1,610	• Support to law enforcement operations • Transport to local communities • Donation of school materials • Support to traditional ceremonies • Spares and repair of anti-poaching vehicles • Funded awareness meetings in CBNRM
2019	580,000.00	368	571	1,942	• Support law enforcement operations • Building materials to schools • Spares and maintenance of the hummer mills • Support to traditional ceremonies • Damming water points

Source: DNPW

5.4.2 Tender process for hunting blocks

All hunting blocks operate under a hunting concession agreement with a safari outfitter. Safari hunts operate from 1st May to 31st December each year, however, between August and the end of December recreational hunting by citizens and residents is also allowed in these blocks on a bid basis, managed by the DNPW.

The classification of hunting blocks into Prime, Secondary, Understocked and Depleted is based on the number of Classical (i.e. 14 – 28-day hunts) and Mini (i.e. 7 – 10-day hunts). Quotas for Prime hunting blocks are set to achieve at least five classic safaris and seven mini-hunts per season. Similar, but slightly reduced requirements apply to secondary hunting areas.

The process to acquire a hunting block changed after 1991 when the government policy shifted from directly allocating HCA's administratively to an Open Tender System. The initial tenure period also gradually increased from three-year tenure, followed by a five-year tenure to 10 years for prime and secondary blocks and 15 years for understocked blocks, which prevails today (Chomba and Nyirenda, 2015). The tender process is therefore driven by these parameters with bidders tendering for blocks offering a pre-determined number of hunts. In this open tender system, interested bidders are invited to purchase solicitation documents from the DNPW HQ at Chilanga (see http://mpoto.info/tendersportal/tender-for-the-granting-of-safari-hunting-concessions-in-the-hunting-blocks/). The selection criteria is not necessarily based on the highest bidder but on other supporting evidence such as: a) evidence of a company's ability to market a given HCA, b) pledges to the local community living near to or within the area of the HCA, c) company's financial status, d) assets available to operate a safari camp, e) evidence to show that the company has agents to help with overseas bookings, f) marketing ability, g) wildlife management inputs pledged, and h) proof of qualified professional hunters among others. There are currently 54 occupied and vacant hunting blocks under the control of the DNPW that have been awarded via this tender process and are into their third year of tenure.

5.4.3 Compliance to obligations of the concession agreement

The Hunting Concession Agreement has provisions specifying the mechanism of monitoring the implementation of the agreement. Mechanisms include annual evaluations at the end of the hunting season, and before the beginning of the next hunting season that involve the Department, CRBs and representatives of the concessionaire. A concession holder who does not comply with the obligations can have their concession terminated before the end of the agreement's term.

5.5 Quota setting and GMA Management

The transformation of the former DNPW to ZAWA in 1999 ushered in new wildlife policies that promoted community-based natural resource management (CBNRM). The Community Resource Boards (CRBs) established under this policy framework were now able to benefit from the use of wildlife in the GMAs but had to also assume responsibility for the management of these areas. A proportion of the income from the sale of the quotas set by the (then) ZAWA and latterly the DNPW to "joint venture" partners were intended to cover these costs. The opportunity to take on important wildlife management roles, such as quota setting, required that CRBs (and outfitters) develop new skills to recommend annual quotas to ZAWA (and now DNPW). To assist this process, ZAWA produced a "Quota Setting and Monitoring of Hunting Manual" (ZAWA, 2004) that guided participants through the relationship between quota setting and monitoring of hunting. This manual draws on experiences from Zimbabwe and other regional countries and uses the "Adaptive Management Process" approach to set and adjust quotas. This process relies heavily on monitoring of population trends, trophy quality and hunting effort to adjust quotas[3]. It is therefore important to gather data and adopt a systematic approach to monitor hunting to establish robust indices that can feed back into this process.

5.5.1 Trend in overall quota allocations

The DNPW is required to set quotas for eight different categories of hunters across the 52 hunting blocks involving 42 mammal species and subspecies. It also allocates quotas to 12 Open Game Ranches. Reconciling and maintaining track of this database presents a challenge, especially as each outfitter is required to apply for individual licences for each hunting client. The overall quota allocations have not fluctuated significantly over the years. The notable exception is the drastic reduction of the lion quota because of the recommendations of the CITES NDF (Table 10).

Table 9: Trend in the quota set by ZAWA and DNPW for all species and key classic and mini hunt trophies

Year	2003	2004	2005	2006	2007	2008	2016	2017	2018	2019
Total quota	3360	4420	4350	4622	4539	3733	4863	3691	4535	3728
Buffalo	240	358	321	343	341	335	351	362	364	403
Leopard	112	130	122	91	99	91	76	106	112	128
Lion	108	135	123	110	117	115	24	35	31	33

5.5.2 Quota allocation across ecosystems

The magnitude of the Zambian hunting industry can be gauged by the number of key species (lion, leopard, buffalo and hippo) allocated on quota and the number of hunting clients that visit the country. The total number of animals allocated on quota for 2018 (4535) in each of the major ecosystems and Open Game Ranches is provided in Figure 5.

[3] Where possible, the DNPW also draws on aerial survey data to support its decisions regarding quotas.

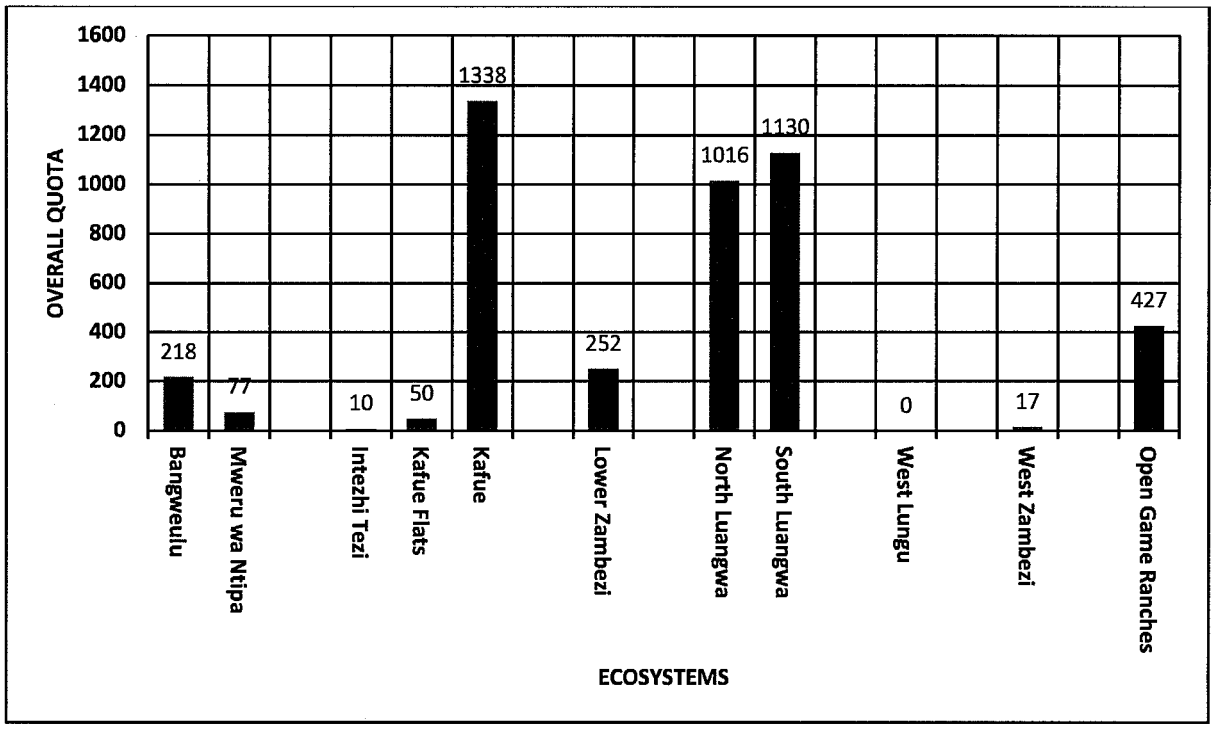


Figure 6: Overall quota allocation (4535 animals) per ecosystem in 2018

Overall, the species rich Luangwa ecosystem is the recipient of approximately 50% of the quota allocation followed by the Kafue ecosystem. When split across the various hunting categories, the non-resident hunter quota receives 2884 animals (or 63% of the overall quota) with less than 20% reserved for citizens and bona fide GMA residents (Figure 6).

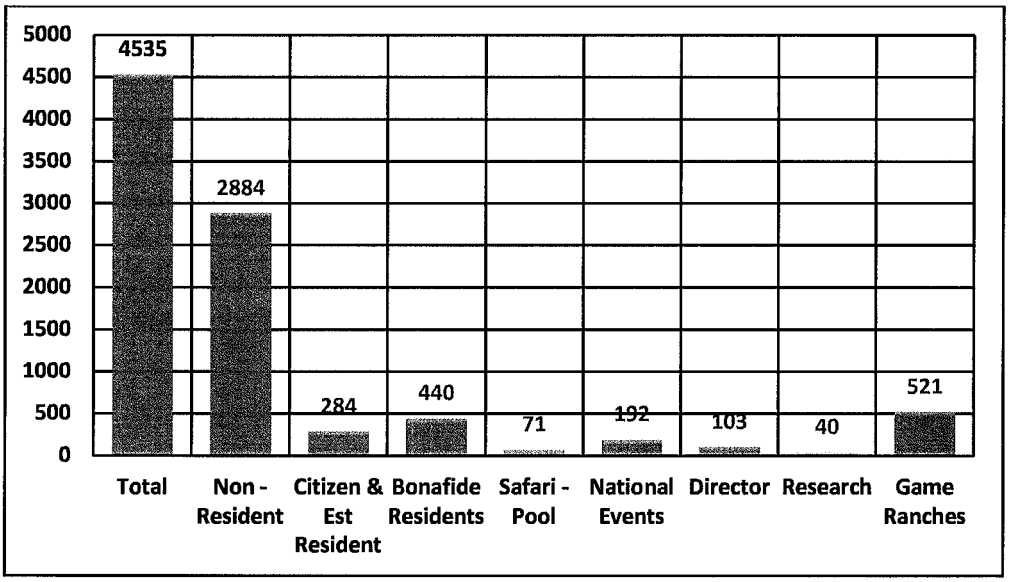


Figure 7: Total quota allocation by category in 2018. 63% is allocated to the non-resident quota.

The distribution of the lion quota between the different hunting categories is provided in Figure 7 while the distribution of the quota across the ecosystems is provided in Figure 8.

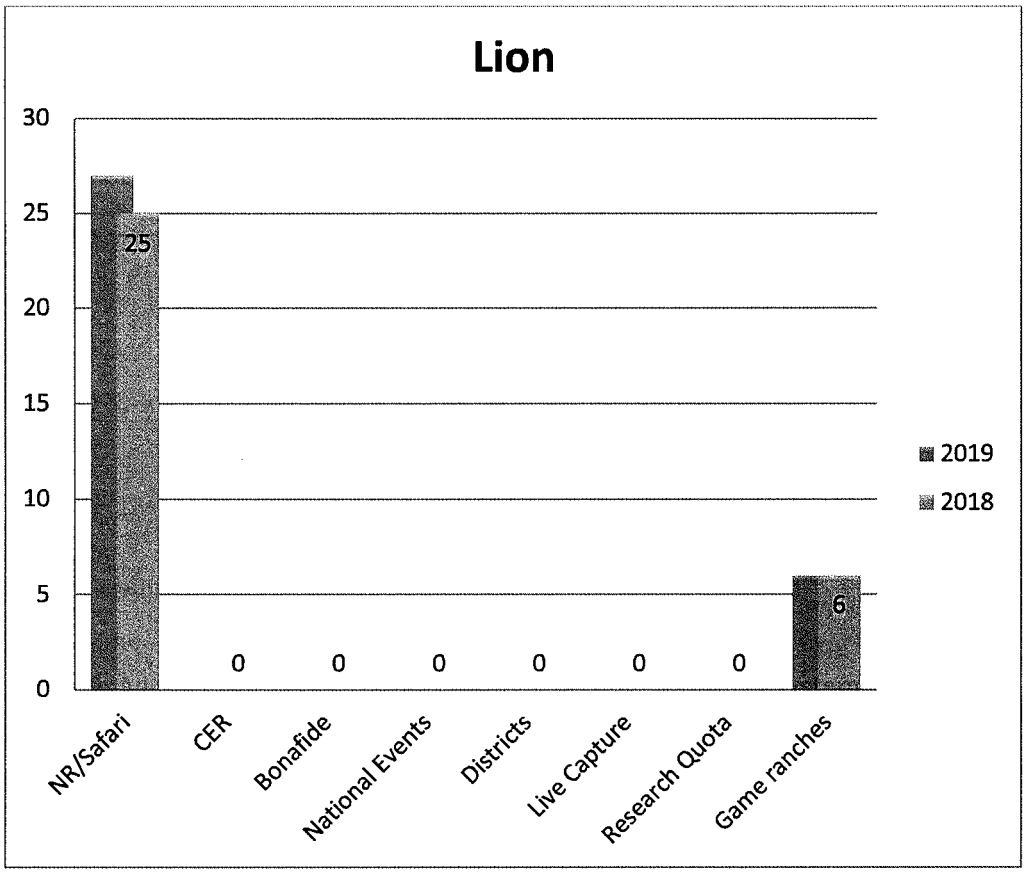


Figure 8: Allocation of the lion quota by hunting category in 2018 and 2019.

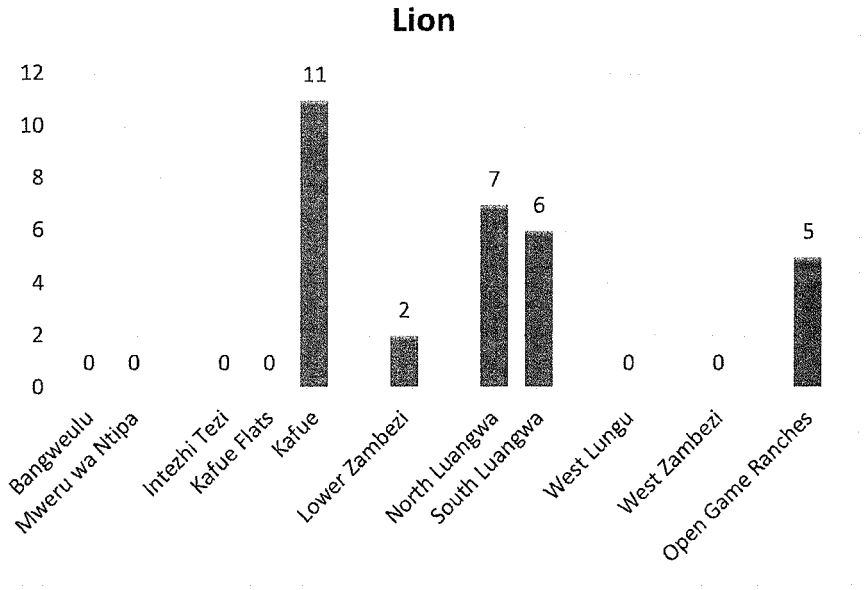


Figure 9: Allocation of the 2018 lion quota across the major ecosystems. Kafue and Luangwa take up the bulk of the lion quota.

5.5.3 Utilisation of Quota

All professional hunters (PH) and outfitters (where appropriate) are required to complete a "Form ZAWA 14" giving details of a completed hunting safari in terms of SI 46 of 2003. This form records the

details of the PH, hunting client, area hunted, dates, list of species killed/wounded, GPS location, foreign currency charged to client and trophy measurements. The forms are deposited with the licencing office and Department of Research in the DNPW at the end of each hunting safari. Chomba and Nyirenda (2015) provide some data to illustrate the average percentage utilisation of the top 10 of the 41 species on offer to non-resident hunters (Table 11).

Table 10: Ranked top 10 species utilisation levels for non-resident quotas recorded between 2003 - 2011 (adapted from Chomba and Nyirenda, 2015).

Species	Average percentage utilisation 2003 - 2011	Rank
Black lechwe	67	1
Kafue lechwe	65	2
Cookson's wildebeest	63	3
Buffalo	57	4
Lion	57	5
Puku	55	6
Leopard	55	7
Common waterbuck	48	8
Greater kudu	48	9
Defassa waterbuck	47	10

5.6. Value of 2018 quota

The value of each species offered on quota is defined by the animal licence fee charges listed in the Zambia Wildlife (Licences and Fees) Regulations, 2003 (SI No. 46 of 2003). These fees have remained relatively stable in United States dollar terms but have been periodically amended to accommodate exchange rate fluctuations in the local currency.

These fees are under review by the DNPW in collaboration with the SHOAZ taking into consideration the depressed international market for safari hunting, competition from neighbouring countries and the cost of doing business In Zambia.

5.6.1 Income generation of the 2018 quota

The overall value (in US$) of the 2018 quota is summarised in Table 12. The total income due to the DNPW from the sale of 100% of the quota is US$3,224,940 from the 188,813km^2. The 14 prime hunting blocks produce 64% of these fees ($2,066,140) or $82/km^2. However, the overall income of $17/km^2 falls short of the $50/km^2 that is generally regarded as the minimum expenditure needed to manage IUCN Category IV protected areas such as the GMAs. Moreover, realistically the DNPW can expect to receive approximately 60% of these fees ($1,934,964) that it shares 50% with CRBs. By comparison the open game ranches generate $194/km^2.

Table 11: Overall income (US$) generated from the sale of 100% of the 2018 quota allocated to prime, secondary, understocked and specialised hunting blocks

Individual Fees (Non- resident)	Number Hunting Blocks	Total Income (US$)	Total Area (km^2)	Income/km^2
Prime	14	$2,066,140	25,325	$82
Secondary	14	$985,170	48,359	$20
Understocked	3	$39,040	28,216	$1
Specialised	5	$134,590	37,633	$4
Vacant	18	$0	49,280	$0
Sub-total - DNPW	***54***	***$3,224,940***	***188,813***	***$17***
Open Game Ranch	19	$537,370	3,105	$173
Total Income	66	**$3,762,310**	**191,918**	$19.6

The potential contribution of animal license fees of the seven main species is provided in Table 13. These species make up the bags of "classic" and "mini" hunts and collectively contribute 57% ($2,138,600) of the overall animal license fees ($3,726,310). Individually, buffalo contribute 15% of this amount underlining the importance of this species to the Zambian hunting industry. Leopard and lion collectively contribute 11% while sable and roan contribute 14% of these fees.

The 2018 lion quota was valued at US$130,200, equivalent to US$0.56cents/$km^2$, highlighting the call by Creel *et al.* (2016) to review the hunting fees to maintain revenues for conservation of hunting areas. A Regulation is in preparation by DNPW to update the current animal fees as set by statutory instrument No. 60 of 2007.

Table 12: Total animal licence fee income (US$) and overall contribution of the 2018 lion quota.

Ecosystem	% Area	Area (km^2)	Income per 1000km^2	Total Animal Licence Fees[1]	Lion	Total Lion Income	Lion per 1000km^2
North Luangwa	15%	27,391	US$31,779	US$870,450	7	US$29,400	0.26
South Luangwa	7%	13,899	US$73,516	US$1,021,800	6	US$25,200	0.43
Kafue	30%	56,961	US$16,955	US$965,770	10	US$42,000	0.18
Lower Zambezi	10%	18,706	US$9,957	US$186,260	2	US$8,400	0.11
Bangweulu	10%	18,987	US$9,104	US$172,860	0	0	0.00
West Lunga	5%	10,070	US$0	US$0	0	0	0.00
West Zambezi	23%	42,799	US$182	US$7,800	0	0	0.00
Total	**100%**	**188,813**	**US$17,080**	**US$3,224,940**	**25**	US$105,000	**0.13**
OGR's		*2,769*	*US$194,066*	*US$537,370*	*6*	US$25,200	*2.17*
Total		**191,582**	**US$19,638**	**US$3,762,310**	**31**	**US$130,200**	**0.16**
N + S Luangwa	*22%*	*41,290*	*US$45,828*	*US$1,892,250*	*13*	US$54,600	*0.31*

[1] *Include Lion*

Table 13: Potential gross income (US$2,138,600) of seven main species that contribute to Classic and Mini Hunts tha

Block Category	Buffalo	Elephant Male	Hippopotamus	Leopard	Lion	Roan Antelope
Individual Fees (Non- resident)	US$1,600	US$10,000	US$1,600	US$2,650	US$4,200	US$4,00
Total quota	*364*	*27*	*212*	*112*	*31*	*67*
Primary	US$411,200	US$160,000	US$206,400	US$161,650	US$63,000	US$104,00
Secondary	US$86,400	US$50,000	US$49,600	US$71,550	US$33,600	US$68,00
Understocked	US$3,200	US$10,000	US$14,400	US$0	US$0	US$8,00
Specialised	US$0	US$0	US$0	US$0	US$0	US$
Open Game Ranch	US$52,800	US$30,000	US$48,000	US$45,050	US$25,200	US$68,00
Vacant	US$0	US$0	US$0	US$0	US$0	US$
Total Income	**US$582,400**	**US$270,000**	**US$339,200**	**US$296,800.00**	**US$130,200**	**US$268,00**
% of total value ($3,726,310)	15%	7%	9%	8%	3%	7%

5.7. Lion Quotas and utilization Pre-Moratorium (2005 – 2012)

Zambia issued a total of 683 lions on quota for the period 2005 to 2015 in 21 Game Management Areas and 5 Open Game Ranches (Table 14). For this period the highest number of lions issued on quota was 117 issued in 2005 and the lowest was 55 issued in 2011 (Table 14). The quotas were generally based on the levels of utilization of the previous year's lion quotas and in some instances the quota was fixed in the concession agreements. This level of utilization may have been locally unsustainable considering that lions like most large carnivores have low adult mortality rates (Murray et al., 2010). However, the trend during the period 2005 – 2012 was towards a low offtake quota. This was attributable to two factors: 1) a decrease in allocated quota by ZAWA (now DNPW), and 2) greater selectivity by hunters engaged in the voluntary age-based trophy selection program.

To address this concern, by 2012 the country's lion quota had been reduced by 58 per cent. Although offtake overall was decreasing through greater selectivity, the program was voluntary and a high offtake of males was still of concern in two of the Game Management Areas (Lupande and Lumimba) (Yamazaki, 1996; Rosenblatt et al., 2014).

Moreover, during this same period Zambia took measures in protecting lion populations in the Lower Zambezi and Nsumbu Complex. Following the results of studies undertaken in the Lower Zambezi (Leigh, 2005 referred to in Becker et al., 2012), the DNPW (then ZAWA) discontinued lion hunting in Chiawa Game Management Area. In the same vein due to uncertainty about the lion populations in Tondwa and Luano GMAs lion hunting was discontinued in these areas in 2006 and 2009 respectively. Thus, for the Lower Zambezi ecosystem, lion hunting has only continued in Rufunsa GMA. However, for this particular GMA lion hunting was only allowed because of the high levels of human lion conflict with 10 lions killed in an effort to mitigate conflict during the period 2005 to 2016 (Refer to Section 7.2 below)

Research by Packer et al., 2011 in the Serengeti recommends lion harvest rates of 1 lion/1000 km^2 in high lion density areas and 1 lion/2000 km^2 in low density areas. This was to be in lieu of adopting a five/six-year aging approach. However, recent research seems to suggest that this may not be the case across all ecosystem, due to differences in population demographic rates (Creel et al., 2016 in review). In any case, a review of Zambia's offtake rates for the period 2005 to 2012 indicates that harvest rate of 1 lion/1000 km^2 was only exceeded in 4 of the 21 Game Management Areas in which lion hunting was conducted for the period 2005 to 2012 (Table 15). Three of these were in the Luangwa ecosystem and one in the Kafue ecosystem. For the other 17 Game Management Areas the harvest rates were far below the rate of 1 lion /1000 km^2 despite some areas being in high lion density areas. For some areas, lion hunting was stopped altogether.

Harvest rates in Open Game Ranches were greater than 1 lion/1000km^2. However, Open Game Ranches are typically managed with high levels of protection and large prey bases per km^2.

Table 14: Zambia lion Allocated Quotas for the period 2005 to 2012

s/n	Hunting Area	Area (sq.km)	2005	2006	2007	2008	2009	2010	2011	2012
1	Lupande GMA	4,840	12	10	12	8	10	8	6	7
2	Lumimba GMA	4,500	14	11	14	14	10	12	7	9
3	Munyamadzi GMA	3,300	10	10	9	6	5	5	5	6
4	Mukungule GMA	2,402	3	3	3	2	1	1	1	1
5	Chisomo GMA	3,390	2	2	2	1	0	1	0	0
6	Musalangu GMA	17,350	13	12	13	13	12	12	6	9
7	Sandwe GMA	1,530	3	3	3	3	1	0	0	1
8	West Petauke GMA	4,140	6	4	4	5	5	5	4	4
9	Luano GMA	8,930	3	1	2	1	1	0	0	0
10	Chiawa GMA	2,334	2	0	0	0	0	0	0	0
11	Rufunsa GMA	3,179	2	2	2	2	1	2	1	1
12	Mumbwa GMA	3,370	7	5	6	6	4	5	4	5
13	Nkala/Bilili GMA	3,274	4	3	4	3	2	2	2	2
14	Mulobezi GMA	3,430	8	5	5	3	5	4	4	5
15	Namwala GMA	3,600	2	2	2	3	2	2	1	2
16	Kasonso Busanga GMA	7,780	4	4	3	4	3	3	3	3
17	Lunga Luswishi GMA	13,340	7	7	7	6	6	6	4	5
18	Sichifulo GMA	5,175	3	3	2	2	2	0	1	1
19	West Zambezi GMA	38,070	3	4	4	4	1	0	0	0
20	Mufunta GMA	5,104	0	0	0	0	0	0	1	1
21	Tondwa GMA	540	2	1	0	0	0	0	0	0
22	Mushingashi Game Ranch	365	2	2	3	3	2	2	2	2
23	Nyakolwe Game Ranch	248	3	0	1	3	2	2	1	2
24	Munyamadzi Game Ranch	180	2	2	2	1	1	1	1	1
25	Nyamvu Game Ranch	120	0	0	0	0	0	1	1	1
26	Kaindu Natural Resource Trust	106	0	0	0	0	0	0	0	1
	Total	**137,517**	**117**	**96**	**103**	**93**	**76**	**74**	**55**	**69**

Table 15: Lion harvest rates in Zambia 2005 – 2012 (Lions /1000 km^2)

Hunting Area	Area (sq.km)	2005	2006	2007	2008	2009	2010	2011	2012
Lumimba GMA	4,500	2.22	1.33	2.89	2.89	2.00	2.00	1.11	2.00
Munyamadzi GMA	3,300	2.73	-	1.82	1.82	1.21	1.52	1.21	1.21
Lupande GMA	4,840	1.86	0.62	2.27	1.24	1.65	1.03	1.24	1.03
Musalangu GMA	17,350	0.46	0.17	0.69	0.46	0.52	0.40	0.29	0.35
Mukungule GMA	2,402	-	-	0.42	0.42	0.42	0.42	-	-
Chisomo GMA	3,390	0.59	-	-	0.29	-	-	-	-
Sandwe GMA	1,530	1.96	-	-	1.31	-	-	-	0.65
West Petauke GMA	4,140	0.48	-	-	0.48	-	0.48	0.72	0.48
Nkala/Bilili GMA	3,274	0.61	-	0.61	0.31	0.31	-	0.31	0.31
Mumbwa GMA	3,370	1.19	0.30	1.19	1.48	1.19	1.19	1.19	1.48
Mulobezi GMA	3,430	0.87	-	0.87	0.87	0.29	0.87	0.58	0.58
Lunga Luswishi GMA	13,340	0.30	0.30	0.30	0.37	0.45	0.37	0.30	0.37
Sichifulo GMA	5,175	0.19	-	-	0.19	-	-	0.19	0.19
Kasonso Busanga GMA	7,780	0.26	-	0.39	0.39	0.26	0.26	0.26	0.13
Namwala GMA	3,600	-	-	0.28	0.56	0.56	0.28	-	-
Mufunta GMA	5,104	-	-	-	-	-	-	0.20	-
Rufunsa GMA	3,179	0.31	0.31	0.31	0.31	0.31	-	0.31	0.31
Luano GMA	8,930	-	-	-	-	-	-	-	-
Chiawa GMA	2,334	0.43	-	-	-	-	-	-	-
West Zambezi GMA	38,070	-	-	0.03	0.05	-	-	-	-
Tondwa GMA	540	-	-	-	-	-	-	-	-
Kaindu GR	106	-	-	-	-	-	-	-	9.43
Nyakolwe GR	248	13.04	-	4.35	8.70	8.70	4.35	4.35	8.70
Mushingashi GR	365	2.74	2.74	5.48	8.22	2.74	-	5.48	2.74
Munyamadzi GR	180	-	5.56	11.11	5.56	5.56	5.56	5.56	-
Nyamvu GR	120	-	-	-	-	-	8.33	-	-

5.8 Development of Lion Hunting Quotas and guidelines for hunting lions after the moratorium

In line with the procedures of the quota allocation process outlined, and with additional measures described in this section and subsections, the DNPW established a quota for 2016 of 24 lions (Table 16). This is the lowest hunting quota that the country has had in the last 10 years. The quota is much more conservative than the thresholds of 1 lion/2000km^2 for low density areas and 1.0 lion/1000km^2 for high density areas.

Zambia's lion population could sustainably handle higher offtakes, but DNPW chose to reopen hunting slowly to allow for careful monitoring and implementation of an age-based guideline for legal lion trophies.

Table 16: Lion Hunting Quota for 2016

s/n	Hunting Area	Area (sq.km)	Quota	lions / 1000 sq.km
1	Musalangu GMA	17,350	4	0.23
2	Lupande GMA	4,840	2	0.41
3	Lumimba GMA	4,500	3	0.67
4	Munyamadzi GMA	3,300	2	0.61
5	Kasonso Busanga	7,780	1	0.13
6	Mulobezi GMA	3,430	2	0.58
7	Nkala/Bilili GMA	3274	1	0.31
8	Mumbwa GMA	3,370	1	0.3
9	West Petauke GMA	3,227	1	0.31
10	Sichifulo GMA	5,175	1	0.19
11	Lunga Luswishi GMA	13,340	2	0.15
12	Rufunsa GMA	3,179	1	0.31
13	Mufunta GMA	5,104	1	0.2
14	Open Game Ranches	2,556	2	0.78
	TOTAL	**80,425**	**24**	0.3

Source: Research, DNPW

5.8.1 Guidelines for Hunting Lion

The DNPW in conjunction with several stakeholders hosted workshops in 2015 and 2016 where presentations were made on the status of lion and on the need to implement an age-based hunting system for lion in Zambia. These meetings were used to inform the stakeholders on the impacts of lion and leopard hunting, and to review options for the management of the large carnivores.

The guidelines for the hunting of lion were formulated through a participatory process and introduced at the start of the 2016 hunting season. The guidelines also provided the terms and conditions applicable to the outfitters that voluntarily to abided to these guidelines. All outfitters who harvested trophy lions were required to submit a "Lion Sighting Form" that captures data on pride size and location, and a "Lion Hunt Return Form (or Trophy Size Record Form)" that captures data related to the actual hunting of the lion and includes a set of photographs of the physical features and teeth of the trophy. These data were then used to assess the age of the trophies.

In reopening lion hunting in 2016 following a three-year moratorium, DNPW consulted independent lion experts to get advice and held a workshop with stakeholders in April 2016. This resulted in the formulation of guidelines on lion hunting in Zambia. The guidelines are considered as part of an adaptive process to manage lion hunting in the country and were finalized with relevant stakeholders in a participatory manner.

The guidelines have been revised in 2019 from those developed in 2016 for lion and in 2018 for lion and leopard and are meant as an instrument to provide technical guidance on the scientific methodologies to be used on lion aging and on some methodologies for lion and leopard hunting and status monitoring. These guidelines also incorporate details pertaining to the monitoring of leopard hunting and status.

The lion aging system outlined in the Non-detriment and enhancement finding produced by Department of National Parks and Wildlife (DNPW) in 2016 (DNPW 2016) and in previous guidelines was therefore an experimental one, introduced to test the response of the hunting stakeholders, DNPW relevant staff and ultimately lion populations to an age-based system for lion harvest.

Consequently, after the 2016-2019 experimental period, DNPW is now introducing a legally binding regulation that will enter into force for the 2020 season.

The Guidelines shall be regularly updated to reflect advance in scientific knowledge in order to guide technically the implementation of the regulations.

The new management approach to Lion hunting in Zambia is based on three pillars, i) a conservative, precautionary quota, well below one of the recommended thresholds for sustainability, ii) an age–based harvest limit and strong monitoring of lion offtakes, and iii) significant and direct community benefits. This will ensure that lion hunting in Zambia is sustainable and does not negatively affect the population. In addition, in the hunting concession agreements signed in 2015 no hunting outfitter has been guaranteed a lion on quota, it is made clear that the quota for any species shall be based on scientific methods including the latest available survey and aging techniques.

5.8.2 Application of the ageing methodology

It is possible, with adequate training, to age lions with relatively good precision using physical characteristics. However, under field and hunting conditions, ageing can be inaccurate, particularly in the 5–7-year age range for lion (Miller *et al.* 2016). Nonetheless, the DNPW and the Zambian safari hunting industry have taken on board the research findings and are implementing age-based trophy selection programmes. The result following the moratorium has been a marked reduction in the number of under aged lions taken as trophies. This is due to multiple factors including:

- Greater awareness by professional hunters and their clients of the importance of selecting older, non-breeding lions as trophies.
- Resources to help teach professionals and clients to age lions.
- Adoption of age minimums by DNPW as part of their management programme.
- Inspection of lion trophies by DNPW, and oversite.
- Programmes by other independent stakeholders/external reviewers to determine which individual trophies meet minimum age standards.
- Significant reduction in allocated quotas in response to best available information and employing the precautionary principle.
- Reduction in utilised quotas since development and implementation of all the best guidelines in lion trophy hunting practices.
- SHOAZ and PHAZ working closely with the DNPW to develop and legislate hunting guidelines.

- The increasing use of camera traps provides professional hunters the opportunity to seek second opinions through social media on the acceptability (or not) of a potential trophy before it is hunted.

The best available science (Miller *et al.* 2016) determined that professional hunters and biologists were most proficient at aging lions when differentiating between age classes. However, despite the available research, there is no evidence that even experts can confidently distinguish between a lion that is 5 versus 6 versus 7 versus 8 years of age, even using the best available aging techniques, on live or post-mortem animals. Thus, while it may seem appropriate to fix the acceptable minimum age of a lion trophy, it is not possible to precisely allocate an age to a trophy (i.e. 4 years vs 5 years vs 5.5 years vs 6 years vs 7 years etc.). Moreover, since best practice hunting guidelines for carnivores are being entrenched in legislation, there is a risk of litigation should the DNPW impose penalties for allegedly hunting under-aged animals that are later challenged in court by a professional hunter or client. To address this, the DNPW is developing post-mortem monitoring techniques that place the trophy into one of four age categories rather than assign a specific age class that can be later disputed (Table 17). This approach is described in the revised Zambian hunting guidelines that is being enshrined into law as a regulation (DNPW, 2019)

Table 17: Age categories defining lion trophies as described in the DNPW hunting guidelines

Age Category	**Male Lion**
Category 1 *(Adult)*	A male lion judged to be of 7 years old or above
Category 2 *(Prime Adult)*	A male lion judged to be older than 5 and less than 7 years old
Category 3 *(Young)*	A male lion judged to be above 4 years old, but below the age of 5 years old.
Category 4 *(Under age)*	A male lion judged to be 4 years old and below

The current status of the science that places a trophy in an age category relies on four parameters: i) physical features of the live animal, ii) rate of suture coalescence, iii) degree of wear on the teeth and iv) the Cementum Enamel Junction (CEJ) Measure of post mortem examination. The quantitative CEJ measurement has been applied successfully to ageing mountain lion, cougars and tigers (see Table 16) but has yet to be thoroughly tested with African lion. The remaining parameters are all subjective and depend on the experience of the professional hunter (for physical features and social behaviour) and on scientific experience with skull morphology. In all these instances, the absence of a wide range of known age lion skulls from across the region is a serious drawback. Without this material, it is not possible to benchmark the age of hunting trophies against reliable known age material. A fifth parameter, the Cementum Annuli Analysis (CAA) and the pulp/tooth ratio of the second premolar (PM^2), initially showed promise but after further scrutiny has proved to be too variable and produced conflicting age class assignments in determining whether a lion was deemed to be ≥5≤6-years-old to be used as a reliable indicator to age lion (White and Belant, 2016, White *et al.* 2016 and 2017).

To overcome the level of subjectivity, and to account for the wide range of variability and age within a population, the following approach has been adopted to distinguish between unacceptable, marginal and acceptable trophies. The approach must also accommodate the small sample sizes and the reality that a precise age is difficult to measure.

To access the age category of a trophy using the parameters described above requires assigning a score of 1 – 5 to each of the suture characteristics and to each of the teeth wear indices. However, because skulls of individual animals exhibit different characteristics depending on the age and the environment in which they lived, it is not possible to rely on only one of the four ageing parameters. All four parameters must be taken into consideration: the physical features may place a 5 – 6-year-old lion in "7-year" category and vice versa. Similarly, the rate of coalescence of sutures may suggest an older animal than the degree of wear on the incisors and molars. It is also feasible that a suture may exhibit a greater degree of coalescence than another depending on the age of the animal. For example, the *Interfrontal suture* may show evidence of being *open in places but has begun coalescing in places* giving it a score of 2, but the *maxillo-premaxillary* shows evidence of *coalescing along entire length but still visible* giving it a score of 3. The same situation applies to the incisors and molars depending on (for example) the type of diet that the animal has fed on. Scores are therefore applied to each of the suture and molar categories to give a total that can then be allocated to an age category as follows:

Age Category	Total suture and tooth wear	Classification
Category 1	>21	Acceptable
Category 2	≥ 16 <20.5	
Category 3	>13.5 <15.5	Marginal
Category 4	<13.5	Unacceptable
	Cementum/Dentine Ratio (CEJ)[1]	
Unacceptable	<13%	
Marginal	>13% <14%	
Acceptable	>14%	

[1] Note that this ratio is still "work in progress" and requires further refinement and testing against a larger sample size from across the region and known age material

A suture/tooth wear score:

- Greater than 21 places the trophy in Category 1 which is deemed to represent trophies that are 7 years and older.
- Greater than 16 and less than 20.5 places the trophy in Category 2 and although deemed to be acceptable, caution is required with scores closer to 16 than 20.
- Scores falling between >13.5 and <15.5 places the trophy in Category 3. Such trophies are of marginal age and require further closer investigation, including examination of the photographic evidence.
- Scores lower than 13.5 would place the trophy in Category 4 and classified as unacceptable.

Because the suture and tooth wear patterns are qualitatively assessed, applying these criteria still introduce a level of subjectivity in that they may classify the trophy as "acceptable" but the CEJ measurement may suggest that the age is "marginal". Similarly, the suture and tooth wear patterns may indicate that the animal is of "marginal" age but the CEJ measurement places the trophy in the "acceptable" category. Applying this approach provides a degree of objectivity to the ageing process and introduces a more flexible approach to managing the hunting of these iconic carnivores. When combined with the regulations, the authorities can apply penalties for hunting unacceptable trophies, and adjust quotas downwards when professional hunters persistently produce marginal trophies. To improve this decision-making process, four other monitoring indices are in the process of being developed. These are:

- Assessment of prey base densities i.e. animals/km^2, biomass/km^2
- Population structure of the lion i.e. number of prides, coalition male groups etc.
- Sex ratio of adult males to females.
- Other anthropogenic pressures i.e. illegal wildlife trade, snaring etc.

5.9 Mechanism for monitoring trophy hunting in Zambia

5.9.1 Quota monitoring

As explained in section 5.3.1 quotas are allocated to the hunting companies in a participatory process. The final quotas are issued by the licensing unit. The produced quotas are distributed to the CRBs, Hunting companies and DNPW field stations. During the hunting season wildlife officers accompany hunters on all hunts. The officer records activities related to the hunt on specified forms i.e., Safari Hunting monitoring forms, trophy measurement forms, and a client questionnaire. The officer endorses used licenses ensuring that they cannot be used again. The law requires that all harvested trophies are to be registered.

5.9.2 Lion Hunting Monitoring

Apart from the procedures described in section 5.5.1 above, the DNPW is introducing a monitoring system specific for lions. This monitoring system as explained in section 3.1 will be based on a statutory instrument which is in preparation, which will introduce a mandatory sampling system that requires trophy lions meet or exceed a minimum age as one measure for harvesting trophy lions. The monitoring system will be based on specific forms (Figures 9 and 10) that will help ensure proper compliance with the provisions of the law, including confirmation of legal licenses and collection of data associated with the hunt including but not limited to location, date, participants, and photos, as requested by DNPW. The monitoring system will be complemented by regular surveys for lions throughout the GMAs.

LION SIGHTING FORM

Game Management/Open Area: ..... Hunting Block: .....Name of recorder: .....

Sighting #	Date (dd/mm/yy)	Time	Pride Size and Structure						Pride Identity	GPS Location (in decimal degrees)		Activity	Photos (Y/N)
			# Cubs	# AM	# AF	# SAM	# SAF	Total #		Latitude	Longitude		

Clear pictures of lions indicating whisker spot patterns are required for every sighting.

AM = Male; AF = Female; SAM = Sub Adult Male; SAF = Sub Adult Female

Notes

Age estimate in the field: Mane characteristics, nose pigmentation, skin coloration, leg markings, whiskers, colour and wear of teeth (in the lab).

Activities: These may include; resting, feeding, walking, chasing/hunting etc.

Pride Identity: Identity code can be any name given to a particular pride or coalition of males.

Figure 10: Example of lion sighting form used by Professional Hunters

LION HUNTING RETURN FORM (2 PAGES)

PLEASE FILL OUT ONE FORM FOR EACH LION HUNT

FORM NO.	YEAR

GENERAL DATA ON THE HUNT

HUNTING AREA		DATE OF HARVEST:	
HUNTING OPERATOR		CLIENT NAME AND SURNAME:	
CLIENT NATIONALITY:		HUNTING LICENSE AND GMA PERMIT Nos.	
PROFESSIONAL HUNTER		**CELLULAR NUMBER**	
EMAIL ADDRESS		**SIGNATURE:**	

COURSE OF THE SAFARI

Number of hunting days: xx days

Have you effectively looked for a **lion to hunt during** the Safari? ☐ Yes ☐ No

Number of hunting days before lion was harvested:

Estimated number of kilometers covered during the Safari:

By car	By foot	Total

Number of different solitary lions seen during the Safari:

Number of different **lion** prides seen during the Safari:

Total number of different individual lions seen during the Safari (solitary + in pride)

Adult				
Male	Female	Sub-adult	Cub	Total
+	+	+	+	=

Number of different "trophy lions" seen **during** the Safari:

IF A LION WAS HARVESTED

Date of harvest:

Hunting days needed for harvesting the lion

Location of harvest (GPS in decimal degrees)

GPS S:

GPS E:

Give your own estimate of the lion's age:

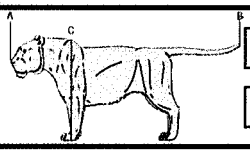
Condition of the lion harvested: ☐ Healthy ☐ Wounds ☐ Thin ☐ Snares

GO TO PAGE 2 FOR PICTURES AND BIOLOGICAL SAMPLES

TROPHY MEASUREMENT AND PHOTOGRAPHY

Total length (A-B: tip of the nose to end of the tail): cm

Shoulder height (C: tip of scapula to back of plantar pad): cm





Side view showing the entire body with the hunter positioned directly behind for scale



Side view of the head, neck and shoulder showing mane development



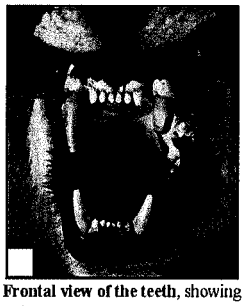
Head down, showing mane development on head and shoulder



Head up, showing mane development on throat and chest



Face head, showing shape and scarces



Frontal view of the teeth, showing coloration and wear on canines and incisors. At time of hunt for color!



Nose, not too close and clearly showing the pigmentation. At time of hunt for color!

BIOLOGICAL SAMPLING

Please note that two blood and two skin samples are required per lion.

Blood sample: Place the filter paper on bullet wound or another source of blood until blood soaks through, air dry for 10-15 minutes in the shade, place in a small plastic bag inside the larger plastic bag and store in a cool place.

Skin sample: Cut a small piece of skin (3-4mm), place it into a tub filled with alcohol 70 or 90° (ethanol) and put the tub in the larger plastic bag.

...thanks for your help!

Ensure all data are accurate and no blank spaces are left. Page 1 and 2 must be completed even if a lion hunt was unsuccessful. Ensure GPS coordinates are provided throughout.
RETURN THE FORM TO DNPW VIA EMAIL TO info@dnpw.mota.gov.zm AND COPIED TO AN ASSIGNED RESEARCH OFFICER AS SOON AS THE HUNTING IS COMPLETED AND MAINTAIN THE PRINTED AND SIGNED ORIGINAL IN A SAFE PLACE.

Figure 11: Lion Trophy record form

5.10. Lion quota allocation and utilization 2016 - 2018

As reported in section 5.8.1, the guidelines for the hunting of lion that were formulated through a participatory process were introduced at the start of the 2016 hunting season. All outfitters who harvested trophy lions submitted returns that were used to assess the age of the trophies. The hunting guidelines were first implemented on a voluntary and experimental basis in the 2016 season when 24 lions were allocated on quota (1 in the Lower Zambezi ecosystem, 11 in the Kafue ecosystem and 12 in the Luangwa ecosystem). In total 18 lions were considered as hunted in 2016 (17 lions were hunted, and one was wounded). Of the 17 lions killed, 3 were from the Kafue ecosystem, with the remainder hunted in the Luangwa ecosystem. The 17 lion trophies were assessed by a "Lion Ageing Committee" consisting of DNPW staff, SHOAZ and independent carnivore researchers (DNPW, 2017). The results of this assessment showed that 5 of the 17 lions were under age and 2 were classified as marginal (Table 18). These results were discussed with SHOAZ highlighting where and how its members could avoid hunting unacceptable trophies using the available ageing tools.

In 2017, 34 lions were allocated on quota and 21 harvested (16 in Luangwa, 3 in Kafue and 2 on open game ranches). No lions were hunted from the Lower Zambezi (DNPW 2018a). A "Lion Ageing Committee" appointed by the DNPW assessed the returns for 21 lion trophies and found that no under aged (unacceptable) trophies were recorded although 2 were regarded as marginal. The remaining 19 trophies were classified as Category 1 (5 trophies) and Category 2 (14 trophies). The 2018 lion ageing assessment identified 7 Category I, 15 Category II and 2 Category III trophies (Table 18).

Table 18: Summary of the number of lions harvested between 2016 and 2018 and classified into categories according to the criteria defined in the hunting guidelines.

Age Category	Number harvested			Classification
	2016	2017	2018	
Category I (Adult ≥7 years)	5	5	7	Acceptable
Category II (Prime Adult 5 - 7 years)	5	14	15	
Category III (Young 4 – 5 years)	2	2	2	Marginal
Category IV (Under age < 4 years)	5	0	0	Unacceptable
Total lion harvested	**17**	**21**	***24***	
Total Quota allocated	***24***	***34***	***31***	

Data for the 2019 hunting season are still under analysis and the aging Panel will meet in the first months of 2020. In 2019, 33 lions were allocated on quota and 21 harvested as of December 2019.

The allocation per hunting block of the quota for 2018 and 2019 is spatially illustrated in Figure 11 and provided in Table 19. This data confirms that the DNPW is adhering to the recommended guidelines of setting lion quotas at ~0.5 lion shot/1,000km^2. Overall 30 lions were allocated in 2018 across the GMAs (188,813km^2) that equates to 0.16 lion/1,000km^2 and 33 lions were allocated in 2019 (0.17 lion/1,000km^2) which is well below the recommended thresholds.

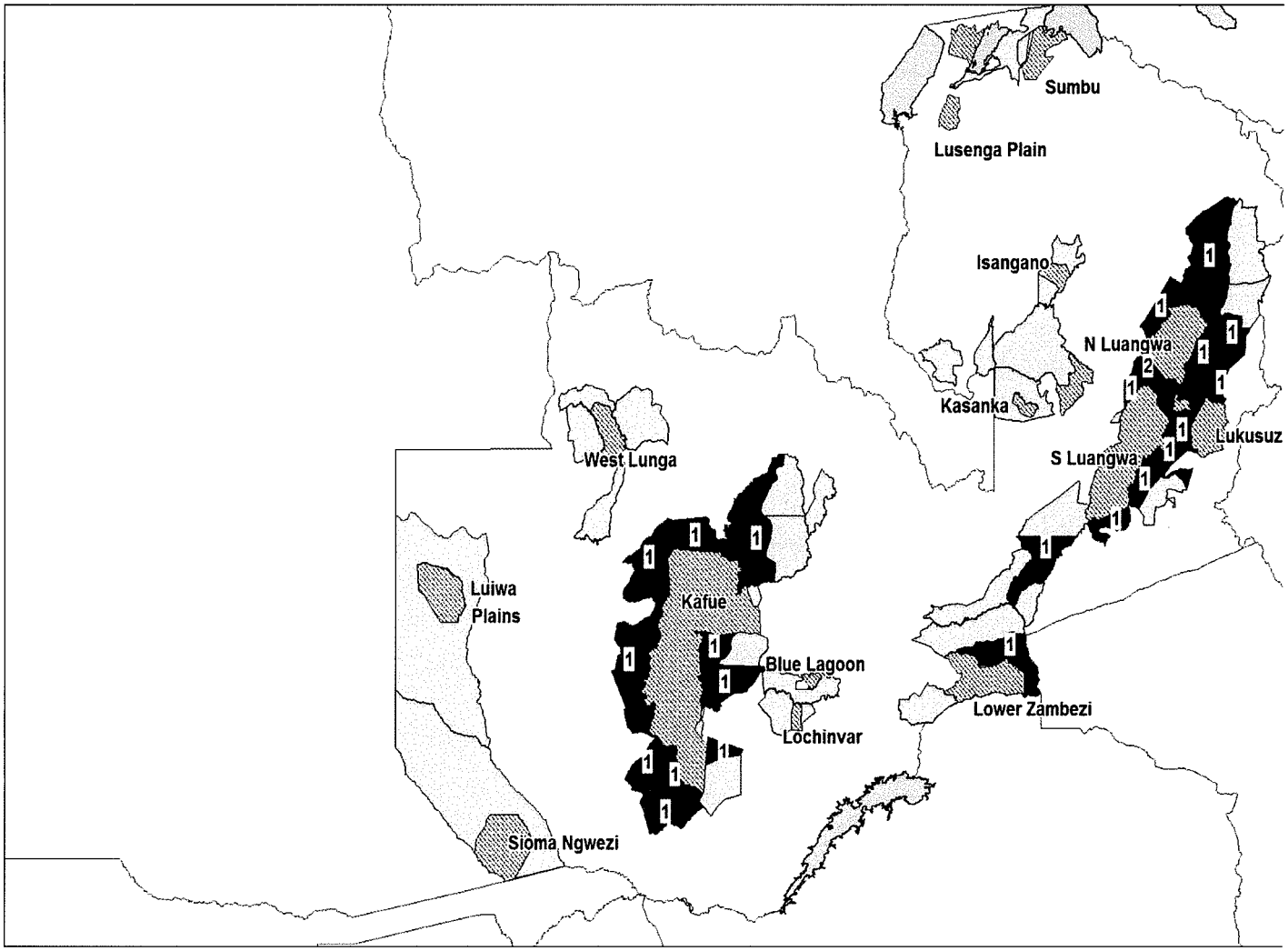


Figure 12: 2018 quota allocation of lion across the occupied hunting blocks in the GMAs. Note that quotas allocated

Note: The vacant GMAs are shown in green. No lions were allocated to these blocks

Table 19: Allocation of lion quotas per hunting block and OPG's – 2018 and 2019

GMA	Hunting Block	Status	Operator	Area (km²)	Lion Quota 2018	Lion Quota 2019	Quota adjustement	Lion Taken 2018/2019
Musalangu	Chifunda	Prime	Muchinga Adventures	1676	1	1	1/0	2/1
Munyamadzi	Nyampala	Prime	Baobab Safaris	1801	1	1	1/2	2/3
Lumimba	Mwanya Lumimba	Prime	Mvu Safaris	1587	1	1	1/1	2/2
Lupande	Lupande Lower	Prime	Kwalata	1522	1	1	1/1	2/1
Munyamadzi	Luawata Munyamadzi	Prime	Sitatunga Game Ranching	1003	2	1	1/0	2/1
Chikwa	Chikwa/Fulaza	Prime	Ivory Safaris	3102	1	1	0/1	1/1
Lupande	Lupande Upper	Prime	Westgate Investments	1203	1	1	0/1	1/2
Lumimba	Nyaminga Lumimba	Prime	Paya kakuli	956	1	1	0/0	0/0
Kasonso Busanga	Kasonso Busanga	Prime	Ntengu Safaris	4701	1	1	0/0	0/0
Lumimba	Chanjuzi Lumimba	Prime	Impanga Safaris	1617	1	1		0/1
Mulobezi	Mulobezi	Prime	Mulobezi Outfitters	1732	1	1	0/1	0/1
Nkala	Nkala	Prime	Luansefwa Safaris	1110	1	1	0/1	0/0
Mumbwa	Mumbwa West	Prime	Mangomba Safaris	1441	1	1	1/0	2/1
Mulubezi	Mulobezi Bilibili	Prime	Tandala Safaris	1874	1	1	0/0	1/1
Lunga Luswishi	Lunga Luswishi Kasempa	Secondary	Pro Hunt Zambia Ltd	6981	1	1	0/0	1/0
Musalangu	Lundu Musalangu	Secondary	Freestop	6184	1	1	0/0	1/1
West Petauke	Luembe	Secondary	Mopane Safaris	3134	1	1	0/0	1/1
Sandwe	Sandwe	Secondary	Zambezi Portland	1530	1	1	0/0	1/0
Mufunta	Mufunta	Secondary	Mvu Safaris	6394	1	1	1/0	0/0
Tondwa	Tondwa	Secondary	Baobab Safaris	440		0	0/0	0/0
Sichifulo	Sichifulo	Secondary	Mulimo Agriculture & Hardware Distributors	3040	1	1	0/0	1/0
Namwala	Namwala	Secondary	Nsonga Game Management Safaris	3173	1	1	0/0	1/0
Mukungule	Mukungule	Secondary	Busanga Trails	1824	1	1	0/0	0/0
Lunga Luswishi	Lunga Busanga	Secondary	Southgate Investments	2138	1	1	0/0	0/0
Rufunsa	Rufunsa	Secondary	Nyampala Safaris	3225	1	1	0/0	0/0
Chiawa	Chiawa	Secondary	DJR Investment Ltd	2394		1	0/0	0/0
Musalangu	Tembwe	Secondary	Kazunga Investments	6743		1	0/0	0/1
West Petauke	Nyalugwe	Secondary	Mbeza	1159		0	0/0	0/0
Bangweulu	Bangweulu	Specialised	Pool	6632		0	0/0	0/0
Chisomo	Chisomo	Understocked	Sable Transport	3611		0	0/0	0/0
Open Area	Itezhitezhi	Open Area	Open	250		0	0/0	0/0
West Zambezi	West Zambezi Upper	Specialised	Pool	23458		0	0/0	0/0
Kafue Flats	Kafue Flats North Bank	Specialised	Pool	5175		0	0/0	0/0
Kafue Flats	Kafue Flats South Bank	Specialised	Pool	2118		0	0/0	0/0
Luano	Lower Luano	Understocked	Makasa Safaris Ltd	5264		0	0/0	0/0
West Zambezi	West Zambezi Lower	Understocked	Zambelozi Limited	19341		0	0/0	0/0

GMA	Hunting Block	Status	Operator	Area (km²)	Lion Quota 2018	Lion Quota 2019	Quota adjustement	Lion Taken 2018/2019
Open Game Ranches	Nyakolwe	OGR	Sable Transport	561	1	1	0/0	1/1
	Nyamvu	OGR	Makasa Safaris Ltd	128	1	1	0/0	1/0
	Kazumba	OGR	Private	198	1	1	0/0	0/0
	Kaindu	OGR	Kaindu NR Trust (Community)	607	1	1	0/0	1/1
	Munyamadzi	OGR	Private	110	0	1	0/0	0/0
	Mushingashi/Kashikoto	OGR	Private	372		0	0/0	0/0
	Nkalamu	OGR	Private	N/A		0	0/0	0/0
	Ilinda	OGR	Private	445		0	0/0	0/0
	Chinama OPG	OGR	Private	N/A		0	0/0	0/0
	Mbizi CGR	OGR	Private	198	1	1	0/0	0/1
	Pia Manzi CGR	OGR	Private	150	1	1	0/0	0/0
Mumbwa	Mumbwa East	Secondary	VACANT	1929			0/0	
Lupande	Msoro	Secondary	VACANT	1689			0/0	
Bangweulu	Kafinda		VACANT	3860			0/0	
Bangweulu	Mansa		VACANT	2070			0/0	
Bangweulu	Luwingu		VACANT	1090			0/0	
Bangweulu	Kalasa Mukoso		VACANT	675			0/0	
Bangweulu	Chambeshi A		VACANT	620			0/0	
Kafue	Bilili Springs	Depleted	VACANT	3080			0/0	
Kafue	Machiya Fungulwe	Depleted	VACANT	1530			0/0	
Lunga Luswishi	Lunga Luswishi Upper	Depleted	VACANT	3314			0/0	
Lunga Luswishi	Lunga Luswishi Lower	Depleted	VACANT	6981			0/0	
Luano	Upper Loano		VACANT	3530			0/0	
Kaputa	Kaputa		VACANT	3600			0/0	
Masele Matebo	Masele Matebo		VACANT	3700			0/0	
Lukwakwa	Lukwakwa		VACANT	2540			0/0	
Chizera	Chizera		VACANT	2280			0/0	
Chibwika Ntambu	Chibwika Ntambu		VACANT	1550			0/0	
Musalangu	Faluza		VACANT	5242			0/0	
			Total	**191,582**	**31**	**30**	**6/8**	**24/21**

Quotas for lion were allocated in the period 2016-2019, on the basis of four criteria; biological richness (prime /secondary) Size of hunting block 1lion/sq. km), category of the hunting area (public protected area or private), and the previous performance of the hunting area. All hunting areas are allocated 1 lion each. Prime areas were however given chance for a second lion depending on the quality of trophy harvested with the first lion. The system of allocating lion quotas encourages harvesting lions above seven years. A small prime area with a first harvest of seven and above could be given a chance to hunt a second lion. A big prime area with a first harvest of borderline age may not be allowed a second lion. In the table above Nyampala is a rich area and was allocated the second lion. The third lion was harvested as a human wildlife conflict animal. Such situations are rare and incidental.

5.11 International Trade

The African lion is included in Appendix II of the Convention on International Trade in Endangered Species of wild fauna and flora (CITES). Legal utilization of lion in Zambia occurs under sport (safari) hunting.

Other exports recorded in Zambia include parts and derivatives such as specimens for scientific purposes. Note that due to the lag time associated with trophy preparation and export, CITES trade data may not accurately reflect offtake on a year to year basis.

A Statutory Instrument is under preparation, which seeks to regulate the importation and captive uses of lion, leopard and cheetah in Zambia. This includes banning the holding of, breeding, commercial use (walking and petting) in captivity of all large cats other than for temporary veterinary purposes. In addition, animals currently being held in captivity in Zambia will be required to be castrated or spayed to eliminate further breeding, and all commercial uses of captive-held cats will be phased out as there is little or no value to conservation attached to these activities (Hunter et al., 2013). Particular care will be taken to avoid the "dumping" of captive-held cats into wild areas for any reason, especially for hunting or 'release' as means for the owners to avoid the penalties or costs associated with authorized disposition of their animals. By taking these steps, Zambia will ensure that it does not become a hosting for activities associated with captive-bred lions that negatively impact wild lion populations and their conservation (Williams et al., 2015).

Worldwide, there is growing concern over use of lion parts, especially in illegal trade. Unknown volumes of wild lion and lion parts are illegally utilized in Zambia. Lion parts are allegedly sought, traded and used for charms, magic and medicinal purposes. The level of illegal use of lion parts in Zambia is currently unknown, but is not considered to be significant, however impacts of trade in lion bones and other body parts is recognized as being potentially detrimental to wild lion populations.

To address the regional increase in lion skins and parts trafficking, and ascertain whether Zambia is also involved, the DNPW is working alongside long-term partners Wildlife Crime Prevention and the Zambian Carnivore Programme (ZCP) to determine trends and patterns of trafficking in big cats and to help combat these activities. To date all Intelligence and Investigations Units in the country have been trained and equipped to take samples from all seized big cat skins in order to trace their origin, inform anti-trafficking work, and evaluate the impact on Zambia's cat populations. Genetics samples from over 10 years of long-term intensive studies on big cats by DNPW-ZCP and samples from trophy-hunted lions and leopards are utilized to provide the baseline information for tracing these samples to their origin in addition to the ecological data they provide on dispersal, connectivity and genetic diversity. In addition, DNPW and partners are working with government labs and TRACE to enable the capacity to rapidly identify seized wildlife products by species for criminal prosecutions.

6.0 Involvement of the hunting sector in Lion Conservation

6.1 Benefits of lion hunting in Zambia

Sustainable utilization has demonstrated ecological, economic and social benefits and is a critical component of DNPW's overall lion management strategy.

It is for these reasons that DNPW is committed to improving lion management strategies throughout Zambia thereby achieving maximum benefits for lions and people

6.1.1 Ecological Benefits

Lion hunting is an essential component of the tourism industry that maintains wildlife areas as suitable habitats for wildlife. In Zambia, GMAs and Open Game Ranches (there are also Open Areas and Fenced Game Ranches) where safari hunting is conducted represent nearly 180,000 km^2 as compared to about

64,000 km^2 in national parks that are strictly protected. Without the incentives provided by hunting, this habitat could be lost and converted to other, less optimal land uses that do not include wildlife.

Trophy hunting, by definition, targets post-breeding males. By ensuring that offtake is sustainable (including the targeting of non-breeding males of certain minimum age, without dependent young), hunting provides maximum benefits while ensuring minimal negative effects on the remainder of the lion population.

Conservation of a species requires conserving the genetic variability and viability of a population rather than focusing on individual animals. While individual deaths serve to inform on sources of mortality, disease and more, loss of specific individuals do not affect population trends. However, humans (photo-tourists) may become emotionally attached to individuals, often because they are unaware of the cycles of life and death in nature. By better educating tourists and locals on the realities of population versus individual losses and gains, a more comprehensive understanding of the ecological, economic and social benefits associated with sustainable hunting of lions can be obtained. This is one of the objectives of DNPW and it should be the objective of all stakeholders who seek to conserve Zambia's wild lion populations.

6.1.2. Economic Benefits

- Lion hunting is the mainstay of safari hunting in Zambia; it attracts tourist hunters and brings income to the communities and the nation; particularly to wildlife conservation.
- DNPW devolves 50 percent of the Game Fees and 20% of the Concession Fees to rural communities to improve their livelihoods.
- Safari Operators provide:
    - Creation of employment
    - Financial support to anti-poaching
    - Provision of Health care
    - Provision of Education
    - Infrastructure development
    - Provision of meat (see below)

The remaining part of revenues are used by DNPW for wildlife conservation including lion itself through, inter alia, support to Law enforcement including anti-poaching and prosecutions and resource monitoring.

For further details, refer to this section and sections 8 and 9.

6.1.3. Social Benefits

- Lion–human conflicts occur on the interface between communities and lion range. Often, this results in "problem animals" being removed through lethal means. Increased conflict may indicate either increase in lion numbers or in human population, and require a reduction in lion numbers and/or redress in human settlement patterns.
- Lion hunting increases revenue to communities and places a value directly on the presence of living with lions thereby providing local people with tangible benefits for conserving wildlife.

For further details, refer to this section and sections 7, 8 and 9.

In particular, the economic and social benefits of sport hunting to rural communities through the provisioning of game meat have been illustrated in a recently published study (White and Belant, 2015). Provisioning of game meat to rural communities by the sport hunting sector in Zambia for three game management areas (GMAs) was on average > 6,000 kgs per GMA of fresh game meat annually from hunting operators. In most of the GMAs, provisioning of meat exceeded what was required in

the lease agreements. Provisioning of game meat peaked during the end of the dry season (September–October) coincident with when rural Zambians are most likely to encounter food shortages. Extrapolating the results across all GMAs estimated 129,771 kgs of fresh game meat provisioned annually by the sport hunting sector to rural communities in Zambia at an approximate value for the meat alone of >US$600,000 exclusive of distribution costs. During the hunting moratorium (2013–2014), this supply of meat was halted, adversely affecting rural communities previously reliant on this food source. The paper recommended that proposed alternatives to sport hunting should consider protein provisioning in addition to other benefits (e.g., employment, community pledges, and anti-poaching funds) that rural Zambian communities receive from the sport hunting sector.

The hunting sector's support is crucial to the government's actions in conserving wildlife and habitats. It cannot be stressed enough the crucial role that safari hunting plays in wildlife conservation in Zambia. During the 2013 to 2016 moratorium on lion hunting (leopard hunting was stopped only in 2013 and 2014) the government was forced to subsidize the operations of ZAWA, Community Resource Boards and wildlife management (see section 9.0 below).

6.2 Transparency

The Wildlife Act of 2015 established a Wildlife Management Licensing Committee whose task is to supervise and grant, renew and revoke licenses, permits and certificates related to hunting. The committee is composed of several members appointed by the Minister of Tourism and Arts selected from different institutions including representatives from Ministries responsible for environment, lands, fisheries, forests, finance, tourism, chiefs, and mines. Other officials will come from the Attorney General's office, Ant-Corruption Commission, and Tourism Council of Zambia. This committee will enhance transparency on the administrative processes related to licensing.

7.0 Threats and Mitigation

Threats to the persistence of lion populations in Zambia include habitat encroachment and fragmentation, bush meat poaching/snaring, human lion conflict and prey depletion.

7.1 Mitigation of Habitat Loss, Encroachment and Fragmentation

With 20 National Parks and 36 Game Management Areas, Zambia has close to 35% of it land mass set aside for wildlife conservation. Including national and local forests and national heritage sites this land mass is well over 40 % of the country's total land area. The threat of habitat encroachment, deforestation and fragmentation to the ecological functionality and connectivity of the protected areas has been the focus of government for several years. For example, the Government through the Forestry Department initiated the Integrated Land-use Assessment (ILUA) project in 2008 whose main purpose was to build up forest related land use resource inventories support national planning capacity and contribute to formulating development policies (GoZ, 2013).

In 2017, the government launched the Zambia Integrated Forest Landscape Project (ZIFLP) that encompasses a series of investments from the BioCarbon Fund, Global Environmental Facility and the International Development Agency that lead ultimately to results-based payments for carbon storage and reduced carbon emissions resulting from reduced deforestation and degradation. The objective of this project is to improve landscape management and increase the flow of benefits for targeted rural communities in the Eastern Province living in proximity to the South Luangwa National Park (GoZ, 2017,

https://www.gtai.de/GTAI/Content/DE/Trade/Fachdaten/PRO/2017/06/Anlagen/PRO201706095001.pdf?v=1).

The wildlife management sub-component of this project will specifically support some activities around National Parks with respect to improving wildlife management practices and promoting practices which will maximize opportunities for rural communities from adjacent wildlife resources. Some specific activities designed to minimize negative impacts include:

- Consultations with adjacent communities adjacent to the protected areas and establishment of co-management processes and instruments
- Mitigation of human-wildlife conflict (HWC) where necessary
- Support to incipient ecotourism initiatives such as local ecotourism strategies, community training, infrastructure
- Awareness-raising activities
- Supporting local involvement and management of game management areas so as to maximize returns from photo safaris and hunting, both a potentially important source of funding to communities
- Improved management of subsistence hunting, where legally allowed, to provide food but to ensure sustainable management of game resources
- Possible extension of COMACO model[4] where communities receive support for agricultural investments but are financially compensated for simultaneously protecting wildlife resources

Other related projects, such as the United States Agency for International Development (USAID) funded Community Forests Program that established the largest REDD+ program in the country (see https://www.biocarbonpartners.com/our-work/community-forests-programme/), target deforestation and better land use practices. The Community Forests Program operates through six primary objectives:

1. Empowering communities to work with governmental and non-governmental entities to lessen the drivers of deforestation;
2. Establishing and improving joint forest and natural resource participatory forest management plans among communities, traditional leaders, the Zambia Forestry Department, and the Department of National Parks and Wildlife;
3. Promoting and enabling innovative sustainable livelihoods for forest-dependent communities;
4. Implementing pay-for-performance and/or revenue-sharing programs based on measuring, reporting, and verification methodologies for forest conservation and carbon sequestration;
5. Providing households with the knowledge, tools, and technologies needed to shift their livelihoods to a more sustainable and profitable low-emissions pathway; and
6. Generating awareness, promoting action, and continuously engaging to dispel misconceptions among local stakeholders and national policymakers on the potential of REDD+ in Zambia.

Two projects that benefit from this initiative are the Luangwa Community Forests Project geared to benefit more than 17,000 families in Eastern and Lusaka provinces to better manage and conserve 1 million hectares by expanding REDD+ activities; The Lower Zambezi REDD+ Project which is Zambia's first Verified Carbon Standard verified REDD+ project that forms part of the trans-frontier conservation area with Zimbabwe and is important for elephant, lion and other wildlife populations.

---

[4] The COMACO Model helps small-scale farmers become good stewards of their land and better neighbours to national protected areas by using market incentives and effective training methods to encourage the adoption of skills that protect soils and reduce threats to forests and wildlife habitat. Through its growing capacity to leverage change in farming and land use practices, COMACO has reduced some of the key drivers of forest degradation, deforestation, wildlife poaching, and soil degradation.

Both these programmes are being carried out in close partnership with the Forestry Department and the DNPW.

Similar projects operate in the Kafue ecosystem such as the Global Environmental Facility (GEF) funded "Strengthening Management Effectiveness and Generating Multiple Environmental Benefits within and around the Greater Kafue National Park in Zambia" (https://www.thegef.org/project/strengthening-management-effectiveness-and-generating-multiple-environmental-benefits-within). Parts of this programme are being implemented by The Nature Conservancy (TNC) in partnership with the DNPW, Forestry, Fisheries, communities and the private sector to protect wildlife and support sustainable growth in Zambia (see https://www.nature.org/en-us/about-us/where-we-work/africa/zambia/.).

7.1.1 General Management Plans

The majority of the GMAs in which lion hunting occurs have a General Management Plan (GMP) in place. Only West Petauke Game Management Area (GMA) in the Luangwa ecosystem, and Rufunsa GMA in Lower Zambezi do not have General Management Plans (GMPs) at present. Musalangu, Lupande, Munyamadzi, Sandwe and Mulobezi GMAs have GMPs either as drafts or undergoing the ratification process. A General Management Plan (GMP) outlines the basic management and development guidelines for a GMA or Open Area after the systematic assessment of land and water potential, alternatives for land use, economic and social conditions in order to provide the best land use options for addressing land use conflicts / problems and achieving identified land use management objectives over a 10-year period. It is prepared through a highly consultative, interactive and participatory Strategic Planning Process (SPP) involving all key stakeholders. The GMP emphasises the commitment of all concerned, affected and interested stakeholders to balance between the preservation and utilization of the protected area's biodiversity in order to ensure the long-term survival of the natural resources including wildlife resources in a way that benefits the local communities. As such the final document is ratified by a Community Resources Boards, their patrons (who are usually the chiefs in these areas) and the DNPW. Table 20 below gives the status of GMPs for critical areas in the lion range ecosystems.

Table 20: Status of General Management Plans in Zambia's lion hunting Areas

s/n	GMA	Ecosystem	Status	Date Ratified
1	Musalangu GMA	Luangwa	In preparation	-
2	Lupande GMA	Luangwa	In preparation	-
3	Lumimba GMA	Luangwa	Ratified	2016
4	Munyamadzi GMA	Luangwa	In preparation	-
5	West Petauke GMA	Luangwa	No GMP	-
6	Sandwe GMA	Luangwa	In preparation	-
7	Kasonso Busanga	Kafue	Ratified	2014
8	Mulobezi GMA	Kafue	In preparation	-
9	Nkala GMA	Kafue	Ratified	2014
10	Mumbwa GMA	Kafue	Ratified	2014
11	Sichifulo GMA	Kafue	Ratified	2014
12	Lunga Luswishi GMA	Kafue	Ratified	2018
13	Mufunta GMA	Kafue	Ratified	2014
14	Rufunsa GMA	Lower Zambezi	No GMP	-

Source: Planning Unit DNPW

7.1.3 Open Game Ranches and Trans-frontiers Conservation Areas

As detailed in section 5.2.2 Open Game Ranches are privately owned lands bordering GMAs or National Parks that stock wildlife. These areas, regulated in the Wildlife Act 2015, further buffer the National Parks and GMAs from encroachment and ensure movement corridors are protected. These

are new models of wildlife conservation in the country that the Zambian government is supporting to ensure sustainable use of wildlife resources and protection of habitats.

In the most recent conservation developments, establishment of the Kavango-Zambezi Transboundary Park (KAZA) by Peace Parks seeks to protect a contiguous habitat of over 280,000km^2 that includes the whole of Kafue NP ecosystem and the Sioma Ngwezi National Park region as part of an international effort to maintain connectivity of viable habitats for all species, including lions. Other proposed Trans – frontier Parks include the Liuwa - Mussuma between Zambia and Angola and the Mana Pools - Lower Zambezi between Zambia and Zimbabwe.

In general, due to the increase in donor funding and increased number of economic opportunities availed through tourists' lodges, protected areas in general attract a lot of immigrants on their boundary areas (Wittemyer et al., 2008). Zambia has not been spared from the phenomenon, Mfuwe the gateway town to the South Luangwa National Park has seen increased population growth and increased infrastructure development unlike other areas in the ecosystem devoid of photographic tourist's lodge (Twakundine Simpamba Senior Ecologist SLNP pers. comm.). This has caused habitat loss. Because hunting concessions usually have one operator over a large area and are located in areas that are not easily accessible, Safari hunting helps in buffering protected areas from the effects of immigration, while at the same time providing economic support to rural communities and maintaining habitat. In general, the Safari hunting sector is extremely supportive of initiatives aimed at maintaining wild areas. Their presence acts as a deterrent to would be squatters. They also act as monitors and able to immediately inform the CRBs or the Department of illegal settlements in GMAs.

7.2 Human Lion Conflict

Human-Lion conflicts (HLC) are not uncommon in Zambia. Fortunately, retaliatory killings by livestock owners are not as common as in East Africa. Therefore, direct lion poaching is not believed to be significant. ZAWA (now DNPW) developed an adaptive system that includes a procedure whereby reported cases of lion damages are investigated by field officers and complete reports are reviewed by the most senior officer for immediate feedback. Interventions include; scaring lions through blasting, or killing the animals suspected to be responsible for the attack on livestock and humans. This approach is considered incompatible with sustainable conservation of wildlife, and may contribute to the decline in the lion populations. DNPW is committed to implement the best practices on HLC including for example the HLC toolkit developed by the Niassa Carnivore Project. This will be done through the development of a specific policy on Human Wildlife Conflict that the department, pending the availability of funding, would like to devise as soon as possible.

In the period 2008 to 2016 at least 10 people have been reported as having died as a result of being attacked by lions and a further 16 having been injured as a result of a lion attack.

In 2018, 236 cases of lion damage to livestock or threat to human lives were reported to DNPW compared to 36 cases in 2017-

Seventy-two lions have been killed as a result of human lion conflict since 2002. Development of a specific policy to address Human Wildlife Conflict, as described above, is anticipated to greatly reduce the number of lions killed as problems through increased use of non-lethal strategies to deal with conflicts. As table 21 shows the number of lions killed on control spiked in the period 2013 to 2015.

Table 21: Control of Problem Lions in Zambia 2002-2018

Year	lions controlled
2002	2
2003	4
2004	1
2005	0
2007	5
2008	8
2009	2
2010	5
2011	3
2012	8
2013	5
2014	10
2015	14
2016	1
2017	1
2018	3

This could be a result of the hunting moratorium where lions cannot be hunted by tourist hunters thus leading to increased conflicts. Movement of lions out of the National Parks and GMAs into regions where they become "problems" is likely to be exacerbated by high lion densities that occur in the absence of sport hunting. Rather than just controlling them for the sake of reducing conflict, it would be beneficial if these lions were hunted through safari hunting because of the increase in tolerance by rural communities toward lions generated by the revenues from sport hunting which are also used to protect lion habitat and to implement other mitigation measures.

The Lower Zambezi and Luangwa ecosystems accounted for 70 % of the lions killed on control. The levels of lethal control in the Lower Zambezi is particularly high with Rufunsa GMA accounting for 42 % of the animals killed in this ecosystem. The high levels of conflict in the Rufunsa GMA could be as a result of high human settlements along the river, thus there is competition for resources between wildlife and people. Considering the lower density of lions recorded from studies in the Lower Zambezi, lion hunting in this GMA is strategically meant to increase tolerance of lions and then contributing to solve problem animal conflict and bring communities on side by providing revenue that contributes to their livelihood strategies.

7.3 Bush meat poaching and prey depletion

Poverty and the necessity for rural people to obtain some income are the main drivers of bush meat poaching in Zambia. Bushmeat poaching with wire snares continues to pose one of the greatest threats to large carnivores in Zambia, both in its impacts on prey populations, and in snaring bycatch of wild dogs, big cats and hyenas. DNPW-ZCP research indicates that prey depletion is not likely to be uniform, but rather impacts the larger species first, resulting in a progressive decrease in snare sizes to target increasingly smaller herbivore species. While larger snares for buffalo and other species are unlikely to pose as much of a threat for large carnivores, smaller snares are much more likely to catch, maim, and kill.

In the Luangwa DNPW continued to work with ZCP and Conservation South Luangwa (CSL) to mitigate snaring by-catch through intensive monitoring of collared wild dog and lion groups through ground, aerial and satellite/ GPS tracking, coupled with data-directed anti-snaring patrols, field-based veterinarians. In 2018, five wild dogs, three lions, and 1 hyena were snared, with four wild dogs, 2 lions and 1 hyena successfully darted and rescued by DNPW and ZCP/CSL Wildlife Veterinarians. The

data collected by field teams was also provided daily to anti-snaring teams which targeted areas of high risk and high use by large carnivores, and this support assisted in the removal of 478 snares.

Similarly, in the Kafue ecosystem, DNPW working with ZCP and Panthera through their newly-formed anti-poaching units, as well as with hunting operators' anti-poaching units confirmed no reports of snared carnivores in 2018, with one lion treated for an old snare injury.

As illustrated in section 7.3.1 below, results of the recent aerial surveys have shown an overall stable to increasing population of key prey species in the Kafue and Luangwa ecosystems.

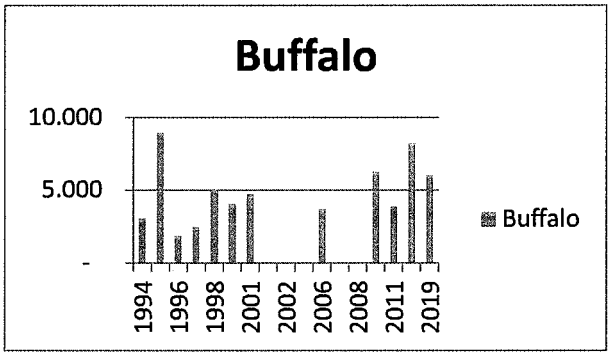
7.3.1 Prey Availability and abundance

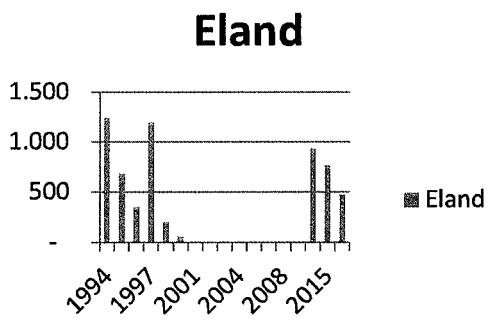
Abundance of prey species is highly correlated with lion density (Hayward, 2007; Périquet et al, 2014). Protected areas with healthy prey population support healthy populations of lions. Therefore, prey abundance is a good indicator of the status of lion populations.

The 2015 aerial survey (DPNW 2016a) of large mammals in Zambia indicated that for the majority of key wildlife species in the Kafue ecosystem, their numbers have been increasing over the period 2006 to 2015.

In 2019 an aerial survey was carried out through funding from GEF5 hosted by UNDP in the Kafue ecosystem. The objective of the survey was to continue monitoring the population status of large terrestrial herbivores in the Kafue ecosystem. The survey report is still being drafted but preliminary data are shown in figure 13.

For the Luangwa and Lower Zambezi ecosystems the data are still the ones of 2015 (DPNW 2016a) and are shown in figures 13 and 14 below. Trends for the Luangwa system have been stable to increasing. The only exception being the Lower Zambezi ecosystem where there has been a significant decrease in one of the main lion preys, the buffalo. The causes of this decline are being investigated.





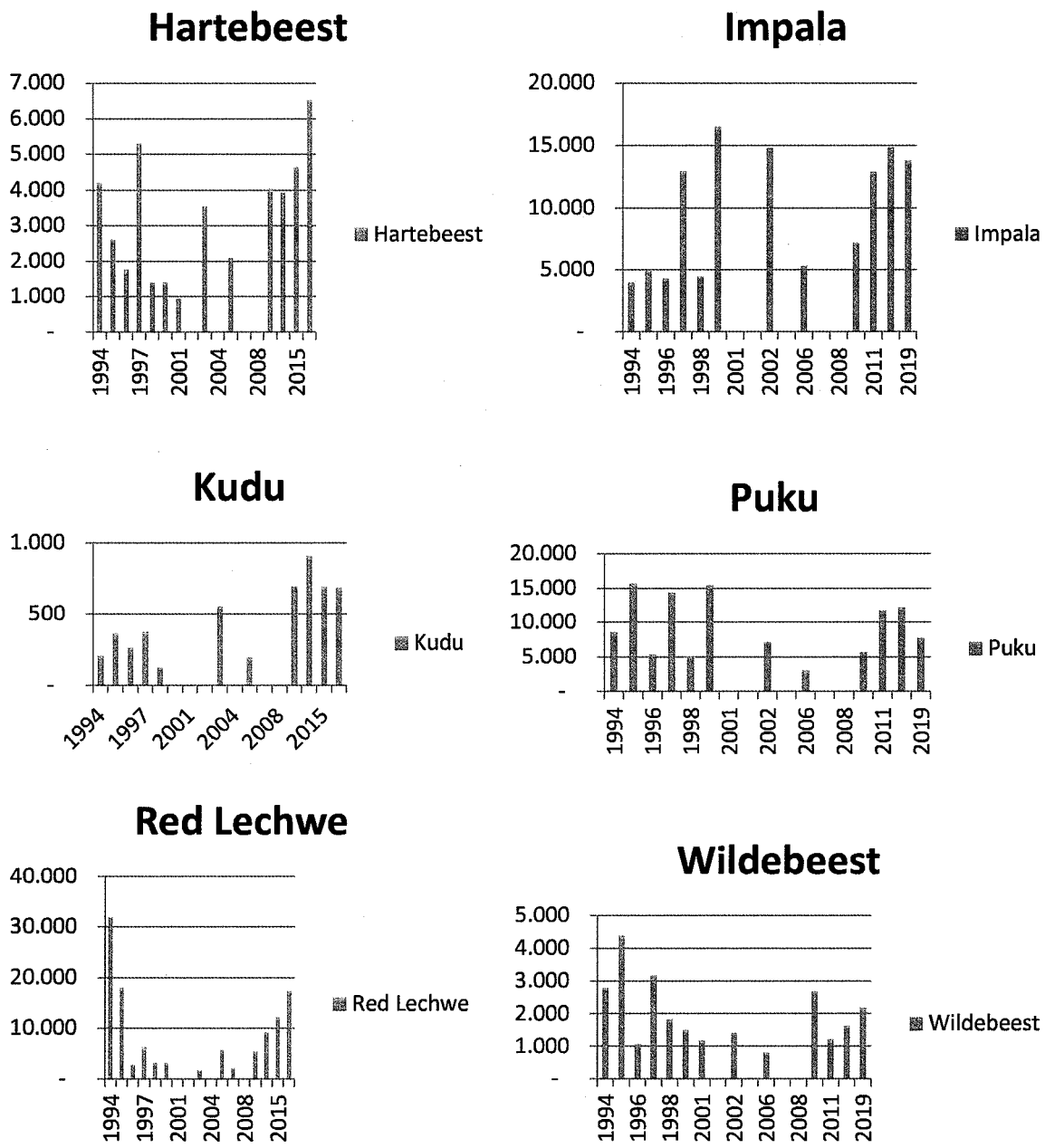


Figure 13: Population trends for selected species in the Kafue National Park 1994-2019 (Source DNPW 2019, in review)

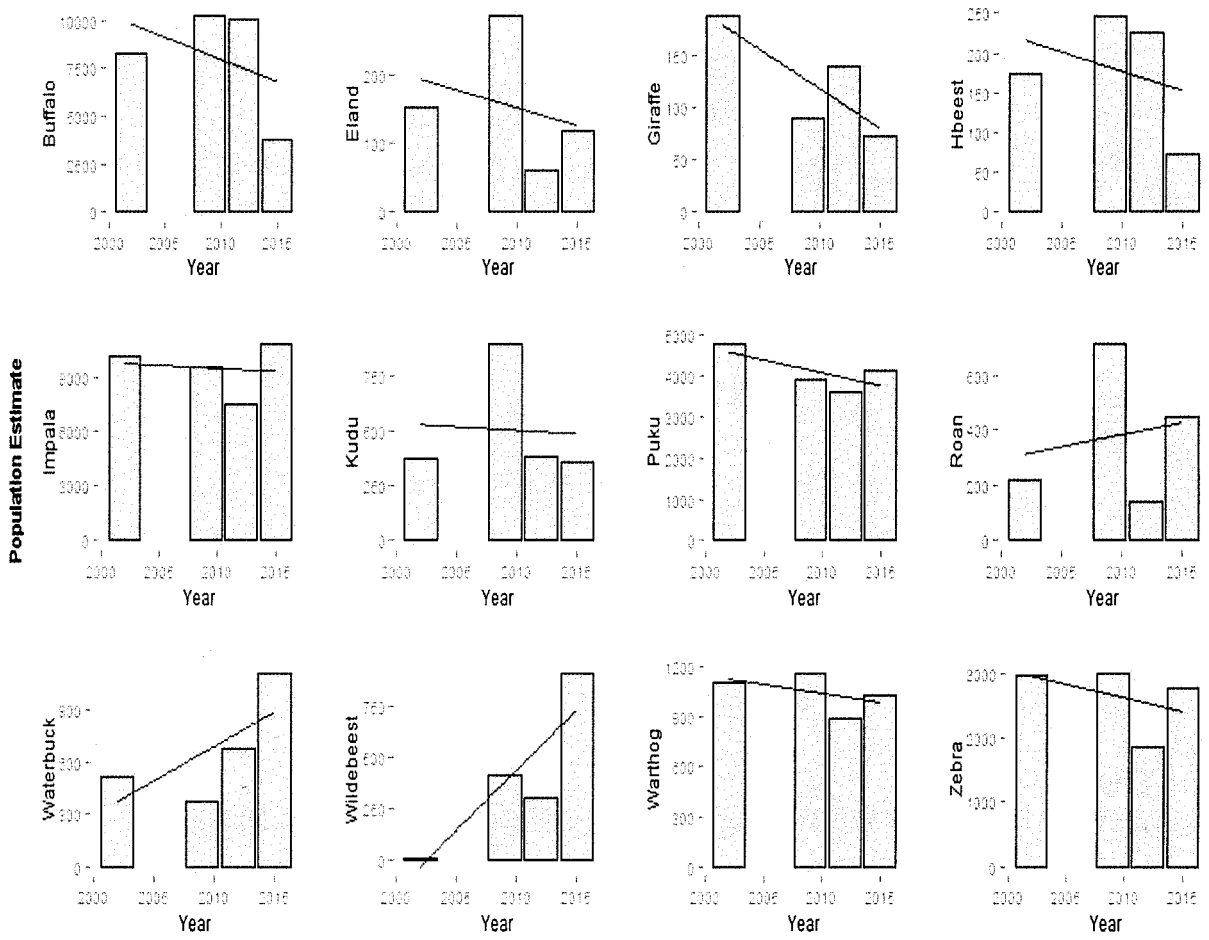


Figure 14:Ungulate population trends in South Luangwa National Park

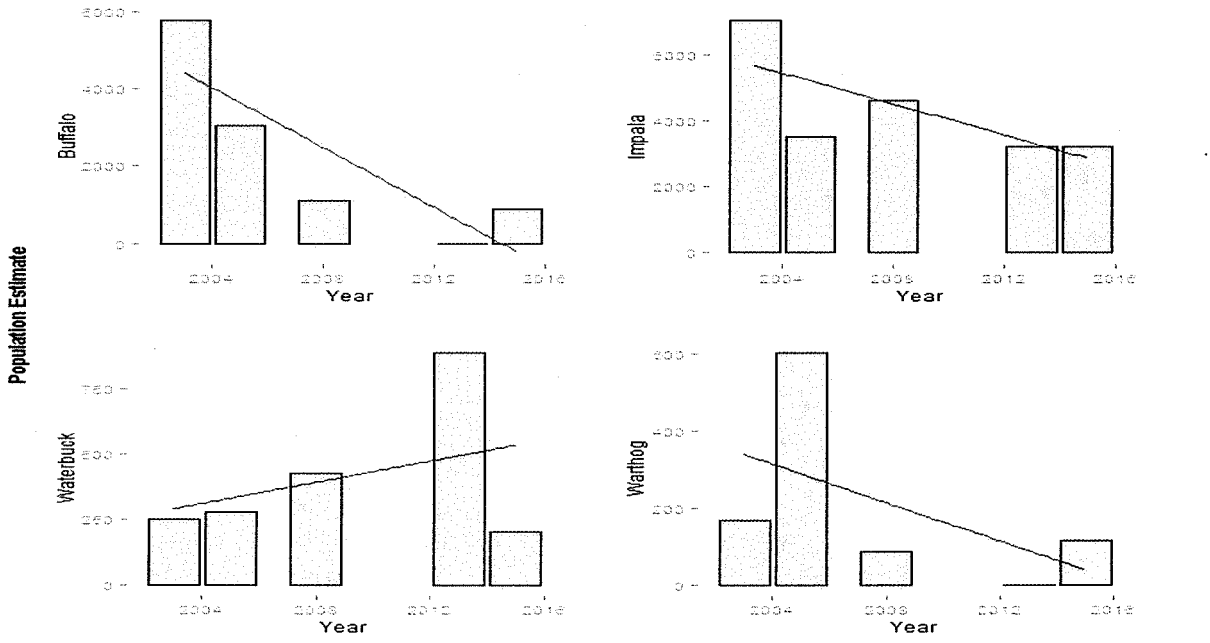


Figure 15: Population trends for buffalo, impala, waterbuck and warthog in the Lower Zambezi National Park

Figure 16 below is a comparison of ungulate abundance in the Luangwa ecosystem between GMAs and the 4 National Parks (South Luangwa, North Luangwa, Lukusuzi and Luambe National Parks). Buffalo and wildebeest were more abundant in the GMAs than in the National Parks. These findings underscore the importance of GMAs as habitat for populations of some species, in particular, buffalo and wildebeest and the need to maintain the habitats intact.

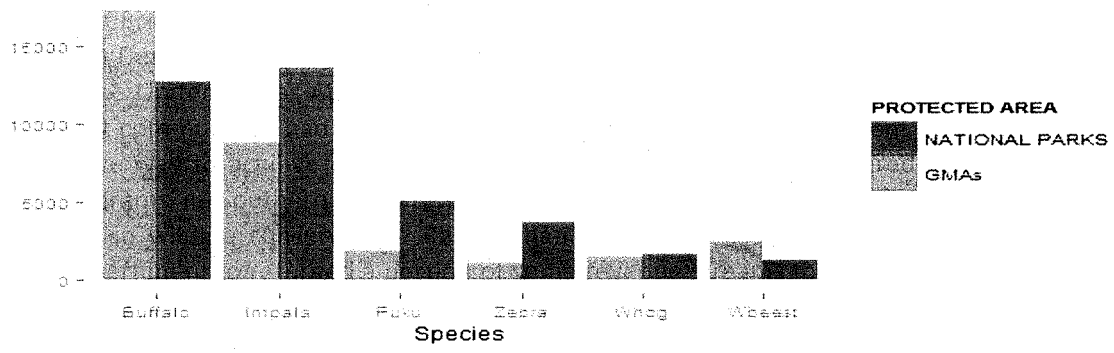


Figure 16 Species abundance in the Luangwa ecosystem National Parks vs GMAs

Importantly, ground surveys are highly recommended as an inexpensive yet reliable methodology to ascertain wildlife status, abundance and densities in wildlife estates in Africa.

Schuette et al. (2018) documented the importance of ground-based surveys for long-term wildlife population monitoring. Ground- based ungulate counts should also be expanded into adjacent game management areas in a standardized and compulsory way to inform management actions-.

8.0 Community Based Natural Resources Management (CBNRM)

8.1 CBNRM in Zambia

The origin of CBNRM in Zambia owes much to a program that came to be known as the Administrative Management Design Program for Game Management Areas (ADMADE), which commenced in 1987. Funded by the United States Aid for International Development (USAID), ADMADE established the principle that communities had the right to participate in wildlife management and that it was the most effective way to achieve conservation. The program could be considered as one of the first CBNRM programs in Southern Africa. The theory behind the program, was to encourage rural participation in wildlife conservation. Rather than all taxes on safari hunting going to the state treasury, government to returned a portion of some revenue streams to a local GMA committee for its use in development and for investments in wildlife management.

In 1999, the Department of National Parks and Wildlife Service (NPWS) was transformed into the Zambia Wildlife Authority (ZAWA) - a statutory body established by the Zambia Wildlife Act number 12 of 1998. The Act gave birth to Community Resources Boards (CRBs), based on the ADMADE model and they were legally mandated to co- manage wildlife resources in Zambia.

Following the 1998 Zambia Wildlife Policy, local communities residing in chiefdoms and geographic areas which are contiguous to any wildlife estate or any open area are encouraged and assisted to apply and register as Community Resources Boards (CRBs) with the DNPW. Management of all CRBs established for the purpose of enhancing management and sustainable use of wildlife resources

outside National Parks is done through a democratically elected representation of the local community themselves, but day to day operations of any CRB should be through a secretariat. The elections are done according to Village Action Groups and it is from those elected in these Action Groups that form members of the CRB. The chief of the area is regarded as the patron of such CRBs. DNPW cooperates with all registered CRB's and provides the technical input that assists them to develop management strategies. It is the responsibility of DNPW to work with CRBs and other stakeholders in the preparation of general management plans using a participatory planning process and format developed by the Department and adopted to meet local condition requirements.

All meetings of the CRBs are conducted in a democratic way, decision reached through consensus, and minutes of all their transactions and deliberations recorded. DNPW, District Council and non- governmental organisations (if present in the area) are called to the meeting to provide the appropriate technical input that will assist CRBs make informed decisions about the rational and sustainable utilization of natural resources in their area.

8.2 Community Benefits

The Zambia wildlife Act No. 12 of 1998 introduced rights to benefit from natural resources. The Zambia Wildlife Act No. 14 of 2015 allows greater participation of local communities, thus establishing their rights to use and manage natural resources in GMAs and Open Areas. This includes provisions for participation in developing management plans. In particular, as provided for by the 2015 Wildlife Act, a local community in a chiefdom in a Game Management Area, or in an open area or a particular chiefdom with common interests in the wildlife and natural resources in that area, may apply to DNPW for registration as a Community Resources Board (CRB). According to the Zambia Wildlife Act No. 14 of 2015 the CRB have the following functions:

i. negotiate, in conjunction with the Department, co-management agreements with hunting outfitters and photographic tour operators;
ii. manage the wildlife under its jurisdiction within quotas specified by the Department;
iii. appoint community scouts to exercise and perform the duties of a wildlife police officer under the supervision of a wildlife police officer in the area falling under the board's jurisdiction;
iv. in consultation with the Director, develop and implement management plans which reconcile the various uses of land in areas falling under the board's jurisdiction; and
v. Perform such other functions as the Minister or Director may direct or delegate to it.

From the revenues generated, members of local communities have been employed by CRBs as Community Scouts, funded also through obligations under the Concession Agreement (see section 5.4.1.), to assist DNPW with law enforcement and monitoring of wildlife resources. These scouts also help in assess crop damage and problem animal controls in their communities, where they also conduct environmental awareness among the local populace.

There are currently seventy-six (75) registered CRBs which employ approximately 750 Community Scouts operating in various GMAs in Zambia with a total monthly wage bill of ZMW 359,779.50 (USD 38,853.13). An additional 79 support staff (these include Book Keepers and Administrative officers) are employed by CRBs across Zambia. In some GMAs revenues from hunting are used to pay teachers and medical staff as in the case for Nabwalya CRB while others offer student scholarships which range from secondary school to tertiary education.

The revenues the local communities obtain allows them access to social amenities and various rural development projects. The projects span construction of bole- holes, schools, clinics, and feeder roads, as well as crop damage counter-measures including solar and chili pepper fences. More

residents benefit indirectly from participating in wildlife management and accessing the resource, depending on the ability of the wildlife sector to generate funds. It has to be noted that local communities have limited benefits from non-consumptive tourism.

Animal fees are shared:

i. 5% of the funds go to the CRB patron (traditional leader or Chief);
ii. 45% of the funds go to the CRB in the form of community funds; and
iii. 50% of the funds go to ZAWA in the form of conservation funds.

Concession fees are shared:

i. 5% of the funds go to the CRB patron (traditional leader or Chief);
ii. 15% of the funds go to the CRB in the form of community funds; and
iii. 80% of the funds go to ZAWA in the form of conservation funds.

According to the "Guideline on the use of Community funds accrued from wildlife management" the communities are expected to be utilised as follows:

i. 45% of the funds go to wildlife management, including resource protection and patrols:
ii. 35% of the funds go to community projects such as construction of clinics, roads, schools, and wells; and
iii. 20% of the funds go to administration of the CRBs.

GMAs were created in 1971 under the 1968 Act as a planning framework to promote integrated community and biodiversity development on customary land. They are not a distinct category of protected state land but are buffer areas to national parks that are established in consultation with local communities for the sustainable utilisation of wildlife. Although all land is vested in the President, the Land Act (Chapter 184 of 1995) provides for the recognition of customary tenure, and as such customary land cannot be alienated unless it is with the Chief's consent and then only after consulting affected bodies or persons. In the case of GMAs the consent of the DNPW is also required.

The 2015 Wildlife Act allows for the co-management of the GMAs between the DNPW and a Community Resource Board (CRB) and devolves responsibility for wildlife management to the CRB. All forms of land use in GMAs are subject to provisions of management plans developed by CRBs (Zambia Wildlife Act, 2015, Part V, Section 32(2) and Section 33 (2d)) and it is through this that ADMADE, the Community Based Natural Resource Management (CBNRM) programme, evolved.

In terms of SI 89 of 2004, 50% of game licenses fees and 20% of concession fees are allocated to the CRBs for community development out of which 5% goes directly to the chiefs. Currently these funds are deposited by the DNPW with the central treasury who then disburse these funds to the CRBs in quarterly tranches. The CRB are encouraged to spend these funds in the following ratios: law enforcement – 45%; community projects – 35%; administration – 20% but in general, the CRBs enjoy wide latitude in deciding how the funds are used.

In 2019 an impasse manifested between the Government of the Republic of Zambia through the Department of National Parks and Wildlife and the Community Resource Boards (CRB) through their representatives in the National CRB Forum regarding the non-payment of community shares from hunting revenue.

In fact, Ministry of Treasury, due to budget issues, has not yet disbursed in full the revenues due to CRBs.

In order to resolve this situation a Roadmap has been drafted by DNPW to include not only the urgent payments of delayed revenues to CRB but a complete and comprehensive reform of CBRNM in the country with new Regulations on revenue sharing and a new policy of CBRNM in order to bring Zambia to an upper level in terms of Community based conservation.

8.3 Governance of CRBs

The CRBs are based on the following institutional structure: a cluster of villages (500 – 1000 people) establish a Village Action Group (VAG) composed of five to ten elected representatives. Each VAG elects its representative to sit on the CRB that serves for a fixed term of three years. The CRB is comprised of:

(a) not more than ten but not less than seven representatives;
(b) one representative of the Council in the area;
(c) a representative of a Chief in whose area a board is established to represent that Chief;
(d) a person seconded by the Minister in accordance with the Act.

The Chief in whose area the board is established is the patron of that board and the board members elect a chairperson[5]. The board may invite non-voting individuals to sit on the board, and a DNPW officer is assigned to the CRB as its unit leader. CRB's are managed by an executive board elected by the local residents through the VAGs. The local chief is the Patron of the CRB. The board has a Chairperson, Vice Chairperson, Community Development Chairperson, Vice Community Development Chairperson, Finance Management Chairperson, Vice Finance Management Chairperson, Natural Resources Management Chairperson, Vice Natural Resources Management Chairperson and two committee members. A secretariat is responsible for the day-to-day administration of the board's activities. The Board has powers to invite anyone to participate in its meetings. Each executive member represents a VAG which also has a structure of not less than 7 members from neighbouring villages and households.

Decision-making follows a 'bottom up approach'. The board calls for general meetings in VAGs to get the input of the community of each decision before it is approved by the board and the Patron depending on relevancy and priority. A needs assessment is undertaken for all community projects at the VAG level before any implementation is approved (Zambia National CRB Association, Lusaka Zambia). There is a wealth of literature describing the functioning of this system highlighting the strengths and weaknesses and its impact on household benefits.

8.4 Contribution of hunting revenues to CRBs

Altogether there are 76 active and inactive registered CRBs (see Annex 2). These are located as follows:

- Central Region - 7
- Eastern Region - 15
- Northern Region - 21
- Western Region - 34

Table 23 provides a summary of the income disbursed to CRBs registered with the Zambia National CRB Association in the four regions of Zambia (approximately USD1 million/year). Each CRB on average

[5] There are instances where a single CRB may be formed to cover more than one chiefdom.

is receiving approximately US$14,000/year and together these CRBs employ957 community scouts to patrol the ~149,00km^2, which is equivalent to 156km^2/scout representing an investment of approximately $3.00/km^2 in wildlife protection.

A condition of the Hunting Concession Agreements (HCA) is that the outfitter pledges support to the CRBs for community development. Therefore, in addition to the revenue paid by the DNPW from game licenses and concession fees, the individual outfitters also pledge amounts varying from US$77,800 to US$17,600 per year. The bulk of these funds are channeled towards community projects (53%) followed by law enforcement (22%). Although relatively little funding (8%) is invested in resource monitoring, technical and financial support to undertake research is provided by local and international NGOs (e.g. ZCP, FZS, CLZ, CSL) thus releasing funds for community projects.

Table 22: Total disbursement of Game License (50%) and Concession fee (20%) to CRBs. (Data source: Zambia National CRB Association, Lusaka)

Number of Community Scouts	Km^2 per Scout	Number of National Parks	Number of GMAs	GMA Area (km^2)	Active CRBs	Inactive CRBs	Income (ZMK)			
							2016	2017	2018	2019 (partial)
318	298	7	17	94,718	27	4	3,391,105	2,668,619	2,900,000	1,120,000
73	198	2	3	14,453	6	2	-	212,942	179,794	110,000
337	74	7	11	24,887	17	4	3,528,664	3,345,699	4,850,250	3,300,000
206	73	4	5	15,010	12	4	3,597,423	2,894,259	3,200.000	2,470,000
TOTAL 957	**156**	**20**	**36**	**149,068**	**62**	**14**	**11,502,192**	**10,521,519**	**11,130,044**	**7,000,000**
						USD	***1,117,803***	***1,106,364***	***1,011,823***	***477,815.70***

Ave Exchange rate USD/ZMK: ZMK10.29 in 2016, ZMK9.51 in 2017 while ZMK11.00 in 2018 and 14.65 in 2019 (http://www.boz.zm/average-exchange-rates.htm)

8.4.1 Community Livelihoods and Development through CRB projects

Most communities in the regions depend on subsistence farming growing crops such as maize, groundnuts, cassava, beans, rice and pumpkins. Cash crops include cotton, soya beans and tobacco while communities residing along the major rivers and streams use income generated from fishing for home use and trade. The communities in the Eastern region also engage in livestock rearing and many households keep pigs, goats and chickens. In all regions the production and commercial sale of charcoal is an important economic activity.

Funds accessed by the CRBs from animal/concession fees and tourism levies are allocated to implement a variety of community projects such as installation of water wells, building teachers houses, clinics and support to orphans and scholarships. The selection of community projects is done at the VAG level where project proposals are submitted and assessed to determine the most viable and beneficial projects. Some CRBs allocate funds to support income generating projects e.g. growing vegetables for re-sale, poultry and goat-breeding projects. In 2016, several CRBs in understocked or depleted GMAs did not receive enough funds to allow implementation of multiple community development projects. In these circumstances, the CRBs partner with NGOs who support community programmes including payment for community scouts. A sample of the type of community projects that are supported is provided in Table 23.

Table 23: List of community projects implemented by CRBs in the four regions using funds from hunting blocks. (Source: Zambia CRB Association, Lusaka)

Central Region	Northern Region	Western Region	Eastern Region
• VIP Toilets at Kabwadu, Chiawa, VAGs • Market shelter in Muguramano VAG • Banana Boat in Chisakila VAG • Goat pass-on project	• Grinding mill and spares • 1x3 classroom block • Goat rearing project for ladies • New staff house roofing materials • Two poultry projects • 1x2 classroom block at Musipazi • 10 x staff house's • Radio room construction • Completed a mother's shelter at Nabwalya clinic • Drilled 7 boreholes • Chaya clinic construction	• Teachers house construction, Chonzo and Moomba VAGs • Classroom block-Mabwe VAG • Classroom block-Kalole VAG • Rehabilitation of CRB office and stores Room • 1x3 classroom block Babizhi, Lubanda primary school, Baanga primary school • Mothers Shelter • 3 x staff teachers house's • VIP Toilets • Construction of classroom block at Zingwamba primary school • Market shelter • Construction of health post/clinic	• 6 x staff Houses • 3 x CRB Offices • 3 x Teachers House Mkasanga school, Mwanya school, Yakobe school • 3 x Community scouts houses at Chikwinda wildlife camp • 5 x water boreholes • Furniture at Mkasanga Clinic • Student sponsorship • 2 x purchase of banana Boat • 3 x installation of Solar fences • 2 x VIP toilets at Malama Clinic • Purchase of 90,000 Bricks • Rehabilitation of Machesa wildlife Camp • Construction 4 x mothers' shelters • Procurement of 3 Maize shelters • Construction of Guest House • Rehabilitation of CRB office • Gardening • Electrification of office and hammer mill • Rehabilitation of 1 x 3 classroom block • Construction 2 x VIP toilets at Nsefu clinic • Construction sanitation system at Kawaza school

9.0 Revenues and Expenditures from Trophy Hunting

The fee revenues discussed in this section relate to revenues of DNPW, part of which are shared with communities. But a foreign client contributes far more to Zambia's economy than permit and

concession fees. A foreign client pays to the operator a daily fee, and hunting a lion are often sold as a package together with other species such as buffalo, hippo, and impala. Therefore, the foreign client pays for more than just lion and for a significant period of time.

In addition to the daily fees, clients will often pay observers fees and taxes not imposed by DNPW, such as firearms taxes to the Treasury.

Safari hunting also generates "multiplier" impact due to the client's travel, tipping, eating in restaurants, purchase of souvenirs, and taxidermy requirements. The multiplier spending also generates tax revenue for the country's general Treasury. In short, the revenues generated by tourist safari hunting are many times greater than the fees directed to DNPW which are summarized here.

9.1 Animal and hunting fees

Hunting license fees in Zambia are statutory, the current hunting animal fee for a lion is US $4,200.00 to the outfitter. In addition to animal fees the hunting outfitter pays concession fees and outfitters fees annually. The department charges GMA Area fees per hunt and annual Professional Hunter fees. Other minor fees include certificate of valuation of trophies, certificate of ownership of trophies, permit to export, handling fees, and the CITES security stamp.

A foreign client pays a fee above this depending on what the outfitter charges. The department does not deal with the foreign client directly. It should be noted that hunting a lion is sold as a package together with other species such as buffalo, hippo, and impala among others. Therefore, the foreign client pays for more than just lion.

9.2 DNPW income and expenditure

The DNPW generates income from consumptive and non-consumptive activities as well as from the sale of several different permits and licenses. Up until 2015 ZAWA received an annual grant from central government to meet some of its administrative and operational costs. This grant was discontinued after the formation of the DNPW and instead the central government met the costs of employment but not administrative and operational costs which are covered by income generated from consumptive and non-consumptive activities.

No hunting occurred in 19 of the 33 hunting blocks in 2013 and 2014 that led to reduced revenues from Animal Fees and Hunting Concession Agreement fees (Figure 17). A breakdown of the ZAWA/DNPW income revenues from 2010 to 2018 is provided in Table 24. On average hunting revenues accounted for approximately 28% of all the revenues that ZAWA received in the three years (2010 - 2012) before the moratorium that reduced to an average of 3% during the moratorium (2013 – 2015). The revenues from consumptive tourism has since returned to approximately 35% of the overall income following the resumption of lion and leopard hunting.

The contribution of non-consumptive tourism averaged 39% per annum between 2010 – 2015 but increased to approximately 66% per annum in 2016 - 2018 (Table 24). The revenue income deficit during the moratorium was partially offset by increased grant allocations to ZAWA which saw income almost triple from ZMW 64 million (=US$15 million) in 2010 to ZMW 190 million (=US$20 million) by the end of 2015. However, the grants were discontinued with the establishment of the DNPW in 2015 resulting in the overall income to the DNPW dropping to approximately US$10 million despite the re-introduction of hunting and an increase in revenues from non-consumptive tourism (Table 25).

A summary of expenses for the period 2010 to 2018 is provided in Table 25. Revenues generated from consumptive and non-consumptive utilization are allocated to general wildlife management and conservation activities. Revenues from consumptive utilization (but not non-consumptive utilization)

are also shared with CRBs. Over the period 2010 to 2018, salaries[6] on average accounted for 73% of all expenses while operational (11%) and administration (8%) costs accounted for the balance. Income over expenditure in 2018 suggests that the DNPW is operating at a deficit of approximately US$2 million. This underlines the importance of regulated hunting to the conservation of the extensive GMA system and thus conservation of habitats for the major carnivore and ungulate species.

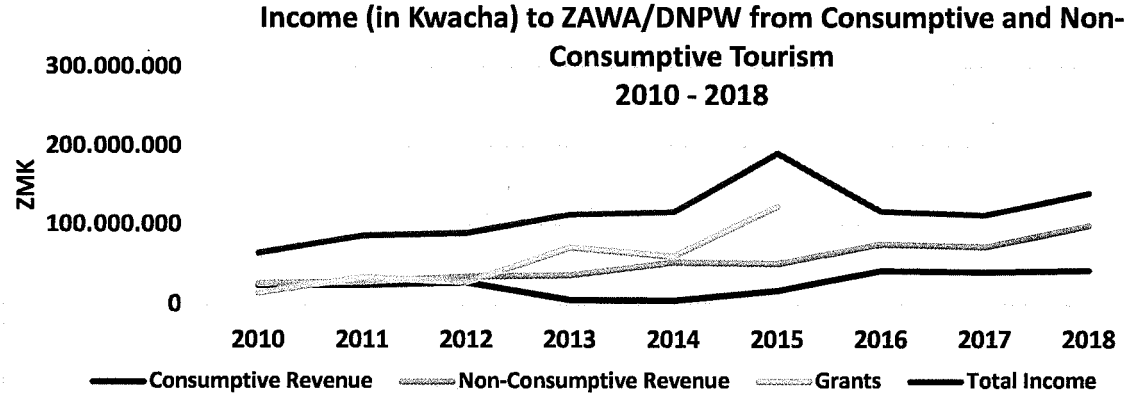


Figure 17: Comparison of income from Consumptive and Non-Consumptive Revenues and the impact of the hunting ban in 2013 – 2014

9.2.1 Value of Hunting Concession Agreements

The DNPW raises an annual concession fee for each hunting block secured under tender. The values paid per hunting block – some are higher than others – are made public in the national government gazette. The annual concession fees increase at approximately 3.3%/annum raising $1,188,416 in 2019. The 14 Prime blocks contribute 73% of this amount at an average of $61,776/block while the Secondary blocks average $35,951. Prior to the commencement of the hunting season, outfitters are required to pay to the DNPW for an outfitter's license (US$2,500 for secondary areas and US$3,000 for prime areas), one third of 60% of trophy quota value in advance, and lodge a once off US$50,000 performance bond guarantee and public liability insurance. They are also required to pay the cash pledges as declared in their tender documents to local CRBs for law enforcement, fire management, infrastructure and resource monitoring.

[6] Central Government cover the costs of DNPW salaries but do not meet administrative and operational costs. The DNPW is required to cover these expenses from funds raised through consumptive and non-consumptive tourism.

Table 24: Total ZAWA/DNPW Revenues (ZMW) 2010 – 2018 (Source: DNPW Accounts Unit)

Description	2010	2011	2012	2013	2014	2015	
Consumptive	19,999,001	21,318,331	24,742,842	2,654,472	3,785,328	12,711,064	37,
Non-Consumptive	29,860,488	31,346,109	36,973,932	39,013,739	52,812,299	54,543,604	79,
Grants	14,254,780	33,717,778	27,247,240	70,688,875	59,506,322	122,866,591	
Other Income[1]	254,572	65,625	252,594	64,314	110,403	442,312	
Total Income (ZMW)	**64,368,841**	**86,447,843**	**89,216,608**	**112,421,400**	**116,214,352**	**190,563,571**	**11**
Total Income (US$)	***$15,223,596***	***$17,810,653***	***$17,387,070***	***$20,896,153***	***$14,250,843***	***$19,799,959***	***$1**
Non-Consumptive	46%	36%	41%	35%	45%	29%	
Consumptive	31%	25%	28%	2%	3%	7%	
Total % Contribution	**77%**	**61%**	**69%**	**37%**	**49%**	**35%**	

Note: *The figures for consumptive income are actual but non-consumptive amounts are based on the percentage trend calculated*

[1]*Other Income: Cites tags/stamps, Import/Export permits, Certificate of Ownership, Sale of Trophies, Permit - animals in Captivit Eggs / Live Capture, Trophy Dealers' License*

Table 25: ZAWA/DNPW Expenditures (ZMW) 2010 - 2017 (Source: DNPW Accounts Unit)

Description	2010	2011	2012	2013	2014	2015	20
Operational Expenses	7,729,077	10,012,021	9,789,236	8,336,135	11,284,084	10,664,712	18,20
Salary Related Expenses	52,087,642	56,396,245	79,251,728	59,809,879	66,526,576	119,473,738	87,90
Administrative Expenses	6,324,166	6,603,338	10,511,912	9,130,591	7,935,295	16,660,015	8,83
Staff Training, Workshops and Transfers	1,206,917	1,660,735	2,229,534	755,587	1,343,203	3,667,097	421,
Animal Surveys and Control	93,358	472,550	12,166	1,135,281	9,505	49,494	513,
Repair and Maintenances	2,518,924	2,728,577	2,740,956	2,277,535	3,389,423	4,189,049	1,50
Consultancy and Legal Fess	2,430,375	3,594,930	1,099,026	830,955	1,825,94	900,438	1,44
Other Expenses	571,983	1,393,469	592,732	728,672	894,165	941,403	
Total Expenditure (ZMW)	**72,962,447**	**82,861,869**	**106,227,293**	**83,004,639**	**93,208,201**	**156,545,949**	**118,8**
Total Expenditure (US$)	***$17,256,032***	***$17,071,843***	***$20,702,215***	***$15,428,359***	***$11,429,702***	***$16,265,456***	***$10,4***
Salary Related Expenses	71%	68%	75%	72%	71%	76%	74
Operational expenses	11%	12%	9%	10%	12%	7%	15
Administrative Expenses	9%	8%	10%	11%	9%	11%	7
Other Expenses[1]	9%	12%	6%	7%	8%	6%	3

[1]*Other expenses include: Staff Training, Workshops and Transfers, Animal Surveys and Control, Repair and Maintenances, Consulta*

10.0 Evaluation against the U.S. Endangered Species Act (50 CFR 17.32) permit issuance criteria

Individuals requesting authorisation to import lion trophies into the USA do so under the 50 CFR 17.32 ruling and are required to provide information in their application (as listed in form 3-200-20) showing that the hunting of the lion meets the requirements for issuance criteria under 50 CFR 17.32. These are:

a) *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;*

The DNPW has built on its 10-year conservation strategy and the recommendations of the carnivore research programme to put in place a hunting programme that contributes positively to the conservation of lion throughout their range in Zambia. Moreover, by adhering to the 2012 IUCN Guiding Principles on Trophy Hunting as a Tool for Creating Conservation Incentives, Ver. 1.0 (IUCN SSC 2012) that were analysed in the 2016 Enhancement and Non-Detriment Findings for African Lion Sport Hunting in Zambia. Ministry of Tourism and Arts (DNPW, 2016), the DNPW is adopting best practices to implement and enforce sound governance systems to ensure the long-term conservation of its wild lion populations. Conservative quotas and an age-based monitoring system is demonstrating that sufficient oversight is being applied to ensure that removing acceptable aged lion trophies from the wild is not impacting on the current status of the lions in the wild three years after the moratorium.

b) *The probable direct and indirect effect which issuing the permit would have on the wild populations of the wildlife sought to be covered by the permit;*

The DNPW working together with several stakeholders has implemented the Conservation Strategy and Action Plan for Lion, that is going to be revised in 2020 and that has achieved its goals in producing a sustainable management framework for lions.

Overall the very limited offtake in the last four years (17 lions in 2016, 21 lions in 2017, 24 lions in 2018 and 21 lions in 2019) could not have any significant impact on the wild populations, being guided mainly by age-based restrictions that were successfully tested in the period concerned and that will become mandatory from the 2020 hunting season.

Funds generated from hunting and from safari outfitter obligations are distributed to the 76 CRBs, who in turn are investing in various social services, including law enforcement. Furthermore, by enforcing the experimental hunting guidelines, and monitoring the off-take of lions, the DNPW has succeeded in greatly reducing the number of under-aged lion trophies.

c) *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;*

The DNPW continues to work closely with several local and international NGOs (WWF, ZCP, The Nature Conservancy, CLZ, GRI, Panthera) as well as with the local hunting associations (SHOAZ, PHAZ) to advance its understanding for the sustainable conservation of the large carnivores and herbivores and their habitats.

d) *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;*

The Zambia lion management programme is based on a precautionary quota, age-based harvest and monitoring pf population status including the impact of illegal hunting. Communities continue to benefit from 50% of all animal fees via a network of CRBs that are coordinate through a national CBNRM Forum. Funds to drive these programmes are generated by the legal hunting activities of hunters from the USA, Europe and elsewhere in the world, which are being reinvested in conservation activities by Government and hunting operators providing benefits to people, habitat and wildlife.

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

The DNPW continues to benefit from the input of a robust scientific community and from the conclusions of several science-based hunting programmes for lion. The decision by the DNPW to only re-introduce the hunting of lion after considering the recommendations of the scientific community has received the support of scientists and the general public.

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

The DNPW continues to receive support to meet its administrative obligations and ensure that staff are paid by central government. Fees generated from the sale of animal licences are the primary source of funding to meet operational costs and deliver on its conservation objectives. These are under review to improve its operational budget while maintaining conservative quotas.

11.0 Conclusions and Non-detriment findings

The CITES Scientific Authority of Zambia has considered the population of lion in Zambia; the quota-setting system and current precautionary quota; the newly implemented age-based harvest policy; the limited offtake; the adaptive management of lion; and the substantial revenues generated for DNPW operations, anti-poaching, and community development. The Scientific Authority has considered the current threats to lion, including loss of habitat and human-lion conflicts, and potential of safari hunting to mitigate those threats.

Sustainable development and the need to fight poverty is the first and foremost priority of the Zambian government to also achieve wildlife conservation. The depletion of wildlife is slowly reducing in Zambia due to important investments made by the government, private sector, and donors.

In general, protection is important if done in parallel with poverty reduction strategies which shall include consumptive and non-consumptive wildlife utilization. In this regard, trophy hunting is one of the components that the Zambian government is using in its wildlife conservation strategies because of the high level off benefits, tangible and intangible, that it can produce. Safari Operators need a good and healthy wildlife population in order for the sector to be viable. To achieve that they are supporting the government in actions not only to increase protection of habitats and wildlife, but also in community development.

The new management approach to lion hunting in Zambia is based on three pillars, i) a conservative, precautionary quota, well below one of the recommended thresholds for sustainability, ii) an age–based harvest limit and strong monitoring of lion offtakes, and iii) significant and direct community benefits. This will ensure that lion hunting in Zambia is sustainable and does not negatively affect the population.

Zambia has spent considerable resources to improve lion hunting and is experiencing a successful partnership with all stakeholders to ensure sustainability of the offtakes and financial and socials returns to conservation.

The DNPW has built on its 10-year conservation strategy and the recommendations of the carnivore research programme to put in place a hunting programme that contributes positively to the conservation of lion throughout their range in Zambia. Moreover, by adhering to the 2012 IUCN/SSC" Guiding principles on trophy hunting" (see DNPW 2016, Appendix 1), the DNPW is adopting best practices to implement and enforce sound governance systems to ensure the long-term conservation of its wild lion populations. Conservative quotas and an age-based monitoring system is demonstrating that sufficient oversight is being applied to ensure that removing acceptable aged lion trophies from the wild is not impacting on the current status of the lions in the wild four years after the moratorium.

Funds generated from hunting and from safari outfitter obligations are distributed to communities that continue to benefit from 50% of all animal fees via a network of CRBs that are investing in various social services, including law enforcement and are coordinated through a national CBNRM Forum.

Overall, the added value of lion hunting cannot in any case be measured only in financial terms. The value generated by hunting to habitat protection, law enforcement and social benefits are some of the immaterial components of the lion hunting's contribution to conservation. Income from hunting of all species continues to be important for the DNPW to undertake a wide range of conservation activities both inside and outside of its protected areas. The participation of the US and other nationalities hunters in the Zambian hunting industry is therefore key to contributing to the overall management and conservation of lions.

The DNPW continues to benefit from the input of a robust scientific community and from the conclusions of several science-based hunting programmes for lion. The decision by the DNPW to only re-introduce the hunting of lion after considering the recommendations of the scientific community has received the support of scientists and the general public and continues to receive support to meet its administrative obligations and ensure that staff are paid by central government. Fees generated from the sale of animal licences are a critical source of funding to meet operational costs and deliver on its conservation objectives. These are under review to improve its operational budget while maintaining conservative quotas.

Zambia has taken on board the international concerns regarding the long-term conservation of its lion populations. At the same time, it must be cognizant of the threat posed by the expanding communities residing in the GMAs and the significant land use changes that this brings. It also must balance the level of management it can afford within its limited resources and for this reason, it continues to work closely with a wide range of stakeholders to provide sound scientific information on population trends, impact of hunting and whether the management practices and legal protection that are employed are contributing to the long-term survival of lion, their prey and habitat.

The DNPW is implementing an adaptive management strategy that limits the off-take of lions. To support this approach, it is implementing a robust age-based monitoring programme and proactively addressing illegal wildlife trade using both its resources and those of civil society.

For some time now, Zambia like other southern African range states has embraced all they have been asked to implement best practices on large carnivores. It is understood that our practices are even stronger than similar ones used in northern hemisphere countries. The management and administrative systems are in place and are being tested. What remains now are seeking solutions how these best practices can be implemented in the most practical way and solve problems related

to human overpopulation land use planning in wild areas devoted to hunting, unregulated bushmeat hunting, etc. The DNPW has taken on board the best practice recommendations to sustainably manage its large carnivore populations. The recent decision to introduce strict parameters for lion quota allocations is paying dividends.

Let us now change the focus of our efforts to deal with all of the other problems facing lion conservation as effectively as we have worked to ensure sustainability of safari hunting. For example, habitat loss has to receive much more attention than safari hunting in public perception if we want to conserve Africa's biodiversity. Hunting can reduce habitat loss and this fact should be prioritized in international agendas and not criticized in an uninformed way.

The impact of the introduction of the experimental age-based restrictions on lion hunting coupled with monitoring the off-take of lions, has successfully reduced to a great extent the number of under-aged lion trophies. Awarding in most cases one lion per hunting block means that quotas are extremely conservative and the sample size is small relative to the areas being hunted. Data for lion hunting monitoring suggests that the hunting sector has responded positively with fewer under-aged trophies harvested in 2017 and 2018. Although knowledge on prey densities in the GMAs is not completely known progress are underway to determine it with more ground-based surveys undertaken each year and whose results can then be linked to estimating potential densities of predators.

Upon considering the above and in accordance with Article IV of CITES and CITES Resolution Conf.16.7, the Scientific Authority concludes that the low level of off-take generated by safari hunting is not detrimental to the survival of the lion in Zambia and the amount of revenues generated by this low level of off-take are of crucial importance for the conservation of the species also because of the benefits it provides to rural communities. Safari hunting provides a net benefit to the species, it does not pose a threat to the species, and it is not a detriment to the survival of the species. In fact, the Scientific Authority of Zambia finds the regulated safari hunting of lion in Zambia enhances the survival of the species. The newly-developed lion management systems, Statutory Instruments and hunting reforms employ an adaptive management approach thereby ensuring long-term sustainability, health and enjoyment of Zambia's wild lion populations.

The CITES Scientific Authority of Zambia underlines that it expects CITES Parties to implement CITES Resolution Conf. 2.11 with particular reference to paragraph b) that states: *"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"*.

12.0 References

Ansell, W. F. H. (1978). *The mammals of Zambia* (No. 1). National Parks & Wildlife Service.

Bauer, H. and van der Merwe, S. 2002. *The African Lion Database*. The African Lion Working Group, IUCN/SSC.

Bauer, H., & Van Der Merwe, S. (2004). Inventory of free-ranging lions Panthera leo in Africa. Oryx, 38(01), 26-31.

Bauer, H., Packer, C., Funston, P.F., Henschel, P. & 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. Downloaded on 29 March 2016.Contains supplementary material.

Bauer, H., Chapron, G., Nowell, K., Henschel, P... & Packer, C. 2015b. Lion Panthera leo populations are declining rapidly across Africa, except in intensively managed areas. Proc. Natl. Acad. Sci. USA 112(48):14894-14899.

Becker, M., McRobb, R., Watson, F., Droge, E., Kanyembo, B., Murdoch, J., & Kakumbi, C. (2013). Evaluating wire-snare poaching trends and the impacts of by-catch on elephants and large carnivores. Biological Conservation, 158, 26-36.

Becker, M. S., Watson, F. G., Droge, E., Leigh, K., Carlson, R. S., & Carlson, A. A. (2013). Estimating past and future male loss in three Zambian lion populations. The Journal of Wildlife Management, 77(1), 128-142.

Becker & Mweetwa (2015), Management of Big Cats in Zambia: An Overview of Research and Recommendations: Presentation to ZAWA, September 2015.

Begg. C. M., Miller J. R. B. and Begg K. S. 2018. Effective implementation of age restrictions increases selectivity of sport hunting of the African lion. Journal of Applied Ecology 55: 139–46.

Berentsen, A.R., Dunbar, M.R., Becker, M.S., M'soka, J., Droge, E., Sakuya, N.M., Matandiko, W., McRobb, R. and Hanlon, C.A., 2013. Rabies, canine distemper, and canine parvovirus exposure in large carnivore communities from two Zambian ecosystems. Vector-Borne and Zoonotic Diseases, 13(9), pp.643-649.

Bertola LD, Tensen L, van Hooft P, White PA, Driscoll CA, et al. (2016). Autosomal and mtDNA Markers Affirm the Distinctiveness of Lions in West and Central Africa. PLoS ONE 10(10): e0137975 doi: 10.1371/journal.pone.0137975.

Bertola LD, Tensen L, van Hooft P, White PA, Driscoll CA, et al. (2016) Correction: Autosomal and mtDNA Markers Affirm the Distinctiveness of Lions in West and Central Africa. PLoS ONE 11(3): e0149059. doi: 10.1371/journal.pone.0149059

Carlson, A.A. (2004) African Wild Dog Conservation Project, Kafue National Park, Zambia. 2004 Annual Report. Conservation and Research for Endangered Species. Zoological Society of San Diego

Chardonnet, Ph.(Ed) 2002. Conservation of the African Lion: Contribution to a Status Survey. International Foundation for the Conservation of Wildlife, France & Conservation Force, USA.

Chomba, C. and Nyirenda, V. 2015. Status of Trophy Hunting in Zambia for the Period 2003 – 2012: Is Hunting Justified in Zambia? Global Journal of Biology, Agriculture and Health Science, Vol 4(3): 137 – 153.

Craig, G.C. 2012 Monitoring the Illegal Killing of Elephants: Aerial Survey Standards for the MIKE Programme. Version 2.0. CITES MIKE programme, Nairobi

Creel, S., & Rosenblatt, E. (2013). Using pedigree reconstruction to estimate population size: genotypes are more than individually unique marks. *Ecology and evolution*, *3*(5), 1294-1304.

Creel, S., Becker, M. S., Durant, S. M., M'soka, J., Matandiko, W., Dickman, A. J.,& Rosenblatt, E. (2013). Conserving large populations of lions–the argument for fences has holes. Ecology letters, 16(11), 1413.

Creel, S., M'soka, J., Droge, E, Rosenblatt, Eli, Becker, M., Matandiko, W, Simpamba, T (2016). Assessing the sustainability of African lion trophy hunting, with recommendations for policy. Ecological Applications. In Review

CSL (2016), Annual Report to the Department of National Parks and Wildlife. Mfuwe, Zambia

Curry, C. J., White, P. A., & Derr, J. N. (2015). Mitochondrial Haplotype Diversity in Zambian Lions: Bridging a Gap in the Biogeography of an Iconic Species. PloS one, 10(12), e0143827.

Curry CJ, White PA, Derr JN (2019) Genetic analysis of African lions (Panthera leo) in Zambia support movement across anthropogenic and geographical barriers. PLoS ONE 14(5): e0217179. https://doi.org/10.1371/journal. pone.0217179 <

Cushman SA, Elliot NB, Bauer D, Kesch K, Bahaa-el-din L, Bothwell H, et al. 2018. Prioritizing core areas, corridors and conflict hotspots for lion conservation in southern Africa. PLoS ONE 13(7):e0196213. https://doi.org/10.1371/journal.pone.0196213

DNPW, 2016. Enhancement and Non-Detriment Findings for African Lion Sport Hunting in Zambia. Ministry of Tourism and Arts. Research Unit, CITES Scientific Authority Zambia, Department of National Parks & Wildlife, P/Bag 1, Chilanga.

DPNW 2016a, Report on the 2015 aerial census of elephants and other large mammals in Zambia: Part II Population estimates for other large mammals and birds, Department of National Parks and Wildlife (In Review). Chilanga, Zambia

DNPW, 2017. Review of the Harvest of African Lion (Panthera leo) and the Implementation of Age-based Hunting Guidelines during the 2016 Hunting Season. Internal report, February 2017, Chilanga.

DNPW, 2018 Report on the larger ungulate and predator count of Lower Luano Game Management Area
Research Unit DNPW December 2018

DNPW, 2018a. Results of the 2017 Hunted Lions. Internal memo, May 2018, Department of National Parks and Wildlife, Chilanga.

DNPW, 2019. Revised Guidelines for Lion and Leopard Hunting, December 2019. Chilanga, Zambia.

DNPW, 2019a. Results of the 2018 Hunted Lions. Internal memo, June 2019, Department of National Parks and Wildlife, Chilanga.

Dunham, K.M. In print. Aerial survey of lechwe, puku and other large herbivores on the Busanga Plains of Kafue National Park (Zambia), 2017.

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.

GoZ, 2013. Support to "Phase II of Integrated Land Use Assessment (ILUA) in the Republic of Zambia" ("the Project"), within the GCP/GLO/194/MUL "Strengthening Forest Resources Management and Enhancing its Contribution to Sustainable Development, Land Use and Livelihoods". Ministry of Tourism, Environment and Natural Resources.

GoZ, 2017. ZAMBIA INTEGRATED FOREST LANDSCAPE PROJECT. Ministry of National Development Planning. Interim Inter-Ministerial Climate Change Secretariat, Lusaka, Zambia.

Hayward, M. W., O'Brien, J., & Kerley, G. I. (2007). Carrying capacity of large African predators: predictions and tests. Biological Conservation, 139(1), 219-229.

Hunter, L.T., White, P., Henschel, P., Frank, L., Burton, C., Loveridge, A., Balme, G., Breitenmoser, C. and Breitenmoser, U. (2013). Walking with lions: why there is no role for captive-origin lions Panthera leo in species restoration. Oryx, 47(01), pp.19-24.

IUCN SSC (2012). IUCN SSC Guiding principles on trophy hunting as a tool for creating conservation incentives. Ver. 1.0. IUCN, Gland.

Leigh, K. A. (2005). The ecology and conservation biology of the endangered African wild dog (Lycaon pictus) in the Lower Zambezi, Zambia.

Lindsey, P.A., Balme, G., Becker, M., Begg, C., Bento, C., Bocchino, C., Dickman, A., Diggle, R.W., Eves, H., Henschel, P. and Lewis, D., 2013. The bushmeat trade in African savannas: Impacts, drivers, and possible solutions. Biological Conservation, 160, pp.80-96.

Lindsey, P.A., Nyirenda, V.R., Barnes, J.I., Becker, M.S., McRobb, R., Tambling, C.J., Taylor, W.A., Watson, F.G. and t'Sas-Rolfes, M., 2014. Underperformance of African protected area networks and the case for new conservation models: insights from Zambia. PLoS one, 9(5), p. e94109.

Macdonald, D. 2016. Report on Lion Conservation with Particular Respect to the Issue of Trophy Hunting. Wildlife Conservation Research Unit (WILDCRU), Department of Zoology, University of Oxford, England. 80 pages.

Midlane, N., O'Riain, M. J., Balme, G. A., Robinson, H. S., & Hunter, L. T. B. (2014). On tracks: A spoor-based occupancy survey of lion Panthera leo distribution in Kafue National Park, Zambia. Biological Conservation, 172, 101-108.

Midlane, N., O'Riain, M. J., Balme, G. A., & Hunter, L. T. (2015). To track or to call: comparing methods for estimating population abundance of African lions Panthera leo in Kafue National Park. Biodiversity and Conservation, 24(6), 1311-1327.

MoTA, 2018. National Parks and Wildlife Policy, August 2018. Ministry of Tourism and Arts, Lusaka, Zambia. 40 pages.

Mweetwa T, Christianson D, Becker M, Creel S, Rosenblatt E, Merkle J, et al. (2018) Quantifying lion (Panthera leo) demographic response following a three-year moratorium on trophy hunting. PLoS ONE 13(5): e0197030. https://doi.org/10.1371/journal.pone.0197030

Murray, D.L., Smith, D.W., Bangs, E.E., Mack, C., Oakleaf, J.K., Fontaine, J., Boyd, D., Jiminez, M., Niemeyer, C., Meier, T.J. and Stahler, D., 2010. Death from anthropogenic causes is partially compensatory in recovering wolf populations. Biological Conservation, 143(11), pp.2514-2524.

Périquet, S., Fritz, H., & Revilla, E. (2015). The Lion King and the Hyaena Queen: large carnivore interactions and coexistence. Biological Reviews, 90(4), 1197-1214.

Riggio, J. S. (2011). The African lion (Panthera leo leo): a continent-wide species distribution study and population analysis (Doctoral dissertation, Duke University).

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Becker, M., Dickman, A., Funston, P., Groom, R., Henschel, P., de Iongh, H. and Lichtenfeld, L. (2013). The size of savannah Africa: a lion's (Panthera leo) view. Biodiversity and Conservation, 22(1), pp.17-35.

Riggio, J., Caro, T., Dollar, L., Durant, S.M., Jacobson, A.P., Kiffner, C., Pimm, S.L., & van Aarde, R.J. (2015). Lion populations may be declining in Africa but not as Bauer et al. suggest. Proc. Natl. Acad. Sci. doi: 10.1073/pnas.1521506113.

Rosenblatt, E., Becker, M.S., Creel, S., Droge, E., Mweetwa, T., Schuette, P.A., Watson, F., Merkle, J. and Mwape, H. (2014). Detecting declines of apex carnivores and evaluating their causes: An example with Zambian lions. Biological Conservation, 180, pp.176-186.

Schaller, G. B. (2009). The Serengeti lion: a study of predator-prey relations. University of Chicago Press.

Schuette, P., Namukonde, N. Becker, M.S., Watson, FGR, Creel, S., Chifunte, C., Matandiko, W., Millhouser, P., Rosenblatt, E., Sanguinetti, C. 2018. Boots on the ground: in defence of low-tech, inexpensive, and robust survey methods for Africa's under-funded protected areas. Biodivers Conserv. https://doi.org/10.1007/s10531-018-1529-7

Watson, F. G., Becker, M. S., Milanzi, J., & Nyirenda, M. (2015). Human encroachment into protected area networks in Zambia: implications for large carnivore conservation. Regional Environmental Change, 15(2), 415-429.

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

Watson, F., Becker, M. S., McRobb, R., & Kanyembo, B. (2013). Spatial patterns of wire-snare poaching: Implications for community conservation in buffer zones around National Parks. Biological conservation, 168, 1-9.

White, P. A., & Belant, J. L. (2015). Provisioning of Game Meat to Rural Communities as a Benefit of Sport Hunting in Zambia. PloS one, 10(2), e0117237.

White, P. A., & Belant, J. L. (2016). Individual variation in dental characteristics for estimating age of African lions. Wildlife Biology, 22(3):71-77.

White, P. A., Ikanda, D., Ferrante, L., Chardonnet, P., Mesochina, P., & Cameriere, R. (2016). Age estimation of African Lions Panthera leo by ratio of tooth areas. PLoS ONE, 11(4): e0153648. doi: 10.1371/journal.pone.0153648.

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. Cambridge, UK and Wild-CRU, Oxford, UK: TRAFFIC.

Wittemyer, G., Elsen, P., Bean, W. T., Burton, A. C. O., & Brashares, J. S. (2008). Accelerated human population growth at protected area edges. Science, 321(5885), 123-126.

Yamazaki, K. (1996). Social variation of lions in a male-depopulated area in Zambia. The Journal of wildlife management, 490-497.

ZAWA. 2010. Zambia's Conservation Strategy and Action Plan for the African Lion. Chilanga, Zambia.

ZCP – Zambia Carnivore Program 2013 to 2018 - Annual Reports to the Zambia Wildlife Authority. Mfuwe,

Annex 1 National Parks and Wildlife Policy, August 2018.

This annex is transmitted by email as PDF

Annex 2: List of CRBs registered in each region

CRB	GMA	Status	Category
WESTERN REGION			
Chikanta	Bbilili	Not active	Open
Chibwika	Chibwika/Ntambu	Active	Open
Ntambu	Chibwika/Ntambu	Active	Open
Kaingu	Namwala	Active	Secondary
Shimbizhi	Namwala	Active	Secondary
Chilyabufu	Namwala	Active	Secondary
Shakumbila	Kafue Flats	Active	Secondary
Muwezwa	Kafue Flats	Active	Secondary
Mwanchingwala	Kafue Flats	Not active	Depleted
Hamusonde	Kafue Flats	Not active	Depleted
Mungaila	Kafue Flats	Not active	Depleted
Nalubamba	Kafue Flats	Not active	Depleted
Choongo	Kafue Flats	Not active	Depleted
Kasempa	Lunga Luswishi and	Active	Secondary
Mubambe	Kasonso Busanga	Active	secondary
Siachitema	Sichifulo/Bbilili	Active	Secondary
Nyawa	Sichifulo	Active	Secondary
Moomba	Mulobezi	Active	Prime
Sesheke West	West Zambezi	Active	Depleted
Mufulani	West Zambezi Lower	Active	Open???
Lewanika	West Zambezi	Active	Prime
Chizela	Chizera	Not active	Open
Chibuluma	Mumbwa	Active	Secondary
Kabulwebulwe	Mumbwa	Active	Secondary
Mulendema	Mumbwa	Active	Secondary
Sikufele	Lukwakwa	Active	Open
Kaindu	Open Area	Active	Open
Musungwa	Nkala	Active	Secondary
Shezongo	Nkala/Bbilili	Active	Secondary
Musele	Musele Mateo	Active	Open
Mateo	Musele Mateo	Active	Open
Ngonye	West Zambezi	Active	Open
Kahare	Mufunta	Active	Secondary
CENTRAL REGION			
Mboshya	Luano	Not active	Open
Mboroma	Luano	Not active	Open
Shikabeta	Luano	Active	Secondary
Mphuka	Rufunsa	Active	Secondary
Mburuma	Rufunsa	Active	Depleted
Mpanshya	Rufunsa	Active	Depleted
Chiawa	Chiawa	Active	Secondary
NORTHERN REGION			
Chitambo	Kafinda	Active	Open
Chiundaponde	Bangweulu	Active	Prime

Kopa	Bangweulu	Active	Prime
Kabinga	Bangweulu	Active	Prime
Nsamba	Bangweulu	Active	Prime
Bwalya Mponda	Bangweulu	Active	Prime
Kalasa Mukoso	Bangweulu	Not active	Secondary
Nsama	Tondwa	Active	Secondary
Chifunda	Musalangu	Active	Prime
Chikwa	Musalangu	Active	Prime
Kambombo	Musalangu	Active	Secondary
Tembwe	Musalangu	Active	Secondary
Lundu	Musalangu	Active	Secondary
Mukungule	Mukungule	Active	Secondary
Kazembe	Lumimba	Active	Prime
Nabwalya	Munyamadzi	Active	Prime
Kaputa	Kaputa	Active	Secondary
Chisomo	Chisomo	Not active	secondary
Mpumba (North park)		Active	Open
EASTERN REGION			
Nyalugwe	West Petauke		Secondary
Luembe	West Petauke	Active	Prime
Sandwe	Sandwe	Active	Secondary
Chitungulu	Lumimba	Active	Primary
Mwanya	Lumimba	Active	Prime
Nsefu	Lupande	Active	Prime
Jumbe	Lupande	Active	Prime
Munkhanya	Lupande	Active	Prime
Malama	Lupande	Active	Prime
Kakumbi	Lupande	Active	Prime
Msoro	Lupande	Active	Secondary
Mwape	Open Area	Active	Open
Zumwanda	Open Area	Active	Open
Mwasemphangwe	Open Area	Active	Open
Chikomeni	Open Area	Active	Open
Chinunda	Open Area	Active	Open

FWS Form 3-200-20 (Rev. 01/2020)
U.S. Department of Interior

OMB Control No. 1018-0093
Expires 08/31/2023

IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

■New ☐Reissue/Renew ☐Amendment

Complete Sections **A or B**, and C, D, and E of this application. U.S. address may be required in Section C.**

A. Complete if applying as an individual

1.a. Last name	1.b. First name	1.c. Middle name or initial	1.d. Suffix
Butler	Marc	Allen	

2 Date of birth (mm/dd/yyyy)	5.a. Telephone number	5.b. Alternate telephone number	6. E-mail address
(b) (6)			

B. ~~Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution~~

~~1.a. Name of business, agency, Tribe, or institution~~	~~1.b. Doing business as (dba)~~	
~~2. Tax identification no.~~	~~3.a. Description of business, agency, Tribe, or institution~~	~~3.b. Website URL (if applicable)~~
~~4.a. Principal officer (P.O.) last name~~	~~4.b. P.O. first name~~	~~4.c. P.O. middle initial~~ ~~4.b. P.O. Title~~
~~5. Primary contact name~~	~~6. Primary e-mail address~~	
~~7.a. Business telephone number~~	~~7.b. Alternate phone no.~~	~~8.a. Primary contact telephone no.~~

C. All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)
(b) (6)

1.b. City	1.c. State	1.d. Zip code/Postal code	1.e. County/Province	1.f. Country
Larkspur	CO	80118	Douglas	USA

2.a. Mailing Address (include if different than physical address; include name of contact person if applicable)

2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f. Country

D. All applicants MUST complete

1. Include a check or money order, payable to the U.S. FISH AND WILDLIFE SERVICE, a **nonrefundable processing fee [50 CFR 13.11(d)(4)]**. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – ***attach documentation of fee exempt status as outlined in instructions.*** (50 CFR 13.11(d)).

2. If you are requesting a reissue/renew/amendment, what is your permit/file number?

3. Certification: I hereby certify that I have read and am familiar with the regulations contained in Title 50, Part 13 of the Code of Federal Regulations and the other applicable parts in subchapter B of Chapter I of Title 50, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

The individual/principal officer of the business must print and sign the application. (No photocopied or stamped signatures) Date (mm/dd/yyyy)

** Further instructions for the above application may be found on our ePermits website. See the last page for information on the Privacy Act, Paperwork Reduction Act, Estimated Burden, and Freedom of Information Act aspects of this application form.

Mail your application(s) to Division of Management Authority, Branch of Permits, MS:IA 5275 Leesburg Pike, Falls Church, VA 22041-3803.

APPLICANT:

MARC BUTLER

IMPORT PERMIT APPLICATION 3.200.20 SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Marc Butler - (b) (6) [redacted] Larkspur, CO 80118

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Panthera leo, lion

b. Sex (if known).

Male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

Tanzania, Lolkisale Game Controlled Area, Masai Open Area West, Manyard Reg.

b. Date wildlife is to be hunted:

Feb 26th, 2021- March 20th, 2021

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

Rungwa Game Safaris Ltd., P.H.- Harpeet Singh Brar

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

N/A

b. Date wildlife was hunted:

N/A

c. Approximate age of animal:

Not hunted yet

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

Runga Game Safaris. P.H.- Harpreet Singh Brar

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

Not hunted yet

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

   Not hunted yet

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	
Business Name:	Rungwa Game Safaris T. Ltd.
Address:	Farm No. 175, Burka Area
City:	Arusha, Tanzania
State/Province:	Tanzania 13946
Country, Postal Code:	

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.
    See attached
11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):	Harpreet S. Brar
E-mail:	harpreet@rungwasafaris.com
Phone number:	+255 765 57 57 00

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature [redacted] Date: 01-11-21

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
PHILIPPE CHARDONNET, D.V.M.
SHANE MAHONEY
RENEE SNIDER

February 17, 2021

Department of the Interior
U.S. Fish and Wildlife Service
Attn: Heather Harcum
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803

Applicant: **Marc Butler**
Date of Hunt: **February 26th – March 20th, 2021**
RE: **Import Application for a Tanzania Lion Trophy**

Ms. Harcum:

Attached, please find the permit application to import a lion trophy from Tanzania for Marc Butler. Mr. Butler will be hunting with Rungwa Game Safaris with Professional Hunter Harpeet Singh Brar in February and March of 2021 in the Lokisale Game Controlled Area and/or Masai Open Area West.

Rungwa Game Safaris has proven to be a true conservation success due to their own wildlife management program, addressing all threats and concerns to wildlife in the area. They have imposed strict quotas on the game that can be hunted, they run their own Anti-poaching program in conjunction with Tanzanian Wildlife Management Authority, they monitor prey counts and the balance of the ecosystem, they invest in conservation programs for local citizens so they further understand the many values of wildlife and its habitat, and they work to reduce human-lion conflicts in concession areas. Through this tireless effort they have shown increased numbers in their lion populations yearly.

Rungwa Game Safaris was included in a comprehensive report put together by Conservation Force to document the unprecedented level of conservation work being done by Tanzania safari hunting operators. This report details the unaccounted-for benefits to lion, and to those who live with lion, generated by licensed, regulated safari hunting.

In evaluating this import application, please consider the extensive work that Rungwa Game Safaris does for anti-poaching, habitat protection and community development in Tanzania. Through all of 2020 and the COVID-19 pandemic they have stayed open and active in their conservation pursuits and their community programs, while many others have perished. Without safari hunting and the income that it generates the communities and the animals in this region would suffer a devastating loss that could be catastrophic for the future of wildlife.

We have submitted an operator enhancement report, a lion conservation report, and the comprehensive Tanzania Lion Enhancement report with detailed information about Rungwa Game Safaris and their wildlife management plan. We have also included a report on "the Benefits of Licensed, Regulated Hunting in Tanzania" that we ask you consider when making an enhancement determination for this application.

Please do not hesitate to contact us if you have any questions about this permit application.

Sincerely,

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Marc Butler W/ attachments

Enclosures:

a. FWS Permit Application Form for Import of Sport-Hunted Trophy, Section "E"
b. Notice of Representation,
c. Operator Enhancement Report
d. Lion operator enhancement report from Rungwa Game Safaris
e. Tanzania Lion Enhancement Summary Report
f. Benefits of Licensed, regulated hunting in Tanzania

APPLICANT:

MARC BUTLER

NOTICE

OF

REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed Lion Trophy from Tanzania.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

(b) (6) [redacted]

SIGNATURE

Marc Allen Butler

PRINT FULL NAME

01-11-2021

DATE

APPLICANT:

MARC BUTLER

RUNGWA GAME SAFARIS

LION REPORT



THIS IS WHAT WE FILLED FOR A CLIENT LAST YEAR PERMIT

African Lion

1. What is (are) the location(s) (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block AND nearest city) where the lion is to be taken/hunted?

   Tanzania – Lolkisale Game Controlled Area, Simanjiro District, Manayara Region

2. Date Lion was hunted:

   XXXXX

3. What is your contact information (name, business name, address, city, state/province, country, postal code)?

   Rungwa Game Safaris, Ltd., P.O. Box 13946, Arusha, Tanzania

The U.S. Fish and Wildlife Service will evaluate each application in accordance with their permits issuance criteria at 50 CFR 17.32(a)(2). As described in the Endangered Species Act (ESA) special rule for threatened lions, they consider factors such as those below [see 50 CFR 17.40(r)]. Please find the responses to each bullet below for Jeff Lee Demaske to use in his application.

- Whether the management program is based on sound scientific principles: The management program in Tanzania and on the concession is based on sound, scientific principles. Julius Kambarage Nyerere, the first president of Tanzania, said, as part of The Arusha Manifesto, "...The survival of our wildlife is a matter of grave concern to all of us in Africa...these wild creatures amid wild places they inhabit are not only important as a source of winder and inspiration, but they're an integral part of our natural resources and our future livelihood and well-being." As such, the Tanzanian Wildlife Management Authority strives to manage its wildlife in a scientific manner to improve the quality of life of its citizens. Furthermore, the management program at Rungwa Safaris is based on science and includes the taking of no more than one lion per 2000 square kilometres of concession area. The mission of Rungwa Safaris is to conserve Tanzania's wildlife by effectively managing its precious resources so that our children and their children will be able to enjoy the natural heritage of Africa...wildlife.

P.O.Box 13946 Arusha Tanzania I Tel: (255) 748-475779 I Fax: (255) 27-2553879
E-mail: info@rungwasafaris.com I Website: www.rungwasafaris.com

- Whether the management program 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): Yes, Rungwa Safaris recognizes the threat of human encroachment to the loss of habitat in Tanzania. Rungwa works with local people, including the employment of them, in villages and surrounding areas as they are an integral part of ensuring that wildlife and its habitat loss are curtailed or at least minimized by understanding the direct economic benefit from hunting and wildlife-associated tourism. Rungwa Safaris has its own anti-poaching program which works in conjunction with the Tanzanian Wildlife Management Authority. Rungwa provides its team vehicles, fuel, food, equipment, allowances, rewards, GPS devices, radios and various other expenses associated with anti-poaching. This joint program works continuously to protect the wildlife and human resources in and around the concession areas. Furthermore, it protects part of its hunting areas by not allowing the take of game in certain areas. Rungwa Safaris also funds infrastructure projects around the concession areas to improve road and bridge conditions to further help with anti-poaching efforts. Rungwa also invests in innovative, programmatic and results oriented conservation programs for local citizens so they further understand the many values (e.g., natural, cultural and economic) of wildlife and its habitat to Tanzania.

- Whether the management program actively addresses the loss of the lion's prey base by addressing poaching or unsustainable off take within Tanzania: The area of the lion was hunted is Lolkisale Game Controlled Area. The area is supported by the sustainable off-take of game at a minimum of a level as possible. In addition to this sustainable off-take, Rungwa Safaris conducts extensive anti-poaching efforts, as previously discussed, for all species of wildlife found in the concession area. Furthermore, Rungwa also invests conservation programs for local citizens so they further understand the importance of wildlife, including the lion and its prey base, as well as their habitat, to Tanzania. As a result of these combined activities, Rungwa Safaris has witnessed the annual improvement of wildlife populations and the quality of the hunting experience, Because of the success of Rungwa safaris conservation program, Last year surveys showed a great increase in Lion population , Lion Density in our Lolkisale Game controlled Area block was one Lion Per square Kilometre's.

- Whether government incentives are 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: Rungwa Safaris and the Tanzanian Wildlife Management Authority have programs established to assist the nearest village schools with funding for projects to understand and respect native wildlife and how they are important to the community, both culturally and economically. Rungwa believes that in order to practice wildlife conservation, the welfare of the local people that live near the concessions must first be addressed. Rungwa Safaris also has a program to compensate the villages for livestock

lost to the lion predation. Rungwa Game safaris has also donated medical supplies, televisions, food supplies to schools, assisted children who are malnourished by providing clean water to local villages through the use of its own drilling rig, and has helped renovate wells to provide water versus increasing the risk of children to lions and crocodiles by removing water from local rivers. All of these efforts occur to benefit the people living the villages surrounding Rungwa 's concession areas, furthering the link between the conservation of wildlife and its habitat, and the people.

Whether 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: The off-take number and the constant patrolling through the joint Rungwa Safaris' and Tanzanian Wildlife Management Authority's anti-poaching program ensures the long-term survival of the lion, thus benefitting local communities and villages from the revenue generated from the sale of lion hunts. Furthermore, Rungwa works to reduce human-lion conflicts in its concession areas. When there is a Lion conflict, Rungwa Game safaris has program to compensate the village for cattle lost by Lion.

- Whether 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: Hunting is the major source of revenue for the Tanzanian Wildlife Management Authority. Fees generated from these hunts fund anti-poaching, habitat conservation, research and conservation activities directly. Rungwa works to reduce human-lion conflicts in its concession areas. Rungwa Safaris has programs established to assist village schools around the hunting areas with funding for projects to understand and respect native wildlife and how they are important to the community, both culturally and economically. Rungwa Safaris has donated medical supplies, televisions and food supplies to schools, assisted children who are malnourished by providing clean water to local villages through the use of its own drilling rig, and has helped renovate wells to provide water versus increasing the risk of children to lions and crocodiles by removing water from local rivers. All of these efforts occur to benefit the people living the villages surrounding Rungwa 's concession areas. We Rungwa Game Safaris Contribute USD 25,000/- per year., Lion is a key species and greatly contributes to the villager's income.

- Whether a U.S. hunter's participation in the hunting program contributes to the overall management of lions within Tanzania: Hunters from the Unites States play a major role in the overall management of lions in Tanzania, both from a source of revenue and from the harvest of older lions not in a pride. Furthermore, U.S. hunters and Rungwa Safaris help fund schools and improve health through medical dispensaries, purchase educational and sporting equipment, purchase building materials, improve agricultural conditions in local communities and help to alleviate

poverty around Rungwa 's concessions. Finally, through Rungwa 's help through teaching and experience, children can see first-hand that the conservation of wildlife and the protection of habitat leads to the increase in tourism and a better quality of live for themselves and their village.

For Rungwa Game safaris

RUNGWA GAME SAFARIS (T) LTD
P.O.BOX 13946 ARUSHA,
TANZANIA.

APPLICANT:

MARC BUTLER

TANZANIA LION ENHANCEMENT SUMMARY REPORT

RE: Tanzania Lion Enhancement Summary Report

INTRODUCTION

This is a summary report of the individual "Operator Enhancement Reports" provided by Tanzanian hunting operators. The information gathered and summarized in this report demonstrates enhancement of *P. l. melanochaita* (African lion). The data is a compilation of pertinent information gathered from individual "Operator Enhancement Reports" submitted by a representative number of Tanzania hunting operators and detailing their anti-poaching, community investment and participation, habitat protection, and, other important information.[1]

The reports were provided by a sample of 27 Tanzanian safari operators[2] owned, managed, and marketed by 13 parent companies.[3] The sample hunting operators manage 74 hunting concessions in 49 Game Reserves, 14 Game Controlled Areas, 10 Open Areas, and 1 Wildlife Management Area. The sample operators steward 121,423 km² of the 304,000 km² set aside for hunting concessions in Tanzania (approximately 40%).[4] The anti-poaching, community investment and participation, and other figures detailed in this summary report under represents the full enhancement provided by safari hunting operators given this is not a complete data set.

These reports demonstrate how licensed, regulated hunting mitigates the three primary threats to lion survival (loss of prey base, loss of habitat, and human lion

---

[1] The business and personal records in this summary and the "Operator Enhancement Reports" is privileged proprietary information not for public release.

[2] 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.

[3] The 13 parent companies are: Bushman Hunting Safaris, Rungwa Game Safaris and Tanzania Bundu Safaris, Game Frontiers of Tanzania, Danny McCallum Safaris, Robin Hurt Safaris, Tanzania Big Game Safaris and Affiliates, Michel Mantheakis Safaris, Kilombero North Safaris, Tanganyika Game Fishing & Photographic Safaris, Marera Safaris Lodge and Tours, Game Trackers Africa, and Tanganyika Wildlife Safaris Corporation.

Please note, Rungwa Game Safaris and Tanzania Bundu Safaris are both owned by Mr. Harpreet Brar, but the companies are marketed and accounted separately. One "Operator Enhancement Report" was drafted that separately detailed the companies' enhancement methods and expenses.

Also, the lion enhancement data for Mr. Eric Pasanisi's hunting companies was summarized in the document titled "Tanganyika Wildlife Safari Corporation Ltd Operator Enhancement Summary." This document is based on the mandatory three-year performance reports submitted to the Tanzania Wildlife Division.

On 2/24/2016, the USFWS was provided a film titled "Custodians of Wilderness" detailing the undertakings of Tanganyika Wildlife Safari Corporation, Robin Hurt Safaris, Danny McCallum Safaris, Rungwa Game Safaris, and Tanzania Bundu Safaris.

[4] Total of all concessions detailed in individual "Operator Enhancement Reports" and "Tanganyika Wildlife Safari Corporation Ltd Operator Enhancement Summary."

conflict) identified by the U.S. Fish and Wildlife Service.[5] The anti-poaching data addresses the loss of lion prey base and incidental loss of lion. The amount of habitat protected corresponds with the habitat made available to lion and lion prey through safari hunting. The measure of operators' community investment and participation serves as an objective indicator or measure of tolerance and reduction of the human-lion conflict threat found by the USFWS. In sum, the survival of lion in the wild is enhanced from the contribution of the safari hunting industry. These reports are evidence of the enhancement.

ANTI-POACHING

All 27 hunting operators deploy anti-poaching units in their hunting concessions. Each hunting operator implements an anti-poaching program addressing the concession's specific poaching threats. All anti-poaching units contain at least one government game scout because only government game scouts have the mandate to arrest poachers.

All the hunting operators maintain year-round anti-poaching operations in their hunting concessions.[6] Eleven of the operators maintain records of patrol days and recorded 7,170 patrol days in the 2013-2015 period, which represents 19.6 years of anti-poaching patrols.[7] The average anti-poaching unit has six to eight members. To combat the different forms of poaching in the hunting concessions, the hunting operators have employed diverse tactics:

- Bushman Hunting Safaris and Tanzania Big Game Safaris and Affiliates: Renting a helicopter to monitor the concessions;[8]
- Michel Mantheakis Safaris and Kilombero North Safaris: Purchasing boats to monitor poacher entrance from Lake Rukwa and rivers within the concessions;[9]
- Tanganyika Game Fishing & Photographic Safaris: Hiding game cameras along paths previously used by poachers to determine poacher location and times of movement;[10]
- Eight operators have established a network of informants in the villages and provide informants with rewards for information leading to arrest of poachers or seizure of contraband;[11] and

---

[5] Endangered and Threated Wildlife and Plants; Listing Two Lion Subspecies; Final Rule.
[6] Bushman Hunting Safaris, "Operator Enhancement Report"; Danny McCallum Safaris, "Operator Enhancement Report"; Game Frontiers of Tanzania, "Operator Enhancement Report"; Game Trackers Africa, "Operator Enhancement Report"; Kilombero North Safaris, "Operator Enhancement Report"; Marera Safaris Lodge and Tours, "Operator Enhancement Report"; Michel Mantheakis Safaris, "Operator Enhancement Report"; Robin Hurt Safaris, "Operator Enhancement Report"; Rungwa Game Safaris, "Operator Enhancement Report"; Tanganyika Game Fishing & Photographic Safaris, "Operator Enhancement Report"; Tanganyika Wildlife Safaris, "Operator Enhancement Summary"; and Tanzania Big Game Safaris and Affiliates, "Operator Enhancement Report."
[7] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Danny McCallum Safaris, Tanganyika Game Fishing & Photographic Safaris, and Game Trackers Africa.
[8] Bushman Hunting Safaris and Tanzania Big Game Safaris and Affiliates.
[9] Michel Mantheakis Safaris and Kilombero North Safaris.
[10] Tanganyika Game Fishing & Photographic Safaris.

- Robin Hurt Safaris: Sending all company anti-poaching scouts to the Pasanisi Wildlife College for training.[12]

Twenty-three companies keep records of poacher arrests and seizures. The 23 report the following from 2013-2015:

Anti-Poaching Arrests and Seizures 2013-2015 for Sample Companies Reporting[13]

Anti-Poaching Particular	Quantity
Poachers Arrested	1,409
Snares and Gin Traps	6,223
Firearms	171
Rounds of Ammunition	1,557
Bicycles	670
Vehicles	22
Motorcycles	12
Assortment of Knives, Machetes, Spears, Bows, and Arrows	1,118
Canoes	65
Fishing Nets	216

Operators fund their anti-poaching primarily from their hunting revenue and secondarily from 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.[14] 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.[15]), fuel, vehicle maintenance, cell and satellite phones, high frequency radios, salaries, uniforms, firearms, tents, rations, road maintenance, bonuses, and rewards for informants, among other things. And this represents only a portion of the expenses, as operators tend to overlook some of their common costs reporting their anti-poaching to the Ministry of Natural Resources and Tourism and may not have reported all costs here, because they are so diverse. One of the most overlooked anti-poaching costs is road opening and maintenance, which is essential for providing anti-poaching teams' access throughout the concessions.

---

[11] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Bushman Hunting Safaris, and Danny McCallum Safaris.
[12] Robin Hurt Safaris.
[13] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Bushman Hunting Safaris, Rungwa Game Safaris, Danny McCallum Safaris, Tanganyika Game Fishing & Photographic Safaris, Game Trackers Africa, Kilombero North Safaris, and Tanzania Big Game Safaris and Affiliates.
[14] Robin Hurt Safaris, Tanzania Big Game Safaris and Affiliates, and Tanganyika Wildlife Safari Corporation.
[15] The following parent companies have purchased custom anti-poaching vehicles for their respective anti-poaching operations: Robin Hurt Safaris, Kilombero North Safaris, Michel Mantheakis Safaris, Game Frontiers of Tanzania, Game Trackers Africa, and Tanganyika Wildlife Safari Corporation.

From 2013-2015, the sample hunting operators together spent $6,717,160.65 on anti-poaching and road opening.[16]

Anti-Poaching and Road Opening Expenses 2013-2015 for Sample Companies Reporting[17]

	2013	2014	2015	2013-2015
Anti-Poaching & Road Opening Contribution	$1,683,268.00	$2,724,113.99	$2,309,778.66	$6,717,160.65
Average Spent Per Operator	$62,343.25	$100,893.11	$85,547.35	$248,783.72
Average Spent Per Concession	$22,746.86	$36,812.35	$31,213.22	$90,772.44

A few representative anti-poaching contributions and expenditures include:

- Bushman Hunting Safaris: $31,350.00 equipment donation (GPS, high frequency radios, motorcycles, digital cameras) in 2015 to the Maswa, Rungwa, and Selous Game Reserves;[18]
- Rungwa Game Safaris: Donation of four motorcycles (worth $4,375.00) to Rungwa Game Reserve, donation of 7,000 liters of diesel (worth $9,000.00) to the Rungwa and Kizigo Game Reserves, and construction of a bridge (cost $4,418.00) allowing access to the Makawasa Game Post;[19]
- Game Frontiers of Tanzania and Rungwa Game Safaris: Combined $15,000.00 donation to Tanzania Wildlife Research Institute, allowing Captain Anna Titus Laroya to attend a training program at the American Flyers School in Addison Texas;[20] and
- Tanganyika Wildlife Safaris (Eric Pasanisi): In 2014, purchased an airplane and provided a pilot to conduct anti-poaching monitoring in the Selous Game

[16] Road opening and block development are part of anti-poaching because they allow for patrols throughout the concessions. The yearly rains wash away roads and cause the roads to be overgrown. Road opening teams are deployed in advance of the hunting season. Without road opening and expansion of the road network, poacher movement is increased because anti-poaching movement is decreased. With road opening, operator-funded patrols have greater access throughout the concession to interdict poacher movements. Road opening figures were provided by the following parent companies: Danny McCallum Safaris, Tanzania Big Game Safaris and Affiliates, Tanganyika Game Fishing & Photographic, Robin Hurt Safaris, and Tanganyika Wildlife Safari Corporation.

[17] Three parent companies reported their anti-poaching figures as a 2013-2015 total. Annual spending was simply estimated by dividing the totals by three. These parent companies were Tanganyika Game Fishing & Photographic Safaris, Game Frontiers of Tanzania, and Game Trackers Africa.

[18] Bushman Hunting Safaris.

[19] Rungwa Game Safaris.

[20] Game Frontiers of Tanzania and Rungwa Game Safaris.

Reserve (cost $80,636.00) and paid the salaries of 100 game scouts to patrol the Selous Game Reserve (cost $265,727.00).[21]

The operators' payments of government fees are also a contribution to anti-poaching that enhances the survival of lion in the wild because these fees underwrite most government anti-poaching and law enforcement. From 2013-2015, the sample operators paid $28,338,792.00 in government fees.[22] These fees are used to fund the Tanzania Wildlife Division's operating budget and fund approximately 80% of the ordinary government anti-poaching in the country.[23]

COMMUNITY INVESTMENT AND PARTICIPATION

The sample operators have implemented a two-tiered system of anti-poaching and community investment and participation by which they enforce wildlife laws and apprehend poachers while simultaneously incentivizing compliance with wildlife regulations through benefits, employment, and community education.

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.[24] The sample operators far exceed this minimum. They contribute towards health care, education, village governance, water infrastructure; they make extensive contributions of game meat, they employ community members both full-time and seasonally; they hold conservation workshops to educate rural residents about the value of their wildlife resources; and they make cash donations for specific projects and to improve community livelihoods. Examples are described below.

From 2013-2015, the sample operators have spent $3,125,830.00 on community investment and participation.[25]

---

[21] Tanganyika Wildlife Safari Corporation. Since 2003, the company (through the Wildlife Conservation Foundation of Tanzania) has donated 28 fully equipped Toyota Land Cruisers to the Wildlife Department at a cost of $2,600,000.00.

[22] See "Government Fees" Section.

[23] Tanzania Country Report, African Wildlife Forum (Nov. 2015).

[24] *See* The Wildlife Conservation (Tourist Hunting) Regulations of 2015 § 16 (c) ("The Hunting Block Advisory Committee shall evaluate the application for renewal in consideration of the following: … whether the applicant has been contributing to the villages within and adjacent to his hunting block an amount of not less than USD 5,000.00 for each hunting block annually as contribution to the implementation of various community development projects").

[25] This sum was reached by adding the community investment and participation expenditures detailed in each "Operator Enhancement Report" and the "Tanganyika Wildlife Safari Corporation Ltd Operator Enhancement Summary." Additional community investment and participation was documented by the Friedkin Conservation Fund (http://allafrica.com/stories/201606280520.html). In order to calculate the dollar value of Tsh 2,040,000,000/-, an average three year exchange rate from 2013-2015 was applied (Tsh 1,713/- to $1). This equates to $1,190,892.00 from 2013-2015 or $396,964.00 annually.

Community Investment and Participation Expenditures 2013-2015 for Sample Companies Reporting

	2013	2014	2015	Total
Community Participation and Investment Contribution	$969,546.00	$1,083,042.00	$1,073,242.00	$3,125,830.00
Average Spent Per Operator	$35,909.11	$40,112.66	$39,749.70	$115,771.48
Average Spent Per Concession	$13,101.97	$14,645.70	$14,503.27	$42,240.94

The sample operators who provided specifics on their projects have spent $254,238.00 on health care related community investment and participation activities, such as: construction of two clinics and two medicine dispensaries, providing solar lighting and a solar water heater for a maternity ward, providing medicine for a village medical dispensary, and providing supplies for a health clinic.[26] The Robin Hurt Wildlife Foundation has been strongly committed to improving health and wellness in the communities surrounding and within their concessions for many years. Since 2013, the Robin Hurt Wildlife Foundation has provided 254 sets of eye-glasses, treated 1,575 eye ailments, and established a network of "Village Health Workers" conducting monthly health clinics in the communities. The Conservation Foundation Trust, the foundation for Tanzania Big Game Safaris and Affiliates, has donated over 1,000 wheel chairs to disabled rural Tanzanians over the course of its existence, and Bushman Hunting Safaris has provided health insurance to rural Tanzanians.[27]

The operators have made education a focus of their efforts. From 2013-2015, the sample operators who provided specifics have spent $337,764.00 on education projects, such as: funding $62,278.00 in school fees for children throughout rural Tanzania;[28] supplying classrooms and schools with desks, food, books and other supplies totaling at least $45,424.00;[29] constructing 21 individual classrooms and rehabilitating three classrooms ($102,769.00);[30] constructing and stocking one library ($33,800.00);[31] constructing and supplying two school laboratories ($14,613.00)[32] constructing three school latrines ($12,182.00);[33] constructing one school kitchen ($10,000.00); [34] and

[26] Robin Hurt Safaris, Michel Mantheakis Safaris, Danny McCallum Safaris, and Game Trackers Africa.
[27] Tanzania Big Game Safaris and Bushman Hunting Safaris.
[28] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Danny McCallum Safaris, and Kilombero North Safaris.
[29] Game Frontiers of Tanzania, Rungwa Game Safaris, Danny McCallum Safaris, Kilombero North Safaris, Game Trackers Africa, and Tanzania Big Game Safaris and Affiliates.
[30] Game Frontiers of Tanzania, Michel Mantheakis Safaris, Bushman Hunting Safaris, Rungwa Game Safaris, Danny McCallum Safaris, Tanganyika Game Fishing and Photographic Safaris, Kilombero North Safaris, Game Trackers Africa, and Tanzania Big Game Safaris and Affiliates.
[31] Robin Hurt Safaris
[32] Robin Hurt Safaris, and Kilombero North Safaris.
[33] Robin Hurt Safaris, Game Trackers Africa, and Kilombero North Safaris.

constructing three teachers housing units for $56,698.00.[35] Again, this is a sample and it under-represents the operators' extensive involvement building and stocking classrooms and libraries, supporting students' tuition, providing transport for students, and much more.

Six of the hunting operators have implemented a system of cash incentives for wildlife conservation.[36] A percentage of game fees are provided to the communities surrounding and within the hunting concessions per agreements made between the operators and the communities. The incentive agreements are apart from any revenue sharing or community assistance mandated by Tanzanian law. This system provides another reason for local residents to conserve and protect wildlife and habitat. From 2013-2015, $231,712.00 has been contributed to the communities under this program.

The operators have also provided community government infrastructure support. This support has taken the form of providing $24,316.00 towards the construction of six government offices.[37]

Some specific examples of community empowerment undertaken by the sample operators include: funding an American teacher to conduct English lessons at Olaresh Primary School for one month;[38] donating footballs, uniforms, and equipment for the Children's Football Club in the Moyowosi region;[39] installing solar power equipment in the villages in the Ugunda Game Controlled Area;[40] donating one TATA double cabin pickup truck, two motorbikes, and a generator to the Ugunda community;[41] creating the Uhifadhi Football Cup, hosting football matches, and providing footballs and uniforms in the villages ($24,256.27);[42] installing solar panels and delivering iron roofing to community members;[43] providing thousands of gallons of water during drought from distant boreholes;[44] and repairing village water wells.

OTHER SOURCES OF COMMUNITY EMPOWERMENT AND ASSISTANCE

Operators have also implemented community empowerment and assistance programs and practices that employ, feed, and educate local residents.

Operators provide significant permanent and temporary employment for rural community members in marginal areas of the country without other employment options.

---

[34] Robin Hurt Safaris.
[35] Robin Hurt Safaris, Rungwa Game Safaris, and Tanzania Big Game Safaris and Affiliates.
[36] Robin Hurt Safaris, Game Frontiers of Tanzania, and Danny McCallum Safaris.
[37] Robin Hurt Safaris, Tanzania Big Game Safaris, and Kilombero North Safaris.
[38] Tanzania Big Game Safaris and Affiliates. The cost of funding an American teacher was not included in "Education" community investment and participation.
[39] Game Frontiers of Tanzania.
[40] Game Frontiers of Tanzania.
[41] Game Frontiers of Tanzania.
[42] Kilombero North Safaris.
[43] Kilombero North Safaris.
[44] Michel Mantheakis Safaris.

The operators' camp staff is comprised on average of 41.5% of residents from local villages.[45] Twenty-three of the operators reported providing 1,241 permanent jobs.[46] 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.[47]

Game meat contributions provide much-needed protein for rural residents. This improves their health and quality of life, and also dis-incentivizes bushmeat poaching. Fourteen of the operators reported game meat donations to rural communities.[48]

Finally, 11 operators conduct community conservation workshops near their concessions to raise local awareness of conservation and the value of wildlife and encourage community members not to poach.[49]

HABITAT PROTECTION

The hunting operators combat against loss of habitat through regular anti-poaching 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. Poachers attempt to cut down mninga trees quickly, immediately cut them into planks, and transport them out of the area. Ebony trees are generally cut into smaller pieces and sold in the markets for curios and other items. Timber poachers are largely limited to bicycles for transporting their loads. Illegal charcoal burning is a process whereby usually medium to large acacia trees are cut and the logs are placed on top of each other in a dug out kiln in the ground. A slow burning fire is started at the base of the kiln and dirt is tightly packed all around the logs with a few air holes poked through. Charcoal burning produces a great amount of smoke and a very distinct and far reaching

---

[45] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Bushman Hunting Safaris, Rungwa Game Safaris, Tanzania Big Game Safaris and Affiliates, Game Trackers Africa, Kilombero North Safaris, Tanganyika Game Fishing & Photographic, and Danny McCallum Safaris.

[46] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Bushman Hunting Safaris, Rungwa Game Safaris, Tanzania Big Game Safaris and Affiliates, Game Trackers Africa, Kilombero North Safaris, Tanganyika Game Fishing & Photographic, Danny McCallum Safaris, Marera Safari Lodge and Tours.

[47] A very conservative estimate for each hunting concession's annual short term employment is six community members. With 74 concessions sampled, this provides employment to 444 community members each year.

[48] Game Trackers Africa, Tanganyika Game Fishing & Photographic Safaris, Game Frontiers of Tanzania, Bushman Hunting Safaris, Rungwa Game Safaris, and Tanzania Big Game Safaris and Affiliates.

[49] Tanzania Big Game Safaris and Affiliates, Rungwa Game Safaris, Bushman Hunting Safaris, Michel Mantheakis Safaris, Danny McCallum Safaris, Tanganyika Game Fishing & Photographic Safaris. Michel Mantheakis Safaris reported the cost of hosting one conservation workshop was $472.

smell, thus allowing the anti-poaching units and hunters to quickly locate illegal kilns. Illegal cattle incursions are very limited amongst the hunting operators. Those operators experiencing cattle incursions are effectively combatting the threat.

A few operators reported on their timber seizures and encroachment results: 14,687 timber planks,[50] six trucks loaded with timber planks,[51] 115 logs;[52] a combination of 97 saws and chainsaws;[53] 74,712 head of cattle from the hunting concessions;[54] and Tsh 231,760,000/- in cattle fines.[55] More than that, by providing this service, the operators protect the protected areas.[56] One operator makes the effort to replant trees lost to timber poaching through a tree nursery. [57]

In hunting areas with denser human populations, some operators have taken on different methods in easing human-wildlife conflict for resources. One operator has drilled two boreholes in the bush for exclusive wildlife use, at a drilling, maintenance, and fuel cost (2016-2015) of $242,000.00. [58] Another operator has drilled two boreholes in the villages for Masai community use. [59] Lastly, three water dams were dug in Inyonga Game Controlled Area and Swagaswaga Game Reserve for wildlife. [60]

ADDITIONAL INFORMATION

GOVERNMENT FEES

The Wildlife Division reinvests fees paid by hunting operators into conservation efforts such as law enforcement, surveys, etc.

Government Fees 2013-2015 Paid 2013-2015 for Sample Companies Reporting

	2013	2014	2015	Total
Government Fee	$10,103,899.00	$9,572,829.00	$8,662,064.00[61]	$28,338,792.00
Average Spent Per Operator	$374,218.48	$354,549.22	$320,817.18	$1,049,584.89

[50] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, and Kilombero North Safaris.
[51] Rungwa Game Safaris.
[52] Danny McCallum Safaris and Kilombero North Safaris.
[53] Game Frontiers of Tanzania, Rungwa Game Safaris, Danny McCallum Safaris, Kilombero North Safaris, and Tanzania Big Game Safaris and Affiliates.
[54] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Tanzania Big Game Safaris and Affiliates, and Bushman Hunting Safaris.
[55] Michel Mantheakis Safaris and Bushman Hunting Safaris.
[56] All hunting operators interviewed maintain anti-poaching operations specifically deterring habitat encroachment and protecting vital habitat in the protected areas.
[57] Robin Hurt Safaris.
[58] Rungwa Game Safaris.
[59] Michel Mantheakis Safaris.
[60] Tanzania Big Game Safaris and Affiliates.
[61] Kilombero North Safaris reported Government Fees only for 2015.

Average Spent Per Concession	$135,539.17	$129,362.55	$117,054.91	$382,956.64

There has been a steady decline in government fees paid, most notably from 2014 to 2015. Government fees are a direct indicator of the number of hunts conducted. American lion hunters account for an average of 65.9% of the lion hunters for the 15 operators reporting this information.[62] Clearly, the American lion hunting market plays a vital role in the hunting operators' client base and overall revenue base, but that vital market has declined in 2015.[63]

OTHER LION ENHANCEMENT INFORMATION

Thirteen of the 27 sample operators have implemented restrictions on lion harvest that are more extensive than Tanzania's already strict six-year harvest restriction.[64] Some operators have increased the lion harvest age requirement for certain concessions; some impose strict additional financial penalties for harvesting a lion under the age of 6 years old; those who are rehabilitating depleted Open Areas do not allow lion to be harvested in these concessions, some do not allow lion to be harvested in concessions in depleted Open Areas, and most company policies further prohibit the harvest of male lion in prides with sub-adult cubs.

The sample operators employ knowledgeable professional hunters with decades of experience who are well-trained in evaluating maturity in male lion. Further, over 85% of the operators (and potentially all, as not all answered this question) have implemented a lion monitoring program.[65] These programs all include a record of game camera and live pictures, allowing professional hunters to identify and age lion. Most operators also maintain detailed written reports of lion sighting and locations, and some track live lion or spoor sightings through GIS, GPS, or Google Earth programs. One operator conducted a lion survey in two concessions indicating dense lion populations in Western Tanzania.[66]

---

[62] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Bushman Hunting Safaris, Rungwa Game Safaris, Tanzania Big Game Safaris and Affiliates, and Danny McCallum Safaris.

[63] Endangered and Threated Wildlife and Plants; Listing Two Lion Subspecies; Final Rule, p. 80046, "[w]e would also consider how a U.S. hunter's participation in the hunting program contributes to the overall management of lions with in a country."

[64] Game Frontiers of Tanzania, Michel Mantheakis Safaris, Bushman Hunting Safaris, Rungwa Game Safaris, Game Trackers Africa, Danny McCallum Safaris, and Tanganyika Game Fishing & Photographic Safaris.

[65] Robin Hurt Safaris, Game Frontiers of Tanzania, Michel Mantheakis Safaris, Bushman Hunting Safaris, Tanzania Big Game Safaris and Affiliates, Marera Safari Lodge and Tours, Game Trackers Africa, Kilombero North Safaris, Tanganyika Game Fishing & Photographic Safaris, Rungwa Game Safaris, and Danny McCallum Safaris.

[66] In 2011 and 2012, Robin Hurt Safaris in conjunction with Dr. Arturo Caso of the Caesar Kleberg Wildlife Research Institute of Texas A&M University-Kingsville conducted a large scale lion monitoring and survey study in Luganzo Game Controlled Area and Rungwa South Open Area. The objectives of the survey were to determine the lion population density in the Luganzo and Rungwa areas using call in stations, determine lion and other carnivore density using remote sensing cameras in the study areas, compare lion density results with non-hunting areas, and provide management suggestion to the Tanzanian authorities and hunting operators. The call in stations were placed every 25 square kilometers. The call in stations would play buffalo distress sounds for a one hour period. The remote sensing cameras logged a

At least 10 of the operators have implemented compensation agreements with the communities surrounding and within their concessions.[67] The agreements deter retaliatory lion killings by compensating community members for livestock killed by lion.

Several conservation organizations and hunting operators have made additional large financial contributions towards lion enhancement in Tanzania by providing the funding for various research and scientific undertakings.[68]

CONCLUSION

The sample hunting operators provide for the enhancement of lion by addressing the three primary threats to lion survival: loss of prey base, loss of habitat, and human lion conflict. The hunting operators have taken on great expense to support anti-poaching, create incentives for rural communities to value and conserve wildlife, and secure large areas of habitat in their hunting concessions.

From 2013-2015, the sample operators reporting here have spent $6,717,160.65 on anti-poaching and road opening. Anti-poaching mitigates loss of prey base by arresting poachers, constantly monitoring the concessions, and picking up snares and gin traps (among other things). Likewise, anti-poaching prevents habitat destruction as a result of illegal timber poaching, charcoal burning, and cattle encroachment.

Community investment and participation projects incentivize the communities to join the operators in being co-stewards of wildlife and habitat within the concessions. From 2013-2015, the operators have spent $3,125,830.00 on community investment and participation. Operators also provide game meat donations, direct wildlife incentives, conservation workshops in the communities, and a crucial source of employment. Combined, these efforts give value to wildlife and habitat and the communities are motivated to conserve the concessions.

In short, the attached reports demonstrate that licensed, regulated hunting in Tanzania enhances the survival of lion in the wild.

---

total of 937 days and a total of 25 camera stations were set up. Stations were placed two to five kilometers apart. The results of the study showed a lion density of 6.4 lion per 100 square kilometers in Rungwa South Open Area and 4.8 lion per 100 square kilometers in Luganzo Game Controlled Area. These results indicate dense lion populations in the hunting concessions. The cost of the lion survey was $64,000.

[67] Robin Hurt Safaris, Bushman Hunting Safaris, Rungwa Game Safaris, Kilombero North Safaris, and Danny McCallum Safaris.

[68] Tanzania Game Tracker Safaris contributed $250,000.00 to Craig Packer, PhD to establish the six year old lion aging approach in the country. Shikar Safari Club International Foundation contributed over $100,000.00 per annum for four consecutive years to construct the lion aging system and other lion conservation actions including population surveying in the Selous Game Reserve and multiple lion aging workshops for professional hunter within Tanzania, soon to appear in peer reviewed publications. In 2016 Conservation Force funded the $6,281.60 in travel and other costs of the independent experts to do the lion trophy aging for 2015. Before that it contracted the publication of the first lion aging guidelines and other publications that followed.

ATTACHMENTS

Annex 1	Bushman Hunting Safaris Limited, Operator Enhancement Report
Annex 2	Danny McCallum Safaris, Operator Enhancement Report
Annex 3	Game Frontiers of Tanzania, Operator Enhancement Report
Annex 4	Game Trackers Tanzania, Operator Enhancement Report
Annex 5	Kilombero North Safaris Limited, Operator Enhancement Report
Annex 6	Marera Safari Lodge and Tours (T) Ltd., Tanzania Lion Report 2013-2015
Annex 7	Michel Mantheakis Safaris Ltd, Operator Enhancement Report
Annex 8	Robin Hurt Safaris (Tanzania) Limited, Operator Enhancement Report
Annex 9	Rungwa Game Safaris, Operator Enhancement Report
Annex 10	Tanganyika Game Fishing & Photographic Safaris Ltd., Operator Enhancement Report
Annex 11	Tanganyika Wildlife Safari Corporation Ltd., Operator Enhancement Report
Annex 12	Tanzania Big Game Safaris Ltd. and Affiliates, Operator Enhancement Report

APPLICANT:

MARC BUTLER

OPERATOR ENHANCEMENT REPORT

ANNEX I
OPERATOR ENHANCEMENT QUESTIONAIRE

Operator Information

a. Name of Area Operator: LOLKISALE GAME CONTROLLED AREA / MASAI OPEN AREA WEST
b. Years in business: 21 YEARS
c. Name of company conducting hunt: RUNGWA GAME SAFARIS LTD
d. Country: TANZANIA

Concession

a. Name of Concession: LOLKISALE GAME CONTROLLED AREA / MASAI OPEN AREA WEST
b. Area in km²: 1082 SQ KM / 1088 SQ KM
c. Land tenure:
   - ✓ Government Lease
   - ____ Community
   - ____ Private Ranch
   - ____ Private Conservancy
d. Length of concession agreement: 5 YEARS RENEWABLE
e. Can the concession be renewed? YES
f. Length of renewal, if applicable: 5 to 10 YEARS
g. Estimated trophy fees: 7000
h. Are there are special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed: YES WE NEED TO DO ANTI-POACHING REPORTS COMMUNITY ETC.
i. Provide concession location and nearest city: SIHANZIRO DISTRICT, MAKUYUNI CLOSEST VILLAGE
j. Please attach a map or maps with marked boundaries and nearest city
k. If the concession borders a National Park, provide park name: TARANGIRE NATIONAL PARK
l. Describe general and distinctive habitat/water features: MASAI ACACIA WITH INTERMITTED DRY RIVER BEDS AND SPRINGS.

Communities in the Concession

a. Are there any communities living in the concession? Yes____ No ___ LOLKISALE GCA HAS NO PEOPLE JUST
b. If so, estimated number of people/villages in the concession: _____ NOMADIC CATTLE
c. Are there communities bordering this concession? Yes ✓ No ___ HERDERS, MASAI
d. If so, estimated number of peoples/villages around the concession: APPROX 50,000 WEST HAS 2 VILLAG

Relevant Game Populations in the Concession

Species	Relative Abundance (Dense, Average, or Sparse)	Estimated Population	3-Year Trend (Up, Down, or Stable)	How is it Monitored?
Elephant	DENSE		UPWARD	TANZANIA WILDLIFE RESEARCH INSTITU
Lion	AVERAGE		UPWARD	TANZANIA TAWIRI
Prey Species (if applicable)				
Other: _____				

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application.
b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports.

Local Community Participation

a. Total employment number: _____
b. Total employment in the off-season: _____
c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	4	60	40
Trackers	16		
Anti-poaching Scouts/Rangers	16		
Other Anti-poaching	8		
Cooks/Housekeepers	16		
Community Coordinators	4		
Managers	4		
Biologists	CONSULTANCY BASIS		
Others: _____			

Anti-Poaching Efforts

a. Number of anti-poaching staff: 24
b. Are patrols conducted during the hunting season, off-season, or both? IN THE OFF SEASON AS DOR THE SEASON THE AREA IS WELL MONITORED.
c. Months patrols are conducted: DEC - JUNE
d. Number of patrols per month: 1 MONTH PATROL FOR 30 DAYS AFTER WHILE THEY ARE SCATTA
e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: 50%
f. Description of anti-poaching equipment, vehicles, gear, etc. _____
VEHICLES, TENTS, SAT PHONES, SUPPLIES, UNIFORMS, BOOTS, RAINCOATS.
g. Do government-sponsored game scouts conduct patrols? YES, BUT WE PAY THEIR ALLOWANCES
h. If so, do they have the ability to arrest? YES
i. Do you offer rewards to poaching informants leading to arrest? Yes ✓ No ____
j. Do you offer rewards to poaching informants upon conviction? Yes ✓ No ____
k. Please describe the operator's anti-poaching expenditures over the past 3 years below:

Type of Expense	Year 1 (2018) Spending	Year 2 (2019) Spending	Year 3 (2020) Spending	Remarks
Scout Salaries	45,300	47,300	52,000	
Equipment	7000	7000	7000	
Vehicles	120000	120,000	120,000	EACH LANDCRUISER VALUE AT USD 40,000
Fuel	12000	12000	15000	
Rewards	5000	5000	5000	
Others: _____				
Totals	189,300	191,300	199,000	

l. What currency are the expenditures given in? TANZANIA SHILLINGS, BUT WE HAVE CONVERTED TO U.S. DOLLARS.

Anti-Poaching Results

Type	Year 1 (2018)	Year 2 (2019)	Year 3 (2020)	Remarks
Poaching Incidents Discovered	10	8	6	
Elephant Carcasses Observed	0	0	0	
Lion Carcasses Observed	0	0	0	
Leopard Carcasses Observed	0	0	0	
Ivory Poachers Observed	0	0	0	
Bush Meat Poachers Observed	10	8	6	
Illegal Logging Observed	20	16	14	
Other Poachers Observed	10	8	6	HONEY POACHERS
Poachers Convicted				
Snares/Traps Collected	0	0	0	SNARES ARE NOT A PROBLEM IN OUR AREAS
Firearms Confiscated	4	5	4	
Vehicles Confiscated	0	0	0	
Bicycles Confiscated	16	12	14	
Boats/Nets Confiscated	6	4	0	
Tusks Recovered	0	0	0	
Others: _____				

Community Investment

a. Does the company give money or goods/services to local communities? Yes ✓ No ____

b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e. more than required by law)? WE DO OVER THE REQUIRED AMOUNT THROUGHOUT THE YEAR IN BUILDING HOSPI

c. Does the company provide game meat to nearby communities? Yes ____ No ✓ AND ALSO PAY FOR SCH

d. If so, estimate the amount/value of meat contributed in the last year and describe that distribution program: FEES. _____

e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling field during harvest, PAC hunts, insurance programs); please describe. YES, WE PAY HERDERS FOR CATTLE KILLED BY LIONS OR OTHER PREDATORS

f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (2018)	Consolation Paid, Year 2 (2019)	Consolation Paid, Year 3 (2020)	Remarks
Elephant	–	–	–	–	
Lion	CATTLE KILLED	2000	1000	1000	
Leopard	–	–	–	–	
Other: _____					

g. What currency are the expenditures reported in? USD

h. Describe any community projects paid for by the company:

Product/Service	Spending, Year 1 (2018)	Spending, Year 2 (2019)	Spending, Year 3 (2020)	Remarks
Education (classrooms, offices)	10,000	11000	13000	
Education (supplies, fees)	7000	8000	10,000	
Health (clinics, offices)	3000	3000	4000	
Health (equipment, salaries)	5000	5000	5000	

Product/Service	Spending, Year 1 (2018)	Spending, Year 2 (2019)	Spending, Year 3 (2020)	Remarks
Community Scout Salaries	5000	6000	9000	
Community Anti-Poaching				
Local Government Activities	1000	1500	2000	
Infrastructure Improvements				
Sports Teams Funded	—	—	—	
Construction Materials Donated	9500	10500	12000	
Other: _____				
Other: _____				
TOTALS				

i. What currency are the expenditures reported in? _____

j. Include receipts and photographs of projects, if available.

Company Clientele

a. How many U.S. clients did the company have in the past 3 years (indicate years), what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	Lion	All Species
Number of U.S. Clients	0	3	30
Percentage of Clients from the U.S.	0	90%	75%
Trophy Fees Paid by U.S. Clients	0		$893,962.50

b. Approximate amount/percentage of company's revenue from U.S. clientele: _____

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
OUR PH'S ALL HAVE A MINIMUM OF 10 YEARS EXPERIENCE

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology, if available): YES, IF SHOOT YOU GET A FINE AND THEY ARE NOW EXPORTABLE.

c. Are there hunt return forms that must be reported to officials? If so, please include a copuy of these forms or confirmation of their receipt for the past 3 years.

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

I declare that the foregoing is true and correct.

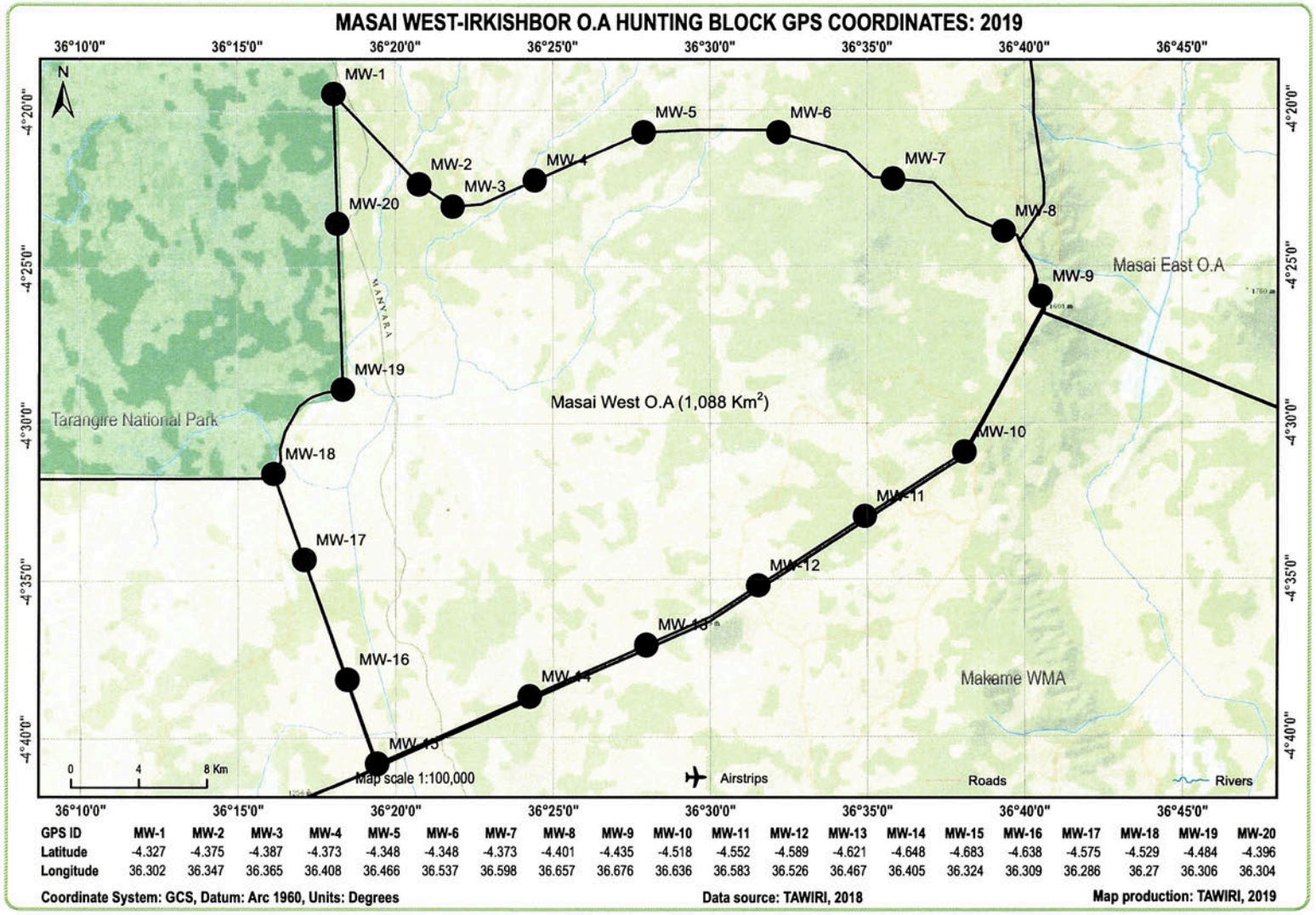
X [illegible] 29/12/20

Sign Name and Date

X

Print Name and Title

MASAI WEST-IRKISHBOR O.A HUNTING BLOCK GPS COORDINATES: 2019



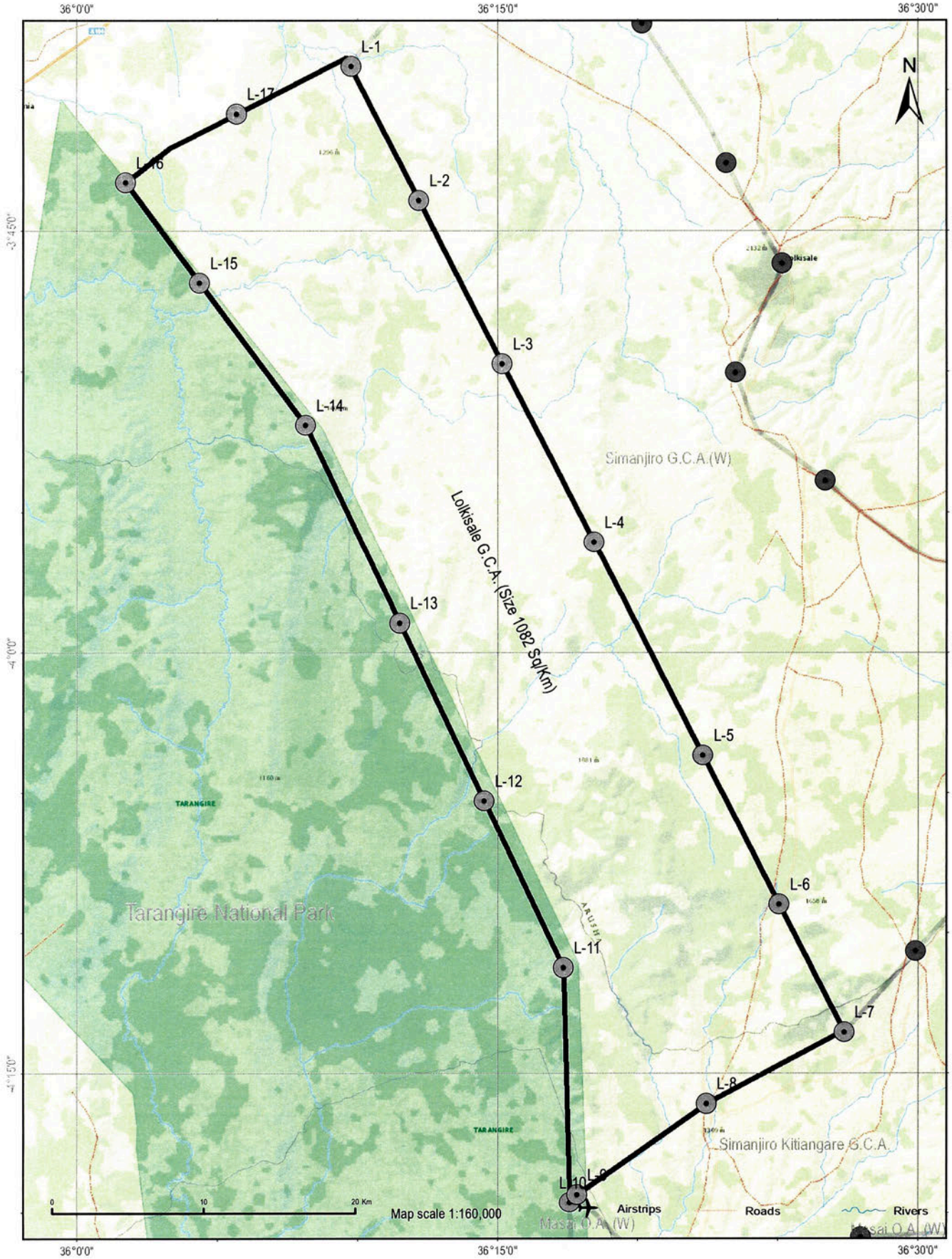
GPS ID	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20
Latitude	-4.327	-4.375	-4.387	-4.373	-4.348	-4.348	-4.373	-4.401	-4.435	-4.518	-4.552	-4.589	-4.621	-4.648	-4.683	-4.638	-4.575	-4.529	-4.484	-4.396
Longitude	36.302	36.347	36.365	36.408	36.466	36.537	36.598	36.657	36.676	36.636	36.583	36.526	36.467	36.405	36.324	36.309	36.286	36.27	36.306	36.304

Coordinate System: GCS, Datum: Arc 1960, Units: Degrees

Data source: TAWIRI, 2018

Map production: TAWIRI, 2019

LOLKISALE G.C.A HUNTING BLOCK GPS COORDINATES: 2013-2018



GPS ID	L-1	L-2	L-3	L-4	L-5	L-6	L-7	L-8	L-9	L-10	L-11	L-12	L-13	L-14	L-15	L-16	L-17
Latitude	-3.6524	-3.732	-3.8285	-3.9344	-4.0609	-4.1496	-4.2254	-4.2681	-4.322	-4.3267	-4.1874	-4.0885	-3.9828	-3.865	-3.7805	-3.7216	-3.6806
Longitude	36.1628	36.2031	36.2528	36.3074	36.3722	36.4175	36.4562	36.3742	36.2972	36.2927	36.2891	36.242	36.1917	36.1357	36.0729	36.0291	36.0949

Coordinate System: GCS, Datum: Arc 1960, Units: Degrees

Data source: TAWIRI, 2010

Map production: TAWIRI, 2012

APPLICANT:

MARC BUTLER

THE BENEFITS OF LICENSED REGULATED HUNTING IN TANZANIA

$9.83 million

$6.7 million

spent on anti-poaching by 27 safari hunting operators 2013-2015

$3.13 million

spent on community support by 27 safari hunting operators 2013-2015

THE BENEFITS OF LICENSED, REGULATED HUNTING IN TANZANIA

7,170 patrol days (over 19.6 years of anti-poaching patrols) + Helicopters, planes, and boats hired or purchased + 6,223 snares/gin traps collected • 1,557 rounds of ammunition collected + 1,409 poachers arrested + 1,118 knives, machetes, spears, bows, and other weapons collected + 670 bicycles + 216 fishing nets + 171 firearms + 65 canoes + 34 vehicles seized + more

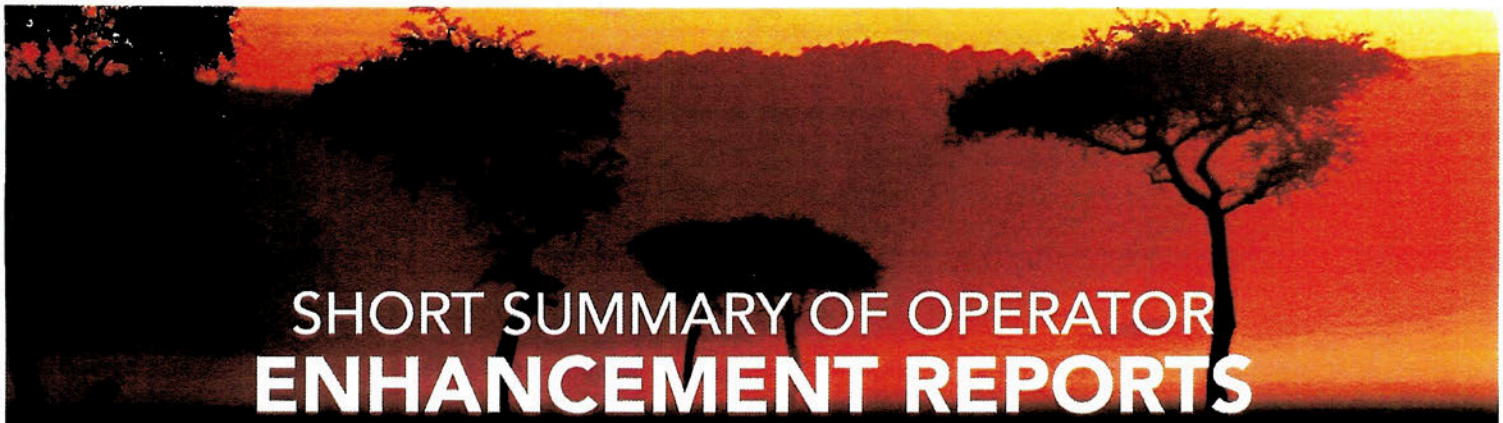


24 classrooms built (two-thirds of a classroom/month for three years) + hundreds of wheelchairs donated + monthly mobile immunization clinics + networks of Village Health Workers + 1,575 eye ailments treated (~1.4 per day for three years) + $337,000 spent on education + $231,000 spent on direct incentives ($211/day distributed, over three years, in a country where over 40% of the population lives on less than $1.25 per day) + support for football clubs, community meetings, literacy + 1,241 jobs + more

Learn More

Licensed, regulated hunting in Tanzania provides secure habitats for lion and their prey base and secure livelihoods for humans living with lion.

Find out more: www.conservationforce.org/news-updates-alerts.



SHORT SUMMARY OF OPERATOR ENHANCEMENT REPORTS

Twenty-seven safari hunting operators, owned and marketed by thirteen parent companies and together protecting over 121,423 km in Tanzania, provided data to Conservation Force describing their contributions to anti-poaching, community assistance, habitat protection, wildlife monitoring, and more. In the 2013-2015 period, their contributions to anti-poaching, community assistance, and habitat protection alone topped $9.8 million. That $9.8 million in conservation spending is over and above any government fees, and has largely been unaccounted for and overlooked by the U.S. Fish and Wildlife Service, the media, and the general public. Yet that funding represents obvious "enhancement" (benefits) supporting the African lion in the wild.

These contributions are immense, but they are still under-representative. Not all safari hunting operators provided data to Conservation Force. For example, the well-documented anti-poaching program of the Friedkin Conservation Fund is not included in that $9.8 million. Conservation Force also discovered that U.S. hunting clubs have funded over $1 million in lion research since 2010. Taken together, and supported by over 2,700 pages of source documents, it has become clear that licensed, regulated hunting in Tanzania pays for most lion conservation in that country.

This short summary highlights the primary findings of Conservation Force's study, which focused on the past three years (2013-2015).

CONTRIBUTIONS TO ANTI-POACHING

All 27 hunting operators deploy anti-poaching units in their concessions. Their teams are accompanied by at least one government game scout with the authority to arrest, whose salary is paid by the operator. All operators surveyed maintain **year-round** anti-poaching patrols. Eleven operators maintain specific patrol records and recorded **7,170 patrol days**, representing **19.6 years** of anti-poaching patrols. These 11 operators reported the arrests or seizures listed below.

Arrests or Seizures

6,223 snares and gin traps

1,409 poachers

1,557 ammunition rounds

670 bicycles and 24 vehicles

1,118 knives, spears, weapons

216 fishing nets and 65 canoes

171 firearms

Operators fund these anti-poaching patrols primarily from hunting revenues and secondarily from client contributions. Anti-poaching expenses include: scout salaries and bonuses, and rewards for informants in the villages; vehicles (Land Cruisers, motorcycles, boats, custom anti-poaching vehicles, aircraft purchase or rental, etc.), fuel, and maintenance; cell or satellite phones and high frequency radios; uniforms; firearms and ammunition; tents and rations; road opening and maintenance; and support and equipment for government anti-poaching units. Examples of support for government scouts include a $31,500.00 equipment donation in 2015 to the Maswa and Selous Game Reserves, donation of 7,000 liters of diesel (over $9,000.00 value) to the Rungwa and Kizigo Game Reserves, and construction of a bridge costing over $4,800 to improve access to the Makawasa Game Post.

The 27 safari hunting operators spent

$6,717,160.65

for anti-poaching and road opening.

The sample operators also paid **$24,712,029.00** in government fees. These fund the Tanzania Wildlife Division's operating budget and are the primary funding for the Tanzania Wildlife Protection Fund and the new Tanzania Wildlife Authority. They support approximately 80% of ordinary government anti-poaching. These funds are usually "accounted for" in government reporting, unlike the operators' other anti-poaching spending, which is encouraged by but in addition to government requirements.

CONTRIBUTIONS TO COMMUNITY SUPPORT

The sample operators enforce wildlife laws through their anti-poaching patrols, but prefer to incentivize compliance with wildlife regulations and appreciation for wildlife as an asset through community benefits, employment, and education. The 27 operators focused their efforts in education, healthcare, village life, and food and water security, among other things.

The 27 safari hunting operators spent

$3,125,830.00

on community investment and support.

Community Support Examples

Education
$337,764

Examples: Constructing 24 classrooms, 3 teachers' homes, 3 school latrines, 2 libraries, 2 school labs, and 1 school kitchen, and equipping the same; funding $62,278.00 in school fees…

Healthcare
$254,238

Examples: Constructing 2 clinics and 2 dispensaries; conducting monthly vaccine clinics; installing solar power in a maternity ward; treating 1,575 eye ailments; providing hundreds of wheelchairs…

Village Benefits
$158,239+

Examples: Constructing 6 government offices; funding community celebrations; funding football clubs; installing solar panels for village homes and offices; delivering iron roofing…

The sample operators installed or rehabilitated water infrastructure and provided thousands of gallons of water during the worst of the drought. In addition, to enhance rural food supplies, most of the reporting operators have company policies by which they share large percentages of harvested game meat with local villages. In addition, at least six of the sample operators share hunting revenues directly with local villages. These six shared **$231,712.00** in cash incentives, which link hunting offtakes directly with community welfare and encourage rural residents to value dangerous game animals. In addition, at least 10 of the sample operators have agreements with the communities surrounding and within their concessions, which deter retaliatory lion killings by compensating community members for livestock killed by lion and other predators.

The operators reported **1,241** permanent jobs and **250-450** seasonal jobs, most of which are staffed by local residents.

CONTRIBUTIONS TO HABITAT PROTECTION

The operators' teams patrol against timber poaching and cattle encroachment in addition to meat and fish poaching. Eighteen operators recorded their timber and cattle seizures: **14,687** planks, **115** logs, **97** saws and chainsaws, and **six** trucks loaded with planks, as well as over **Tsh 231,760,000.00** in cattle fines and removal of **74,712** head of cattle from their concessions. By combatting threats to the concessions, which buffer the national parks, the operators protect the parks themselves. Examples of additional habitat support include drilling boreholes and constructing dams to increase wildlife access to water, and drilling boreholes to provide water outside the concession for Masai community use and decrease human-wildlife conflicts.

Habitat Seizures Examples

14,687 planks | **Tsh 231.8 million in cattle fines** | **74,712 head of cattle**

Learn More

Licensed, regulated hunting in Tanzania provides secure habitats for lion and their prey base and secure livelihoods for humans living with lion.

Find out more: www.conservationforce.org/news-updates-alerts.



Form 3-200-20

OMB Control No. 1018-0093
Expires 08/31/2020

RCVD MAR 9 2021

Department of Interior
U.S. Fish and Wildlife Service
Federal Fish and Wildlife Permit Application Form

U.S. Fish and Wildlife Service
Division of Management Authority
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
1-800-358-2104 or 703-358-2104

Type of Activity

IMPORT OF SPORT-HUNTED TROPHIES under Appendix I of the Convention on International Trade in Endangered Species (CITES) and/or U.S. Endangered Species Act (ESA)

Complete Sections A or B, and C, D, and E of this application. U.S. address may be required in Section C, see instructions for details.
Instructions on how to make your application complete and help avoid unnecessary delays are attached.

Section A: Complete if applying as an individual

1.a. Last Name	1.b. First Name	1.c. Middle Name/Initial	1.d. Suffix
Facchina	Matthew	Gian	

2. Date of Birth (mm/dd/yyyy)	3. Telephone Number	3.a. Alternate Telephone Number	4. E-mail address
(b) (6)			

Section B: Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution

1.a. Name of business, agency, Tribe, or institution		1.b. Doing business as (DBA)	
2. Tax identification no.		3. Description of business, agency, Tribe, or institution	
4.a. Principal officer Last name	4.b. Principal officer First Name	4.c. Principal officer Middle name/initial	4.d. Suffix
5. Principal officer title	6. Primary contact name		
7.a. Business telephone number	7.b. Alternate telephone number	7.c. Business fax number	7.d. Business e-mail address

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)
(b) (6)

1.b. City	1.c. State	1.d. Zip code/Postal code	1.e. County/Province	1.f. Country
Davidsonville	MD	21035	Anne Arundel	USA

2.a. Mailing address (include if different than physical address; include name of contact person if applicable)

2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f.Country

Section D: All applicants MUST complete

1. Attach the **nonrefundable application processing fee** in the form of a check or money order payable to the U.S. FISH AND WILDLIFE SERVICE **in the amount of $100**. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee–attach documentation of fee exempt status as outlined in instructions [50 CFR 13.11(d)].

2. Certification: I hereby certify that I have read and am familiar with the regulations contained in ***Title 50 Part 13 of the Code of Federal Regulations*** and the other ***applicable parts in subchapter B of Chapter I of Title 50***, and I certify that the information submitted in this application for a permit is complete and y knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

(b) (6)

03-02-2021

Officer for permit (No photocopied or stamped signatures) Date of signature (mm/dd/yyyy)

Please continue to next page

E. IMPORT OF SPORT-HUNTED TROPHIES *(Appendix I of CITES and/or ESA)*

Note 1: This form should be used to request authorization to import trophies of species listed on Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND SOUTHERN WHITE RHINOCEROS TROPHIES TAKEN IN NAMIBIA.

Note 2: If you hold an import permit for a trophy that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

Please provide the following information. Complete all questions on the application. Mark questions that are not applicable with "N/A". If needed, use a separate sheet of paper. On all attachments or separate sheets you are submitting; please indicate the application question number you are addressing. If applying for more than one trophy, be sure to answer questions 4-6 for each trophy addressed in this application. If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

(b) (6)
(b) (6) [redacted]

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

Barbara Eber
(b) (6) [redacted]

3. Disqualification factor. A conviction, or entry of a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act disqualifies any such person from receiving or exercising the privileges of a permit, unless such disqualification has been expressly waived by the Service Director in response to a written petition. (50 CFR 13.21(c)) Have you or any of the owners of the business, if applying as a business, been convicted, or entered a plea of guilty or nolo contendere, forfeited collateral, or are currently under charges for any violations of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court; and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

N/A

4. For each trophy to be imported, provide:

   a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Panthera Leo, Lion

   b. Sex (if known). Male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

Zimbabwe, Save Valley Conservancy, Sango Ranch, Nearest town Masvingo

   b. Date wildlife is to be hunted:

04/24/2021 to 05/12/2021

   c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

Crane Safaris

6. **IF THE TROPHY HAS ALREADY BEEN TAKEN**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife was removed from the wild:

N/A

   b. Date wildlife was hunted:

N/A

c. Name of hunting outfitter, safari company, or professional hunter you hunted with:

N/A

d. The current location of the trophy (address and country) [the U.S. import permit will identify this country as the country of export/re-export and must match with the foreign export/re-export document]:

N/A

7. Please provide a copy of any applicable foreign government permits or licenses that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).
Have not hunted yet - Permits to be issued closer to hunt dates

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you must provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	
Business Name:	Crane Safaris
Address:	3 Normandy Close
City:	Alexander Park
State/Province:	Harare
Country, Postal Code:	Zimbabwe

9. For species listed under the U.S. Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service (Service) must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or hunted when making the required findings, if you have any information that could support this finding, it would be helpful for our review if you could provide it. Please submit such information on a separate page with your application.

a. Do you have any information regarding the population status or trend data on the species hunted?

See attached Wildlife Conservancy

b. In order to hunt, you likely paid for licenses or trophy fees. What were those fees and do you have any information on how those funds were used by either the landowner, local community, or government?

All daily rates and trophy fees are used to run the property, this includes a staff of 130 people, 44 of which are Game scouts, maintenance of roads, water infrastructure, fire breaks, aerial and sweep surveys, conservation levies to the Save Valley Conservancy, and ecological monitoring.

c. Do you have information on other funding activities that are being carried out, or were carried out, by the safari outfitter, professional hunter, concession holder, or landowner that provide a conservation benefit to the species being hunted/species hunted?

See attached African Wildlife Conservation Fund

CERTIFICATION STATEMENT (original signature must be provided for either 10 or 11 below)

10. If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national, provide documentation to show you have a Power of Attorney to act on your client's behalf and sign the following statement:

I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying for the import of an elephant trophy, I understand that my client may import no more than two elephant trophies in one calendar year.

Taxidermist/Broker's signature: _____ Date: _____

11. If you are the hunter applying to import your own trophy, please read and sign the following statement:

I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying to import an elephant trophy, I understand that I may import no more [redacted] phies in one calendar year.

Applicant's signatu[redacted] Date: 3-2-21

Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign governments to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

12. All international shipments must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

Crane Safaris

Crane Safaris (Private) Limited
P. O. Box MP 852
Mount Pleasant
Harare
info@cranesafaris.co.zw
Landline: 0242 745460

2nd of March 2021

TO WHOM IT MAY CONCERN

This letter serves to confirm that **Mr. Matthew Gian Facchina** of United States of America, address (b) (6) (b) (6) Davidsonville, MD 21035, USA with Passport number (b) (6) has booked a hunting safari with Crane Safaris Pvt Ltd based in the Save Valley Conservancy, Zimbabwe.

Mr. Facchina will be travelling to Zimbabwe between the following dates.

Arrival Date: 24 April 202
Departure Date: 13 May 2021

Bringing with him the following firearms:

Make	Calibre	Serial No.	# Rounds
Holland and Holland	.500	(b) (6)	40
Winchester	.375		40

This letter serves as a formal invitation for the above hunter to hunt with us on our concessions.

Yours Faithfully,

Edwards

Natalie Edwards
Reservations and Administration

CRANE SAFARIS (PVT) LTD
P.O. BOX MP 852
MOUNT PLEASANT, HARARE
TEL: 0242- 745 460

CARNIVORE DENSITIES IN THE SAVÉ VALLEY CONSERVANCY

Results of the 2019 Spoor Survey & Wild Dog Monitoring Project

Jessica Watermeyer and Dr Rosemary Groom

(Spoor survey carried out by Jess Watermeyer, Rueben Boté and Talent Chinguwa)

Introduction

The African Wildlife Conservation Fund carries out an annual large carnivore spoor survey in order to assess population trends of carnivores within the Savé Valley Conservancy (SVC / the conservancy) to aid management decisions. A standardised methodology is used to ensure consistency through time and comparability with other studies. Since 2008, the spoor surveys have been done using the same roads and the same observer.

Spoor surveys have been shown to be an effective and efficient means to assess wildlife densities (Stander 1998; Funston et al. 2001; Davidson & Romañach 2007; Funston et al 2010) with strong correlations existing between spoor density and true density. The technique is considered to produce reliable estimates for lions, spotted hyenas, and leopards, when sample sizes (spoor encounter rates) are sufficient. Other carnivores are included in our counts simply to monitor trends over time.

This report presents the results of the October 2019 carnivore spoor survey for the SVC, together with results from the long-term wild dog monitoring project, and looks at trends in the main carnivore species over time.

Methodology

The 2019 carnivore spoor survey used the methods pioneered in SVC by Davidson and Romañach (2007), based on those used by Stander (1998) in Namibia. Exactly the same methodology has been used annually since 2008. Road transects were chosen throughout the SVC to represent a fair coverage of all (non-resettled) areas, and these transects were scanned for spoor. The number of kilometres of transects surveyed was chosen to maintain consistency with previous spoor surveys. Thus, for every 6-7km^2 of sample area, 1km of transect was surveyed, creating a penetration density (expressed as a ratio of kilometres of transect surveyed to total sample area) of between 1:6 and 1:7.

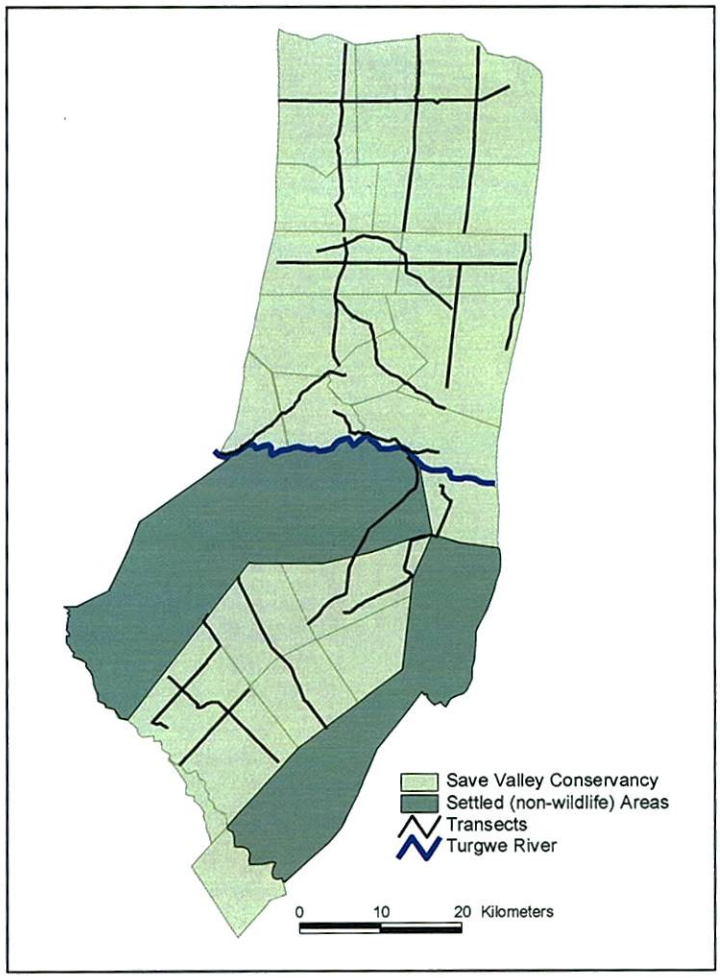
The total area of the Savé Valley Conservancy is 3,490km^2. However, the effective wildlife area (excluding the 1051km^2 of resettled land), comes to only 2,439km^2; 1,639km^2 north of the Turgwe river and 800km^2 south of the Turgwe (see Table 1).

In northern SVC, the total length of all transects combined was 262.4 km, giving a penetration ratio of 6.25. In southern SVC, the combined transect length was 129.4 km, giving a penetration ratio of 6.19. For the conservancy as a whole, 391.8 km were driven (penetration ratio 6.23).

Transects surveyed were the same as those used in 2007-2018 (Figure 1). Each transect was driven at a speed of between 10 and 20 km/hr with one tracker, AWCF head scout Rueben Boté, sitting on the front of the vehicle scanning for spoor. Transects ranged between 12.7 km and 29.7 km in length, with a mean transect length of 21.8 km.

Each transect survey started as close to sunrise as possible, and wherever feasible was driven from west to east to ensure the best possible tracking conditions. Only tracks less than 24 hours old were counted. Road conditions are generally sandy, such that spoor is relatively easy to see. Where possible, spoor of individual animals were followed to reduce the likelihood of that individual being counted twice on a given transect. Spoor was recorded for all mammalian carnivores bigger than a genet.

Figure 1. Map of the transects driven – October 2019



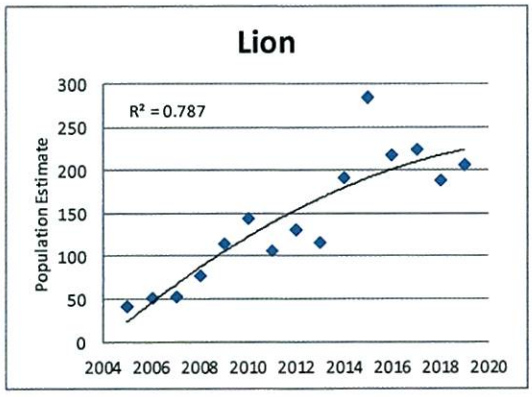
Results

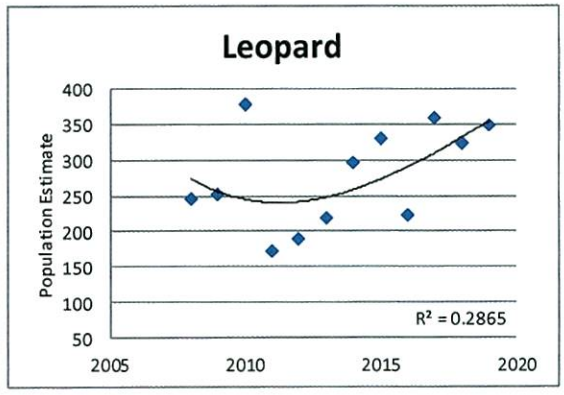
Table 1: Summary of survey parameters (2019)

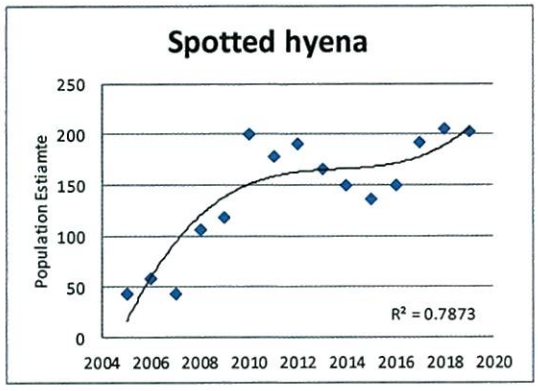
Parameter	Northern SVC	Southern SVC	Total SVC
Area (km^2)	1639	800	2439
Total number of km driven	262.4	129.4	391.8
Penetration ratio	6.25	6.19	6.23

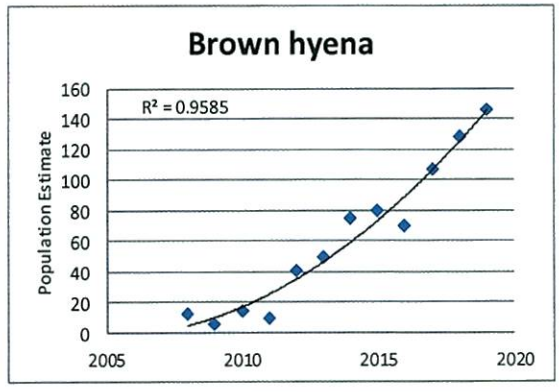
Table 2: Population estimates of the key carnivore species in the **whole of Savé Valley Conservancy** from 2008-2019 (from 2005-2019 for lion and spotted hyena).
Data for lion, leopard, spotted and brown hyenas and black backed jackal are from spoor surveys; **data for wild dogs is from the Lowveld Wild Dog Project's direct monitoring efforts** (counts are taken from April of each year and include adult and yearling wild dogs only).

Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Lion	40	50	52	76	114	143	105	130	115	190	284	217	223	187	205
Leopard				245	252	378	172	189	218	295	328	221	359	323	348
Spotted hyena	44	58	44	107	118	201	178	192	166	150	137	150	193	206	203
Brown hyena				12	6	14	10	41	50	75	80	70	107	128	146
African Wild dog				45	60	64	61	86	90	81	91	99	94	96	86
Black backed jackal				188	190	157	141	151	199	229	241	234	296	153	187









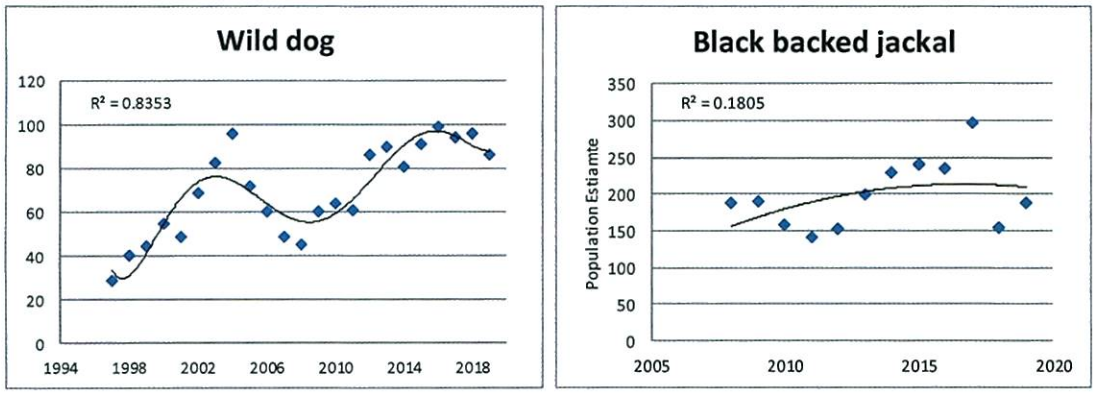


Figure 2: Trends in the populations of key carnivores in SVC for all years for which data is available. Data for lion, leopard and spotted and brown hyenas and black backed jackal are from spoor surveys; data for wild dogs is from the Lowveld Wild Dog Project's direct monitoring efforts (counts are taken from April of each year and include adult and yearling wild dogs). *A breakdown of all survey results for all species between the north and south of the conservancy is given in Appendix 1.*

Discussion

Lion population

Excluding the anomalous over count in 2015, the population appears to have stabilised over the last six years at c. 200 lions, with a few natural fluctuations. The 2019 survey estimates **205 lions** in the conservancy at a **density of 8.4 lions / 100km²**. This is in line with densities recorded elsewhere (9.6 lions / 100km² - average over Kruger, Hwange, Selous and Serengeti), although in areas notably larger than SVC. Finally, of the 104 lion tracks identified by sex, 31% were adult males and 64% identified as adult females. Otherwise, tracks for cubs (2) and yearling lions (2) were encountered once each.

Leopard population

In 2019 there were an estimated **348 leopard** in the conservancy. Considering the long-term trend data for the species, it is clear that the conservancy's leopard population (similarly to the lion population) has stabilised over the last six years (bar the undercount in 2016) at between 300-350 estimated individuals.

Leopards are at a **density of 14.3 leopards / 100km²** in the conservancy. This is considerably higher than densities recorded in other places, for example in Phinda and Mkhuze in South Africa (average 9.7 / 100km²; Balme et al. 2009) and in neighbouring Gonarezhou National Park (9.5 / 100km²; Watermeyer & Groom, 2019). Finally, of the 77 tracks identified as male or female, 42% were male and 58% were female.

Spotted hyena population

As reported in 2018, spotted hyenas appear to have stabilised over the last few years at between 150-200 individuals. Indeed, there were an estimated **203 spotted hyenas** in 2019. Spotted hyenas are at a density of **8.3 spotted hyenas / 100km²**. This is lower than other populations; 13.5 / 100km² in Kruger (Mills 1985), 17.0 / 100km² in Hwange (Bowler 1992), and 10.4 / 100km² in Gonarezhou National Park (Watermeyer & Groom, 2019). Given the relatively lower density of the species in the conservancy, there is suggested scope for the population to increase (especially if the lion numbers have stabilised).

Brown hyena population

There were an estimated **146 brown hyenas** in the conservancy in 2019. Overall, the brown hyena population is displaying a stable trend, with incremental, positive increases over the past six years. The estimated density of brown hyenas was **5.9 brown hyenas / 100km²** in 2019, which is comparable to that recorded in neighbouring Gonarezhou National Park at **4.8 brown hyenas / 100km²** (Watermeyer & Groom, 2019).

African wild dog population

As reported consistently for the past few years, the African wild dog population appears to have stabilised at between 90-100 individuals, with slight natural fluctuations. **From our comprehensive and direct monitoring of the species, there are 86 adult wild dogs in the conservancy (3.5 wild dogs / 100km²).** Average wild dog densities across their range are generally lower (average 2.5 wild dogs / 100km² across five populations; Pole 1999). The spoor survey results estimated 158 wild dogs in the conservancy, with a density of 6.6 wild dogs / 100km². This is clearly an overestimate of the wild dog population, and serves to demonstrate that spoor surveys, with current calibration methods, are not a reliable indicator of wild dog numbers.

Importantly, snaring has been a significant threat to resident wild dogs in 2019, and we have seen fewer packs denning and smaller litter sizes born on average than previous years. The latter may affect recruitment and the stability of some packs into 2020.

Black backed jackal population

There were an estimated **187 black backed jackals** in 2019, with a density of **7.7 jackals / 100km²**. We were cautious of the drop in numbers estimated in 2018, and whilst a count of 187 jackals is more in keeping with the trend, this species does need to be watched.

Cheetah population

The spoor encounter rate for cheetah in the conservancy is very low, and thus it is impossible to accurately estimate the number of resident cheetah, even with large confidence intervals. **We did not pick up a signal track for cheetah in the 2019 spoor survey**. However, spoor surveys are not an appropriate technique for monitoring cheetah, and cheetah naturally occur at low densities and are a wide-ranging species (Mills 1997; Durant 1998; Wilson & Delahay 2001).

At best, we can reliably say that cheetah are resident and breeding in the conservancy, but only present at low densities as is characteristic of the species.

Word of caution

When interpreting the results in the graphs and tables at the end, please do so with caution, especially to quote specific numbers. For lions and hyenas we are confident that these spoor surveys are relatively accurate in the numbers they predict, although occasional anomalous over and undercounts need to be treated carefully. Likewise, we can trust the numbers for wild dogs, as they are from AWCF's detailed population monitoring study. For leopards however, several different equations (all considered suitable for estimating leopard numbers from spoor) can give different population estimates from each other. The spoor survey technique has not been calibrated for species like jackals, civets, even brown hyenas, so while the data is useful for looking at trends, using population figures directly from the graphs for these species is unadvisable.

Bibliography

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

Bowler, M. 1992. *Implications of large predator management on commercial ranchland in Zimbabwe*. M. Sc. Thesis. University of Zimbabwe.

Davidson, Z. & Romanach, S. (2007) Estimations of lion and hyena density in the Savé Valley Conservancy using two different census techniques: spoor transects and call-up stations. *Report for SVC, WildCRU and University of Zimbabwe, TREP.*

Funston, P.J., Frank, L., Stephens, T., Davidson, Z., Loveridge, A.J., Macdonald, D., Durant, S., Packer, C., Mosser, A., & Ferreira, S.M. (2010) Substrate and species constraints on the use of track incidences to estimate African large carnivore abundance. *Journal of Zoology*, 281, 56-65.

Funston, P.J., Herrmann, E., Babupi, P., Kruiper, A., Jaggers, H., Masule, K. & Kruiper, K. (2001) Spoor frequency estimates as a method of determining lion and other large mammal densities in the Kgalagadi Transfrontier Park. (*Book chapter*).

Groom, R. & Watermeyer, J. 2017. Carnivore Densities in Gonarezhou National Park: Results of the 2017 Spoor Survey. Report for the Zimbabwe Parks and Wildlife Management Authority.

Hayward, M.W., O'Brien, J., & Kerley, G.I.H. (2007) Carrying capacity of large African predators: Predictions and tests. *Biological Conservation*, 139, 219-229.

Mills, M.G.L. 1985. Hyaena survey of Kruger National Park: August – October 1984. *IUCN Hyaena Specialist Group Newsletter* 2: 15-25.

Mills, M.G.L. (1997) Census Techniques for large carnivores. Proceedings of a Symposium on lions and leopards as game ranch animals, Onderstepoort, October 1997

Durant, S.M. (1998) Competition refuges and coexistence: an example from Serengeti carnivores. *Journal of Animal Ecology*, **67**, 370-386.

Pole, A.J. 1999. The behaviour and ecology of African wild dogs Lycaon pictus in an environment with reduced competitor density. PhD Thesis, University of Aberdeen, Aberdeen, Scotland.

Stander, P.E. 1998. Spoor counts as indices of large carnivore populations: the relationship between spoor frequency, sampling effort and true density. *Journal of Applied Ecology*, 35, 378-385.

Van der Meer, E. 2016. The cheetahs of Zimbabwe, distribution and population status 2015. Cheetah Conservation Project Zimbabwe, Victoria Falls, Zimbabwe.

Wilson, G.J. & Delahay, R.J. (2001) A review of methods to estimate the abundance of terrestrial carnivores using field signs and observation Journal of Wildlife Research, **28**, 151–164

Acknowledgements

Permission to conduct this research was given by the Research Council of Zimbabwe, and the Savé Valley Conservancy, with the support of the Zimbabwe Parks and Wildlife Management Authority. Thank you to Chishakwe Ranch for hosting the project team. Thanks also to all of the landowners and managers in the

conservancy for allowing us to conduct this spoor survey on their properties. Rueben Boté deserves special mention for his excellent track identification.

Appendix 1: All Spoor Survey Results for All Species Counted (2019)

NORTH SVC	Survey Area	Est. population	Equation Used	Est. density	Distance covered	No. of spoor	Spoor frequency	Transect length	Penetration	Spoor density
	North SVC	(Total area)	Stander1998	(Animals/100km 2)	(km)	counted	(km/spoor)	(km)	(Area/lengt h)	(Spoor/100k m)
Species	(Km2)			Y=0.3049X	Sum of transects			Sum of routes		
				Y=0.6993X						
Black-backed jackal	1639	117.9349196	Leopard (Y=0.6993X)	7.195541159	262.4	27	9.718518519	262.4	6.246189024	10.28963415
Brown hyaena	1639	102.8410038	Lion (Y=0.3049X)	6.274618902	262.4	54	4.859259259	262.4	6.246189024	20.57926829
Cheetah	1639	0	Lion (Y=0.3049X)	0	262.4	0	0	262.4	6.246189024	0
Civet	1639	572.202758	Leopard (Y=0.6993X)	34.9116997	262.4	131	2.003053435	262.4	6.246189024	49.92378049
Honey Badger	1639	126.6708396	Leopard (Y=0.6993X)	7.728544207	262.4	29	9.048275862	262.4	6.246189024	11.05182927
Leopard	1639	275.181479	Leopard (Y=0.6993X)	16.78959604	262.4	63	4.165079365	262.4	6.246189024	24.00914634
Lion	1639	127.5990232	Lion (Y=0.3049X)	7.785175305	262.4	67	3.91641791	262.4	6.246189024	25.53353659
Spotted hyaena	1639	125.6945602	Lion (Y=0.3049X)	7.668978659	262.4	66	3.975757576	262.4	6.246189024	25.15243902
Wild dog	1639	129.5034863	Lion (Y=0.3049X)	7.901371951	262.4	68	3.858823529	262.4	6.246189024	25.91463415
African Wildcat	1639	21.83979992	Leopard (Y=0.6993X)	1.332507622	262.4	5	52.48	262.4	6.246189024	1.905487805
SOUTH SVC	Survey Area	Est. population	Equation Used	Est. density	Distance covered	No. of spoor	Spoor frequency	Transect length	Penetration	Spoor density
	South SVC	(Total area)	Stander1998	(Animals/100km 2)	(km)	counted	(km/spoor)	(km)	(Area/lengt h)	(Spoor/100k m)
Species	(Km2)			Y=0.3049X	Sum of transects			Sum of routes		
				Y=0.6993X						

Black-backed jackal	800.57	69.22270182	Leopard (Y=0.6993X)	8.646676971	129.4	16	8.0875	129.4	6.186785162	12.36476043
Brown hyaena	800.57	43.38606831	Lion (Y=0.3049X)	5.419397218	129.4	23	5.626086957	129.4	6.186785162	17.77434312
Cheetah	800.57	0	Lion (Y=0.3049X)	0	129.4	0	0	129.4	6.186785162	0
Civet	800.57	246.6058752	Leopard (Y=0.6993X)	30.80378671	129.4	57	2.270175439	129.4	6.186785162	44.04945904
Honey Badger	800.57	38.93776978	Leopard (Y=0.6993X)	4.863755796	129.4	9	14.37777778	129.4	6.186785162	6.955177743
Leopard	800.57	73.54912069	Leopard (Y=0.6993X)	9.187094281	129.4	17	7.611764706	129.4	6.186785162	13.13755796
Lion	800.57	77.34038264	Lion (Y=0.3049X)	9.660664606	129.4	41	3.156097561	129.4	6.186785162	31.68469861
Spotted hyaena	800.57	77.34038264	Lion (Y=0.3049X)	9.660664606	129.4	41	3.156097561	129.4	6.186785162	31.68469861
Wild dog	800.57	28.29526194	Lion (Y=0.3049X)	3.53438949	129.4	15	8.626666667	129.4	6.186785162	11.59196291
African Wildcat	800.57	0	Leopard (Y=0.6993X)	0	129.4	0	0	129.4	6.186785162	0
TOTAL SVC	Survey Area	Est. population	Equation Used	Est. density	Distance covered	No. of spoor	Spoor frequency	Transect length	Penetration	Spoor density
	Total SVC	(Total area)	Stander1998	(Animals/100km2)	(km)	counted	(km/spoor)	(km)	(Area/length)	(Spoor/100km)
Species	(Km2)			Y=0.3049X	Sum of transects			Sum of routes		
				Y=0.6993X						
Black-backed jackal	2439	187.1885812	Leopard (Y=0.6993X)	7.674808576	391.8	43	9.111627907	391.8	6.225114855	10.97498724
Brown hyaena	2439	146.148889	Lion (Y=0.3049X)	5.99216437	391.8	77	5.088311688	391.8	6.225114855	19.65288412
Cheetah	2439	0	Lion (Y=0.3049X)	0	391.8	0	0	391.8	6.225114855	0
Civet	2439	818.4058897	Leopard (Y=0.6993X)	33.55497703	391.8	188	2.084042553	391.8	6.225114855	47.98366514
Honey Badger	2439	165.422467	Leopard	6.782388974	391.8	38	10.31052632	391.8	6.22511485	9.698825932

		1	(Y=0.6993X)						5	
Leopard	2439	348.2578254	Leopard (Y=0.6993X)	14.27871363	391.8	80	4.8975	391.8	6.225114855	20.41858091
Lion	2439	204.9880521	Lion (Y=0.3049X)	8.404594181	391.8	108	3.627777778	391.8	6.225114855	27.56508423
Spotted hyaena	2439	203.0900145	Lion (Y=0.3049X)	8.326773864	391.8	107	3.661682243	391.8	6.225114855	27.30985197
Wild dog	2439	157.5371141	Lion (Y=0.3049X)	6.459086269	391.8	83	4.720481928	391.8	6.225114855	21.18427769
African Wildcat	2439	21.766114 09	Leopard (Y=0.6993X)	0.892419602	391.8	5	78.36	391.8	6.225114855	1.276161307

SANGO
wildlife conservancy

Lion Information and Survey:

1. Sango is a 600 square kilometer property located within the Save Valley Conservancy (SVC) which is located in the South Eastern Lowveld of Zimbabwe. Sango has a lion population of +/- 80 at any one time, this information comes from annual surveys conducted by Sango's ecologist and independent monitoring by the African Wildlife Conservation Fund, who monitor all large carnivores within the SVC.

2. All daily rates and trophy fees are used to run the property, this includes a staff of 130 people, 44 of which are Game scouts, maintenance of roads and water infrastructure, fire breaks, aerial and sweep surveys, conservation levies to the SVC, ecological monitoring etc.

3. Previously Sango had a small lion population and brought in 10 lion females in 2005, this brought the population to 18-20 animals. The population has grown and spread to the entire SVC and presently stands at +/- 200 for the SVC. This remarkable growth is more easily understood when plains game animal populations that Sango holds are looked at. Presently Sango has 6000+ Impala,1000+ buffalo, 550+ giraffe, 400+ eland, 600+elephant, 500+ wildebeest and Zebra. In 2013 Sango relocated 1300+ plains game animals to Gonarezhou National Park and in 2018, relocated 100 elephant to RIFA located in the Zambezi National Park system. COVID Restrictions pending, 2021 will see the relocation of 400 elephant, 2000 impala as well as two prides of lion and one pack of wild dog, plus various plains game species to Zimbabwe National Parks Estates. Sango is presently over stocked and it's vegetation is degrading, these overstocked animals are being used to benefit conservation in other areas of Zimbabwe. Sango also supports 4 schools along it's boundary as well as community boreholes.

4. **Relevant Game Populations in the Concession 2020**

Species	Relative Abundance			Estimated Population	3-Year Trend			How is it Monitored?
	Dense	Avg.	Sparse		Up	Down	Stable	
Elephant	Dense			681			Stable	Aerial count
Lion	Dense			81			Stable	Spoor count
Prey Species (if applicable)	Dense			7 150			Stable	Aerial count
Other: _____								

5. Further information can be obtained from Mr. D. Goosen the Sango General Manager on sangohq@sango-wlidlife.com

SANGO

wildlife conservancy

Sango is a 60 000 hectare property, situated within the Save Valley Conservancy in the South Eastern Lowveld of Zimbabwe.

The annual 2019 aerial survey, carried out in Sep/Oct each year, showed that there was a population of 738 elephant on Sango.

Aerial Survey numbers for elephant since 2009 are:

Year	Total Number of Animals Seen
2009	654
2010	462
2012	393
2013	648
2014	474
2015	497
2016	949
2017	684
2018	665
2019	738

This is a density of 0.8 elephant per square kilometre, the recommended density is 0,2-0,3 per square kilometres for the dry Savanna areas that Zimbabwe has.

The continued high density of elephant has and is having a negative effect on Sango's habitat.
Sango practices 'Sustainable Utilisation' and is proactive in the use of its excess animals to further conservation efforts.

To this end, Sango moved 100 live elephants to help restock the Zimbabwe National Parks area known as RIFA, situated in the Zambezi Valley in October of 2018.

The annual elephant hunting quota is three bulls, all funds generated from hunting goes to help running and maintaining the property.

This includes employment for 135 local people (44 of which are anti-poaching scouts) provision of water for wildlife, fire breaks, road and infrastructure maintenance.

Operator Enhancement Questionnaire

Operator Information

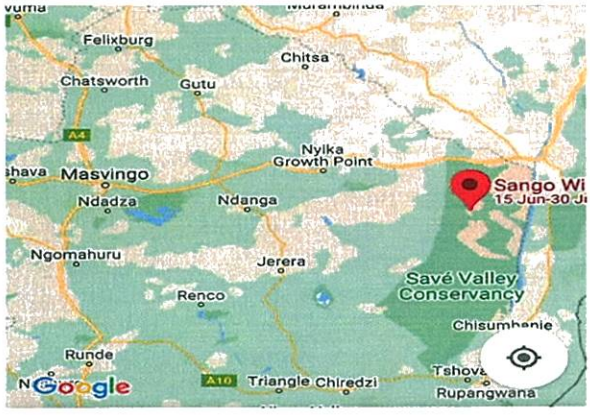
a. Name of Area Operator: **Sango, Save Valley Conservancy**
b. Years in business: **2019 to present**
c. Name of company conducting hunt: **Crane Safaris**
d. Country: **Zimbabwe**

Concession

a. Name of Concession: **Sango**
b. Area in Km^2: **600 km2**
c. Land tenure:

____ Government Lease ____Community ____Private Ranch __x__ Private Conservancy

d. Length of concession agreement: **Privately owned - Title deed with, German Bilateral Investment Agreement (BIPPA)**
e. Can it be renewed? **N/A**
f. Length of renewal, if applicable: **N/A**
g. Estimated trophy fees: **USD $ 264 150.00**
h. Are there any special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed):
Sango is privately owned. And is professionally run ecologically and has community support programs. The revenue earned is used to run the property. 135 local people from the surrounding communities are employed by Sango, of which 44 are scouts trained in Anti-poaching.
i. Provide concession location and nearest city: **Masvingo, Zimbabwe**
j. Please attach a map or maps with marked boundaries and nearest city.



k. If the concession border a National Park, provide park name: N/A

l. Describe general and distinctive habitat/water features:

Savanna woodland with three main rivers, Msaize, Mokore and Save River. Granite hills in the western area. Sango has 24 kms Save River frontage.

Communities in the Concession

a. Are there any communities living in the concession? ____Yes __x__No

b. If so, estimated number of people/villages in the concession: N/a

c. Are there communities bordering this concession? __x__ Yes ____ No

d. If so, estimated number of people/villages around the concession: **400,000**

Relevant Game Populations in the Concession

Species	Relative Abundance			Estimated Population	3-Year Trend			How is it Monitored?
	Dense	Avg.	Sparse		Up	Down	Stable	
Elephant	Dense			681			Stable	Aerial count
Lion	Dense			81			Stable	Spoor count
Prey Species (if applicable)	Dense			7 150			Stable	Aerial count
Other: _____								

If there are any population studies or reports being done in or around the concession area, please provide a copy with your application.

Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports.

SANGO
wildlife conservancy

2020 Aerial Survey

	Counted
Black rhino	17
White rhino	15
Buffalo	957
Crocodile	35
Eland	311
Elephant	681
Elephant (herds)	531
Elephant (bulls)	150
Giraffe	667
Impala	4872
Kudu	148
Sable	10
Warthog	130
Waterbuck	87
Wildebeest	309
Zebra	616

k. Please describe the operator's anti-poaching expenditures for the past 3 years below:

Type of Expense	Year 1 (2019) Spending	Year 2 (2018) Spending	Year 3 (2017) Spending	Remarks
Scout Salaries	$ 114 200	$ 114 000	$ 114 000	
Equipment	$ 17 700	$ 17 700	$ 17 000	
Vehicles	Landcruiser valued at $ 20 000	Landcruiser valued at $ 22 000	Landcruiser valued at $ 25 000	
Fuel	$ 9 700	$ 9 800	$ 9 500	
Rewards	$ 16 200	$ 16 000	$ 15 000	$20/poacher
Others:_____				
Totals	$ 177 800	$ 179 500	$ 180 500	

1. What currency are the expenditures given in? **US Dollars**

Anti-Poaching Results

Type	Year 1 (2019)	Year 2 (2018)	Year 3 (2017)	Remarks
Poaching Incidents Discovered	131	135	120	
Elephant Carcasses Observed	0	0	0	
Lion Carcasses Observed	0	0	0	
Leopard Carcasses Observed	0	0	0	
Ivory Poachers Observed	0	0	0	
Bush Meat Poachers Observed	131	135	120	
Illegal Logging Observed	0	0	0	
Other Poachers Observed	0	0	0	
Poachers Convicted	84	73	65	
Snares/Traps Collected	437	400	421	
Firearms Confiscated	0	0	0	
Vehicles Confiscated	0	0	0	
Bicycles Confiscated	0	0	0	
Boats/Nets Confiscated	0	0	0	
Tusks Recovered	0	0	0	

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
Licensed Zimbabwe Professional hunters

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology if available):
Trophy measurements and age data collected

c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years.

A Zimbabwe National Parks and Wildlife Management Authority Return Form of Lion, Leopard and Elephant must be submitted to Head Office in Harare, Stamped by the Regional Parks office after completion of each hunt. Signed by the Professional Hunter and accompanying National Parks Scout. Details displayed on the Form:

1. **Operator's Name and Registration Number with The Zimbabwe Tourist Authority.**
2. **Name and Physical address of Hunting Client.**
3. **Professional Hunter's name and License Number.**
4. **Type of Hunt**
5. **TRAS2 Number – Reserve Bank of Zimbabwe Tracking of Hunt Funds**
6. **Duration of Hunt**
7. **Area where Hunt is being conducted, description of species, Zimbabwe National Parks permit number for species, date shot, SEX, was it killed or wounded and remaining quota for the Property post hunt.**

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

I declare that the foregoing is true and correct:

Signature	**Date**
Natalie Edwards	Director
Print-Full Name	**Title**

Product	Spending, Year 1 (2019)	Spending, Year 2 (2018)	Spending, Year 3 (2017)	Remarks
Education (classrooms, offices)	0	0	0	
Education (supplies, fees)	0	0	0	
Health (clinics, offices)	0	0	0	
Health (equipment, salaries)	0	0	0	
Community Scout Salaries	0	0	0	
Community Anti-Poaching	0	0	0	
Local Government Activities	0	0	0	
Infrastructure Improvements	0	0	0	
Sports Teams Funded	0	0	0	
Construction Materials Donated	0	0	0	
Other: **Donations to Schools**	**$ 1 500**	**$ 1 500**	**$ 1 500**	
Other: **Maintenance of Boreholes**	**$ 6 500**	**$ 6 500**	**$ 6 500**	
TOTALS	**$ 8 000**	**$ 8 000**	**$ 8 000**	

i. What currency are the expenditures reported in? **US Dollars**

j. Include receipts and photographs of projects, if available. – **N/A**

Company Clientele

a. How many U.S. clients did the company have in the past 3 years, what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	Lion	All Species
Number of U.S. Clients	Year 1 (2019): 3	Year 1 (2019): 1	Year 1 (2019): 16
	Year 2 (2020): 1	Year 2 (2020): 1	Year 2 (2020): 1
	Year 3 (____):	Year 3 (____):	Year 3 (____):
Percentage of U.S. Clients	Year 1 (2019): 100%	Year 1 (2019): 100%	Year 1 (2019): 75%
	Year 2 (2020): 100%	Year 2 (2020): 100%	Year 2 (2020): 100%
	Year 3 (____):	Year 3 (____):	Year 3 (____):
Trophy Fees Paid by U.S. Clients	Year 1 (2019): $ 58 500	Year 1 (2019): $ 25 000	Year 1 (2019):$ 150 650
	Year 2 (2020): $ 20 000	Year 2 (2020): $ 30 000	Year 2 (2020): $ 28 200
	Year 3 (____):	Year 3 (____):	Year 3 (____):

b. Approximate amount/percentage of company's revenue from U.S. clientele: **85%**

Others: _____				

Community Investment

a. Does the company contribute money or goods/services to local communities?

___x_____Yes _____No

b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e., more than required by law)?

Sango supports 4 schools, 9 community boreholes and Chief's functions with approx. 1 200kgs meat per year.

c. Does the company provide game meat to nearby communities?

_____x___ Yes _____No

d. If so, estimate the amount/value of meat contributed in the last year and describe the distribution program: **school and traditional meetings $2 300**

e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling fields during harvest, PAC hunts, insurance programs); please describe.

N/A

f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (____)	Consolation Paid, Year 2 (____)	Consolation Paid, Year 3 (____)	Remarks
Elephant	N/A				
Lion	N/A				
Leopard	N/A				
Other: _____					

g. What currency are the expenditures reported in? **US dollars**

h. Describe any community projects paid for by the company:

Local Community Participation

a. Total employment number: **135 + 8 management**

b. Total employment in off-season: **135 + 8 management**

c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	3	All Zimbabwean	n/a
Trackers	10	All from the surrounding Villages	10
Anti-poaching Scouts/Rangers	44	All from the surrounding Villages	44
Other Anti-poaching		Sango hosts the Save Valley Special Species anti-poaching unit	
Cooks/Housekeepers	20	All from the surrounding Villages	20
Community Coordinators	N/A		N/A
Managers	8	All Zimbabwean	8
Biologists	1	English Ecologist	1
Others:	67		67

Anti-Poaching Efforts

a. Number of anti-poaching staff: **44**

b. Are patrols conducted during the hunting season, off season or both? **Both**

c. Months patrols are conducted: **All Year round**

d. Number of patrols per month: **20 two-man patrols per day x 365 days**

e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: **1/3**

f. Description of anti-poaching equipment, vehicles, gear, etc. **1 full time Manager with Vehicle, 20 Radios, 30 Shotguns, uniforms and sleeping equipment.**

g. Do government-sponsored game scouts conduct patrols? **No**

h. If so, do they have the ability to arrest? **Yes**

i. Do you offer rewards to poaching informants leading to arrest? __x__ Yes ____ No

j. Do you offer rewards to poaching informants upon conviction? __x__ Yes

Form 3-200-20

OMB Control No. 1018-0093
Expires 08/31/2020

RCVD MAR 9 2021

Department of Interior
U.S. Fish and Wildlife Service
Federal Fish and Wildlife Permit Application Form

U.S. Fish and Wildlife Service
Division of Management Authority
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, VA 22041-3803
1-800-358-2104 or 703-358-2104

Type of Activity

IMPORT OF SPORT-HUNTED TROPHIES under Appendix I of the Convention on International Trade in Endangered Species (CITES) and/or U.S. Endangered Species Act (ESA)

Complete Sections A or B, and C, D, and E of this application. U.S. address may be required in Section C, see instructions for details.
Instructions on how to make your application complete and help avoid unnecessary delays are attached.

Section A: Complete if applying as an individual

1.a. Last Name	1.b. First Name	1.c. Middle Name/Initial	1.d. Suffix
Facchina	Matthew	Gian	

2. Date of Birth (mm/dd/yyyy)	3. Telephone Number	3.a. Alternate Telephone Number	4. E-mail address
(b) (6)			

Section B: Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution

1.a. Name of business, agency, Tribe, or institution		1.b. Doing business as (DBA)	
2. Tax identification no.		3. Description of business, agency, Tribe, or institution	
4.a. Principal officer Last name	4.b. Principal officer First Name	4.c. Principal officer Middle name/initial	4.d. Suffix
5. Principal officer title	6. Primary contact name		
7.a. Business telephone number	7.b. Alternate telephone number	7.c. Business fax number	7.d. Business e-mail address

Section C: All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)
(b) (6)

1.b. City	1.c. State	1.d. Zip code/Postal code	1.e. County/Province	1.f. Country
Davidsonville	MD	21035	Anne Arundel	USA

2.a. Mailing address (include if different than physical address; include name of contact person if applicable)

2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f.Country

Section D: All applicants MUST complete

1. Attach the **nonrefundable application processing fee** in the form of a check or money order payable to the U.S. FISH AND WILDLIFE SERVICE **in the amount of $100**. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee–attach documentation of fee exempt status as outlined in instructions [50 CFR 13.11(d)].

2. Certification: I hereby certify that I have read and am familiar with the regulations contained in ***Title 50 Part 13 of the Code of Federal Regulations*** and the other ***applicable parts in subchapter B of Chapter I of Title 50***, and I certify that the information submitted in this application for a permit is complete and y knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

(b) (6)

03-02-2021

Officer for permit (No photocopied or stamped signatures) Date of signature (mm/dd/yyyy)

Please continue to next page

E. IMPORT OF SPORT-HUNTED TROPHIES *(Appendix I of CITES and/or ESA)*

Note 1: This form should be used to request authorization to import trophies of species listed on Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND SOUTHERN WHITE RHINOCEROS TROPHIES TAKEN IN NAMIBIA.

Note 2: If you hold an import permit for a trophy that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

Please provide the following information. Complete all questions on the application. Mark questions that are not applicable with "N/A". If needed, use a separate sheet of paper. On all attachments or separate sheets you are submitting; please indicate the application question number you are addressing. If applying for more than one trophy, be sure to answer questions 4-6 for each trophy addressed in this application. If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

(b) (6) [redacted]

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

Barbara Eber
(b) (6) [redacted]

3. Disqualification factor. A conviction, or entry of a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act disqualifies any such person from receiving or exercising the privileges of a permit, unless such disqualification has been expressly waived by the Service Director in response to a written petition. (50 CFR 13.21(c)) Have you or any of the owners of the business, if applying as a business, been convicted, or entered a plea of guilty or nolo contendere, forfeited collateral, or are currently under charges for any violations of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court; and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

N/A

4. For each trophy to be imported, provide:

   a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Panthera Leo, Lion

   b. Sex (if known). Male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

Zimbabwe, Save Valley Conservancy, Sango Ranch, Nearest town Masvingo

   b. Date wildlife is to be hunted:

04/24/2021 to 05/12/2021

   c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

Crane Safaris

6. **IF THE TROPHY HAS ALREADY BEEN TAKEN**, please enter the following information:

   a. Country and place (area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife was removed from the wild:

N/A

   b. Date wildlife was hunted:

N/A

c. Name of hunting outfitter, safari company, or professional hunter you hunted with:

N/A

d. The current location of the trophy (address and country) [the U.S. import permit will identify this country as the country of export/re-export and must match with the foreign export/re-export document]:

N/A

7. Please provide a copy of any applicable foreign government permits or licenses that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).
Have not hunted yet - Permits to be issued closer to hunt dates

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you must provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	
Business Name:	Crane Safaris
Address:	3 Normandy Close
City:	Alexander Park
State/Province:	Harare
Country, Postal Code:	Zimbabwe

9. For species listed under the U.S. Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service (Service) must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or hunted when making the required findings, if you have any information that could support this finding, it would be helpful for our review if you could provide it. Please submit such information on a separate page with your application.

a. Do you have any information regarding the population status or trend data on the species hunted?

See attached Wildlife Conservancy

b. In order to hunt, you likely paid for licenses or trophy fees. What were those fees and do you have any information on how those funds were used by either the landowner, local community, or government?

All daily rates and trophy fees are used to run the property, this includes a staff of 130 people, 44 of which are Game scouts, maintenance of roads, water infrastructure, fire breaks, aerial and sweep surveys, conservation levies to the Save Valley Conservancy, and ecological monitoring.

c. Do you have information on other funding activities that are being carried out, or were carried out, by the safari outfitter, professional hunter, concession holder, or landowner that provide a conservation benefit to the species being hunted/species hunted?

See attached African Wildlife Conservation Fund

OMB Control No. 1018-0093
Expires 08/31/2020

CERTIFICATION STATEMENT (original signature must be provided for either 10 or 11 below)

10. If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national, provide documentation to show you have a Power of Attorney to act on your client's behalf and sign the following statement:

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying for the import of an elephant trophy, I understand that my client may import no more than two elephant trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

11. If you are the hunter applying to import your own trophy, please read and sign the following statement:

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit). If applying to import an elephant trophy, I understand that I may import no more t[redacted]phies in one calendar year.

    Applicant's signatu[redacted] (b) (6) _____ Date: 3-2-21

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign governments to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

12. All international shipments must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

Crane Safaris

Crane Safaris (Private) Limited
P. O. Box MP 852
Mount Pleasant
Harare
info@cranesafaris.co.zw
Landline: 0242 745460

2nd of March 2021

TO WHOM IT MAY CONCERN

This letter serves to confirm that **Mr. Matthew Gian Facchina** of United States of America, address (b) (6) (b) (6) avidsonville, MD 21035, USA with Passport numbe (b) (6) as booked a hunting safari with Crane Safaris Pvt Ltd based in the Save Valley Conservancy, Zimbabwe.

Mr. Facchina will be travelling to Zimbabwe between the following dates.

Arrival Date: 24 April 202
Departure Date: 13 May 2021

Bringing with him the following firearms:

Make	Calibre	Serial No.	# Rounds
Holland and Holland	.500	(b) (6)	40
Winchester	.375		40

This letter serves as a formal invitation for the above hunter to hunt with us on our concessions.

Yours Faithfully,

Edwards

Natalie Edwards
Reservations and Administration

CRANE SAFARIS (PVT) LTD
P.O. BOX MP 852
MOUNT PLEASANT, HARARE
TEL: 0242- 745 460

CARNIVORE DENSITIES IN THE SAVÉ VALLEY CONSERVANCY

Results of the 2019 Spoor Survey & Wild Dog Monitoring Project

Jessica Watermeyer and Dr Rosemary Groom

(Spoor survey carried out by Jess Watermeyer, Rueben Boté and Talent Chinguwa)

Introduction

The African Wildlife Conservation Fund carries out an annual large carnivore spoor survey in order to assess population trends of carnivores within the Savé Valley Conservancy (SVC / the conservancy) to aid management decisions. A standardised methodology is used to ensure consistency through time and comparability with other studies. Since 2008, the spoor surveys have been done using the same roads and the same observer.

Spoor surveys have been shown to be an effective and efficient means to assess wildlife densities (Stander 1998; Funston et al. 2001; Davidson & Romañach 2007; Funston et al 2010) with strong correlations existing between spoor density and true density. The technique is considered to produce reliable estimates for lions, spotted hyenas, and leopards, when sample sizes (spoor encounter rates) are sufficient. Other carnivores are included in our counts simply to monitor trends over time.

This report presents the results of the October 2019 carnivore spoor survey for the SVC, together with results from the long-term wild dog monitoring project, and looks at trends in the main carnivore species over time.

Methodology

The 2019 carnivore spoor survey used the methods pioneered in SVC by Davidson and Romañach (2007), based on those used by Stander (1998) in Namibia. Exactly the same methodology has been used annually since 2008. Road transects were chosen throughout the SVC to represent a fair coverage of all (non-resettled) areas, and these transects were scanned for spoor. The number of kilometres of transects surveyed was chosen to maintain consistency with previous spoor surveys. Thus, for every 6-7km^2 of sample area, 1km of transect was surveyed, creating a penetration density (expressed as a ratio of kilometres of transect surveyed to total sample area) of between 1:6 and 1:7.

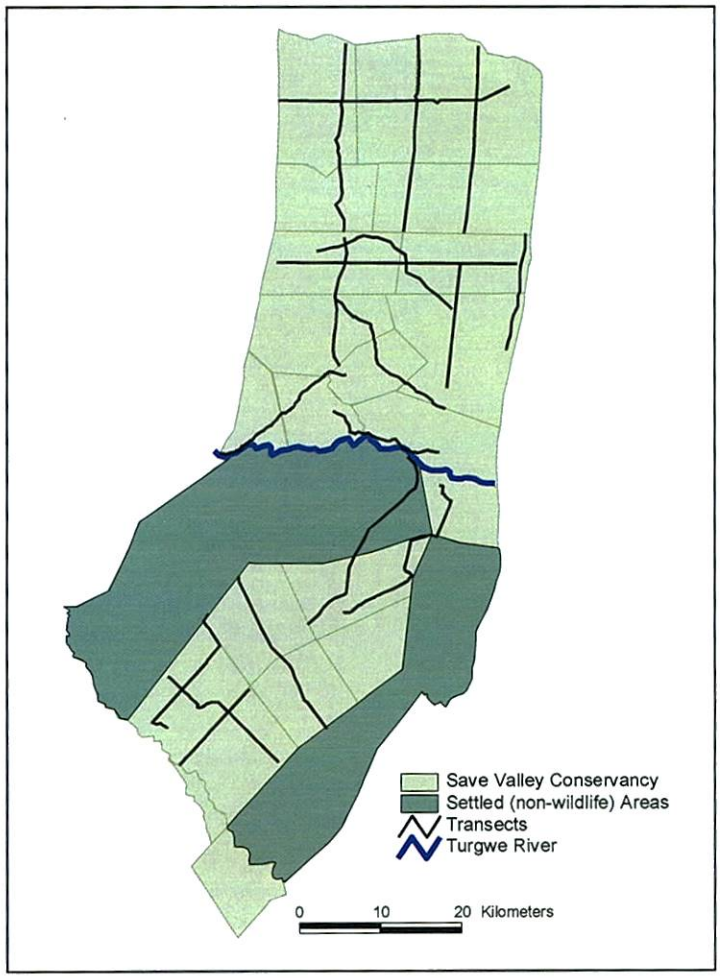
The total area of the Savé Valley Conservancy is 3,490km^2. However, the effective wildlife area (excluding the 1051km^2 of resettled land), comes to only 2,439km^2; 1,639km^2 north of the Turgwe river and 800km^2 south of the Turgwe (see Table 1).

In northern SVC, the total length of all transects combined was 262.4 km, giving a penetration ratio of 6.25. In southern SVC, the combined transect length was 129.4 km, giving a penetration ratio of 6.19. For the conservancy as a whole, 391.8 km were driven (penetration ratio 6.23).

Transects surveyed were the same as those used in 2007-2018 (Figure 1). Each transect was driven at a speed of between 10 and 20 km/hr with one tracker, AWCF head scout Rueben Boté, sitting on the front of the vehicle scanning for spoor. Transects ranged between 12.7 km and 29.7 km in length, with a mean transect length of 21.8 km.

Each transect survey started as close to sunrise as possible, and wherever feasible was driven from west to east to ensure the best possible tracking conditions. Only tracks less than 24 hours old were counted. Road conditions are generally sandy, such that spoor is relatively easy to see. Where possible, spoor of individual animals were followed to reduce the likelihood of that individual being counted twice on a given transect. Spoor was recorded for all mammalian carnivores bigger than a genet.

Figure 1. Map of the transects driven – October 2019



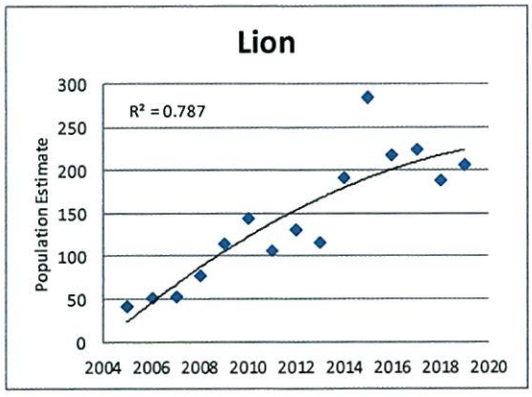
Results

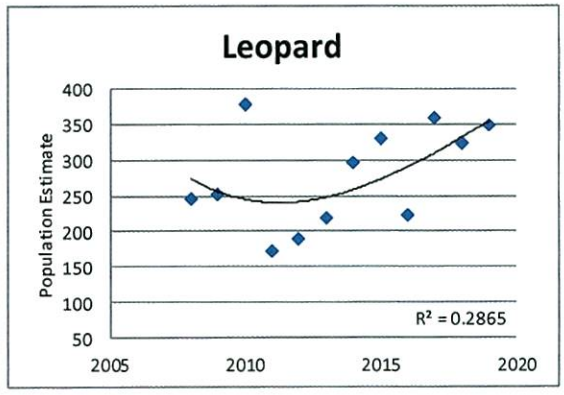
Table 1: Summary of survey parameters (2019)

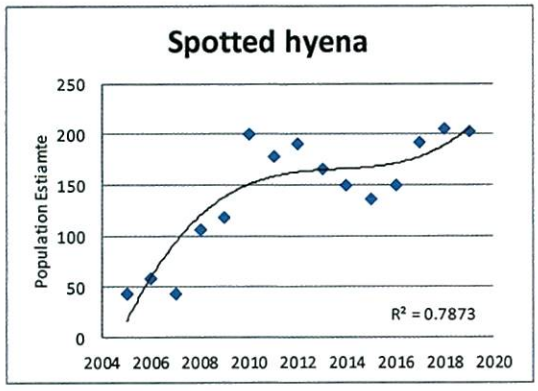
Parameter	Northern SVC	Southern SVC	Total SVC
Area (km^2)	1639	800	2439
Total number of km driven	262.4	129.4	391.8
Penetration ratio	6.25	6.19	6.23

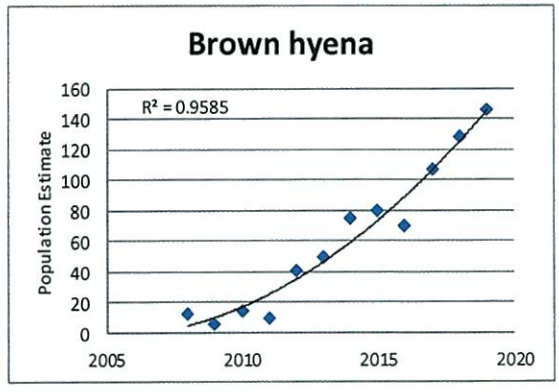
Table 2: Population estimates of the key carnivore species in the **whole of Savé Valley Conservancy** from 2008-2019 (from 2005-2019 for lion and spotted hyena).
Data for lion, leopard, spotted and brown hyenas and black backed jackal are from spoor surveys; **data for wild dogs is from the Lowveld Wild Dog Project's direct monitoring efforts** (counts are taken from April of each year and include adult and yearling wild dogs only).

Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Lion	40	50	52	76	114	143	105	130	115	190	284	217	223	187	205
Leopard				245	252	378	172	189	218	295	328	221	359	323	348
Spotted hyena	44	58	44	107	118	201	178	192	166	150	137	150	193	206	203
Brown hyena				12	6	14	10	41	50	75	80	70	107	128	146
African Wild dog				45	60	64	61	86	90	81	91	99	94	96	86
Black backed jackal				188	190	157	141	151	199	229	241	234	296	153	187









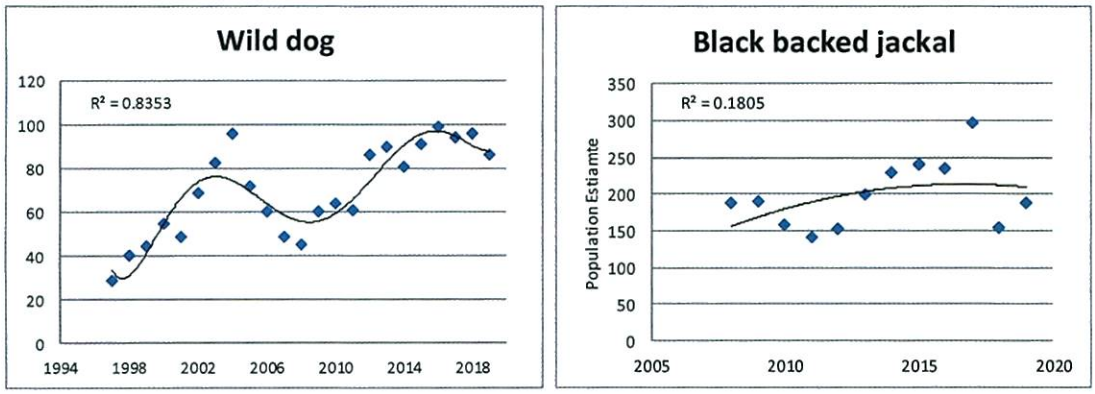


Figure 2: Trends in the populations of key carnivores in SVC for all years for which data is available. Data for lion, leopard and spotted and brown hyenas and black backed jackal are from spoor surveys; data for wild dogs is from the Lowveld Wild Dog Project's direct monitoring efforts (counts are taken from April of each year and include adult and yearling wild dogs). *A breakdown of all survey results for all species between the north and south of the conservancy is given in Appendix 1.*

Discussion

Lion population

Excluding the anomalous over count in 2015, the population appears to have stabilised over the last six years at c. 200 lions, with a few natural fluctuations. The 2019 survey estimates **205 lions** in the conservancy at a **density of 8.4 lions / 100km²**. This is in line with densities recorded elsewhere (9.6 lions / 100km² - average over Kruger, Hwange, Selous and Serengeti), although in areas notably larger than SVC. Finally, of the 104 lion tracks identified by sex, 31% were adult males and 64% identified as adult females. Otherwise, tracks for cubs (2) and yearling lions (2) were encountered once each.

Leopard population

In 2019 there were an estimated **348 leopard** in the conservancy. Considering the long-term trend data for the species, it is clear that the conservancy's leopard population (similarly to the lion population) has stabilised over the last six years (bar the undercount in 2016) at between 300-350 estimated individuals.

Leopards are at a **density of 14.3 leopards / 100km²** in the conservancy. This is considerably higher than densities recorded in other places, for example in Phinda and Mkhuze in South Africa (average 9.7 / 100km²; Balme et al. 2009) and in neighbouring Gonarezhou National Park (9.5 / 100km²; Watermeyer & Groom, 2019). Finally, of the 77 tracks identified as male or female, 42% were male and 58% were female.

Spotted hyena population

As reported in 2018, spotted hyenas appear to have stabilised over the last few years at between 150-200 individuals. Indeed, there were an estimated **203 spotted hyenas** in 2019. Spotted hyenas are at a density of **8.3 spotted hyenas / 100km²**. This is lower than other populations; 13.5 / 100km² in Kruger (Mills 1985), 17.0 / 100km² in Hwange (Bowler 1992), and 10.4 / 100km² in Gonarezhou National Park (Watermeyer & Groom, 2019). Given the relatively lower density of the species in the conservancy, there is suggested scope for the population to increase (especially if the lion numbers have stabilised).

Brown hyena population

There were an estimated **146 brown hyenas** in the conservancy in 2019. Overall, the brown hyena population is displaying a stable trend, with incremental, positive increases over the past six years. The estimated density of brown hyenas was **5.9 brown hyenas / 100km²** in 2019, which is comparable to that recorded in neighbouring Gonarezhou National Park at **4.8 brown hyenas / 100km²** (Watermeyer & Groom, 2019).

African wild dog population

As reported consistently for the past few years, the African wild dog population appears to have stabilised at between 90-100 individuals, with slight natural fluctuations. **From our comprehensive and direct monitoring of the species, there are 86 adult wild dogs in the conservancy (3.5 wild dogs / 100km²).** Average wild dog densities across their range are generally lower (average 2.5 wild dogs / 100km² across five populations; Pole 1999). The spoor survey results estimated 158 wild dogs in the conservancy, with a density of 6.6 wild dogs / 100km². This is clearly an overestimate of the wild dog population, and serves to demonstrate that spoor surveys, with current calibration methods, are not a reliable indicator of wild dog numbers.

Importantly, snaring has been a significant threat to resident wild dogs in 2019, and we have seen fewer packs denning and smaller litter sizes born on average than previous years. The latter may affect recruitment and the stability of some packs into 2020.

Black backed jackal population

There were an estimated **187 black backed jackals** in 2019, with a density of **7.7 jackals / 100km²**. We were cautious of the drop in numbers estimated in 2018, and whilst a count of 187 jackals is more in keeping with the trend, this species does need to be watched.

Cheetah population

The spoor encounter rate for cheetah in the conservancy is very low, and thus it is impossible to accurately estimate the number of resident cheetah, even with large confidence intervals. **We did not pick up a signal track for cheetah in the 2019 spoor survey**. However, spoor surveys are not an appropriate technique for monitoring cheetah, and cheetah naturally occur at low densities and are a wide-ranging species (Mills 1997; Durant 1998; Wilson & Delahay 2001).

At best, we can reliably say that cheetah are resident and breeding in the conservancy, but only present at low densities as is characteristic of the species.

Word of caution

When interpreting the results in the graphs and tables at the end, please do so with caution, especially to quote specific numbers. For lions and hyenas we are confident that these spoor surveys are relatively accurate in the numbers they predict, although occasional anomalous over and undercounts need to be treated carefully. Likewise, we can trust the numbers for wild dogs, as they are from AWCF's detailed population monitoring study. For leopards however, several different equations (all considered suitable for estimating leopard numbers from spoor) can give different population estimates from each other. The spoor survey technique has not been calibrated for species like jackals, civets, even brown hyenas, so while the data is useful for looking at trends, using population figures directly from the graphs for these species is unadvisable.

Bibliography

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

Bowler, M. 1992. *Implications of large predator management on commercial ranchland in Zimbabwe*. M. Sc. Thesis. University of Zimbabwe.

Davidson, Z. & Romanach, S. (2007) Estimations of lion and hyena density in the Savé Valley Conservancy using two different census techniques: spoor transects and call-up stations. *Report for SVC, WildCRU and University of Zimbabwe, TREP.*

Funston, P.J., Frank, L., Stephens, T., Davidson, Z., Loveridge, A.J., Macdonald, D., Durant, S., Packer, C., Mosser, A., & Ferreira, S.M. (2010) Substrate and species constraints on the use of track incidences to estimate African large carnivore abundance. *Journal of Zoology*, 281, 56-65.

Funston, P.J., Herrmann, E., Babupi, P., Kruiper, A., Jaggers, H., Masule, K. & Kruiper, K. (2001) Spoor frequency estimates as a method of determining lion and other large mammal densities in the Kgalagadi Transfrontier Park. (*Book chapter*).

Groom, R. & Watermeyer, J. 2017. Carnivore Densities in Gonarezhou National Park: Results of the 2017 Spoor Survey. Report for the Zimbabwe Parks and Wildlife Management Authority.

Hayward, M.W., O'Brien, J., & Kerley, G.I.H. (2007) Carrying capacity of large African predators: Predictions and tests. *Biological Conservation*, 139, 219-229.

Mills, M.G.L. 1985. Hyaena survey of Kruger National Park: August – October 1984. *IUCN Hyaena Specialist Group Newsletter* 2: 15-25.

Mills, M.G.L. (1997) Census Techniques for large carnivores. Proceedings of a Symposium on lions and leopards as game ranch animals, Onderstepoort, October 1997

Durant, S.M. (1998) Competition refuges and coexistence: an example from Serengeti carnivores. *Journal of Animal Ecology*, **67**, 370-386.

Pole, A.J. 1999. The behaviour and ecology of African wild dogs Lycaon pictus in an environment with reduced competitor density. PhD Thesis, University of Aberdeen, Aberdeen, Scotland.

Stander, P.E. 1998. Spoor counts as indices of large carnivore populations: the relationship between spoor frequency, sampling effort and true density. *Journal of Applied Ecology*, 35, 378-385.

Van der Meer, E. 2016. The cheetahs of Zimbabwe, distribution and population status 2015. Cheetah Conservation Project Zimbabwe, Victoria Falls, Zimbabwe.

Wilson, G.J. & Delahay, R.J. (2001) A review of methods to estimate the abundance of terrestrial carnivores using field signs and observation Journal of Wildlife Research, **28**, 151–164

Acknowledgements

Permission to conduct this research was given by the Research Council of Zimbabwe, and the Savé Valley Conservancy, with the support of the Zimbabwe Parks and Wildlife Management Authority. Thank you to Chishakwe Ranch for hosting the project team. Thanks also to all of the landowners and managers in the

conservancy for allowing us to conduct this spoor survey on their properties. Rueben Boté deserves special mention for his excellent track identification.

Appendix 1: All Spoor Survey Results for All Species Counted (2019)

NORTH SVC	Survey Area	Est. population	Equation Used	Est. density	Distance covered	No. of spoor	Spoor frequency	Transect length	Penetration	Spoor density
	North SVC	(Total area)	Stander1998	(Animals/100km 2)	(km)	counted	(km/spoor)	(km)	(Area/lengt h)	(Spoor/100k m)
Species	(Km2)			Y=0.3049X	Sum of transects			Sum of routes		
				Y=0.6993X						
Black-backed jackal	1639	117.9349196	Leopard (Y=0.6993X)	7.195541159	262.4	27	9.718518519	262.4	6.246189024	10.28963415
Brown hyaena	1639	102.8410038	Lion (Y=0.3049X)	6.274618902	262.4	54	4.859259259	262.4	6.246189024	20.57926829
Cheetah	1639	0	Lion (Y=0.3049X)	0	262.4	0	0	262.4	6.246189024	0
Civet	1639	572.202758	Leopard (Y=0.6993X)	34.9116997	262.4	131	2.003053435	262.4	6.246189024	49.92378049
Honey Badger	1639	126.6708396	Leopard (Y=0.6993X)	7.728544207	262.4	29	9.048275862	262.4	6.246189024	11.05182927
Leopard	1639	275.181479	Leopard (Y=0.6993X)	16.78959604	262.4	63	4.165079365	262.4	6.246189024	24.00914634
Lion	1639	127.5990232	Lion (Y=0.3049X)	7.785175305	262.4	67	3.91641791	262.4	6.246189024	25.53353659
Spotted hyaena	1639	125.6945602	Lion (Y=0.3049X)	7.668978659	262.4	66	3.975757576	262.4	6.246189024	25.15243902
Wild dog	1639	129.5034863	Lion (Y=0.3049X)	7.901371951	262.4	68	3.858823529	262.4	6.246189024	25.91463415
African Wildcat	1639	21.83979992	Leopard (Y=0.6993X)	1.332507622	262.4	5	52.48	262.4	6.246189024	1.905487805
SOUTH SVC	Survey Area	Est. population	Equation Used	Est. density	Distance covered	No. of spoor	Spoor frequency	Transect length	Penetration	Spoor density
	South SVC	(Total area)	Stander1998	(Animals/100km 2)	(km)	counted	(km/spoor)	(km)	(Area/lengt h)	(Spoor/100k m)
Species	(Km2)			Y=0.3049X	Sum of transects			Sum of routes		
				Y=0.6993X						

Black-backed jackal	800.57	69.22270182	Leopard (Y=0.6993X)	8.646676971	129.4	16	8.0875	129.4	6.186785162	12.36476043
Brown hyaena	800.57	43.38606831	Lion (Y=0.3049X)	5.419397218	129.4	23	5.626086957	129.4	6.186785162	17.77434312
Cheetah	800.57	0	Lion (Y=0.3049X)	0	129.4	0	0	129.4	6.186785162	0
Civet	800.57	246.6058752	Leopard (Y=0.6993X)	30.80378671	129.4	57	2.270175439	129.4	6.186785162	44.04945904
Honey Badger	800.57	38.93776978	Leopard (Y=0.6993X)	4.863755796	129.4	9	14.37777778	129.4	6.186785162	6.955177743
Leopard	800.57	73.54912069	Leopard (Y=0.6993X)	9.187094281	129.4	17	7.611764706	129.4	6.186785162	13.13755796
Lion	800.57	77.34038264	Lion (Y=0.3049X)	9.660664606	129.4	41	3.156097561	129.4	6.186785162	31.68469861
Spotted hyaena	800.57	77.34038264	Lion (Y=0.3049X)	9.660664606	129.4	41	3.156097561	129.4	6.186785162	31.68469861
Wild dog	800.57	28.29526194	Lion (Y=0.3049X)	3.53438949	129.4	15	8.626666667	129.4	6.186785162	11.59196291
African Wildcat	800.57	0	Leopard (Y=0.6993X)	0	129.4	0	0	129.4	6.186785162	0
TOTAL SVC	Survey Area	Est. population	Equation Used	Est. density	Distance covered	No. of spoor	Spoor frequency	Transect length	Penetration	Spoor density
	Total SVC	(Total area)	Stander1998	(Animals/100km2)	(km)	counted	(km/spoor)	(km)	(Area/length)	(Spoor/100km)
Species	(Km2)			Y=0.3049X	Sum of transects			Sum of routes		
				Y=0.6993X						
Black-backed jackal	2439	187.1885812	Leopard (Y=0.6993X)	7.674808576	391.8	43	9.111627907	391.8	6.225114855	10.97498724
Brown hyaena	2439	146.148889	Lion (Y=0.3049X)	5.99216437	391.8	77	5.088311688	391.8	6.225114855	19.65288412
Cheetah	2439	0	Lion (Y=0.3049X)	0	391.8	0	0	391.8	6.225114855	0
Civet	2439	818.4058897	Leopard (Y=0.6993X)	33.55497703	391.8	188	2.084042553	391.8	6.225114855	47.98366514
Honey Badger	2439	165.422467	Leopard	6.782388974	391.8	38	10.31052632	391.8	6.22511485	9.698825932

		1	(Y=0.6993X)						5	
Leopard	2439	348.2578254	Leopard (Y=0.6993X)	14.27871363	391.8	80	4.8975	391.8	6.225114855	20.41858091
Lion	2439	204.9880521	Lion (Y=0.3049X)	8.404594181	391.8	108	3.627777778	391.8	6.225114855	27.56508423
Spotted hyaena	2439	203.0900145	Lion (Y=0.3049X)	8.326773864	391.8	107	3.661682243	391.8	6.225114855	27.30985197
Wild dog	2439	157.5371141	Lion (Y=0.3049X)	6.459086269	391.8	83	4.720481928	391.8	6.225114855	21.18427769
African Wildcat	2439	21.766114 09	Leopard (Y=0.6993X)	0.892419602	391.8	5	78.36	391.8	6.225114855	1.276161307

SANGO
wildlife conservancy

Lion Information and Survey:

1. Sango is a 600 square kilometer property located within the Save Valley Conservancy (SVC) which is located in the South Eastern Lowveld of Zimbabwe. Sango has a lion population of +/- 80 at any one time, this information comes from annual surveys conducted by Sango's ecologist and independent monitoring by the African Wildlife Conservation Fund, who monitor all large carnivores within the SVC.

2. All daily rates and trophy fees are used to run the property, this includes a staff of 130 people, 44 of which are Game scouts, maintenance of roads and water infrastructure, fire breaks, aerial and sweep surveys, conservation levies to the SVC, ecological monitoring etc.

3. Previously Sango had a small lion population and brought in 10 lion females in 2005, this brought the population to 18-20 animals. The population has grown and spread to the entire SVC and presently stands at +/- 200 for the SVC. This remarkable growth is more easily understood when plains game animal populations that Sango holds are looked at. Presently Sango has 6000+ Impala,1000+ buffalo, 550+ giraffe, 400+ eland, 600+elephant, 500+ wildebeest and Zebra. In 2013 Sango relocated 1300+ plains game animals to Gonarezhou National Park and in 2018, relocated 100 elephant to RIFA located in the Zambezi National Park system. COVID Restrictions pending, 2021 will see the relocation of 400 elephant, 2000 impala as well as two prides of lion and one pack of wild dog, plus various plains game species to Zimbabwe National Parks Estates. Sango is presently over stocked and it's vegetation is degrading, these overstocked animals are being used to benefit conservation in other areas of Zimbabwe. Sango also supports 4 schools along it's boundary as well as community boreholes.

4. **Relevant Game Populations in the Concession 2020**

Species	Relative Abundance			Estimated Population	3-Year Trend			How is it Monitored?
	Dense	Avg.	Sparse		Up	Down	Stable	
Elephant	Dense			681			Stable	Aerial count
Lion	Dense			81			Stable	Spoor count
Prey Species (if applicable)	Dense			7 150			Stable	Aerial count
Other: _____								

5. Further information can be obtained from Mr. D. Goosen the Sango General Manager on sangohq@sango-wlidlife.com

SANGO

wildlife conservancy

Sango is a 60 000 hectare property, situated within the Save Valley Conservancy in the South Eastern Lowveld of Zimbabwe.

The annual 2019 aerial survey, carried out in Sep/Oct each year, showed that there was a population of 738 elephant on Sango.

Aerial Survey numbers for elephant since 2009 are:

Year	Total Number of Animals Seen
2009	654
2010	462
2012	393
2013	648
2014	474
2015	497
2016	949
2017	684
2018	665
2019	738

This is a density of 0.8 elephant per square kilometre, the recommended density is 0,2-0,3 per square kilometres for the dry Savanna areas that Zimbabwe has.

The continued high density of elephant has and is having a negative effect on Sango's habitat.
Sango practices 'Sustainable Utilisation' and is proactive in the use of its excess animals to further conservation efforts.

To this end, Sango moved 100 live elephants to help restock the Zimbabwe National Parks area known as RIFA, situated in the Zambezi Valley in October of 2018.

The annual elephant hunting quota is three bulls, all funds generated from hunting goes to help running and maintaining the property.

This includes employment for 135 local people (44 of which are anti-poaching scouts) provision of water for wildlife, fire breaks, road and infrastructure maintenance.

Operator Enhancement Questionnaire

Operator Information

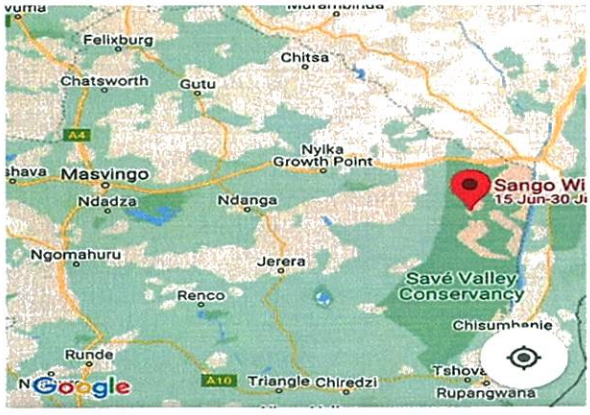
a. Name of Area Operator: **Sango, Save Valley Conservancy**
b. Years in business: **2019 to present**
c. Name of company conducting hunt: **Crane Safaris**
d. Country: **Zimbabwe**

Concession

a. Name of Concession: **Sango**
b. Area in Km^2: **600 km2**
c. Land tenure:

____ Government Lease ____Community ____Private Ranch __x__ Private Conservancy

d. Length of concession agreement: **Privately owned - Title deed with, German Bilateral Investment Agreement (BIPPA)**
e. Can it be renewed? **N/A**
f. Length of renewal, if applicable: **N/A**
g. Estimated trophy fees: **USD $ 264 150.00**
h. Are there any special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed):
Sango is privately owned. And is professionally run ecologically and has community support programs. The revenue earned is used to run the property. 135 local people from the surrounding communities are employed by Sango, of which 44 are scouts trained in Anti-poaching.
i. Provide concession location and nearest city: **Masvingo, Zimbabwe**
j. Please attach a map or maps with marked boundaries and nearest city.



k. If the concession border a National Park, provide park name: N/A

l. Describe general and distinctive habitat/water features:

Savanna woodland with three main rivers, Msaize, Mokore and Save River. Granite hills in the western area. Sango has 24 kms Save River frontage.

Communities in the Concession

a. Are there any communities living in the concession? ____Yes __x__No

b. If so, estimated number of people/villages in the concession: N/a

c. Are there communities bordering this concession? __x__ Yes ____ No

d. If so, estimated number of people/villages around the concession: **400,000**

Relevant Game Populations in the Concession

Species	Relative Abundance			Estimated Population	3-Year Trend			How is it Monitored?
	Dense	Avg.	Sparse		Up	Down	Stable	
Elephant	Dense			681			Stable	Aerial count
Lion	Dense			81			Stable	Spoor count
Prey Species (if applicable)	Dense			7 150			Stable	Aerial count
Other: _____								

If there are any population studies or reports being done in or around the concession area, please provide a copy with your application.

Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports.

SANGO
wildlife conservancy

2020 Aerial Survey

	Counted
Black rhino	17
White rhino	15
Buffalo	957
Crocodile	35
Eland	311
Elephant	681
Elephant (herds)	531
Elephant (bulls)	150
Giraffe	667
Impala	4872
Kudu	148
Sable	10
Warthog	130
Waterbuck	87
Wildebeest	309
Zebra	616

k. Please describe the operator's anti-poaching expenditures for the past 3 years below:

Type of Expense	Year 1 (2019) Spending	Year 2 (2018) Spending	Year 3 (2017) Spending	Remarks
Scout Salaries	$ 114 200	$ 114 000	$ 114 000	
Equipment	$ 17 700	$ 17 700	$ 17 000	
Vehicles	Landcruiser valued at $ 20 000	Landcruiser valued at $ 22 000	Landcruiser valued at $ 25 000	
Fuel	$ 9 700	$ 9 800	$ 9 500	
Rewards	$ 16 200	$ 16 000	$ 15 000	$20/poacher
Others:_____				
Totals	$ 177 800	$ 179 500	$ 180 500	

1. What currency are the expenditures given in? **US Dollars**

Anti-Poaching Results

Type	Year 1 (2019)	Year 2 (2018)	Year 3 (2017)	Remarks
Poaching Incidents Discovered	131	135	120	
Elephant Carcasses Observed	0	0	0	
Lion Carcasses Observed	0	0	0	
Leopard Carcasses Observed	0	0	0	
Ivory Poachers Observed	0	0	0	
Bush Meat Poachers Observed	131	135	120	
Illegal Logging Observed	0	0	0	
Other Poachers Observed	0	0	0	
Poachers Convicted	84	73	65	
Snares/Traps Collected	437	400	421	
Firearms Confiscated	0	0	0	
Vehicles Confiscated	0	0	0	
Bicycles Confiscated	0	0	0	
Boats/Nets Confiscated	0	0	0	
Tusks Recovered	0	0	0	

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
Licensed Zimbabwe Professional hunters

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology if available):
Trophy measurements and age data collected

c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years.

A Zimbabwe National Parks and Wildlife Management Authority Return Form of Lion, Leopard and Elephant must be submitted to Head Office in Harare, Stamped by the Regional Parks office after completion of each hunt. Signed by the Professional Hunter and accompanying National Parks Scout. Details displayed on the Form:

1. **Operator's Name and Registration Number with The Zimbabwe Tourist Authority.**
2. **Name and Physical address of Hunting Client.**
3. **Professional Hunter's name and License Number.**
4. **Type of Hunt**
5. **TRAS2 Number – Reserve Bank of Zimbabwe Tracking of Hunt Funds**
6. **Duration of Hunt**
7. **Area where Hunt is being conducted, description of species, Zimbabwe National Parks permit number for species, date shot, SEX, was it killed or wounded and remaining quota for the Property post hunt.**

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

I declare that the foregoing is true and correct:

Signature	**Date**
Natalie Edwards	Director
Print-Full Name	**Title**

Product	Spending, Year 1 (2019)	Spending, Year 2 (2018)	Spending, Year 3 (2017)	Remarks
Education (classrooms, offices)	0	0	0	
Education (supplies, fees)	0	0	0	
Health (clinics, offices)	0	0	0	
Health (equipment, salaries)	0	0	0	
Community Scout Salaries	0	0	0	
Community Anti-Poaching	0	0	0	
Local Government Activities	0	0	0	
Infrastructure Improvements	0	0	0	
Sports Teams Funded	0	0	0	
Construction Materials Donated	0	0	0	
Other: **Donations to Schools**	**$ 1 500**	**$ 1 500**	**$ 1 500**	
Other: **Maintenance of Boreholes**	**$ 6 500**	**$ 6 500**	**$ 6 500**	
TOTALS	**$ 8 000**	**$ 8 000**	**$ 8 000**	

i. What currency are the expenditures reported in? **US Dollars**

j. Include receipts and photographs of projects, if available. – **N/A**

Company Clientele

a. How many U.S. clients did the company have in the past 3 years, what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	Lion	All Species
Number of U.S. Clients	Year 1 (2019): 3	Year 1 (2019): 1	Year 1 (2019): 16
	Year 2 (2020): 1	Year 2 (2020): 1	Year 2 (2020): 1
	Year 3 (____):	Year 3 (____):	Year 3 (____):
Percentage of U.S. Clients	Year 1 (2019): 100%	Year 1 (2019): 100%	Year 1 (2019): 75%
	Year 2 (2020): 100%	Year 2 (2020): 100%	Year 2 (2020): 100%
	Year 3 (____):	Year 3 (____):	Year 3 (____):
Trophy Fees Paid by U.S. Clients	Year 1 (2019): $ 58 500	Year 1 (2019): $ 25 000	Year 1 (2019):$ 150 650
	Year 2 (2020): $ 20 000	Year 2 (2020): $ 30 000	Year 2 (2020): $ 28 200
	Year 3 (____):	Year 3 (____):	Year 3 (____):

b. Approximate amount/percentage of company's revenue from U.S. clientele: **85%**

Others: _____				

Community Investment

a. Does the company contribute money or goods/services to local communities?

___x_____Yes _____No

b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e., more than required by law)?

Sango supports 4 schools, 9 community boreholes and Chief's functions with approx. 1 200kgs meat per year.

c. Does the company provide game meat to nearby communities?

_____x___ Yes _____No

d. If so, estimate the amount/value of meat contributed in the last year and describe the distribution program: **school and traditional meetings $2 300**

e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling fields during harvest, PAC hunts, insurance programs); please describe.

N/A

f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (____)	Consolation Paid, Year 2 (____)	Consolation Paid, Year 3 (____)	Remarks
Elephant	N/A				
Lion	N/A				
Leopard	N/A				
Other: _____					

g. What currency are the expenditures reported in? **US dollars**

h. Describe any community projects paid for by the company:

Local Community Participation

a. Total employment number: **135 + 8 management**

b. Total employment in off-season: **135 + 8 management**

c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	3	All Zimbabwean	n/a
Trackers	10	All from the surrounding Villages	10
Anti-poaching Scouts/Rangers	44	All from the surrounding Villages	44
Other Anti-poaching		Sango hosts the Save Valley Special Species anti-poaching unit	
Cooks/Housekeepers	20	All from the surrounding Villages	20
Community Coordinators	N/A		N/A
Managers	8	All Zimbabwean	8
Biologists	1	English Ecologist	1
Others:	67		67

Anti-Poaching Efforts

a. Number of anti-poaching staff: **44**

b. Are patrols conducted during the hunting season, off season or both? **Both**

c. Months patrols are conducted: **All Year round**

d. Number of patrols per month: **20 two-man patrols per day x 365 days**

e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: **1/3**

f. Description of anti-poaching equipment, vehicles, gear, etc. **1 full time Manager with Vehicle, 20 Radios, 30 Shotguns, uniforms and sleeping equipment.**

g. Do government-sponsored game scouts conduct patrols? **No**

h. If so, do they have the ability to arrest? **Yes**

i. Do you offer rewards to poaching informants leading to arrest? __x__ Yes ____ No

j. Do you offer rewards to poaching informants upon conviction? __x__ Yes

FWS Form 3-200-20 (Rev. 01/2020)
U.S. Department of Interior

OMB Control No. 1018-0093
Expires 08/31/2023

IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

■New ☐Reissue/Renew ☐Amendment

Complete Sections **A or B**, and C, D, and E of this application. U.S. address may be required in Section C.**

A. Complete if applying as an individual			
1.a. Last name Wilcox	1.b. First name Jeffrey	1.c. Middle name or initial A.	1.d. Suffix

2 Date of birth (mm/dd/yyyy)	5.a. Telephone number	5.b. Alternate telephone number	6. E-mail address
(b) (6) [redacted]			

B. ~~Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution~~			
~~1.a. Name of business, agency, Tribe, or institution~~		~~1.b. Doing business as (dba)~~	
~~2. Tax identification no.~~	~~3.a. Description of business, agency, Tribe, or institution~~		~~3.b. Website URL (if applicable)~~
~~4.a. Principal officer (P.O.) last name~~	~~4.b. P.O. first name~~	~~4.c. P.O. middle initial~~	~~4.b. P.O. Title~~
~~5. Primary contact name~~		~~6. Primary e-mail address~~	
~~7.a. Business telephone number~~	~~7.b. Alternate phone no.~~		~~8.a. Primary contact telephone no.~~

C. All applicants complete address information				
1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes) (b) (6) [redacted]				
1.b. City Oakland	1.c. State CA	1.d. Zip code/Postal code 94619	1.e. County/Province Alameda	1.f. Country USA
2.a. Mailing Address (include if different than physical address; include name of contact person if applicable)				
2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f. Country

D. All applicants MUST complete

1. Include a check or money order, payable to the U.S. FISH AND WILDLIFE SERVICE, **a nonrefundable processing fee [50 CFR 13.11(d)(4)]**. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – ***attach documentation of fee exempt status as outlined in instructions.*** (50 CFR 13.11(d)).
2. If you are requesting a reissue/renew/amendment, what is your permit/file number?
3. Certification: I hereby certify that I have read and am familiar with the regulations contained in Title 50, Part 13 of the Code of Federal Regulations and the other applicable parts in subchapter B of Chapter I of Title 50, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

The individual/principal officer of the business must print and sign the application. (No photocopied or stamped signatures) Date (mm/dd/yyyy)

** Further instructions for the above application may be found on our ePermits website. See the last page for information on the Privacy Act, Paperwork Reduction Act, Estimated Burden, and Freedom of Information Act aspects of this application form.

Mail your application(s) to Division of Management Authority, Branch of Permits, MS:IA 5275 Leesburg Pike, Falls Church, VA 22041-3803.

APPLICANT:

JEFFREY WILCOX

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Jeff Wilcox · (b) (6) [redacted] Oakland, CA 94619

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson or Aimee Korver (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

panthera leo

b. Sex (if known).

male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

Okanjati Wildlife Area, Namibia

b. Date wildlife is to be hunted:

May 19th, 2021-May 29th, 2021

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

Jan Oelofse Hunting Safaris; P.H.- Japsie Blaauw

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

N/A

b. Date wildlife was hunted:

N/A

c. Approximate age of animal:

N/A

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

N/A

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

N/A

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

Have not hunted yet

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	Titus Schmidt
Business Name:	Yellow Shark Logistics
Address:	P.O. Box 81413, Olympia 64 Socrates St.
City:	Academia Windhoek
State/Province:	
Country, Postal Code:	Republic of Namibia

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.

11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):	Japsie Blaauw
E-mail:	japsie@dzombo.com
Phone number:	+264 81 146 4959

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature: (b) (6) Date: 3/13/2021

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from the list of designated ports. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

MINISTRY OF ENVIRONMENT AND TOURISM

Directorate Scientific Services
Private Bag 13306
Windhoek, Namibia
Enquiries: Permit Office
Tel +264-61-284 2541

PERMIT No.:	162174 E
VALID TILL:	18/03/2020
CAPTURE / TROPHY OR OTHER RELEVANT PERMIT	178263/18
RECEIPT No.:	7056324

PERMIT TO EXPORT LIVE ANIMALS OR TROPHIES

IMPORT PERMIT:
(Live animals)

Permission is hereby granted in terms of the Nature Conservation Ordinance 1975 (Ord. 4 of 1975)

From: S. Tors.
Postal address: P.O. Box 81.
Kalkfeld.
Namibia.

To: Britt A. Nishiyo
Residential addr (b) (6)
(b) (6) Mililani Hawaii
U.S.A.

SPECIES: COMMON NAME	SCIENTIFIC NAME	LIVE	SKULL	HORNS	SKIN	SHOULDER MOUNT	OTHER
Baboon CITES II	*Papio ursinus*						
Blesbok	*Damaliscus pygargus phillipsi*						
Cheetah CITES I	*Acinonyx jubatus*						
Eland	*Taurotragus oryx*						
Grey Duiker	*Sylvicapra grimmia*						
Impala, common	*Aepyceros melampus*						
Kudu	*Tragelaphus strepsiceros*						
Leopard CITES I	*Panthera pardus*						
Oryx (Gemsbok)	*Oryx gazella*						
Ostrich	*Struthio camelus*						
Red hartebeest	*Alcelaphus buselaphus*						
Springbok	*Antidorcas marsupialis*						
Steenbok	*Raphicerus campestris*						
Warthog	*Phacochoerus africanus*						
Wildebeest, black	*Connochaetes gnou*						
Wildebeest, blue	*Connochaetes taurinus*						
Zebra, Burchell's	*Equus burchelli*						
Zebra, Hartmann's CITES II	*Equus zebra hartmannae*						
Other Lion	Panthera Leo		1X		1X full		

IMPORTANT
All exports remain subject to veterinary and import regulations.
This permit is valid for single consignment only.
This permit is not valid if altered in any way and is not transferable.

MINISTRY OF ENVIRONMENT & TOURISM
ISSUING OFFICER (NAME & SIGNATURE)
UNDER THE AUTHORITY OF THE MINISTER PURSUANT TO SECTION 78 (1) OF THE NATURE CONSERVATION ORDINANCE, 1975 (ORDINANCE NO. 4 OF 1975) AS AMENDED
2019 -09- 18
WINDHOEK PERMIT OFFICE
Private Bag 13306, Windhoek

NAPL 03/2018

CITES Export Permit No.: 00 60762

CITES Import Permit number from importing country (Appendix 1 only) .....

Official Customs stamp at point of export

prime press 042018

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA

PERMIT / CERTIFICATE No. 0060762

Database Certificate No. 0060762

- [X] EXPORT
- [ ] RE-EXPORT
- [ ] IMPORT
- [ ] OTHER:

Original

2. Valid until: 18/03/2020

3. Importer (name and address)
BRITT A. NISHIJO
(b) (6)
MILILLANI HAWAII
96789

4. Exporter / Re-exporter (name, address and country)
STEVE TORS
P.O. BOX 81
KALKFELD
NAMIBIA

Signature of the applicant

3a. Country of import: UNITED STATES

5. Special conditions
Not valid if not certified by the Namibian customs

All imports and exports remain subject to veterinary regulations.
For live animals, this permit or certificate is only valid if the transport conditions conform to the Guidelines for Transport of Live Animals or, in the case of air transport, to the IATA Live Animals Regulations.

6. Name, address, national seal / stamp and country of Management Authority

MINISTRY OF ENVIRONMENT AND TOURISM
Directorate: Scientific Services
Private Bag 13306
Windhoek
NAMIBIA

5a. Purpose of the transaction (see reverse): H

5b. Security stamp No.: 1792474

	7./8. SCIENTIFIC NAME(genus and species) AND COMMON NAME OF ANIMAL OR PLANT	9. Description of specimens, including identifying marks or numbers (age / sex if live)	10. Appendix No. and source (see reverse)	11. Quantity (including unit)	11a. Total exported/ Quota
A	7./8. *Panthera leo melanochaita* Lion	9. skull & fullskin,NAPL 03/(2018)	10. II W	11. 2Item	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
B	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
C	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
D	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	

★ Country in which the specimens were taken from the wild, bred in captivity or artificially propagated (only in case of re-export)
★★ Only for specimens of Appendix-I species bred in captivity or artificially propagated for commercial purposes
★★★ For pre-Convention specimens

MINISTRY OF ENVIRONMENT AND TOURISM REPUBLIC OF NAMIBIA
19 SEP 2019
WINDHOEK
Private Bag 13306 Windhoek
Tel: 284 2823 Fax: 258861
1792474

13. THIS PERMIT IS ISSUED BY: J. SHAPI

Windhoek — Place
19/09/2019 — Date
Security stamp, signature and official seal

14. EXPORT ENDORSEMENT:

15. Bill of Lading / Air Waybill Number:

Block	Quantity
A	
B	
C	
D	

Port of Export / Re-export | Date | Signature | Official stamp and title

Original

prime press computer forms 032019

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
PHILIPPE CHARDONNET, D.V.M.
SHANE MAHONEY
RENEE SNIDER

Department of the Interior
U.S. Fish and Wildlife Service
Attn: Amy Brisendine
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803
VIA E-Mail: Amy_Brisendine@fws.gov

RE: **Import Application for a Lion, Leopard, and Rhino trophy from Namibia**
Applicant: **Jeffrey Wilcox**
Dates of Hunt: **May 19th-May29th, 2021**

Ms. Brisendine,

Enclosed, please find the permit applications for Mr. Jeffrey Wilcox. Mr. Wilcox will be hunting in the Okanjati Wildlife Area also known as Mt. Etjo Private Game Reserve with Safari operation, Jan Oelofse hunting safaris and professional hunter Japsie Blaauw in May of this year. Mr. Wilcox plans to take a lion, leopard, and rhino on his safari.

Jan Oelofse was known as a world-renowned wildlife conservationist who started out as a game rancher growing up in Namibia. Okanjati Wildlife Area is quite a special place where Mr. Oelofse turned a large area of unoccupied farmland back into a native wildlife sanctuary that now expands to over 86,487 acres. Over the years he strived to create a reserve that held game numbers in a healthy balance for all species, which today total over 6,000 animals. According to the operator enhancement report provided it states, "that Lions are not bred for the sake of trophies. Lions are part of the eco-system that must be managed like all other species. Lions are only hunted when 15 years or older. Managing a controlled game area involves all facets, such as tourism, hunting, game breeding, live game sales, and meat sales to generate capital for not only the sustainability of the complete eco-system, but also to achieve progress i.e., enlarging the area, introducing new species, and enhancing the carrying capacity of numbers of game." This operator is proving the notion that well-managed and regulated science-based hunting is a successful tool for wildlife conservation. We have provided another hunters' CITES export permit from this same area to showcase that the lions have been designated as "Wild" by CITEs.

Jan Oelofse hunting safaris employs about 100 local people from the surrounding communities, including a biologist that remains on staff year-round. They provide free education for all local children from Kindergarten up to grade 7, give free medical care for all community members and their families, and disperse game meat to them, up to 4 tons worth a year. The Oelofse's believe in working with the community to keep the human-wildlife conflict at bay, giving regular anti-poaching courses in tandem with anti-poaching patrolling that have kept poaching out of the area almost completely.

Included with this application and the operator enhancement report is the article "Lion Conservation and Sustainable Use" which details the struggle between livestock farmers and lions. The growth rate of lion populations is often higher than the mortality rate, therefore producing a surplus of the animals which frequently must be forced out to look for new territories to find food. Many of these areas are farmland where farmers breed livestock, which inevitably creates conflict. Fences can not be put around wildlife areas and

national parks to keep lions from roaming into these farms, so farmers have turned to "a more appropriate and lucrative form of land-use: a wildlife-based economy that includes tourism, trophy hunting, game meat harvesting, and live sales of surplus high-value wildlife species. These farmers are making much more money than they did farming cattle and they are no longer in conflict with lions and other predators (45). Trophy hunting takes off 1% of the national herd of lions, while the animals are breeding at a rate of fifteen, twenty, or even 35%. "Safari hunting is a very high return, low impact type of activity (46)". Almost all conservancies in Namibia started out primarily as farmland, livestock was their primary livelihood before the influx of lions increased to critical levels where prey numbers declined, and lions turned to people's domestic stock. Communities wanted an intervention to this and while protection of wildlife is vastly important, the lion population must be reduced to accommodate the realities of people living amongst them. The Lion Conservation Strategy for Namibia is also included with this application, which further details what is being done to preserve the lion populations in the country.

The final document we have included is the article, "Keep Namibia's wildlife on the Land". This article, published by NACSO (a community conservation in Namibia) asks the question "How can we ensure healthy wildlife populations despite increasing human pressure?" It states that over the last century lions were actively eradicated in Namibia due to the threats to human safety and livestock. Yet today, Namibia's lion population is healthy and increasing, and is at the highest since its independence in 1990. Lion ranges have expanded significantly, especially in North-western Namibia. Namibia also reported increases in their leopard and rhino populations at their Namibia Professional Hunting Association meeting in 2019. This article echoes the previous information we have provided in this letter, that the model for working with wildlife and finding a balance of tourism, farming, safari-hunting, and meat sales all help natives to see dangerous wildlife as a commodity that they can respect and use to better their lives. The article further enhances the fact that Namibia only encourages conservation hunting and that the locals are growing increasingly intolerant of emotional anti-hunting campaigns that undermine the conservation. "A hunting ban dispossesses and disempowers local decision making and enforces a foreign moral view upon Africans". We ask that you specifically reference the page regarding "African wildlife: use it- or lose it" where it outlines what would be lost if wildlife could not be used to generate income for local communities outside parks, specifically if hunting bans were to go into effect. The ramifications of abolishing safari hunting or the importation of trophies would have "detrimental effects for wildlife and for people currently benefitting from that wildlife".

We would like to bring awareness to the fact that we are filing this import permit application before the hunt. The ever-growing backlog of application permits that have not been issued at the USFWS seems to be growing and the current sentiment of hunters is that they do not want to purchase expensive safari hunts when there is no guaranty that a permit will be issued for their trophy. It is imperative that pre-hunt applications begin to be processed and permits issued before a hunter travels abroad to give them some peace of mind and security regarding this process. Safari operators are struggling due to the restrictions that the COVID pandemic has brought about and many organizations are having to close because they can not survive without tourists. Issuing pre-hunt permits would give a boost of confidence to the entire industry that Safari tourism is still lucrative and important to the conservation of wildlife and will prevent vast landscapes from becoming abandoned and preyed on by poachers.

Please refer to the numerous documents and responses previously submitted to FWS by Conservation Force, Professional Hunters, Operators and Professional Hunting Organizations, as well as information submitted by the government authorities of Namibia in making a positive enhancement determination for this import.

If you have any questions about this import application, please do not hesitate to contact us.

Sincerely,

Aimee Korver

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Jeffrey Wilcox W/ attachments

Enclosures:

a. FWS Permit Application Form for Import of Sport-Hunted Trophy
b. Notice of Representation
c. Copy of Hunting Permit
d. Operator Enhancement Report
e. Lion Conservation and Sustainable Use
f. "Keep Namibia's wildlife on the land"
g. Lion Conservation Strategy for Namibia

APPLICANT:

JEFFREY WILCOX

NOTICE

OF

REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed LION Trophy from NAMIBIA.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

(b) (6)

SIGNATURE

Jeffrey Wiley

PRINT FULL NAME

March 17, 2021

DATE

APPLICANT:

JEFFREY WILCOX

JAN OELOFSE HUNTING SAFARIS

LION HISTORY

History Jan Oelofse

Jan Oelofse world-renowned conservationist started his career in wildlife management during the Fifties, when he travelled from South West Africa to Tanganyika, to meet up with the legendary Oom Willie Beer. His intimate knowledge of animal behaviour of every African specie came instinctively. He worked for Oom Willi de Beer, capturing wild animals for zoos, preparing them for the sea voyage and delivering them to the zoo keepers at their destination. Jan Oelofse at the same time also handled all the wildlife in Taganyika while on set for Paramaount Studios, shooting the famous movie Hatari starring John Wayne, Red Buttons, Elsa Martinelli and many other. He handled and accompanied all animals ranging from elephants to lion, baboons birds and many other species featuring in the film, for a five day journey by air from Tanganyika to Hollywood. A tragic accident involving a Male Lion, which was brought from the Emperor of Ethiopia, Haile Selassie, at that time, resulted in omitting all scenes with lions from the movie and the lion was killed for unjustifiable reasons. A conglomeration of these events spurred him mon more and more to conserve and re-create a wildlife area.

His career in conservation with lions was weaved throughout his entire life in conservation, when during the Sixties he joined the Natal Parks Board. He invented the Wildlife Game Capture Method, capturing wild animals in mess. The method was named the Oelofse Method and is still today used all over the world. As head of game Capture, he not only build the Parks very first game holding pens, he was part of the legendary Ian Players team saving the White Rhino from shocking low numbers nearing extinction. While working for the Natal Parks Board, he re-introduced a pride of lions into the Umfolozi Game reserve. Lions had been extinct in the |Parks for many years, todays prides are the off springs of Jan laying the foundation.

During 1975, Jan Oelofse moved to Namibia to establish his own Wildlife Sanctuary. Today the Okonjati Wildlife area stretches over 35 000 hectares, the lion population a valuable specie in the ecosystem.

The first pride of nine lions was reintroduced into the Wildlife Area during 1983. During the middle eighties and early nineties, more lions from various places in South Africa, the southern part of Etosha National Park, the Caprivi region and the far west of Namibia were re-introduced. Lions came from overpopulated areas or areas where they were declared a problem animal. Various prides established themselves over the years. Since the area is limited to 35 000 hectares, all species are managed and trophy hunting is an important management tool. Funds to increase the Wildlife Management Area were generated by specialized trophy hunting, this also includes the lion population.

From 1983 until 1988, we have taken 11 trophy lions, the reason was that many of the lions which we received for re-introduction were 15 years and older. No males were hunted during the Nineties with only 6 taken between year 2000 and to date. We unfortunately lost a number of males to fighting. Since the young males are pushed out of the pride, often they leave the area and lives are not spared by adjacent communities. Had we taken the old males as trophies and given the young males a space in the pride, unnecessary loss of lives would have been spared and valuable funds to provide for the upkeep of the wildlife management could have been generated. Today the prides are well established, consisting of the majority of females older than 15 years, 2 very old males, a number of mature males and females and cubs between 1 and 4 years old.

Hi Aimee,
Apologies,
I am still gathering all information for our lion history. Haven't been working on it consistently, hope to dc this weekend.

Just a quick summary,
Lions were introduced into the area 1981 from the Cape Zoo, since they were destined to be euthanized. habituated the whole group, re –introduced them into the wild. We added other prides, which were decl problem animals in various other areas. Lion males and females are only hunted when reaching old age a they are no longer of value to the pride.

Please find attached the aerial maps. All of the green area is Okonjati.

So the exact location would be as follows
Okonjati # 526
District Otjiwarongo
Region Otjozondjupa
Namibia

Mount Etjo is our trading Name.

Okonjati will be the name on the Permit. Use Okonjati at all times for all documentation.

Attached a CITES Permit of one of our clients, who hunted with us in 2018, which is about ready to be imp I believe. Exporter says Steve Tors, since he was the Professional Hunter guiding the client

~~Please keep asking, you are quite right, everything has to be correct right from the beginning~~

From: Aimee Korver [mailto:permits@conservationforce.org]
Sent: 15 February 2021 23:47
To: Annette Oelofse;(b) (6)
Subject: RE: FW: Lion Import Permit - Steve Reeves

Annette,

I ~~wanted to check in on the lion history report and see how that was coming along.~~

Also, I need a bit more information on the location info. Are these two different locations or are they exactly the same- but as mentioned they go by different names Can you provide a map by chance that shows where Okanjati is on a map of Namib have the aerial maps that you provided with the coordinates- but often the USFWS not know where these locations are and we really need to point it out for them. Ther also can be no confusion on the name/ names of the concession. What will the hunt permit read - Okanjato or Mt. Etjo? If you can expand on the description you gave

APPLICANT:

JEFFREY WILCOX

OPERATOR ENHANCEMENT REPORT

ANNEX I OPERATOR ENHANCEMENT QUESTIONAIRE

Operator Information

a. Name of Area Qperator: **Jan Oelofse Hunting Safaris**
b. Years in business: **46 years**
c. Name of company conducting hunt: **Jan Oelofse Hunting Safaris**
d. Country: **Namibia**

a. Name of Concession: **Okonjati Wildlife Area**
b. Area in km^2: **350**
c. Land tenure:
____ Government Lease
____ Community
X Private Ranch
____ Private Conservancy
d. Length of concession agreement: **N/A**
e. Can the concession be renewed? **N/A**
f. Length of renewal, if applicable: **N/A**
g. Estimated trophy fees: **U$ 35 000.00**
h. Are there are special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed: **N/A – Privately owned land, privately managed, cattle ranches re-established into a wildlife area since 1975**
i. Provide location and nearest city: **Farm Okonjati # 516, District Otjiwarongo, Region Otjozondjupa, Namibia . Nearest settlement Kalkfeld, nearest town Otjiwarongo, nearest city Windhoek**
j. Please attach a map or maps with marked boundaries and nearest city
k. If the concession borders a National Park, provide park name: **N/A**
l. Describe general and distinctive habitat/water features: **Habitat: Mountains, Riverines, Bushveld, savannah, plains, kopjies, earthen damps and boreholes**

Communities in the Concession

a. Are there any communities living in the concession? Yes **X** No ____
b. If so, estimated number of people/villages in the concession: **200**
c. Are there communities bordering this concession? Yes ____ No **X**
d. If so, estimated number of peoples/villages around the concession: **N/A**

Relevant Game Populations in the Concession

Species	Relative Abundance (Dense, Average, or Sparse)	Estimated Population	3-Year Trend (Up, Down, or Stable)	How is it Monitored?
Elephant	**Dense**	**45**	**up**	**Regular observations**
Lion	**Dense**	**25**	**up**	**Regular observations**
Leopard	**Dense**	**35**	**up**	**Trail Cam and regular observations**

Cheetah	Sparse	10	up	Regular Observations
Black Rhino	Dense	65	up	Regular observations
White Rhino	Dense	50	up	Regular Observations
Gemsbuck	Average	450	up	Regular Observations
Hartebeest	Average	75	up	Regular observations
Blue Wildebeest	Average	450	up	Regular Observations
Springbuck	Dense	3800	up	Aerial Game Count
Common Impala	Dense	1300	up	Aerial Game Count
Blesbuck	Average	200	up	Aerial Game Count
Steenbuck	Dense	400	up	Regular Observations
Duiker	Dense	300	up	Regular Observations
Klipspringer	Average	80	up	Regular Observations
Warthog	Dense	500	up	Aerial Game Count
Ostrich	Average	450	up	Aerial Game Count
Hartmann Zebra	Dense	400	up	Aerial game Count
Burchell Zebra	Dense	270	up	Aerial Game Count
Black Wildebeest	Average	200	up	Aerial Game Count
Waterbuck	Dense	400	up	Aerial Game Count
Kudu	Dense	400	up	Aerial Game Count
Damaraland Dik-Dik	Dense	75	up	Regular Observations
Eland	Dense	250	up	Aerial Game Count

Giraffe	**Dense**	**1200**	**up**	**Aerial Game Count**
Sable	**Dense**	**300**	**up**	**Aerial Game Count**
Roan Antelope	**Dense**	**300**	**up**	**Aerial game Count**
Nyala	**Average**	**150**	**up**	**Regular observations**
Lechwe	**Dense**	**200**	**up**	**Regular Observations**
Hippo	**Sparse**	**11**	**up**	**Regular Observations**

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application. **See Attached Management plan**

b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports. **The whole area is a conservation area, permanent and continuous conservation work done to protect and enhance conservation on all levels**

Local Community Participation

a. Total employment number: **100**

b. Total employment in the off-season: **100**

c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	**5**	**5**	**5**
Trackers	**5**	**5**	**5**
Anti-poaching Scouts/Rangers	**10**	**10**	**10**
Other Anti-poaching	**5**	**5**	**5**
Cooks/Housekeepers	**22**	**22**	**22**
Community Coordinators	**8**	**8**	**8**
Managers	**11**	**11**	**11**
Biologists	**1**	**1**	**1**
General Labour	**30**	**30**	**30**
Teachers	**3**	**3**	**3**

Anti-Poaching Efforts

a. Number of anti-poaching staff: **15**

b. Are patrols conducted during the hunting season, off-season, or both? **Both**

c. Months patrols are conducted: **12 months**

d. Number of patrols per month: **Daily**

e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: **12%**

f. Description of anti-poaching equipment, vehicles, gear, etc. **Vehicles, Binoculars, Semi- Automatic Rifles, Radio and GPS Equipment, Clothing and boots, sleeping bags and various other gear needed for patrols**

g. Do government-sponsored game scouts conduct patrols? **No**

h. If so, do they have the ability to arrest? **N/A**

i. Do you offer rewards to poaching informants leading to arrest? Yes **X** No ____

j. Do you offer rewards to poaching informants upon conviction? Yes **X** No ____

k. Please describe the operator's anti-poaching expenditures over the past 3 years below:

Type of Expense	Year 1 (2018) Spending	Year 2 (2019) Spending	Year 3 (2020) Spending	Remarks
Scout Salaries	**N$ 720 000.00**	**N$ 720 000.00**	**N$ 720 000.00**	
Equipment	**N$ 400 000.00**	**N$ 150 000.00**	**N$ 150 000.00**	**First year Radio Equipment**
Vehicles	**N$ 400 000.00**	**N$ 80 000.00**	**N$ 80 000.00**	**First year Extra Vehicles**
Fuel	**N$ 350 000.00**	**N$ 350 000.00**	**N$ 350 000.00**	
Rewards				**No Rewards due to No Poaching Incidents due to effective anti-poaching and loyal community involvment**
Others: **Accommodation**	**N$ 360 000.00**	**N$ 360 000.00**	**N$ 360 000.00**	
Totals	**N$ 2 230 000.00**	**N$ 1 660 000.00**	**N$ 1 660 000.00**	

l. What currency are the expenditures given in? **Namibian Dollars**

Anti-Poaching Results

Type	Year 1 (2018)	Year 2 (2019)	Year 3 (2020)	Remarks
Poaching Incidents Discovered				
Elephant Carcasses Observed				
Lion Carcasses Observed				
Leopard Carcasses Observed				**No Poaching Incidents due to effective anti-poaching**
Ivory Poachers Observed				
Bush Meat Poachers Observed				
Illegal Logging Observed				
Other Poachers Observed				

Poachers Convicted				
Snares/Traps Collected				
Firearms Confiscated				
Vehicles Confiscated				
Bicycles Confiscated				**No Poaching Incidents due to effective anti-poaching**
Boats/Nets Confiscated				
Tusks Recovered				
Others: _____				

Community Investment

a. Does the company give ~~money~~ or goods/**services** to local communities? Yes **X** No ____
b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e. more than required by law)? **Free Education for all local children from Kindegarten up to Grade 7 and free medical care for all community members and families**
c. Does the company provide game meat to nearby communities? Yes **X** No ____
d. If so, estimate the amount/value of meat contributed in the last year and describe that distribution program: **4 Tons at the value of N$ 140 000.00**
e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling field during harvest, PAC hunts, insurance programs); please describe. **Regular Anti-Poaching courses**
f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (____)	Consolation Paid, Year 2 (____)	Consolation Paid, Year 3 (____)	Remarks
Elephant					**Not applicable,**
Lion					**Since our patrolling is of such value**
Leopard					**That almost no damage occurs**
Other: _____					**To neighbors and their livelihoods**

g. What currency are the expenditures reported in? **Namibian Dollars**
h. Describe any community projects paid for by the company:

Product/Service	Spending, Year 1 since 1992	Spending, annually	Spending, Year 3 (____)	Remarks
Education (classrooms, offices)	**N$ 720 000.00**	**N$ 100 000.00**		**School was established**

				during 1992, we since schooled an average of 35 children for Grade 1 – Grade 7.
Education (supplies, fees)	**N$ 720 000.00**	**N$ 720 000.00**		**University fees are paid in full for children who qualify for post graduate studies**
Health (clinics, offices)				**School Building is used for the clinic**
Health (equipment, salaries)	**N$ 50 000.00**	**N$ 50 000.00**	**N$ 50 000.00**	
Product/Service	**Spending, Year 1 (____)**	**Spending, Year 2 (____)**	**Spending, Year 3 (____)**	**Remarks**
Community Scout Salaries	**See above**			
Community Anti-Poaching	**See above**			
Local Government Activities	**N/A**			
Infrastructure Improvements	**See above**			
Sports Teams Funded				
Construction Materials Donated				
Other: _____				
Other: _____				
TOTALS	**N$ 1 490 000.00**	**N$ 870 000.00**	**N$ 870 000.00**	

i. What currency are the expenditures reported in? **Namibian Dollar**
j. Include receipts and photographs of projects, if available.

Company Clientele

a. How many U.S. clients did the company have in the **3 years prior Corona i.e. 2017,2018,2019** (indicate years), what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	**Lion**	**All Species**
Number of U.S. Clients		**1**	**150**

Percentage of Clients from the U.S.		**33%**	**95%**
Trophy Fees Paid by U.S. Clients		**U$ 35 000.00**	**U$ 1 500 000.00**

b. Approximate amount/percentage of company's revenue from U.S. clientele: **95 %**

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
Fully Registered by the Department of Wildlife and Tourism for a Professional Hunter, Accommodation Facilities and equipment fully registered with the Namibian Tourism Board

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology, if available): **Only mature male animals, of which sizes are carefully selected for proper game management. Selection is done by age before size.**

c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years. **Yes, Annual Hunt Return Forms are required by the Ministry of Environment and Tourism, no receipts are issued, if reports are not submitted, no hunting licenses will be issued for the following season.**

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

Our area is privately owned, established during 1975 and built up to 35 000 hectares. Game Management is of utmost importance, especially with natural disasters such as droughts. Game numbers have to be kept at a healthy balance, which includes all species. Lions are not bred for the sake of trophies only. Lions are part of the eco system have to be managed just like all other species. Managing a controlled game area involves all facets, such as tourism, hunting, game breeding, Live game sales and meat sales, to generate capital for not only the sustainability of the complete eco system, but also to achieve progress i.e. enlarging the area, introducing new species and enhancing the carrying capacity of numbers of game.

I declare that the foregoing is true and correct.

X A Oelofse

Sign Name and Date

X Annette Oelofse 06. January 2021

Print Name and Title

Mount Etjo

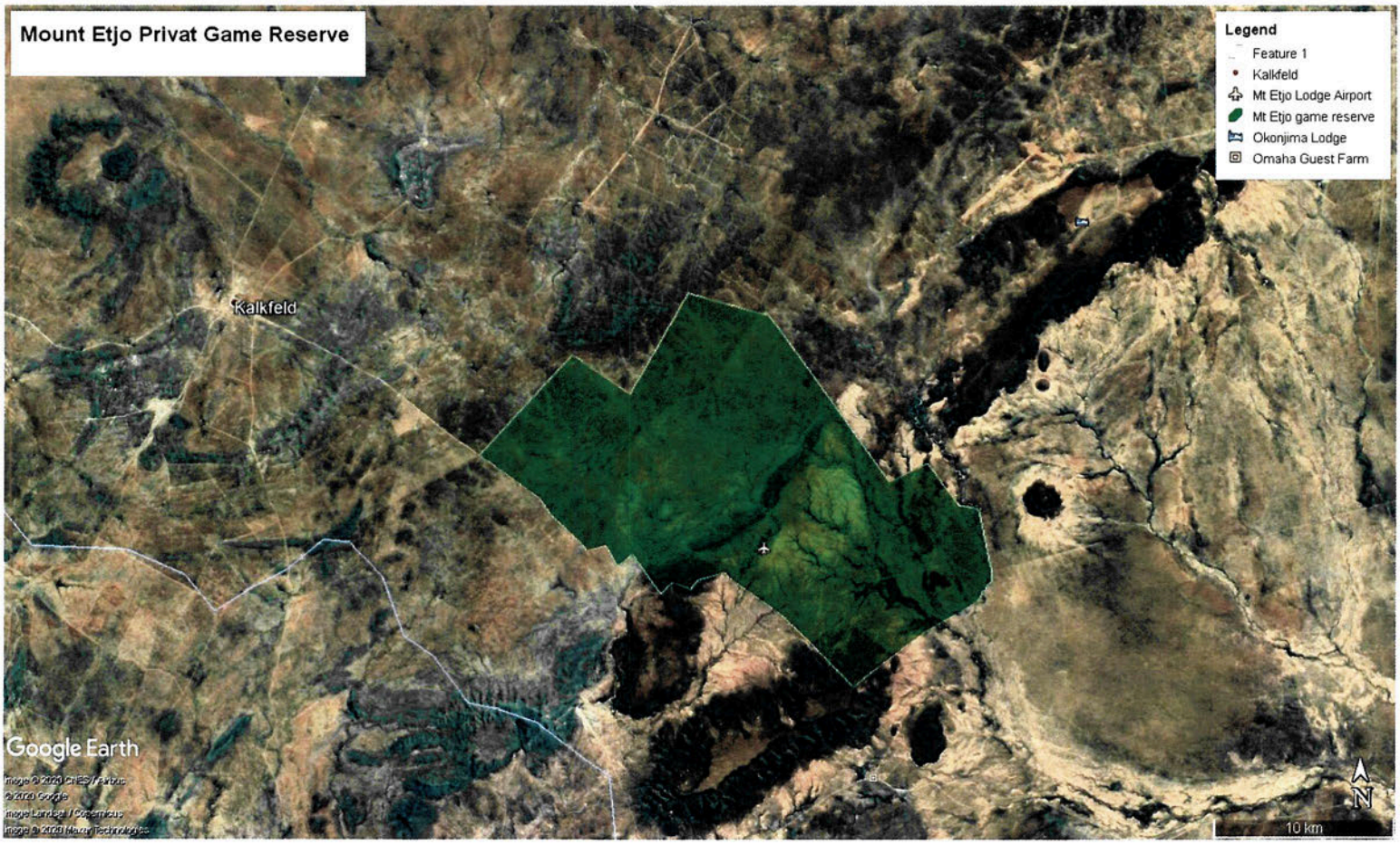
Plan for year: 2020

Common Name	Last year - report back											Current year - planned activities										
	before	utilization							add		other	before	utilization						add		other	
	Initial estimate/ balance brought forward	Trophy hunted	Catch, keep & sell	Live export	Shoot & sell	shoot for own use	Total utilization	Counts conducted	Introduced	Births		Initial estimate/ balance brought forward	Trophy hunted	Catch, keep & sell or Live export	Shoot & sell	shoot for own use	Total utilization	Counts conducted	Introduced	Births		
White rhino																						
Giraffe	1300	8	16			30	54	1150				1150	5		100		100	205				
Eland	200	9					9	180				180	10	10				20				
Roan	250	4	20				24	220				220	10		20			30				
Sable	200	8					8	210				210	10		20			30				
Hartmann's mountain zebra	284	16	21				37	250				250	15	20				35				
Burchell's plains zebra	250	14	99				113	180				180	20		20		50	90				
Blue wildebeest	400	18					18	350				350	25		50		20	95				
Kudu	400	16					16	375				375	10	20				30				
Oryx	400	26					26	430				430	20		50		50	120				
Hartebeest	150	1					1	60				60	5	30				35				
Waterbuck	300	7					7	280				280	12	40				52				
Black-faced impala	300	11					11	340				340	10	100				110				
Common impala	1300	42	75				117	1260				1260	40		300		200	540				
Tsessebe	10						0	11				11	2					2				
Springbok	3500	44					44	3600				3600	40	300			200	540				
Warthog	900	13					13	680				680	20				50	70				
Ostrich (excl. domesticated)	300	4	7				11	265				265	5	20				25				
Common duiker	350						0					350	2					2				
Steenbok	350	1					1					350	4					4				
Damara dik-dik	50	1					1					50	2					2				
Klipspringer	40						0					40	2					2				
Leopard	25	1					1					25	1					1				
Cheetah	5						0					7						0				
Black wildebeest	300	8					8	150				150	12					12				
Blesbok	200	2					2	120				120	10					10				
Elephant	37			11			11	37		12		37			20			20				
Hippo	11			1			1	12		2		12			2			2				
.....							0											0				

APPLICANT:

JEFFREY WILCOX

MAP OF HUNT AREA

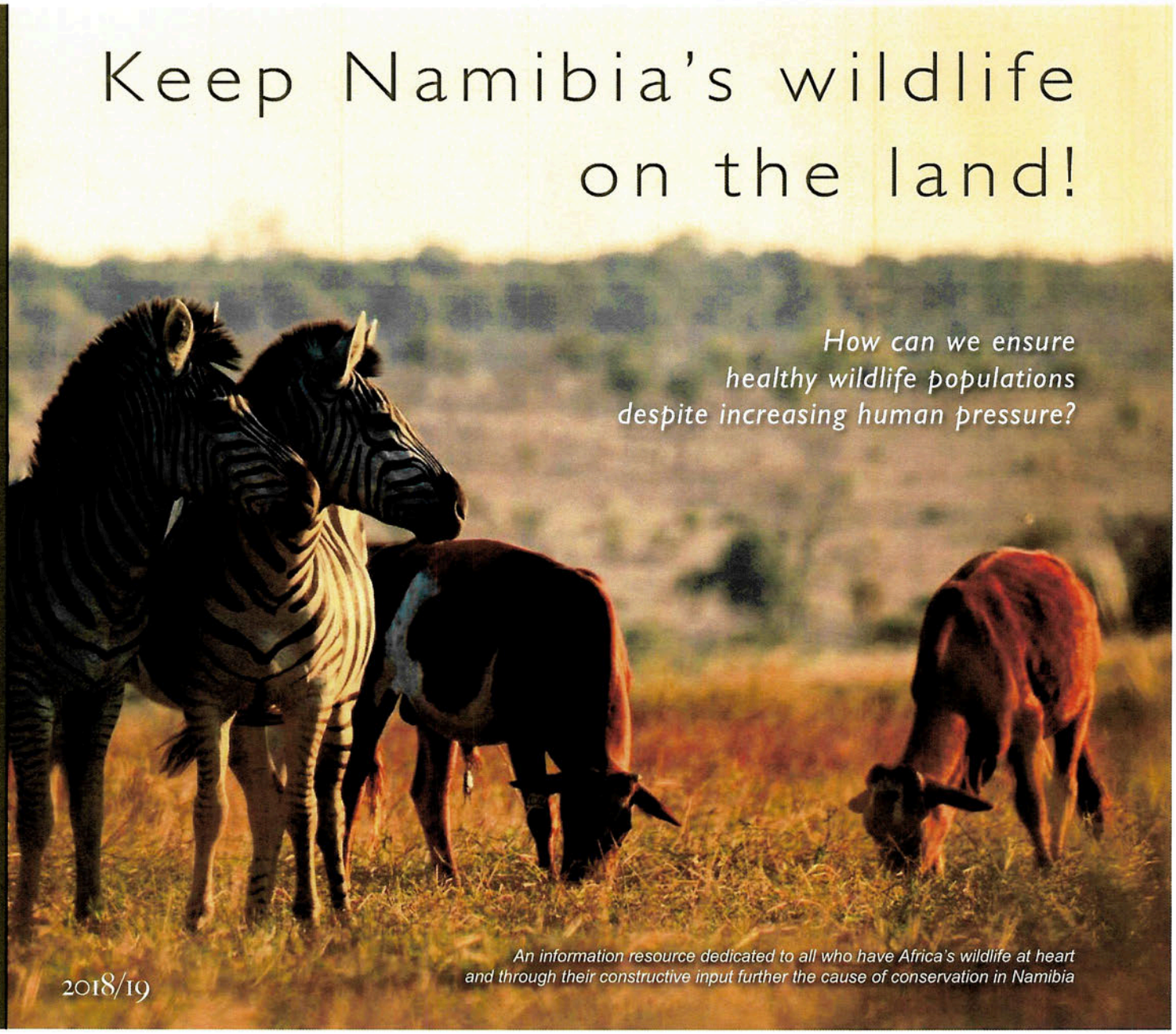

Mount Etjo Privat Game Reserve
Legend
Feature 1
Kalkfeld
Mt Etjo Lodge Airport
Mt Etjo game reserve
Okonjima Lodge
Omaha Guest Farm
Kalkfeld
Google Earth
10 km
N

APPLICANT:

JEFFREY WILCOX

KEEP NAMIBIA'S WILDLIFE ON THE LAND

Keep Namibia's wildlife on the land!



How can we ensure healthy wildlife populations despite increasing human pressure?

An information resource dedicated to all who have Africa's wildlife at heart and through their constructive input further the cause of conservation in Namibia

2018/19

What is really happening to our wildlife?

WILDLIFE IS RAPIDLY DECLINING ACROSS MUCH OF AFRICA AND OTHER PARTS OF THE WORLD

Over the last century, **lions** *were actively eradicated as a threat to human safety and to livestock from most land used by people; lions from the remaining populations continue to be killed over livestock losses and safety concerns in communal areas and along the periphery of parks today.*
Southern African **rhinos** *were driven to the brink of extinction a century ago, but populations were rebuilt through effective conservation activities; rhinos are now being decimated again by ruthless commercial poaching for their horns.*
A century ago, **elephants** *were drastically reduced by the uncontrolled ivory trade, and displaced as a threat to crops and safety; today most of the remaining southern African populations are healthy and growing, but ruthless commercial poaching for ivory is again having an impact.*
Many other species *are experiencing similar declines, mostly due to land conversion to agriculture and incompatible land uses.*

- ***Widespread concern over wildlife declines is motivating ongoing global calls for action*** *– yet interventions often do not differentiate between countries with an excellent conservation track record, and those with declining wildlife populations.*
- ***Attempts by foreign organisations to stop declines through field interventions often do not address the actual problems*** *– interventions often ignore the needs of local people and conservation priorities on the ground.*
- ***The public is unfortunately not informed accurately about the main causes for large-scale wildlife declines*** *– media reports, social media hype and calls for donations tend to focus on the gruesome death of individual animals as indicators of decline, rather than actual causes.*
- ***People are confusing the wellbeing of individual animals with the health of entire populations of the same species*** *– through passionate but misguided social media outcries, many people want to prevent all animal deaths in order to stop perceived cruelty to animals and wildlife declines.*

PREVENTING ALL WILDLIFE DEATHS FORCES PEOPLE TO REPLACE WILDLIFE HARVESTING WITH OTHER LAND USES



Effective broad-scale conservation must give wildlife a real local value

WILDLIFE WILL ONLY REMAIN ON THE LAND IF LAND STEWARDS BENEFIT FROM IT

Namibia's **lion** *population is healthy and increasing, and is today at its highest since independence in 1990; lion range has expanded significantly, especially in north-western Namibia.*
Namibia's populations of both black and white **rhinos** *were partly rebuilt over the last three decades and former ranges were reestablished by providing economic incentives as a basis for their conservation.*
Namibia's **elephant** *population has tripled since independence and elephants have re-colonised former ranges, largely facilitated by community conservation and benefits to local communities.*
Most other large wildlife species *in Namibia have healthier populations today than at any time over the last 150 years.*

- ***Differentiating between countries with successful conservation approaches and those without is essential*** *– conservation is a science-based management activity and successful approaches should not be undermined by generalised emotional responses and inappropriate actions.*
- ***Conservation by the people for the people is extremely successful in Namibia*** *– by conferring rights to own and manage wildlife to local communities, the Namibian government has empowered land holders to conserve wildlife in a healthy balance with other land uses.*
- ***Namibians embrace wildlife management as a land use, thereby safeguarding wildlife habitat throughout the country*** *– Namibia has documented significant wildlife recoveries in parks and on communal and freehold land throughout the country for several decades.*
- ***By harvesting small percentages of surplus animals, Namibia is keeping overall wildlife populations healthy****, just as farmers anywhere in the world keep their overall livestock herds, gardens and fields healthy while harvesting an annual crop to generate income and enable development.*

PROMOTING WILDLIFE USE CREATES INCENTIVES TO KEEP WILDLIFE ON THE LAND AS AN ECONOMIC ASSET



The main causes of large scale wildlife declines:

HABITAT LOSS THROUGH HUMAN LAND USES THAT ARE INCOMPATIBLE WITH WILDLIFE is the largest single cause of wildlife declines around the world.

- **Displacement of wildlife by agriculture** – *wildlife is not tolerated in crop fields and competes with or threatens livestock.*
- **Degradation of habitat by unsuitable land uses** – *overgrazing, indiscriminate burning, logging, mining etc. may all severely degrade habitats.*
- **Destruction of habitat through infrastructure development** – *urban spread, roads, power lines, dams etc. may all destroy habitats.*
- **Disturbance by human activity** – *excessive presence and movement of people, stray dogs, traffic, noise etc. may all displace wildlife.*

UNCONTROLLED EXPLOITATION AND COMMERCIAL POACHING are causing rapid declines amongst already isolated wildlife populations in many African countries.

- **Poaching of animals for trade in animal parts** – *trade in ivory, rhino horn, skins, bones etc. is fuelling ruthless commercial poaching.*
- **Ruthless exploitation for personal gain** – *uncontrolled over-harvesting veiled as 'legal use' is rampant in countries with poor governance.*



Wildlife is incompatible with crops; large-scale agriculture displaces wildlife and is one of the major causes of habitat loss

Proven ways to stop wildlife declines and rebuild populations:

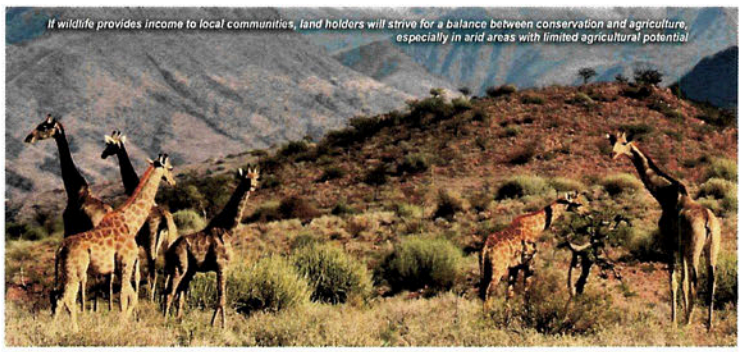
HABITAT PROTECTION AND EXPANSION THROUGH COMMUNITY CONSERVATION BASED ON WILDLIFE USE enables large-scale wildlife recoveries, mitigates human impacts and facilitates the health of ecosystems.

- **Tourism** *motivates conservation in scenic areas, especially along major tourism routes, by generating most jobs and some conservation funds.*
- **Conservation hunting** *motivates conservation in vast areas of low tourism potential by generating most conservation funds and providing food.*
- **Meat harvesting** *motivates increasing wildlife populations by providing food and generating additional income.*
- **Live capture and sale** *enables restocking in areas with low populations and provides further income from wildlife.*

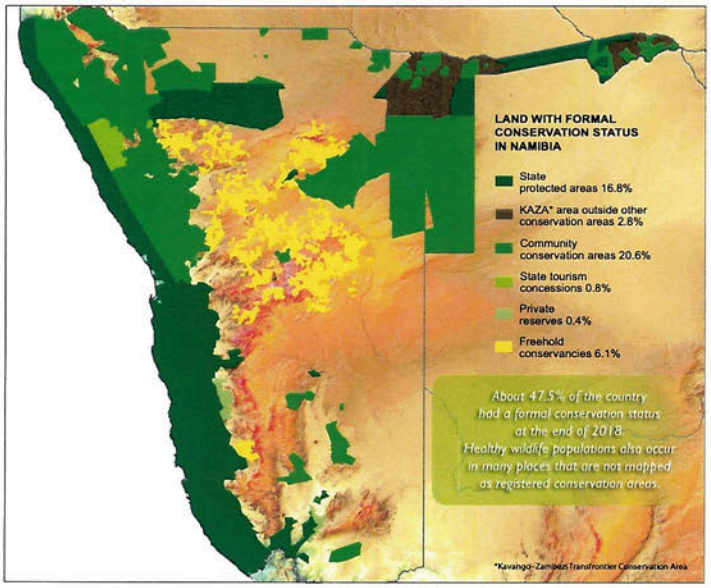
All of these uses can and should be combined where possible to maximise returns and provide a variety of benefits to different people in each community.

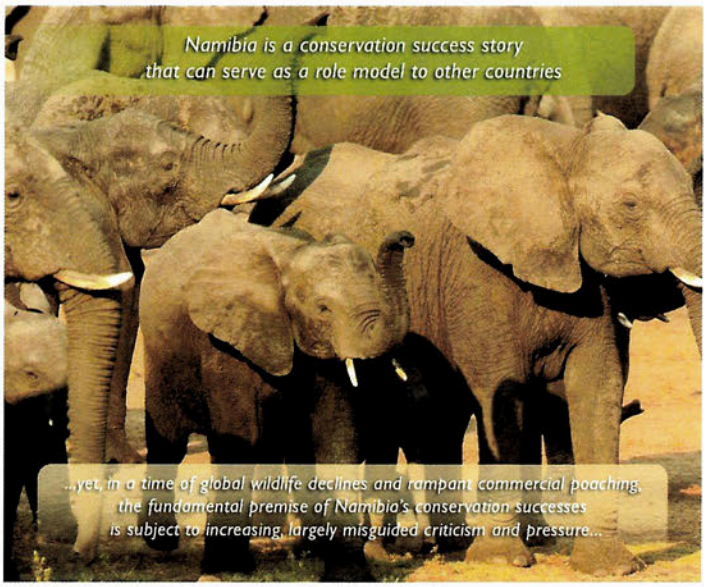
ACTIVE AND COLLABORATIVE WILDLIFE CRIME PREVENTION limits impacts from commercial poaching by teaming up relevant stakeholders including local communities, tourism and hunting operators, NGOs and government agencies.

STRINGENT CONTROL MECHANISM FOR ALL WILDLIFE USE prevent uncontrolled exploitation and over-harvesting.



If wildlife provides income to local communities, land holders will strive for a balance between conservation and agriculture, especially in arid areas with limited agricultural potential


LAND WITH FORMAL CONSERVATION STATUS IN NAMIBIA
State protected areas 16.8%
KAZA* area outside other conservation areas 2.8%
Community conservation areas 20.6%
State tourism concessions 0.8%
Private reserves 0.4%
Freehold conservancies 6.1%
About 47.5% of the country had a formal conservation status at the end of 2018. Healthy wildlife populations also occur in many places that are not mapped as registered conservation areas.
*Kavango-Zambezi Transfrontier Conservation Area


Namibia is a conservation success story that can serve as a role model to other countries
...yet, in a time of global wildlife declines and rampant commercial poaching, the fundamental premise of Namibia's conservation successes is subject to increasing, largely misguided criticism and pressure...

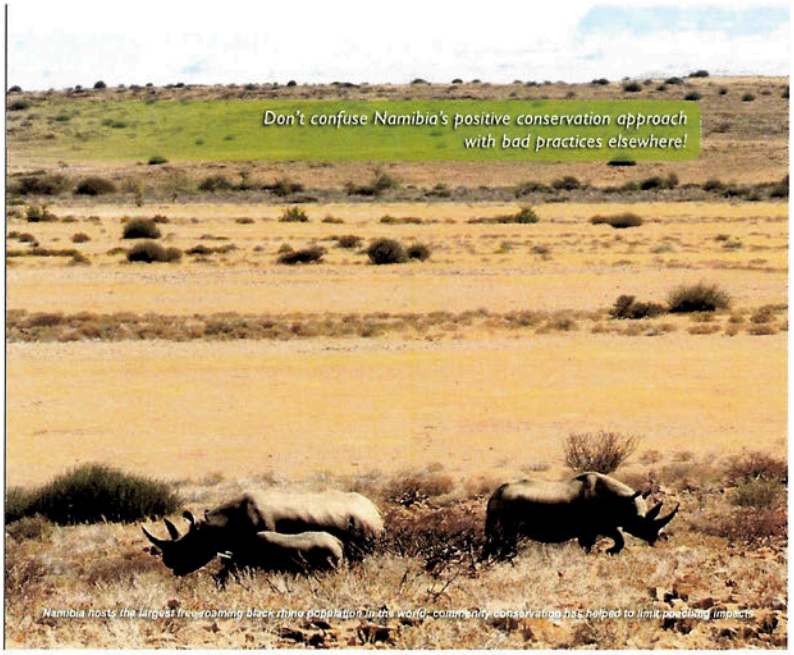
Namibia is a conservation success story:

Background information:

1. **Namibia's economy is largely reliant on natural resources;** about two-thirds of the human population live in rural areas and are directly dependent upon natural resources for their livelihoods.
2. **Wildlife populations have shown dramatic recoveries** on both freehold and communal farmland after drastic declines prior to independence due to drought, poaching and detrimental policies.
3. **Healthy populations of nearly all historically occurring species now roam suitable habitat;** species of particular conservation concern are receiving special attention.
4. **Agricultural policies and approaches,** rather than conservation practices, have limited the population health of some species such as buffalo and wild dog.
5. **Wildlife is managed and protected** in national parks, in community conservation areas and on freehold land across more than half of Namibia.
6. **The success is based on giving wildlife a real value** for the local people who manage and protect it – and bear the cost of living with it.
7. **Community conservation generated over N$ 147 million** in returns for rural communities and facilitated around 4,936 jobs during 2018.
8. **Community conservation contributed about N$ 884 million** in net national income to Namibia's economy in 2018.
9. **The sustainable use of wildlife and other natural resources** is enshrined in Namibia's constitution; natural resources are a part of our national heritage, to be used sustainably for the benefit of present and future generations of Namibians.

Conservation highlights:

1. **Namibia has healthy populations of black and white rhinos,** including the largest free-roaming black rhino population outside parks in the world.
2. **Namibia's elephant population has grown** from an estimated 7,500 animals in 1995 to around 22,000 today – a large percentage occurs outside parks.
3. **Namibia has healthy lion populations** in several national parks, and an expanding lion population outside parks, which has grown in north-western Namibia from an estimated 25 animals in 1995 to around 130 today.
4. **Namibia has the largest population of free-roaming cheetahs** in the world – the vast majority of which live outside parks.
5. **Namibia has healthy giraffe populations** in several national parks and an expanding giraffe population outside parks.
6. **Namibia has healthy leopard populations** in several national parks and leopards occur across much of Namibia's freehold and communal farmland.
7. **Namibia has a healthy crocodile population** with a large percentage occurring outside parks.
8. **Namibia has translocated more than 10,000 animals** of 15 different game species – including rare and valuable species such as black rhino, sable and giraffe – out of parks into communal and freehold areas to boost populations there.
9. **Namibia has reinstated several species** that had become locally extinct in communal and freehold areas.



Namibia hosts the largest free-roaming black rhino population in the world– community conservation has helped to limit poaching impacts

Namibia offers real solutions for wildlife inside and outside parks:

Namibia balances conservation priorities and the needs of rural communities:

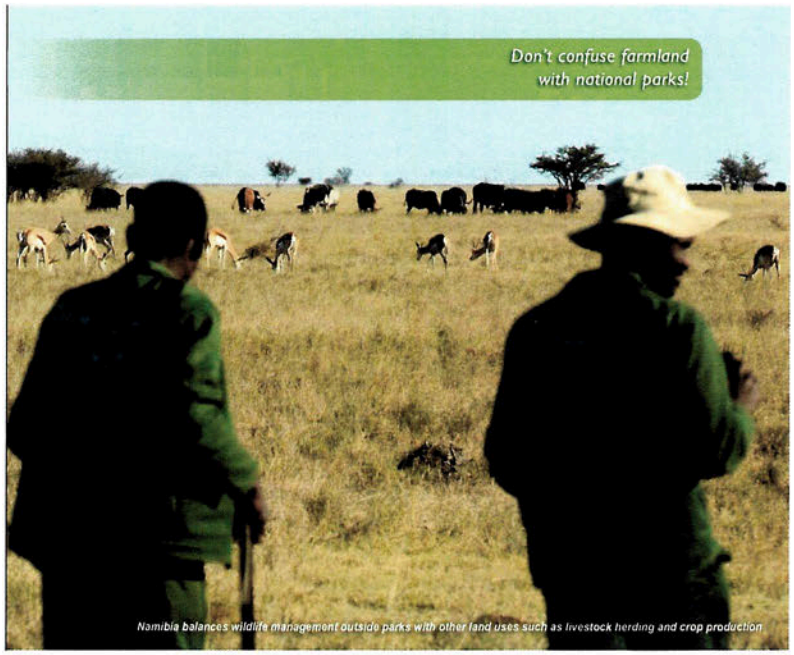
In Namibia, most communal land (around 37% of the country) and privately-owned or freehold land (around 43% of the country) is used to generate a living for the land holders. Livestock herding, crop production and game management are the main land uses.

Conservation outside national parks therefore depends on giving wildlife a tangible value so that people keep it on the land – rather than eradicating it in favour of livestock, crops or other land uses.

Keeping wildlife on the land also means living with wildlife – wildlife that can be dangerous and destructive.
Disney is not reality – in real life...

... **lions**, crocodiles and other predators eat livestock and sometimes kill people
... **elephants** raid crops and destroy water installations and also sometimes kill people
... many other wild animals such as hippos, buffaloes and rhinos can also be difficult and dangerous to live with.

- *Wildlife use is a traditional and integral part of life in rural Africa – hunting is a part of African culture. This was the same in Europe and America – when people still lived from the land and the wildlife was still there.*
- *Namibia protects around 17% of its land in national parks – that's more than most countries.*
- *Community conservation areas cover about 21% of Namibia and embrace around 230,000 people.*
- *Tourism concessions in parks provide important income for neighbouring communities, promoting conservation.*
- *Wildlife conservation outside parks must be seen as wildlife management for the benefit of the people – not wildlife preservation for the benefit of an urban ideal.*
- *Rural people need the land to survive – for livestock herding, for crop production and for wildlife management.*
- *Wildlife management outside parks is an economic activity – just like farming – otherwise wildlife will be pushed out by land uses that generate better returns from the same land at lower costs.*
- *Photographic tourism is an ideal use of intact ecosystems with healthy wildlife populations, but can only be practiced in accessible areas with enough scenic interest and/or high wildlife densities – this leaves large areas without tourism value or income.*
- *Together, conservation hunting and tourism fund community conservation structures – including most of the 86 communal conservancies, a community conservation association in a national park (managed like a conservancy) and around 684 community game guards and resource monitors.*
- *Conservation hunting funds anti-poaching activities by government agencies, community conservation organisations and private sector initiatives.*



Namibia balances wildlife management outside parks with other land uses such as livestock herding and crop production

Namibia's conservation success is based on science and proof!

Namibia has one of the most intensive wildlife monitoring and utilisation control systems in Africa and the world:

Namibia uses a variety of systems to monitor and manage wildlife populations. The systems differ between national parks, community conservation areas and private farmland and are tailored to meet local needs. Management is by no means perfect in all areas or at all times. Yet the general approach of actively using wildlife outside parks for the benefit of rural communities has proven to be very successful, enabling healthy wildlife populations and strengthening local livelihoods. Namibia's dynamic conservation community ensures that environmental concerns are publicly recognised. While a balance between economic development and conservation in rural Africa is often problematic, most stakeholders strive to address issues. Collaboration between government, local communities, support NGOs and the private sector is a key to Namibia's conservation success.

No single approach or system is perfect. The flexibility to adapt to changing needs and circumstances is more important than any one system or approach.

- *Namibia has excellent knowledge of its wildlife populations through ongoing research and regular, rigorous monitoring activities and systems, including aerial surveys, road counts, foot patrols and remote wildlife tracking using cutting-edge technology.*
- *The Ministry of Environment and Tourism has clear compliance requirements for wildlife management*
- *Stringent monitoring and control systems for all wildlife harvesting facilitate effective management and minimise misuse.*
- *Offtakes are carried out according to annual quotas based on sustainable harvest rates and are controlled through permits and reporting requirements.*
- *The effects of offtakes over time are monitored and harvest rates are adapted to keep populations healthy if population changes occur.*
- *Regular quota revisions for wildlife harvesting are based on monitoring data and scientific guidelines.*
- *Land use objectives differ between national parks, community conservation areas and private farmland, resulting in varying wildlife densities in different areas.*
- *Challenges are a part of wildlife management, especially when attempting to balance the needs of large, dangerous wildlife with the needs of poor rural communities.*
- *Increasing human-wildlife conflict is a result of increasing game numbers and a sign of successful conservation; it is also one of the biggest challenges for wildlife management outside parks.*
- *Wildlife in open, unfenced systems is free to roam and is susceptible to drought and disease, resulting in natural population fluctuations.*
- *Continually adapting activities to changing circumstances facilitates sustainability.*
- *Namibia conforms to CITES and IUCN guidelines for wildlife use, as well as those of the International Convention of Biological Conservation.*
- *Namibia has several decades of positive experience with sustainable wildlife use – which has led to significant wildlife increases.*



Namibia uses scientific principles and cutting-edge technology to monitor and manage wildlife populations.

Sustainable wildlife harvesting promotes conservation!

What exactly is sustainable wildlife harvesting?

Sustainable wildlife harvesting means harvesting a limited percentage of wildlife stocks without compromising the health of the overall population, *in order to generate income for local communities and enable wildlife management as a viable land use. When this is legally-entrenched, well-controlled and based on scientific principles and sound knowledge, it is fully sustainable.*

Wildlife harvesting has been a natural factor controlling game populations throughout human evolution, just like the impact of lions and other predators.

Sustainable wildlife harvesting…

- *Is carried out by local land holders.*
- *Creates incentives to keep wildlife on the land.*
- *Keeps natural habitats intact.*
- *Provides alternative income and strengthens rural livelihoods, especially in remote, arid environments.*
- *Enables a mix of land uses including livestock and cropping.*
- *Strengthens resilience against impacts from climate change.*
- *Strengthens resilience against external economic or political influences and reduces dependency on agriculture.*
- *Pays for conservation structures and anti-poaching activities.*
- *Provides meat for rural communities.*
- *Ensures stakeholders have a real interest in conserving wildlife.*
- *Reinforces traditional cultural values related to wildlife.*
- *Safeguards indigenous knowledge about wildlife.*

Sustainable wildlife harvesting includes these activities:

- *Conservation hunting (hunting with clear conservation outcomes targeting a very small percentage of the total population).*
- *Meat harvesting (using minimum-impact methods and offtake rates well below natural population growth rates).*
- *Live capture and sale (moving surplus animals from high density areas to low density areas within their natural range).*

What exactly is conservation hunting?

Conservation hunting consists of harvesting small numbers of indigenous wildlife as part of a personal wilderness experience based on traditional human survival skills. Conservation fishing harvests indigenous fish according to the same principles. These activities have verifiable prerequisites and outcomes (see opposite page) while focussing on wilderness experiences and participation in natural dynamics through regenerative pursuits. They can be combined under the term wildernessing and promote the protection of free-roaming indigenous species in their natural habitat.

The Namibian conservation hunting fraternity adheres to guidelines for ethical hunting, including:

- *Stalking game in natural habitat to ensure a wilderness experience and fair chase.*
- *Ensuring minimum suffering for hunted animals.*
- *Targeting only those animals that can be harvested without negative impacts on the overall population.*
- *Ensuring that all meat and other products of all hunted animals are used.*
- *Hunting predators in an ethical manner only as part of predator management.*

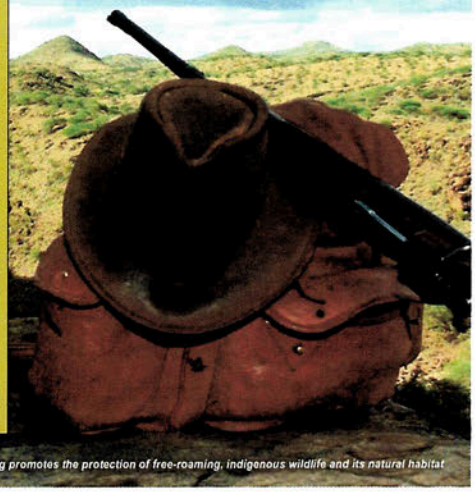
Ethics may be considered a personal value statement and can differ between individuals and cultures. Hunting ethics should be directly linked to conservation outcomes, primarily to promote the protection of free-roaming indigenous wildlife in its natural habitat.

Don't confuse conservation hunting and other sustainable wildlife harvesting with poaching or bad trophy shooting practices!

CONSERVATION HUNTING HAS THE FOLLOWING VERIFIABLE PREREQUISITES AND OUTCOMES:

1. It is governed by a national legal framework with clear systems of controls and reporting requirements.
2. It meets all CITES and IUCN species conservation criteria.
3. It targets only free-roaming, indigenous species in natural habitats large enough to ensure healthy population dynamics.
4. Wildlife population trends in the greater landscape are closely monitored and offtakes are adapted as needed to ensure the population health of all targeted species.
5. Offtakes are sustainable, based on species-specific, scientifically-accepted annual quotas for the hunted population.
6. It promotes the natural diversity of all indigenous fauna and flora in the hunting area.
7. It safeguards wildlife habitat (the hunting area) against destructive land uses.
8. A major portion of generated income goes back to the land holders and is spent on the conservation and human development needs of the hunting area.
9. It employs local people to carry out conservation activities in the hunting area, including wildlife monitoring and anti-poaching activities.
10. It mitigates human-wildlife conflict amongst local communities if these occur in, or adjacent to, the hunting area.

Through these criteria, conservation hunting creates clear incentives to adopt wildlife management as a land use.



Conservation hunting promotes the protection of free-roaming, indigenous wildlife and its natural habitat.

Habitat loss and crime are the biggest killers of wildlife!

WILDLIFE PRESERVATION WITHOUT HABITAT CONSERVATION IS MEANINGLESS!

Land conversion and resultant habitat loss is mostly overlooked by the public, but is the biggest killer of wildlife!

Wildlife needs large areas of intact habitat to ensure healthy populations:

- *Most game needs undisturbed access to water, which it does not have if pressure by people, their livestock or their dogs is too high.*
- *Many species need to be able to roam widely in search of food, especially in areas with highly variable rainfall; fences, roads, settlements and other infrastructure all fragment habitat and inhibit the ability of wildlife to respond to seasonal food availability.*
- *Wild animals need shelter to which they can retreat when chased by natural predators or disturbed by people.*
- *Game needs large enough areas to engage in natural interactions, especially breeding and rearing of young.*
- *Wildlife can coexist with livestock, but is often eradicated by farmers who see it as grazing competition or a threat to infrastructure or safety.*
- *Wildlife is not tolerated in crop fields or gardens; effective zoning of crops into land use mosaics can leave adjacent wildlife habitats intact.*

PEOPLE ONLY MAKE THE EFFORT TO KEEP WILDLIFE HABITATS INTACT IF THEY HAVE A TANGIBLE INCENTIVE TO DO THIS.

POACHING AND UNCONTROLLED EXPLOITATION DECIMATE WILDLIFE!

Poaching and uncontrolled exploitation should never be confused with legal, sustainable wildlife harvesting!

Poaching…

- *Is an economic crime that bypasses the legal economy and provides no local income or benefits.*
- *Is stealing from the rightful owners – the local communities.*
- *Steals valuable wildlife products for purely personal gain – just like cattle theft, shoplifting or film piracy steal from legal industries.*
- *Introduces organised crime into local communities, disrupting social structures and values, and undermining legal livelihoods.*
- *Undermines conservation activities and harms the resource base.*
- *Undermines tourism and other legal wildlife uses.*
- *Has a severe impact on high-value species.*

Uncontrolled exploitation…

- *Places immediate financial gain over sustainability*
- *Abuses legal loopholes to exploit resources.*
- *Takes advantage of weak control mechanisms.*
- *Relies on weak governance and corruption.*
- *Benefits only a small number of individuals.*
- *Undermines legal livelihoods and sustainable activities.*
- *Undermines conservation activities and harms the resource base.*
- *Undermines tourism and other legal wildlife uses.*
- *Is not sustainable.*

COMMERCIAL POACHING, ESPECIALLY OF RHINOS AND ELEPHANTS, IS A HUGE THREAT TO NAMIBIA'S VALUABLE WILDLIFE AND TO A VARIETY OF INDUSTRIES BASED ON IT.

Greed and misguided emotions undermine effective conservation!

TROPHY BREEDING AND SHOOTING DISCREDITS ALL SUSTAINABLE WILDLIFE HARVESTING!

Trophy shooting activities motivated only by financial gain should not be confused with conservation hunting!

These and similar practices make no conservation contributions and are not part of conservation hunting:

- *Canned shooting (shooting animals in small enclosures).*
- *Put-and-take shooting (releasing captured trophy animals for the sole purpose of shooting them).*
- *Breeding lions and other predators for trophy shooting.*
- *Breeding rarities such as black springbok, golden oryx etc. for the trophy trade.*
- *Introducing exotic species such as blesbok, nyala etc. for trophy shooting.*
- *Unethical shooting of animals based only on their trophies (rather than fair chase hunting based on a wilderness experience).*
- *Genetic manipulation of species gene pools to enhance trophy quality.*

GAME USE MUST BE ABLE TO PROVE CONSERVATION OUTCOMES TO BE ACCEPTED AS A VIABLE CONSERVATION ACTIVITY

EMOTIONAL ANTI-HUNTING CAMPAIGNS UNDERMINE CONSERVATION!

Anti-hunting campaigns based on emotional opinions should not derail proven conservation approaches!

In a modern world of inter-connectivity, social media and concerned global citizens, well-meaning but at times misguided international opinion and pressure don't always bring positive change – they also have the ability to influence and change legitimate local activities for the worse. Local communities and environments are often the worst affected.

- ***Calls for a hunting ban in Namibia are based on urban values and opinions, not on rural conditions and needs**, and are often orchestrated by animal-rights organisations and misguided followers.*
- ***A small, economically secure urban elite is challenging legal and highly beneficial activities** in Africa from an idealistic moral standpoint.*
- ***A hunting ban dispossesses and disempowers local decision making** and enforces a foreign moral view upon Africans.*
- ***A hunting ban would have the most negative impacts on the elements that the international public is attempting to support** – wildlife populations and local people outside national parks.*
- ***In-depth understanding of wildlife dynamics, based on scientific principles, should not be dismissed** by emotional, misguided external public opinions.*

NAMIBIA'S WELL-DOCUMENTED, SUCCESSFUL APPROACH TO CONSERVATION SHOULD NOT BE JEOPARDISED BY OUTSIDERS

African wildlife: use it – or lose it!

What would be lost, if wildlife could not be used to generate income for local communities outside parks?

Hunting bans, which could consist either of Namibia stopping the activity of hunting, or of other countries stopping the import of hunting trophies – thereby closing the market – would have detrimental effects for wildlife outside parks, and for people currently benefitting from that wildlife.

- *The loss of income to the national economy is currently not quantified, but is likely to be over a billion Namibia Dollars.*
- *A hunting ban would result in at least N$ 39.6 million of lost annual returns for conservancies if all wildlife harvesting were banned, and would have a direct impact on at least 48 of the 56 conservancies currently generating returns from natural resources.*
- *Loss of conservation hunting income would result in at least 30 conservancies becoming financially unsustainable.*
- *If no immediate alternative income streams could be secured, a large percentage of the currently 684 community game guards and resource monitors employed in conservancies across Namibia would stand to lose their jobs.*
- *The loss of natural resource management structures would have immediate negative effects on wildlife populations and the health of other natural resource stocks.*
- *The loss of community game guards would significantly reduce Namibia's ability to combat poaching, especially of free-roaming rhino and elephant.*
- *Discontinuing regular wildlife monitoring and annual game counts would seriously undermine effective wildlife management.*
- *The loss of natural resource returns for local communities would result in an immediate reduction in people's tolerance of problematic wildlife such as elephants, lions and other predators.*
- *Reduced tolerance of wildlife would lead to an increase in retaliatory killing of problematic animals.*
- *A reduced sense of ownership over wildlife would lead to increased bush-meat poaching as well as poaching of high-value species.*
- *Across much of the currently 169,756 square kilometres of community conservation area, wildlife would no longer be considered a land-use priority and would be displaced by other uses such as livestock.*
- *On a large percentage of freehold farms with limited or no tourism potential, wildlife would also be displaced.*

MOST LARGER WILDLIFE SPECIES WOULD BE DISPLACED FROM MUCH OF NAMIBIA IF THEY COULD NOT BE USED TO GENERATE INCOME

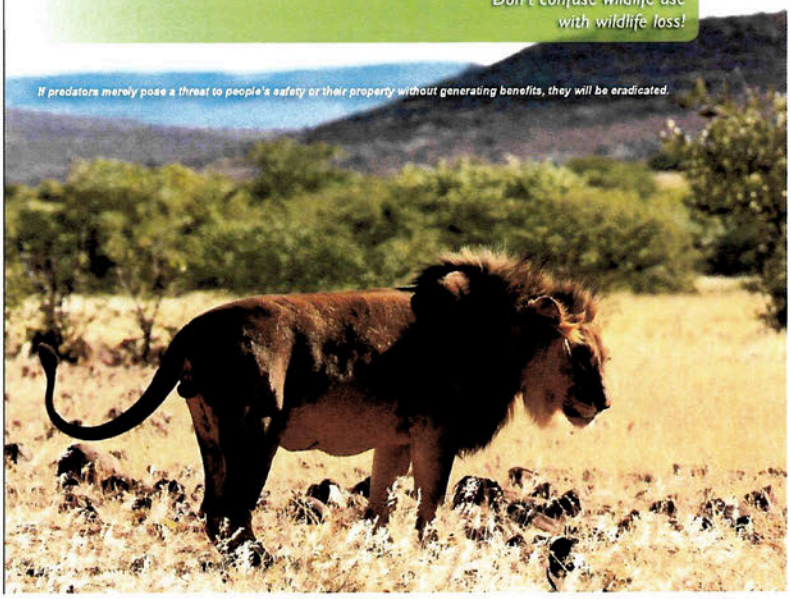
Using wildlife ensures its value for land holders and KEEPS IT ON THE LAND!

The economic value of wildlife creates the incentive for land holders to include wildlife as a land use. If wildlife is not used, but preserved only for its own sake, it has little place outside parks, because land outside parks is used to generate rural livelihoods and contribute to the national economy.

- *Eat game meat to keep wildlife on the land – eat beef, and put more cattle on the land.*
- *Harvesting sustainable numbers of wildlife keeps overall populations healthy and avoids over-stocking.*
- *Conservation hunting promotes wildlife conservation and habitat protection.*
- *Go wildernessing to truly experience Africa's natural splendour and traditional human survival skills.*

THE LEGAL USE OF WILDLIFE ENABLES LAND HOLDERS TO SEE IT AS PART OF THEIR LIVELIHOOD, ENSURING HEALTHY POPULATIONS

Don't confuse wildlife use with wildlife loss!



If predators merely pose a threat to people's safety or their property without generating benefits, they will be eradicated.

A publication of:
NACSO Natural Resources Working Group
www.nacso.org.na

INFORMATION APPLICATION ADAPTATION



Further information resources:

Community conservation in Namibia: **www.nacso.org.na**
(especially the annual Community Conservation Report)
State protected areas in Namibia: **www.met.gov.na**
International wildlife trade regulations: **www.cites.org**
International biodiversity conservation - **www.iucn.org**

The Namibian Association of CBNRM Support Organisations (NACSO) embraces a variety of NGOs and individual members, who provide a range of technical and funding support to community conservation. Three NACSO working groups, namely the **Natural Resources Working Group** (NRWG), the **Business, Enterprises and Livelihoods Working Group** (BELWG) and the **Institutional Development Working Group** (IDWG), facilitate coordinated service provision to rural communities. More information: **www.nacso.org.na**

Ministry of Environment & Tourism

NACSO
Namibian Association of CBNRM Support Organisations

Copyright © NACSO 2018. Photos, text, map & layout by Helge Denker. Printing by John Meinert Printing

APPLICANT:

JEFFREY WILCOX

LION CONSERVATION AND SUSTAINABLE USE

LION CONSERVATION AND SUSTAINABLE USE

Namibia has a population of about 800 lions, similar to the period 1965 to 1980. The main population, between 450 and 500, is in Etosha National Park, with other populations in Khaudum and Bwabwata National Park in the northeast of the country, and very small populations in Mahango, Mudumu and Nkasa Rupara. Over the past 25 years a fluctuating population in the Kunene Region in the northwest has increased from 20-30 animals to about 140-160. It is the only really significant lion population outside of protected areas in Namibia. The rest are all contained within national parks, except for small populations in some private wildlife areas. *Dr Chris Brown*

Most farmers are not able to survive financially with a large lion population because livestock farming and lions are not really compatible. The only place where farming and lions are compatible to some extent is in large open systems where people move around with their livestock and where lion density is relatively low. In the northwest of the country, for example, part of the lion population lives in such low rainfall areas that people seldom go there with their livestock. That gives the lions some protection. Some of the farmers in that area are also more tolerant of lions than in other places in the world. They are prepared to live with lions at a reasonable population density. When the lion population gets too large or when the wildlife numbers in the area decline – for example during droughts, when wildlife either dies and/or moves eastwards out of the area – the lions are left stranded with a very limited food supply. That is when they turn more to domestic stock, which then causes conflict with farmers.

Lions are fast breeders. Females produce litters of up to four cubs at a time. Etosha for example, with its 450 to 500 lions, produces a surplus of perhaps forty to sixty lions every year. The park cannot carry more lions because their territories and home ranges determine their spatial distribution and density. The population strategy of the lion is designed to produce excess animals for rapid population growth, because they are naturally faced with boom and bust situations due to changing prey numbers. Also, lions often get injured or killed in their normal practice of hunting. Since the growth of lion populations is higher than natural mortality, there is a net pressure on the population for surplus animals to move out of the park and find new territories and expand their range. This pressure mainly affects young lions. Lions that are not able to join existing prides are usually forced, through competition and aggression, to leave Etosha, typically as many as forty to fifty lions per year. Males in particular are forced out, resulting in young lions looking for new prides and exploring new territories. Those "territories" around Etosha and elsewhere are generally freehold or communal farmland where farmers breed livestock. Therefore the lions and farmers inevitably come into conflict around the national parks.

People feel that the Ministry of Environment should simply build bigger, stronger fences. First, that is hugely expensive. Our large national parks would require literally hundreds of kilometres of fencing to erect and maintain. Etosha alone has a border of about 500 km. Do we want to put Namibia's limited financial resources on putting up fences to separate people from wildlife? A normal game-proof fence around Etosha would cost about N$35 million. But a normal fence does not contain lions and elephants. That would cost five times more. So, do we want to spend up to N$200 million to stop a few cows from being killed? Are we that much driven by emotion and that little by rational thought? Rather, let's invest in helping farmers to protect their livestock, generate income from wildlife, and then spend the rest on important things like education, health and access to urban land for housing.

Second, it's very difficult to maintain those fences. A lion can jump over a ten-foot fence. Other animals dig holes under fences, and lions crawl out. And even a reinforced cable fence is pushed over from time to time by elephants, allowing lions to leave the park. To maintain a fence in a condition that is absolutely lion proof is simply impossible and attempting to do so is enormously expensive and time-consuming.

Around much of Etosha, particularly in the south, it has happened that farmers have turned to a more appropriate and lucrative form of land-use: a wildlife-based economy that includes tourism, trophy hunting, game meat harvesting and live sales of surplus high-value wildlife species. These farmers are making much more money than they did farming cattle and they are no longer in conflict with lions and other predators. Communal conservancies on the northern side of Etosha are starting to do the same.

Any cattle farmer will tell you that farming is a tough business with narrow margins, and losses in poor rainfall years that have to be recovered in good rainfall years. Declining beef prices, increasing costs, government interference, impacts of climate change and rangeland





degradation through bush encroachment all combine to make a farmer's life increasingly difficult and the financial returns ever smaller. Cattle farmers' income is based on the quality and quantity of meat (protein) that can be produced, which in turn is based upon soil quality, rainfall and management. There is a limit to what good management can do. Our soils are generally poor, and rainfall is low and highly variable. Everything is stacked against the farmer. The income ceiling is low – it is essentially a ceiling defined by primary protein production. So how do you break through that low ceiling? You need to move beyond primary production to include service industries. Wildlife offers three service industry components in addition to the primary production of game meat. They are tourism, trophy hunting and live sales of high-value species. In all three cases the animals are being "sold" for well above their protein value. Then the neighbouring national park is no longer an enemy, unable to contain predators, but becomes a friend, offering marketing opportunities. The park neighbour is no longer in a conflict zone, but in a mutual support zone. Thus we then have mutually friendly neighbours with far higher economic returns and with far more resilient ecological and economic systems.

Trophy hunting takes off 1% of the national herd while animals are breeding at a rate of fifteen, twenty or even thirty-five percent. You anyway have to deal with the surplus grazer and browser pressure on your land every year because the animals are breeding at this rate. Unless you want total habitat degradation and damage, you've got to manage those pressures on your land. Trophy hunting takes off a very small percentage while the farmer still has to deal with another up to 35% of those animals, depending on the species, to keep your livestock, your animals in your veld in balance. **Trophy hunting is a very high return, low impact type of activity and essentially it's also a service industry.**

THE IMPORTANCE OF A GREEN ECONOMY

A biodiversity-based green economy is one that is good for conservation because it keeps habitats natural. You keep your indigenous vegetation, all the species of wildlife, as many as you can support of those that are indigenous to that area and all the other forms of life, plants and animals, from insects right up to the bigger mammals. You keep indigenous ecosystems and the animals that live in them, right down to the smallest micro-organisms.

The more people who do that, particularly if they start linking their land into bigger landscapes and collaborate with the national parks, resilient productive ecosystems fall into place. You've got scale that allows a group of farmers to come together and set up an abattoir and get the value from that. You can set up a tannery and a whole range of things. Tourism and trophy hunting in bigger open systems is far more attractive from a marketing point of view than in isolation. Having a full suite of species in these ecosystems, including elephant, lion and rhino, adds more value to the total. If you get to a stage where you are outperforming conventional forms of land use by five, six, seven times and you are really getting good returns in well-managed ecosystems, it is good for the economy, good for job creation and good for conservation. Isn't that really the direction in which Namibia should be going?

In the northwest of the country there has been increased conflict in recent years because of a growing lion population linked to drought.

The communal conservancies in that area manage wildlife and benefit from it as part of their traditional farming systems. Livestock provides their core household livelihood, but they add well-managed wildlife to that, including all the economic components that are derived from it: trophy hunting, game meat and tourism. But we must never forget that conservancies are primarily farmland where farmers have come together to form these conservancies as a supplementary form of livelihood. Livestock is their primary livelihood at this stage. So, when situations arise where lion populations increase to a critical level, prey numbers decline and lions turn to people's domestic stock, communities understandably get upset and want to see interventions that prevent further livestock losses. While protection of livestock is part of the solution, there is no good conservation reason why lion populations cannot be reduced and managed to accommodate those realities of people living with lions. As stated earlier, lion populations have evolved to recover rapidly from population declines – that is part of their adaptation to harsh environmental conditions and the tough life that these predators face.

From a conservation perspective the most important issue for the "desert-adapted lions" in the northwest is not that their population may shrink from time to time when drought conditions prevail, but that a genetic link is maintained between this population and the lions in Etosha. The greatest risk is that this relatively small population of lions in north-western Kunene becomes isolated, because then they will become less and less viable.

It is not a conservation threat to the lion population of Etosha if lions leave the park and enter freehold farmland to the south and communal farmland to the north, and if those lions get taken out through trophy hunting or for the protection of livestock. Indeed, we should allow the use of those lions in adjacent areas to offset people's costs incurred by living with lions, and to encourage them to change to a wildlife-based economy. We should not get too concerned about the loss of Etosha's surplus lions because we have a viable lion population in Etosha. Also, all the other national parks that can support lions (considering both ecological and social factors) already do. Therefore the surplus lions in Etosha are in fact a national surplus – we have nowhere else for them to go.

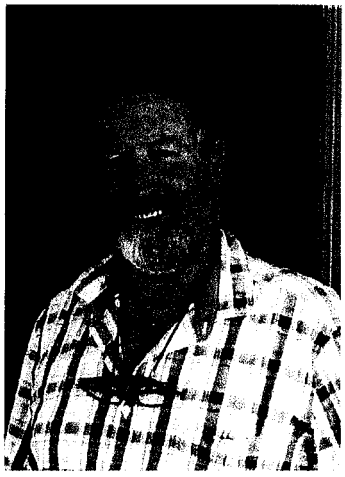
Our focus should be on the western side of Etosha. We need to maintain the genetic "bridge" between the Etosha and the desert-adapted lion populations. Here we must work closely with farmers, communities and communal conservancies to maintain that genetic bridge. This involves creating conditions that allow people and their livestock to live with a low lion population – enough of a lion presence and movement in that area to maintain connectivity between the Etosha and the north-western lion populations.

The desert-adapted lions of northwest Namibia have a remarkable and uniquely specialised lifestyle. This is fascinating from ecological, scientific and conservation perspectives. It is also of great tourism value, a value that will grow in the years ahead. We need to manage this lion population very carefully. The key factor is not that the population may expand and contract in wet and dry times, when prey is abundant or scarce, when farmers are tolerant or have lost patience with lions preying on their livestock – the lion population can absorb these pressures.

So how do we create the incentives for people west of Etosha to willingly live with a low density of lions moving through their area? First, we need to clearly recognise and acknowledge the challenge that farmers living with lions have to deal with, and appreciate their commitment to conservation. Second, we need to provide support mechanisms that reduce stock losses to the bare minimum. This could involve reinforced animal kraals at homesteads as well as mobile kraals for livestock on pastures well away from homesteads, early warning systems to notify farmers that lions are in the area, and interventions to remove lions that become problematic. And third, we need to help conservancies generate as many benefits as possible from wildlife, to ensure that benefits reach the farmers that carry the greatest risks and to thereby offset their losses.

It is important to understand that lion populations bounce back effectively. Populations can be reduced at times, if need be. It is unrealistic to try to carry a large population of desert-adapted lions through drought cycles. Lion numbers can be reduced to perhaps half or less of their peak population figure when their prey species have declined. Over time, provided there is interaction with the Etosha lions, the desert-adapted lion population will build up again rather quickly when conditions are right. Historically, long before humans came into this system, lion populations on the edge of deserts were very dynamic.

Arid and semi-arid zones are highly dynamic, and wildlife has evolved to cope and thrive in these dynamic systems. It is people's minds that have not evolved to cope well with change. We like to lock the world – including our approach to wildlife management – into fixed and stable perceptions of how things should be. Attempting to take the dynamic nature out of nature is actually very bad for nature. It reduces its resilience. Ecosystems thrive on dynamic change. We need to work with change as we manage wildlife, not try to work against change. Integrated livestock and wildlife management in Namibia's arid and semi-arid systems, perhaps more than most management, requires us to really understand the ecology and evolutionary conditions. These conditions are simply not understood by most western people living in urban environments and getting upset when they hear about lion populations being reduced in number to accommodate farmers. This situation is also not understood by some of the would-be conservation organisations that portray themselves as the champions protecting lions. It may be good for the populist social media mill, but it is not good for long-term lion conservation in Namibia.



Dr Chris Brown, CEO of the Namibia Chamber of the Environment.

APPLICANT:

JEFFREY WILCOX

LION CONSERVATION STRATEGY FOR NAMIBIA



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

Table of Contents

Foreword 2
1. Introduction and background 4
1.1 Lion Conservation status 4
1.2. Distribution 4
1.3. Habitat requirements 5
1.4. Biology: 6
1.5. Ecology 6
1.6. Diseases 6
2. Threats to the survival of lion 7
3. Background and Rationale for the Conservation Strategy 7
4. Vision and Goal statements 8
4.1. Objectives 8
4.2. Objectives and strategic actions 9
5. Implementation and revision of the Strategy 20
6. List of sources consulted 21

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).

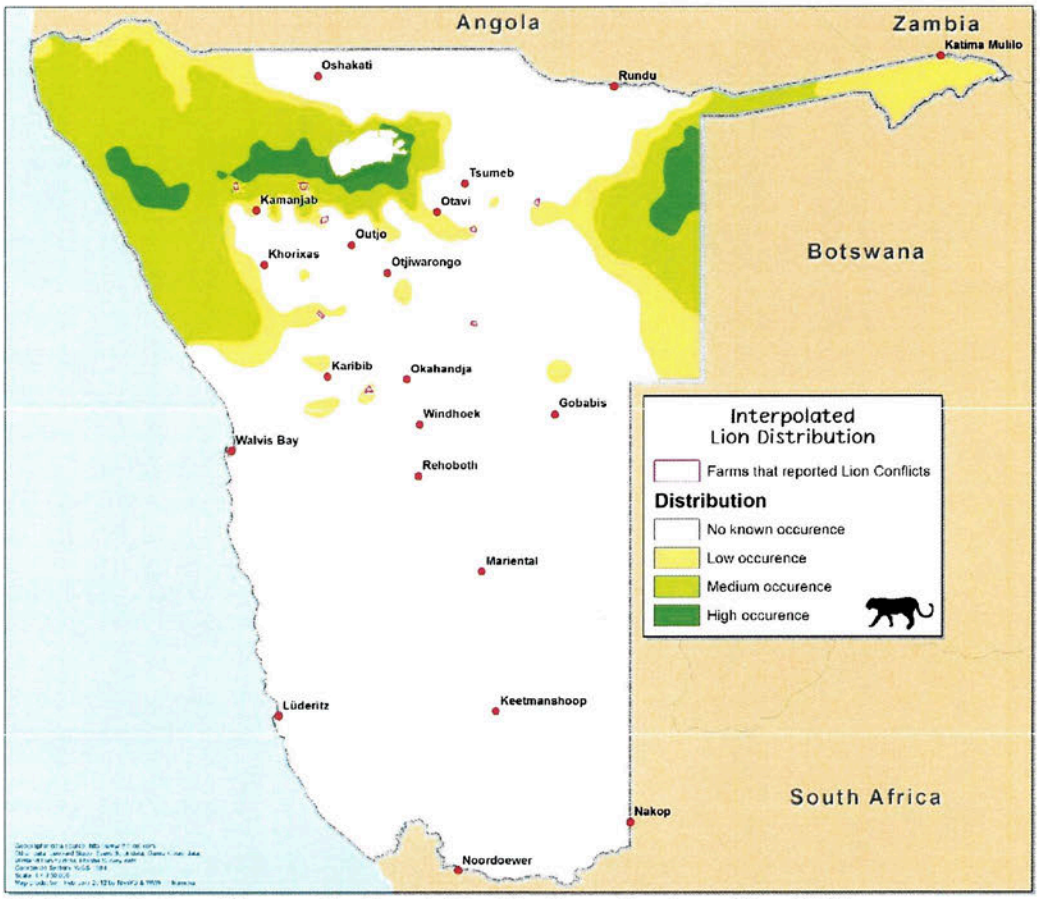


Fig.2. *Distribution of free ranging lions in Namibia (Large Carnivore Atlas, 2012)*

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.

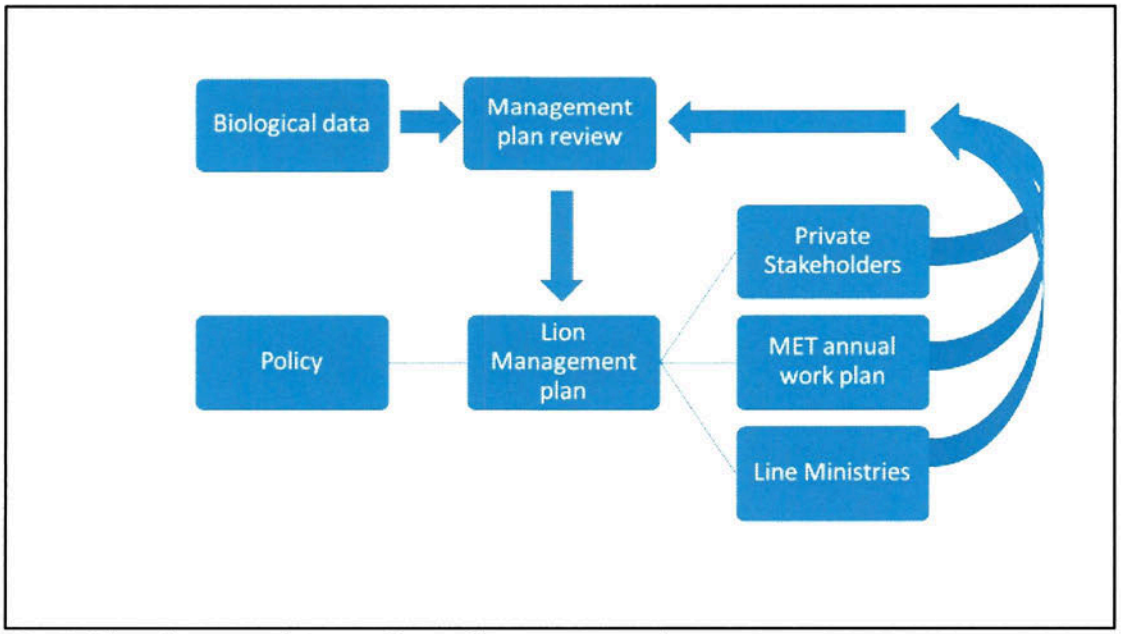


Fig. 2 *Flow diagram showing the implementation and review process*

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

FWS Form 3-200-20 (Rev. 01/2020)
U.S. Department of Interior

OMB Control No. 1018-0093
Expires 08/31/2023

IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

■New ☐Reissue/Renew ☐Amendment

Complete Sections **A or B**, and C, D, and E of this application. U.S. address may be required in Section C.**

A. Complete if applying as an individual

1.a. Last name	1.b. First name	1.c. Middle name or initial	1.d. Suffix
Reeves	Steven	Glen	

2 Date of birth (mm/dd/yyyy)	5.a. Telephone number	5.b. Alternate telephone number	6. E-mail address
(b) (6)			

B. ~~Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution~~

~~1.a. Name of business, agency, Tribe, or institution~~	~~1.b. Doing business as (dba)~~	
~~2. Tax identification no.~~	~~3.a. Description of business, agency, Tribe, or institution~~	~~3.b. Website URL (if applicable)~~
~~4.a. Principal officer (P.O.) last name~~	~~4.b. P.O. first name~~	~~4.c. P.O. middle initial~~ ~~4.b. P.O. Title~~
~~5. Primary contact name~~	~~6. Primary e-mail address~~	
~~7.a. Business telephone number~~	~~7.b. Alternate phone no.~~	~~8.a. Primary contact telephone no.~~

C. All applicants complete address information

1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)

(b) (6)

1.b. City	1.c. State	1.d. Zip code/Postal code	1.e. County/Province	1.f. Country
Hooper	Utah	84315	Weber	USA

2.a. Mailing Address (include if different than physical address; include name of contact person if applicable)

2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f. Country

D. All applicants MUST complete

1. Include a check or money order, payable to the U.S. FISH AND WILDLIFE SERVICE, **a nonrefundable processing fee [50 CFR 13.11(d)(4)]**. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – ***attach documentation of fee exempt status as outlined in instructions.*** (50 CFR 13.11(d)).

2. If you are requesting a reissue/renew/amendment, what is your permit/file number?

3. Certification: I hereby certify that I have read and am familiar with the regulations contained in Title 50, Part 13 of the Code of Federal Regulations and the other applicable parts in subchapter B of Chapter I of Title 50, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

The individual/principal officer of the business must print and sign the application. (No photocopied or stamped signatures) Date (mm/dd/yyyy)

** Further instructions for the above application may be found on our ePermits website. See the last page for information on the Privacy Act, Paperwork Reduction Act, Estimated Burden, and Freedom of Information Act aspects of this application form.

Mail your application(s) to Division of Management Authority, Branch of Permits, MS:IA 5275 Leesburg Pike, Falls Church, VA 22041-3803.

APPLICANT:

STEVEN REEVES

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit.** If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Steve Reeves (b) (6) Hooper, Utah 84315

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

panthera leo, lion

b. Sex (if known).

male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

Okonjati Wildlife Area, Mount Etjo Private Game Reserve, Namibia, nearest city - Windhoek

b. Date wildlife is to be hunted:

July 11th - July 15th, 2021

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

Jan Oelofse Hunting Safaris

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

N/A

b. Date wildlife was hunted:

N/A

c. Approximate age of animal:

N/A

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

N/A

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

N/A

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

Have not hunted yet

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:

Business Name:

Address:

City:

State/Province:

Country, Postal Code:

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.

Not hunted yet

11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):

E-mail:

Phone number:

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

OMB Control No. 1018-0093
Expires 08/31/2023

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature: (b) (6) Date: 4 Feb 2021

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from the list of designated ports. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
PHILIPPE CHARDONNET, D.V.M.
SHANE MAHONEY
RENEE SNIDER

Department of the Interior
U.S. Fish and Wildlife Service
Attn: Amy Brisendine
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803
VIA E-Mail: Amy_Brisendine@fws.gov

RE: **Import Application for a Lion trophy from Namibia**
Applicant: **Steven Reeves**
Dates of Hunt: **July 11th- July 15th, 2021**

Ms. Brisendine,

Enclosed, please find a permit application to import a lion trophy from Namibia for Mr. Steven Reeves. Mr. Reeves will be hunting in the Okanjati Wildlife Area and Mt. Etjo Private Game Reserve with Safari operation, Jan Oelofse hunting safaris in July of this year.

Jan Oelofse was known as a world-renowned wildlife conservationist who started out as a game rancher growing up in Namibia. Okanjati Wildlife Area is quite a special place where Mr. Oelofse turned a large area of unoccupied farmland back into a native wildlife sanctuary that now expands to over 86,487 acres. Over the years he strived to create a reserve that held game numbers in a healthy balance for all species, which today total over 6,000 animals. According to the operator enhancement report provided it states, "that Lions are not bred for the sake of trophies. Lions are part of the eco-system that must be managed like all other species. Lions are only hunted when 15 years or older. Managing a controlled game area involves all facets, such as tourism, hunting, game breeding, live game sales, and meat sales to generate capital for not only the sustainability of the complete eco-system, but also to achieve progress i.e., enlarging the area, introducing new species, and enhancing the carrying capacity of numbers of game." This operator is proving the notion that well-managed and regulated science-based hunting is a successful tool for wildlife conservation. We have provided another hunters' CITES export permit from this

Jan Oelofse hunting safaris employs about 100 local people from the surrounding communities, including a biologist that remains on staff year-round. They provide free education for all local children from Kindergarten up to grade 7, give free medical care for all community members and their families, and disperse game meat to them, up to 4 tons worth a year. The Oelofse's believe in working with the community to keep the human-wildlife conflict at bay, giving regular anti-poaching courses that in tandem with anti-poaching patrolling have kept poaching out of the area almost completely.

Included with this application and the operator enhancement report is the article "Lion Conservation and Sustainable Use" which details the struggle between livestock farmers and lions. The growth rate of lion populations is often higher than the mortality rate, therefore producing a surplus of the animals which frequently must be forced out to look for new territories to find food. Many of these areas are farmland where farmers breed livestock, which inevitably creates conflict. Fences can not be put around wildlife areas and national parks to keep lions from roaming into these farms, so farmers have turned to "a more appropriate and lucrative form of land-use: a wildlife-based economy that includes tourism, trophy hunting, game meat

harvesting, and live sales of surplus high-value wildlife species. These farmers are making much more money than they did farming cattle and they are no longer in conflict with lions and other predators (45). Trophy hunting takes off 1% of the national herd of lions, while the animals are breeding at a rate of fifteen, twenty, or even 35%. "Safari hunting is a very high return, low impact type of activity (46)". Almost all conservancies in Namibia started out primarily as farmland, livestock was their primary livelihood before the influx of lions increased to critical levels where prey numbers declined, and lions turned to people's domestic stock. Communities wanted an intervention to this and while protection of wildlife is vastly important, the lion population must be reduced to accommodate the realities of people living amongst them. The Lion Conservation Strategy for Namibia is also included with this application, which further details what is being done to preserve the lion populations in the country.

The final document we have included is the article, "Keep Namibia's wildlife on the Land". This article, published by NACSO (a community conservation in Namibia) asks the question "How can we ensure healthy wildlife populations despite increasing human pressure?" It states that over the last century lions were actively eradicated in Namibia due to the threats to human safety and livestock. Yet today, Namibia's lion population is healthy and increasing, and is at the highest since its independence in 1990. Lion ranges have expanded significantly, especially in North-western Namibia. This article echoes the previous information we have provided in this letter, that the model for working with wildlife and finding a balance of tourism, farming, safari-hunting, and meat sales all help natives to see dangerous wildlife as a commodity that they can respect and use to better their lives. The article further enhances the fact that Namibia only encourages conservation hunting and that the locals are growing increasingly intolerant of emotional anti-hunting campaigns that undermine the conservation. "A hunting ban dispossesses and disempowers local decision making and enforces a foreign moral view upon Africans". We ask that you specifically reference the page regarding "African wildlife: use it- or lose it" where it outlines what would be lost if wildlife could not be used to generate income for local communities outside parks, specifically if hunting bans were to go into effect. The ramifications of abolishing safari hunting or the importation of trophies would have "detrimental effects for wildlife and for people currently benefitting from that wildlife".

We would like to bring awareness to the fact that we are filing this import permit application before the hunt. The ever-growing backlog of application permits that have not been issued at the USFWS seems to be growing and the current sentiment of hunters is that they do not want to purchase expensive safari hunts when there is no guaranty that a permit will be issued for their trophy. It is imperative that pre-hunt applications begin to be processed and permits issued before a hunter travels abroad in order to give them some peace of mind and security regarding this process. Safari operators are struggling due to the restrictions that the COVID pandemic has brought about and many organizations are having to close because they can not survive without tourists. Issuing pre-hunt permits would give a boost of confidence to the entire industry that Safari tourism is still lucrative and important to the conservation of wildlife.

Please refer to the numerous documents and responses previously submitted to FWS by Conservation Force, Professional Hunters, Operators and Professional Hunting Organizations, as well as information submitted by the government authorities of Namibia in making a positive enhancement determination for this import.

If you have any questions about this import application, please do not hesitate to contact us.

Sincerely,

Aimee Korver

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Steven Reeves W/ attachments

Enclosures:

a. FWS Permit Application Form for Import of Sport-Hunted Trophy
b. Notice of Representation
c. Copy of Hunting Permit
d. Operator Enhancement Report
e. History of the Lion population for Jan Oelofse hunting safaris
f. CITES Export permit with source code "W"
g. Lion Conservation and Sustainable Use
h. "Keep Namibia's wildlife on the land"
i. Lion Conservation Strategy for Namibia

APPLICANT:

STEVEN REEVES

NOTICE

OF

REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed LION Trophy from _____.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

(b) (6) [redacted]

SIGNATURE

Steven G. Reeves

PRINT FULL NAME

4 Feb 2021

DATE

APPLICANT:

STEVEN REEVES

OPERATOR ENHANCEMENT REPORT

ANNEX I OPERATOR ENHANCEMENT QUESTIONAIRE

Operator Information

a. Name of Area Operator: **Jan Oelofse Hunting Safaris**
b. Years in business: **46 years**
c. Name of company conducting hunt: **Jan Oelofse Hunting Safaris**
d. Country: **Namibia**

a. Name of Concession: **Okonjati Wildlife Area**
b. Area in km^2: **350**
c. Land tenure:
____ Government Lease
____ Community
X Private Ranch
____ Private Conservancy
d. Length of concession agreement: **N/A**
e. Can the concession be renewed? **N/A**
f. Length of renewal, if applicable: **N/A**
g. Estimated trophy fees: **U$ 35 000.00 for a fully mature male lion and U$ 10 000.00 for a fully mature lioness**
h. Are there are special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed: **N/A – Privately owned land, privately managed, cattle ranches re-established into a wildlife area since 1975**
i. Provide location and nearest city: **Farm Okonjati # 516, District Otjiwarongo, Region Otjozondjupa, Namibia . Nearest settlement Kalkfeld, nearest town Otjiwarongo, nearest city Windhoek**
j. Please attach a map or maps with marked boundaries and nearest city
k. If the concession borders a National Park, provide park name: **N/A**
l. Describe general and distinctive habitat/water features: **Habitat: Mountains, Riverines, Bushveld, savannah, plains, kopjies, earthen damps and boreholes**

Communities in the Concession

a. Are there any communities living in the concession? Yes **X** No ____
b. If so, estimated number of people/villages in the concession: **200**
c. Are there communities bordering this concession? Yes ____ No **X**
d. If so, estimated number of peoples/villages around the concession: **N/A**

Relevant Game Populations in the Concession

Species	Relative Abundance (Dense, Average, or Sparse)	Estimated Population	3-Year Trend (Up, Down, or Stable)	How is it Monitored?
Elephant	**Dense**	**45**	**up**	**Regular observations**
Lion	**Dense**	**25**	**up**	**Regular observations**

Leopard	Dense	35	up	Trail Cam and regular observations
Cheetah	Sparse	10	up	Regular Observations
Black Rhino	Dense	65	up	Regular observations
White Rhino	Dense	50	up	Regular Observations
Gemsbuck	Average	450	up	Regular Observations
Hartebeest	Average	75	up	Regular observations
Blue Wildebeest	Average	450	up	Regular Observations
Springbuck	Dense	3800	up	Aerial Game Count
Common Impala	Dense	1300	up	Aerial Game Count
Blesbuck	Average	200	up	Aerial Game Count
Steenbuck	Dense	400	up	Regular Observations
Duiker	Dense	300	up	Regular Observations
Klipspringer	Average	80	up	Regular Observations
Warthog	Dense	500	up	Aerial Game Count
Ostrich	Average	450	up	Aerial Game Count
Hartmann Zebra	Dense	400	up	Aerial game Count
Burchell Zebra	Dense	270	up	Aerial Game Count
Black Wildebeest	Average	200	up	Aerial Game Count
Waterbuck	Dense	400	up	Aerial Game Count
Kudu	Dense	400	up	Aerial Game Count
Damaraland Dik-Dik	Dense	75	up	Regular Observations

Eland	**Dense**	**250**	**up**	**Aerial Game Count**
Giraffe	**Dense**	**1200**	**up**	**Aerial Game Count**
Sable	**Dense**	**300**	**up**	**Aerial Game Count**
Roan Antelope	**Dense**	**300**	**up**	**Aerial game Count**
Nyala	**Average**	**150**	**up**	**Regular observations**
Lechwe	**Dense**	**200**	**up**	**Regular Observations**
Hippo	**Sparse**	**11**	**up**	**Regular Observations**

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application. **See Attached Management plan**

b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports. **The whole area is a conservation area, permanent and continuous conservation work done to protect and enhance conservation on all levels**

Local Community Participation

a. Total employment number: **100**

b. Total employment in the off-season: **100**

c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	**5**	**5**	**5**
Trackers	**5**	**5**	**5**
Anti-poaching Scouts/Rangers	**10**	**10**	**10**
Other Anti-poaching	**5**	**5**	**5**
Cooks/Housekeepers	**22**	**22**	**22**
Community Coordinators	**8**	**8**	**8**
Managers	**11**	**11**	**11**
Biologists	**1**	**1**	**1**
General Labour	**30**	**30**	**30**
Teachers	**3**	**3**	**3**

Anti-Poaching Efforts

a. Number of anti-poaching staff: **15**

b. Are patrols conducted during the hunting season, off-season, or both? **Both**

c. Months patrols are conducted: **12 months**

d. Number of patrols per month: **Daily**

e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: **12%**

f. Description of anti-poaching equipment, vehicles, gear, etc. **Vehicles, Binoculars, Semi- Automatic Rifles, Radio and GPS Equipment, Clothing and boots, sleeping bags and various other gear needed for patrols**

g. Do government-sponsored game scouts conduct patrols? **No**

h. If so, do they have the ability to arrest? **N/A**

i. Do you offer rewards to poaching informants leading to arrest? Yes **X** No ____

j. Do you offer rewards to poaching informants upon conviction? Yes **X** No ____

k. Please describe the operator's anti-poaching expenditures over the past 3 years below:

Type of Expense	Year 1 (2018) Spending	Year 2 (2019) Spending	Year 3 (2020) Spending	Remarks
Scout Salaries	**N$ 720 000.00**	**N$ 720 000.00**	**N$ 720 000.00**	
Equipment	**N$ 400 000.00**	**N$ 150 000.00**	**N$ 150 000.00**	**First year Radio Equipment**
Vehicles	**N$ 400 000.00**	**N$ 80 000.00**	**N$ 80 000.00**	**First year Extra Vehicles**
Fuel	**N$ 350 000.00**	**N$ 350 000.00**	**N$ 350 000.00**	
Rewards				**No Rewards due to No Poaching Incidents due to effective anti-poaching and loyal community involvment**
Others: **Accommodation**	**N$ 360 000.00**	**N$ 360 000.00**	**N$ 360 000.00**	
Totals	**N$ 2 230 000.00**	**N$ 1 660 000.00**	**N$ 1 660 000.00**	

l. What currency are the expenditures given in? **Namibian Dollars**

Anti-Poaching Results

Type	Year 1 (2018)	Year 2 (2019)	Year 3 (2020)	Remarks
Poaching Incidents Discovered				
Elephant Carcasses Observed				
Lion Carcasses Observed				
Leopard Carcasses Observed				**No Poaching Incidents due to effective anti-poaching**
Ivory Poachers Observed				
Bush Meat Poachers Observed				

Illegal Logging Observed				
Other Poachers Observed				
Poachers Convicted				
Snares/Traps Collected				
Firearms Confiscated				
Vehicles Confiscated				
Bicycles Confiscated				**No Poaching Incidents due to effective anti-poaching**
Boats/Nets Confiscated				
Tusks Recovered				
Others: _____				

Community Investment

a. Does the company give ~~money~~ or goods/**services** to local communities? Yes **X** No ____
b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e. more than required by law)? **Free Education for all local children from Kindegarten up to Grade 7 and free medical care for all community members and families**
c. Does the company provide game meat to nearby communities? Yes **X** No ____
d. If so, estimate the amount/value of meat contributed in the last year and describe that distribution program: **4 Tons at the value of N$ 140 000.00**
e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling field during harvest, PAC hunts, insurance programs); please describe. **Regular Anti-Poaching courses**
f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (____)	Consolation Paid, Year 2 (____)	Consolation Paid, Year 3 (____)	Remarks
Elephant					**Not applicable,**
Lion					**Since our patrolling is of such value**
Leopard					**That almost no damage occurs**
Other: _____					**To neighbors and their livelihoods**

g. What currency are the expenditures reported in? **Namibian Dollars**
h. Describe any community projects paid for by the company:

Product/Service	Spending, Year 1 since 1992	Spending, annually	Spending, Year 3 (____)	Remarks

Education (classrooms, offices)	**N$ 720 000.00**	**N$ 100 000.00**		**School was established during 1992, we since schooled an average of 35 children for Grade 1 – Grade 7.**
Education (supplies, fees)	**N$ 720 000.00**	**N$ 720 000.00**		**University fees are paid in full for children who qualify for post graduate studies**
Health (clinics, offices)				**School Building is used for the clinic**
Health (equipment, salaries)	**N$ 50 000.00**	**N$ 50 000.00**	**N$ 50 000.00**	
Product/Service	**Spending, Year 1 (____)**	**Spending, Year 2 (____)**	**Spending, Year 3 (____)**	**Remarks**
Community Scout Salaries	**See above**			
Community Anti-Poaching	**See above**			
Local Government Activities	**N/A**			
Infrastructure Improvements	**See above**			
Sports Teams Funded				
Construction Materials Donated				
Other: _____				
Other: _____				
TOTALS	**N$ 1 490 000.00**	**N$ 870 000.00**	**N$ 870 000.00**	

i. What currency are the expenditures reported in? **Namibian Dollar**
j. Include receipts and photographs of projects, if available.

Company Clientele

a. How many U.S. clients did the company have in the **3 years prior Corona i.e. 2017,2018,2019** (indicate years), what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	Lion	All Species
Number of U.S. Clients		1	150
Percentage of Clients from the U.S.		33%	95%
Trophy Fees Paid by U.S. Clients		U$ 35 000.00	U$ 1 500 000.00

b. Approximate amount/percentage of company's revenue from U.S. clientele: **95 %**

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
Fully Registered by the Department of Wildlife and Tourism for a Professional Hunter, Accommodation Facilities and equipment fully registered with the Namibian Tourism Board

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology, if available): **Only mature male animals, of which sizes are carefully selected for proper game management. Selection is done by age before size.**

c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years. **Yes, Annual Hunt Return Forms are required by the Ministry of Environment and Tourism, no receipts are issued, if reports are not submitted, no hunting licenses will be issued for the following season.**

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

Our area is privately owned, established during 1975 and built up to 35 000 hectares. Game Management is of utmost importance, especially with natural disasters such as droughts. Game numbers have to be kept at a healthy balance, which includes all species. Lions are not bred for the sake of trophies only. Lions are part of the eco system have to be managed just like all other species. Lions are only hunted when fully mature, 15 years and older and if the pride shows signs of killing the weak link in their pride. Managing a controlled game area involves all facets, such as tourism, hunting, game breeding, Live game sales and meat sales, to generate capital for not only the sustainability of the complete eco system, but also to achieve progress i.e. enlarging the area, introducing new species and enhancing the carrying capacity of numbers of game.

I declare that the foregoing is true and correct.

X _____

Sign Name and Date

JAN OELOFSE HUNTING SAFARIS
PO Box 81-Kalkfeld-Namibia
Tel: +264 67 290 175
Fax: +264 67 290 172
www.janoelofsesafaris.com
jan.oelofse@iafrica.com.na

OMB Control No. 1018-0093
Expires 08/31/2023

x Annette Oelofse - MS

Print Name and Title

Mount Etjo

Plan for year: 2020

Common Name	Last year - report back												Current year - planned activities											
	before	utilization							add		other		before	utilization							add		other	
	Initial estimate/ balance brought forward	Trophy hunted	Catch, keep & sell	Live export	Shoot & sell	shoot for own use	Total utilization	Counts conducted	Introduced	Births			Initial estimate/ balance brought forward	Trophy hunted	Catch, keep & sell or Live export		Shoot & sell	shoot for own use	Total utilization	Counts conducted	Introduced	Births		
White rhino																								
Giraffe	1300	8	16			30	54	1150					1150	5		100		100	205					
Eland	200	9					9	180					180	10	10				20					
Roan	250	4	20				24	220					220	10		20			30					
Sable	200	8					8	210					210	10		20			30					
Hartmann's mountain zebra	284	16	21				37	250					250	15	20				35					
Burchell's plains zebra	250	14	99				113	180					180	20		20		50	90					
Blue wildebeest	400	18					18	350					350	25		50		20	95					
Kudu	400	16					16	375					375	10	20				30					
Oryx	400	26					26	430					430	20		50		50	120					
Hartebeest	150	1					1	60					60	5	30				35					
Waterbuck	300	7					7	280					280	12	40				52					
Black-faced impala	300	11					11	340					340	10	100				110					
Common Impala	1300	42	75				117	1260					1260	40		300		200	540					
Tsessebe	10						0	11					11	2					2					
Springbok	3500	44					44	3600					3600	40	300			200	540					
Warthog	900	13					13	680					680	20				50	70					
Ostrich (excl. domesticated)	300	4	7				11	265					265	5	20				25					
Common duiker	350						0						350	2					2					
Steenbok	350	1					1						350	4					4					
Damara dik-dik	50	1					1						50	2					2					
Klipspringer	40						0						40	2					2					
Leopard	25	1					1						25	1					1					
Cheetah	5						0						7						0					
Black wildebeest	300	8					8	150					150	12					12					
Blesbok	200	2					2	120					120	10					10					
Elephant	37			11			11	37		12			37			20			20					
Hippo	11			1			1	12		2			12			2			2					
.....							0												0					

MINISTRY OF ENVIRONMENT AND TOURISM

Directorate Scientific Services
Private Bag 13306
Windhoek, Namibia
Enquiries: Permit Office
Tel +264-61-284 2541

PERMIT No.:	162174 E
VALID TILL:	18/03/2020
CAPTURE / TROPHY OR OTHER RELEVANT PERMIT	178263/18
RECEIPT No.:	7056324

PERMIT TO EXPORT LIVE ANIMALS OR TROPHIES

IMPORT PERMIT:
(Live animals)

Permission is hereby granted in terms of the Nature Conservation Ordinance 1975 (Ord. 4 of 1975)

From: S. Tors.
Postal address: P.O. Box 81.
Kalkfeld.
Namibia.

To: Britt A. Nishiyo
Residential addr[illegible] (b) (6)
(b) (6) Mililani Hawaii
U.S.A.

SPECIES: COMMON NAME	SCIENTIFIC NAME	LIVE	SKULL	HORNS	SKIN	SHOULDER MOUNT	OTHER
Baboon CITES II	*Papio ursinus*						
Blesbok	*Damaliscus pygargus phillipsi*						
Cheetah CITES I	*Acinonyx jubatus*						
Eland	*Taurotragus oryx*						
Grey Duiker	*Sylvicapra grimmia*						
Impala, common	*Aepyceros melampus*						
Kudu	*Tragelaphus strepsiceros*						
Leopard CITES I	*Panthera pardus*						
Oryx (Gemsbok)	*Oryx gazella*						
Ostrich	*Struthio camelus*						
Red hartebeest	*Alcelaphus buselaphus*						
Springbok	*Antidorcas marsupialis*						
Steenbok	*Raphicerus campestris*						
Warthog	*Phacochoerus africanus*						
Wildebeest, black	*Connochaetes gnou*						
Wildebeest, blue	*Connochaetes taurinus*						
Zebra, Burchell's	*Equus burchelli*						
Zebra, Hartmann's CITES II	*Equus zebra hartmannae*						
Other Lion	Panthera Leo		1X		1X full		

IMPORTANT
All exports remain subject to veterinary and import regulations.
This permit is valid for single consignment only.
This permit is not valid if altered in any way and is not transferable.

MINISTRY OF ENVIRONMENT & TOURISM
ISSUING OFFICER (BLOCK) & SIGNATURE,
UNDER THE AUTHORITY OF THE MINISTER
PERMANENT SECRETARY
MINISTRY OF ENVIRONMENT & TOURISM
NATURE CONSERVATION ORDINANCE, 1975 (ORDINANCE NO. 4 OF 1975) AS AMENDED
2019 -09- 18
WINDHOEK PERMIT OFFICE
Private Bag 13306, Windhoek

NAPL 03/2018

CITES Export Permit No.: 00 60762.

CITES Import Permit number from importing country (Appendix 1 only) .....

Official Customs stamp at point of export

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA

PERMIT / CERTIFICATE No. 0060762

Database Certificate No. 0060762

- [X] EXPORT
- [ ] RE-EXPORT
- [ ] IMPORT
- [ ] OTHER:

Original

2. Valid until: 18/03/2020

3. Importer (name and address)
BRITT A. NISHIJO
(b) (6)
MILILLANI HAWAII
96789

3a. Country of import: UNITED STATES

4. Exporter / Re-exporter (name, address and country)
STEVE TORS
P.O. BOX 81
KALKFELD
NAMIBIA

Signature of the applicant

5. Special conditions
Not valid if not certified by the Namibian customs

All imports and exports remain subject to veterinary regulations.
For live animals, this permit or certificate is only valid if the transport conditions conform to the Guidelines for Transport of Live Animals or, in the case of air transport, to the IATA Live Animals Regulations.

5a. Purpose of the transaction (see reverse): H

5b. Security stamp No.: 1792474

6. Name, address, national seal / stamp and country of Management Authority

MINISTRY OF ENVIRONMENT AND TOURISM
Directorate: Scientific Services
Private Bag 13306
Windhoek
NAMIBIA

	7./8. SCIENTIFIC NAME(genus and species) AND COMMON NAME OF ANIMAL OR PLANT	9. Description of specimens, including identifying marks or numbers (age / sex if live)	10. Appendix No. and source (see reverse)	11. Quantity (including unit)	11a. Total exported/ Quota
A	7./8. *Panthera leo melanochaita* Lion	9. skull & fullskin,NAPL 03/(2018)	10. II W	11. 2Item	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
B	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
C	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
D	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	

★ Country in which the specimens were taken from the wild, bred in captivity or artificially propagated (only in case of re-export)
★★ Only for specimens of Appendix-I species bred in captivity or artificially propagated for commercial purposes
★★★ For pre-Convention specimens

MINISTRY OF ENVIRONMENT AND TOURISM REPUBLIC OF NAMIBIA
19 SEP 2019
WINDHOEK
Private Bag 13306 Windhoek
Tel: 284 2823 Fax: 258861
1792474

13. THIS PERMIT IS ISSUED BY: J. SHAPI

Windhoek — Place
19/09/2019 — Date
Security stamp, signature and official seal

14. EXPORT ENDORSEMENT:

15. Bill of Lading / Air Waybill Number:

Block	Quantity
A	
B	
C	
D	

Port of Export / Re-export | Date | Signature | Official stamp and title

Original

prime press computer forms 032019

APPLICANT:

STEVEN REEVES

ADDITIONAL OPERATOR INFORMATION



Conservation - Why Choose Us?

How to hunt for an outfitter

When choosing to go on a safari anywhere in the world, there are many points to be taken into consideration. Particularly a safari to be undertaken far away from home needs to be carefully planned in order to make sure that what you will get is exactly what you expect. Going on an African safari may be daunting at first, but the following points may be of assistance to you in making this decision:

- Is your outfitter a member of the national professional hunters association (such as the Namibian Professional Hunter's Association - NAPHA) in Namibia and is your outfitter registered with the Namibian Tourism Board (NTB)?
- Are the species on your 'shopping list' available on the property or the hunting area, or are they to be sourced from a third party? How many animals (of the specific specie you will be hunting) are to be found on the property and what are the chances of taking your desired trophy?
- Will you be seeing big game, such as elephants, white & black rhino, giraffes, hippo while hunting, will it be a truly African experience?
- Size matters to some extent - but the hunting experience is truly what hunting is all about. Nonetheless, make sure that you will have the opportunity of hunting a good, aged representative of the specie(s) you wish to take home.
- How large is the hunting area and what is it used for? Is it privately owned, state-owned concession area, a cattle ranch, is it high-fenced, free range?
- Where is the hunting area located? Will you be hunting desert areas, lush green plains, a variable habitat?
- How much time is to be spent travelling during your hunt, how far apart are the concession areas and the accommodations? How much of your time will actually be spent hunting and driving from accommodations to different hunting areas?
- Are the accommodations suitable for you and your friends and family, if you wish to share your experience with them? How many hunting parties will be sharing camp with you? Are the accommodations going to live up to your expectations with regards to privacy, luxury and comfort?
- What additional services are provided, will you (or your friends and family) be able to participate in other activities, such as souvenir shopping, travelling etc.?
- Hunting African countries in general: find out about health hazards (malaria, tse-tse flies, brucella etc.), the political situation, the infrastructure and safety within the country.
- Checking references is probably the only way of finding out if your experience will be as you expect it to be. References will be able to give you additional tips from the perspective of a fellow hunter and give invaluable advice on everything else, such as taxidermists, travelling, places to see, things to bring on your hunt and much more. You will find that the hunting community is a fraternity, and in sharing the same passion for the outdoors, most hunters are more than willing to lend a guiding hand!
- If possible, meet your outfitter or PH personally, make efforts to attend hunting conventions. An outfitter that regularly attends hunting conventions is serious about offering professional service and putting a face to the operation will put you at ease.
- Hunters around the world share a love for the wilderness and it's wildlife and are naturally conservationists at heart. Are the proceeds of your hunt being put to the benefit of conserving that which all hunters hold dear? I.e., is the hunting operator a long-standing establishment or out for making a quick buck?

Professional Hunting with Jan Oelofse Hunting Safaris

We at Jan Oelofse Hunting Safaris offer:

- 80 000 acres prime hunting area to the north of Windhoek, which is privately owned
- 120 000 acres concession area adjacent to our property
- Accommodation and hunting all in one area - no time is wasted driving
- Only wildlife in our area - no cattle ranching
- All the species listed on our price list have been bread on our property and are available in good numbers
- You will observe an abundance of species, including elephant, white and black rhino, hippo and lion
- One of our four very experienced professional hunters, who will be appointed to exclusively offer their services to you
- luxurious accommodation to suit the needs of all members of a family
- Photographic safaris, lion feeding, cheetah feeding, walks to fossilized dinosaur footprints, souvenir shopping, side-trips to town or other parts of Namibia
- The proceeds from your hunt will be put to good use, to the benefit of supporting the less fortunate and conservation

Conserving the African dream

"Always give back more than what you take out"

Jan Oelofse Hunting Safaris was founded by world-renowned conservationist Jan Harm Oelofse, and his legacy, wisdom and philosophies are the heart of our family-run establishment. Jan Oelofse believed that hunting should first and foremost serve conservation. In the face of our fading natural world, his credo "always give back more to nature than you take out", becomes ever more important.

The dream of an African hunt for many may only be realized as long as hunting outfitters, in collaboration with government, use the proceeds from the hunting industry such to support local communities, facilitate the conservation of the huntable species and more importantly, the habitat. We at Jan Oelofse Hunting Safaris pledge to serve this credo, to keep the "African dream" alive, to always give back more than what we take out.

Black Rhino Project

A total of an estimated 5000 black rhino are alive today, the biggest populations residing in South Africa and Namibia.To protect this endangered species, the Namibian Government launched the Black Rhino Custodianship Programme, which foresees the selection of trustworthy and passionate land owners to act as custodians of the black rhino. Jan Oelofse and particularly his wife Annette have done their utmost to support this programme. Annette has hand raised several black (and white) orphaned rhinos, which were all released back into the wild to contribute to the survival of their species. Several black rhino roam the area, but are NOT available as trophies.






Rare Species

Several rare and/or indigenous species are kept and nurtured on the property, including Roan Antelope, Sable Antelope, Nyala, Black-faced Impala, Lechwe, White Blesbuck, Black Springbuck, Damaraland Dik-Dik and Hartmann Zebra. In order to enable sustainable hunting and maintenance of good genetics, we grow representative populations of a species before trophy animals may be taken. Populations are carefully monitored and controlled by meat and trophy hunting, as well as live capturing and selling.




Mount Etjo Private School

The Mount Etjo Private School was inaugurated by former President, his Excellency Dr Sam Nujoma, in 1992. Many learners have since graduated from the school, following careers in engineering, medicine and accounting. Today, the school counts more than 30 students and is almost entirely funded from hunting proceeds. Hunting clients often visit - donations are more than welcome!





The SCI Pathfinder Award

"I can stand before a charging elephant and before a charging lion, but I won't stand before the man in the wheelchair (the SCI pathfinder recipient) next to me" - Jan Oelofse, 1992

Every year, Jan Oelofse Hunting Safaris donates a 10 day hunt for 10 animals to the recipient of the SCI pathfinder award. This award is given to honor those who, despite the odds, physical and mental challenges, succeed in following their dreams. We have in the past had the great privilege of meeting and having numerous pathfinders hunt with us.

More on the SCI Pathfinders:

- Disabled Hunters Magazine
- SCI Pathfinder Recipients

Hi Aimee,
Apologies,
I am still gathering all information for our lion history. Haven't been working on it consistently, hope to dc this weekend.

Just a quick summary,
Lions were introduced into the area 1981 from the Cape Zoo, since they were destined to be euthanized. habituated the whole group, re –introduced them into the wild. We added other prides, which were decl problem animals in various other areas. Lion males and females are only hunted when reaching old age a they are no longer of value to the pride.

Please find attached the aerial maps. All of the green area is Okonjati.

So the exact location would be as follows
Okonjati # 526
District Otjiwarongo
Region Otjozondjupa
Namibia

Mount Etjo is our trading Name.

Okonjati will be the name on the Permit. Use Okonjati at all times for all documentation.

Attached a CITES Permit of one of our clients, who hunted with us in 2018, which is about ready to be imp I believe. Exporter says Steve Tors, since he was the Professional Hunter guiding the client

Please keep asking, you are quite right, everything has to be correct right from the beginning

---

From: Aimee Korver [mailto:permits@conservationforce.org]
Sent: 15 February 2021 23:47
To: Annette Oelofse (b) (6)
Subject: RE: FW: Lion Import Permit - Steve Reeves

Annette,

I wanted to check in on the lion history report and see how that was coming along.

Also, I need a bit more information on the location info. Are these two different locations or are they exactly the same- but as mentioned they go by different names Can you provide a map by chance that shows where Okanjati is on a map of Namib have the aerial maps that you provided with the coordinates- but often the USFWS not know where these locations are and we really need to point it out for them. Ther also can be no confusion on the name/ names of the concession. What will the hunt permit read - Okanjato or Mt. Etjo? If you can expand on the description you gave

APPLICANT:

STEVEN REEVES

HISTORY OF LION POPULATION AT JAN OELOFSE HUNTING SAFARIS

History Jan Oelofse

Jan Oelofse world-renowned conservationist started his career in wildlife management during the Fifties, when he travelled from South West Africa to Tanganyika, to meet up with the legendary Oom Willie Beer. His intimate knowledge of animal behaviour of every African specie came instinctively. He worked for Oom Willi de Beer, capturing wild animals for zoos, preparing them for the sea voyage and delivering them to the zoo keepers at their destination. Jan Oelofse at the same time also handled all the wildlife in Taganyika while on set for Paramaount Studios, shooting the famous movie Hatari starring John Wayne, Red Buttons, Elsa Martinelli and many other. He handled and accompanied all animals ranging from elephants to lion, baboons birds and many other species featuring in the film, for a five day journey by air from Tanganyika to Hollywood. A tragic accident involving a Male Lion, which was brought from the Emperor of Ethiopia, Haile Selassie, at that time, resulted in omitting all scenes with lions from the movie and the lion was killed for unjustifiable reasons. A conglomeration of these events spurred him mon more and more to conserve and re-create a wildlife area.

His career in conservation with lions was weaved throughout his entire life in conservation, when during the Sixties he joined the Natal Parks Board. He invented the Wildlife Game Capture Method, capturing wild animals in mess. The method was named the Oelofse Method and is still today used all over the world. As head of game Capture, he not only build the Parks very first game holding pens, he was part of the legendary Ian Players team saving the White Rhino from shocking low numbers nearing extinction. While working for the Natal Parks Board, he re-introduced a pride of lions into the Umfolozi Game reserve. Lions had been extinct in the |Parks for many years, todays prides are the off springs of Jan laying the foundation.

During 1975, Jan Oelofse moved to Namibia to establish his own Wildlife Sanctuary. Today the Okonjati Wildlife area stretches over 35 000 hectares, the lion population a valuable specie in the ecosystem.

The first pride of nine lions was reintroduced into the Wildlife Area during 1983. During the middle eighties and early nineties, more lions from various places in South Africa, the southern part of Etosha National Park, the Caprivi region and the far west of Namibia were re-introduced. Lions came from overpopulated areas or areas where they were declared a problem animal. Various prides established themselves over the years. Since the area is limited to 35 000 hectares, all species are managed and trophy hunting is an important management tool. Funds to increase the Wildlife Management Area were generated by specialized trophy hunting, this also includes the lion population.

From 1983 until 1988, we have taken 11 trophy lions, the reason was that many of the lions which we received for re-introduction were 15 years and older. No males were hunted during the Nineties with only 6 taken between year 2000 and to date. We unfortunately lost a number of males to fighting. Since the young males are pushed out of the pride, often they leave the area and lives are not spared by adjacent communities. Had we taken the old males as trophies and given the young males a space in the pride, unnecessary loss of lives would have been spared and valuable funds to provide for the upkeep of the wildlife management could have been generated. Today the prides are well established, consisting of the majority of females older than 15 years, 2 very old males, a number of mature males and females and cubs between 1 and 4 years old.

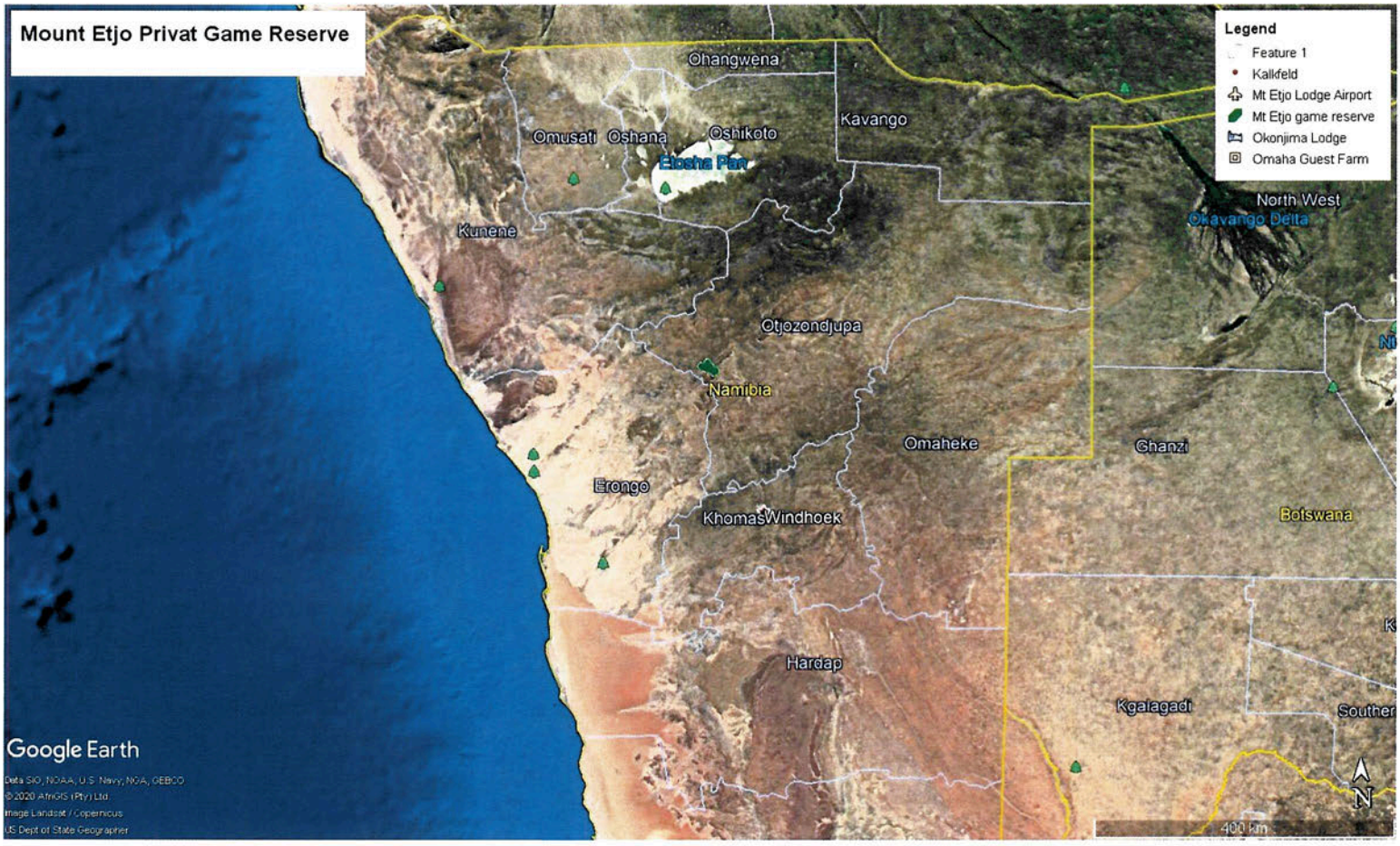
APPLICANT:

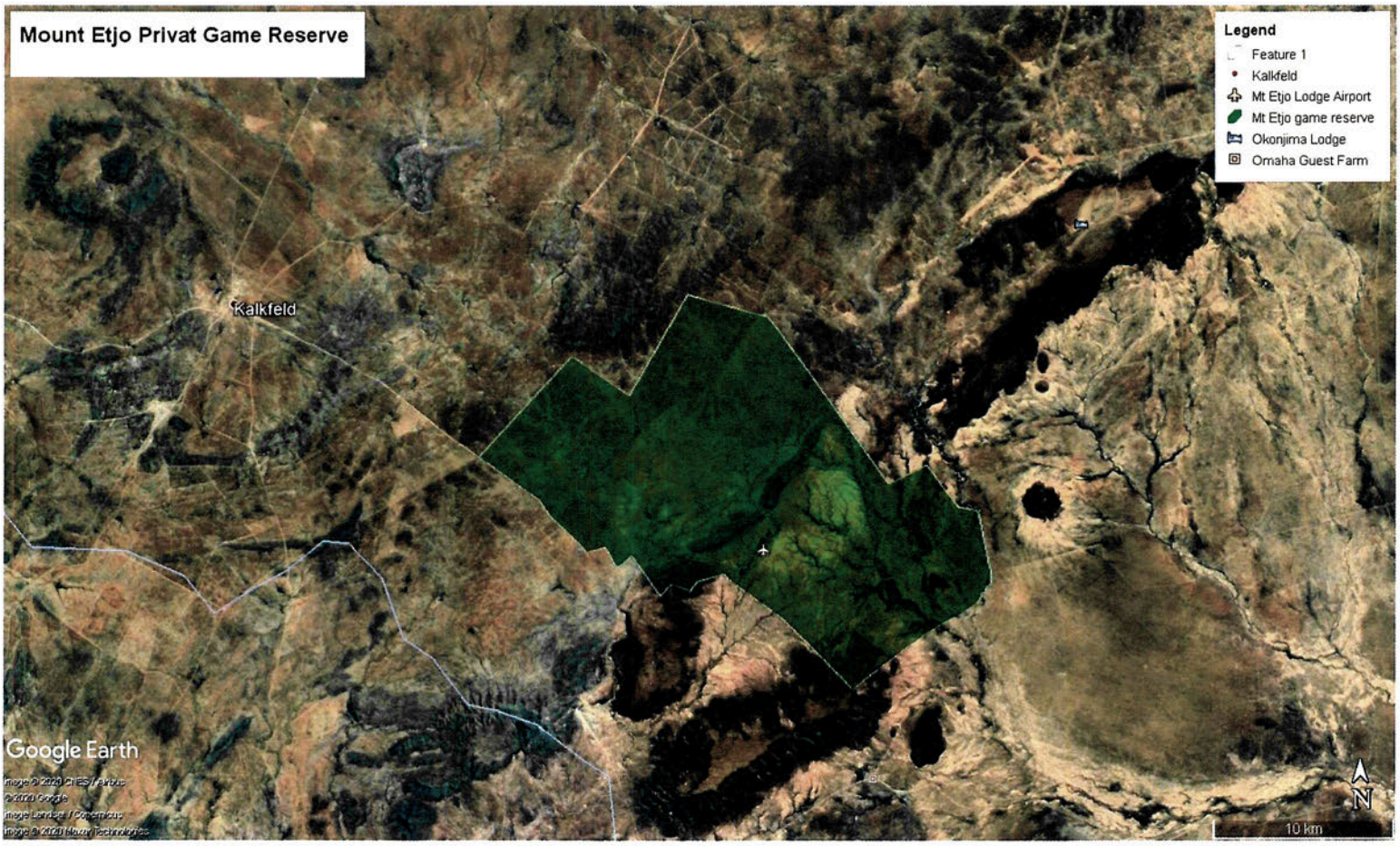
STEVEN REEVES

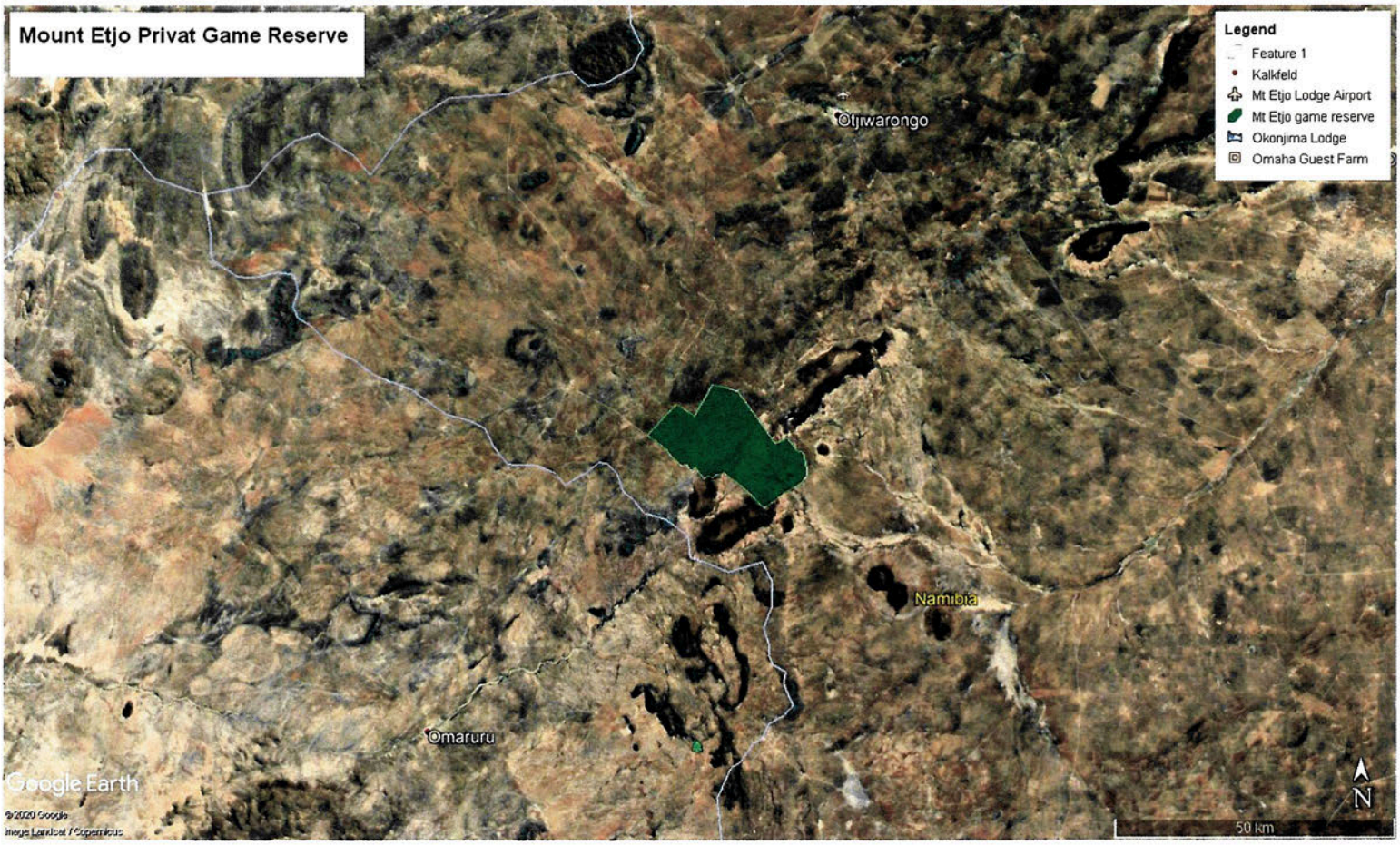
MAP

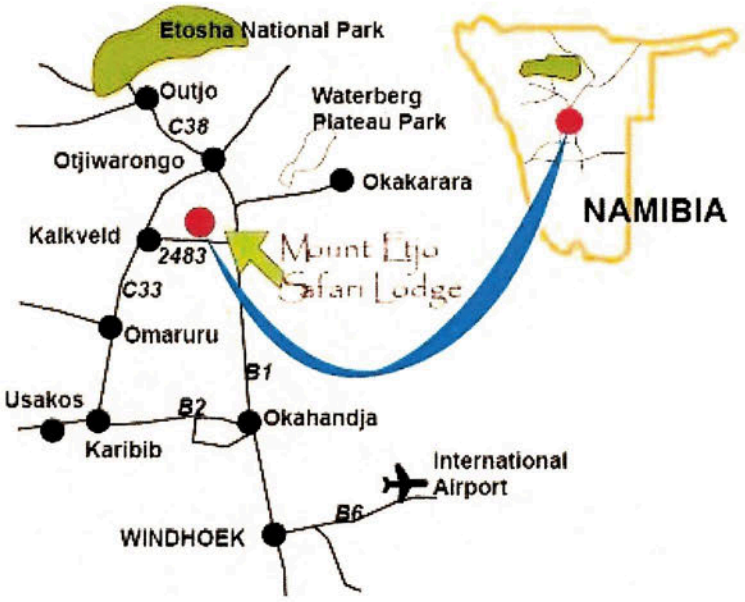
OF

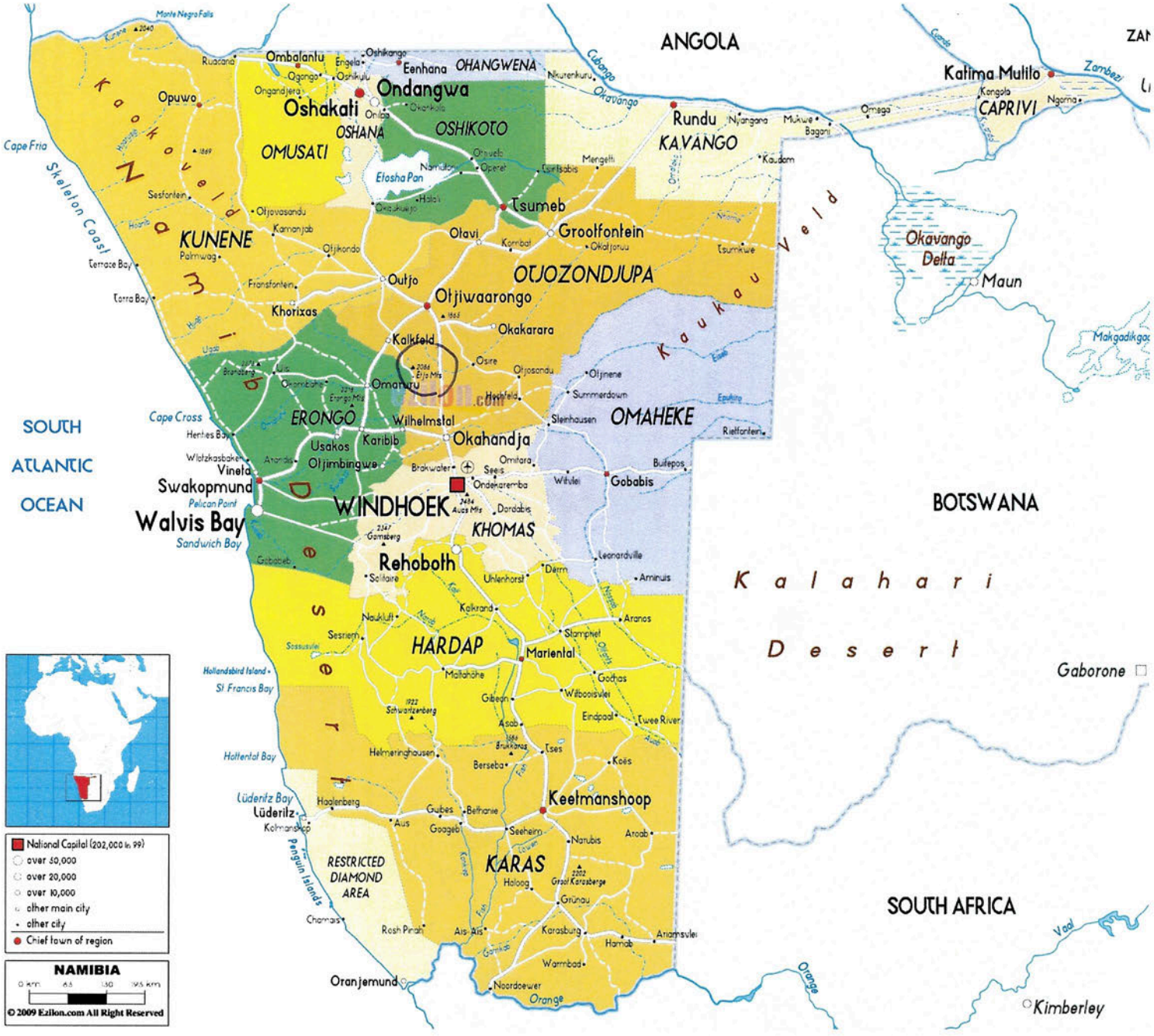
HUNT AREA


Mount Etjo Privat Game Reserve
Legend
Feature 1
Kalkfeld
Mt Etjo Lodge Airport
Mt Etjo game reserve
Okonjima Lodge
Omaha Guest Farm
Ohangwena
Kavango
Omusati
Oshana
Oshikoto
Etosha Pan
Kunene
North West
Okavango Delta
Otjozondjupa
Namibia
Omaheke
Ghanzi
Erongo
Khomas
Windhoek
Botswana
Hardap
Kgalagadi
Google Earth
400 km
N


Mount Etjo Privat Game Reserve
Legend
Feature 1
Kalkfeld
Mt Etjo Lodge Airport
Mt Etjo game reserve
Okonjima Lodge
Omaha Guest Farm
Kalkfeld
Google Earth
10 km
N


Mount Etjo Privat Game Reserve
Legend
Feature 1
Kalkfeld
Mt Etjo Lodge Airport
Mt Etjo game reserve
Okonjima Lodge
Omaha Guest Farm
Otjiwarongo
Namibia
Omaruru
Google Earth
50 km
N


Etosha National Park
Outjo
C38
Waterberg
Plateau Park
Otjiwarongo
Okakarara
NAMIBIA
Kalkveld
2483
Mount Etjo
Safari Lodge
C33
Omaruru
B1
Usakos
B2
Okahandja
Karibib
International
Airport
B6
WINDHOEK


ANGOLA
ZAMBIA
BOTSWANA
SOUTH AFRICA
SOUTH ATLANTIC OCEAN
Monte Negro Falls
Ruacana
Ombalantu
Oshikango
Engela
Eenhana
OHANGWENA
Ondangwa
Oshakati
OSHANA
OSHIKOTO
OMUSATI
Opuwo
Kaokoveld
Cape Fria
Skeleton Coast
Etosha Pan
Namutoni
Okaukuejo
Halali
Tsumeb
Grootfontein
Otavi
Otjozondjupa
Otjiwarongo
Okakarara
KUNENE
Sesfontein
Otjovasandu
Kamanjab
Otjikondo
Palmwag
Terrace Bay
Torra Bay
Fransfontein
Khorixas
Kalkfeld
Omaruru
Karibib
ERONGO
Cape Cross
Henties Bay
Usakos
Otjimbingwe
Wilhelmstal
Okahandja
Swakopmund
Vineta
Pelican Point
Walvis Bay
Sandwich Bay
WINDHOEK
Dordabis
Auas Mts
Gamsberg
KHOMAS
Rehoboth
Solitaire
Uhlenhorst
Derm
Leonardville
Arminuis
Kalkrand
Naukluft
Sesriem
Sossusvlei
HARDAP
Mariental
Aranos
Stampriet
Hollandsbird Island
St Francis Bay
Mata-Mata
Gochas
Gibeon
Witbooisvlei
Eindpaal
Asab
Tses
Koës
Helmeringhausen
Berseba
Hottentot Bay
Lüderitz Bay
Lüderitz
Haalenberg
Gubes
Bethanie
Aus
Goageb
Seeheim
Keetmanshoop
Aroab
Namibia Desert
RESTRICTED DIAMOND AREA
KARAS
Haloog
Great Karasberge
Grünau
Rosh Pinah
Ais-Ais
Karasburg
Ariamsvlei
Hamab
Warmbad
Noordoewer
Oranjemund
Orange
Vaal
Kimberley
Gaborone
Kalahari Desert
Rundu
KAVANGO
Nkurenkuru
Mukwe
Bagani
Omega
Katima Mulilo
CAPRIVI
Kongola
Ngoma
Zambezi
Okavango Delta
Maun
Makgadikgadi
Kaudom
Mengetti
Tsintsabis
Summerdown
Sleinhausen
OMAHEKE
Otjosandu
Otjinene
Gobabis
Witvlei
Buitepos
Rietfontein
Omitara
Brakwater
Ondekaremba
Hochfeld
Osire
Okatjoruu
Tsumkwe
Kaukau Veld
Omatako
Otjihaenena
Omambonde
Brandberg
Ugab
Huab
Hoarusib
Hoanib
Khumib
Kuiseb
Swakop
Omaruru
Ekuja Mts
Erongo Mts
Cape Cross
Hentiesbaai
Walvisbaai
Gobabeb
Namib Desert
Kuiseb
Swakop
Khan
Omaruru
Ugab
Huab
Hoarusib
Hoanib
Khumib
Kunene
Cubango
Okavango
Nkurenkuru
Zambezi
Chamais
Penguin Islands
Lüderitz Bay
Hottentot Bay
Hollandsbird Island
St Francis Bay
Sossusvlei
Sesriem
Naukluft
Kalkrand
Solitaire
Rehoboth
Gobabeb
Walvis Bay
Sandwich Bay
Pelican Point
Swakopmund
Vineta
Usakos
Otjimbingwe
Karibib
Wilhelmstal
Okahandja
Omaruru
Kalkfeld
Otjiwarongo
Otjozondjupa
Grootfontein
Tsumeb
Otavi
Khorixas
Fransfontein
Palmwag
Kamanjab
Otjovasandu
Sesfontein
Opuwo
Oshakati
Ondangwa
Eenhana
Oshikango
Ombalantu
Ruacana
Monte Negro Falls
Rundu
KAVANGO
Katima Mulilo
CAPRIVI
Okavango Delta
Maun
Makgadikgadi
Kaudom
Mengetti
Tsintsabis
Summerdown
Sleinhausen
OMAHEKE
Otjosandu
Otjinene
Gobabis
Witvlei
Buitepos
Rietfontein
Omitara
Brakwater
Ondekaremba
Hochfeld
Osire
Okatjoruu
Tsumkwe
Kaukau Veld
Omatako
Otjihaenena
Omambonde
Brandberg
Ugab
Huab
Hoarusib
Hoanib
Khumib
Kuiseb
Swakop
Omaruru
Ekuja Mts
Erongo Mts
Cape Cross
Hentiesbaai
Walvisbaai
Gobabeb
Namib Desert
Kuiseb
Swakop
Khan
Omaruru
Ugab
Huab
Hoarusib
Hoanib
Khumib
Kunene
Cubango
Okavango
Nkurenkuru
Zambezi
Chamais
Penguin Islands
Lüderitz Bay
Hottentot Bay
Hollandsbird Island
St Francis Bay
Sossusvlei
Sesriem
Naukluft
Kalkrand
Solitaire
Rehoboth
Gobabeb
Walvis Bay
Sandwich Bay
Pelican Point
Swakopmund
Vineta
Usakos
Otjimbingwe
Karibib
Wilhelmstal
Okahandja
Omaruru
Kalkfeld
Otjiwarongo
Otjozondjupa
Grootfontein
Tsumeb
Otavi
Khorixas
Fransfontein
Palmwag
Kamanjab
Otjovasandu
Sesfontein
Opuwo
Oshakati
Ondangwa
Eenhana
Oshikango
Ombalantu
Ruacana
Monte Negro Falls
National Capital (202,000 in 99)
over 50,000
over 20,000
over 10,000
other main city
other city
Chief town of region
NAMIBIA
0 km 65 130 195 km
© 2009 Ezilon.com All Right Reserved

APPLICANT:

STEVEN REEVES

LION CONSERVATION STRATEGY FOR NAMIBIA



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

Table of Contents

Foreword 2
1. Introduction and background 4
1.1 Lion Conservation status 4
1.2. Distribution 4
1.3. Habitat requirements 5
1.4. Biology: 6
1.5. Ecology 6
1.6. Diseases 6
2. Threats to the survival of lion 7
3. Background and Rationale for the Conservation Strategy 7
4. Vision and Goal statements 8
4.1. Objectives 8
4.2. Objectives and strategic actions 9
5. Implementation and revision of the Strategy 20
6. List of sources consulted 21

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).

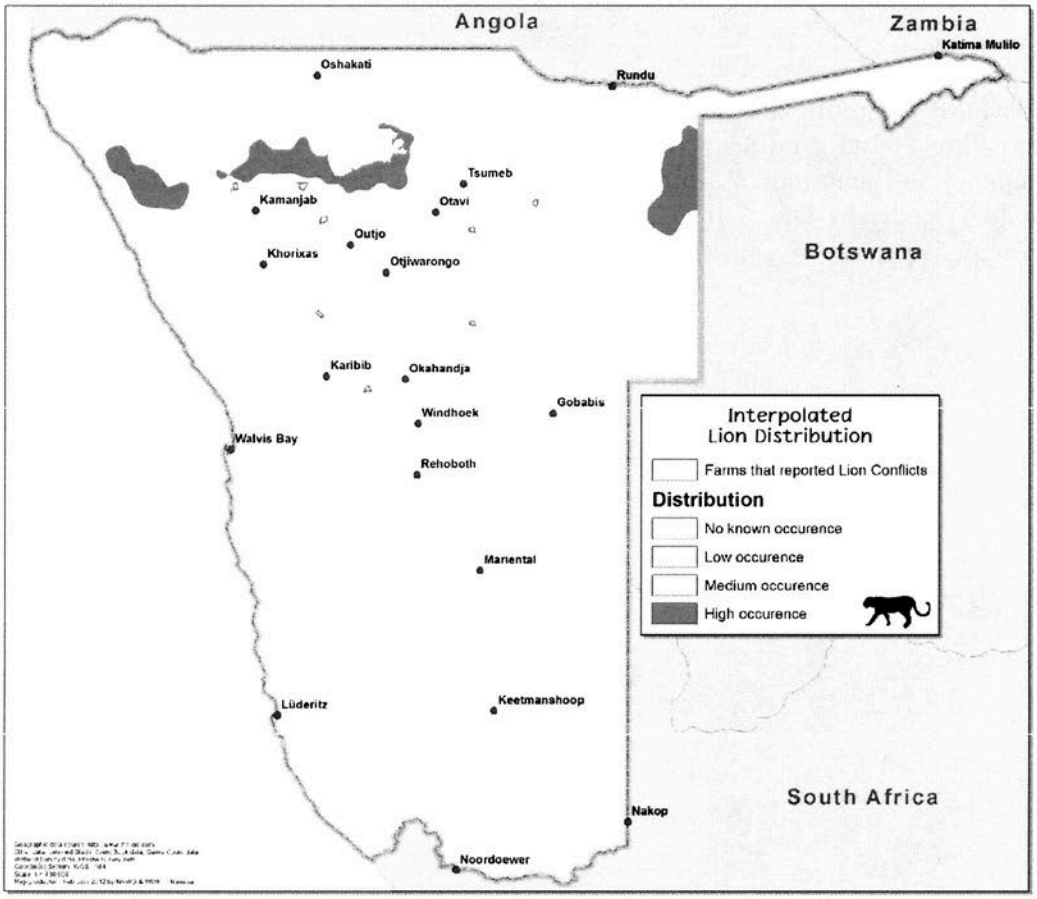


Fig.2. *Distribution of free ranging lions in Namibia (Large Carnivore Atlas, 2012)*

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.

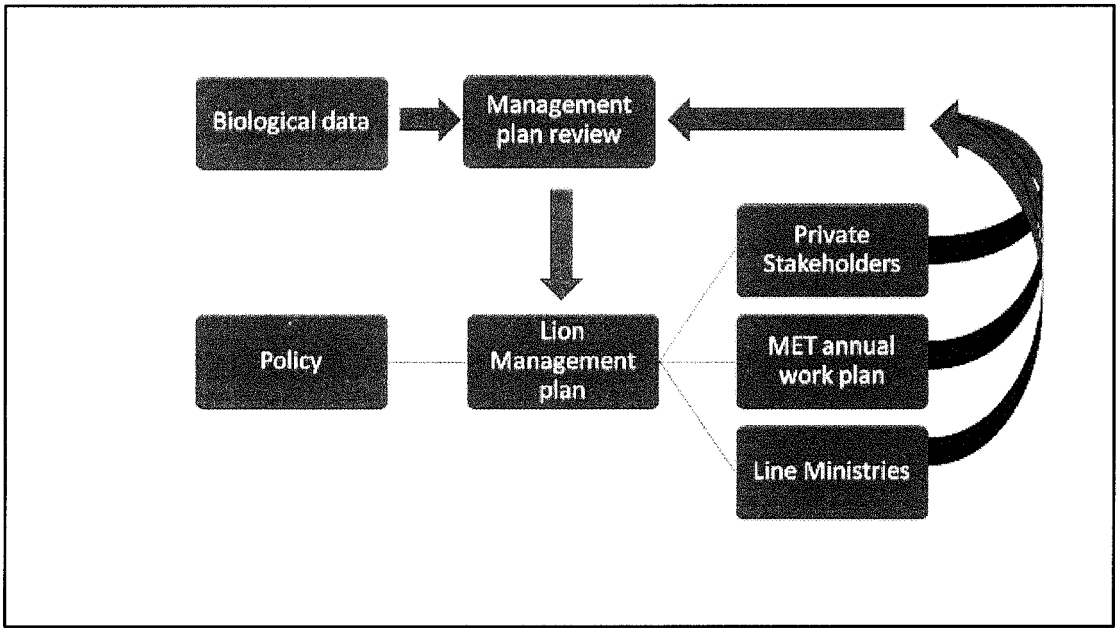


Fig. 2 *Flow diagram showing the implementation and review process*

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

APPLICANT:

STEVEN REEVES

LION CONSERVATION AND SUSTAINABLE USE

LION CONSERVATION AND SUSTAINABLE USE

Namibia has a population of about 800 lions, similar to the period 1965 to 1980. The main population, between 450 and 500, is in Etosha National Park, with other populations in Khaudum and Bwabwata National Park in the northeast of the country, and very small populations in Mahango, Mudumu and Nkasa Rupara. Over the past 25 years a fluctuating population in the Kunene Region in the northwest has increased from 20-30 animals to about 140-160. It is the only really significant lion population outside of protected areas in Namibia. The rest are all contained within national parks, except for small populations in some private wildlife areas. *Dr Chris Brown*

Most farmers are not able to survive financially with a large lion population because livestock farming and lions are not really compatible. The only place where farming and lions are compatible to some extent is in large open systems where people move around with their livestock and where lion density is relatively low. In the northwest of the country, for example, part of the lion population lives in such low rainfall areas that people seldom go there with their livestock. That gives the lions some protection. Some of the farmers in that area are also more tolerant of lions than in other places in the world. They are prepared to live with lions at a reasonable population density. When the lion population gets too large or when the wildlife numbers in the area decline – for example during droughts, when wildlife either dies and/or moves eastwards out of the area – the lions are left stranded with a very limited food supply. That is when they turn more to domestic stock, which then causes conflict with farmers.

Lions are fast breeders. Females produce litters of up to four cubs at a time. Etosha for example, with its 450 to 500 lions, produces a surplus of perhaps forty to sixty lions every year. The park cannot carry more lions because their territories and home ranges determine their spatial distribution and density. The population strategy of the lion is designed to produce excess animals for rapid population growth, because they are naturally faced with boom and bust situations due to changing prey numbers. Also, lions often get injured or killed in their normal practice of hunting. Since the growth of lion populations is higher than natural mortality, there is a net pressure on the population for surplus animals to move out of the park and find new territories and expand their range. This pressure mainly affects young lions. Lions that are not able to join existing prides are usually forced, through competition and aggression, to leave Etosha, typically as many as forty to fifty lions per year. Males in particular are forced out, resulting in young lions looking for new prides and exploring new territories. Those "territories" around Etosha and elsewhere are generally freehold or communal farmland where farmers breed livestock. Therefore the lions and farmers inevitably come into conflict around the national parks.

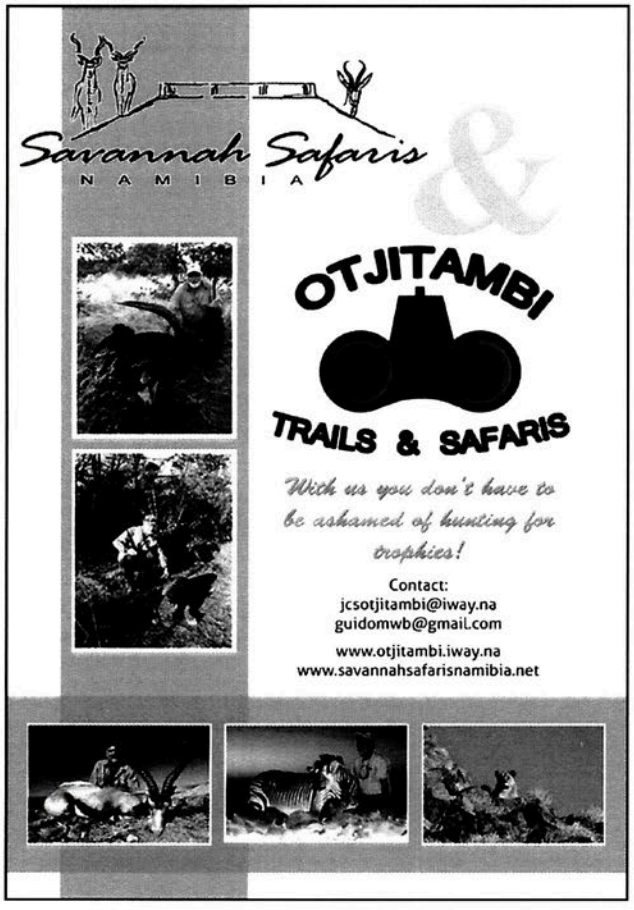
People feel that the Ministry of Environment should simply build bigger, stronger fences. First, that is hugely expensive. Our large national parks would require literally hundreds of kilometres of fencing to erect and maintain. Etosha alone has a border of about 500 km. Do we want to put Namibia's limited financial resources on putting up fences to separate people from wildlife? A normal game-proof fence around Etosha would cost about N$35 million. But a normal fence does not contain lions and elephants. That would cost five times more. So, do we want to spend up to N$200 million to stop a few cows from being killed? Are we that much driven by emotion and that little by rational thought? Rather, let's invest in helping farmers to protect their livestock, generate income from wildlife, and then spend the rest on important things like education, health and access to urban land for housing.

Second, it's very difficult to maintain those fences. A lion can jump over a ten-foot fence. Other animals dig holes under fences, and lions crawl out. And even a reinforced cable fence is pushed over from time to time by elephants, allowing lions to leave the park. To maintain a fence in a condition that is absolutely lion proof is simply impossible and attempting to do so is enormously expensive and time-consuming.

Around much of Etosha, particularly in the south, it has happened that farmers have turned to a more appropriate and lucrative form of land-use: a wildlife-based economy that includes tourism, trophy hunting, game meat harvesting and live sales of surplus high-value wildlife species. These farmers are making much more money than they did farming cattle and they are no longer in conflict with lions and other predators. Communal conservancies on the northern side of Etosha are starting to do the same.

Any cattle farmer will tell you that farming is a tough business with narrow margins, and losses in poor rainfall years that have to be recovered in good rainfall years. Declining beef prices, increasing costs, government interference, impacts of climate change and rangeland





degradation through bush encroachment all combine to make a farmer's life increasingly difficult and the financial returns ever smaller. Cattle farmers' income is based on the quality and quantity of meat (protein) that can be produced, which in turn is based upon soil quality, rainfall and management. There is a limit to what good management can do. Our soils are generally poor, and rainfall is low and highly variable. Everything is stacked against the farmer. The income ceiling is low – it is essentially a ceiling defined by primary protein production. So how do you break through that low ceiling? You need to move beyond primary production to include service industries. Wildlife offers three service industry components in addition to the primary production of game meat. They are tourism, trophy hunting and live sales of high-value species. In all three cases the animals are being "sold" for well above their protein value. Then the neighbouring national park is no longer an enemy, unable to contain predators, but becomes a friend, offering marketing opportunities. The park neighbour is no longer in a conflict zone, but in a mutual support zone. Thus we then have mutually friendly neighbours with far higher economic returns and with far more resilient ecological and economic systems.

Trophy hunting takes off 1% of the national herd while animals are breeding at a rate of fifteen, twenty or even thirty-five percent. You anyway have to deal with the surplus grazer and browser pressure on your land every year because the animals are breeding at this rate. Unless you want total habitat degradation and damage, you've got to manage those pressures on your land. Trophy hunting takes off a very small percentage while the farmer still has to deal with another up to 35% of those animals, depending on the species, to keep your livestock, your animals in your veld in balance. **Trophy hunting is a very high return, low impact type of activity and essentially it's also a service industry.**

THE IMPORTANCE OF A GREEN ECONOMY

A biodiversity-based green economy is one that is good for conservation because it keeps habitats natural. You keep your indigenous vegetation, all the species of wildlife, as many as you can support of those that are indigenous to that area and all the other forms of life, plants and animals, from insects right up to the bigger mammals. You keep indigenous ecosystems and the animals that live in them, right down to the smallest micro-organisms.

The more people who do that, particularly if they start linking their land into bigger landscapes and collaborate with the national parks, resilient productive ecosystems fall into place. You've got scale that allows a group of farmers to come together and set up an abattoir and get the value from that. You can set up a tannery and a whole range of things. Tourism and trophy hunting in bigger open systems is far more attractive from a marketing point of view than in isolation. Having a full suite of species in these ecosystems, including elephant, lion and rhino, adds more value to the total. If you get to a stage where you are outperforming conventional forms of land use by five, six, seven times and you are really getting good returns in well-managed ecosystems, it is good for the economy, good for job creation and good for conservation. Isn't that really the direction in which Namibia should be going?

In the northwest of the country there has been increased conflict in recent years because of a growing lion population linked to drought.

The communal conservancies in that area manage wildlife and benefit from it as part of their traditional farming systems. Livestock provides their core household livelihood, but they add well-managed wildlife to that, including all the economic components that are derived from it: trophy hunting, game meat and tourism. But we must never forget that conservancies are primarily farmland where farmers have come together to form these conservancies as a supplementary form of livelihood. Livestock is their primary livelihood at this stage. So, when situations arise where lion populations increase to a critical level, prey numbers decline and lions turn to people's domestic stock, communities understandably get upset and want to see interventions that prevent further livestock losses. While protection of livestock is part of the solution, there is no good conservation reason why lion populations cannot be reduced and managed to accommodate those realities of people living with lions. As stated earlier, lion populations have evolved to recover rapidly from population declines – that is part of their adaptation to harsh environmental conditions and the tough life that these predators face.

From a conservation perspective the most important issue for the "desert-adapted lions" in the northwest is not that their population may shrink from time to time when drought conditions prevail, but that a genetic link is maintained between this population and the lions in Etosha. The greatest risk is that this relatively small population of lions in north-western Kunene becomes isolated, because then they will become less and less viable.

It is not a conservation threat to the lion population of Etosha if lions leave the park and enter freehold farmland to the south and communal farmland to the north, and if those lions get taken out through trophy hunting or for the protection of livestock. Indeed, we should allow the use of those lions in adjacent areas to offset people's costs incurred by living with lions, and to encourage them to change to a wildlife-based economy. We should not get too concerned about the loss of Etosha's surplus lions because we have a viable lion population in Etosha. Also, all the other national parks that can support lions (considering both ecological and social factors) already do. Therefore the surplus lions in Etosha are in fact a national surplus – we have nowhere else for them to go. Our focus should be on the western side of Etosha. We need to maintain the genetic "bridge" between the Etosha and the desert-adapted lion populations. Here we must work closely with farmers, communities and communal conservancies to maintain that genetic bridge. This involves creating conditions that allow people and their livestock to live with a low lion population – enough of a lion presence and movement in that area to maintain connectivity between the Etosha and the north-western lion populations.

The desert-adapted lions of northwest Namibia have a remarkable and uniquely specialised lifestyle. This is fascinating from ecological, scientific and conservation perspectives. It is also of great tourism value, a value that will grow in the years ahead. We need to manage this lion population very carefully. The key factor is not that the population may expand and contract in wet and dry times, when prey is abundant or scarce, when farmers are tolerant or have lost patience with lions preying on their livestock – the lion population can absorb these pressures.

So how do we create the incentives for people west of Etosha to willingly live with a low density of lions moving through their area? First, we need to clearly recognise and acknowledge the challenge that farmers living with lions have to deal with, and appreciate their commitment to conservation. Second, we need to provide support mechanisms that reduce stock losses to the bare minimum. This could involve reinforced animal kraals at homesteads as well as mobile kraals for livestock on pastures well away from homesteads, early warning systems to notify farmers that lions are in the area, and interventions to remove lions that become problematic. And third, we need to help conservancies generate as many benefits as possible from wildlife, to ensure that benefits reach the farmers that carry the greatest risks and to thereby offset their losses.

It is important to understand that lion populations bounce back effectively. Populations can be reduced at times, if need be. It is unrealistic to try to carry a large population of desert-adapted lions through drought cycles. Lion numbers can be reduced to perhaps half or less of their peak population figure when their prey species have declined. Over time, provided there is interaction with the Etosha lions, the desert-adapted lion population will build up again rather quickly when conditions are right. Historically, long before humans came into this system, lion populations on the edge of deserts were very dynamic.

Arid and semi-arid zones are highly dynamic, and wildlife has evolved to cope and thrive in these dynamic systems. It is people's minds that have not evolved to cope well with change. We like to lock the world – including our approach to wildlife management – into fixed and stable perceptions of how things should be. Attempting to take the dynamic nature out of nature is actually very bad for nature. It reduces its resilience. Ecosystems thrive on dynamic change. We need to work with change as we manage wildlife, not try to work against change. Integrated livestock and wildlife management in Namibia's arid and semi-arid systems, perhaps more than most management, requires us to really understand the ecology and evolutionary conditions. These conditions are simply not understood by most western people living in urban environments and getting upset when they hear about lion populations being reduced in number to accommodate farmers. This situation is also not understood by some of the would-be conservation organisations that portray themselves as the champions protecting lions. It may be good for the populist social media mill, but it is not good for long-term lion conservation in Namibia.



Dr Chris Brown, CEO of the Namibia Chamber of the Environment.

APPLICANT:

STEVEN REEVES

KEEP NAMIBIA'S WILDLIFE ON THE LAND

Keep Namibia's wildlife on the land!



What is really happening to our wildlife?

WILDLIFE IS RAPIDLY DECLINING ACROSS MUCH OF AFRICA AND OTHER PARTS OF THE WORLD

Over the last century, **lions** *were actively eradicated as a threat to human safety and to livestock from most land used by people; lions from the remaining populations continue to be killed over livestock losses and safety concerns in communal areas and along the periphery of parks today.*

Southern African **rhinos** *were driven to the brink of extinction a century ago, but populations were rebuilt through effective conservation activities; rhinos are now being decimated again by ruthless commercial poaching for their horns.*

A century ago, **elephants** *were drastically reduced by the uncontrolled ivory trade, and displaced as a threat to crops and safety; today most of the remaining southern African populations are healthy and growing, but ruthless commercial poaching for ivory is again having an impact.*

Many other species *are experiencing similar declines, mostly due to land conversion to agriculture and incompatible land uses.*

- ***Widespread concern over wildlife declines is motivating ongoing global calls for action*** *– yet interventions often do not differentiate between countries with an excellent conservation track record, and those with declining wildlife populations.*
- ***Attempts by foreign organisations to stop declines through field interventions often do not address the actual problems*** *– interventions often ignore the needs of local people and conservation priorities on the ground.*
- ***The public is unfortunately not informed accurately about the main causes for large-scale wildlife declines*** *– media reports, social media hype and calls for donations tend to focus on the gruesome death of individual animals as*

indicators of decline, rather than actual causes.

- ***People are confusing the wellbeing of individual animals with the health of entire populations of the same species** – through passionate but misguided social media outcries, many people want to prevent all animal deaths in order to stop perceived cruelty to animals and wildlife declines.*

PREVENTING ALL WILDLIFE DEATHS FORCES PEOPLE TO REPLACE WILDLIFE HARVESTING WITH OTHER LAND USES



Effective broad-scale conservation must give wildlife a real local value

WILDLIFE WILL ONLY REMAIN ON THE LAND IF LAND STEWARDS BENEFIT FROM IT

Namibia's **lion** *population is healthy and increasing, and is today at its highest since independence in 1990; lion range has expanded significantly, especially in north-western Namibia.*
Namibia's populations of both black and white **rhinos** *were partly rebuilt over the last three decades and former ranges were reestablished by providing economic incentives as a basis for their conservation.*
Namibia's **elephant** *population has tripled since independence and elephants have re-colonised former ranges, largely facilitated by community conservation and benefits to local communities.*
Most other large wildlife species *in Namibia have healthier populations today than at any time over the last 150 years.*

- ***Differentiating between countries with successful conservation approaches and those without is essential** – conservation is a science- based management activity and successful approaches should not be undermined by generalised emotional responses and inappropriate actions.*
- ***Conservation by the people for the people is extremely successful in Namibia** – by conferring rights to own and manage wildlife to local communities, the Namibian government has empowered land holders to conserve wildlife in a healthy balance with other land uses.*
- ***Namibians embrace wildlife management as a land use, thereby safeguarding wildlife habitat throughout the country** – Namibia has documented significant wildlife recoveries in parks and on communal and freehold land throughout the country for several decades.*
- ***By harvesting small percentages of surplus animals, Namibia is keeping overall wildlife populations healthy,** just as farmers anywhere in the world keep their overall livestock herds, gardens and fields healthy while harvesting an annual crop to generate income and enable development.*

PROMOTING WILDLIFE USE CREATES INCENTIVES TO KEEP WILDLIFE ON THE LAND AS AN ECONOMIC ASSET



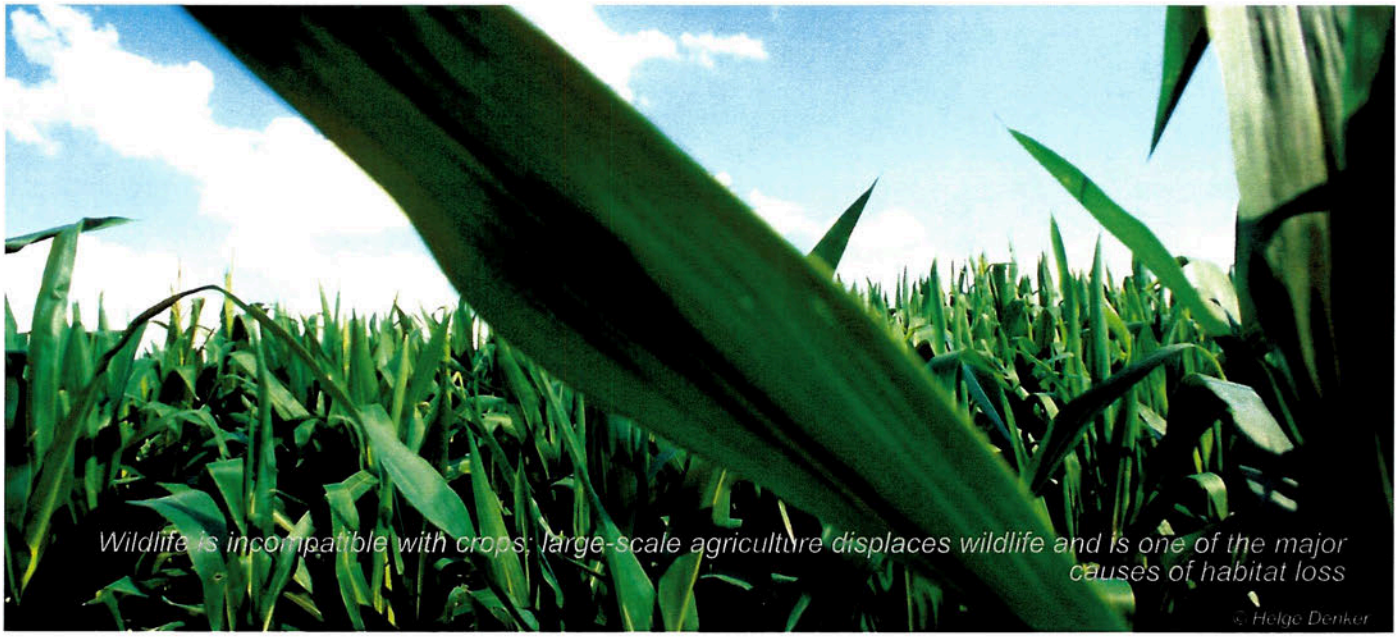
The main causes of large scale wildlife declines:

HABITAT LOSS THROUGH HUMAN LAND USES THAT ARE INCOMPATIBLE WITH WILDLIFE is the largest single cause of wildlife declines around the world.

Displacement of wildlife by agriculture – *wildlife is not tolerated in crop fields and competes with or threatens livestock.*
Degradation of habitat by unsuitable land uses – *overgrazing, indiscriminate burning, logging, mining etc. may all severely degrade habitats.*
Destruction of habitat through infrastructure development – *urban spread, roads, power lines, dams etc. may all destroy habitats.*
Disturbance by human activity - *excessive presence and movement of people, stray dogs, traffic, noise etc. may all displace wildlife.*

UNCONTROLLED EXPLOITATION AND COMMERCIAL POACHING are causing rapid declines amongst already isolated wildlife populations in many African countries.

Poaching of animals for trade in animal parts – *trade in ivory, rhino horn, skins, bones etc. is fuelling ruthless commercial poaching.*
Ruthless exploitation for personal gain – *uncontrolled over-harvesting veiled as 'legal use' is rampant in countries with poor governance.*



Wildlife is incompatible with crops: large-scale agriculture displaces wildlife and is one of the major causes of habitat loss

Proven ways to stop wildlife declines and rebuild populations:

HABITAT PROTECTION AND EXPANSION THROUGH COMMUNITY CONSERVATION BASED ON WILDLIFE USE enables large- scale wildlife recoveries, mitigates human impacts and facilitates the health of ecosystems.

Tourism *motivates conservation in scenic areas, especially along major tourism routes, by generating most jobs and some conservation funds.*
Conservation hunting *motivates conservation in vast areas of low tourism potential by generating most conservation funds and providing food.*
Meat harvesting *motivates increasing wildlife populations by providing food and generating additional income.*
Live capture and sale *enables restocking in areas with low populations and provides further income from wildlife.*

All of these uses can and should be combined where possible to maximise returns and provide a variety of benefits to different people in each community.

ACTIVE AND COLLABORATIVE WILDLIFE CRIME PREVENTION limits impacts from commercial poaching by teaming up relevant stakeholders including local communities, tourism and hunting operators, NGOs and government agencies.

STRINGENT CONTROL MECHANISM FOR ALL WILDLIFE USE prevents uncontrolled exploitation and over-harvesting.



Namibia is a conservation success story:

Background information:

1. *Namibia's economy is largely reliant on natural resources; about two-thirds of the human population live in rural areas and are directly dependent upon natural resources for their livelihoods.*
2. *Wildlife populations have shown dramatic recoveries on both freehold and communal farmland after drastic declines prior to independence due to drought, poaching and detrimental policies.*
3. *Healthy populations of nearly all historically occurring species now roam suitable habitat; species of particular conservation concern are receiving special attention.*
4. *Agricultural policies and approaches, rather than conservation practices, have limited the population health of some species such as buffalo and wild dog.*
5. *Wildlife is managed and protected in national parks, in community conservation areas and on freehold land across more than half of Namibia.*
6. *The success is based on giving wildlife a real value for the local people who manage and protect it – and bear the cost of living with it.*
7. *Community conservation generated over N$ 147 million in returns for rural communities and facilitated around 4,936 jobs during 2018.*
8. *Community conservation contributed about N$ 884 million in net national income to Namibia's economy in 2018.*
9. *The sustainable use of wildlife and other natural resources is enshrined in Namibia's constitution; natural resources are a part of our national heritage, to be used*

Conservation highlights:

1. *Namibia has healthy populations of black and white rhinos, including the largest free-roaming black rhino population outside parks in the world.*
2. *Namibia's elephant population has grown from an estimated 7,500 animals in 1995 to around 22,000 today – a large percentage occurs outside parks.*
3. *Namibia has healthy lion populations in several national parks, and an expanding lion population outside parks, which has grown in north-western Namibia from an estimated 25 animals in 1995 to around 130 today.*
4. *Namibia has the largest population of free-roaming cheetahs in the world – the vast majority of which live outside parks.*
5. *Namibia has healthy giraffe populations in several national parks and an expanding giraffe population outside parks.*
6. *Namibia has healthy leopard populations in several national parks and leopards occur across much of Namibia's freehold and communal farmland.*
7. *Namibia has a healthy crocodile population with a large percentage occurring outside parks.*
8. *Namibia has translocated more than 10,000 animals of 15 different game species – including rare and valuable species such as black rhino, sable and giraffe – out of parks into communal and freehold areas to boost populations there.*
9. *Namibia has reinstated several species that had become locally extinct in communal and freehold areas.*

sustainably for the benefit of present and future generations of Namibians.

Don't confuse Namibia's positive conservation approach with bad practices elsewhere!



Namibia offers real solutions for wildlife inside and outside parks:

Namibia balances conservation priorities and the needs of rural communities:

In Namibia, most communal land (around 37% of the country) and privately-owned or freehold land (around 43% of the country) is used to generate a living for the land holders. Livestock herding, crop production and game management are the main land uses.

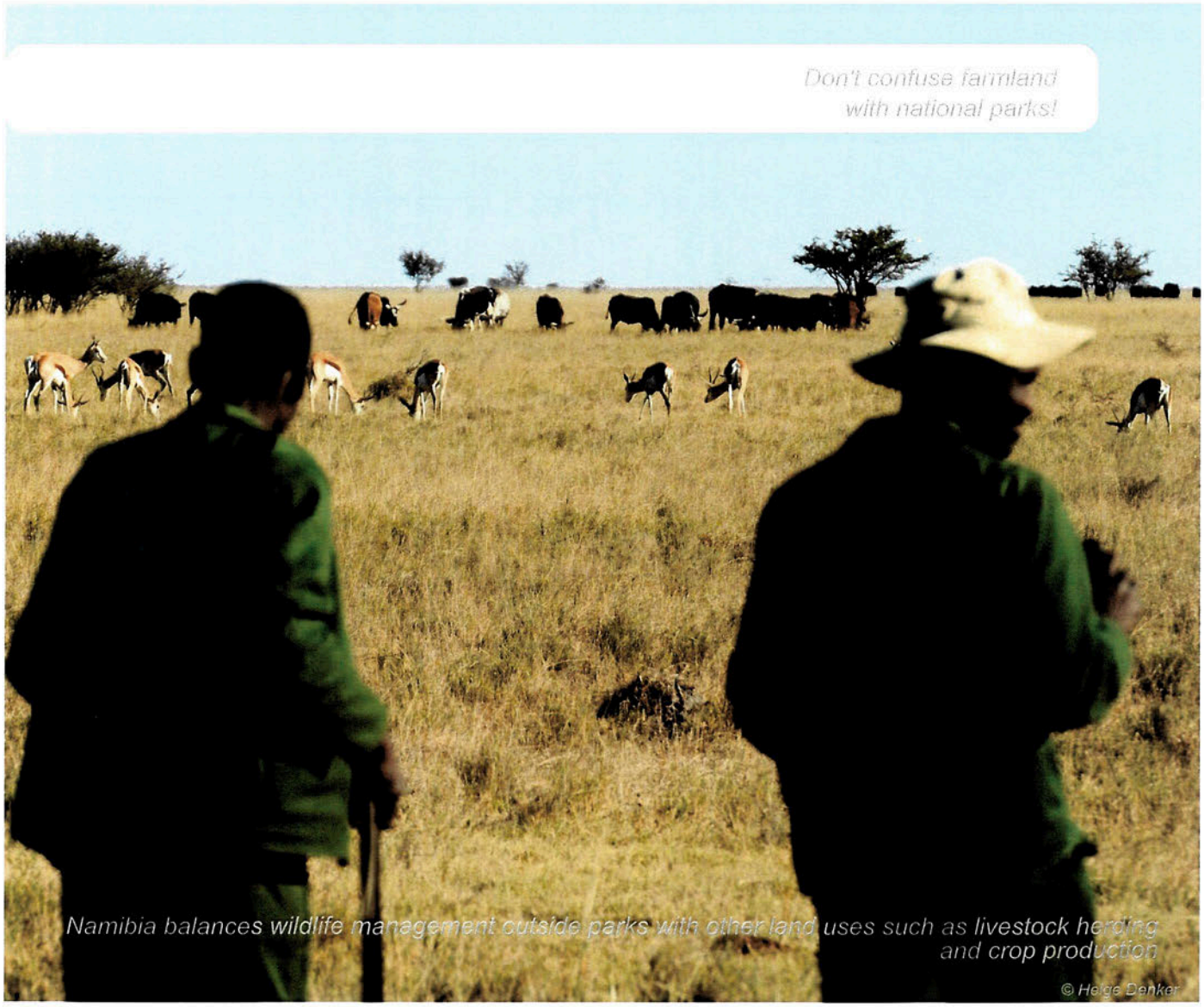
Conservation outside national parks therefore depends on giving wildlife a tangible value so that people keep it on the land – rather than eradicating it in favour of livestock, crops or other land uses.

Keeping wildlife on the land also means living with wildlife – wildlife that can be dangerous and destructive. Disney is not reality – in real life...

*... **lions**, crocodiles and other predators eat livestock and sometimes kill people*
*... **elephants** raid crops and destroy water installations and also sometimes kill people*
... many other wild animals such as hippos, buffaloes and rhinos can also be difficult and dangerous to live with.

- ***Wildlife use is a traditional and integral part of life in rural Africa** – hunting is a part of African culture. This was the same in Europe and America – when people still lived from the land and the wildlife was still there.*
- ***Namibia protects around 17% of its land in national parks** – that's more than most countries.*
- ***Community conservation areas cover about 21% of Namibia** and embrace around 230,000 people.*

- ***Tourism concessions in parks provide important income for neighbouring communities** , promoting conservation.*
- ***Wildlife conservation outside parks must be seen as wildlife management for the benefit of the people** – not wildlife preservation for the benefit of an urban ideal.*
- ***Rural people need the land to survive** – for livestock herding, for crop production and for wildlife management.*
- ***Wildlife management outside parks is an economic activity** – just like farming – otherwise wildlife will be pushed out by land uses that generate better returns from the same land at lower costs.*
- ***Photographic tourism is an ideal use of intact ecosystems with healthy wildlife populations** , but can only be practiced in accessible areas with enough scenic interest and/or high wildlife densities – this leaves large areas without tourism value or income.*
- ***Together, conservation hunting and tourism fund community conservation structures** – including most of the 86 communal conservancies, a community conservation association in a national park (managed like a conservancy) and around 684 community game guards and resource monitors.*
- ***Conservation hunting funds anti-poaching activities** by government agencies, community conservation organisations and private sector initiatives.*



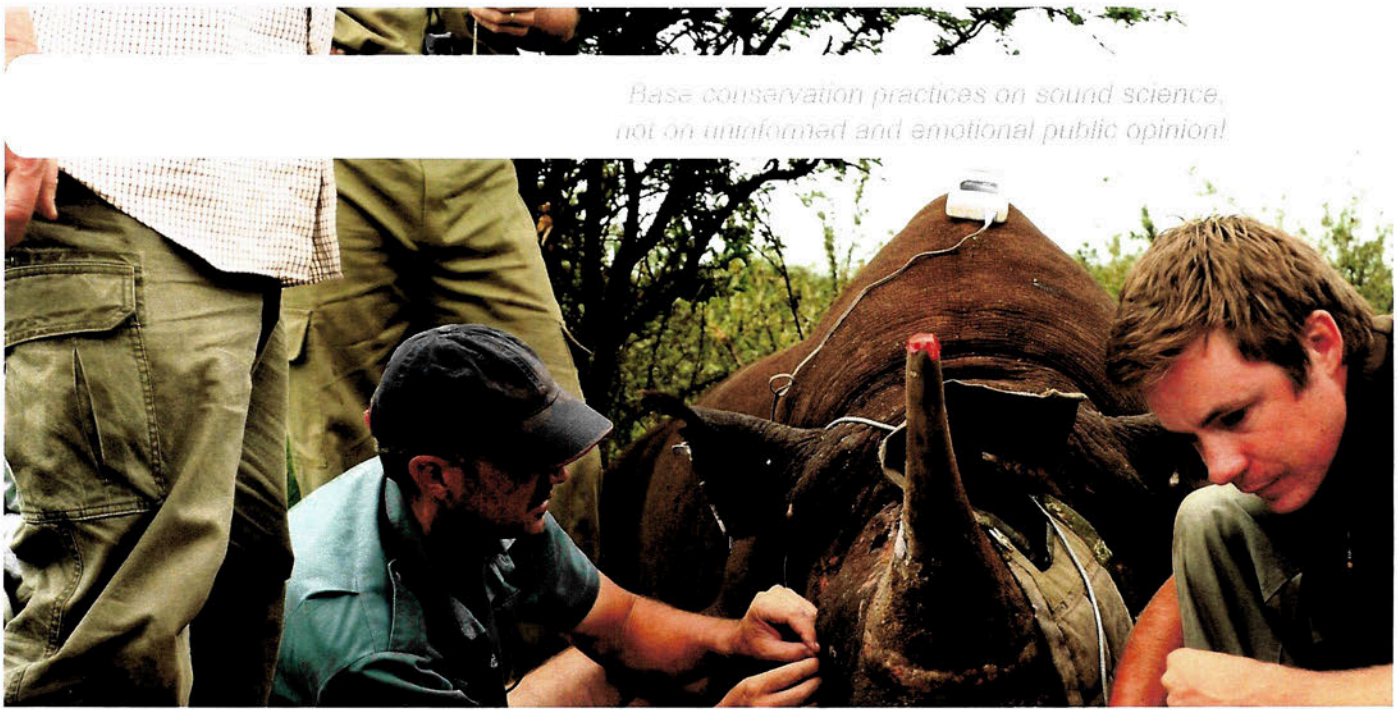
Namibia's conservation success is based on science and proof!

Namibia has one of the most intensive wildlife monitoring and utilisation control systems in Africa and the world:

Namibia uses a variety of systems to monitor and manage wildlife populations. The systems differ between national parks, community conservation areas and private farmland and are tailored to meet local needs. Management is by no means perfect in all areas or at all times. Yet the general approach of actively using wildlife outside parks for the benefit of rural communities has proven to be very successful, enabling healthy wildlife populations and strengthening local livelihoods. Namibia's dynamic conservation community ensures that environmental concerns are publicly recognised. While a balance between economic development and conservation in rural Africa is often problematic, most stakeholders strive to address issues. Collaboration between government, local communities, support NGOs and the private sector is a key to Namibia's conservation success.

No single approach or system is perfect. The flexibility to adapt to changing needs and circumstances is more important than any one system or approach.

- ***Namibia has excellent knowledge of its wildlife populations*** *through ongoing research and regular, rigorous monitoring activities and systems, including aerial surveys, road counts, foot patrols and remote wildlife tracking using cutting-edge technology.*
- ***The Ministry of Environment and Tourism has clear compliance requirements for wildlife management.***
- ***Stringent monitoring and control systems for all wildlife harvesting*** *facilitate effective management and minimise misuse.*
- ***Offtakes are carried out according to annual quotas based on sustainable harvest rates*** *and are controlled through permits and reporting requirements.*
- ***The effects of offtakes over time are monitored and harvest rates are adapted to keep populations healthy*** *if population changes occur.*
- ***Regular quota revisions for wildlife harvesting*** *are based on monitoring data and scientific guidelines.*
- ***Land use objectives differ between national parks, community conservation areas and private farmland,*** *resulting in varying wildlife densities in different areas.*
- ***Challenges are a part of wildlife management,*** *especially when attempting to balance the needs of large, dangerous wildlife with the needs of poor rural communities.*
- ***Increasing human-wildlife conflict is a result of increasing game numbers and a sign of successful conservation;*** *it is also one of the biggest challenges for wildlife management outside parks.*
- ***Wildlife in open, unfenced systems is free to roam and is susceptible to drought and disease,*** *resulting in natural population fluctuations.*
- ***Continually adapting activities to changing circumstances facilitates sustainability.***
- ***Namibia conforms to CITES and IUCN guidelines for wildlife use,*** *as well as those of the International Convention of Biological Conservation.*
- ***Namibia has several decades of positive experience with sustainable wildlife use*** *– which has led to significant wildlife increases.*





Sustainable wildlife harvesting promotes conservation!

What exactly is sustainable wildlife harvesting?

Sustainable wildlife harvesting means harvesting a limited percentage of wildlife stocks without compromising the health of the overall population, *in order to generate income for local communities and enable wildlife management as a viable land use. When this is legally-entrenched, well-controlled and based on scientific principles and sound knowledge, it is fully sustainable.*

Wildlife harvesting has been a natural factor controlling game populations throughout human evolution, just like the impact of lions and other predators.

Sustainable wildlife harvesting...

- *Is carried out by local land holders.*
- *Creates incentives to keep wildlife on the land.*
- *Keeps natural habitats intact.*
- *Provides alternative income and strengthens rural livelihoods, especially in remote, arid environments.*
- *Enables a mix of land uses including livestock and cropping.*
- *Strengthens resilience against impacts from climate change.*
- *Strengthens resilience against external economic or political influences and reduces dependency on agriculture.*
- *Pays for conservation structures and anti-poaching activities.*
- *Provides meat for rural communities.*
- *Ensures stakeholders have a real interest in conserving wildlife.*
- *Reinforces traditional cultural values related to wildlife.*
- *Safeguards indigenous knowledge about wildlife.*

Sustainable wildlife harvesting includes these activities:

- *Conservation hunting* **(hunting with clear conservation outcomes targeting a very small percentage of the total population).**
- *Meat harvesting* **(using minimum-impact methods and offtake rates well below natural population growth rates).**
- *Live capture and sale* **(moving surplus animals from high density areas to low density areas within their natural range).**

What exactly is conservation hunting?

Conservation hunting consists of harvesting small numbers of indigenous wildlife as part of a personal wilderness experience based on traditional human survival skills. Conservation fishing harvests indigenous fish according to the same principles. These activities have verifiable prerequisites and outcomes (see opposite page) while focussing on wilderness experiences and participation in natural dynamics through regenerative pursuits. They can be combined under the term wildernessing and promote the protection of free-roaming indigenous species in their natural habitat.

The Namibian conservation hunting fraternity adheres to guidelines for ethical hunting, including:

- *Stalking game in natural habitat to ensure a wilderness experience and fair chase.*
- *Ensuring minimum suffering for hunted animals.*
- *Targeting only those animals that can be harvested without negative impacts on the overall population.*
- *Ensuring that all meat and other products of all hunted animals are used.*

- *Hunting predators in an ethical manner only as part of predator management.*

Ethics may be considered a personal value statement and can differ between individuals and cultures. Hunting ethics should be directly linked to conservation outcomes, primarily to promote the protection of free-roaming indigenous wildlife in its natural habitat.

Conservation hunting promotes the protection of free-roaming, indigenous wildlife and its natural habitat

© Helge Denker

Habitat loss and crime are the biggest killers of wildlife!

with poaching or bad trophy shooting practices!

WILDLIFE PRESERVATION WITHOUT HABITAT CONSERVATION IS MEANINGLESS!

Land conversion and resultant habitat loss is mostly overlooked by the public, but is the biggest killer of wildlife!

Wildlife needs large areas of intact habitat to ensure healthy populations:

- *Most game needs undisturbed access to water, which it does not have if pressure by people, their livestock or their dogs is too high.*
- *Many species need to be able to roam widely in search of food, especially in areas with highly variable rainfall; fences, roads, settlements and other infrastructure all fragment habitat and inhibit the ability of wildlife to respond to seasonal food availability.*
- *Wild animals need shelter to which they can retreat when chased by natural predators or disturbed by people.*
- *Game needs large enough areas to engage in natural interactions, especially breeding and rearing of young.*
- *Wildlife can coexist with livestock, but is often eradicated by farmers who see it as grazing competition or a threat to infrastructure or safety.*
- *Wildlife is not tolerated in crop fields or gardens; effective zoning of crops into land use mosaics can leave adjacent wildlife habitats intact.*

PEOPLE ONLY MAKE THE EFFORT TO KEEP WILDLIFE HABITATS INTACT IF THEY HAVE A TANGIBLE INCENTIVE TO DO THIS.

POACHING AND UNCONTROLLED EXPLOITATION DECIMATE WILDLIFE!

Poaching and uncontrolled exploitation should never be confused with legal, sustainable wildlife harvesting!

Poaching...

- *Is an economic crime that bypasses the legal economy and provides no local income or benefits.*
- *Is stealing from the rightful owners – the local communities.*
- *Steals valuable wildlife products for purely personal gain – just like cattle theft, shoplifting or film piracy steal from legal industries.*
- *Introduces organised crime into local communities, disrupting social structures and values, and undermining legal livelihoods.*
- *Undermines conservation activities and harms the resource base.*
- *Undermines tourism and other legal wildlife uses.*
- *Has a severe impact on high-value species.*

Uncontrolled exploitation...

- *Places immediate financial gain over sustainability.*
- *Abuses legal loopholes to exploit resources.*
- *Takes advantage of weak control mechanisms.*
- *Relies on weak governance and corruption.*
- *Benefits only a small number of individuals.*
- *Undermines legal livelihoods and sustainable activities.*
- *Undermines conservation activities and harms the resource base.*
- *Undermines tourism and other legal wildlife uses.*
- *Is not sustainable.*

COMMERCIAL POACHING, ESPECIALLY OF RHINOS AND ELEPHANTS, IS A HUGE THREAT TO NAMIBIA'S VALUABLE WILDLIFE AND TO A VARIETY OF INDUSTRIES BASED ON IT.

Great and misguided emotions undermine effective conservation!

TROPHY BREEDING AND SHOOTING DISCREDITS ALL SUSTAINABLE WILDLIFE HARVESTING!

Trophy shooting activities motivated only by financial gain should not be confused with conservation hunting!

These and similar practices make no conservation contributions and are not part of conservation hunting:

- *Canned shooting (shooting animals in small enclosures).*
- *Put-and-take shooting (releasing captured trophy animals for the sole purpose of shooting them).*
- *Breeding lions and other predators for trophy shooting.*
- *Breeding rarities such as black springbok, golden oryx etc. for the trophy trade.*
- *Introducing exotic species such as blesbok, nyala etc. for trophy shooting.*
- *Unethical shooting of animals based only on their trophies (rather than fair chase hunting based on a wilderness experience).*
- *Genetic manipulation of species gene pools to enhance trophy quality.*

GAME USE MUST BE ABLE TO PROVE CONSERVATION OUTCOMES TO BE ACCEPTED AS A VIABLE CONSERVATION ACTIVITY

EMOTIONAL ANTI-HUNTING CAMPAIGNS UNDERMINE CONSERVATION!

Anti-hunting campaigns based on emotional opinions should not derail proven conservation approaches!

In a modern world of inter-connectivity, social media and concerned global citizens, well-meaning but at times misguided international opinion and pressure don't always bring positive change – they also have the ability to influence and change legitimate local activities for the worse. Local communities and environments are often the worst affected.

- ***Calls for a hunting ban in Namibia are based on urban values and opinions, not on rural conditions and needs,*** *and are often orchestrated by animal-rights organisations and misguided followers.*
- ***A small, economically secure urban elite is challenging legal and highly beneficial activities*** *in Africa from an idealistic moral standpoint.*
- ***A hunting ban dispossesses and disempowers local decision making*** *and enforces a foreign moral view upon Africans.*
- ***A hunting ban would have the most negative impacts on the elements that the international public is attempting to support*** *– wildlife populations and local people outside national parks.*
- ***In-depth understanding of wildlife dynamics, based on scientific principles, should not be dismissed*** *by emotional, misguided external public opinions.*

NAMIBIA'S WELL-DOCUMENTED, SUCCESSFUL APPROACH TO CONSERVATION SHOULD NOT BE JEOPARDISED BY OUTSIDERS

African wildlife: use it – or lose it!

What would be lost, if wildlife could not be used to generate income for local communities outside parks?

Hunting bans, which could consist either of Namibia stopping the activity of hunting, or of other countries stopping the import of hunting trophies – thereby closing the market – would have detrimental effects for wildlife outside parks, and for people currently benefitting from that wildlife.

- *The loss of income to the national economy is currently not quantified, but is likely to be over a billion Namibia Dollars.*
- *A hunting ban would result in at least N$ 39.6 million of lost annual returns for conservancies if all wildlife harvesting were banned, and would have a direct impact on at least 48 of the 56 conservancies currently generating returns from natural resources.*
- *Loss of conservation hunting income would result in at least 30 conservancies becoming financially unsustainable.*

- *If no immediate alternative income streams could be secured, a large percentage of the currently 684 community game guards and resource monitors employed in conservancies across Namibia would stand to lose their jobs.*
- *The loss of natural resource management structures would have immediate negative effects on wildlife populations and the health of other natural resource stocks.*
- *The loss of community game guards would significantly reduce Namibia's ability to combat poaching, especially of free-roaming rhino and elephant.*
- *Discontinuing regular wildlife monitoring and annual game counts would seriously undermine effective wildlife management.*
- *The loss of natural resource returns for local communities would result in an immediate reduction in people's tolerance of problematic wildlife such as elephants, lions and other predators.*
- *Reduced tolerance of wildlife would lead to an increase in retaliatory killing of problematic animals.*
- *A reduced sense of ownership over wildlife would lead to increased bush-meat poaching as well as poaching of high-value species.*
- *Across much of the currently 169,756 square kilometres of community conservation area, wildlife would no longer be considered a land-use priority and would be displaced by other uses such as livestock.*
- *On a large percentage of freehold farms with limited or no tourism potential, wildlife would also be displaced.*

MOST LARGER WILDLIFE SPECIES WOULD BE DISPLACED FROM MUCH OF NAMIBIA IF THEY COULD NOT BE USED TO GENERATE INCOME

Using wildlife ensures its value for land holders and KEEPS IT ON THE LAND!

The economic value of wildlife creates the incentive for land holders to include wildlife as a land use. If wildlife is not used, but preserved only for its own sake, it has little place outside parks, because land outside parks is used to generate rural livelihoods and contribute to the national economy.

- *Eat game meat to keep wildlife on the land – eat beef, and put more cattle on the land.*
- *Harvesting sustainable numbers of wildlife keeps overall populations healthy and avoids over-stocking.*
- *Conservation hunting promotes wildlife conservation and habitat protection.*
- *Go wildernessing to truly experience Africa's natural splendour and traditional human survival skills.*

THE LEGAL USE OF WILDLIFE ENABLES LAND HOLDERS TO SEE IT AS PART OF THEIR LIVELIHOOD, ENSURING

The Namibian Association of CBNRM Support Organisations (NACSO)
embraces a variety of NGOs and individual members, who provide a range of technical and funding support to community conservation. Three NACSO working groups, namely the **Natural Resources Working Group** (NRWG), the **Business, Enterprises and Livelihoods Working Group** (BELWG) and the **Institutional Development Working Group** (IDWG), facilitate coordinated service provision to rural communities.

© Helge Denker

© Helge Denker

A publication of:
NACSO Natural Resources Working Group
www.nacso.org.na

Don't confuse wildlife use with wildlife loss!

Further Information Resources:
Community conservation in Namibia: **www.nacso.org.na**
(especially the annual Community Conservation Report)
State protected areas in Namibia: **www.met.gov.na**
International wildlife trade regulations: **www.cites.org**
International biodiversity conservation: **www.iucn.org**

If predators merely possess [illegible] property without generating benefits, they will be eradicated.

FWS Form 3-200-20 (Rev. 01/2020)
U.S. Department of Interior

OMB Control No. 1018-0093
Expires 08/31/2023

IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

■New ☐Reissue/Renew ☐Amendment

Complete Sections **A or B**, and C, D, and E of this application. U.S. address may be required in Section C.**

A. Complete if applying as an individual

1.a. Last name	1.b. First name	1.c. Middle name or initial	1.d. Suffix
Schumer	James	F	

2 Date of birth (mm/dd/yyyy)	5.a. Telephone number	5.b. Alternate telephone number	6. E-mail address
(b) (6)			

B. ~~Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution~~

~~1.a. Name of business, agency, Tribe, or institution~~	~~1.b. Doing business as (dba)~~	
~~2. Tax identification no.~~	~~3.a. Description of business, agency, Tribe, or institution~~	~~3.b. Website URL (if applicable)~~
~~4.a. Principal officer (P.O.) last name~~	~~4.b. P.O. first name~~	~~4.c. P.O. middle initial~~ ~~4.b. P.O. Title~~
~~5. Primary contact name~~	~~6. Primary e-mail address~~	
~~7.a. Business telephone number~~	~~7.b. Alternate phone no.~~	~~8.a. Primary contact telephone no.~~

C. All applicants complete address information

(b) (6) (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes)

1.b. City	1.c. State	1.d. Zip code/Postal code	1.e. County/Province	1.f. Country
Galveston	TX	77550	Galveston	U.S.A

2.a. Mailing Address (include if different than physical address; include name of contact person if applicable)

2.b. City	2.c. State	2.d. Zip code/Postal code	2.e. County/Province	2.f. Country

D. All applicants MUST complete

1. Include a check or money order, payable to the U.S. FISH AND WILDLIFE SERVICE, **a nonrefundable processing fee [50 CFR 13.11(d)(4)]**. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – ***attach documentation of fee exempt status as outlined in instructions.*** (50 CFR 13.11(d)).

2. If you are requesting a reissue/renew/amendment, what is your permit/file number?

3. Certification: I hereby certify that I have read and am familiar with the regulations contained in Title 50, Part 13 of the Code of Federal Regulations and the other applicable parts in subchapter B of Chapter I of Title 50, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

The individual/principal officer of the business must print and sign the application. (No photocopied or stamped signatures) Date (mm/dd/yyyy)

** Further instructions for the above application may be found on our ePermits website. See the last page for information on the Privacy Act, Paperwork Reduction Act, Estimated Burden, and Freedom of Information Act aspects of this application form.

Mail your application(s) to Division of Management Authority, Branch of Permits, MS:IA 5275 Leesburg Pike, Falls Church, VA 22041-3803.

APPLICANT:

JAMES SCHUMER

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

James Schumer - [redacted] Galveston, TX 77550

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

☒ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Panthera leo, lion

b. Sex (if known).

female

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

Okanjati Wildlife Area, Namibia

b. Date wildlife is to be hunted:

May 9th, 2021-May 18th, 2021

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

Professional Hunter- Japsie Blaauw, Safari Company - Jan Oelofse Hunting Safaris

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

N/A

b. Date wildlife was hunted:

N/A

c. Approximate age of animal:

N/A

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

N/A

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

N/A

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

Have not hunted yet

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	Titus Schmidt
Business Name:	Yellow Shark Logistics
Address:	P.O. Box 81413, Olympia 64 Socrates Street
City:	Academia Windhoek
State/Province:	
Country, Postal Code:	Namibia

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.

11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):	Japsie Blaauw
E-mail:	japsie@dzombo.com
Phone number:	+264 81 146 4959

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**).

    Applicant's signature: _____ (b) (6) _____ Date: _____

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
PHILIPPE CHARDONNET, D.V.M.
SHANE MAHONEY
RENEE SNIDER

Department of the Interior
U.S. Fish and Wildlife Service
Attn: Amy Brisendine
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803
VIA E-Mail: Amy_Brisendine@fws.gov

RE: **Import Application for a Lion and Leopard trophy from Namibia**
Applicant: **James Schumer**
Dates of Hunt: **May 9th – May 18th, 2021**

Ms. Brisendine,

Enclosed, please find the permit applications for Mr. James Schumer. Mr. Schumer will be hunting in the Okanjati Wildlife Area, also known as Mt. Etjo Private Game Reserve with Safari operation, Jan Oelofse hunting safaris and professional hunter Japsie Blaauw in May of this year. Mr. Schumer plans to take a lion and leopard on his safari.

Jan Oelofse was known as a world-renowned wildlife conservationist who started out as a game rancher growing up in Namibia. Okanjati Wildlife Area is quite a special place where Mr. Oelofse turned a large area of unoccupied farmland back into a native wildlife sanctuary that now expands to over 86,487 acres. Over the years he strived to create a reserve that held game numbers in a healthy balance for all species, which today total over 6,000 animals. According to the operator enhancement report provided it states, "that Lions are not bred for the sake of trophies. Lions are part of the eco-system that must be managed like all other species. Lions are only hunted when 15 years or older. Managing a controlled game area involves all facets, such as tourism, hunting, game breeding, live game sales, and meat sales to generate capital for not only the sustainability of the complete eco-system, but also to achieve progress i.e., enlarging the area, introducing new species, and enhancing the carrying capacity of numbers of game." This operator is proving the notion that well-managed and regulated science-based hunting is a successful tool for wildlife conservation. We have provided another hunters' CITES export permit from this same area to showcase that the lions have been designated as "Wild" by CITES.

Jan Oelofse hunting safaris employs about 100 local people from the surrounding communities, including a biologist that remains on staff year-round. They provide free education for all local children from Kindergarten up to grade 7, give free medical care for all community members and their families, and disperse game meat to them, up to 4 tons worth a year. The Oelofse's believe in working with the community to keep the human-wildlife conflict at bay, giving regular anti-poaching courses in tandem with anti-poaching patrolling that have kept poaching out of the area almost completely.

Included with this application and the operator enhancement report is the article "Lion Conservation and Sustainable Use" which details the struggle between livestock farmers and lions. The growth rate of lion populations is often higher than the mortality rate, therefore producing a surplus of the animals which frequently must be forced out to look for new territories to find food. Many of these areas are farmland where farmers breed livestock, which inevitably creates conflict. Fences can not be put around wildlife areas and

national parks to keep lions from roaming into these farms, so farmers have turned to "a more appropriate and lucrative form of land-use: a wildlife-based economy that includes tourism, trophy hunting, game meat harvesting, and live sales of surplus high-value wildlife species. These farmers are making much more money than they did farming cattle and they are no longer in conflict with lions and other predators (45). Trophy hunting takes off 1% of the national herd of lions, while the animals are breeding at a rate of fifteen, twenty, or even 35%. "Safari hunting is a very high return, low impact type of activity (46)". Almost all conservancies in Namibia started out primarily as farmland, livestock was their primary livelihood before the influx of lions increased to critical levels where prey numbers declined, and lions turned to people's domestic stock. Communities wanted an intervention to this and while protection of wildlife is vastly important, the lion population must be reduced to accommodate the realities of people living amongst them. The Lion Conservation Strategy for Namibia is also included with this application, which further details what is being done to preserve the lion populations in the country.

The final document we have included is the article, "Keep Namibia's wildlife on the Land". This article, published by NACSO (a community conservation in Namibia) asks the question "How can we ensure healthy wildlife populations despite increasing human pressure?" It states that over the last century lions were actively eradicated in Namibia due to the threats to human safety and livestock. Yet today, Namibia's lion population is healthy and increasing, and is at the highest since its independence in 1990. Lion ranges have expanded significantly, especially in North-western Namibia. Namibia also reported increases in their leopard and rhino populations at their Namibia Professional Hunting Association meeting in 2019. This article echoes the previous information we have provided in this letter, that the model for working with wildlife and finding a balance of tourism, farming, safari-hunting, and meat sales all help natives to see dangerous wildlife as a commodity that they can respect and use to better their lives. The article further enhances the fact that Namibia only encourages conservation hunting and that the locals are growing increasingly intolerant of emotional anti-hunting campaigns that undermine the conservation. "A hunting ban dispossesses and disempowers local decision making and enforces a foreign moral view upon Africans". We ask that you specifically reference the page regarding "African wildlife: use it- or lose it" where it outlines what would be lost if wildlife could not be used to generate income for local communities outside parks, specifically if hunting bans were to go into effect. The ramifications of abolishing safari hunting or the importation of trophies would have "detrimental effects for wildlife and for people currently benefitting from that wildlife".

We would like to bring awareness to the fact that we are filing this import permit application before the hunt. The ever-growing backlog of application permits that have not been issued at the USFWS seems to be growing and the current sentiment of hunters is that they do not want to purchase expensive safari hunts when there is no guaranty that a permit will be issued for their trophy. It is imperative that pre-hunt applications begin to be processed and permits issued before a hunter travels abroad to give them some peace of mind and security regarding this process. Safari operators are struggling due to the restrictions that the COVID pandemic has brought about and many organizations are having to close because they can not survive without tourists. Issuing pre-hunt permits would give a boost of confidence to the entire industry that Safari tourism is still lucrative and important to the conservation of wildlife and will prevent vast landscapes from becoming abandoned and preyed on by poachers.

Please refer to the numerous documents and responses previously submitted to FWS by Conservation Force, Professional Hunters, Operators and Professional Hunting Organizations, as well as information submitted by the government authorities of Namibia in making a positive enhancement determination for this import.

If you have any questions about this import application, please do not hesitate to contact us.

Sincerely,

Aimee Korver

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. James Schumer W/ attachments

Enclosures:

a. FWS Permit Application Form for Import of Sport-Hunted Trophy
b. Notice of Representation
c. Copy of Hunting Permit
d. Operator Enhancement Report
e. Lion History of Jan Oelofse hunting safaris
f. CITES permit for a past hunt with this operator with code "W"
g. Lion Conservation and Sustainable Use
h. "Keep Namibia's wildlife on the land"
i. Lion Conservation Strategy for Namibia

APPLICANT:

JAMES SCHUMER

NOTICE

OF

REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed LION Trophy from NAMIBIA.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

(b) (6)

SIGNATURE

James F Schumer

PRINT FULL NAME

3/22/21

DATE

APPLICANT:

JAMES SCHUMER

OPERATOR ENHANCEMENT REPORT

ANNEX I OPERATOR ENHANCEMENT QUESTIONAIRE

Operator Information

a. Name of Area Qperator: **Jan Oelofse Hunting Safaris**
b. Years in business: **46 years**
c. Name of company conducting hunt: **Jan Oelofse Hunting Safaris**
d. Country: **Namibia**

a. Name of Concession: **Okonjati Wildlife Area**
b. Area in km^2: **350**
c. Land tenure:
____ Government Lease
____ Community
X Private Ranch
____ Private Conservancy
d. Length of concession agreement: **N/A**
e. Can the concession be renewed? **N/A**
f. Length of renewal, if applicable: **N/A**
g. Estimated trophy fees: **U$ 35 000.00**
h. Are there are special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed: **N/A – Privately owned land, privately managed, cattle ranches re-established into a wildlife area since 1975**
i. Provide location and nearest city: **Farm Okonjati # 516, District Otjiwarongo, Region Otjozondjupa, Namibia . Nearest settlement Kalkfeld, nearest town Otjiwarongo, nearest city Windhoek**
j. Please attach a map or maps with marked boundaries and nearest city
k. If the concession borders a National Park, provide park name: **N/A**
l. Describe general and distinctive habitat/water features: **Habitat: Mountains, Riverines, Bushveld, savannah, plains, kopjies, earthen damps and boreholes**

Communities in the Concession

a. Are there any communities living in the concession? Yes **X** No ____
b. If so, estimated number of people/villages in the concession: **200**
c. Are there communities bordering this concession? Yes ____ No **X**
d. If so, estimated number of peoples/villages around the concession: **N/A**

Relevant Game Populations in the Concession

Species	Relative Abundance (Dense, Average, or Sparse)	Estimated Population	3-Year Trend (Up, Down, or Stable)	How is it Monitored?
Elephant	**Dense**	**45**	**up**	**Regular observations**
Lion	**Dense**	**25**	**up**	**Regular observations**
Leopard	**Dense**	**35**	**up**	**Trail Cam and regular observations**

Cheetah	Sparse	10	up	Regular Observations
Black Rhino	Dense	65	up	Regular observations
White Rhino	Dense	50	up	Regular Observations
Gemsbuck	Average	450	up	Regular Observations
Hartebeest	Average	75	up	Regular observations
Blue Wildebeest	Average	450	up	Regular Observations
Springbuck	Dense	3800	up	Aerial Game Count
Common Impala	Dense	1300	up	Aerial Game Count
Blesbuck	Average	200	up	Aerial Game Count
Steenbuck	Dense	400	up	Regular Observations
Duiker	Dense	300	up	Regular Observations
Klipspringer	Average	80	up	Regular Observations
Warthog	Dense	500	up	Aerial Game Count
Ostrich	Average	450	up	Aerial Game Count
Hartmann Zebra	Dense	400	up	Aerial game Count
Burchell Zebra	Dense	270	up	Aerial Game Count
Black Wildebeest	Average	200	up	Aerial Game Count
Waterbuck	Dense	400	up	Aerial Game Count
Kudu	Dense	400	up	Aerial Game Count
Damaraland Dik-Dik	Dense	75	up	Regular Observations
Eland	Dense	250	up	Aerial Game Count

Giraffe	**Dense**	**1200**	**up**	**Aerial Game Count**
Sable	**Dense**	**300**	**up**	**Aerial Game Count**
Roan Antelope	**Dense**	**300**	**up**	**Aerial game Count**
Nyala	**Average**	**150**	**up**	**Regular observations**
Lechwe	**Dense**	**200**	**up**	**Regular Observations**
Hippo	**Sparse**	**11**	**up**	**Regular Observations**

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application. **See Attached Management plan**

b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports. **The whole area is a conservation area, permanent and continuous conservation work done to protect and enhance conservation on all levels**

Local Community Participation

a. Total employment number: **100**

b. Total employment in the off-season: **100**

c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	**5**	**5**	**5**
Trackers	**5**	**5**	**5**
Anti-poaching Scouts/Rangers	**10**	**10**	**10**
Other Anti-poaching	**5**	**5**	**5**
Cooks/Housekeepers	**22**	**22**	**22**
Community Coordinators	**8**	**8**	**8**
Managers	**11**	**11**	**11**
Biologists	**1**	**1**	**1**
General Labour	**30**	**30**	**30**
Teachers	**3**	**3**	**3**

Anti-Poaching Efforts

a. Number of anti-poaching staff: **15**

b. Are patrols conducted during the hunting season, off-season, or both? **Both**

c. Months patrols are conducted: **12 months**

d. Number of patrols per month: **Daily**

e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: **12%**

f. Description of anti-poaching equipment, vehicles, gear, etc. **Vehicles, Binoculars, Semi- Automatic Rifles, Radio and GPS Equipment, Clothing and boots, sleeping bags and various other gear needed for patrols**

g. Do government-sponsored game scouts conduct patrols? **No**

h. If so, do they have the ability to arrest? **N/A**

i. Do you offer rewards to poaching informants leading to arrest? Yes **X** No ____

j. Do you offer rewards to poaching informants upon conviction? Yes **X** No ____

k. Please describe the operator's anti-poaching expenditures over the past 3 years below:

Type of Expense	Year 1 (2018) Spending	Year 2 (2019) Spending	Year 3 (2020) Spending	Remarks
Scout Salaries	**N$ 720 000.00**	**N$ 720 000.00**	**N$ 720 000.00**	
Equipment	**N$ 400 000.00**	**N$ 150 000.00**	**N$ 150 000.00**	**First year Radio Equipment**
Vehicles	**N$ 400 000.00**	**N$ 80 000.00**	**N$ 80 000.00**	**First year Extra Vehicles**
Fuel	**N$ 350 000.00**	**N$ 350 000.00**	**N$ 350 000.00**	
Rewards				**No Rewards due to No Poaching Incidents due to effective anti-poaching and loyal community involvment**
Others: **Accommodation**	**N$ 360 000.00**	**N$ 360 000.00**	**N$ 360 000.00**	
Totals	**N$ 2 230 000.00**	**N$ 1 660 000.00**	**N$ 1 660 000.00**	

l. What currency are the expenditures given in? **Namibian Dollars**

Anti-Poaching Results

Type	Year 1 (2018)	Year 2 (2019)	Year 3 (2020)	Remarks
Poaching Incidents Discovered				
Elephant Carcasses Observed				
Lion Carcasses Observed				
Leopard Carcasses Observed				**No Poaching Incidents due to effective anti-poaching**
Ivory Poachers Observed				
Bush Meat Poachers Observed				
Illegal Logging Observed				
Other Poachers Observed				

Poachers Convicted				
Snares/Traps Collected				
Firearms Confiscated				
Vehicles Confiscated				
Bicycles Confiscated				**No Poaching Incidents due to effective anti-poaching**
Boats/Nets Confiscated				
Tusks Recovered				
Others: _____				

Community Investment

a. Does the company give ~~money~~ or goods/**services** to local communities? Yes **X** No ____
b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e. more than required by law)? **Free Education for all local children from Kindegarten up to Grade 7 and free medical care for all community members and families**
c. Does the company provide game meat to nearby communities? Yes **X** No ____
d. If so, estimate the amount/value of meat contributed in the last year and describe that distribution program: **4 Tons at the value of N$ 140 000.00**
e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling field during harvest, PAC hunts, insurance programs); please describe. **Regular Anti-Poaching courses**
f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (____)	Consolation Paid, Year 2 (____)	Consolation Paid, Year 3 (____)	Remarks
Elephant					**Not applicable,**
Lion					**Since our patrolling is of such value**
Leopard					**That almost no damage occurs**
Other: _____					**To neighbors and their livelihoods**

g. What currency are the expenditures reported in? **Namibian Dollars**
h. Describe any community projects paid for by the company:

Product/Service	Spending, Year 1 since 1992	Spending, annually	Spending, Year 3 (____)	Remarks
Education (classrooms, offices)	**N$ 720 000.00**	**N$ 100 000.00**		**School was established**

				during 1992, we since schooled an average of 35 children for Grade 1 – Grade 7.
Education (supplies, fees)	**N$ 720 000.00**	**N$ 720 000.00**		**University fees are paid in full for children who qualify for post graduate studies**
Health (clinics, offices)				**School Building is used for the clinic**
Health (equipment, salaries)	**N$ 50 000.00**	**N$ 50 000.00**	**N$ 50 000.00**	
Product/Service	**Spending, Year 1 (____)**	**Spending, Year 2 (____)**	**Spending, Year 3 (____)**	**Remarks**
Community Scout Salaries	**See above**			
Community Anti-Poaching	**See above**			
Local Government Activities	**N/A**			
Infrastructure Improvements	**See above**			
Sports Teams Funded				
Construction Materials Donated				
Other: _____				
Other: _____				
TOTALS	**N$ 1 490 000.00**	**N$ 870 000.00**	**N$ 870 000.00**	

i. What currency are the expenditures reported in? **Namibian Dollar**
j. Include receipts and photographs of projects, if available.

Company Clientele

a. How many U.S. clients did the company have in the **3 years prior Corona i.e. 2017,2018,2019** (indicate years), what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	**Lion**	**All Species**
Number of U.S. Clients		**1**	**150**

Percentage of Clients from the U.S.		**33%**	**95%**
Trophy Fees Paid by U.S. Clients		**U$ 35 000.00**	**U$ 1 500 000.00**

b. Approximate amount/percentage of company's revenue from U.S. clientele: **95 %**

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
Fully Registered by the Department of Wildlife and Tourism for a Professional Hunter, Accommodation Facilities and equipment fully registered with the Namibian Tourism Board

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology, if available): **Only mature male animals, of which sizes are carefully selected for proper game management. Selection is done by age before size.**

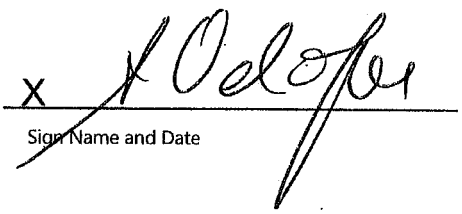
c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years. **Yes, Annual Hunt Return Forms are required by the Ministry of Environment and Tourism, no receipts are issued, if reports are not submitted, no hunting licenses will be issued for the following season.**

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

Our area is privately owned, established during 1975 and built up to 35 000 hectares. Game Management is of utmost importance, especially with natural disasters such as droughts. Game numbers have to be kept at a healthy balance, which includes all species. Lions are not bred for the sake of trophies only. Lions are part of the eco system have to be managed just like all other species. Managing a controlled game area involves all facets, such as tourism, hunting, game breeding, Live game sales and meat sales, to generate capital for not only the sustainability of the complete eco system, but also to achieve progress i.e. enlarging the area, introducing new species and enhancing the carrying capacity of numbers of game.

I declare that the foregoing is true and correct.

X 

Sign Name and Date

X Annette Oelofse 06. January 2021

Print Name and Title

Mount Etjo

Plan for year: 2020

Common Name	Last year - report back											Current year - planned activities										
	before	utilization							add		other		before	utilization							add		other	
	Initial estimate/ balance brought forward	Trophy hunted	Catch, keep & sell	Live export	Shoot & sell	shoot for own use	Total utilization	Counts conducted	Introduced	Births			Initial estimate/ balance brought forward	Trophy hunted	Catch, keep & sell or Live export		Shoot & sell	shoot for own use	Total utilization	Counts conducted	Introduced	Births		
White rhino																								
Giraffe	1300	8	16			30	54	1150					1150	5		100		100	205					
Eland	200	9					9	180					180	10	10				20					
Roan	250	4	20				24	220					220	10		20			30					
Sable	200	8					8	210					210	10		20			30					
Hartmann's mountain zebra	284	16	21				37	250					250	15	20				35					
Burchell's plains zebra	250	14	99				113	180					180	20		20		50	90					
Blue wildebeest	400	18					18	350					350	25		50		20	95					
Kudu	400	16					16	375					375	10	20				30					
Oryx	400	26					26	430					430	20		50		50	120					
Hartebeest	150	1					1	60					60	5	30				35					
Waterbuck	300	7					7	280					280	12	40				52					
Black-faced impala	300	11					11	340					340	10	100				110					
Common Impala	1300	42	75				117	1260					1260	40		300		200	540					
Tsessebe	10						0	11					11	2					2					
Springbok	3500	44					44	3600					3600	40	300			200	540					
Warthog	900	13					13	680					680	20				50	70					
Ostrich (excl. domesticated)	300	4	7				11	265					265	5	20				25					
Common duiker	350						0						350	2					2					
Steenbok	350	1					1						350	4					4					
Damara dik-dik	50	1					1						50	2					2					
Klipspringer	40						0						40	2					2					
Leopard	25	1					1						25	1					1					
Cheetah	5						0						7						0					
Black wildebeest	300	8					8	150					150	12					12					
Blesbok	200	2					2	120					120	10					10					
Elephant	37			11			11	37		12			37			20			20					
Hippo	11			1			1	12		2			12			2			2					
.....							0												0					

Hi Aimee,
Apologies,
I am still gathering all information for our lion history. Haven't been working on it consistently, hope to dc this weekend.

Just a quick summary,
Lions were introduced into the area 1981 from the Cape Zoo, since they were destined to be euthanized. habituated the whole group, re –introduced them into the wild. We added other prides, which were decl problem animals in various other areas. Lion males and females are only hunted when reaching old age a they are no longer of value to the pride.

Please find attached the aerial maps. All of the green area is Okonjati.

So the exact location would be as follows
Okonjati # 526
District Otjiwarongo
Region Otjozondjupa
Namibia

Mount Etjo is our trading Name.

Okonjati will be the name on the Permit. Use Okonjati at all times for all documentation.

Attached a CITES Permit of one of our clients, who hunted with us in 2018, which is about ready to be imp I believe. Exporter says Steve Tors, since he was the Professional Hunter guiding the client

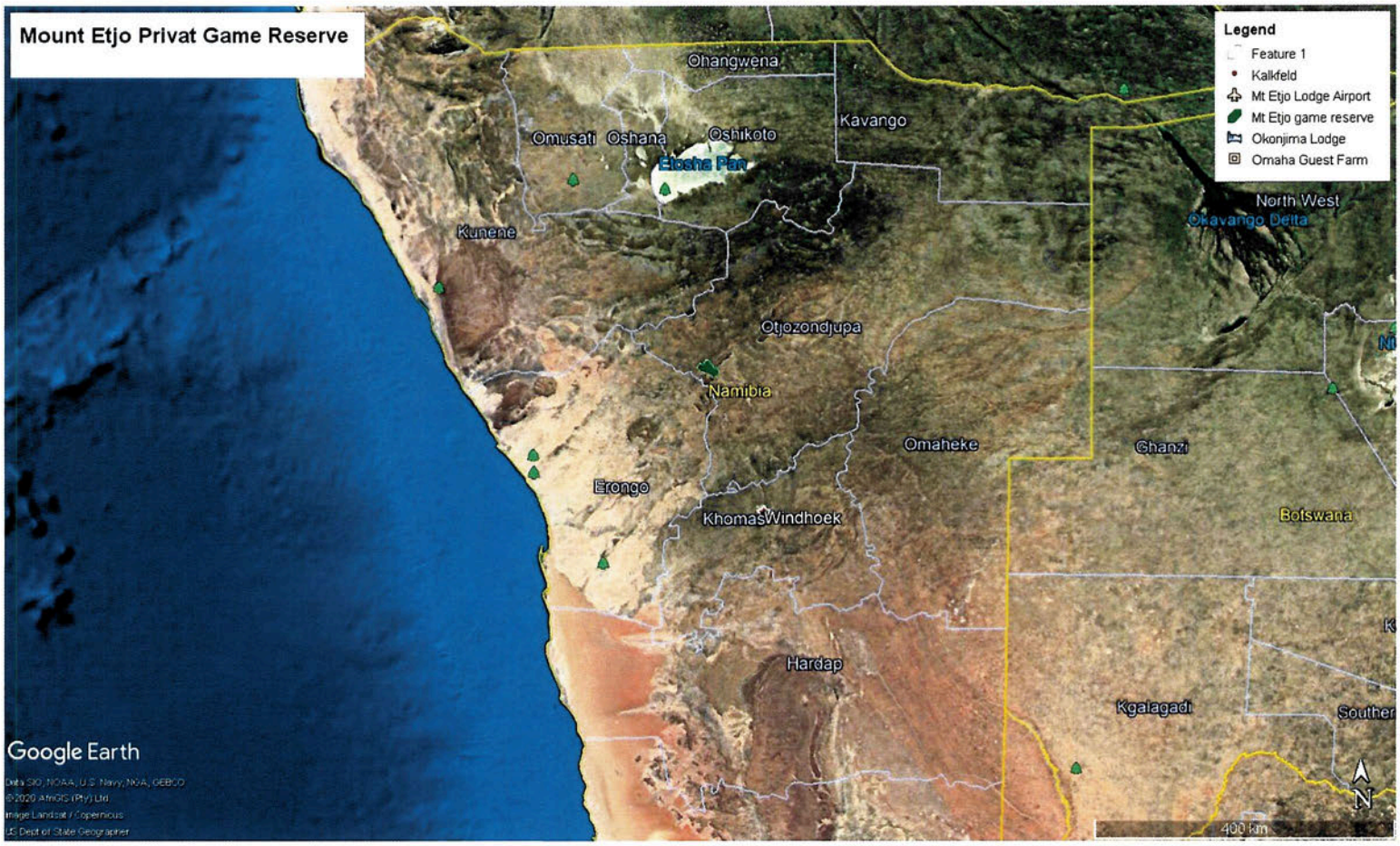
Please keep asking, you are quite right, everything has to be correct right from the beginning

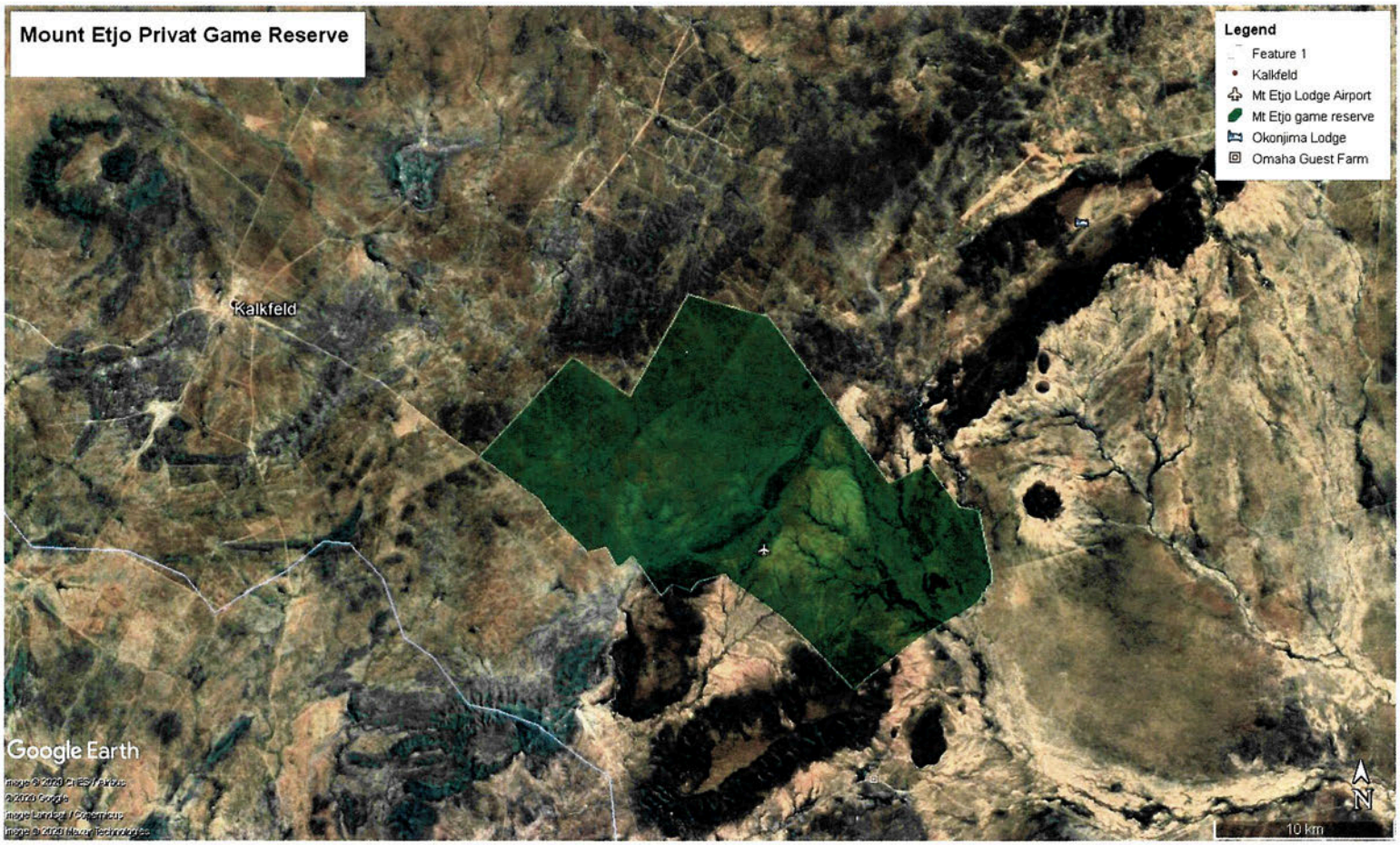
From: Aimee Korver [mailto:permits@conservationforce.org]
Sent: 15 February
To: Annette Oelofse (b) (6)
Subject: RE: FW: Lion Import Permit - Steve Reeves

Annette,

I wanted to check in on the lion history report and see how that was coming along.

Also, I need a bit more information on the location info. Are these two different locations or are they exactly the same- but as mentioned they go by different names Can you provide a map by chance that shows where Okanjati is on a map of Namib have the aerial maps that you provided with the coordinates- but often the USFWS not know where these locations are and we really need to point it out for them. Ther also can be no confusion on the name/ names of the concession. What will the hunt permit read - Okanjato or Mt. Etjo? If you can expand on the description you gave


Mount Etjo Privat Game Reserve
Legend
Feature 1
Kalkfeld
Mt Etjo Lodge Airport
Mt Etjo game reserve
Okonjima Lodge
Omaha Guest Farm
Ohangwena
Kavango
Omusati
Oshana
Oshikoto
Etosha Pan
North West
Okavango Delta
Kunene
Otjozondjupa
Namibia
Omaheke
Ghanzi
Erongo
Khomas
Windhoek
Botswana
Hardap
Kgalagadi
Google Earth
400 km
N


Mount Etjo Privat Game Reserve
Legend
Feature 1
Kalkfeld
Mt Etjo Lodge Airport
Mt Etjo game reserve
Okonjima Lodge
Omaha Guest Farm
Kalkfeld
Google Earth
10 km
N

APPLICANT:

JAMES SCHUMER

HISTORY OF
JAN OELOFSE HUNTING SAFARIS
LION POPULATION

History Jan Oelofse

Jan Oelofse world-renowned conservationist started his career in wildlife management during the Fifties, when he travelled from South West Africa to Tanganyika, to meet up with the legendary Oom Willie Beer. His intimate knowledge of animal behaviour of every African specie came instinctively. He worked for Oom Willi de Beer, capturing wild animals for zoos, preparing them for the sea voyage and delivering them to the zoo keepers at their destination. Jan Oelofse at the same time also handled all the wildlife in Taganyika while on set for Paramaount Studios, shooting the famous movie Hatari starring John Wayne, Red Buttons, Elsa Martinelli and many other. He handled and accompanied all animals ranging from elephants to lion, baboons birds and many other species featuring in the film, for a five day journey by air from Tanganyika to Hollywood. A tragic accident involving a Male Lion, which was brought from the Emperor of Ethiopia, Haile Selassie, at that time, resulted in omitting all scenes with lions from the movie and the lion was killed for unjustifiable reasons. A conglomeration of these events spurred him mon more and more to conserve and re-create a wildlife area.

His career in conservation with lions was weaved throughout his entire life in conservation, when during the Sixties he joined the Natal Parks Board. He invented the Wildlife Game Capture Method, capturing wild animals in mess. The method was named the Oelofse Method and is still today used all over the world. As head of game Capture, he not only build the Parks very first game holding pens, he was part of the legendary Ian Players team saving the White Rhino from shocking low numbers nearing extinction. While working for the Natal Parks Board, he re-introduced a pride of lions into the Umfolozi Game reserve. Lions had been extinct in the |Parks for many years, todays prides are the off springs of Jan laying the foundation.

During 1975, Jan Oelofse moved to Namibia to establish his own Wildlife Sanctuary. Today the Okonjati Wildlife area stretches over 35 000 hectares, the lion population a valuable specie in the ecosystem.

The first pride of nine lions was reintroduced into the Wildlife Area during 1983. During the middle eighties and early nineties, more lions from various places in South Africa, the southern part of Etosha National Park, the Caprivi region and the far west of Namibia were re-introduced. Lions came from overpopulated areas or areas where they were declared a problem animal. Various prides established themselves over the years. Since the area is limited to 35 000 hectares, all species are managed and trophy hunting is an important management tool. Funds to increase the Wildlife Management Area were generated by specialized trophy hunting, this also includes the lion population.

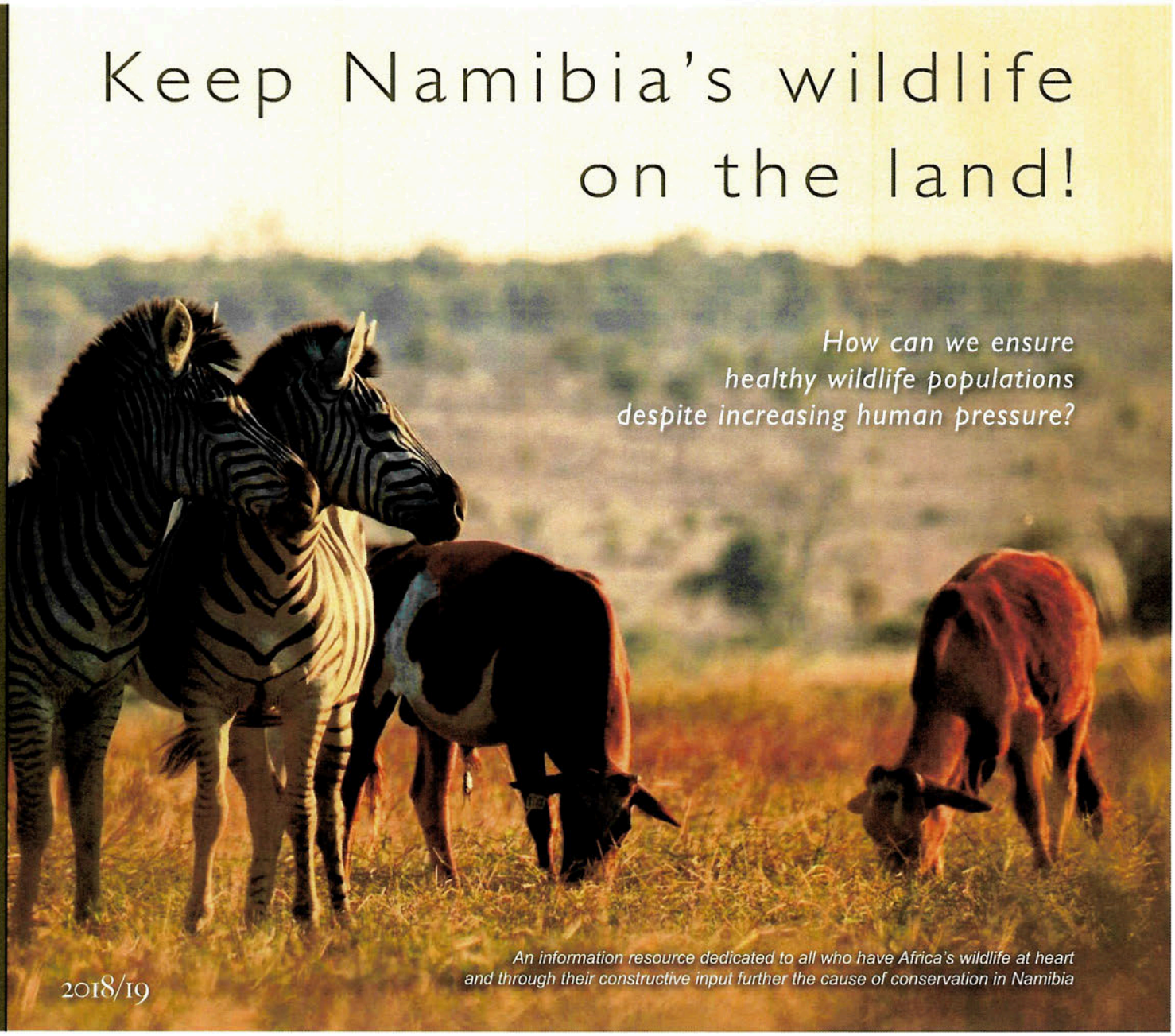
From 1983 until 1988, we have taken 11 trophy lions, the reason was that many of the lions which we received for re-introduction were 15 years and older. No males were hunted during the Nineties with only 6 taken between year 2000 and to date. We unfortunately lost a number of males to fighting. Since the young males are pushed out of the pride, often they leave the area and lives are not spared by adjacent communities. Had we taken the old males as trophies and given the young males a space in the pride, unnecessary loss of lives would have been spared and valuable funds to provide for the upkeep of the wildlife management could have been generated. Today the prides are well established, consisting of the majority of females older than 15 years, 2 very old males, a number of mature males and females and cubs between 1 and 4 years old.

APPLICANT:

JAMES SCHUMER

KEEP NAMIBIA'S WILDLIFE ON THE LAND!

Keep Namibia's wildlife on the land!



How can we ensure healthy wildlife populations despite increasing human pressure?

An information resource dedicated to all who have Africa's wildlife at heart and through their constructive input further the cause of conservation in Namibia

2018/19

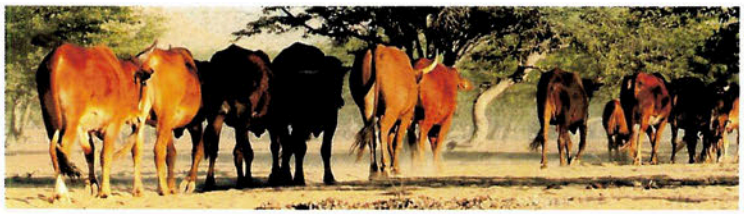
What is really happening to our wildlife?

WILDLIFE IS RAPIDLY DECLINING ACROSS MUCH OF AFRICA AND OTHER PARTS OF THE WORLD

Over the last century, **lions** *were actively eradicated as a threat to human safety and to livestock from most land used by people; lions from the remaining populations continue to be killed over livestock losses and safety concerns in communal areas and along the periphery of parks today.*
Southern African **rhinos** *were driven to the brink of extinction a century ago, but populations were rebuilt through effective conservation activities; rhinos are now being decimated again by ruthless commercial poaching for their horns.*
A century ago, **elephants** *were drastically reduced by the uncontrolled ivory trade, and displaced as a threat to crops and safety; today most of the remaining southern African populations are healthy and growing, but ruthless commercial poaching for ivory is again having an impact.*
Many other species *are experiencing similar declines, mostly due to land conversion to agriculture and incompatible land uses.*

- ***Widespread concern over wildlife declines is motivating ongoing global calls for action*** *– yet interventions often do not differentiate between countries with an excellent conservation track record, and those with declining wildlife populations.*
- ***Attempts by foreign organisations to stop declines through field interventions often do not address the actual problems*** *– interventions often ignore the needs of local people and conservation priorities on the ground.*
- ***The public is unfortunately not informed accurately about the main causes for large-scale wildlife declines*** *– media reports, social media hype and calls for donations tend to focus on the gruesome death of individual animals as indicators of decline, rather than actual causes.*
- ***People are confusing the wellbeing of individual animals with the health of entire populations of the same species*** *– through passionate but misguided social media outcries, many people want to prevent all animal deaths in order to stop perceived cruelty to animals and wildlife declines.*

PREVENTING ALL WILDLIFE DEATHS FORCES PEOPLE TO REPLACE WILDLIFE HARVESTING WITH OTHER LAND USES



Effective broad-scale conservation must give wildlife a real local value

WILDLIFE WILL ONLY REMAIN ON THE LAND IF LAND STEWARDS BENEFIT FROM IT

Namibia's **lion** *population is healthy and increasing, and is today at its highest since independence in 1990; lion range has expanded significantly, especially in north-western Namibia.*
Namibia's populations of both black and white **rhinos** *were partly rebuilt over the last three decades and former ranges were reestablished by providing economic incentives as a basis for their conservation.*
Namibia's **elephant** *population has tripled since independence and elephants have re-colonised former ranges, largely facilitated by community conservation and benefits to local communities.*
Most other large wildlife species *in Namibia have healthier populations today than at any time over the last 150 years.*

- ***Differentiating between countries with successful conservation approaches and those without is essential*** *– conservation is a science-based management activity and successful approaches should not be undermined by generalised emotional responses and inappropriate actions.*
- ***Conservation by the people for the people is extremely successful in Namibia*** *– by conferring rights to own and manage wildlife to local communities, the Namibian government has empowered land holders to conserve wildlife in a healthy balance with other land uses.*
- ***Namibians embrace wildlife management as a land use, thereby safeguarding wildlife habitat throughout the country*** *– Namibia has documented significant wildlife recoveries in parks and on communal and freehold land throughout the country for several decades.*
- ***By harvesting small percentages of surplus animals, Namibia is keeping overall wildlife populations healthy,*** *just as farmers anywhere in the world keep their overall livestock herds, gardens and fields healthy while harvesting an annual crop to generate income and enable development.*

PROMOTING WILDLIFE USE CREATES INCENTIVES TO KEEP WILDLIFE ON THE LAND AS AN ECONOMIC ASSET



The main causes of large scale wildlife declines:

HABITAT LOSS THROUGH HUMAN LAND USES THAT ARE INCOMPATIBLE WITH WILDLIFE is the largest single cause of wildlife declines around the world.

- **Displacement of wildlife by agriculture** – *wildlife is not tolerated in crop fields and competes with or threatens livestock.*
- **Degradation of habitat by unsuitable land uses** – *overgrazing, indiscriminate burning, logging, mining etc. may all severely degrade habitats.*
- **Destruction of habitat through infrastructure development** – *urban spread, roads, power lines, dams etc. may all destroy habitats.*
- **Disturbance by human activity** – *excessive presence and movement of people, stray dogs, traffic, noise etc. may all displace wildlife.*

UNCONTROLLED EXPLOITATION AND COMMERCIAL POACHING are causing rapid declines amongst already isolated wildlife populations in many African countries.

- **Poaching of animals for trade in animal parts** – *trade in ivory, rhino horn, skins, bones etc. is fuelling ruthless commercial poaching.*
- **Ruthless exploitation for personal gain** – *uncontrolled over-harvesting veiled as 'legal use' is rampant in countries with poor governance.*



Wildlife is incompatible with crops: large-scale agriculture displaces wildlife and is one of the major causes of habitat loss

Proven ways to stop wildlife declines and rebuild populations:

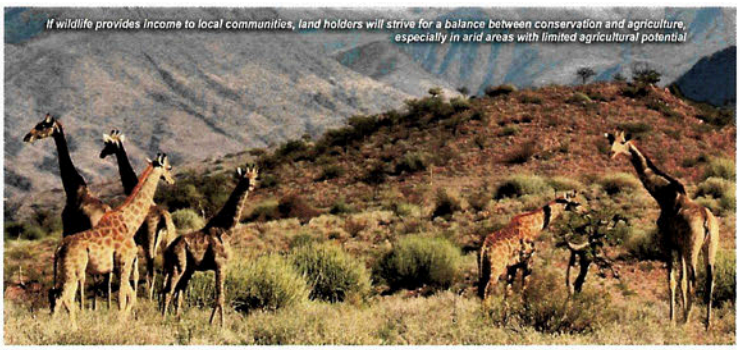
HABITAT PROTECTION AND EXPANSION THROUGH COMMUNITY CONSERVATION BASED ON WILDLIFE USE enables large-scale wildlife recoveries, mitigates human impacts and facilitates the health of ecosystems.

- **Tourism** *motivates conservation in scenic areas, especially along major tourism routes, by generating most jobs and some conservation funds.*
- **Conservation hunting** *motivates conservation in vast areas of low tourism potential by generating most conservation funds and providing food.*
- **Meat harvesting** *motivates increasing wildlife populations by providing food and generating additional income.*
- **Live capture and sale** *enables restocking in areas with low populations and provides further income from wildlife.*

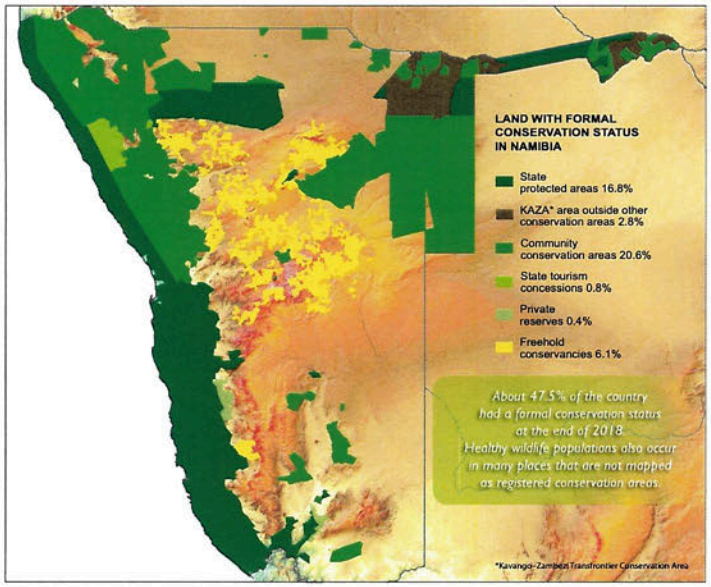
All of these uses can and should be combined where possible to maximise returns and provide a variety of benefits to different people in each community.

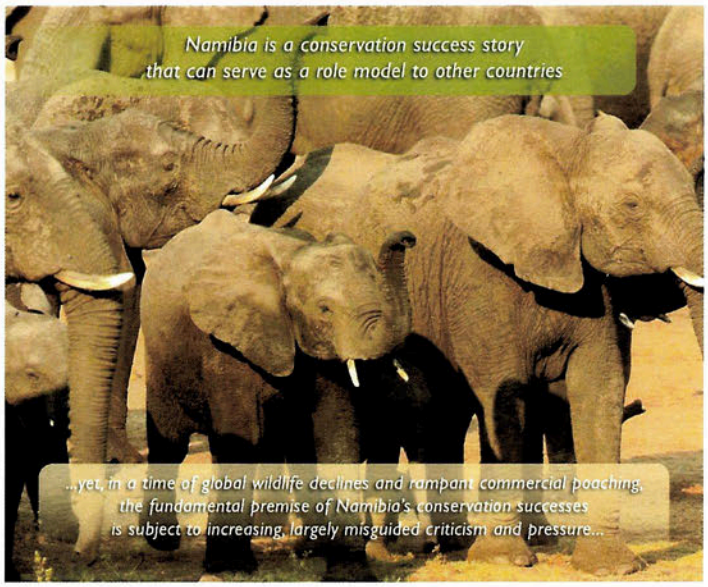
ACTIVE AND COLLABORATIVE WILDLIFE CRIME PREVENTION limits impacts from commercial poaching by teaming up relevant stakeholders including local communities, tourism and hunting operators, NGOs and government agencies.

STRINGENT CONTROL MECHANISM FOR ALL WILDLIFE USE prevent uncontrolled exploitation and over-harvesting.



If wildlife provides income to local communities, land holders will strive for a balance between conservation and agriculture, especially in arid areas with limited agricultural potential


LAND WITH FORMAL CONSERVATION STATUS IN NAMIBIA
State protected areas 16.8%
KAZA* area outside other conservation areas 2.8%
Community conservation areas 20.6%
State tourism concessions 0.8%
Private reserves 0.4%
Freehold conservancies 6.1%
About 47.5% of the country had a formal conservation status at the end of 2018.
Healthy wildlife populations also occur in many places that are not mapped as registered conservation areas.
*Kavango-Zambezi Transfrontier Conservation Area


Namibia is a conservation success story that can serve as a role model to other countries
...yet, in a time of global wildlife declines and rampant commercial poaching, the fundamental premise of Namibia's conservation successes is subject to increasing, largely misguided criticism and pressure...

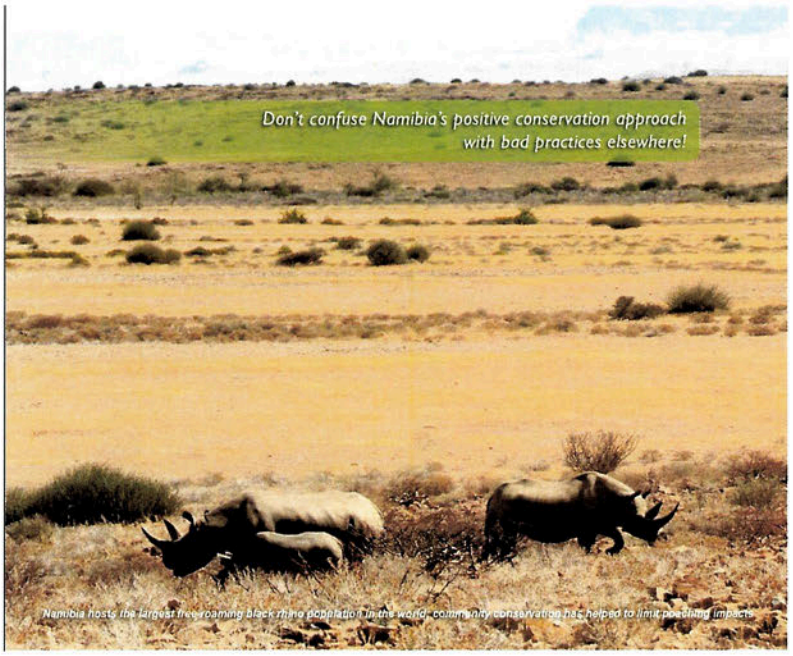
Namibia is a conservation success story:

Background information:

1. *Namibia's economy is largely reliant on natural resources;* about two-thirds of the human population live in rural areas and are directly dependent upon natural resources for their livelihoods.
2. *Wildlife populations have shown dramatic recoveries* on both freehold and communal farmland after drastic declines prior to independence due to drought, poaching and detrimental policies.
3. *Healthy populations of nearly all historically occurring species now roam suitable habitat;* species of particular conservation concern are receiving special attention.
4. *Agricultural policies and approaches,* rather than conservation practices, have limited the population health of some species such as buffalo and wild dog.
5. *Wildlife is managed and protected* in national parks, in community conservation areas and on freehold land across more than half of Namibia.
6. *The success is based on giving wildlife a real value* for the local people who manage and protect it – and bear the cost of living with it.
7. *Community conservation generated over N$ 147 million* in returns for rural communities and facilitated around 4,936 jobs during 2018.
8. *Community conservation contributed about N$ 884 million* in net national income to Namibia's economy in 2018.
9. *The sustainable use of wildlife and other natural resources* is enshrined in Namibia's constitution; natural resources are a part of our national heritage, to be used sustainably for the benefit of present and future generations of Namibians.

Conservation highlights:

1. *Namibia has healthy populations of black and white rhinos,* including the largest free-roaming black rhino population outside parks in the world.
2. *Namibia's elephant population has grown* from an estimated 7,500 animals in 1995 to around 22,000 today – a large percentage occurs outside parks.
3. *Namibia has healthy lion populations* in several national parks, and an expanding lion population outside parks, which has grown in north-western Namibia from an estimated 25 animals in 1995 to around 130 today.
4. *Namibia has the largest population of free-roaming cheetahs* in the world – the vast majority of which live outside parks.
5. *Namibia has healthy giraffe populations* in several national parks and an expanding giraffe population outside parks.
6. *Namibia has healthy leopard populations* in several national parks and leopards occur across much of Namibia's freehold and communal farmland.
7. *Namibia has a healthy crocodile population* with a large percentage occurring outside parks.
8. *Namibia has translocated more than 10,000 animals* of 15 different game species – including rare and valuable species such as black rhino, sable and giraffe – out of parks into communal and freehold areas to boost populations there.
9. *Namibia has reinstated several species* that had become locally extinct in communal and freehold areas.



Namibia hosts the largest free-roaming black rhino population in the world - community conservation has helped to limit poaching impacts

Namibia offers real solutions for wildlife inside and outside parks:

Namibia balances conservation priorities and the needs of rural communities:

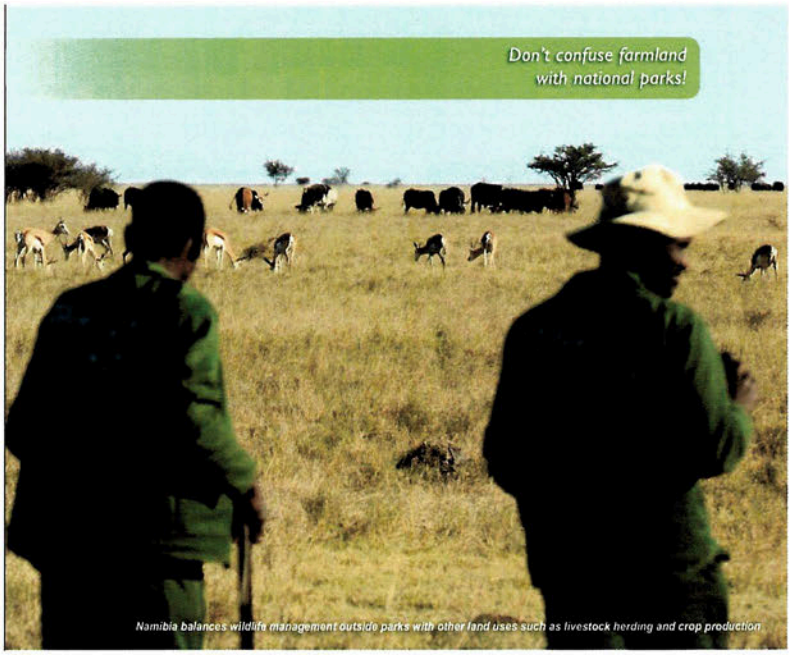
In Namibia, most communal land (around 37% of the country) and privately-owned or freehold land (around 43% of the country) is used to generate a living for the land holders. Livestock herding, crop production and game management are the main land uses.

Conservation outside national parks therefore depends on giving wildlife a tangible value so that people keep it on the land – rather than eradicating it in favour of livestock, crops or other land uses.

Keeping wildlife on the land also means living with wildlife – wildlife that can be dangerous and destructive.
Disney is not reality – in real life...

*... **lions**, crocodiles and other predators eat livestock and sometimes kill people*
*... **elephants** raid crops and destroy water installations and also sometimes kill people*
*... **many other wild animals such as hippos, buffaloes and rhinos can also be difficult and dangerous to live with.***

- ***Wildlife use is a traditional and integral part of life in rural Africa** – hunting is a part of African culture. This was the same in Europe and America – when people still lived from the land and the wildlife was still there.*
- ***Namibia protects around 17% of its land in national parks** – that's more than most countries.*
- ***Community conservation areas cover about 21% of Namibia** and embrace around 230,000 people.*
- ***Tourism concessions in parks provide important income for neighbouring communities**, promoting conservation.*
- ***Wildlife conservation outside parks must be seen as wildlife management for the benefit of the people** – not wildlife preservation for the benefit of an urban ideal.*
- ***Rural people need the land to survive** – for livestock herding, for crop production and for wildlife management.*
- ***Wildlife management outside parks is an economic activity** – just like farming – otherwise wildlife will be pushed out by land uses that generate better returns from the same land at lower costs.*
- ***Photographic tourism is an ideal use of intact ecosystems with healthy wildlife populations**, but can only be practiced in accessible areas with enough scenic interest and/or high wildlife densities – this leaves large areas without tourism value or income.*
- ***Together, conservation hunting and tourism fund community conservation structures** – including most of the 86 communal conservancies, a community conservation association in a national park (managed like a conservancy) and around 684 community game guards and resource monitors.*
- ***Conservation hunting funds anti-poaching activities** by government agencies, community conservation organisations and private sector initiatives.*



Namibia balances wildlife management outside parks with other land uses such as livestock herding and crop production

Namibia's conservation success is based on science and proof!

Namibia has one of the most intensive wildlife monitoring and utilisation control systems in Africa and the world:

Namibia uses a variety of systems to monitor and manage wildlife populations. The systems differ between national parks, community conservation areas and private farmland and are tailored to meet local needs. Management is by no means perfect in all areas or at all times. Yet the general approach of actively using wildlife outside parks for the benefit of rural communities has proven to be very successful, enabling healthy wildlife populations and strengthening local livelihoods. Namibia's dynamic conservation community ensures that environmental concerns are publicly recognised. While a balance between economic development and conservation in rural Africa is often problematic, most stakeholders strive to address issues. Collaboration between government, local communities, support NGOs and the private sector is a key to Namibia's conservation success.

No single approach or system is perfect. The flexibility to adapt to changing needs and circumstances is more important than any one system or approach.

- *Namibia has excellent knowledge of its wildlife populations through ongoing research and regular, rigorous monitoring activities and systems, including aerial surveys, road counts, foot patrols and remote wildlife tracking using cutting-edge technology.*
- *The Ministry of Environment and Tourism has clear compliance requirements for wildlife management*
- *Stringent monitoring and control systems for all wildlife harvesting facilitate effective management and minimise misuse.*
- *Offtakes are carried out according to annual quotas based on sustainable harvest rates and are controlled through permits and reporting requirements.*
- *The effects of offtakes over time are monitored and harvest rates are adapted to keep populations healthy if population changes occur.*
- *Regular quota revisions for wildlife harvesting are based on monitoring data and scientific guidelines.*
- *Land use objectives differ between national parks, community conservation areas and private farmland, resulting in varying wildlife densities in different areas.*
- *Challenges are a part of wildlife management, especially when attempting to balance the needs of large, dangerous wildlife with the needs of poor rural communities.*
- *Increasing human-wildlife conflict is a result of increasing game numbers and a sign of successful conservation; it is also one of the biggest challenges for wildlife management outside parks.*
- *Wildlife in open, unfenced systems is free to roam and is susceptible to drought and disease, resulting in natural population fluctuations.*
- *Continually adapting activities to changing circumstances facilitates sustainability.*
- *Namibia conforms to CITES and IUCN guidelines for wildlife use, as well as those of the International Convention of Biological Conservation.*
- *Namibia has several decades of positive experience with sustainable wildlife use – which has led to significant wildlife increases.*



Namibia uses scientific principles and cutting-edge technology to monitor and manage wildlife populations

Sustainable wildlife harvesting promotes conservation!

What exactly is sustainable wildlife harvesting?

Sustainable wildlife harvesting means harvesting a limited percentage of wildlife stocks without compromising the health of the overall population, *in order to generate income for local communities and enable wildlife management as a viable land use. When this is legally-entrenched, well-controlled and based on scientific principles and sound knowledge, it is fully sustainable.*

Wildlife harvesting has been a natural factor controlling game populations throughout human evolution, just like the impact of lions and other predators.

Sustainable wildlife harvesting…

- *Is carried out by local land holders.*
- *Creates incentives to keep wildlife on the land.*
- *Keeps natural habitats intact.*
- *Provides alternative income and strengthens rural livelihoods, especially in remote, arid environments.*
- *Enables a mix of land uses including livestock and cropping.*
- *Strengthens resilience against impacts from climate change.*
- *Strengthens resilience against external economic or political influences and reduces dependency on agriculture.*
- *Pays for conservation structures and anti-poaching activities.*
- *Provides meat for rural communities.*
- *Ensures stakeholders have a real interest in conserving wildlife.*
- *Reinforces traditional cultural values related to wildlife.*
- *Safeguards indigenous knowledge about wildlife.*

Sustainable wildlife harvesting includes these activities:

- ***Conservation hunting*** *(hunting with clear conservation outcomes targeting a very small percentage of the total population).*
- ***Meat harvesting*** *(using minimum-impact methods and offtake rates well below natural population growth rates).*
- ***Live capture and sale*** *(moving surplus animals from high density areas to low density areas within their natural range).*

What exactly is conservation hunting?

Conservation hunting consists of harvesting small numbers of indigenous wildlife as part of a personal wilderness experience based on traditional human survival skills. Conservation fishing harvests indigenous fish according to the same principles. These activities have verifiable prerequisites and outcomes (see opposite page) while focussing on wilderness experiences and participation in natural dynamics through regenerative pursuits. They can be combined under the term wildernessing and promote the protection of free-roaming indigenous species in their natural habitat.

The Namibian conservation hunting fraternity adheres to guidelines for ethical hunting, including:

- *Stalking game in natural habitat to ensure a wilderness experience and fair chase.*
- *Ensuring minimum suffering for hunted animals.*
- *Targeting only those animals that can be harvested without negative impacts on the overall population.*
- *Ensuring that all meat and other products of all hunted animals are used.*
- *Hunting predators in an ethical manner only as part of predator management.*

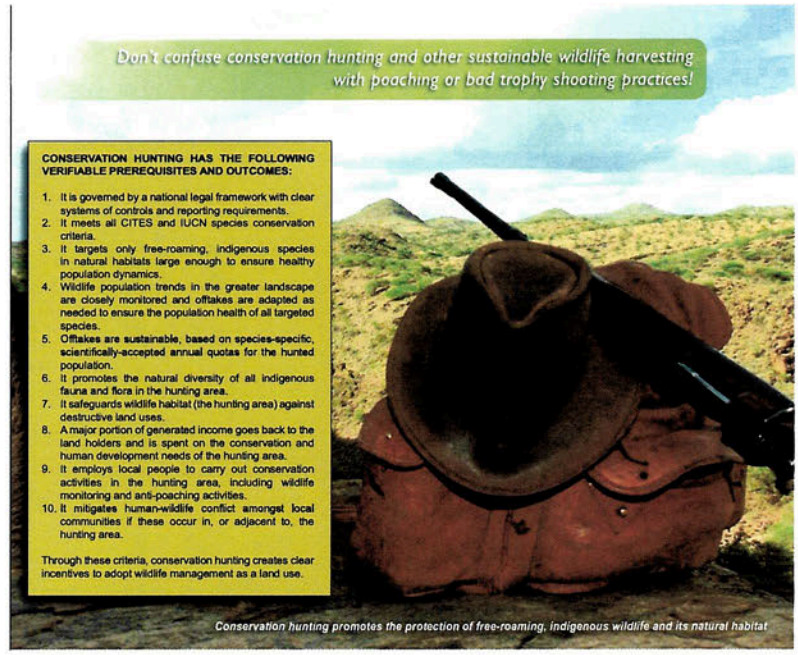
Ethics may be considered a personal value statement and can differ between individuals and cultures. Hunting ethics should be directly linked to conservation outcomes, primarily to promote the protection of free-roaming indigenous wildlife in its natural habitat.

Don't confuse conservation hunting and other sustainable wildlife harvesting with poaching or bad trophy shooting practices!

CONSERVATION HUNTING HAS THE FOLLOWING VERIFIABLE PREREQUISITES AND OUTCOMES:

1. It is governed by a national legal framework with clear systems of controls and reporting requirements.
2. It meets all CITES and IUCN species conservation criteria.
3. It targets only free-roaming, indigenous species in natural habitats large enough to ensure healthy population dynamics.
4. Wildlife population trends in the greater landscape are closely monitored and offtakes are adapted as needed to ensure the population health of all targeted species.
5. Offtakes are sustainable, based on species-specific, scientifically-accepted annual quotas for the hunted population.
6. It promotes the natural diversity of all indigenous fauna and flora in the hunting area.
7. It safeguards wildlife habitat (the hunting area) against destructive land uses.
8. A major portion of generated income goes back to the land holders and is spent on the conservation and human development needs of the hunting area.
9. It employs local people to carry out conservation activities in the hunting area, including wildlife monitoring and anti-poaching activities.
10. It mitigates human-wildlife conflict amongst local communities if these occur in, or adjacent to, the hunting area.

Through these criteria, conservation hunting creates clear incentives to adopt wildlife management as a land use.



Conservation hunting promotes the protection of free-roaming, indigenous wildlife and its natural habitat

Habitat loss and crime are the biggest killers of wildlife!

WILDLIFE PRESERVATION WITHOUT HABITAT CONSERVATION IS MEANINGLESS!

Land conversion and resultant habitat loss is mostly overlooked by the public, but is the biggest killer of wildlife!

Wildlife needs large areas of intact habitat to ensure healthy populations:

- *Most game needs undisturbed access to water, which it does not have if pressure by people, their livestock or their dogs is too high.*
- *Many species need to be able to roam widely in search of food, especially in areas with highly variable rainfall; fences, roads, settlements and other infrastructure all fragment habitat and inhibit the ability of wildlife to respond to seasonal food availability.*
- *Wild animals need shelter to which they can retreat when chased by natural predators or disturbed by people.*
- *Game needs large enough areas to engage in natural interactions, especially breeding and rearing of young.*
- *Wildlife can coexist with livestock, but is often eradicated by farmers who see it as grazing competition or a threat to infrastructure or safety.*
- *Wildlife is not tolerated in crop fields or gardens; effective zoning of crops into land use mosaics can leave adjacent wildlife habitats intact.*

PEOPLE ONLY MAKE THE EFFORT TO KEEP WILDLIFE HABITATS INTACT IF THEY HAVE A TANGIBLE INCENTIVE TO DO THIS.

POACHING AND UNCONTROLLED EXPLOITATION DECIMATE WILDLIFE!

Poaching and uncontrolled exploitation should never be confused with legal, sustainable wildlife harvesting!

Poaching…

- *Is an economic crime that bypasses the legal economy and provides no local income or benefits.*
- *Is stealing from the rightful owners – the local communities.*
- *Steals valuable wildlife products for purely personal gain – just like cattle theft, shoplifting or film piracy steal from legal industries.*
- *Introduces organised crime into local communities, disrupting social structures and values, and undermining legal livelihoods.*
- *Undermines conservation activities and harms the resource base.*
- *Undermines tourism and other legal wildlife uses.*
- *Has a severe impact on high-value species.*

Uncontrolled exploitation…

- *Places immediate financial gain over sustainability*
- *Abuses legal loopholes to exploit resources.*
- *Takes advantage of weak control mechanisms.*
- *Relies on weak governance and corruption.*
- *Benefits only a small number of individuals.*
- *Undermines legal livelihoods and sustainable activities.*
- *Undermines conservation activities and harms the resource base.*
- *Undermines tourism and other legal wildlife uses.*
- *Is not sustainable.*

COMMERCIAL POACHING, ESPECIALLY OF RHINOS AND ELEPHANTS, IS A HUGE THREAT TO NAMIBIA'S VALUABLE WILDLIFE AND TO A VARIETY OF INDUSTRIES BASED ON IT.

Greed and misguided emotions undermine effective conservation!

TROPHY BREEDING AND SHOOTING DISCREDITS ALL SUSTAINABLE WILDLIFE HARVESTING!

Trophy shooting activities motivated only by financial gain should not be confused with conservation hunting!

These and similar practices make no conservation contributions and are not part of conservation hunting:

- *Canned shooting (shooting animals in small enclosures).*
- *Put-and-take shooting (releasing captured trophy animals for the sole purpose of shooting them).*
- *Breeding lions and other predators for trophy shooting.*
- *Breeding rarities such as black springbok, golden oryx etc. for the trophy trade.*
- *Introducing exotic species such as blesbok, nyala etc. for trophy shooting.*
- *Unethical shooting of animals based only on their trophies (rather than fair chase hunting based on a wilderness experience).*
- *Genetic manipulation of species gene pools to enhance trophy quality.*

GAME USE MUST BE ABLE TO PROVE CONSERVATION OUTCOMES TO BE ACCEPTED AS A VIABLE CONSERVATION ACTIVITY

EMOTIONAL ANTI-HUNTING CAMPAIGNS UNDERMINE CONSERVATION!

Anti-hunting campaigns based on emotional opinions should not derail proven conservation approaches!

In a modern world of inter-connectivity, social media and concerned global citizens, well-meaning but at times misguided international opinion and pressure don't always bring positive change – they also have the ability to influence and change legitimate local activities for the worse. Local communities and environments are often the worst affected.

- ***Calls for a hunting ban in Namibia are based on urban values and opinions, not on rural conditions and needs**, and are often orchestrated by animal-rights organisations and misguided followers.*
- ***A small, economically secure urban elite is challenging legal and highly beneficial activities** in Africa from an idealistic moral standpoint.*
- ***A hunting ban dispossesses and disempowers local decision making** and enforces a foreign moral view upon Africans.*
- ***A hunting ban would have the most negative impacts on the elements that the international public is attempting to support** – wildlife populations and local people outside national parks.*
- ***In-depth understanding of wildlife dynamics, based on scientific principles, should not be dismissed** by emotional, misguided external public opinions.*

NAMIBIA'S WELL-DOCUMENTED, SUCCESSFUL APPROACH TO CONSERVATION SHOULD NOT BE JEOPARDISED BY OUTSIDERS

African wildlife: use it – or lose it!

What would be lost, if wildlife could not be used to generate income for local communities outside parks?

Hunting bans, which could consist either of Namibia stopping the activity of hunting, or of other countries stopping the import of hunting trophies – thereby closing the market – would have detrimental effects for wildlife outside parks, and for people currently benefitting from that wildlife.

- *The loss of income to the national economy is currently not quantified, but is likely to be over a billion Namibia Dollars.*
- *A hunting ban would result in at least N$ 39.6 million of lost annual returns for conservancies if all wildlife harvesting were banned, and would have a direct impact on at least 48 of the 56 conservancies currently generating returns from natural resources.*
- *Loss of conservation hunting income would result in at least 30 conservancies becoming financially unsustainable.*
- *If no immediate alternative income streams could be secured, a large percentage of the currently 684 community game guards and resource monitors employed in conservancies across Namibia would stand to lose their jobs.*
- *The loss of natural resource management structures would have immediate negative effects on wildlife populations and the health of other natural resource stocks.*
- *The loss of community game guards would significantly reduce Namibia's ability to combat poaching, especially of free-roaming rhino and elephant.*
- *Discontinuing regular wildlife monitoring and annual game counts would seriously undermine effective wildlife management.*
- *The loss of natural resource returns for local communities would result in an immediate reduction in people's tolerance of problematic wildlife such as elephants, lions and other predators.*
- *Reduced tolerance of wildlife would lead to an increase in retaliatory killing of problematic animals.*
- *A reduced sense of ownership over wildlife would lead to increased bush-meat poaching as well as poaching of high-value species.*
- *Across much of the currently 169,756 square kilometres of community conservation area, wildlife would no longer be considered a land-use priority and would be displaced by other uses such as livestock.*
- *On a large percentage of freehold farms with limited or no tourism potential, wildlife would also be displaced.*

MOST LARGER WILDLIFE SPECIES WOULD BE DISPLACED FROM MUCH OF NAMIBIA IF THEY COULD NOT BE USED TO GENERATE INCOME

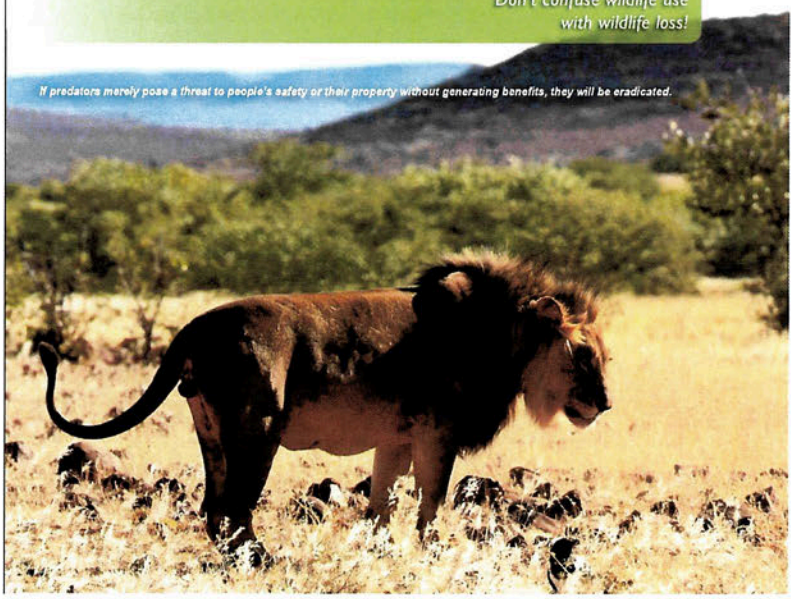
Using wildlife ensures its value for land holders and KEEPS IT ON THE LAND!

The economic value of wildlife creates the incentive for land holders to include wildlife as a land use. If wildlife is not used, but preserved only for its own sake, it has little place outside parks, because land outside parks is used to generate rural livelihoods and contribute to the national economy.

- *Eat game meat to keep wildlife on the land – eat beef, and put more cattle on the land.*
- *Harvesting sustainable numbers of wildlife keeps overall populations healthy and avoids over-stocking.*
- *Conservation hunting promotes wildlife conservation and habitat protection.*
- *Go wildernessing to truly experience Africa's natural splendour and traditional human survival skills.*

THE LEGAL USE OF WILDLIFE ENABLES LAND HOLDERS TO SEE IT AS PART OF THEIR LIVELIHOOD, ENSURING HEALTHY POPULATIONS

Don't confuse wildlife use with wildlife loss!



If predators merely pose a threat to people's safety or their property without generating benefits, they will be eradicated.

A publication of:
NACSO Natural Resources Working Group
www.nacso.org.na

INFORMATION APPLICATION ADAPTATION



Further information resources:

Community conservation in Namibia: **www.nacso.org.na**
(especially the annual Community Conservation Report)
State protected areas in Namibia: **www.met.gov.na**
International wildlife trade regulations: **www.cites.org**
International biodiversity conservation - **www.iucn.org**

Ministry of Environment & Tourism

NACSO
Namibian Association of CBNRM Support Organisations

The Namibian Association of CBNRM Support Organisations (NACSO) embraces a variety of NGOs and individual members, who provide a range of technical and funding support to community conservation. Three NACSO working groups, namely the **Natural Resources Working Group** (NRWG), the **Business, Enterprises and Livelihoods Working Group** (BELWG) and the **Institutional Development Working Group** (IDWG), facilitate coordinated service provision to rural communities. More information: **www.nacso.org.na**

Copyright © NACSO 2012. Photos, text, map & layout by Helga Dierker. Printing by John Meinert Printing

APPLICANT:

JAMES SCHUMER

LION CONSERVATION STRATEGY FOR NAMIBIA



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

Table of Contents

Foreword 2
1. Introduction and background 4
1.1 Lion Conservation status 4
1.2. Distribution 4
1.3. Habitat requirements 5
1.4. Biology: 6
1.5. Ecology 6
1.6. Diseases 6
2. Threats to the survival of lion 7
3. Background and Rationale for the Conservation Strategy 7
4. Vision and Goal statements 8
4.1. Objectives 8
4.2. Objectives and strategic actions 9
5. Implementation and revision of the Strategy 20
6. List of sources consulted 21

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).

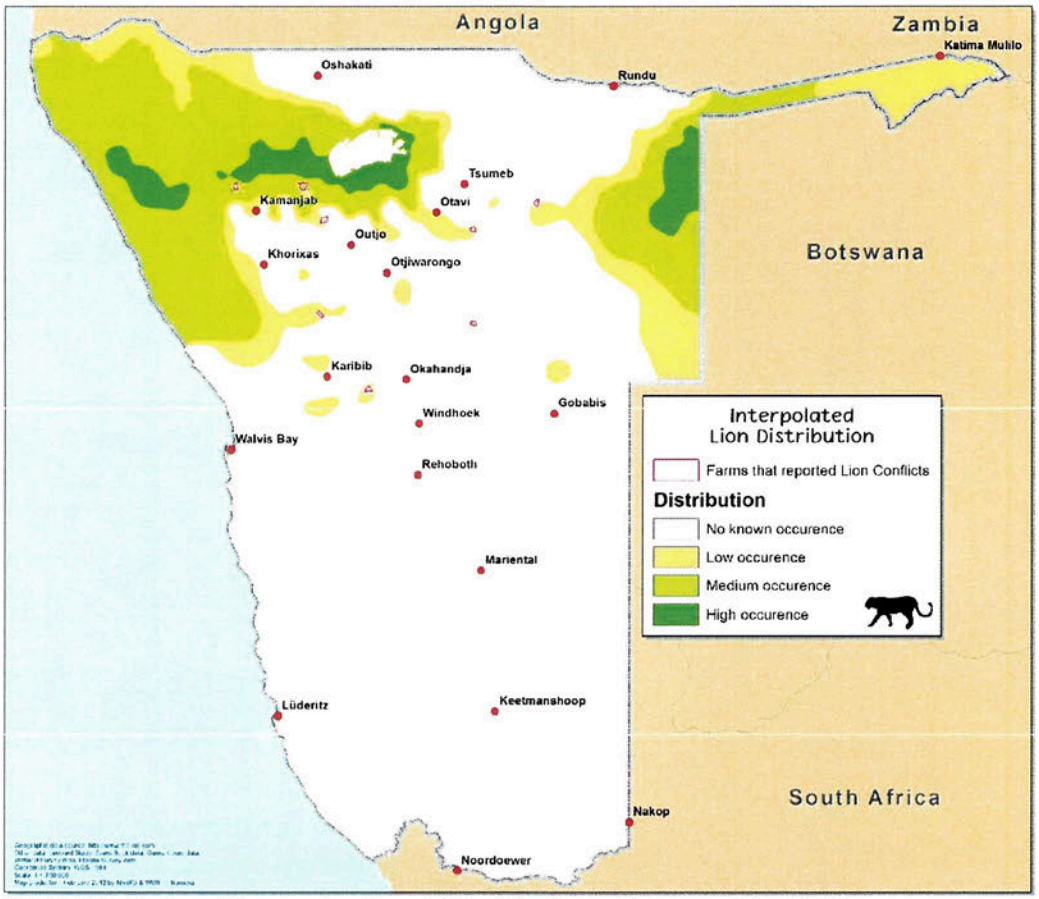


Fig.2. *Distribution of free ranging lions in Namibia (Large Carnivore Atlas, 2012)*

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.

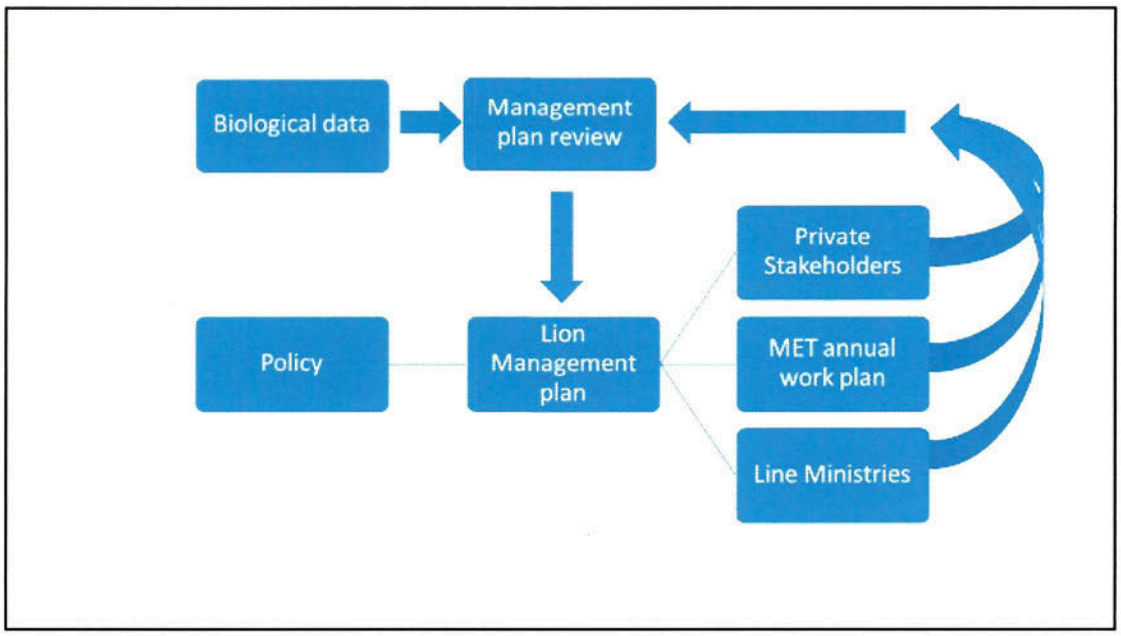


Fig. 2 *Flow diagram showing the implementation and review process*

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

APPLICANT:

JAMES SCHUMER

LION CONSERVATION AND SUSTAINABLE USE

LION CONSERVATION AND SUSTAINABLE USE

Namibia has a population of about 800 lions, similar to the period 1965 to 1980. The main population, between 450 and 500, is in Etosha National Park, with other populations in Khaudum and Bwabwata National Park in the northeast of the country, and very small populations in Mahango, Mudumu and Nkasa Rupara. Over the past 25 years a fluctuating population in the Kunene Region in the northwest has increased from 20-30 animals to about 140-160. It is the only really significant lion population outside of protected areas in Namibia. The rest are all contained within national parks, except for small populations in some private wildlife areas. *Dr Chris Brown*

Most farmers are not able to survive financially with a large lion population because livestock farming and lions are not really compatible. The only place where farming and lions are compatible to some extent is in large open systems where people move around with their livestock and where lion density is relatively low. In the northwest of the country, for example, part of the lion population lives in such low rainfall areas that people seldom go there with their livestock. That gives the lions some protection. Some of the farmers in that area are also more tolerant of lions than in other places in the world. They are prepared to live with lions at a reasonable population density. When the lion population gets too large or when the wildlife numbers in the area decline – for example during droughts, when wildlife either dies and/or moves eastwards out of the area – the lions are left stranded with a very limited food supply. That is when they turn more to domestic stock, which then causes conflict with farmers.

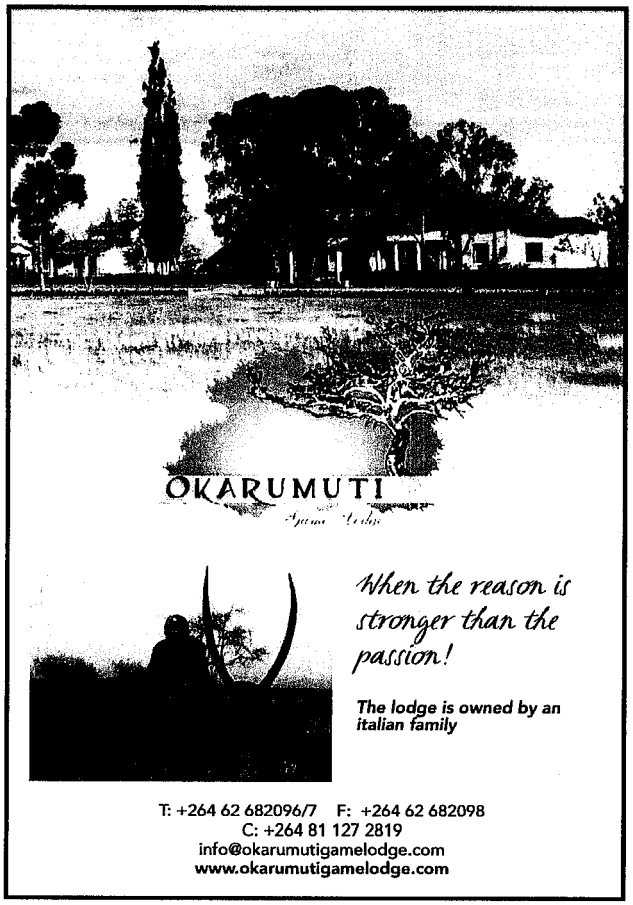
Lions are fast breeders. Females produce litters of up to four cubs at a time. Etosha for example, with its 450 to 500 lions, produces a surplus of perhaps forty to sixty lions every year. The park cannot carry more lions because their territories and home ranges determine their spatial distribution and density. The population strategy of the lion is designed to produce excess animals for rapid population growth, because they are naturally faced with boom and bust situations due to changing prey numbers. Also, lions often get injured or killed in their normal practice of hunting. Since the growth of lion populations is higher than natural mortality, there is a net pressure on the population for surplus animals to move out of the park and find new territories and expand their range. This pressure mainly affects young lions. Lions that are not able to join existing prides are usually forced, through competition and aggression, to leave Etosha, typically as many as forty to fifty lions per year. Males in particular are forced out, resulting in young lions looking for new prides and exploring new territories. Those "territories" around Etosha and elsewhere are generally freehold or communal farmland where farmers breed livestock. Therefore the lions and farmers inevitably come into conflict around the national parks.

People feel that the Ministry of Environment should simply build bigger, stronger fences. First, that is hugely expensive. Our large national parks would require literally hundreds of kilometres of fencing to erect and maintain. Etosha alone has a border of about 500 km. Do we want to put Namibia's limited financial resources on putting up fences to separate people from wildlife? A normal game-proof fence around Etosha would cost about N$35 million. But a normal fence does not contain lions and elephants. That would cost five times more. So, do we want to spend up to N$200 million to stop a few cows from being killed? Are we that much driven by emotion and that little by rational thought? Rather, let's invest in helping farmers to protect their livestock, generate income from wildlife, and then spend the rest on important things like education, health and access to urban land for housing.

Second, it's very difficult to maintain those fences. A lion can jump over a ten-foot fence. Other animals dig holes under fences, and lions crawl out. And even a reinforced cable fence is pushed over from time to time by elephants, allowing lions to leave the park. To maintain a fence in a condition that is absolutely lion proof is simply impossible and attempting to do so is enormously expensive and time-consuming.

Around much of Etosha, particularly in the south, it has happened that farmers have turned to a more appropriate and lucrative form of land-use: a wildlife-based economy that includes tourism, trophy hunting, game meat harvesting and live sales of surplus high-value wildlife species. These farmers are making much more money than they did farming cattle and they are no longer in conflict with lions and other predators. Communal conservancies on the northern side of Etosha are starting to do the same.

Any cattle farmer will tell you that farming is a tough business with narrow margins, and losses in poor rainfall years that have to be recovered in good rainfall years. Declining beef prices, increasing costs, government interference, impacts of climate change and rangeland





degradation through bush encroachment all combine to make a farmer's life increasingly difficult and the financial returns ever smaller. Cattle farmers' income is based on the quality and quantity of meat (protein) that can be produced, which in turn is based upon soil quality, rainfall and management. There is a limit to what good management can do. Our soils are generally poor, and rainfall is low and highly variable. Everything is stacked against the farmer. The income ceiling is low – it is essentially a ceiling defined by primary protein production. So how do you break through that low ceiling? You need to move beyond primary production to include service industries. Wildlife offers three service industry components in addition to the primary production of game meat. They are tourism, trophy hunting and live sales of high-value species. In all three cases the animals are being "sold" for well above their protein value. Then the neighbouring national park is no longer an enemy, unable to contain predators, but becomes a friend, offering marketing opportunities. The park neighbour is no longer in a conflict zone, but in a mutual support zone. Thus we then have mutually friendly neighbours with far higher economic returns and with far more resilient ecological and economic systems.

Trophy hunting takes off 1% of the national herd while animals are breeding at a rate of fifteen, twenty or even thirty-five percent. You anyway have to deal with the surplus grazer and browser pressure on your land every year because the animals are breeding at this rate. Unless you want total habitat degradation and damage, you've got to manage those pressures on your land. Trophy hunting takes off a very small percentage while the farmer still has to deal with another up to 35% of those animals, depending on the species, to keep your livestock, your animals in your veld in balance. **Trophy hunting is a very high return, low impact type of activity and essentially it's also a service industry.**

THE IMPORTANCE OF A GREEN ECONOMY

A biodiversity-based green economy is one that is good for conservation because it keeps habitats natural. You keep your indigenous vegetation, all the species of wildlife, as many as you can support of those that are indigenous to that area and all the other forms of life, plants and animals, from insects right up to the bigger mammals. You keep indigenous ecosystems and the animals that live in them, right down to the smallest micro-organisms.

The more people who do that, particularly if they start linking their land into bigger landscapes and collaborate with the national parks, resilient productive ecosystems fall into place. You've got scale that allows a group of farmers to come together and set up an abattoir and get the value from that. You can set up a tannery and a whole range of things. Tourism and trophy hunting in bigger open systems is far more attractive from a marketing point of view than in isolation. Having a full suite of species in these ecosystems, including elephant, lion and rhino, adds more value to the total. If you get to a stage where you are outperforming conventional forms of land use by five, six, seven times and you are really getting good returns in well-managed ecosystems, it is good for the economy, good for job creation and good for conservation. Isn't that really the direction in which Namibia should be going?

In the northwest of the country there has been increased conflict in recent years because of a growing lion population linked to drought.

The communal conservancies in that area manage wildlife and benefit from it as part of their traditional farming systems. Livestock provides their core household livelihood, but they add well-managed wildlife to that, including all the economic components that are derived from it: trophy hunting, game meat and tourism. But we must never forget that conservancies are primarily farmland where farmers have come together to form these conservancies as a supplementary form of livelihood. Livestock is their primary livelihood at this stage. So, when situations arise where lion populations increase to a critical level, prey numbers decline and lions turn to people's domestic stock, communities understandably get upset and want to see interventions that prevent further livestock losses. While protection of livestock is part of the solution, there is no good conservation reason why lion populations cannot be reduced and managed to accommodate those realities of people living with lions. As stated earlier, lion populations have evolved to recover rapidly from population declines – that is part of their adaptation to harsh environmental conditions and the tough life that these predators face.

From a conservation perspective the most important issue for the "desert-adapted lions" in the northwest is not that their population may shrink from time to time when drought conditions prevail, but that a genetic link is maintained between this population and the lions in Etosha. The greatest risk is that this relatively small population of lions in north-western Kunene becomes isolated, because then they will become less and less viable.

It is not a conservation threat to the lion population of Etosha if lions leave the park and enter freehold farmland to the south and communal farmland to the north, and if those lions get taken out through trophy hunting or for the protection of livestock. Indeed, we should allow the use of those lions in adjacent areas to offset people's costs incurred by living with lions, and to encourage them to change to a wildlife-based economy. We should not get too concerned about the loss of Etosha's surplus lions because we have a viable lion population in Etosha. Also, all the other national parks that can support lions (considering both ecological and social factors) already do. Therefore the surplus lions in Etosha are in fact a national surplus – we have nowhere else for them to go.

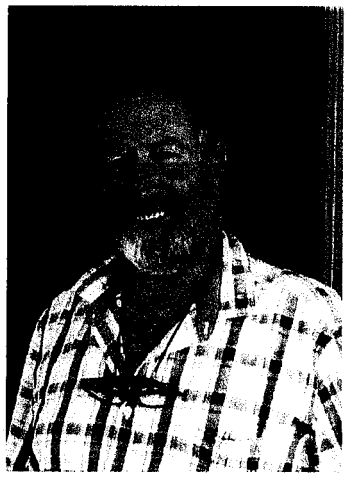
Our focus should be on the western side of Etosha. We need to maintain the genetic "bridge" between the Etosha and the desert-adapted lion populations. Here we must work closely with farmers, communities and communal conservancies to maintain that genetic bridge. This involves creating conditions that allow people and their livestock to live with a low lion population – enough of a lion presence and movement in that area to maintain connectivity between the Etosha and the north-western lion populations.

The desert-adapted lions of northwest Namibia have a remarkable and uniquely specialised lifestyle. This is fascinating from ecological, scientific and conservation perspectives. It is also of great tourism value, a value that will grow in the years ahead. We need to manage this lion population very carefully. The key factor is not that the population may expand and contract in wet and dry times, when prey is abundant or scarce, when farmers are tolerant or have lost patience with lions preying on their livestock – the lion population can absorb these pressures.

So how do we create the incentives for people west of Etosha to willingly live with a low density of lions moving through their area? First, we need to clearly recognise and acknowledge the challenge that farmers living with lions have to deal with, and appreciate their commitment to conservation. Second, we need to provide support mechanisms that reduce stock losses to the bare minimum. This could involve reinforced animal kraals at homesteads as well as mobile kraals for livestock on pastures well away from homesteads, early warning systems to notify farmers that lions are in the area, and interventions to remove lions that become problematic. And third, we need to help conservancies generate as many benefits as possible from wildlife, to ensure that benefits reach the farmers that carry the greatest risks and to thereby offset their losses.

It is important to understand that lion populations bounce back effectively. Populations can be reduced at times, if need be. It is unrealistic to try to carry a large population of desert-adapted lions through drought cycles. Lion numbers can be reduced to perhaps half or less of their peak population figure when their prey species have declined. Over time, provided there is interaction with the Etosha lions, the desert-adapted lion population will build up again rather quickly when conditions are right. Historically, long before humans came into this system, lion populations on the edge of deserts were very dynamic.

Arid and semi-arid zones are highly dynamic, and wildlife has evolved to cope and thrive in these dynamic systems. It is people's minds that have not evolved to cope well with change. We like to lock the world – including our approach to wildlife management – into fixed and stable perceptions of how things should be. Attempting to take the dynamic nature out of nature is actually very bad for nature. It reduces its resilience. Ecosystems thrive on dynamic change. We need to work with change as we manage wildlife, not try to work against change. Integrated livestock and wildlife management in Namibia's arid and semi-arid systems, perhaps more than most management, requires us to really understand the ecology and evolutionary conditions. These conditions are simply not understood by most western people living in urban environments and getting upset when they hear about lion populations being reduced in number to accommodate farmers. This situation is also not understood by some of the would-be conservation organisations that portray themselves as the champions protecting lions. It may be good for the populist social media mill, but it is not good for long-term lion conservation in Namibia.



Dr Chris Brown, CEO of the Namibia Chamber of the Environment.

MINISTRY OF ENVIRONMENT AND TOURISM

Directorate Scientific Services
Private Bag 13306
Windhoek, Namibia
Enquiries: Permit Office
Tel +264-61-284 2541

PERMIT No.:	162174 E
VALID TILL:	18/03/2020
CAPTURE / TROPHY OR OTHER RELEVANT PERMIT	178263/18
RECEIPT No.:	7056324

PERMIT TO EXPORT LIVE ANIMALS OR TROPHIES

IMPORT PERMIT:
(Live animals)

Permission is hereby granted in terms of the Nature Conservation Ordinance 1975 (Ord. 4 of 1975)

From: S. Tors.
Postal address: P.O. Box 81.
Kalkfeld.
Namibia.

To: Britt A. Nishijo
(b) (6)
(b) (6) Mililani Hawaii
U.S.A.

SPECIES: COMMON NAME	SCIENTIFIC NAME	LIVE	SKULL	HORNS	SKIN	SHOULDER MOUNT	OTHER
Baboon CITES II	*Papio ursinus*						
Blesbok	*Damaliscus pygargus phillipsi*						
Cheetah CITES I	*Acinonyx jubatus*						
Eland	*Taurotragus oryx*						
Grey Duiker	*Sylvicapra grimmia*						
Impala, common	*Aepyceros melampus*						
Kudu	*Tragelaphus strepsiceros*						
Leopard CITES I	*Panthera pardus*						
Oryx (Gemsbok)	*Oryx gazella*						
Ostrich	*Struthio camelus*						
Red hartebeest	*Alcelaphus buselaphus*						
Springbok	*Antidorcas marsupialis*						
Steenbok	*Raphicerus campestris*						
Warthog	*Phacochoerus africanus*						
Wildebeest, black	*Connochaetes gnou*						
Wildebeest, blue	*Connochaetes taurinus*						
Zebra, Burchell's	*Equus burchelli*						
Zebra, Hartmann's CITES II	*Equus zebra hartmannae*						
Other Lion	Panthera Leo		1X		1X full		

IMPORTANT
All exports remain subject to veterinary and import regulations.
This permit is valid for single consignment only.
This permit is not valid if altered in any way and is not transferable.

MINISTRY OF ENVIRONMENT & TOURISM
ISSUING OFFICER (NAME & SIGNATURE)
UNDER THE AUTHORITY OF THE MINISTER
PCHAMBA SMIT ACTING IN TERMS OF SECTION
78 (1) OF THE NATURE CONSERVATION
ORDINANCE, 1975 (ORDINANCE NO. 4
OF 1975) AS AMENDED
2019 -09- 18
WINDHOEK PERMIT OFFICE
Private Bag 13306, Windhoek

NAPL 03/2018

CITES Export Permit No.: 00 60762

CITES Import Permit number from importing country (Appendix 1 only) .....

Official Customs stamp at point of export

prime press 042018

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA

PERMIT / CERTIFICATE No. 0060762

Database Certificate No. 0060762

- [X] EXPORT
- [ ] RE-EXPORT
- [ ] IMPORT
- [ ] OTHER:

Original

2. Valid until: 18/03/2020

3. Importer (name and address)
BRITT A. NISHIJO
(b) (6)
MILILLANI HAWAII
96789

4. Exporter / Re-exporter (name, address and country)
STEVE TORS
P.O. BOX 81
KALKFELD
NAMIBIA

Signature of the applicant

3a. Country of import: UNITED STATES

5. Special conditions
Not valid if not certified by the Namibian customs

All imports and exports remain subject to veterinary regulations.
For live animals, this permit or certificate is only valid if the transport conditions conform to the Guidelines for Transport of Live Animals or, in the case of air transport, to the IATA Live Animals Regulations.

6. Name, address, national seal / stamp and country of Management Authority

MINISTRY OF ENVIRONMENT AND TOURISM
Directorate: Scientific Services
Private Bag 13306
Windhoek
NAMIBIA

5a. Purpose of the transaction (see reverse): H

5b. Security stamp No.: 1792474

	7./8. SCIENTIFIC NAME(genus and species) AND COMMON NAME OF ANIMAL OR PLANT	9. Description of specimens, including identifying marks or numbers (age / sex if live)	10. Appendix No. and source (see reverse)	11. Quantity (including unit)	11a. Total exported/ Quota
A	7./8. *Panthera leo melanochaita* Lion	9. skull & fullskin,NAPL 03/(2018)	10. II W	11. 2Item	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
B	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
C	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	
D	7./8.	9.	10.	11.	11a.
	12. Country of origin★ / Permit No. / Date	12a. Country of last re-export / Certificate No. / Date		12b. No. of the operation★★or date of acquisition★★★	

★ Country in which the specimens were taken from the wild, bred in captivity or artificially propagated (only in case of re-export)
★★ Only for specimens of Appendix-I species bred in captivity or artificially propagated for commercial purposes
★★★ For pre-Convention specimens

MINISTRY OF ENVIRONMENT AND TOURISM REPUBLIC OF NAMIBIA
19 SEP 2019
WINDHOEK
Private Bag 13306 Windhoek
Tel: 284 2823 Fax: 258861
1792474

13. THIS PERMIT IS ISSUED BY: J. SHAPI

Windhoek — Place
19/09/2019 — Date
Security stamp, signature and official seal

14. EXPORT ENDORSEMENT:

15. Bill of Lading / Air Waybill Number:

Block	Quantity
A	
B	
C	
D	

Port of Export / Re-export | Date | Signature | Official stamp and title

Original

prime press computer forms 032019

APPLICANT:

AARON BAKER

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Aaron Baker (b) (6) [redacted], Las Vegas, NV 89158

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Panthera, P. Leo, Lion

b. Sex (if known).

Male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

N/A

b. Date wildlife is to be hunted:

N/A

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

N/A

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

Matetsi ECA, Matabeleland NorthZimbabwe

b. Date wildlife was hunted:

April 8th, 2018

c. Approximate age of animal:

Over 5 years of age

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

Lowveld Hunters - P.H. Martin Pieters

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

Trophy Consultants International 4 Josiah Chinamano Rd. Belmont, Bulawayo Zim

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

Please see the provided hunting permits

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	
Business Name:	Trophy Consultants International
Address:	4 Josiah Chinamano Rd
City:	Belmont, Bulawayo
State/Province:	Zimbabwe
Country, Postal Code:	

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.

No hunting return forms

11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

Name (Company/Professional Hunter):	Martin Pieters Safaris
E-mail:	martinpieterssafaris@gmail.com
Phone number:	+263 778 121 842

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to r**[redacted]**t**).

    Applicant's signature[redacted] Date: 03/30/21

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

APPLICANT:

AARON BAKER

HUNTING PERMITS

HUNTING RETURN FORM - TRAS2
APPLICATION FOR HUNTING NP/CITES

Issued in terms of Exchange Control Act (Chapter 22:05),
The Parks and Wild Life Act (Chapter 20:14) and the Tourism Act (Chapter 14:20)

0000080068
COMPLETED

1. DETAILS OF THE SAFARI OPERATOR

Name of Operator	Lowveld Hunters	**Client's Full Name**	Aaron Baker
ZTA (HOP) No.	HOP0032	**Passport Number**	(b) (6)
		Country of Issue	UNITED STATES
Address	Eaglemont Ranch P O Box 36 Triangle lowveldhunters@zol.co.zw	**Address**	(b) (6) Las Vegas, NV 89158, USA
Name of Professional Hunter	MARTIN PIETERS	**Licence No.**	288
Telephone		**Fax**	240291
Number of Accompanying Guests			0
Are the trophies being exported after tanning and mounting?			
Are the trophies being exported after primary treatment?			
Name of Processing Agent or Taxidermist	TAXIDERMY ENTERPRISES	**Address**	4 JOSIAH CHINAMANO ROAD BELMONT BULAWAYO
Name of Shipping Agent	Maple freight	**Address**	4th Josiah Chinamano Road Belmont Bulawayo Zimbabwe
Name of Foreign Agent	Take Aim Safaris	**Address**	5 Myrtle Street, Thornhill Estate, Johannesburg, South Africa

2. HUNTING AREAS

	Hunting Area Name	Province	Signature of Land Authority
1	Breakfast, Stonehurst	Matabeleland North	
2	Dimbangombe Ranch- Waterford	Matabeleland North	
3	Sekebelo	Matabeleland North	
4	Matetsi River Ranch (Annasdale & Kayalethu)	Matabeleland North	
5	Oliphant Farm	Matabeleland North	
6	Matetsi Eca	Matabeleland North	
7	Bolsweden	Matabeleland North	
8	Kalala South/North & Gauchwood	Matabeleland North	
9			
10			
11			
12			
13			
14			
15			

Date of Safari From	27-03-2018
Date of Safari To	08-04-2018
Daily Rate Charged For Big Game USD	850.00
Daily Rate Charged For Plains Game USD	.00
Daily Rate Charged for Non hunting guests USD	.00
Number of Accompanying Guests	0

ZPWMA
Date Stamp

3. DETAILS OF DEPOSITS

(All inclusive of Daily Rate, Trophy Fees, Processing, Handling charges and any other incidentals)

(I) Safari Operator

	Value Date	ECA Number	ECA Date	Currency	Invoice Amount	Amount Paid
1						
2						
3						
4						

(II) Taxidermist

	Value Date	ECA Number	ECA Date	Currency	Invoice Amount	Amount Paid
1						
2						
3						
4						

4. FINANCIAL DATA

Total Daily rate	11,050.00	**Total Guests rate**	.00
Less Commission	1,657.50	**Total Trophy fees**	27,200.00
Other fees (Incidentals)	1,729.00	**Grand Total USD**	38,321.50
Percentage Commission Charged	15.00	**Total Processing Fees**	

5. DETAILS OF SPECIES HUNTED

	SPECIES	SEX	W/K	CONCESSION/FARM	GRID REF	DATE SHOT	SCI TROPHY SIZE	TROPHY FEES
1	GIRAFFE	M	Killed	Sekebelo	766856	31-MAR-2018		1,500
2	ZEBRA	M	Killed	Sekebelo	788843	06-APR-2018		1,000
3	WATERBUCK	M	Killed	Sekebelo	749849	05-APR-2018	72"	1,600
4	LION	M	Killed	Matetsi Eca	842804	08-APR-2018	26 12/16	22,000
5	KUDU	M	Killed	Kalala South/North & Gauchwood	749841	04-APR-2018	127.57	1,100
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

I .....hereby certify that the information given in this return is, to the best of my knowledge, true and correct.

Signature of Foreign Client _____ Date _____

Signature of Professional Hunter _____ Date _____

Signature of Safari Operator _____ Date _____

ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY

MEMORANDUM

To: Director General

From: Area Manager HQ

Date: 21 March 2018

RE: AUTHORITY TO PROCESS SPECIAL PERMIT FOR HUNTING OUTSIDE PARKS ESTATE

Your authority is kindly sought to process the permit for Lowveld Hunters who have applied for permit to hunt 1 x elephant with client Aaron Baker in the following property:

- Kalala South/ North & Gouchwood in Hwange District Matebeleland North Province
- Breakfast Stonehurst in Hwange District Matebeleland North Province
- Sekebelo in Hwange District Matebeleland North Province

The hunt will be **from 26 March to 2 April 2018** under the guidance of professional hunter Martin Pieters PH license number 288.

Kindly find attached application from the operator and copies of 2018 hunting permit and quota.

Recommended/ ~~Not Recommended~~..... 21/03/18
Investigation and Security Manager **Date**

Approved/~~Not Approved~~..... 21/03/18
Head Management Services **Date**

Parks and Wildlife Management Authority
MANAGEMENT SERVICES CONSUMPTIVE
23 MAR 2018
HEAD OFFICE
P.O. BOX CY 140 CAUSEWAY HARARE
TEL (04) 707 424-9/ 792783-9

ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY

MEMORANDUM

To: Director General

From: Area Manager HQ

Date: 13 March 2018

RE: AUTHORITY TO PROCESS SPECIAL PERMIT FOR HUNTING OUTSIDE PARKS ESTATE

Your authority is kindly sought to process the permit for Lowveld Hunters who have applied for permit to hunt 1 x lion and 1 x leopard with client Mr Aaron Baker in the following property:

- **Matetsi ECA in Hwange** District, Matebeleland North Province

The hunt will be **from 26 March to 08 April 2018** under the guidance of professional hunter Martin Pieters PH license number 288.

Kindly find attached application from the operator and copies of 2018 hunting permit and quota.

Recommended/ Not Recommended..... 14/3/18

Investigation and Security Manager **Date**

Approved/Not Approved..... 14/3/18

Head Management Services **Date**

Parks and Wildlife Management Authority
MANAGEMENT SERVICES CONSUMPTIVE
15 MAR 2018
HEAD OFFICE
P. O. BOX CY 140 CAUSEWAY HARARE
TEL (04) 707 624 / 792783-9

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
SHANE MAHONEY
RENEE SNIDER

March 25, 2021

Department of the Interior
U.S. Fish and Wildlife Service
Attn: Amy Brisendine
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803

APPLICANT: **Aaron Baker**
RE: **Import Permit Application for a Sport-hunted Lion**
COUNTRY: **Zimbabwe**
DATE OF HUNT: **April 8th, 2018**

Ms. Brisendine:

Enclosed you will find an import permit application for a sport-hunted lion trophy from Zimbabwe for Mr. Aaron Baker. Mr. Baker hunted with Lowveld Hunters in the Matetsi ECA (Extended Conservation Area) area of Zimbabwe, located in-close-proximity to Botswana and adjoined to Matetsi Units 1 and 4. The Matetsi hunting areas sit directly above Hwange National Park, the countries largest national park.

In Zimbabwe wildlife has an enormous value and brings national pride to the country. Their CAMPFIRE program has had an overwhelming positive effect on the communities living amongst dangerous wild game that has brought about acceptance and knowledge for their unique national resource. Zimbabwe is very aware that they are one of a few countries in the world that still have viable, stable, and growing lion populations and are making the most of managing and protecting them for the future.

A 2016 IUCN Red List assessment of African lion concluded that Zimbabwe is one of four range states with an increasing lion population, see the attached fact sheet entitled "The Importance of Lion Hunting in Zimbabwe". Zimbabwe has identified the major threats to its lion population: loss of habitat, loss of prey base, and human-wildlife conflict and addressed them all in their National Lion Conservation Strategy and Action Plan, updated in 2020 to guide the country through 2025. Mr. Baker spent $22,000 in trophy fees for this lion. Trophy Fees make up the majority of the budget for anti-poaching patrols, community programs, and the bulk of conservation activities, which all aid in the protection of the lion population.

The operator, Lowveld Hunters, has a community land tenure agreement for their concession. Several surrounding communities decided to combine their land area. They agreed to support the value of local wildlife and preserve it, while allowing safari operators opportunities to monetize the land that created the Matetsi Extended Conservation Area (ECA). The larger area has provided ample habitat for prey species and predators. Payment methods to the Matetsi community through the CAMPFIRE program have benefitted them directly and have had an obvious positive effect on the increase in prey as well as enhancing the overall quality of life for the residents that must tolerate lions. In addition, if any human/wildlife conflict occurs the operator compensates that person and their family.

The ZPWMA office in the Matetsi Safari Area measures, monitors, and analyzes trophy quality and offtakes of all hunted animals. This is done to ensure that safari hunting does not substantially alter natural selection or ecosystem processes. The limited quota, further limited by age restrictions, ensures that hunting offtakes do not negatively affect natural processes, particularly for lions. Zimbabwe administers a Hunt return form for all lions that confirms the age of the animal taken. Hunting quotas are negatively adjusted for safari operators who take an animal that does not meet the quota, sex, and age-based restrictions.

Please refer to the documents and responses included and previously submitted to the DMA by Conservation Force, Zimbabwe's wildlife authorities, professional hunters, and Safari operators where you will find that the regulated well-managed hunting that was done on this safari is furthering the enhancement of the lion population in the area and the conservation work done by this operator in tandem with ZPWMA is aiding in the protection of the native wildlife and the communities surrounding it.

Please do not hesitate to contact us if you have any questions about this permit application.

Sincerely,

Aimee Korver

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Aaron Baker W/ attachments

Enclosures:

a. FWS Permit Application Form for Import of Sport-Hunted Trophy
b. Notice of Representation
c. Copy of Hunting Permits
d. Operator Enhancement Report- Lowveld Hunters
e. E-mail from Operator Martin Pieters regarding Community obligations
f. Zimbabwe National Lion Conservation Strategy and Action Plan
g. The Important of Lion Hunting in Zimbabwe

APPLICANT:

AARON BAKER

NOTICE

OF

REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed Lion Trophy from Zimbabwe.

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

(b) (6)

SIGNATURE

Aaron M Baker

PRINT FULL NAME

03/30/21

DATE

APPLICANT:

AARON BAKER

OPERATOR ENHANCEMENT REPORT

ANNEX I
OPERATOR ENHANCEMENT QUESTIONAIRE

Operator Information

a. Name of Area Operator: LOWVELD HUNTERS
b. Years in business: 30
c. Name of company conducting hunt: MARTIN PIETERS SAFARIS
d. Country: ZIMBABWE

Concession

a. Name of Concession: MATETSI ECA
b. Area in km^2: 1500
c. Land tenure:
   ____ Government Lease
   YES Community
   ____ Private Ranch
   ____ Private Conservancy
d. Length of concession agreement: 5 YEARS
e. Can the concession be renewed? YES
f. Length of renewal, if applicable: 5 YEARS
g. Estimated trophy fees: 100 000
h. Are there are special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed: YES, DEDICATED ANTI POACHING TEAMS AND PREDATOR MONITORING, ASSISTANCE WITH WILDLIFE CONFLICT IN THE COMMUNITY.
i. Provide concession location and nearest city: VICTORIA FALLS, ZIMBABWE
j. Please attach a map or maps with marked boundaries and nearest city
k. If the concession borders a National Park, provide park name: NO
l. Describe general and distinctive habitat/water features: OPEN SAVANNAH, THICK WOODLAND, RIVERINE

Communities in the Concession

a. Are there any communities living in the concession? Yes YES No _
b. If so, estimated number of people/villages in the concession: 1500
c. Are there communities bordering this concession? Yes YES No _
d. If so, estimated number of peoples/villages around the concession: 1500

Relevant Game Populations in the Concession

Species	Relative Abundance (Dense, Average, or Sparse)	Estimated Population	3-Year Trend (Up, Down, or Stable)	How is it Monitored?
Elephant	DENSE	250	UP	ANNUAL TRENDS
Lion	DENSE	100	UP	SIGHTINGS AND CAMERAS
Prey Species (if applicable)	DENSE	ABUNDANT	UP	SIGHTINGS/SPOOR
Other:				

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application. YES, SEVERAL LION STUDIES IN AND AROUND MATETSI AND HWANGE NATIONAL PARK

b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports. YES, COMMUNITY EDUCATION AND STRICT BOUNDARIES FOR WILDLIFE

Local Community Participation

a. Total employment number: 18
b. Total employment in the off-season: 12
c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees I the Off-Season
Professional Hunters	3	0	1
Trackers	9	7	4
Anti-poaching Scouts/Rangers	6	4	6
Other Anti-poaching	4	4	4
Cooks/Housekeepers	2	2	1
Community Coordinators	2	2	2
Managers	1	0	1
Biologists			
Others:			

Anti-Poaching Efforts

a. Number of anti-poaching staff: 10
b. Are patrols conducted during the hunting season, off-season, or both? BOTH
c. Months patrols are conducted: 12
d. Number of patrols per month: 6
e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: 75%
f. Description of anti-poaching equipment, vehicles, gear, etc. LAND CRUISER/ BACKPACKS, TENTS, RADIOS, CAMERAS
g. Do government-sponsored game scouts conduct patrols? YES
h. If so, do they have the ability to arrest? YES
i. Do you offer rewards to poaching informants leading to arrest? Yes YESNo
j. Do you offer rewards to poaching informants upon conviction? Yes YES No
k. Please describe the operator's anti-poaching expenditures over the past 3 years below:

Type of Expense	Year 1 (____) Spending	Year 2 (____) Spending	Year 3 (____) Spending	Remarks
Scout Salaries	3000	3000	3500	
Equipment	1000	1000	2000	
Vehicles	2500	3000	4000	
Fuel	2500	3000	2750	
Rewards	800	600	1400	
Others:				
Totals				

l. What currency are the expenditures given in? USD$

Anti-Poaching Results

Type	Year 1 (____)	Year 2 (____)	Year 3 (____)	Remarks
Poaching Incidents Discovered	7	5	0	
Elephant Carcasses Observed	6	3	0	
Lion Carcasses Observed	0	0	0	

Leopard Carcasses Observed	0	0	0	
Ivory Poachers Observed	2	1	0	
Bush Meat Poachers Observed	2	1	0	
Illegal Logging Observed	0	0	0	
Other Poachers Observed	2	3	1	FISH POACHING
Poachers Convicted	2	0	0	
Snares/Traps Collected	26	14	0	
Firearms Confiscated	1	0	0	
Vehicles Confiscated	0	0	0	
Bicycles Confiscated	0	0	0	
Boats/Nets Confiscated	0	0	9	
Tusks Recovered	0	0	0	
Others: _____				

Community Investment

a. Does the company give money or goods/services to local communities? Yes YES No ____
b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e. more than required by law)? 50 % ABOVE AVERAGE
c. Does the company provide game meat to nearby communities? Yes YES No ____
d. If so, estimate the amount/value of meat contributed in the last year and describe that distribution program: 75 %/ DIRECT DISTRUBUTION THROUGH THE COMMUNITY LIASON OFFICER
e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling field during harvest, PAC hunts, insurance programs); please describe. YES, ACTIVE PATROLS DURING THE CROP SEASON AND ASSISTANCE WITH PROBLEM ANINALS IF NEEDED
f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (____)	Consolation Paid, Year 2 (____)	Consolation Paid, Year 3 (____)	Remarks
Elephant	CROPS	1500	1000	1600	
Lion	CATTLE	3000	2700	2800	
Leopard	GOATS	500	300	600	
Other: _____					

g. What currency are the expenditures reported in? USD $
h. Describe any community projects paid for by the company: ASSISTANCE WITH CLINIC AND SCHOOL CONSTRUCTION

Product/Service	Spending, Year 1 (____)	Spending, Year 2 (____)	Spending, Year 3 (____)	Remarks
Education (classrooms, offices)	1000	1000	1000	
Education (supplies, fees)	500	500	500	
Health (clinics, offices)	500	500	500	
Health (equipment, salaries)	1000	1000	1000	

Product/Service	Spending, Year 1 (____)	Spending, Year 2 (____)	Spending, Year 3 (____)	Remarks
Community Scout Salaries	1500	1500	1500	
Community Anti-Poaching	1500	1500	1500	
Local Government Activities	250	250	250	
Infrastructure Improvements	2000	2000	2000	
Sports Teams Funded				
Construction Materials Donated	1250	2250	2500	
Other: _____				
Other: _____				
TOTALS				

i. What currency are the expenditures reported in? USD

j. Include receipts and photographs of projects, if available.

Company Clientele

a. How many U.S. clients did the company have in the past 3 years (indicate years), what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	Lion	All Species
Number of U.S. Clients	6	6	22
Percentage of Clients from the U.S.	40	60	60
Trophy Fees Paid by U.S. Clients	75000	180000	100000

b. Approximate amount/percentage of company's revenue from U.S. clientele: 50%

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
LICENCED UNDER THE ZIMBABWE PARKS AND WILDL;IFE ACT AFTER SEVERAL YEARS TRAINING UNDER A QUALIFIED PROFESSIONAL HUNTER

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology, if available): YES, LION 5 YEAR PLUS, ALL OTHER ANIMALS AGE REALTED MATURE TROPHIES

c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years.

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

I declare that the foregoing is true and correct.

X [signature] 18 MARCH 2021
Sign Name and Date

X MR. MARCEL PIETERS
Print Name and Title

Conservation Force - Supplemental Annex

1. Note the Fish and Wildlife Service asks for a map in three places - please attach a boundary Map of the hunting area, block, concession, and/ or conservancy. (needed response to questions 5.a. and 6.a. of the USFWS Application and Section J above)

2. Attach any written agreement with the local community. (Best evidence of community investment and participation)

3. Attach any written management plan for the area (evidence of conservation commitment)

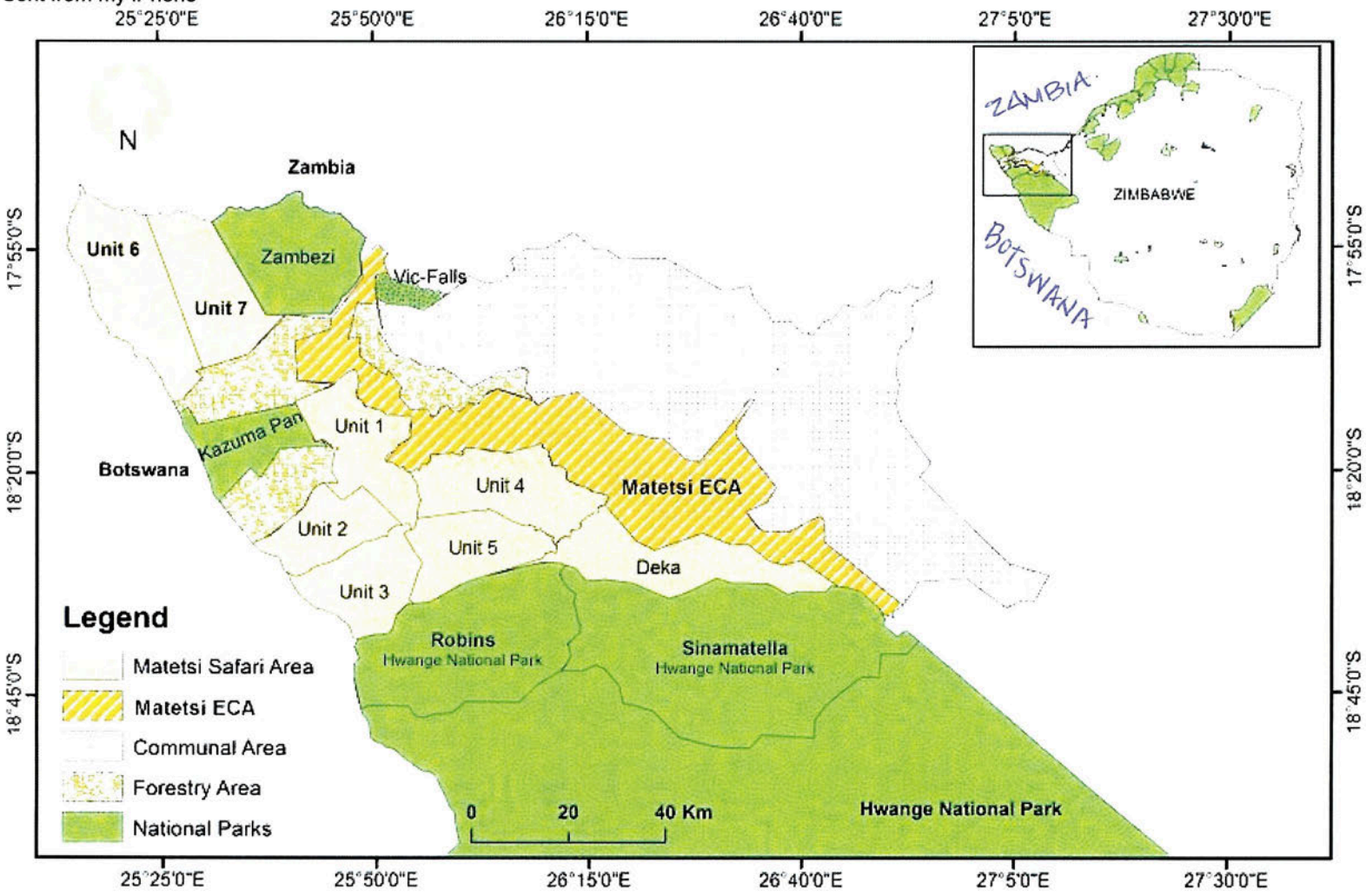
4. Attach any report, documentary, or photographic evidence of the age of the trophy

martin pieters <martinpieterssafaris@gmail.com> 3/18/2021 7:21 PM

Matetsi ECA

To Aimee Korver <permits@conservationforce.org>

Sent from my iPhone



- PHOTO-2019-01-02-10-56-34.jpg (112 KB)

APPLICANT:

AARON BAKER

E-MAIL CORRESPONDENCE FROM OPERATOR OF LOWVELD HUNTERS

martin pieters(b) (6) 3/25/2021 9:39 PM

Re: Baker paperwork

To Aimee Korver <permits@conservationforce.org>

Dear Aimee

Let me know if this is suited

The matetsi ECA comprises several communities that Lie adjacent to one another. To preserve wildlife and place a value on it , the community decided to combine their land area and create the matetsi ECA (matetsi conservation area).

The larger area provided ample
Habitat for prey species and predators. Payment methods to the community through the campfire program benefits the community directly and this is evident from the increase in wildlife.

Should there be a human / wildlife conflict, compensation is paid and the community is happy.

These vast tracts of land that border national parks are vital habitat for lion in Zimbabwe and through our direct efforts, not only has the ECA area improved, but also expanded. It is extremely important to have a value on wildlife in these remote areas as is evident from the work and protection shown by the Matetsi ECA community .

Regards
Martín

Sent from my iPhone

APPLICANT:

AARON BAKER

"THE IMPORTANCE OF LION HUNTING IN ZIMBABWE"

CONSERVATION FORCE

THE IMPORTANCE OF LION HUNTING IN ZIMBABWE

Media outlets are reporting that "Xanda," a six-year-old African lion and the alleged "son" of "Cecil," was recently killed in a lawful tourist hunt in northwestern Zimbabwe. The reports are inconsistent and biased. Most of all, they ignore the critical conservation role that regulated hunting plays in Zimbabwe. The facts below emphasize the importance of licensed, regulated lion hunting as a conservation tool in Zimbabwe and lion range states.

Habitat Security: Regulated hunting in Zimbabwe takes place in government safari areas and forest areas, communal areas in the CAMPFIRE program, and private conservancies. Hunting justifies the protection of nearly five times as much habitat as in National Parks (>130,000 km^2 compared to <28,000 km^2).

Zimbabwe is not alone. Hunting areas are more than five times the size of Tanzania's National Parks, more than 2.8 times the size of Zambia's National Parks, more than 2.5 times the size of South Africa's National and Provincial Parks, and more than 1.5 times the size of Mozambique's National Parks. Hunting mitigates the habitat loss identified as the single greatest threat to large carnivores like lion and leopard. It provides habitat for other game and essential lion prey.

Wildlife Authority Revenue: Regulated hunting contributes significant operating revenues to the wildlife authorities of range states like Zimbabwe. These revenues pay for law enforcement, monitoring, and other conservation activities. Hunting fees in Zimbabwe cover most of the authority's operating expense. Under the current quota, lion fees alone can underwrite the protection of over 18,000 km^2, two-thirds the size of the National Parks. In other African countries, hunting fees make up between 30% and 80% of the wildlife authority's operating budget.

Anti-Poaching: Many hunting operators maintain their own anti-poaching teams to support government enforcement efforts. This spreads the costs of law enforcement between the public and private sectors, and reduces the burden on under-resourced governments. According to a study of 18 hunting operators in Zimbabwe, 26% of company staff were engaged in law enforcement. Similarly, a study of 27 operators in Tanzania found they spent over $6.7 million in anti-poaching from 2013 to 2015 and patrolled more than 7,170 days in that period.

Community Tolerance: Regulated hunting increases the tolerance of rural communities living side-by-side with dangerous game like lion by generating tangible benefits, which improve community livelihoods. The CAMPFIRE program in Zimbabwe devolves control of wildlife on communal lands to rural district councils. These councils contract with safari operators and benefit from the fees paid for lion, elephant, and other hunts. At least 55% of these fees are deposited directly in village bank accounts. Another 41% goes to the district councils for community services.

Communities receive other benefits, such as consolation payments, infrastructure project funding, game meat distributions, and employment. This system creates value for species that otherwise face retaliation because they prey upon livestock (e.g., lion and leopard) or raid crops (e.g., elephant and buffalo). (Given these benefits, traditional leaders (chiefs) and CAMPFIRE representatives have spoken out against import restrictions on hunting trophies and calls to ban hunting by some international NGOs.)

Conclusion: Regulated hunting is essential to Zimbabwe's wildlife management and conservation system. This system is working. A 2016 IUCN *Red List* assessment of African lion concluded that Zimbabwe is one of four range states with an increasing lion population. This is an amazing achievement given Zimbabwe's rapidly growing human population and high human population density (26). Hunting takes place across a wide range of land, and in marginalized areas that are simply not appropriate for photographic tourism. If that land is to remain as habitat, there must an incentive for the rural people who would otherwise use it for farming and livestock. Hunting offtakes are low—only 33 lions hunted in 2016—but the incentives are high. This carefully-designed, sustainable-use based system benefits the lion and people of Zimbabwe.

APPLICANT:

AARON BAKER

ZIMBABWE NATIONAL LION CONSERVATION STRATEGY AND ACTION PLAN

ZIMBABWE NATIONAL LION CONSERVATION STRATEGY AND ACTION PLAN (2020-2025)



A male lion with cubs he has sired (Photo credit: Brent Stapelkamp)

Zimbabwe Parks and Wildlife Management Authority

Approval Page

The Zimbabwe Parks and Wildlife Management Authority Director General have approved the implementation of the Zimbabwe National Lion Conservation Strategy and Action Plan (2020-2025)

Signature:  Date: 07/08/2020

Mr. Fulton Mangwanya

DIRECTOR-GENERAL - ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY

FOREWORD BY DIRECTOR GENERAL OF ZIMBABWE PARKS AND WILDLIFE MANAGEMENT AUTHORITY



Zimbabwe is privileged to be one of the few lion range states in Africa where large areas of land set aside as protected areas, still have viable, stable and growing lion populations. In some parts of Africa, lions have been completely wiped out either by hunters, or through habitat loss and other factors with the only record to indicate their existence in the past now left as anecdotal evidence. The lion is a powerful African symbol, it is a flagship species and yet its future is under threat. The conflict with local communities and the threat to livestock and human lives in many parts of the world including Zimbabwe is well documented. While its attraction in ecotourism as one of the most beautiful and graceful cats, and as a trophy animal in sport hunting, its economic benefits are huge. Its social and cultural values are an integral part of the Zimbabwean lifestyle, therefore efforts to ensure lion conservation need to be strengthened.

It is important for Zimbabwe have a strategy that guides conservation and management of this top predator. As a world leader in sustainable conservation, we have taken a lead in developing conservation strategies, which ensure sustainable use. I have no doubt that with the expertise gathered in this document encompassing the wildlife industry, technocrats, academia inter and non-governmental organizations, wildlife producers including local communities, etc., we will all join hands in the implementation of the conservation measures and activities.

Collaborative work on research and monitoring of lions needs to be strengthened to ensure that adaptive management is practiced and is also informed by sound science. Zimbabweans take pride in our rich wildlife heritage, let us continue working together to ensure that we effectively conserve our lions in all their range areas in the country for the present and future generations.

Implementation of this lion conservation strategy will go a long way in meeting our long-term strategies for biodiversity conservation and I invite you to partner with us and play your part on this noble cause.

SUMMARY

The first '*Conservation and Action Plan for the lion (Panthera leo) in Zimbabwe'* was developed in 2006 in response to the development of Africa wide conservation plans for the species. It has served Zimbabwe well but with increasing global and regional concerns and changing circumstances regarding the conservation of lions it was appropriate to revisit and update a National Lion Conservation Strategy and Action Plan. The major components of the earlier strategy have been brought forward, albeit in a different format, but with a greater focus of law enforcement, the extension of lion range within the country, and the recovery of some populations that have declined.

The strategy, therefore, focuses on the following long term and shorter-term goals, and five key components, in keeping with related plans for rhinos and elephants:

> ***Long-term Vision:*** *Lions conserved and managed sustainably for their aesthetic, cultural and ecological values and the socio-economic development of Zimbabwe.*
>
> ***Goal:*** *(Immediate objective or purpose):*
>
> *To secure and where possible, restore as many viable free ranging lion populations as possible in Zimbabwe, whilst mitigating their negative impacts and enhancing their value for the benefit of people through sustainable use.*
>
> ***Targets:*** *1. Ensure the persistence of key/core lion populations and other important populations including those of doubtful viability*
>
> *2. Human and livestock loss caused by lions reduced*
>
> *3. Optimise lion conservation-related net benefits to local communities/ landholders*
>
> *4. Review and enhance ethical sustainable use of lion*

In order to meet these goals and to effectively contribute to national policy objectives, the following five component and strategic objectives have been adopted as the primary focus for strategic action in achieving the immediate and long-term conservation of lions in Zimbabwe:

1. Protection and Law enforcement to ensure the effective security of all lion populations in Zimbabwe
2. Biological monitoring and management of lions to achieve viable populations that are within upper and lower acceptable limits to change in numbers and distribution
3. Implementing social, economic and cultural strategies to enhance the contribution of lions to rural livelihoods, protected area management and national development
4. Building conservation capacity and ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and finances are mobilised, available and used efficiently and effectively to lion conservation
5. Ensuring coordination, collaboration and programme management with local, and international stakeholders to implement these strategic objectives.

These strategic components can readily be framed as objectives, and outputs with a set of necessary and sufficient activities and key performance indicators that need to be implemented to achieve the outputs and targets. These are framed at a strategic level from which more detailed annual plans that fit available resources and requirements at local or cluster levels can be developed.

An overview of the main conservation plan is provided in the following Objectives Tree. The sets of key activities for each Output are provided in Section 4.

Objectives Tree

Long-term Vision: *Lions conserved and managed sustainably for their aesthetic, cultural and ecological values and the socio-economic development of Zimbabwe*

Goal: *(Immediate objective or purpose):*
To secure and where possible, restore as many viable free ranging lion populations as possible in Zimbabwe, whilst mitigating their negative impacts and enhancing their value for the benefit of people through sustainable use.
Targets: 1. Ensure the persistence of key/core lion populations and other important populations including those of doubtful viability
2. Human and livestock loss reduced
3. Optimise wildlife conservation-related net benefits to local communities/ landholders
4. Review and enhance ethical sustainable use of lion

Key Components	1. Protection and law enforcement	2. Biological Monitoring and Management	3. Social, Economic and Cultural Framework	4. Building Conservation Capacity	5. Coordination, collaboration and program management
Strategic Objectives	**Objective 1**. Ensuring effective protection of all lion populations in Zimbabwe	**Objective 2.** Implementing effective biological and ecological management to achieve viable populations that are within upper and lower acceptable limits to change in numbers and distribution	**Objective 3.** Implementing strategies that enhance the contribution of lions to livelihoods, protected area management and national pride and development	**Objective 4.** Ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and financing are mobilised, available and used efficiently and effectively for lion conservation	**Objective 5**. Ensuring effective coordination and collaboration with local, national, and international stakeholders to implement these strategic objectives,
Outputs	**Output #1:** Management, security and law enforcement actions to minimise, illegal losses of lions, their prey and their habitats, implemented	**Output #2:** Adaptive, evidence-based management to maintain viability of all lion sub-populations implemented	**Output #3:** Fair distribution of financial benefits from lions improved and tolerance for those living with lions increased	**Output #4:** Sufficient numbers of trained, equipped, motivated and effective personnel are deployed and operational	**Output #5:** Coordination mechanisms to assess and review adaptive lion population management and strategic planning established and operating

Table of Contents

FORWARD ii

SUMMARY ii

Objectives Tree i

ACRONYMS AND ABBREVIATIONS iii

ACKNOWLEDGEMENTS iii

1. Introduction and Background 1

1.1 Numbers, distribution and trends of lions in Zimbabwe 2

1.2 Targets for lion distribution, numbers, and connectivity in Zimbabwe 4

1.3 Implementation of the Strategy and Action Plan 5

1.3.1 Institutions and Roles 5

1.3.2 Funding and resource mobilisation 6

1.3.3 Coordination 6

1.3.4 Monitoring and evaluation 7

1.3.5 Links with continental and regional initiatives 7

1.3.6 Regional strategies within Zimbabwe 7

1.3.7 Protecting lions for the future 7

1.3.8 Human lion conflict 7

2. Logic and Structure of the Plan 9

3. Vision, Targets and Key Components 11

4. Action Plans 12

4.1 Protection and Law Enforcement 12

4.2 Biological Monitoring and Management 16

4.3 Social, Economic and Cultural Framework 18

4.4 Building Conservation Capacity 20

4.5 Coordination, Collaboration and Programme Management 23

5. Notes on Monitoring 25

6. Concluding Comment 26

7. References 28

8. ANNEXES 30

8.1 Terms of Reference for National Elephant and Lion Conservation Committee 30

8.2 Terms of Reference for the Lion Working Group 31

8.3 Terms of Reference for the Lion Coordinator 31

Approval Page ..... Error! Bookmark not defined.

ACRONYMS AND ABBREVIATIONS

CAMPFIRE	Communal Areas Management Plan for Indigenous Resources
CITES	Convention on International Trade in Endangered Species of Flora and Fauna
IUCN	International Union for the Conservation of Nature
KAZA	Kavango Zambezi Transfrontier Conservation Area
KPI	Key Performance Indicator
NDF	Non-Detriment Finding
RDC	Rural District Council
SADC	Southern Africa Development Community
SMART	Spatial Monitoring and Reporting Tool
SOAZ	Safari Operators Association of Zimbabwe
TFCA	Transfrontier Conservation Area
ZPHGA	Zimbabwe Professional Hunters and Guides Association
ZPWMA	Zimbabwe Parks and Wildlife Management Authority
ZRP	Zimbabwe Republic Police

Staff abbreviations *(used to indicate responsibilities in the action plans)*

DG	Director General
DDGCon	Deputy Director General Conservation
CM	Cluster Manager
AM	Area Manager
CE	Chief Ecologist
PRM	Public Relations Manager
HRM	Human Relations Manager
LC	Lion Coordinator
LWG	Lion Working Group

ACKNOWLEDGEMENTS

The support provided by the Lion Recovery Fund for the development of this conservation strategy and action plan is gratefully acknowledged, as is the contribution to its development by the participants in the consultative workshop on lion conservation and management held at Boulton Atlantica on the 12-14 of June 2019.

1. Introduction and Background

Lions have formed a powerful symbol as the 'king of beasts' for many cultures throughout the ages. They are now extinct in Europe, a remnant population remains in India and their numbers in Africa, their last stronghold, have declined drastically in most countries in recent decades. Four countries in southern Africa provide an exception to this trend. Lion populations are either stable or growing in Botswana, Namibia, South Africa and Zimbabwe. As a result, Zimbabwe shoulders both a national and an international responsibility to conserve its lions for the cultural, ecological, and economic benefits they provide. Given sufficient habitat, a viable prey base, and protection, it is clear that lion populations can recover remarkably quickly. Small founder populations of lions introduced to two larger well-stocked conservancies (formerly cattle ranches) in the South East Lowveld, for example, grew at more that 20% per annum over periods of 15-20 years.

Following the Rinderpest pandemic that swept through southern Africa in 1895, when both wild and domestic populations of cloven-hoofed animals collapsed, populations of large carnivores were also reduced to very low numbers. However, as both livestock and wild ungulate populations recovered, large carnivore recovery was curtailed by expanding agro-pastoralism and cattle ranching, and conflict with humans, where lions were killed. The first game reserves were established in 1928 and, even then, large mammal populations were still low and recovering. In Wankie Game Reserve (now Hwange National Park), for example, game populations were growing at about 13% per annum between 1937 and 1949[1]. If a similar growth rate prevailed during the previous ten years the likely prey biomass in 1928 would have supported less than 1 lion per 100 km^2, compared with 4 or more per 100 km^2 in 2019.

National long-term data on the trends and numbers of lions in the country are not available. Information available over the last three decades indicates an overall increase in lion numbers despite marked declines in some areas. Increases have occurred with the introduction of lions to two large conservancies, namely, Save Valley and Bubye Valley. A marked decline in lion numbers occurred in the Sebungwe region, primarily in Chizarira National Park and Chirisa Safari Area as a result of declines in prey populations due to poaching.

Primary factors constraining the growth and extension of lion populations in Zimbabwe are:

- Lack of available wild habitat into which lions can expand their range due to habitat fragmentation and land use change in neighbouring areas.
- Depleted prey bases in some protected areas.
- Conflict between lions and small-scale agro-pastoralists settled on the boundaries of protected areas and impacts of retaliatory killing of marauding lions.
- Scarcity of resources to implement conservation action.

Each of these constraints provides opportunities to be tackled and the primary purpose of this lion conservation strategy and action plan is to provide a framework for achieving effective and sustainable conservation of lions in Zimbabwe.

This plan builds on the 2006 Conservation Strategy and Action Plan and includes all of the primary elements of that plan, albeit in a different format. The 2006 strategy had its origins in renewed concerns about the conservation status of the African lion and proposals for the species to be listed on Appendix I at the 13th Conference of the Parties to CITES in Bangkok in 2004. The conference recommended a detailed examination of the issues relating to the conservation of the African Lion lions through a series

[1]/ Ted Davison, the first Warden, recorded the numbers of "head of game" seen per mile walked on his patrols in the park and included an annual figure in his reports for years 1937-1949. These figure increased at an annual rate of 13%.

of regional workshops. IUCN followed through on the recommendation and, together with other stakeholders organised a workshop for West and Central African countries in 2005 and another for East and Southern Africa countries in Johannesburg in 2006. A major recommendation of the workshop was that lion range states develop and implement national lion management plans. The Zimbabwe Parks and Wildlife Management Authority, together with IUCN, convened a workshop in October 2006 to develop a lion conservation strategy and action plan that has been in force since then.

Since 2006 there have been further failed proposals to list the African lion on CITES Appendix I and both the United States and the European Union have developed more stringent domestic measures surrounding the import of lion trophies from Africa. They require range states to provide evidence that trophy hunting is not detrimental to lion populations – the Non-Detriment Finding (NDF). The United States of America, in addition, requires that states provide evidence that that trophy hunting of lions enhances the conservation of the species in the wild. These international pressures have served to increase the amount and depth of research on lion ecology and on monitoring the impacts of trophy hunting. They have also served to stimulate the ongoing development of trophy hunting regulations and practices that minimise, if not remove, adverse impacts of trophy hunting on lion population dynamics.

Given the developments in lion research and increasing concerns, both national and international, regarding the conservation and management of lions the ZPWMA, with support from the Lion Recovery Fund, convened a stakeholder workshop in June 2019 to revisit and update the national lion conservation strategy and action plan. The proceedings of the June workshop were distributed in early August 2019.

1.1 Numbers, distribution and trends of lions in Zimbabwe

Recent estimates of the four regional populations indicate a current population of nearly 2,000 lions (Table 1). The lion population in Hwange NP is considered to be stable and this probably applies to that of Northwest Matabeleland. However, this population is contiguous with that in neighbouring Botswana and trends in that population may influence those in the Zimbabwe component.

Table 1. Estimates of the extent of lion range and the number of lions in four regions in Zimbabwe. (Source: NDF 2016)

Region	Area (km^2)	Estimated Number of Lions	Lions per 100 km^2
Northwest Matabeleland	24,863	737	3.0
Sebungwe	6,953	72	1.0
Lower Zambezi Valley	7,491	212	2.8
South East Lowveld	12,335	896	7.3
Total	**51,642**	**1,917**	**2.7**

Note: The figures for Lower Zambezi Valley cover only part of the overall protected area of ~ 12,000 km^2

The number of lions in the Sebungwe has declined with increasing habitat loss resulting from expanding settlement, increasing human population and agriculture in the region, encroachment into protected areas and depleted prey populations in protected areas. The human population in the districts covering the Sebungwe grew from 55,000 in 1950s to 750,000 in 2013 as result of immigration and following a boom in cotton production in the 1980s (Cumming and Lynam 1997). Wildlife habitat and wildlife numbers in both protected and CAMPFIRE areas recently declined markedly as reflected in the 75% decline of elephant from ~ 14,000 in 2006 to 3,500 in 2014. In the mid 1970s the Sengwa Wildlife Research Area (in the southern sector of Chirisa Safari Area) held a pride of at least 25 lions at a density

of 14 lions per 100 km^2 (Cumming 1975, and unpublished data). A recent camera trap survey found a single lion in Chirisa Safari Area – the result of uncontrolled bushmeat poaching and depleted prey populations (Unpublished Report). With appropriate management the protected areas of the Sebungwe provide a clear opportunity to recover lion populations in this region.

Gonarezhou National Park, a core protected area of the South East Lowveld, is experiencing increasing large herbivore populations and along with increasing lion numbers. The introduction of lions into the Save Valley Conservancy and Bubye Valley Conservancy resulted in these populations growing at more than 20% per annum over a period of two decades, resulting in the largest regional population on the country.

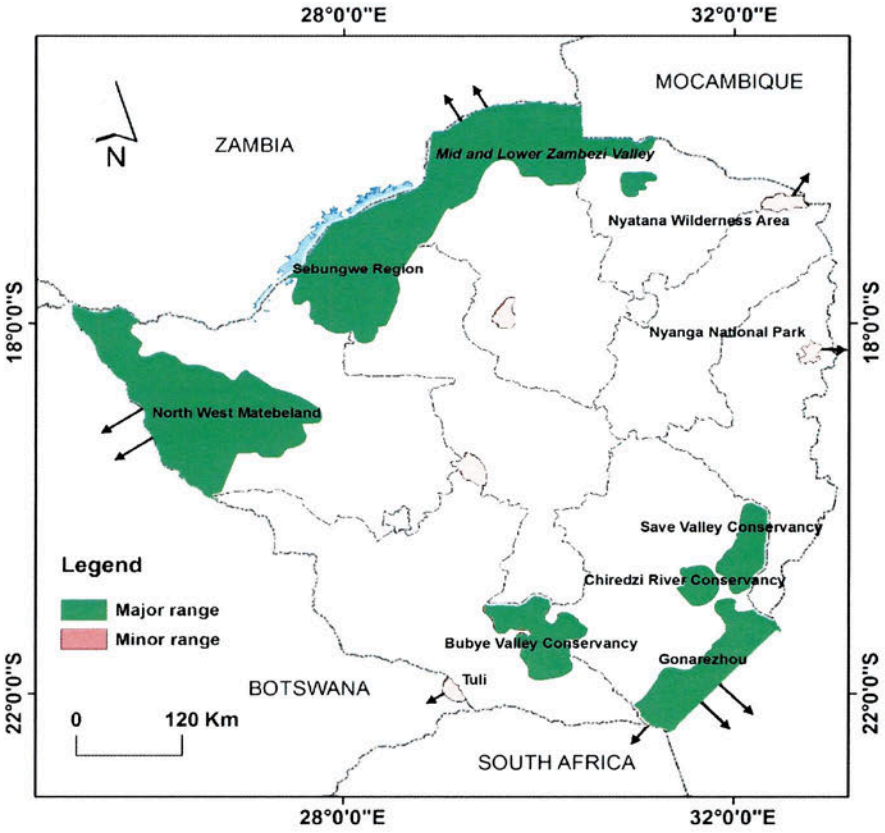


Figure 1. The current major and minor ranges of lions in Zimbabwe

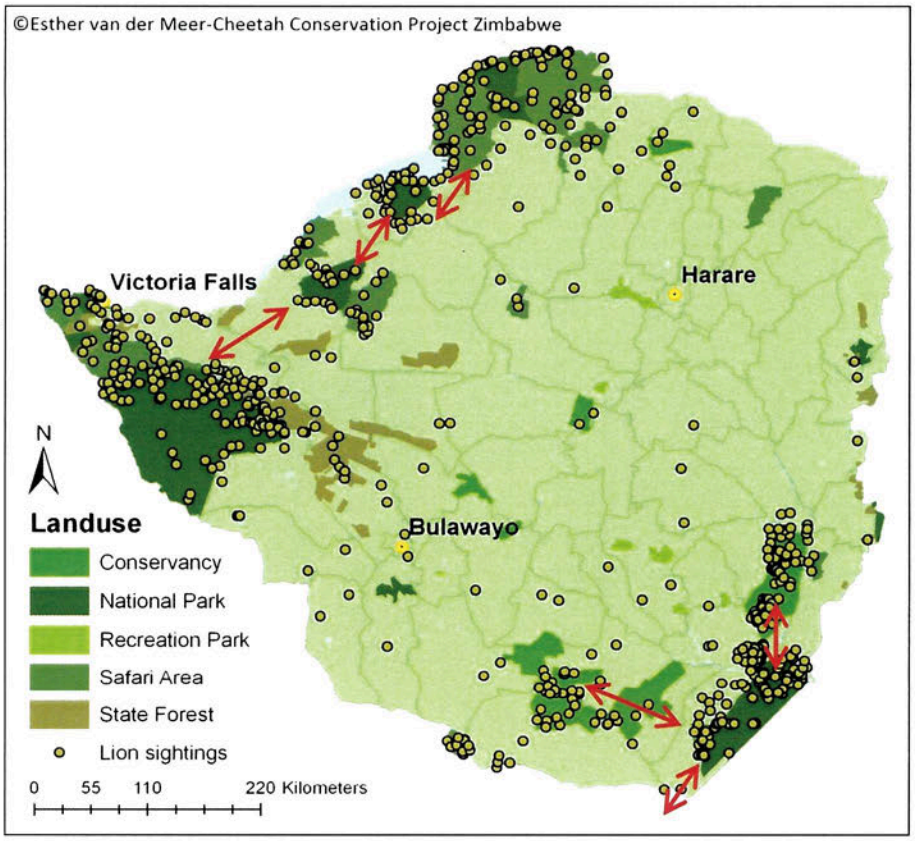


Figure 2. Distribution of lion sightings in Zimbabwe and an indication of potential corridors (red arrows) (Source: Lion NDF, 2016)

1.2 Targets for lion distribution, numbers, and connectivity in Zimbabwe

The recent map of lion sightings in Zimbabwe (Fig. 2) reveals four clusters of lions, one in Northwest Matabeleland, a second with few sightings in the Sebungwe south of Lake Kariba, a third in the Mid-Zambezi Valley, and a fourth in the South East Lowveld. Options for extending viable populations of lions to other areas in the country are limited. The open unmanaged populations in the Northwest and the Lower Zambezi Valley appear to be stable. The lion population in the South East Lowveld has grown rapidly although it has recently been curtailed in the fenced Bubye Valley Conservancy. As indicated above, the Sebungwe lion population is depleted but with improved management of its four protected areas, an opportunity exists for recovery of lion numbers.

Opportunities to maintain connectivity between the three northern lion populations exist but may rapidly close and will require urgent attention. Connectivity between the presently somewhat isolated populations of Bubye Valley Conservancy and Gonarezhou National Park may be achieved through the inclusion of lions in Nuanetsi Ranch and the creation of linking corridors. Similarly, options still remain to link the Save Valley lion population to Gonarezhou and through to Kruger National Park via the Sengwe-Tshipise Wilderness Corridor (Fig. 1).

The question of establishing Thresholds of Potential Concern, or setting limits to change, for lion populations in the country was discussed at some length during the June workshop. The general consensus was that open lion populations, those in large unfenced areas, did not need to be managed and that populations should be allowed to fluctuate. Population growth in fenced populations, where

dispersal and density dependent regulation is likely to be compromised, may need to be controlled and guidelines for this eventuality need to be developed. While the focus has tended to be on the management of lion population growth and perceptions of 'overpopulation', thresholds and specific action plans also need to be considered for populations that may be declining. In several cases lion population declines have been associated with declining available prey and attention needs to be directed at dynamics of preferred prey species namely, buffalo, giraffe, wildebeest and zebra (Hayward and Kerley, 2005). Disease issues relating to lions have been neglected but with increasing rural domestic dog populations and the incidence of rabies and distemper, attention will need to be directed at vaccination programmes in areas surrounding protected areas.

1.3 Implementation of the Strategy and Action Plan

1.3.1 Institutions and Roles

i) Zimbabwe Parks and Wildlife Management Authority

ZPWMA through the Parks and Wildlife Act, Chapter 20: 14, has a national mandate to manage wildlife in the country. By the same instrument it is appointed the lead agency in the conservation and management of lions, i.e. protection, monitoring, research, and sustainable use. It is also responsible for establishing collaborative arrangements with other governmental and non-governmental organisations to conserve and manage lions in the country.

ii) Intra-governmental organisations

ZPWMA works jointly with security organisations such as Zimbabwe Republic Police (ZRP), Zimbabwe Defence Forces, and the President's Office to protect lions, curb illegal killing, and control trade in lion products. ZPWMA works with these organisations through the Joint Operations Command as well as through direct bilateral arrangements with them and the Judiciary. ZPWMA also works with Customs at ports of exit and entry to improve control of illegal movement of wildlife products across boundaries.

iii) Inter-governmental organisations

ZPWMA works closely with sister organizations from neighbouring countries such as Zambia, Mozambique, South Africa and Botswana in wildlife protection, information sharing and lion monitoring through bilateral and regional arrangements (SADC). At international levels, ZPWMA is both the CITES Management Authority and CITES Scientific Authority and works with other countries through CITES and other inter-governmental agreements to control trade in lions and to protect lions. Both the Northwest Matabeleland and the Sebungwe regions fall within the Kavango-Zambezi Transfrontier Conservation Area (KAZA) and involve collaboration in the conservation and management of large carnivores within this framework. ZPWMA is also working with the Convention on Migratory Species and their African Carnivore Initiative that seeks to establish a task force to examine the illegal trade in carnivore products.

iv) Non-governmental organizations

Both local and international organizations partner with ZPWMA in lion management. They mobilize resources for protection, research and monitoring, and assist directly with lion monitoring and research programmes, information sharing, and advocacy.

v) Private sector

The corporate community participates in managing lions mainly through resource mobilization. Safari operators report poaching and assist in anti-poaching patrols. Through lease and trophy fees they

provide revenue to ZPWMA. They help develop infrastructure, provide funds to communities and supplement diets with meat from trophy animals.

Zimbabwe subscribes to the principle of sustainable utilisation of wildlife resources including the sport hunting of lions whereby offtakes are adaptively managed and monitored through a participatory and science-based process.

vi) Local Communities

Local communities are involved in lion management in CAMPFIRE areas, through sharing information, advocacy and wildlife protection. They report incidents of human-lion conflict and in some areas are actively engaged in "Lion Guardian" activities to minimise impacts of lions on their livestock.

1.3.2 Funding and resource mobilisation

Adequate and sustainable funding and provision of other resources are important to effective protection of lions. Resources are mobilized from within ZPWMA, by the private sector, and by intergovernmental and non-governmental organizations. Partnerships between ZPWMA and other stakeholders are some of the innovative measures being developed to secure funding for lion conservation. There may be a need for the Government to provide additional support to the conservation of lions and their prey base, particularly given the current levels bushmeat and commercial poaching, and anti-hunting sentiment in North America and Europe.

1.3.3 Coordination

i) ZPWMA

ZPWMA takes the lead in coordinating other institutions in lion conservation activities in the country. It will convene and chair the proposed Lion Management Committee meetings. Similar meeting are scheduled for rhinos and elephants and the possibility of amalgamating these meetings will be explored.

ii) Lion Coordinator

This Action Plan provides for the appointment of a Lion Coordinator within ZPWMA who will be responsible for coordinating lion conservation and management activities in the country. The Lion Coordinator will liaise with the International Conventions Office in ZPWMA on international matters affecting lion conservation and also liaise with the CAMPFIRE office for matters affecting the conservation of lions in CAMPFIRE districts. The draft Terms of Reference for the Lion Coordinator are provided in Annex 9.7.

iii) Lion Working Group

As reflected in the Proceedings of the June 2019 Workshop a Lion Working Group will be established to work on specific issues relating to lion conservation in the country and to annually to review progress in implementing the Action Plan. The National Committee will document that progress in implementation and any suggested revisions to the Action Plan and make their report available to the Director General of ZPWMA.

The Lion Working Group will meet at least twice in a year to review the implementation of the national plan, each regional plan, and local plans. The Working Group will strengthen links with various bodies at national and regional levels including within the TFCA framework. ZPWMA will convene and chair the Working Group meetings. The draft Terms of Reference for the Lion Working Group are provided in Annex 9.5.

1.3.4 Monitoring and evaluation

Monitoring the implementation of this Action Plan will be done using the Key Performance Indicators contained in Section 4. Monitoring the implementation will be done and reported on by the Lion Coordinator on a quarterly and annual basis. A major evaluation of progress will be done every two years and in 2025. Monitoring and evaluation will be done at each local area level, at the Cluster level, and at the National level.

1.3.5 Links with continental and regional initiatives

This Action Plan recognizes the existence of the East and Southern African Lion Action Plan, the KAZA Carnivore Conservation Strategy (that includes northwest Matabeleland and the Sebungwe), and initiatives that are currently taking place at a continental level, including by the African Union. These include the development of the Common Strategy on Combating Illegal Exploitation and Illegal Trade in Wild Fauna and Flora in Africa. At the SADC level initiatives involve developing a Plan of Action and implementing the SADC Protocol on Wildlife Conservation and Law Enforcement. This Action Plan will be reviewed periodically in the light of developments that are taking place in the SADC Region, Africa and beyond.

1.3.6 Regional strategies within Zimbabwe

The devolution of management oversight to Cluster levels, with more detailed action plans within the national plan, provides the basis for effective adaptive management at regional and local levels. An example of how this might be devolved to the regional level is provided in Annex 1.

1.3.7 Protecting lions for the future

Poaching and the illegal wildlife trade are serious concerns for all lion range states. Although the 2006 Conservation Strategy and Action Plan for Lion in Zimbabwe did not need to prioritise law enforcement, protecting the habitats and prey base for lions, and minimising the loss of lions to an increasing threat of trade in lion body parts, are now an important, if not primary, component of this Action Plan.

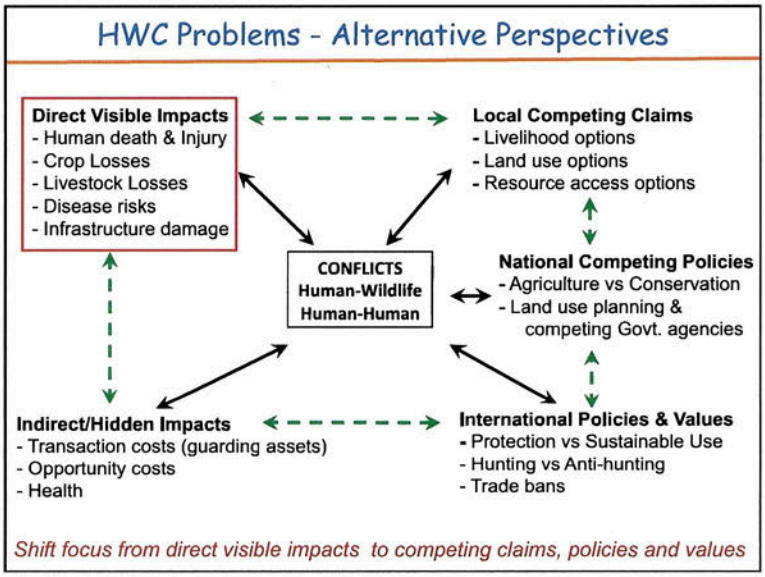
1.3.8 Human lion conflict

As Zimbabwe's human population grows, lions are being restricted to smaller areas and as human populations and settlement increase on the immediate boundaries of protected areas lions are increasingly likely to threaten livestock and occasionally, human lives. As a result, in many rural areas where lions occur in Zimbabwe, human-lion conflicts are likely to increase, creating negative attitudes towards the conservation of lions. These conflicts often occur among the poorest of rural farmers, which complicates the issue in social and economic terms. Unresolved conflicts stimulate poaching or retaliation. Poachers or retaliators can be seen as "local heroes" because they remove, the source of the conflict. A major challenge for lion conservation is keeping human-lion conflicts to a minimum.

Developing a Social, Economic, and Cultural Framework in which lion conservation takes place has been identified as a Key Component of this Action Plan in an effort to address and minimise human-lion conflicts and build an appreciation of the importance of conserving lions.

BOX 1: Towards a Comprehensive Strategy to Reduce Human-Lion Conflict

Conflict between people and wild animals tends to focus on the immediate and direct visible impacts of a wild animal on a person or on his/her belongings, such as domestic livestock or crops or on risks of contacting disease. While it is appropriate to minimise such direct conflicts it is also important to examine the wider circumstances and related issues that involve competing claims, policies, and values that contribute to the problem. The following diagramme provides a summary overview of the issues and complexities involved.



While lions do occasionally attack and injure or kill people, conflict between humans and lions most commonly revolves around the loss of livestock to predation by lions and other large carnivores (Kuiper et al 2015, Loveridge et al 2017). Measures to effectively reduce such losses have recently been developed and include herding practices, the use of predator proof mobile bomas, the positioning of flashing lights to keep predators away, and using vuvazelas (trumpets) to chase them away.

However, attention also needs to be directed to issues relating to land use planning, competing claims and policies, and dealing with international pressures that bear on the conservation, management and sustainable hunting lions, the equitable distribution of benefits that may be derived from lions through tourism.

2. Logic and Structure of the Plan

The strategic framework is based on the Logical Framework structure and the development of clearly stated objectives, outputs and the necessary and sufficient activities (or actions) required to achieve the outputs within a specified time frame. The structure requires a set of key performance indicators that are intended, as far as possible, be SMART, i.e. Specific, Measurable, Achievable, Realistic and Time-bound, and fit the usual requirements of results-based management. The five key components of the plan are:

1. Protection and law enforcement
2. Biological monitoring and management
3. Socio-economic and cultural sustainability
4. Building conservation capacity
5. Coordination, collaboration and programme management

Table 1. Structure of the Lion Strategic Plan

Long-term Vision	The long-term vision of the 2006 plan has been retained the draft and remains applicable to the period of this plan
Targets	The three targets included in the 2006 plan are retained
Key Components	The five key components are the primary themes or headings of the strategy under which the framework is organised. The seven Outputs and Responsibilities of the 2006 plan fall within the five components
Strategic Objectives	The strategic objectives reflect briefly but more explicitly the policy intention for the respective components
Outputs (expected outcomes)	The outputs are statements that reflect the expected results that will be realised during the time frame of the plan. Outputs are therefore expressed in the past tense.
Key Activities (Actions)	Key activities represent the necessary and sufficient actions that need to be completed to achieve the Outputs. They are those that are vital to achieve the Outputs and are those on which the major emphasis should be placed. *National level Activities can be cast as Outputs at sub-regional level, with more detailed and relevant time specific activities, KPIs, and budgets, at that level.*
Key Performance Indicators (KPIs)	The Key Performance Indicators (KPIs) provide a basis on which to measure and monitor the success or otherwise of the Strategic Objectives, Outputs, and Activities.
Means of Verifying the KPIs	It is clearly necessary for the verification and monitoring of KPIs that the manner in which they can be tracked and verified need to be clearly established. Equally important is the need for monitoring protocols to be standardised across local and Cluster levels so that national and sub-regional level KPIs and statistics can be compiled. This will then allow valid comparisons of performance across Clusters and local areas to be made
Implementation Strategy	As outlined in the previous section the ZPWMA will interact and collaborate with a wide range of agencies and stakeholders in the implementation of this plan

The top-level strategic components of the Action Plan encompassing the Long-term Vision, Targets, Key Components, Strategic Objectives and Outputs are summarised on page 17 in Section 3 below. The top-level components of the plan are then followed by a set of tables in Section 3 (page 10) that provide action plans for the expected Outputs (or outcomes) of each the five strategic components of the plan. The Activities and KPIs within these tables are set at a national strategic level. They will be taken up, as appropriate, during the development of Regional Action Plans for each of the four regional elephant populations in the country. **Activities** listed at the national level will, for the most part, form **Outputs** at the regional or local area level. These Outputs will, in turn, generate more detailed regional and local specific activities and actions with specific KPIs and means of verification.

3. Vision, Targets and Key Components

Long-term Vision: *Lions conserved and managed sustainably for their aesthetic, cultural and ecological values and the socio-economic development of Zimbabwe*

Goal: *(Immediate objective or purpose):*
To secure and where possible, restore as many viable free ranging lion populations as possible in Zimbabwe, whilst mitigating their negative impacts and enhancing their value for the benefit of people through sustainable use.

Targets: 1. Ensure the persistence of key/core lion populations and other important populations including those of doubtful viability
2. Human and livestock loss reduced
3. Optimise wildlife conservation-related net benefits to local communities/ landholders
4. Review and enhance ethical sustainable use of lion

Key Components	1. Protection and law enforcement	2. Biological Monitoring and Management	3. Social, Economic and Cultural Framework	4. Building Conservation Capacity	5. Coordination, collaboration and program management
Strategic Objectives	**Objective 1.** Ensuring effective protection of all lion populations in Zimbabwe	**Objective 2.** Implementing effective biological and ecological management to achieve viable populations that are within upper and lower acceptable limits to change in numbers and distribution	**Objective 3.** Implementing strategies that enhance the contribution of lions to livelihoods, protected area management and national pride and development	**Objective 4.** Ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and financing are mobilised, available and used efficiently and effectively for lion conservation	**Objective 5.** Ensuring effective coordination and collaboration with local, national, and international stakeholders to implement these strategic objectives,
Outputs	**Output #1:** Management, security and law enforcement actions to minimise, illegal losses of lions, their prey and their habitats, implemented	**Output #2:** Adaptive, evidence-based management to maintain viability of all lion sub-populations implemented	**Output #3:** Fair distribution of financial benefits from lions improved and tolerance for those living with lions increased	**Output #4:** Sufficient numbers of trained, equipped, motivated and effective personnel are deployed and operational	**Output #5:** Coordination mechanisms to assess and review adaptive lion population management and strategic planning established and operating

4. Action Plans

4.1 Protection and Law Enforcement

Objective: Ensuring effective protection of all lion populations in Zimbabwe
Output: Management, security and law enforcement actions to minimise, illegal losses of lions, their prey and their habitats, implemented
KPI: Illegal killing of lions maintained at less than 5% in all populations and less than 5% of lion habitat encroached by settlement by 2025
MV: National level monitoring data on illegal activity, including trophy hunting, successful convictions, carcass and poisoning records, status and trends of all lions populations, verified data on extent of encroachment, if any, and area of available habitat.
NOTE: Several of the activities listed here are part of the National Elephant Management Plan and lions, and other key species such as rhino, would be included within the purview of the activities indicated by the National Elephant Management Plan (NEMP).

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Ensure full compliance with hunting regulations, guidelines and quotas set and close loopholes in quota setting, quota transfers, and ageing of trophies	All Safari Operators and Professional Hunters complying with hunting regulations and guidelines No incidents of improper changes in quotas No transfers of quotas between hunting areas At least 90% of trophies at or above acceptable age	Records of non-compliance and penalties enforced Records of any changes in quotas and transfers Annual assessment of lion trophies	Immediate and ongoing	ZPWMA
2. For each key population establish a highly trained rapid response anti-poaching unit for deployment to areas under threat *(NEMP)*	1. An equipped rapid response unit established and operating jointly with ZRP in each region by June 2020.	Inception report for each unit Monthly reports of operation from each unit Number of joint operations	By June 2016	ZPWMA / ZRP DG, DDGCon, CMs
3. Appropriate informer systems established and supported at national, regional, national and local levels *(NEMP)*	1. An active informer system/network operating within each region at both regional and local levels by Jan. 2020 2. National level informer system targeting middle men and higher crime syndicates operating by Jan. 2020	Operational reports Records of arrests and successful prosecutions resulting from informer reports Records of payments for information	By January 2020	DG, ISM, CMs

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
4. Improve investigation and prosecution of crimes through collection and preservation of evidence, ballistics, and poison (policy, analysis and guidelines) evidence, professional prosecution of cases, provide information to legal profession *(NEMP)*	1. At least two of law enforcement staff trained in scene of crime collection and preservation of evidence, ballistics evidence, etc. in each area/station level 2. Percentage of investigations resulting in successful prosecutions from each region greater than in 2019 3. Monthly liaison sessions on wildlife crime and law enforcement held with members of the judiciary	Staff training records Monthly reports Court records Minutes of meetings with judiciary (prosecutors and magistrates)	Immediate and ongoing	ISM, CMs, AMs
5. Set up and maintain national and local intelligence databases and promote the use of SMART *(NEMP)*	1. National, regional and local databases recording and analysing illegal activity (nature, time and locality of activity and profiles of those involved if known) – using SMART	Inspection of operating SMART databases	Immediate and ongoing	ISM, CMs, AMs
6. Enhance international and transboundary collaboration in law enforcement *(NEMP)*	1. Quarterly meetings on law enforcement collaboration and activities between law enforcement agencies of neighbouring countries established at regional / transboundary park level by Mar. 2020. Broader collaboration with Interpol, TRAFFIC, and other international law enforcement entities	Minutes of meetings Record of joint cross border law enforcement activities Records of participation in workshops,	Mar. 2020 Immediate and ongoing	DG, CMs, ISM, AMs, TFCA Coordinator
7. Enhance social (community) involvement in law enforcement through incentive schemes and introduction of hotlines and toll-free lines for reporting wildlife crime *(NEMP)*	1. Incentive schemes (see Section 4.3) that encourage the public and members of rural communities to contribute to law enforcement (e.g. through informer hotline) established in each region 2. Larger number of incidents of community contribution to law enforcement (e.g. whistle blowers) by Dec. 2020 3. Number of hotlines established and assessment of their performance	Record and analysis of operating incentive schemes and hotline reports Record and analysis of performance of hotlines	Immediate and ongoing	CMs and AMs
8. Remove/Eliminate illegal settlement and their impacts in all wildlife areas *(NEMP)*	Illegal settlements reduced to less than 5% of wildlife areas by 2024 (i.e. state and community protected areas)	Records and maps of illegal settlements and of wildlife land recovered	Ongoing to 2024	DG, AMs, CE, CAMPFIRE Assoc., RDCs
9. Review, amend and enforce a full set of statutory regulations for hunting lions on park boundaries	Revised statutory instruments and guidelines completed and enforced by March 2020			

Key Activities/Actions	**Key Performance Indicators**	**Means of Verification**	**Time Frames**	**Responsibility**
10. Establish an online database under ZPWMA to monitor all aspects of carnivore hunting	Online database operational and in use by Dec. 2019	Inspection of working database with up to date records.	By Dec 2019	DG, DDGCon, LC
11. Improve protection of lion prey base and revise/enforce regulations on the use of snares	Update regulations on the use of snares in place by June 2020 and being implemented by law enforcement agencies and judiciary	Copy of updated regulations and court case evidence of their use	By June 2020	ISM
12. Collect and submit tissue samples for genetic and isotopic analysis	Tissue samples collected and submitted for analysis with immediate effect	Record of tissue sampled collected and results of analysis	Immediate and ongoing	LC, CE

An example of a National level **Activity** being used as an **Output** at the regional level is provided below for Activity #4 from the table above. This provides the basis a national strategic activity to be defined more specifically to suit the local situation and in much greater detail at this level than is appropriate in the national Action Plan.

LAW ENFORCEMENT (at REGIONAL or LOCAL LEVEL)						
Output	**Activities**	**Key Performance Indicators**	**Means of Verification**	**Time Frame**	**Indicative Costs**	**Lead agency**
4. Appropriate Informer network, Investigation and Intelligence system strengthened	1. Recruit informers and contacts 2. Maintain hotline for whistle-blowers 3. Procurement of two vehicles and two motor bikes . Recruit and train investigators (6) and deploy strategically . Constant liaison with informers . Standardise rewards to informers	1. Number of arrests and successful convictions based on information from intelligence system 2. Number of incursions reported on/reacted to by local communities 3. Number of reports per informer leading to arrests and convictions	Validation of informer record Records and reports of training sessions Whistle-blower reports	Within one year and then ongoing	Vehicles Reward payments Telecommunications equipment Vehicle maintenance and fuel	ZPWMA

4.2 Biological Monitoring and Management

Objective: Implementing effective biological and ecological management to achieve viable populations that are within upper and lower acceptable limits to change in numbers and distribution
Output: Research, monitoring and adaptive, evidence-based management to maintain viability of all lion sub-populations implemented
KPIs: Lion populations within each sub-region are genetically and demographically viable and within the preferred upper and lower limits in 2024
MV: Results on population trends from agreed national monitoring plan and analyses of changes in population structure and viability,

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Monitor trends in all lion populations in accordance with a national monitoring plan	National lion monitoring plan developed and in place by March 2020 and in use in at least two areas by June 2020	1. Survey and patrol reports 2. Completed survey results for areas in which surveys took place	Monitoring plan by Mar 2020 and used by Jun 2020	DG, LC, CE, CMs, AMs
2. Use research findings, expert opinion and informed public opinion to establish ***thresholds of potential concern*** (TPCs) and associated indicators to initiate management action in respect of changing trends in lion populations, other large carnivores, and their prey	Thresholds of potential concern (TPCs) established for at least four key areas / habitats and selected indicators of change monitored every two years	Documented TPCs by Dec 2020 and their use in the selected areas by Dec 2022	By Dec 2020	LC, CE and CMs, and Conservancies
3. Carry out appropriate management actions when lion populations pass, or are projected to pass, TPCs	Management actions taken in relation to TPCs being passed (i.e. above or below threshold). (e.g. capture and translocation, changing hunting quotas, hunting moratorium)	Records of management actions considered, actions taken and results	Ongoing	DG, DDGCon, LC, CE, Conservancies
5. Monitor trophy quality and adjust quotas to minimise adverse impacts on lion population viability	1. Database and field recording protocols and forms established and operating by Dec. 2020 2. Annual analysis of trophies taken as % of quota, and trend in trophy quality and ages of trophies	Consolidated annual records of trophies taken Annual report of trophy quality by region for quota setting workshop	Dec. 2020, then annual and ongoing	DC, CE, CMs, SOAZ, ZPHGAZ, CAMPFIRE

Key Activities/Actions	**Key Performance Indicators**	**Means of Verification**	**Time Frames**	**Responsibility**
6. Define current lion range and explore options for extending range, and recovery of lions, and maintaining connectivity between fragmented populations	1. Map of current lion range based on survey results and other information available by Oct 2020 2. Estimates every two years of range expansion / contraction for each region based on all available information 3. Use and effectiveness of corridors assessed from ground sightings and reports, movements of satellite collared animals	Current estimate of lion range and subsequent bi-annual estimates and associated maps Reports on lion locations in database from ground sightings, spoor transects, citizen science reports, satellite collar records.	Initial map by Dec. 2020 Immediate and assessments every 2 years	DC, CE, CMs, AMs in conjunction with SOAZ, ZPHGA and CAMPFIRE Association
7. Reporting to international monitoring systems (e.g. CITES, CMS)	Timely reports submitted as required with copies to regional and national levels	Copies of reports lodged at regional and national levels	Annual or as required by international obligations	DDGCon
8. Recognising the sensitivity of lion population dynamics to interventions (legal and illegal), use modelling to explore potential outcomes of alternative management strategies (e.g. Management Strategy Evaluation – MSE, including the extension and connectivity between lion populations in Zimbabwe and neighbouring countries	Number of instances in which models were used to project alternative outcomes of lion management actions and policies Potential use of MSE explored by June 2020 and if appropriate introduced in Dec 2020	Management and associated modelling reports	Ongoing	CE, Researchers and Stakeholders
9. Develop a Citizen Science program	Platform and database for citizens to submit records of carnivore sightings and photos in place and being used	Records in Citizen Science database	Immediate and ongoing	LC and Lion Working Group
10. Develop specific lion management plans for each population and review these at annual meetings and workshops	1. Specific lion management plans for each population in place by June 2020 2. Priority areas in which lion populations may be recovered identified and management plans developed and actioned by June 2020	Area specific lion management plans		LC and Lion Working Group
11. Enhance the prey base for lions				

4.3 Social, Economic and Cultural Framework

Objective: Implementing strategies that enhance the contribution of lions to livelihoods, protected area management and national pride and development
Output: Fair distribution of financial benefits from lions improved and tolerance for those living with lions increased
KPIs: 1. Annual assessment of lion derived benefits reveals that they are increasingly being dispersed more equitably between deserving stakeholders and the contribution to national development is assessed. 2. Trends in number of incidents of human-lion conflict decline annually
MV: Report on the annual assessment of the distribution of revenues from consumptive and non-consumptive use of lions of lions and record and annual analyses of Human-Lion Conflict incidents.

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Provide incentives and promote partnerships and joint venture opportunities to strengthen lion conservation, including across land use boundaries	1. Policy instruments that demonstrate and establish incentives to conserve elephants 2. Improved levels and growing trends of private and community investment in lion conservation measures 3. Number of poaching incidents/number of arrests based on prior information and leads from communities / land holders	Documented policies and list of operating partnerships / joint ventures that promote lion conservation and management Record of investments in lion conservation measures assembled by lion coordinator		DG, CA, RDCs, Private sector
2. Explore full range of Public-Private-Community Partnership to enhance management of both public and private protected areas	A full analysis of partnership options completed by June 2020 Development of policies for implementation	Report on options for PPCPs for public and private protected areas Policy documents	Analysis of options by June 2020 and ongoing policy development	DG, DDGCon, LC, Lion Working Group
2. Explore additional ethical lion-based tourism and sustainable utilization opportunities	Higher number of lion-based tourism and / or sustainable use projects established (e.g. PPCPs)	Record of projects initiated and their success rates	Ongoing	DG, CA, LC, RDCs, Private sector
3. Facilitate the transparent distribution of the benefits and costs of lion conservation and management	Policy instruments adopted that result in more transparent and equitable benefit distribution than benchmark assessed in 2019	Benchmark data and annual record of extent and distribution of lion derived benefits (revenue, development projects, products received by beneficiaries) and costs of lion conservation	Ongoing	DG, CA, LC, RDCs, Private sector

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
4. Implement effective techniques and land use strategies, and protocols to mitigate human-lion conflict: - Integrated land use planning - Education and awareness - Accountable incident reporting, data collection and analysis - Community driven tactical interventions. - Social security, tolerance funds, payments for Ecosystem Services	1. Higher levels of investment (funds and manpower) provided for mitigating human lion conflict by ZPWMA, communities and partners 2. Protocols for land use and HLC developed and implemented by June 2020 3. Declining trends in incidents of HLC 4. Lion distribution extended in community-based conservation areas by 2024	Records of human-lion conflict incidents (in HLC Database) Research report on strategies and protocols to develop wildlife-based land use system and mitigate HLC Records of lion distribution	Protocols developed by June 2020 and ongoing Research report by Dec. 2020	DG, LC CA, RDCs, Traditional Leaders, Private sector
6. Include information on lions and their conservation in school curricula and promote environmental education in rural areas adjacent to key lion populations	1. Number and quality of lion information packages developed and delivered to schools 2. Proportion of schools in, or neighbouring, lion areas receiving and using information on elephants	1. Information packages developed 2. Reports of delivery and use of lion conservation information packages	By June 2020 and Ongoing	ZPWMA Extension and Interpretation, NGOs, Ministry of Education
7. Develop and implement an effective communication strategy for local, regional and international audiences	Information strategy developed and launched by June 2016	Information strategy document	By June 2020 and ongoing	DG, PRM
8. Review and implement policy on captive lions	Review completed by July 2020 and updated policy completed by Dec 2020	Report and policy documents	By Dec 2020	DG, DDGCon, LC
9. Review the impact of policy disincentives (e.g. SI 26, investment policies) on the conservation of large carnivores and their contribution to national development	Review completed by March 2020	Review report	By Jun 2020	DG, LC, Consultant
10. Promote/publicise positive examples of best practice in lion conservation and management	Number of examples publicised	Record of articles publicised	Ongoing	ZPWMA

4.4 Building Conservation Capacity

Objective: Ensuring that sufficient and appropriately trained personnel, equipment, infrastructure and financing are mobilised, available and used efficiently and effectively for lion conservation

Output: Sufficient numbers of trained, equipped, motivated and effective personnel are deployed and operational

KPI: Law enforcement, monitoring and research staff are trained equipped and deployed at levels that enable them to implement this action plan as specified in the previous three components

MV: KPIs for Components 1, 2, 3, and 5 are being met, individual staff training records, equipment registers, vehicle and staff deployments for lion conservation.

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Analyse current lion conservation capacity in ZPWMA, Forestry Commission, NGOs and Private Sector, and identify needs	Capacity assessment and needs report completed by June 2020	Capacity assessment report	By June 2020	ZPWMA, LWG
2. Secure funding to support the implementation of the lion conservation and management strategy	1. Funds and allocated budget for lion conservation meet annual requirements for effective conservation as measured by KPIs for activities 3-8 below and those of Components 1, 2, and 3 2. More than 75% of revenue derived from lion channelled into lion conservation and management	Record of funds available (USD) and investment by ZPWMA, Private sector, NGOS, and CAMPFIRE in lion conservation measures (Compiled annually by Lion Coordinator)	Ongoing	DG, LC
3. Establish sustainable funding programs to build and maintain necessary human resources to meet lion conservation objectives	1. Manpower density for protection of lions (No. of km²/operational field person) 2. Level of effective deployment of field staff (e.g. record % of available man days spent on patrol in the field - see example of records envisaged under Section 8 Notes on monitoring, page 25)	Consolidated record of number of field personnel and days operational (law enforcement, research and monitoring, elephant management) for each area in the lion range compiled and reported on at annual planning meetings Records of vehicle months, VHF radio operation, fully functional stations, operating research facilities, compiled and consolidated at station, area and regional levels and reported on to the Lion Management Committees bi-annually	By June 2020 Immediate action for some key areas (e.g. Sebungwe and Zambezi Valley) and by June 2020 for all regions	DG, DDGCon, CM, LC

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
4. Initiate and/or maintain continuity in research and monitoring necessary for the conservation and adaptive management of lions and their prey	1. Number of research programs 2. Research-person days spent on monitoring / assessing lion populations in relation to TPCs 3. Research person days spent on monitoring lion population parameters in each population/region	Research reports and papers on lion conservation and management	Ongoing	DDGCon, CE, LC
5. Strengthen research capacity in ZPWMA and collaborate with other research institutions	1. Number of researchers (internal and external), budgets, equipment, vehicles, and active research programmes increased by more than 25% by Jul 2020 and 50% by July 2021	Staff register, budget allocations, Asset register, research permits issued, MOUs with collaborators, reports and published papers on lion conservation and management	Immediate and ongoing through 2019 and 2024	DDGCon, CE, LC
6. Establish training and in-service retraining of personnel in law enforcement, research and monitoring, education and awareness, community lion management, etc.	Increased levels (50 to 100%?) compared to July 2019 levels in: 1. Number of training days and programmes initiated 2. Number of staff trained (rangers, ecologists, extension officers) 3. Number of communities trained and implementing elephant management programmes 4. Number of lion conservation campaigns conducted	Record of staff training and re-training in staff files and annual summary report of training Record of communities trained Record of training programmes	Immediate and ongoing through to 2024	DDGCon, CE, LC, HRM
7. Strive to achieve best standards for lion management and hunting	1. Best standards for lion management in Zimbabwe, based on international standards, drafted and distributed to all practitioners	Record of best practices complied with/ not complied with	By June 2020 and ongoing	DG, DDGCon, CE, LC, HMS
8. Engage available external expertise	1. Number of expert driven decisions made from Consultations 2. Number of collaborative and outsourced projects with external experts	Reports and record of collaboration with external experts	Ongoing	CE, LC
9. Establish effective reporting procedures that enable capture/consolidation of data from field to Head Office levels	Implement SMART and/ equivalent effective data capture and management systems	Data base	Ongoing 2020-2025	ZPWMA

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
10. Promote an enabling environment for wildlife research in Zimbabwe	Review current policy, procedures and fees for research permits to increase ease of doing research in Parks and Wildlife Estate and other wildlife areas by August 2020	Review report and policy developed	By Aug 2020	ZPWMA/Research Council of Zimbabwe
11. Implement scene of crime training, including dealing with poisoned animals	At least two staff members per Area trained and available to attend to and record crime scenes	Staff training record and deployment, and reports from field stations	Ongoing	ZPWMA
12. Introduce training in the use of SMART	SMART introduced and operational from all field stations	Input to the central SMART Database	Ongoing	ZPWMA

4.5 Coordination, Collaboration and Programme Management

Objective: Ensuring effective coordination and collaboration with local, national, and international stakeholders to implement these strategic objectives
Output: Coordination mechanisms to assess and review adaptive lion population management and strategic planning established and operating
KPI: National Lion Coordinator appointed, national Lion Working Group established and active, regional lion conservation committees with appropriate stakeholder membership and participation appointed and active, and an information dissemination programme operational
MV: Lion Coordinator's quarterly report, minutes of meetings, and records of completed planned actions/activities, record of Lion Working Group meetings and activities.

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
1. Establish a national lion conservation & management steering/implementing committee that includes stakeholder meetings at least bi-annually to review progress and to develop an annual implementation plan	1. National committee functional and meeting once a year (or more if required) 2. Committee meeting minutes, with actionable points approved, circulated within one month of meetings 3. Number of resolutions/action points, acted upon	Record of meetings, minutes, actions approved and completed	Immediate with first meeting by 30th Dec 2019	DDGCon, CE, LC
2. Strengthen links with neighbouring states to confer on the management of shared lion populations, particularly in relation to TFCA populations	1. Consultative meetings held with neighbouring states on shared lion populations at least twice each year 2. Joint cross border projects initiated and completed	Record of attendance at and reporting to regional and international elephant conservation bodies of which Zimbabwe is a member Record of project initiated/completed	Ongoing and projects initiated in 2020	DG, DDGCon, CE, TFCA Coordinator
4. Establish a full-time lion position to be responsible for coordinating the implementation of the lion conservation strategy	1. Lion Coordinator appointed with full terms of reference 2. Monthly reports from Lion Coordinator on implementation	Elephant manager's contract and date of appointment Record of reports by the person in the elephant management position	Immediate and by November 2020	DG
5. Strengthen coordination between the hunting industry and the lion conservation strategy and action plan	1. Regular meetings and a workshops convened with the hunting industry on hunting and lion management issues 2. Key issues resolved by June 2020	Record of meeting and workshop proceedings Record of lion hunting issues resolved	Immediate and ongoing	DDGCon, LC

Key Activities/Actions	Key Performance Indicators	Means of Verification	Time Frames	Responsibility
6. Establish and implement an effective information dissemination and communication strategy, including regular progress reports on the implementation of the strategy	1. Outreach programmes conducted 2. Information packages produced on lion conservation 3. Research papers published	Reports, brochures, flyers, web site Published papers	Ongoing	ZPWMA, (PRM, CE)
7. Establish reporting procedures/protocols to achieve communication between all stakeholders	A communication platform in place and operating effectively	Reports received and disseminated to stakeholder	By March 2020	LC, Lion Working Group

5. Notes on Monitoring

Monitoring of a wide range of activities and actions will necessarily form an important, if not vital, component in the implementation of the action plans. It will require careful thought as to precisely what should be monitored and in the design of the recording protocols and forms that will be used. Ideally records should in a form that can be aggregated from field to head office level to provide local, regional and national level statistics of progress in lion conservation and management. The following table (adapted from the Zimbabwe rhino policy and management framework 2011-2016) provides an example of the data that needs to be compiled for each population to gauge progress in population status, performance and law enforcement.

SEE NOTES BELOW						
	Name of person completing this data form					
	Date on which this data from was completed					
	Name of area covered					
	Size of area in km²					
	YEAR	2020	2021	2022	2023	2024
	Date of population estimate					
	Lion population estimate (number) (as per National Monitoring Plan)					
	No of natural mortalities					
	No killed illegally					
	No killed on PAC					
	No killed on trophy hunts					
	No of carcasses found that died in previous years					
	Total mortalities					
1	No of lion poaching incursions/attempts detected					
	No of incursions/poaching attempts intercepted					
	Lion poachers arrested during the year					
	- How many were given bail					
	- How many were given jail sentences					
2	- Of these how many received mandatory sentences					
	Number of poachers killed during the year					
	Number of firearms recovered from poachers					
3	Total man-days spent on patrol					
4	Average number of staff available to patrol at any one time					
5	Total number of vehicle months available during the year					
6	% of the area that has secure HF radio communications					
7	% of the year that that the VHF system was functional					
8	Number of incursions reported on / reacted to by local community					
9	Hunting regulations infringements					

NOTES:

1	These are incursions into the area by poachers clearly intending to use firearms, poison, heavy snares, etc to kill elephants, rhinos, lions, or attempted incursions that were intercepted before they took place
2	Mandatory sentences for elephant / rhino / lion poachers or dealers are 9 years for first offence and 11 years on second
3	This is actual patrolling effort expressed in patrol man-days carried out per year (not total staff x 365 days)
4	This is the average number of men (including deployments from other areas) in the field at any one time
5	Each vehicle available for law enforcement operations should be multiplied by the number of months it was available for field operations
6	e.g. if only three-quarters of the area has VHF radio reception then this figure will be 75
7	e.g. if the VHF radio system was only functional for 3 months of the year then this figure would be 25
8	Refers to the number of times the local community (not paid informers) volunteered information on actual or potential incursions of elephant/rhino/lion poachers, and/or freely provided information/help leading to interception/ arrests
9	Refers to infringements of the regulations by safari operators/hunters/guides (e.g. shooting underage trophies, exceeding quotas, transfers of quotas from other areas, hunting from vehicles, baiting and hunting on park boundaries, etc.

Note that data required for items 3-9, are those that would be required for an assessment of law enforcement across the parks and wildlife estate and are part of the monitoring and reporting required under the rhino and elephant management plans.

6. Concluding Comment

This is an ambitious plan that mirrors many of the components that form part of the rhino and elephant conservation and management plans. All of these action plans involve overlapping activities, particularly in law enforcement, social, economic and cultural frameworks and in capacity building. There is thus a need to find ways of bringing these efforts together in a coordinated manner that will work at all levels, from national, to cluster, to local areas. This may entail appointing staff to specifically drive and coordinate the implementation of the suite of species-specific action plans at each level.

Establishing and maintain a Lion Working Group holds the promise of being able to draw on a wider range of scientific and technical expertise to assist ZPWMA in the implementation of this action plan and it will be important to nurture the voluntary input that this entails.

7. References

Cleaveland, S., Appel, M. G. J., Chalmers, W. S. K., Chillingworth, C., Kaare, M., & Dye, C. (2000). Serological and demographic evidence for domestic dogs as a source of canine distemper virus infection for Serengeti wildlife. *Veterinary Microbiology*, *72*(3), 217–227. doi: 10.1016/S0378-1135(99)00207-2

Cushman, S. A., Elliot, N. B., Bauer, D., Kesch, K., Bahaa-el-din, L., Bothwell, H., Flyman, M., Mtare, G., MacDonald, D.W. & Loveridge, A. J. (2018). Prioritizing core areas, corridors and conflict hotspots for lion conservation in southern Africa. *PLOS ONE*, *13*(7), e0196213. doi: 10.1371/journal.pone.0196213

Creel, S., Matandiko, W., Schuette, P., Rosenblatt, E., Sanguinetti, C., Banda, K., … Becker, M. (2018). Changes in African large carnivore diets over the past half-century reveal the loss of large prey. *Journal of Applied Ecology*, *55*(6), 2908–2916. doi: 10.1111/1365-2664.13227

Cumming, D. H. M. and Lynam, T. J. P. (1997). Land use changes, wildlife conservation and utilisation, and the sustainability of agro-ecosystems in the Zambezi Valley: Final technical report. Volume 1, 138pp. European Union Contract B7-5040/93/06. WWF Programme Office, Harare.

Davidson, Z., Valeix, M., Loveridge, A. J., Madzikanda, H., & Macdonald, D. W. (2011). Socio-spatial behaviour of an African lion population following perturbation by sport hunting. *Biological Conservation*, *144*(1), 114–121. doi: 10.1016/j.biocon.2010.08.005

Dures, S. G., Carbone, C., Loveridge, A. J., Maude, G., Midlane, N., Aschenborn, O., & Gottelli, D. (2019). A century of decline: Loss of genetic diversity in a southern African lion-conservation stronghold. *Diversity and Distributions*, *25*(6), 870–879. doi: 10.1111/ddi.12905

Funston, P. J., Groom, R. J., & Lindsey, P. A. (2013). Insights into the Management of Large Carnivores for Profitable Wildlife-Based Land Uses in African Savannas. *PLOS ONE*, *8*(3), e59044. doi: 10.1371/journal.pone.0059044

Hayward, M. W., & Kerley, G. I. H. (2005). Prey preferences of the lion (Panthera leo). *Journal of Zoology*, *267*, 309-322.

Hatton, I. A., McCann, K. S., Fryxell, J. M., Davies, T. J., Smerlak, M., Sinclair, A. R. E., & Loreau, M. (2015). The predator-prey power law: Biomass scaling across terrestrial and aquatic biomes. *Science*, *349*(6252), aac6284. doi: 10.1126/science.aac6284

Kuiper, T. R., Loveridge, A. J., Parker, D. M., Johnson, P. J., Hunt, J. E., Stapelkamp, B., Sibanda, L. & Macdonald, D. W. (2015). Seasonal herding practices influence predation on domestic stock by African lions along a protected area boundary. *Biological Conservation*, *191*, 546–554. doi: 10.1016/j.biocon.2015.08.012

Lichtenfeld, L. L., Trout, C., & Kisimir, E. L. (2014). Evidence-based conservation: predator-proof bomas protect livestock and lions. *Biodiversity and Conservation*, *24*(3), 483–491. doi: 10.1007/s10531-014-0828-x

Lindsey, P. A., Petracca, L. S., Funston, P. J., Bauer, H., Dickman, A., Everatt, K., … Hunter, L. T. B. (2017). The performance of African protected areas for lions and their prey. *Biological Conservation*, *209*, 137–149. doi: 10.1016/j.biocon.2017.01.011

Loveridge, A. J., Kuiper, T., Parry, R. H., Sibanda, L., Hunt, J. H., Stapelkamp, B., Sebele, L. & Macdonald, D. W. (2017). Bells, bomas and beefsteak: complex patterns of human-predator conflict at the wildlife-agropastoral interface in Zimbabwe. *PeerJ*, *5*, e2898. doi: 10.7717/peerj.2898

Loveridge, A. J., Searle, A. W., Murindagomo, F., & Macdonald, D. W. (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.

Rosenblatt, E., Becker, M. S., Creel, S., Droge, E., Mweetwa, T., Schuette, P. A., … Mwape, H. (2014). Detecting declines of apex carnivores and evaluating their causes: An example with Zambian lions. *Biological Conservation*, *180*, 176–186. doi: 10.1016/j.biocon.2014.10.006

Vucetich, J. A., Burnham, D., Johnson, P. J., Loveridge, A. J., Nelson, M. P., Bruskotter, J. T., & Macdonald, D. W. (2019). The value of argument analysis for understanding ethical considerations pertaining to

trophy hunting and lion conservation. *Biological Conservation*, *235*, 260–272. doi: 10.1016/j.biocon.2019.04.012

Whitman, K., Starfield, A. M., Quadling, H. S., & Packer, C. 2004). Sustainable trophy hunting of African lions. *Nature*, *428*(6979), 175–178. doi: 10.1038/nature02395

Williams, V. L., Loveridge, A. J., Newton, D. J., & Macdonald, D. W. (2017). Questionnaire survey of the pan-African trade in lion body parts. *PLOS ONE*, *12*(10), e0187060. doi: 10.1371/journal.pone.0187060

ZPWMA Lion NDF (2016)

8. ANNEXES

8.1 Terms of Reference for National Elephant and Lion Conservation Committee

Function: To annually review the National Lion Conservation and Strategy and Action Plan and progress in implementing the Action Plan; to review budget and policy decisions by the Lion Coordinator; to provide guidance to the Ministry of Environment, Tourism and Hospitality, and the Parks and Wildlife Management Authority on matters relating to the conservation and management of lions in Zimbabwe.

Role of Individual Group Members: The role of the individual members includes:

- Understanding the strategic implications and outcomes of initiatives being pursued through the Action Plan Outputs;
- Appreciating the significance of the Action Plan's implementation for major stakeholders and for the future of lion conservation;
- Being committed to and actively involved in, implementing the most efficient and effective Action Plan;
- Being willing to suggest changes to the Action Plan or any regional/local action plan to achieve efficiency and effectiveness.

Duties: The Committees primary responsibilities include:

- Agreeing and recommending on major technical decisions concerned with elephant and lion conservation and management;
- Developing recommendations on policy issues when appropriate;
- Overseeing the monitoring and implementation of the Action Plans;
- Advising the PWMA and the Elephant and Lion Coordinators on sourcing of funds;
- Monitoring funding, expenditure and effectiveness.

Composition: The members of the National Elephant and Lion Conservation Committee:

- Director ZPWMA (Chair);
- Elephant and Lion Coordinators (Secretarial);
- Representatives of ZPWMA, Ministry, CAMPFIRE, ZRP;
- Technical advisors
- Private sector, Wildlife Industry, and NGOs representatives

Time Frame: The Committee will meet at least once a year and can be called upon to meet more frequently as the need arises.

Minutes and Meeting Papers: The Coordinator(s) will record Minutes. Minutes will be circulated within one month of Committee meetings. The Coordinator(s) will keep a record of resolutions and action points up to date.

Recommended actions may be tabled without a meeting by a signed unanimous consent circulated, compiled, and maintained by the respective Coordinators.

Quorum Requirements: A quorum exists when [75%] of the Committee members are present.

8.2 Terms of Reference for the Lion Working Group

The function of the Lion Working Group will be to provide scientific and technical advice and guidance to the implementation of the National Lion Conservation Strategy and Action Plan and

- To meet and discuss priority lion conservation issues
- To review lion trophy hunting and provide recommendations to improve the sustainability and ethical practice of trophy hunting
- To make recommendations on captures and translocation and assist in the development of protocols to guide capture and translocation of lions
- To identify areas for lion recovery and connectivity and make appropriate recommendations
- To assist with recommendations on areas of excess and depleted lion populations
- To identify and help develop appropriate methods for problem animal management
- To assist in developing reports for international conventions and position statement with regard to lion conservation for the country

8.3 Terms of Reference for the Lion Coordinator

Function: To coordinate lion management in Zimbabwe; to work with stakeholders including the National and Regional Committees, ZPWMA, communities, private landowners, safari operators, and researchers

Duties: The Lion Coordinator's duties include:

- Coordinating major technical decisions concerned with lion conservation and management;
- Developing and implementing agreed lion policy;
- Ensuring the successful implementation of all required actions;
- Advising the Elephant and Lion Conservation Committee;
- Liaising with stakeholders;
- Collecting, collating and disseminating required reports under the Action Plan;

FWS Form 3-200-20 (Rev. 01/2020)
U.S. Department of Interior

OMB Control No. 1018-0093
Expires 08/31/2023

IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

■New ☐Reissue/Renew ☐Amendment

Complete Sections **A or B**, and C, D, and E of this application. U.S. address may be required in Section C.**

A. Complete if applying as an individual			
1.a. Last name Parker	1.b. First name Clay	1.c. Middle name or initial A	1.d. Suffix
2 Date of birth (mm/dd/yyyy)	5.a. Telephone number	5.b. Alternate telephone number	6. E-mail address
(b) (6)			

B. ~~Complete if applying on behalf of a business, corporation, public agency, Tribe, or institution~~			
~~1.a. Name of business, agency, Tribe, or institution~~	~~1.b. Doing business as (dba)~~		
~~2. Tax identification no.~~	~~3.a. Description of business, agency, Tribe, or institution~~		~~3.b. Website URL (if applicable)~~
~~4.a. Principal officer (P.O.) last name~~	~~4.b. P.O. first name~~	~~4.c. P.O. middle initial~~	~~4.b. P.O. Title~~
~~5. Primary contact name~~		~~6. Primary e-mail address~~	
~~7.a. Business telephone number~~	~~7.b. Alternate phone no.~~		~~8.a. Primary contact telephone no.~~

C. All applicants complete address information				
1.a. Physical address (Street address; Apartment #, Suite #, or Room #; no P.O. Boxes) (b) (6)				
1.b. City Washington	1.c. State Texas	1.d. Zip code/Postal code 77880	1.e. County/Province Washington	1.f. Country USA
2.a. Mailing Address (include if different than physical address; include name of contact person if applicable) (b) (6)				
2.b. City Chappell Hill	2.c. State Texas	2.d. Zip code/Postal code 77426	2.e. County/Province Washington	2.f. Country USA

D. All applicants MUST complete

1. Include a check or money order, payable to the U.S. FISH AND WILDLIFE SERVICE, **a nonrefundable processing fee** [50 CFR 13.11(d)(4)]. Federal, Tribal, State, and local government agencies, and those acting on behalf of such agencies, are exempt from the processing fee – ***attach documentation of fee exempt status as outlined in instructions.*** (50 CFR 13.11(d)).

2. If you are requesting a reissue/renew/amendment, what is your permit/file number?

3. Certification: I hereby certify that I have read and am familiar with the regulations contained in Title 50, Part 13 of the Code of Federal Regulations and the other applicable parts in subchapter B of Chapter I of Title 50, and I certify that the information submitted in this application for a permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

The individual/principal officer of the business must print and sign the application. (No photocopied or stamped signatures) Date (mm/dd/yyyy)

** Further instructions for the above application may be found on our ePermits website. See the last page for information on the Privacy Act, Paperwork Reduction Act, Estimated Burden, and Freedom of Information Act aspects of this application form.

Mail your application(s) to Division of Management Authority, Branch of Permits, MS:IA 5275 Leesburg Pike, Falls Church, VA 22041-3803.

APPLICANT:

CLAY PARKER

IMPORT PERMIT APPLICATION

3.200.20

SECTION "E"

E. IMPORT OF SPORT-HUNTED TROPHIES (Appendix I of CITES and/or ESA)

Note 1: This form should be used to request authorization to import trophies of species included in Appendix I of CITES and/or as threatened or endangered under the ESA (examples include elephants, lions, cheetahs, wood bison, and markhor).

PLEASE USE FORM 3-200-19 FOR SOUTHERN AFRICAN LEOPARD TROPHIES AND NAMIBIAN SOUTHERN WHITE RHINOCEROS TROPHIES.

Note 2: If you hold an import permit for trophy/trophies that you did not use, please **return the unused original permit**. If you are requesting reissuance of a permit because you have taken a trophy, but were unable to import it prior to the expiration of the permit, please use the renewal form (3-200-52) and return your original permit with that form.

Note 3: Applications for species listed as endangered under the U.S. Endangered Species Act are published in the Federal Register for a 30-day public comment period. Please allow at least **90 days** for the application to be processed.

Note 4: *Sport-hunted trophy* is defined at 50 CFR 23.74 as follows: *Sport-hunted trophy* means a whole dead animal or a readily recognizable part or derivative of an animal specifically identified on the accompanying CITES document that meets the following criteria:

- Is raw, processed, or manufactured;
- Was legally obtained by the hunter through hunting for his or her personal use;
- Is being imported, exported, or re-exported by or on behalf of the hunter as part of the transfer from its country of origin ultimately to the hunter's country of usual residence; and
- Includes worked, manufactured, or handicraft items made from the sport-hunted animal only when:
  - i. Such items are contained in the same shipment as raw or tanned parts of the sport-hunted animal and are for the personal use of the hunter;
  - ii. The quantity of such items is no more than could reasonably be expected given the number of animals taken by the hunter as shown on the license or other documentation of the authorized hunt accompanying the shipment; and
  - iii. The accompanying CITES documents (export document and, if appropriate, import permit) contain a complete itemization and description of all items included in the shipment.

Note 5: Certain hunting trophies, including elephants, are subject to restrictions on their use after import into the United States. Please see 50 CFR 23.55 for more information or contact the Division of Management Authority.

- **Complete all questions on the application.**
- **Mark questions that are not applicable with "N/A".**
- **If applying for more than one trophy species, be sure to answer questions 4, 5, and 6 for each trophy.**
- **If importing trophies from more than one country, you must submit a separate application for each shipment in order to obtain separate import permits.**

1. Name and address where you wish the permit to be mailed, if different from page 1. If you would like expedited shipping, please enclose a self-addressed, pre-paid, computer-generated, courier service airway bill. If unspecified, all documents will be mailed via the U.S. Postal Service.

Clay Parker - (b) (6) Chappell Hill, Texas 77426

2. Who should we contact if we have questions about the application (name, phone number, and e-mail)?

John Jackson or Aimee Korver (504) 837-1233 permits@conservationforce.org

3. Have you or your client (if a broker applying on behalf of your client), been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the application is filed; been convicted, or entered a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act; forfeited collateral; OR are currently under charges for any violation of the laws mentioned above?

■ No ☐ Yes

If you answered "Yes" to Question 3, provide: a) the individual's name; b) date of charge; c) charge(s); d) location of incident; e) court, and f) action taken for each violation. Please be aware that a "Yes" response does not automatically disqualify you from getting a permit.

4. For each trophy to be imported, provide:

a. Scientific name (genus, species, and, if applicable, subspecies) and common name.

Lion

b. Sex (if known).

Male

5. **IF ANIMAL IS CURRENTLY LIVING IN THE WILD,** please include the following information:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where wildlife is to be taken from the wild:

South Africa, Khamab Kalahari Concession, Johannesburg

b. Date wildlife is to be hunted:

21 August, 2021 to 31 August 2021

c. Name of hunting outfitter, safari company, or professional hunter you will be hunting with:

Coenraad Vermaak Safaris, South Africa

6. **IF ANIMAL HAS ALREADY BEEN TAKEN**, please include the following:

a. Country and location (e.g., area, region, GIS coordinates, ranch, conservancy, management area, or hunting block, AND nearest city) where trophy was removed from the wild:

b. Date wildlife was hunted:

OMB Control No. 1018-0093
Expires 08/31/2023

c. Approximate age of animal:

d. Name of hunting outfitter, safari company, and/or professional hunter you hunted with:

e. The current location of the trophy (address and country) [the U.S. CITES import permit will identify this country as the country of export/re-export and must match with the CITES export/re-export document]:

Haven not hunted yet

7. Please provide a copy of any applicable foreign government permits, licenses, or tags, that were required to remove this animal from the wild (if you have not hunted yet and do not currently hold any such permits or licenses, please indicate so).

8. Complete name and address of overseas person or business shipping the trophy to you. If you are applying to import a trophy directly from **Namibia**, you **must** provide the name and address of the professional hunter listed on your Namibian hunting permit [this name will appear on the face of the export permit].

Name:	Hans Vermaak
Business Name:	Coenraad Vermaak Safaris
Address:	
City:	Hilton
State/Province:	South Africa
Country, Postal Code:	

9. For species listed under the Endangered Species Act, please be aware that the U.S. Fish and Wildlife Service must make a finding that your activities will enhance or benefit wild populations of the species involved. While we will communicate with the range country for the species you will hunt or have hunted when making the required findings, **please include the Operator Enhancement Questionnaire** provided in Annex I filled out by the operator or professional hunter of the concession in which you hunted or will hunt. You may attach an updated report of operations from this concession in lieu of this questionnaire if information regarding the enhancement of the survival or propagation of the species in the wild is made available in the report.

10. If required by the country in which you hunted, please include the government-endorsed hunter return form.

11. Provide the name of the operator, safari company, or professional hunter with whom you hunted or will hunt.

    Name (Company/Professional Hunter):

    E-mail:

    Phone number:

CERTIFICATION STATEMENT (original signature must be provided for either 11 or 12 below)

12. **If you are a broker or taxidermist applying on behalf of a U.S. hunter or foreign national**, provide documentation to show you have **Power of Attorney** to act on your client's behalf and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by my client and is being imported only for my client's personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to result in economic use, gain, or benefit**). If applying for the import of a leopard trophy, I understand that my client may only import two leopard trophies in one calendar year.

    Taxidermist/Broker's signature: _____ Date: _____

13. **If you are the hunter applying to import your own trophy**, please read and sign the following statement.

    I acknowledge that the sport-hunted trophy/trophies to be imported has been/will be personally hunted by me and is being imported only for my personal use (i.e., **not for sale, transfer, donation, or exchange that is reasonably likely to resul**

    Applicant's signature: _[redacted]_ Date: 04/12/21

    Be aware that there may be additional permitting or approval requirements by your local or state governments, as well as required by other Federal agencies or foreign government to conduct your propose activity. While the Service will attempt to assist where possible, it is your responsibility to obtain such approval.

14. All international shipment(s) must be through a designated port. A list of designated ports (where an inspector is posted) is available from **the list of designated ports**. If you wish to use a port not listed, please contact the Office of Law Enforcement for a Designated Port Exemption Permit (form 3-200-2).

CONSERVATION FORCE A FORCE FOR WILDLIFE CONSERVATION

† BARON BERTRAND DES CLERS, PH.D.
† JAMES G. TEER, PH.D.
† BART O'GARA, PH.D.
† DON LINDSAY
† BERT KLINEBURGER

BOARD OF DIRECTORS:
JOHN J. JACKSON, III, J.D.
CHRISSIE JACKSON
SHANE MAHONEY
RENEE SNIDER

April 13, 2021

Department of the Interior
U.S. Fish and Wildlife Service
Attn: Emma Nelson
Division of Management Authority (DMA)
Branch of Permits, MS: IA
5275 Leesburg Pike
Falls Church, Virginia 22041-3803
VIA: E-Permits Filing

RE:	**Import Permit Application for a sport-hunted lion trophy from South Africa**
APPLICANT:	**Clay Parker**
HUNT DATE:	**August 21st – August 31st, 2021**
AREA OF HUNT:	**Khamab Kalahari Concession**

Ms. Nelson,

Attached please find the USFWS permit application to import a "wild" lion trophy from the Republic of South Africa for Mr. Clay Parker. Mr. Parker will be going on Safari in August of 2021 to hunt with Conraad Vermaak Safaris in the Khamab Kalahari Concession. Please note that PRT #'s 82926C and 49332D have already been issued for this concession and operator in 2019 and it has been documented by the Fish and Wildlife Service that this hunting does in fact enhance the species.

In evaluating this ESA import application, please consider the information in your files describing the Khamab Kalahari's Reserve's mission and vision, which is to create a game reserve large enough to conserve natural habitats and maintain a wide variety of African wild herbivores and carnivores that naturally occurred in this habitat in the past. We have included the Lion Management Plan that was specifically done for the Khamab Kalahari reserve, where it details how this vision and mission will be carried out. We have also provided a copy of the Non-Detriment findings for Panthera Leo (African lion) for South Africa, where you will read that at present there are no major threats to the wild and managed populations of lions within South Africa.

We have also included a current operator enhancement report for this concession, where you will find that Conraad Vermaak Safaris employs residents from the surrounding communities and does year-round anti-poaching patrols. Almost 100% of their clients are from the U.S. and trophy fees for each lion hunt are $45,000 US dollars. All Professional Hunters in the Khamab Kalahari must be a member of Custodians of Hunting and Conservation SA, an organization that is opposed to unethical hunting. As well the concession is a member of the Lion Management Forum of South Africa and has a full-time biologist on staff monitoring the prides.

We ask that you consider the documents and information provided and previously submitted from Conservation Force, other hunters, and from the South African government when making an enhancement determination for this application.

If you have any questions about this import application, please do not hesitate to contact us.

Sincerely,

Aimee Korver
Permits Paralegal Conservation Force

Cc: Mr. Clay Parker (w/attachments)

Enclosures:

a. FWS Permit Application Form 3-200-20
b. Notice of Representation
c. Operator Enhancement Report
d. Map of Hunting Area
e. Non-Detriment report for African lion from South Africa
f. Lion Management Plan for Khamab Kalahari Reserve

APPLICANT:

CLAY PARKER

NON-DETRIMENT FINDINGS FOR LION IN SOUTH AFRICA

GENERAL NOTICES • ALGEMENE KENNISGEWINGS

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

NOTICE 19 OF 2018

NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004

(ACT NO. 10 OF 2004)

NON-DETRIMENT FINDINGS

I, Bomo Edith Edna Molewa, Minister of Environmental Affairs, hereby publish the non-detriment findings made by the Scientific Authority in terms of section 62 of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) for implementation and set out in the Schedule hereto.

BOMO EDITH EDNA MOLEWA
MINISTER OF ENVIRONMENTAL AFFAIRS

Non-detriment finding assessment for *Panthera leo* (African lion)
Reference Number: Pan_leo_Sep2017
Date: 25 September 2017
Issued by the Scientific Authority of South Africa

Summary of findings

The South African population of *Panthera leo* (African lion) is included in Appendix II to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In terms of Article IV of the Convention, an export permit shall only be granted for an Appendix II species when a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species. This document details the undertaking of a non-detriment finding (NDF) assessment (Figure 1) for the African lion and is based on the best available information, current as of September 2017.

African lions are long-lived with both sexes living longer than 12 years. The species has a low reproductive rate with females replacing themselves only every second year. The African lion is a generalist species that can utilize a wide range of habitats and prey species. Due to biological, social and anthropogenic constraints, dispersal ability of both sexes is relatively poor, although some long distance dispersal of males does occur. The species is sensitive to human activity and is conservation dependent in South Africa, occurring solely in state-protected areas and on a limited number of privately owned game reserves, all of which are fenced.

The African lion is considered an uncommon species within South Africa, with a restricted and fragmented distribution. The total national wild population is estimated at approximately 2876 individuals in an estimated land area of 41 745 km^2. Eighty-three percent of the population is well protected, primarily within the Kruger National Park, the Kgalagadi Transfrontier Park and the Hluhluwe iMfolozi Park, where recent quantitative data suggest that lion populations are stable to increasing. The remainder of the national population (approximately 500 individuals in a combined area of ca. 8500 km^2) occurs in 45 small reserves where lions have been re-introduced and are intensively managed. This healthy wild lion population persists alongside a large captive population of approximately 7 000 lions kept in around 260 breeding/captive facilities in South Africa.

At present there are no major threats to the wild and managed lion populations within South Africa, although the management of re-introduced wild lion needs some improvement. Minor threats include overutilization, disease, poaching and conflict with communities around protected areas. Although there are no specific figures on the illegal trade of lions in South Africa, provincial conservation authorities indicate that illegal utilization of wild lion is generally small to negligible. The trophy hunting of captive-bred lions poses no threat to the wild lion population within South Africa, and it is thought that captive lions may in fact serve as a buffer to potential threats to wild lions by being the primary source of hunting trophies and derived products (such as bone). Up until early 2016 when the USA stopped the import of lion trophies from South Africa due to the listing of *Panthera leo* as threatened on the

Endangered Species Act, the bone in trade was primarily a by-product derived from captive lion trophy hunts.

As part of a comprehensive management approach for lion, a Biodiversity Management Plan (BMP), which includes a meta-population management plan and several actions relating to the management of captive lions, was developed in terms of the National Environmental Management: Biodiversity Act (NEMBA), 2004. However, since the BMP was published for implementation only recently (in December 2015), its effectiveness cannot yet be assessed. Local level management plans are however effectively implemented.

Hunting of lion is not allowed in any of the national parks and only limited hunting is allowed in some provincial state reserves, effectively ensuring strict protection of the majority of the wild population (>80% of the total lion population). Harvest of wild lion in the South African context is primarily for the control of damage causing (stock-raiding) lions and population management. Off-takes of lion (translocation and culling) within South African National Parks are associated with ecological management interventions and guided by a robust scientific framework. All re-introduced wild populations are at times managed through culling and translocation to mimic the population dynamics processes that are absent in small populations. This ecological harvesting benefits the conservation of the species.

Consumptive use of lion for commercial purposes is mostly restricted to private game reserves. In South Africa very few wild lions are trophy hunted each year (typically less than ten lion involving less than 5% of lion hunts on private property), and hunting trophies are largely sourced from captive populations. Off-takes from wild lion populations are managed on a local scale with ecologically based local quotas. In some cases there are local, informal management plans and approved local management plans for specific reserves that govern the type of lion that may be hunted, typically male lions over six years of age. Guidelines for the trophy hunting of wild lions in South Africa have been developed and now form part of permit conditions within the provinces. In most provinces, off-takes are effectively monitored through the attendance of lion hunts by provincial conservation officers. The economic benefits to the private sector of keeping and trading in wild lion may provide some incentive for conserving the species and its habitat.

In conclusion, the NDF assessment undertaken for the African lion (Figure **1)** demonstrates that legal local and international trade poses a low to moderate, but non-detrimental risk to the species in South Africa (Figure 2). The species is well managed and the Scientific Authority does not have any current concerns relating to the export of wild lion in accordance with Article IV of CITES. It is recommended that hunting of lion from reserves smaller than 1000 km^2 be permitted only when in accordance with a meta-population management approach, and that guidelines be developed in this regard.

The Scientific Authority does not consider the export of captive-bred lion trophies or captive-bred live lion for zoological or breeding purposes to be detrimental to the wild lion population in South Africa. At present there is no evidence to suggest that the lion bone trade between South Africa and East-Southeast Asia is detrimental to South Africa's wild lion population. In accordance with the annotation to the Appendix II listing of the African lion that was adopted at the 17th Conference of the Parties to

CITES, a quota for the export of skeletons derived from captive breeding operations must be established and revised on an annual basis to ensure sustainability, and measures must be implemented to prevent any detrimental impact to wild lion populations.

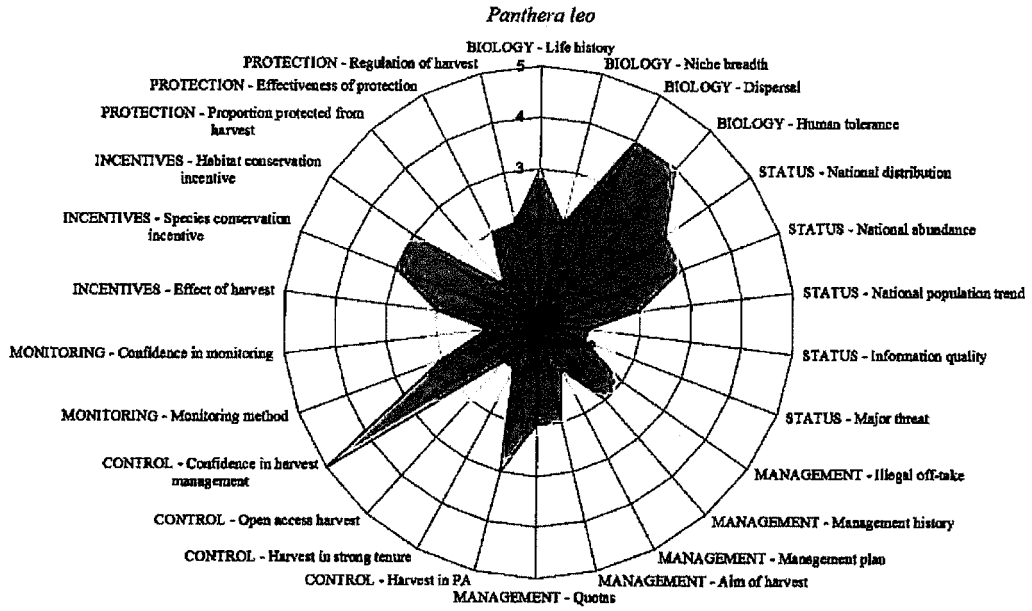


Figure 1: Radar chart summarizing the non-detriment finding assessment for *Panthera leo* (African lion) in accordance with the CITES NDF checklist. Explanations of scores given are detailed in Table 1. Higher scores are indicative of higher risks to the species. The limited area shaded in the radar chart demonstrates an overall low to moderate risk to the species.

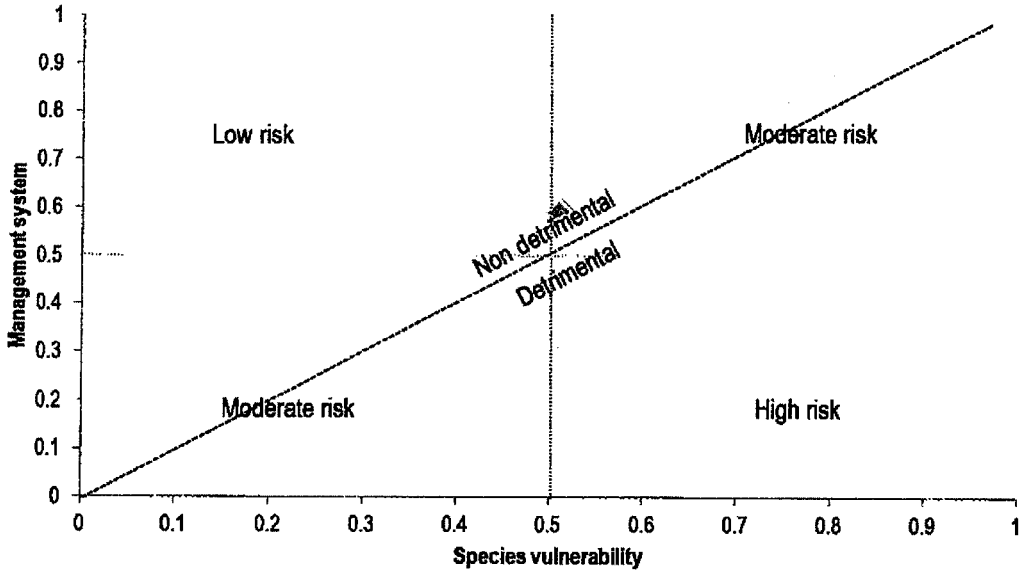


Figure 2: The level of risk of harvesting for *Panthera leo* (African lion) as represented by the relationship between species vulnerability (biology and status) (0 = low vulnerability; 1 = high vulnerability) and the management system to which the species is subjected (management, control, monitoring, incentives and protection) (0 = weak management system; 1 = strong management system). The figure shows that the species is at a low to moderate risk and trade is not detrimental.

Table 1: Detailed NDF assessment for *Panthera leo* (African lion) undertaken in accordance with the CITES NDF checklist. Scores assigned to each question are indicated (bold text and shaded blocks) along with detailed explanations/justifications where relevant. Higher scores are indicative of higher risks.

Biological characteristics		
1. Life history: What is the species' life history?	High reproductive rate, long-lived	1
	High reproductive rate, short-lived	2
	Low reproductive rate, long-lived	**3**
	Low reproductive rate, short-lived	4
	Uncertain	5
Lions are long-lived. Lionesses can live up to 14-16 years, while most males live up to 12-14 years in the wild (Packer et al. *1988). Litter size can range from one to six cubs, with 98% of litters containing 1-4 cubs (Packer & Pusey 1987). In general, there is high cub survival with >50% survival in the first year of life, which leads to longer birth intervals. At present the birth interval for Kruger National Park (KNP) is 2.3-2.4 years and ranges between 2.5-3.5 years within savannah woodland systems. If a female produces three cubs every 2.5-3 years, the net effect is approximately one cub per year. Fecundity is defined as the number of females that a female produces over her lifetime to replace her. Thus in the case of lions within South Africa, a female produces on average a female every second year if a 1:1 sex ratio is assumed, and lions therefore have a low reproductive rate.*		
2. Ecological adaptability: To what extent is the species adaptable (habitat, diet, environmental tolerance etc.)?	Extreme generalist	1
	Generalist	**2**
	Specialist	3
	Extreme specialist	4
	Uncertain	5
Within South Africa the majority of lions occur in savannah, but they have also been successfully reintroduced to the subtropical thicket biome of the Eastern Cape and the semi-arid Nama Karoo biome (Karoo National Park). Lions readily adapt to hunting in varied habitats, generally having greater success when hunting in areas with longer grass (Funston et al. *2001) or greater cover (Hopcroft* et al. *2005). Species at the top of the food chain, such as predators, are mostly considered specialists. However within the large carnivore guild, lions can be considered generalists when compared to other large mammals as they utilize a wider range of habitats and prey species.*		
3. Dispersal efficiency: How efficient is the species' dispersal mechanism at key life stages?	Very good	1
	Good	2
	Medium	3
	Poor	**4**
	Uncertain	5
There are biological, social and anthropogenic constraints to dispersal in lions, and based on these cumulatively, lions can be classified as poor dispersers, although some long distance dispersal of males does occur. Male cubs are excluded from their maternal pride when they reach maturity at approximately three to four years of age, most of which then form coalitions with other males (Pusey & Packer 1987; Packer & Pusey 1993). Dispersing males face several challenges, for example dispersing into a high risk environment within which they have to hunt for themselves, and often obtain injuries as a result. Most young lionesses attempt to remain in the pride into which they were born, and those that do not remain typically do not disperse far and attempt to establish a territory adjacent to their natal territory. Lions dispersing out of protected areas are invariably killed, contributing further		

to the poor dispersal ability of lions in the South African context.

4. Interaction with humans: Is the species tolerant to human activity other than harvest?	No interaction	1
	Pest / Commensal	2
	Tolerant	3
	Sensitive	**4**
	Uncertain	5

In South Africa lions are conservation dependent, occurring solely in protected areas and on game farms, all of which are fenced. Across Africa, lion populations in fenced areas are significantly closer to their estimated carrying capacity than unfenced populations (Packer et al. *2013). Lions are sensitive to human modified landscapes.*

National status

5. National distribution: How is the species distributed nationally?	Widespread, contiguous in country	1
	Widespread, fragmented in country	2
	Restricted and fragmented	**3**
	Localized	4
	Uncertain	5

At present the lion distribution within South Africa is restricted and fragmented (Figure 3). Any change in the current distribution will be dependent on the establishment of new protected areas into which lions can be re-introduced. Lions originally roamed freely across most of South Africa but as a result of changes in land use (mostly for farming), free roaming lions were mostly extirpated from farmland and restricted to large national parks by the middle of the 20th century. The subsequent expansion of game reserves, especially since the early 1990s, has resulted in an increased range for lion and wild lions currently occur in isolated areas in all provinces of South Africa, except for the Free State. The estimated land area where lion occur is 41 745 km², with the largest proportion comprising a few large national or provincial protected areas (33 200 km², ca. 80%), and with the remainder made up of 45 small private or state reserves (Figure 3) with a combined area of ca. 8500 km² (Miller et al. *2016b).*

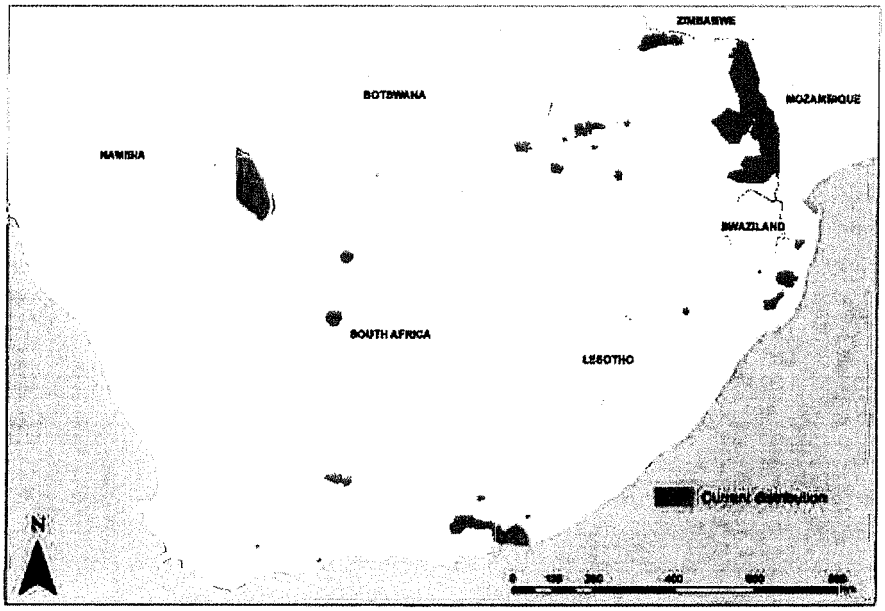


Figure 3: *The current distribution of lions in South Africa including both original and re-introduced populations.*

6. National abundance: What is the abundance nationally?	Very abundant	1
	Common	2
	Uncommon	**3**
	Rare	4
	Uncertain	5

Wild and re-introduced lions in South Africa are estimated to total about 3490 individuals (Table 1), including those in transfrontier zones (Miller et al. *2016b). Altogether about 2376 lions (83% of the total South African population) are well protected within South Africa's national parks (Miller* et al. *2016b). The total formally protected mature population of lions (1286) in South Africa represent 3–6% of the global mature population of 23 000–39 000 lions (Bauer* et al. *2015; Riggio* et al. *2013). The largest areas in the country with lion are the Kruger National Park, which straddles the provinces of Limpopo and Mpumalanga (part of the Greater Limpopo Transfrontier Park), and the Kalahari Gemsbok National Park in the Northern Cape (part of Kgalagadi Transfrontier Park). The Greater Limpopo Transfrontier Park subpopulation is estimated at c. 2000 individuals (South Africa only) if the private conservancies open to Kruger National Park on the western boundary are included (300 lions) and represents 70% of the wild lion population in South Africa.*

During 2010, 500 lion were estimated to occur in the Kgalagadi Transfrontier Park (Ferreira et al. *2013). Recent mark-recapture estimates for the South African side of Kgalagadi Transfrontier Park may indicate an increasing subpopulation, where the total number of individuals is estimated to be 246 (95% confidence intervals 238-256), and the number of mature individuals (excluding cubs) is estimated to be 167 (95% confidence intervals 160-177) (Miller* et al. *2016b). Fourteen lion occur in the Greater Addo Elephant National Park (2011) (Eastern Cape), 8 in the Karoo National Park (2011) (Western Cape), 13 in the Marakele National Park (2011) (Limpopo) and 120 in Hluluwe-iMfolozi Park (KwaZulu-Natal).*

Reintroduction of lion into small reserves (including national parks, provincial protected areas, conservancies and private reserves of <1000 km² in area) started in the early 1990s and there are currently about 500 lions on 45 small reserves (Miller et al. 2013; Miller & Funston 2014). All small reserve subpopulations are ecologically functional as, for example, they are large enough for social dynamics to continue unhindered, although some reserves may import prey stocks (Power 2002, 2003; Hayward et al. *2007).*

***Table 1:** Current numbers of wild lion in South Africa and surrounding transfrontier areas. All counts were made between 2008 and 2015 (Miller* et al. *2016b).*

Location (sub-location)	Total lions (SA only)	Number mature lions (SA only)
Greater Limpopo TP (Kruger NP)	*2000 (c. 1700)*	*1060 (c. 900)*
Associated Private Nature Reserves (Greater Kruger NP)	*300*	*160*
Kgalagadi TP	*520 (246)*	*255 (167)*
Greater Mapungubwe TFCA	*~50 (10)*	*25 (5)*
Hluhluwe-iMfolozi Park	*120*	*54*
Total excl. small reserves	***2990 (2376)***	***1554 (1286)***
Small reserves	*500*	*225*
Total incl. small reserves	***3490 (2876)***	***1779 (1511)***

According to a study initiated in 2008 by the Department of Environmental Affairs (DEA) and conducted by the University of Free State, an estimated 3596 lions were kept in 174 breeding facilities in South Africa during 2008 (Taljaard 2009). It is estimated that at present between 3600 and 6000

lions are kept in at least 174 breeding/captive facilities in South Africa (Williams et al. *2015). According to recent data (2017) provided by DEA, this number is likely to be closer to 7 000 individuals kept in approximately 260 facilities.*

7. National population trend: What is the recent national population trend?	Increasing	1
	Stable	**2**
	Reduced, but stable	3
	Reduced and still decreasing	4
	Uncertain	5

When considering only the wild and re-introduced subpopulations in recent decades, lion numbers have increased and have probably been stable for the last thirty years in the two large wild subpopulations (Miller et al. *2016b). Recent surveys using 240 call-up stations distributed randomly throughout the Kruger National Park indicated the subpopulation has increased over the period 2000-2015 from 1684 (95% confidence intervals 1617-1751) to 1763 (95% confidence intervals 1680-1846) individuals and for adult females specifically, from 415 (95% confidence intervals 380-450) to 589 (95% confidence intervals 560-618) (Miller et al. 2016b). The lion population in the Kgalagadi Transfrontier Park has been fairly stable since the first population estimate in 1976 of 140 lion (range 108-181). In 1996/7 the population was estimated at 131 (range 106 – 156), and between 1998 and 2001 at 120 individuals (range 113-131). In 2010, 500 lion were estimated to occur in the Kgalagadi Transfrontier Park (Ferreira* et al. *2013). Recent mark-recapture estimates for the South African side of Kgalagadi Transfrontier Park may indicate an increasing subpopulation, where the total number of individuals is estimated to be 246 (95% confidence intervals 238-256), and the number of mature individuals (excluding cubs) is estimated to be 167 (95% confidence intervals 160-177) (S. Ferreira unpubl. data). Since 2004 the number of lion on state-owned protected areas in KwaZulu-Natal has increased from 82 to 234, while the number of lion on private and communal land has increased from 33 to 82 during this same time period. Overall this represents an almost three-fold increase in the size of the lion population in the province, from 115 to 316, over a 7 year period (2004-2010). The remaining national parks have small numbers of lion that are intensively managed to maintain a single pride with 2-6 adult females. Lions also re-colonized the Mapungubwe National Park in about 2000, but fewer than 10 lions occur there.*

8. Quality of information: What type of information is available to describe abundance and trend in the national population?	**Quantitative data, recent**	**1**
	Good local knowledge	2
	Quantitative data, outdated	3
	Anecdotal information	4
	None	5

Surveys in the Kruger National Park, and the Kgalagadi National Park are conducted regularly, which represent 68% of the total wild and managed population in South Africa. In the Kruger National Park, three park-wide surveys have been undertaken to date. In addition a 7-year study on the lions in Kruger National Park was recently completed. The lions within Hluhluwe iMfolozi Park are also monitored on a regular basis.

9. Major threats: What major threat is the species facing (underline following: overuse/ habitat loss and alteration/ invasive species/ other: disease; human wildlife conflict) and how severe is it?	**None**	1
	Limited/Reversible	2
	Substantial	3
	Severe/Irreversible	4
	Uncertain	5

At present there are no major threats to the wild and managed lion populations within South Africa. Minor threats include overutilization, disease, poaching and conflict with communities around protected areas. Most lions currently in captivity originate from captive-bred stock and are utilised by the trophy hunting industry and, since 2008, the lion bone trade as well. In terms of the Threatened or Protected Species (TOPS) Regulations (2007), wild lions may not be introduced into captivity. This also does not seem necessary as lions breed well in captivity. Although captive lions are not considered to be of any conservation value to the wild lion population (Hunter et al. *2013), it is thought that they may serve as a buffer to potential threats to the wild population by being the primary source of hunting trophies and derived products (Lindsey* et al. *2012a) (e.g. bones). A study conducted by TRAFFIC in 2013-2014 showed that the lion bone trade between South Africa and East-Southeast Asia is not detrimental to the wild lion population, and the bone in trade is primarily a by-product derived from captive lion trophy hunts (Williams* et al. *2015), at least up until early 2016 when the USA stopped the import of lion trophies from South Africa due to the listing of* Panthera leo *as threatened on the Endangered Species Act. The male lions are sold to trophy hunters, and the skeletons to East-Southeast Asia. The females are used for breeding stock and are eventually sold into the bone trade once they have ceased to breed (Williams* et al. *2015). Hunting of captive-bred lion differs from wild lion hunting in that lions are hunted in smaller areas (49.9 ± 8.4 km² compared to 843-5933 km² depending on the country), hunts are cheaper (US$20 000-40 000 compared to US$37 000-76 000), shorter (3.3 compared to 14-21 days), success rates are higher (99% compared to 51-96%), and trophy quality is higher (skull length + breath = 639 cm compared to 614-638 cm) (Lindsey* et al. *2012a).*

Harvest management

10. Illegal off-take or trade: How significant is the national problem of illegal or unmanaged off-take or trade?	None	1
	Small	**2**
	Medium	3
	Large	4
	Uncertain	5

Although there are no specific figures on the illegal trade of lions in South Africa, provincial conservation authorities indicated that illegal use or trade of wild lion is generally small to negligible. There is no recorded/known illegal trade in wild lion in Gauteng, KwaZulu-Natal or the Eastern Cape and illegal utilization of lion within South Africa's national parks is negligible. There are currently no statistics relating to cases involving lion in the National Environmental Compliance and Enforcement Report, although there are cases currently under investigation. Illegal trade in captive-bred lions within North West Province is suspected to take place, as this industry is large and a challenge to regulate. Lions along the Kgalagadi Tranfrontier Park boundaries have been persecuted for decades (Mills et al. *1978; Van Vuuren, Herrmann & Funston 2005; Funston 2011).*

11. Management history: What is the history of harvest?	Managed harvest: on-going with adaptive framework	1
	Managed harvest: on-going but informal	**2**
	Managed harvest: new	3
	Unmanaged harvest: on-going or new	4
	Uncertain	5

Lions are actively managed in most areas within South Africa. As part of a comprehensive management approach for lion, the Department of Environmental Affairs has developed a Biodiversity Management Plan (BMP) for lion in terms of the National Environmental Management: Biodiversity Act, 2004 (NEMBA 2004), which was published for implementation in December 2015.

Apart from the management of damage causing animals, the lion population within the Kgalagadi Transfrontier Park has never been managed (Mills et al. *1978; Van Vuuren, Herrmann & Funston 2005; Funston 2011). The lions that were established in the Hluhluwe-iMfolozi Park have been managed quite intensively, mainly to minimize conflict along the park boundary (Anderson 1980) and more recently to improve their genetic diversity and thereby reproductive potential (Trinkel 2008). Additional key management actions in KwaZulu-Natal for 2011 and 2012 included the determination of a provincial conservation target for lion, and the continuation with surveillance and monitoring of the provincial lion population and illegal hunting incidents. Utilisation and keeping of lion in the wild is closely managed in the province of Gauteng due to the dense human population in the province. Off-takes of lion (translocation and culling) within South African National Parks are associated with ecological management interventions and guided by a robust science framework.*

In all the larger parks in South Africa, lions occasionally venture out of the park and kill livestock. In the Kruger National Park and Hluhluwe-iMfolozi (Anderson 1980) these lions are generally shot by rangers, whereas in the Kgalagadi rangers try and translocate them back into the park (Mills et al. *1978; Funston 2002). The reintroduction of lions into some 45 smaller fenced game reserves in South Africa has largely been for eco-tourism purposes rather than ecological reasons (Slotow & Hunter 2009). Reintroduced lions are currently micromanaged (Hayward* et al. *2007a,b,c; Hunter et al. 2007; Kettles & Slotow 2009) primarily in isolation from each other, the net effect of which reduces their conservation value on a regional scale (Slotow & Hunter 2009). Ferreira & Hofmeyr (2014) advocate an approach where managers of small areas mimic natural social dynamics such as coalition tenure, density dependent changes in litter size, age at first birth and birth intervals, as well as sub-adult dispersal. This assists with achievement of population and evolutionary targets through a process-based approach mimicking drivers of variance in social groups. It is further suggested that these small populations be managed on a regional level as a single population with social groups spatially isolated over the region (Ferreira & Hofmyer 2014).*

12. Management plan or equivalent: Is there a management plan related to the harvest of the species?	**Approved and co-ordinated local and national management plans**	**1**
	Approved national/state/provincial management plan(s)	2
	Approved local management plan	3
	No approved plan: informal unplanned management	4
	Uncertain	5

*A Biodiversity Management Plan for the African Lion (*Panthera leo*), which includes a meta-population management plan and several actions to assess and improve the management of captive lions (such as the development of national standards for the keeping and captive breeding of lions and an audit of all lion keeping facilities), was published for implementation in December 2015 (Government Gazette vol. 606 no. 39468). Lions are protected under various provincial Ordinances / Acts, and provincial conservation authorities often require ecological management plans when lion is re-introduced to a property. There are also local, informal management plans and approved local management plans for specific reserves that specify the type of lion that may be hunted, typically male lions above six years of age (Miller* et al. *2016a).*

13. Aim of harvest regime in management planning: What is harvest aiming to achieve?	Generate conservation benefit	1
	Population management/control	**2**
	Maximize economic yield	3
	Opportunistic, unselective harvest, or none	4
	Uncertain	5
Only wild and managed populations were considered in the scoring of this question since trophy lions are predominantly sourced from captive-bred populations (Sinovas et al. *2016) with less than 5% of lion hunts conducted on private property between 2008 and 2010 having targeted wild lions. Consumptive use of lion for commercial purposes is mostly restricted to private game reserves. Private landowners that conduct legal hunts of wild lions have an interest in ensuring the stability of their lion populations. In addition to the limited trophy hunting of wild lion, other kinds of harvesting are undertaken as a management tool to regulate populations, such as culling and live removals. These harvests aim to mimic population dynamics that are absent in managed prides (Ferreira & Hofmeyr 2014; Miller* et al. *2015).*		
14. Quotas: Is the harvest based on a system of quotas?	On-going national quota: based on biologically derived local quotas	1
	On-going quotas: "cautious" national or local	**2**
	Untried quota: recent and based on biologically derived local quotas	3
	Market-driven quota(s), arbitrary quota(s), or no quotas	4
	Uncertain	5
Current harvest is not based on a national quota system. Harvest is however managed on a local scale with ecologically based local quotas. Permits for wild lion hunts in South Africa are issued by the relevant provincial conservation authority, as are permits for hunting captive-bred lions. Off-takes of lion within South African National Parks are guided by a strict utilization strategy.		
Control of harvest		
15. Harvesting in Protected Areas: What percentage of the legal national harvest occurs in State-controlled Protected Areas?	High	1
	Medium	2
	Low	**3**
	None	4
	Uncertain	5
Hunting of lion is not allowed in national parks, which collectively represents the majority of the wild population (>80% of the total lion population), but there is limited legal hunting in some provincial state protected areas. In KwaZulu-Natal damage-causing animals can be hunted by local hunters on the borders of protected areas. The number of damage causing lions removed annually in the Kruger National Park is relatively low (<1% of the population). In smaller reserves this off-take is slightly higher at 10-20%. Removals of lion from the Kgalagadi Transfrontier Park are much higher.		
16. Harvesting in areas with strong resource tenure or ownership: What percentage of the legal national harvest occurs outside Protected Areas, in areas with strong local control over resource use?	**High**	1
	Medium	2
	Low	3
	None	4
	Uncertain	5
Utilization of lion for commercial purposes is mostly restricted to private game reserves. Trophy hunting of lions is popular in South Africa, although trophies are predominantly sourced from captive-		

bred populations (Sinovas et al. 2016). Hunting of wild lion on private property is limited, with less than 5% of lion hunts conducted over the 2008 to 2010 reporting period having targeted wild lions. Wild lions are hunted in the Associated Private Nature Reserves (APNR) bordering the Kruger National Park and open to the park. The APNR has a very strict hunting protocol that is strictly enforced. There is also a general memorandum of understanding between the Kruger National Park and the APNR. Aspects with regards to trophy hunts are handled on a case by case basis.

17. Harvesting in areas with open access: What percentage of the legal national harvest occurs in areas where there is no strong local control, giving *de facto* or actual open access?	**None**	**1**
	Low	2
	Medium	3
	High	4
	Uncertain	5

No lions occur within open access areas. Damage causing animals within these areas originate from protected areas and the number of animals removed on average is low.

18. Confidence in harvest management: Do budgetary and other factors allow effective implementation of management plan(s) and harvest controls?	High confidence	1
	Medium confidence	2
	Low confidence	3
	No confidence	4
	Uncertain	**5**

Local level management plans and harvest controls are effectively implemented. On a national scale however there is no budget or capacity to fund a national coordinated system that can be implemented for all re-introduced lion populations. Thus budget and legal restrictions are hampering the scaling up of local management to enhance a larger management framework for lion conservation. The biodiversity management plan for lion, that includes a meta-population management plan, has only recently (December 2015) been published for implementation. Confidence in the effective implementation of this management plan is thus still uncertain.

Monitoring of harvest

19. Methods used to monitor the harvest: What is the principal method used to monitor the effects of the harvest?	Direct population estimates	1
	Quantitative indices	**2**
	Qualitative indices	3
	National monitoring of exports	4
	No monitoring or uncertain	5

Lion is currently listed as vulnerable in terms of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA), meaning that a permit is required if a person intends to carry out any restricted activity involving lion such as keeping, hunting, catching, breeding, selling, conveying or exporting from the country. The permit system is regulated through the Threatened or Protected Species (TOPS) Regulations (2007), which have been promulgated in terms of NEMBA. Lion is also protected under various provincial Ordinances / Acts. Within the Free State, Limpopo and Northern Cape, all lion hunts are attended by a provincial officer, while Mpumalanga's legislation does not require a conservation official to be present at lion hunts. Due to capacity constraints within KwaZulu-Natal, North West and the Eastern Cape, only some of the lion hunts are attended by a conservation officer. Lion hunts are not offered in Gauteng and the Western Cape. Data obtained from the provinces are used to calculate statistics on the trends in lion populations within the provinces and nationally. Any negative consequences of the harvest of lion will thus be detectable through the current permit monitoring system.

According to the CITES trade database that is administered by UNEP-WCMC, just over half (53%) of the lion (3508) exported from South Africa between 2000 and 2009 are wild sourced, but this is due to a reporting error. Lions bred in captivity, then released in extensive systems for a period of time before being hunted have in the past been incorrectly reported as source code "W" (i.e. wild). Delegated provincial management authorities have subsequently been requested to ensure the correct use of source codes so that the CITES trade records correctly reflect the trade in wild specimens. There is also a major discrepancy between reported exports and reported imports, with reported exports of captive sourced specimens greater than reported imports and conversely the reported exports of wild sourced specimens less than the reported imports. This would have contributed to inflated export figures overall and of wild sourced specimens in particular.

20. Confidence in harvest monitoring: Do budgetary and other factors allow effective harvest monitoring?	**High confidence**	1
	Medium confidence	2
	Low confidence	3
	No confidence	4
	Uncertain	5

There is a high confidence in the quantitative indices used to monitor the harvest of wild lions. Most reserves monitor their lion populations well and are well-resourced on a local level.

Incentives and benefits from harvesting

21. Utilization compared to other threats: What is the effect of the harvest when taken together with the major threat that has been identified for this species?	Beneficial	1
	Neutral	**2**
	Harmful	3
	Highly negative	4
	Uncertain	5

There is currently no major threat facing wild lions within South Africa. Trophy hunting of wild lions is limited, with the number of wild lion hunted over the period 1999-2008 never exceeding 10 lion per annum. Trophy lions are predominantly sourced from captive-bred populations. Harvesting as a tool for science-based population management of fragmented populations is beneficial to the population.

22. Incentives for species conservation: At the national level, how much conservation benefit to this species accrues from harvesting?	High	1
	Medium	2
	Low	**3**
	None	4
	Uncertain	5

Currently wild lion hunts are less than 10 per year and the majority of income originates from non-consumptive tourism. However, where lion trophy hunting occurs (e.g. APNR) it contributes directly to the conservation of the species. The economic benefits to the private sector of keeping and trading in wild lion may provide some incentive for conserving the species and its habitat. However, in some cases benefits do not filter down to directly affected stakeholders and thereby affect conservation outcomes. Ecological harvesting of lions is practiced in some managed populations in order to mimic population dynamics that are absent (Ferreira & Hofmeyr 2014). These removals benefit the conservation of the species.

23. Incentives for habitat conservation: At the national level, how much habitat conservation benefit is derived from harvesting?	High	1
	Medium	2
	Low	**3**
	None	4
	Uncertain	5
Hunting of wild lion on private property is limited, with less than 5% of lion hunts conducted over the 2008 to 2010 reporting period having targeted wild lions. The revenue generated through hunting contributes to the maintenance of areas where these lion populations can continue to exist. The economic benefits to the private sector of keeping and trading in wild lion may provide some incentive for conserving the species and its habitat.		
Protection from harvest		
24. Proportion strictly protected: What percentage of the species' natural range or population is legally excluded from harvest?	**>15%**	**1**
	5-15%	2
	<5%	3
	None	4
	Uncertain	5
Hunting of lion is not allowed in any of the national parks and only limited trophy hunting is allowed on some provincial state reserves, this collectively representing the majority of the wild population (>80% of the total lion population). The scoring is based on the population size and not on the range of the species.		
25. Effectiveness of strict protection measures: Do budgetary and other factors give confidence in the effectiveness of measures taken to afford strict protection?	High confidence	1
	Medium confidence	**2**
	Low confidence	3
	No confidence	4
	Uncertain	5
The national and provincial permitting systems are effective.		
26. Regulation of harvest effort: How effective are any restrictions on harvesting (such as age or size, season or equipment) for preventing overuse?	Very effective	1
	Effective	**2**
	Ineffective	3
	None	4
	Uncertain	5
Regulation of harvest effort is effective. On a local scale specific individuals are selected for ecological harvesting, trophy hunting or removal of damage causing animals. Guidelines for the trophy hunting of wild lions in South Africa have been developed and form part of permit conditions within the provinces (Miller et al. *2016a).*		

List of participants:

1. Dr Sam Ferreira (SANParks)
2. Dr Paul Funston (Panthera)
3. Michele Pfab (SANBI)
4. Thea Carroll (DEA)
5. Dr Jeanetta Selier (SANBI)

References:

Anderson, J.L. (1980). The re-establishment and management of a lion *Panthera leo* population in Zululand, South Africa. *Biological Conservation* 19: 107-117.

Bauer, H., Packer, C., Funston, P.F., Henschel, P., and Nowell, K. (2015). Panthera leo. The IUCN Red List of Threatened Species 2015.

Creel, S. & Creel, N.M. (1997). Lion density and population structure in the Selous Game Reserve: Evaluation of hunting quotas and offtake. *African Journal of Ecology* 35: 83–93.

De Boer, W.F., Vis, M.J.P, De Knegt, H. J., Rowles, C., Kohi, E. M., et al. (2010). Spatial distribution of lion kills determined by the water dependency of prey species. *Journal of Mammalogy* 91: 1280–1286.

Druce, D., Genis, H., Braak, J., Greatwood, S., Delsink, A., Kettles, R., Hunter, L. & Slotow, R. (2004a). Prey selection by a reintroduced lion population in the Greater Makalali Conservancy, South Africa. *African Zoology* 39: 273-284.

Druce, D., Genis, H., Braak, J., Greatwood, S., Delsink, A., Kettles, R., Hunter, L. & Slotow, R. (2004b). Population demography and spatial ecology of a reintroduced lion population in the Greater Makalali Conservancy, South Africa. *Koedoe* 47: 103–118.

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.

Ferreira, S.M. & Funston, P.J. (2010a). Estimating lion population variables: Prey and disease effects in Kruger National Park, South Africa. *Wildlife Research* 37: 194-206.

Ferreira, S.M. & Funston, P.J. (2010b). Age assignment to individual African lions. *South African Journal of Wildlife Research* 40: 1-9.

Ferreira, S.M., Govender, D., & Herbst, M. (2013). Conservation implications of Kalahari lion population dynamics. *African Journal of Ecology* 51:176–179.

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

Funston, P.J. (2002). Kgalagadi Transfrontier Lion Project – Final Report. Submitted to the Green Trust and the Endangered Wildlife Trust.

Funston, P.J. (2004). Specialist study: Lion utilization plan for the Associated Private Nature Reserves (APNR). Management Consultancy.

Funston, P.J. & Mills, M.G.L. (2006). The influence of lion predation on the population dynamics of common large ungulates in the Kruger National Park. *South African Journal of Wildlife Research* 36: 9-22.

Funston, P.J. (2008). Conservation and management of lions in Southern Africa: Status, threats, utilization and the restoration option. In: B. Croes, H.H. Delongh, & H. Bauer (Eds.), Management and Conservation of Large Carnivores in West and Central Africa. (pp. 109-131). Institute of Environmental Sciences, Leiden.

Funston, P.J. (2011). Population characteristics of lions (Panthera leo) in the Kgalagadi Transfrontier Park. *South African Journal of Wildlife Research* 41: 1-12.

Funston, P.J., Mills, M.G.L., Biggs, H.C. & Richardson, P.R.K. (1998). Hunting by male lions: ecological influences and socioecological implications. *Animal Behavior* 56: 1333–1345.

Funston, P. J., Mills, M. G. L. & Biggs, H. C. (2001). Factors affecting the hunting success of male and female lions in the Kruger National Park. *Journal of Zoology, London* 253: 419–431.

Funston, P.J., Mills, M.G.L., Richardson, P.R.K. & van Jaarsveld, A.S. (2003). Reduced dispersal and opportunistic territory acquisition in male lions *(Panthera leo)*. *Journal of Zoology, London* 259: 1-12.

Funston, P.J., Groom, R.J. & Lindsey, P.A. (2013). Insights into the management of large carnivores for profitable wildlife-based land uses in African savannas. *PLoS ONE* 8(3): e59044. doi:10.1371/journal.pone.0059044

Hanby, J. & Bygott, J. (1987). Emigration of subadult lions. *Animal Behavior* 35: 161–169.

Hanby, J.P., Bygott, J. & Packer, C. (1995). Ecology, demography, and behavior of lions in two contrasting habitats: Ngorongoro Crater and the Serengeti plains. In: Sinclair, A. R. E. and Arcese, P. (eds), Serengeti II: dynamics, management, and conservation of an ecosystem. Univ. of Chicago Press, pp. 315-331.

Hayward, M.W. & Kerley, G.I.H. (2005). Prey preferences of the lion (*Panthera leo*). *Journal of Zoology, London* 267: 309–322.

Hayward, M.W. & Hayward, G.J. (2007). Activity patterns of reintroduced lion Panthera leo and spotted hyaena *Crocuta crocuta* in Addo Elephant National Park, South Africa. *African Journal of Ecology* 45: 135–141.

Hayward, M., O'Brien, J. & Kerley, G. (2007a). Carrying capacity of large African predators: Predictions and tests. *Biological Conservation* 139: 219-229.

Hayward, M.W., Adendorff, J., O'Brien, J., Sholto-Douglas, A., Bissett, C., et al. (2007b). Practical considerations for the reintroduction of large, terrestrial, mammalian predators based on reintroductions to South Africa's Eastern Cape Province. *Open Conservation Biology Journal* 11:1-11.

Hayward, M.W., Adendorff, J., O'Brien, J., Sholto-Douglas, A., Bissett, C., et al. (2007c). The reintroduction of large carnivores to the Eastern Cape, South Africa: an assessment. *Oryx* 41: 205-214.

Hayward, M.W & Kerley, G.I.H (2009a). Fencing for conservation: Restriction of evolutionary potential or a riposte to threatening processes? *Biological Conservation*. 142: 1-13.

Hayward, M.W, Hayward, G.J., Druce, D.J. & Kerley, G.I.H. (2009b). Do fences constrain predator movements on an evolutionary scale? Home range, food intake and movement patterns of large predators reintroduced to Addo Elephant National Park, South Africa. *Biodiversity and Conservation* 18: 887–904.

Hayward, M.W., Hayward, G.I, Tambling, C.J. & Kerley, G.I.H. (2011). Do lions Panthera leo actively select prey or do prey preferences simply reflect chance responses via evolutionary adaptations to optimal foraging? *PLoS ONE* 6(9): e23607. doi:10.1371/journal.pone.0023607.

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.

Hunter, L.T.B., Pretorius, K., Carlisle, L.C., Rickelton, M., Walker, C., Slotow, R. & 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: 196-204.

Hunter, L.T., White, P., Henschel, P., Frank, L., Burton, C., Loveridge, A., Balme, G., Breitenmoser, C., and Breitenmoser, U. (2013). Walking with lions: why there is no role for captive-origin lions Panthera leo in species restoration. *Oryx* 47:19-24.

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

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

Lindsey, P.A., Balme, G.A., Booth, V.R. & Midlane, N. (2012b). The significance of African lions for the financial viability of trophy hunting and the maintenance of wild land. *PLoS One* 7(1): e29332.

Lindsey, P.A, Havemann, C.P., Lines, R.M., Price, A.E., Retief, T.A., Rhebergen, T., Van der Waal, T. & Romañach, S.T. (2013). Benefits of wildlife-based land uses on private lands in Namibia and limitations affecting their development. *Oryx* 47: 41–53.

Lindsey, P.A, Balme, G.A., Funston, P.J., Henschel, P., Hunter, L., Madzikanda, H., Midlane, N. & Nyirenda, V. (2013). The trophy hunting of African lions: scale, current practices and factors undermining sustainability. *PLoS One* 9(8), e73808.

Miller, J.R.B., Balme, G., Lindsey, P.A., Loveridge, A.J., Becker, M.S., Begg, C., Brink, H., Dolrenry, S., Hunt, J.E. , Jansson, I. (2016a). Aging traits and sustainable trophy hunting of African lions. *Biological Conservation* 201, 160.

Miller, S.M., Riggio, J., Funston, P., Power, J., Williams, V., and Child, M. (2016b). A Conservation Assessment of *Panthera leo*. In: M.F. Child, L. Roxburgh, D. Raimondo, E. Do Linh San, J. Selier and H. Davies-Mostert (eds), *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

Miller, S.M, Bissett, C., Burger, A., Courtney, B. & 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: 138-154.

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.

Mills, M.G.L., Wolf, P., Le Riche, E.A.N. & Meyer, I.J. (1978). Some population characteristics of the lion (*Panthera leo*) in the Kalahari National Park. *Koedoe* 21: 163–171.

Mills, M.G.L. & Shenk, T.M. (1992). Predator-prey relationships: the impact of lion predation on wildebeest and zebra populations. *Journal of Animal Ecology* 61: 693-702.

Mills, M. G. L. & Biggs, H. C. (1993). Prey apportionment and related ecological relationships between large carnivores in Kruger National Park. Symposium of the Zoological Society of London 65: 256–268.

Mills, M.G.L., Biggs, H.C. & Whyte, I.J. (1995). The relationship between rainfall lion predation and population trends in African herbivores. *Wildlife Research* 22: 75-88.

Mosser, A. & Packer, C. (2009). Group territoriality and the benefits of sociality in the African lion, Panthera leo. *Animal Behaviour* 78: 359–370.

Owen-Smith, N. (2008). Changing vulnerability to predation related to season and sex in an African ungulate assemblage. *Oikos* 117: 602-610.

Owen-Smith, N. & Mills, M.G.L. (2008a). Predator-prey size relationships in an African large-mammal food web. *Journal of Animal Ecology* 77: 173-183.

Owen-Smith, N. & Mills, M.G.L. (2008b). Shifting prey selection generates contrasting herbivore dynamics within a large-mammal predator–prey web. Ecology 89: 1120–1133.

Packer, C. & Pusey, A. E. (1993). Dispersal, kinship, and inbreeding in African lions. In: N. Thornhill (Ed.), Natural History of Inbreeding and Outbreeding: Theoretical and Empirical Perspectives. (pp. 375-391). University of Chicago Press, Chicago.

Packer, C. & Pusey, A.E. (1987). Intrasexual cooperation and the sex ratio in African lions. *American Naturalist* 130: 636–642.

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., Scheel, D. & Pusey, A. E. (1990). Why lions from groups: food is not enough. *American Naturalist* 136: 1–19.

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.

Packer, C., Pusey, A.E. & Eberly, L. E. (2001). Egalitarianism in female African lions. *Science* 293: 690–693.

Packer, C., Altizer, S., Appel, M., Brown, E., Martenson, J., O'Brien, S.J., et al. (1999). Viruses of the Serengeti: patterns of infection and mortality in African lions. *Journal of Animal Ecology* 68: 1161-1178.

Packer, C., Pusey, A.E., & Eberly, L.E. (2001). Egalitarianism in female African lions. *Science* 293: 690-693.

Packer, C., Hilborn, R., Mosser, A., Kissui, B., Borner, M., Hopcraft, G., Wilmshurst, J., Mduma, S. & Sinclair, A.R.E. (2005). Ecological change, group territoriality, and population dynamics in Serengeti lions. *Science* 307: 390–393.

Packer, C., Kosmala, M., Cooley, H.S., Brink, H., Pintea, L., Garshelis, D., et al. (2009). Sport hunting, predator control and conservation of large carnivores. *Plos ONE* 4: e5491.

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

Packer, C., S. Canney, A. Loveridge, S.T. Garnett, M. Pfeifer, K.K. Zander, A. Swanson, D. MacNulty, G. Balme, P.J. Funston et al. (2013). Conserving Large Carnivores: Dollars and Fence. *Ecology Letters* doi: 10.1111/ele.12091

Power RJ. (2002). Prey selection of lions *Panthera leo* in a small, enclosed reserve. *Koedoe* 45:67–75.

Power RJ. (2003). Evaluating how many lions a small reserve can sustain. *South African Journal of Wildlife Research* 33:3–11.

Pusey, A. E. & Packer, C. (1987). Evolution of sex-biased dispersal in lions. *Behaviour* 101: 275–309.

Radloff, F.G.T. & du Toit J.T. (2004). Large predators and their prey in a southern African savanna: a predator's size determines its prey size range. *Journal of Animal Ecology* 73: 410-423.

Riggio, J., Jacobson, A., Dollar, L., Bauer, H., Becker, M., Dickman, A., Funston, P., Groom, R., Henschel, P., and de Iongh, H. (2013). The size of savannah Africa: a lion's (Panthera leo) view. *Biodiversity and Conservation* 22:17-35.

Schaller, G.B. (1972). The Serengeti Lion: A Study of Predator Prey Relations. University of Chicago Press, Chicago.

Sinovas, P., Price, B., King, E., Davis, F., Hinsley, Pavitt, A., and Pfab, M. 2016. Southern Africa's wildlife trade: an analysis of CITES trade in SADC countries. Technical report prepared for the South African National Biodiversity Institute (SANBI). UNEP-WCMC, Cambridge, UK.

Slotow, R. & 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 & M.J. Somers (Eds.), Reintroduction of Top-Order Predators. (pp. 41-73). Wiley-Blackwell, Oxford.

Smuts, G.L. (1978b). Effects of population reduction on the travels and reproduction of lions in Kruger National Park. *Carnivore* 1: 61-72.

Spong, G. & Creel, S. (2001). Deriving dispersal distances from genetic data. *Proceedings of the Royal Society of London* 268: 2571-2574.

Stander, P.E. (1990). A suggested management strategy for stock-raiding lions in Namibia. *South African Journal of Wildlife Research* 20: 53–60.

Stander, P. E. (1991). Demography of lions in the Etosha National Park, Namibia. *Madoqua* 18: 1-9.

Taljaard, P.R. (2009). Report on the captive lion breeding industry in South Africa. Unit for Livestock and Wildlife Economics Department of Agricultural Economics, University of the Free State, Bloemfontein.

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.

Valeix, M., Loveridge, A.J., Davidson, Z., Madzikanda, H., Fritz, H. & Macdonald, D.W. (2010). How key habitat features influence large terrestrial carnivore movements: waterholes and African lions in a semi-arid savanna of north-western Zimbabwe. *Landscape Ecology* 25:337–351.

Van der Waal, K.L., Mosser, A. & Packer, C. (2009). Optimal group size, dispersal decisions and postdispersal relationships in female African lions. *Animal Behaviour* 77: 949–954.

Van Orsdol, K.G., Hanby, J.P. & Bygott, J.D. (1985). Ecological correlates of lion social organization (*Panthera leo*). *Journal of Zoology, London* 206: 97-112.

Van Vuuren, J.H., Herrmann, E. & Funston, P.J. (2005). Lions in the Kgalagadi Transfrontier Park: modelling the effect of human-caused mortality. *International Transactions in Operational Research* 12: 145–171.

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. Available from http://www.traffic.org/species-reports/traffic_species_mammals83.pdf.

APPLICANT:

CLAY PARKER

NOTICE

OF

REPRESENTATION

NOTICE OF REPRESENTATION

This is a notice to the U.S. Fish and Wildlife Service that I have appointed John J. Jackson, III, of the non-profit firm CONSERVATION FORCE as my attorney and legal representative for all matters concerning my application for a Permit to Import a threatened-listed LION Trophy from R.S.A..

This authority is inclusive and extends to all applications and filings, whether administrative or judicial, including but not limited to any request for reconsideration, appeal, and litigation. This authority also may include execution of electronic signatures on my behalf, that may be required for the filing of my import permit application.

I also request that this attorney be copied with all correspondence, acknowledgements, notices and decisions concerning my application at the following address:

CONSERVATION FORCE
3240 S. I-10 Service Road W, Suite 200
Metairie, Louisiana 70001
USA
Tel.: (504) 837-1233
Fax: (504) 837-1145
Email: cf@conservationforce.org

(b) (6) [redacted]

SIGNATURE

CLAY A. PARKER

PRINT FULL NAME

04/12/2021

DATE

APPLICANT:

CLAY PARKER

OPERATOR ENHANCEMENT REPORT

ANNEX I
OPERATOR ENHANCEMENT QUESTIONAIRE

Operator Information

a. Name of Area Operator: Coenraad Vermaak Safaris
b. Years in business: 51
c. Name of company conducting hunt: Coenraad Vermaak Safaris
d. Country: South Africa

Concession

a. Name of Concession: Khamab Kalahari Reserve
b. Area in km²: 900
c. Land tenure:
   ____ Government Lease
   ____ Community
   ____ Private Ranch
   X___ Private Conservancy
d. Length of concession agreement: *Bi annual*
e. Can the concession be renewed? *Yes*
f. Length of renewal, if applicable: *2 Years*
g. Estimated trophy fees: *$263 100.00 in 2019 paid by Safari company to Reserve excl day fees & tax.*
h. Are there are special obligations under the Concession Agreement (e.g. annual reporting, poaching control, qualification requirements, community investment/employment? If so, please explain (attach extra documents if needed: n/a
i. Provide concession location and nearest city: *Dr Ruth Momphati District, Northwest Province, South Africa, Closest large town : Vryburg* (Cons Force has map depicting location)
j. Please attach a map or maps with marked boundaries and nearest city
k. If the concession borders a National Park, provide park name: No
l. Describe general and distinctive habitat/water features: *Typical Kalahari arid savanna (open and closed savanna) with no open water unless pumped into waterholes by management. Several dry calcrete pans across the landscape*

Communities in the Concession

a. Are there any communities living in the concession? *No X*
b. If so, estimated number of people/villages in the concession: n/a
c. Are there communities bordering this concession? Yes_____No *X*
d. If so, estimated number of peoples/villages around the concession: n/a

Relevant Game Populations in the Concession

Species	Relative Abundance (Dense, Average, or Sparse)	Estimated Population	3-Year Trend (Up, Down, or Stable)	How is it Monitored?
Elephant	Sparse	13	Up	Known population
Lion	Average	32	Up	Known population
Prey Species (if applicable)	Average	8000	Down	Aerial count
Other:				

a. If there are any population studies or reports being done in or around the concession area, please provide a copy with your application.
b. Are there any actions being taken to conserve game community habitat? If so, please explain and attach any relevant project photos or reports.

Local Community Participation

a. Total employment number: 35
b. Total employment in the off-season:35
c. Identify the number and type of all employees:

Employee Type	Number of Employees	Number of Employees from Local Communities	Number of Employees in the Off-Season
Professional Hunters	n/a		
Trackers			
Anti-poaching Scouts/Rangers	8	6	8
Other Anti-poaching			
Cooks/Housekeepers	7	7	7
Community Coordinators			
Managers	7	7	7
Biologists	1		1
Others:	12	8	12

Anti-Poaching Efforts

a. Number of anti-poaching staff: *8*
b. Are patrols conducted during the hunting season, off-season, or both? *Both*
c. Months patrols are conducted: *12 months*
d. Number of patrols per month: *Daily*
e. Estimate the percentage of trophy fees that go toward anti-poaching efforts: *At least 40 %*
f. Description of anti-poaching equipment, vehicles, gear, etc. *4 Toyota Land Cruisers / Standard anti poaching equipment for operators*
g. Do government-sponsored game scouts conduct patrols? *No*
h. If so, do they have the ability to arrest? n/a
i. Do you offer rewards to poaching informants leading to arrest? Yes *x* No ____
j. Do you offer rewards to poaching informants upon conviction? Yes____ No ____
k. Please describe the operator's anti-poaching expenditures over the past 3 years below:

Type of Expense	Year 1 (____) Spending	Year 2 (____) Spending	Year 3 (____) Spending	Remarks
Scout Salaries				
Equipment				
Vehicles				
Fuel				
Rewards				
Others:____				
Totals	$ 130 000	$ 130 000	$ 130 000	Annual spend equates to $ 130 K per year

l. What currency are the expenditures given in? US Dollars – current exchange rate = 15.5 :1 on USD to ZAR
m. Total ZAR expenditure per annum for the reserve = ZAR 2 000 000

Anti-Poaching Results

Type	Year 1 (____)	Year 2 (____)	Year 3 (____)	Remarks
Poaching Incidents Discovered	0	0	2	
Elephant Carcasses Observed	0	0	0	
Lion Carcasses Observed	0	0	0	
Leopard Carcasses Observed	0	0	0	
Ivory Poachers Observed	0	0	0	
Bush Meat Poachers Observed	0	0	0	
Illegal Logging Observed	0	0	0	
Other Poachers Observed	3	0	6	Poachers escaped out of custody of SAPS
Poachers Convicted	0	0	0	
Snares/Traps Collected	2	0	0	
Firearms Confiscated	1	0	0	
Vehicles Confiscated	0	0	0	
Bicycles Confiscated	00	0	0	
Boats/Nets Confiscated	0	0	0	
Tusks Recovered	0	0	0	
Others:_____			2 rhino poached end 2020	

Community Investment

a. Does the company give money or goods/services to local communities? Yes_____No *X*
b. If so, what percentage/amount is shared and how often, and how much is voluntary (i.e. more than required by law)? *No legal requirement in South Africa. There is also no immediate community in the vicinity of the reserve.*
c. Does the company provide game meat to nearby communities? Yes_____No *X*
d. If so, estimate the amount/value of meat contributed in the last year and describe that distribution program: *n/a*
e. Are there any programs run by the company that address human-wildlife conflict (e.g. patrolling field during harvest, PAC hunts, insurance programs); please describe. *n/a*
f. Describe any consolation payments made to local residents that have incurred damage by game species:

Species	Damage Caused	Consolation Paid, Year 1 (____)	Consolation Paid, Year 2 (____)	Consolation Paid, Year 3 (____)	Remarks
Elephant	n/a				
Lion	a/a				
Leopard	n/a				
Other:	n/a				

g. What currency are the expenditures reported in? *n/a*
h. Describe any community projects paid for by the company:

Product/Service	Spending, Year 1 (____)	Spending, Year 2 (____)	Spending, Year 3 (____)	Remarks
Education (classrooms, offices)				No close by communities

Education (supplies, fees)				No close by communities
Health (clinics, offices)				No close by communities
Health (equipment, salaries)				No close by communities

Product/Service	Spending, Year 1 (____)	Spending, Year 2 (____)	Spending, Year 3 (____)	Remarks
Community Scout Salaries				No close by communities
Community Anti-Poaching				No close by communities
Local Government Activities				No close by communities
Infrastructure Improvements				No close by communities
Sports Teams Funded				No close by communities
Construction Materials Donated				No close by communities
Other: _____				No close by communities
Other: _____				
TOTALS				

i. What currency are the expenditures reported in? n/a

j. Include receipts and photographs of projects, if available.

Company Clientele

a. How many U.S. clients did the company have in the past 3 years (indicate years), what percentage of clients were from the U.S., and what fees did they pay?

	Elephant	Lion	All Species
Number of U.S. Clients	NIL	2 in 2019	2018 x 33, 2019 x 31, 2020 x 1
Percentage of Clients from the U.S.	NIL	100%	99%
Trophy Fees Paid by U.S. Clients	NIL	45 000 each lion =$90 000 in 2019	Over the last 3 years + $580 000 for all species

b. Approximate amount/percentage of company's revenue from U.S. clientele: 99%

Hunting Policies

a. List the expertise required for the company's professional hunters (i.e. abilities and experience):
Must be Licensed for plains game and dangerous game hunting in RSA. PHs who guided lion hunts have 26 years and 18 years' experience.
Must be members of Custodians of Hunting and Conservation SA (CPHC-SA), PH association opposed to CBL hunting and unethical hunting.

b. Are there age/sex requirements for take of trophies? If so, please describe how this is enforced for each species (attach methodology, if available): _

Male lions are selected based on management requirements of the reserve's lion management plan? To date all Lions hunted have been 6 years plus, with some estimated to be 8 years and older. On all species we strive to hunt older than younger male animals. With species such as hartebeest, we do not take males out of breeding herds. Buffalo are hunted out of bachelor groups only. We try to steer clear of taking any male animals out of breeding herds, across all species.

c. Are there hunt return forms that must be reported to officials? If so, please include a copy of these forms or confirmation of their receipt for the past 3 years.
Hunt returns are logged on an APP on the PH cell phones, its called Cyber tracker. This records the location of where game was hunted and the sex, and it allows for comments. In addition, PHs can log rare game sightings, especially of black rhino where we recognize

individuals from ear notches and mark their locations. The same applies to lion, leopard, cheetah, white rhino and elephant, along with pangolin etc. The reserve management then download this information off our phones, preferably after each safari.

Other Information

Provide a narrative of other enhancement information about the operation, such as any additional hunting policies, maintenance of the concession, management activities, research, community involvement and outreach, etc.

The concession (Khamab Kalahari Reserve (KKR)) is very involved with broader conservation initiatives and has provided space for endangered species to flourish (wild dog, cheetah, both rhino species, African elephant, lion, pangolin). The has led to them donating African wild dogs on several occasions for translocation to other reserves as part of the National Wild Dog metapopulation. In 2019 KKR donated a pack of 16 African wild dogs for translocation to Gorongosa National Park in Mozambique.

It has also donated lions on several occasions to be relocated to other game reserves in South Africa, as well as the 24 Lions Project in Gorongosa National Park in Mozambique.

It has reintegrated a previously capture elephant herd used in elephant back safaris back to the wild in conjunction with the Elephant Reintegration Trust

KKR is member or take part in activities of the following conservation groups or organizations

Wild dog Advisory Group of South Africa

Participate in the Wild dog metapopulation project of the Endangered Wildlife Trust of South Africa

Lion Management Forum of South Africa

Participate in the Cheetah metapopulation project of the Endangered Wildlife Trust of South Africa

It has participated in or provided space and opportunity for several research projects, and some in planning for the future

- The ecology, diet, habitat preference of giraffe in the Kalahari – PhD study F. Deacon – University of the Free State
- Evaluation of restoration and management actions in the Molopo savanna of South Africa: an integrative Perspective – MSc study C.J. Harmse – Northwest University
- Broad- and fine-scale spatial variation in the impacts of disturbances caused by burrowing mammals on soil and vegetation - MSc study M.A. Louw – University of Pretoria
- The effect of fire on savanna vegetation dynamics in the semi-arid Molopo Bushveld region of the North-West Province, South Africa – Msc study A. Esterhuizen – Northwest University
- Selective foraging strategies on multiple nutrient resources by African elephant (*Loxodonta africana*) across a seasonal and rainfall gradient – Msc study H. van Leyleveld – University of Pretoria (not completed yet)
- Developing Welfare Parameters for African Elephants (*Loxodonta Africana*) in Fenced Reserves in South Africa – Scientific article by Marion Garai et. al. in preparation

I declare that the foregoing is true and correct.

x [signature] 8 April 2021
Sign Name and Date

x MR JOHANNES S VERMAAK (HANS)
Print Name and Title

Conservation Force - Supplemental Annex

1. Note the Fish and Wildlife Service asks for a map in three places - please attach a boundary Map of the hunting area, block, concession, and/ or conservancy. (needed response to questions 5.a. and 6.a. of the USFWS Application and Section J above)

2. Attach any written agreement with the local community. (Best evidence of community investment and participation)

3. Attach any written management plan for the area (evidence of conservation commitment)

4. Attach any report, documentary, or photographic evidence of the age of the trophy

5. Note: after the hunt is completed FWS needs the hunting permits, the date of the kill, any government/hunter return forms, and any proof of the age of the animal.

APPLICANT:

CLAY PARKER

LION MANAGEMENT PLAN FOR KHAMAB KALAHARI RESERVE

LION MANAGEMENT PLAN FOR KHAMAB KALAHARI RESERVE



A GUIDE TO DECISION MAKING FOR MANAGING LIONS ON KHAMAB KALAHARI RESERVE

khamab
Kalahari Reserve

KHAMAB KALAHARI RESERVE (Pty) Ltd

Vision

To create a game reserve that is large enough to conserve:

- *Unspoilt landscapes and habitats that visually typify the Kalahari Bushveld*
- *As wide as possible variety of African wild herbivores and carnivores that naturally occurred in such landscapes/habitats in the past.*
- *Natural ecological processes to the extent that the system functions with as little management intervention as possible.*

Mission

To realise the vision our mission is to take on the challenges of:

- *Maintaining (and where necessary restocking) viable populations of all the wild herbivore and predator species that occurred naturally in the Kalahari Bushveld in the past*
- *Giving very special attention to the conservation of endangered species such as black rhino, cheetah, wild dog and birds of prey*
- *Eliminating those plant and animal species that are deemed to be alien to this bioregion or for other reasons ethically unacceptable including domestic livestock*
- *Rehabilitating the Kalahari Bushveld landscape to resemble its former natural state by removing all signs of the visually unappealing structures of past farming and other land use and land development practices*
- *Restoring/simulating the natural ecological processes of the Kalahari Bushveld (e.g. fire frequency, surface water distribution, migration and predation) that have been disrupted by past farming practices*
- *Ensuring that all of the above is sustainable by:*
    - *Establishing a comprehensive wildlife research and monitoring programme*
    - *Harmonising the game reserve's policies, strategies, plans and actions with Government's vision, laws, policies, plans and aspirations for the region*
    - *Making the game reserve a long term investment success*

INTRODUCTION

The management of lions on small fenced game reserves has always been a contentious issue. There are two schools of thought; one promotes a hands-off approach to lion management as far as possible, while the other suggests the need for intensive management of the lion populations. Up till now not one of these points of view have been proven as the correct approach, although the intensive management of lions by far exceeded a hands-off lion management as the method of choice by reserve managers of small game reserves. Although the majority of reserve managers would prefer a hands-off approach, they feel that they cannot afford to let the lion population go, and in very small reserve they are right. Despite very intensive management of the lion populations, a large majority of reserves still experienced perceived "problems" with their populations. These "problems" were very rapid population growths resulting in high predation impacts on the prey populations, as well as issues with keeping the genetic integrity intact in the small populations.

Few reserves or national parks in South Africa are large enough to allow for a completely natural predator system, and all will require some sort of management intervention to a larger or lesser degree. However, the level of management intervention will depend on the objectives off each reserve, as well as the reason why they choose to have lions on the reserve

More and more studies are revealing how vital top predators are in the operation of ecosystem processes, which filters right down to the different trophic levels. Most lion reintroductions are for eco-tourism purposes rather than purely ecological reasons, but even though this is the case for most reserves, the value that they bring to the operation of the ecosystems is not always realized. The reserves whose primary motivation for introducing lions are for purposes of ecotourism, adopt mostly an intensive lion management approach to keep lion numbers within strict predetermined boundaries. This intensive management approach relies heavily on contraception, vasectomies and culling as a way of achieving their objectives. A small minority of reserves, on the other hand, sees lions as a very important part of the system and includes the importance of allowing the system to function with as little management intervention as possible as an objective in their management plans. This principle should also filter through to predator management plans, which should attempt to come as close to a hands-off approach on lion management as possible. However, the effect of a largely hands-off approach on "small" fenced reserves is still unknown, and it is unsure whether this approach will lead to natural population control measures (as seen in very large or open systems) to come into effect.

Lions have the capability to recover rapidly after disturbances, leading to rapid population growths on reserves after new populations get established, and quickly exceeds the pre-determined carrying capacity based on impact on prey populations. Previously managers reacted to this by regular translocation of lions to new reserves. However, options for translocations have largely disappeared as a result of excess lions available at several reserves across the country. This led to an increasing dependency on culling and birth control measures in an attempt to keep the fast population growth rates under control.

However, this approach is symptomatic and does not address to the underlying issues of why population "problems" occur. The challenge of developing a management plan is to find ways to mimic natural control mechanisms, thereby targeting the cause of ecological issues rather than treating the symptoms.

In natural lion populations, the high infanticide rates and associated social consequences as a result of regular turn-over of dominant males in prides lead to relatively stable populations. However, in small and highly controlled population this is not the case, and males tend to stay in "control" of

prides for very long periods, leading to pride instability and high cub survival. Also, regular population control actions, like culling and removals, prevent density dependent population control mechanisms from coming into effect. Two typical density dependent control mechanisms are age of first reproduction of females, and litter size. In low density populations lions breed at a younger age, have bigger litters, and the survival rates of litters are much higher. Therefore, regular culling or removal of lions leads to an increase in the above mentioned factors, resulting in faster population growth.

One of the biggest concerns for managers is the impact that lions have on the prey populations of small fenced reserves. This problem is exaggerated by inappropriate management actions like regular removal and/or supplementation of prey. Also, coupled with the factors in the previous paragraph, lack of social stability because of high male tenures and slow male turnovers, often resulting in several individuals rather than prides on a reserve, which increase the impact on the prey population.

One of the biggest mistakes is that managers ignore the temporal and spatial variability in ecosystems, and want to keep the system as stable as possible based on pre-determined "carrying capacities". This is largely driven because of economic demands and expectations, coupled with the demands of tourism and/or trophy hunting. Very few reserves will allow for the natural control mechanisms and the associated fluctuations to take its course.

Despite being the ideal management approach and the advantages associated with letting natural control mechanisms to come into play, it must also be kept in mind that it will probably not be possible in small fences systems, Madikwe Game Reserve being an example. Despite high lion densities and some natural control mechanisms starting to have an effect, the densities was still not high enough to ensure a population that can function without any management interference. If left completely, the population will without doubt reach a point where the lion population will regulate itself. However, the turning point in the population density where this will occur is unknown, and the associated impact in prey populations means that no reserve in South Africa has been brave enough or had the capacity to let this process run its full course. Therefore, as mentioned elsewhere, the objectives of each conservation area or reserve will determine at which point in time management will intervene, and what interventions they will use.

TABLE OF CONTENTS

INTRODUCTION I

TABLE OF CONTENTS 3

SECTION A: KHAMAB KALAHARI RESERVE: GENERAL INFORMATION AND INVENTORY 6

1 GENERAL 6

1.1 Name of Managing Director 6

1.2 Telephone and fax numbers 6

1.3 Property name 6

1.4 Farms making up the property 6

1.5 Extent of the property 7

1.6 Land use on neighbouring properties 9

1.7 Compiler of the management plan 10

1.8 Proximity to settlements, communities and tribal land 10

1.9 Potential for enlarging the property 12

1.10 Specifications of the perimeter fence 12

2 ECOLOGICAL 14

2.1 General climatic and hydrological data 14

2.1.1 Rainfall 14

2.1.2 Temperature 15

2.1.3 Hydrology 16

2.2 General description of geology and soils 17

2.3 Vegetation Biome and Bioregion 17

2.3.1 Summary of the vegetation of Khamab Kalahari Reserve 19

2.3.2 Species lists 21

2.4 Disturbed or degraded areas such as bush encroachment and soil erosion 21

SECTION B: MANAGEMENT GOALS AND OBJECTIVES 22

3 CONSERVATION ON KHAMAB KALAHARI RESERVE 22

3.1 Khamab Vision, Mission and objectives 22

3.1.1 Vision 22

3.1.2 Mission 22

3.1.3 Key Objectives 22
3.2 Conservation partnerships and memberships 23
3.3 Game species and numbers present on the property 23
3.4 Mammal species on Khamab 24
3.5 Endangered species conservation on Khamab 24
3.6 Waterhole distribution policy 24
3.7 Fire management 31
3.8 Rehabilitation programme for degraded areas 33
3.9 Population management of other wildlife species 34
3.10 Preferred herbivore density 34
3.10.1 Carrying Capacity 34
3.10.2 Limits of Acceptable Change 36
4 BASE FOR DEVELOPING A LION MANAGEMENT PLAN 37
4.1 Background to lion management on small reserves 37
4.3 Principles incorporated in the lion management plan 38
4.3.1 Restoring ecological processes 38
4.3.2 Mimicking of natural control mechanisms 39
4.4 Management considerations in the management plan 39
4.4.1 Excess lions and population control 39
4.4.4 Conflict with other predators 42
4.4.5 Effect on biodiversity/prey populations 42
4.4.6 Meta-population management 43
4.4.7 Human conflicts and compensation 43
4.5 Monitoring 44
5. DETAILED ADAPTIVE LION MANAGEMENT APPROACH FOR KHAMAB KALAHARI RESERVE 45
5.1 Strategy 1 (Restoring ecological processes) 45
5.2 Strategy 2 (Mimicking natural control mechanisms) 46
6. REFERENCES 48
APPENDIX 1: PLANT SPECIES LIST 50
APPENDIX 2 : LARGE MAMMAL SPECIES LIST 53
ENGLISH NAME 53
AFRIKAANSE NAAM 53
SCIENTIFIC NAME 53

APPENDIX 3 : LION MANAGEMENT PLAN FLOW DIAGRAM 55

SECTION A: KHAMAB KALAHARI RESERVE: GENERAL INFORMATION AND INVENTORY

1 GENERAL

1.1 Name of Managing Director

Johan Odendaal

Postal address:
P.O. Box 301
Groot Marico
2850

1.2 Telephone and fax numbers

053 938 0015
082 375 9381
johan@khamab.co.za

1.3 Property name

KHAMAB KALAHARI RESERVE

1.4 Farms making up the property

The farms making up Khamab Kalahari Reserve all the form part of a block named :
R/E of Block C 2nd Railway Grant

Table 1: The properties making up Khamab Kalahari Reserve

FARM NAME	NUMBER	PORTION	SIZE (ha)
Alberta 3/16	3	Portion 16	1,284.7980
Allegheny 1/34	1	Portion 34	2,984.2082
Colorado 1/54	1	Portion 54	3,237.2076
Dakota 1/51	1	Portion 51	3,842.7761
Dakota 3/17	3	Potion 17	1,070.6650
Donkerhoek 3/15	3	Portion 15 of 3	1,731.4795
Donkerhoek 3/3	3	Portion 3 of 3	1,731.4795
Eldorado 1/38	1	Portion 38	3,351.8231
Ella 1033	1033	Portion 0	2,141.7334
Esperance 3/2	3	Portion 2	3,821.8458
Glen Devon 1/36	1	Portion 36	4,065.9531
Lorraine 1/52	1	Portion 52	6,172.3934
Omega 1/139,	1	Portion 139	1,969.6647
Omega 1/141	1	Portion 141	1,400.1134
Omega 1/55	1	Portion 55	3,111.7811
Saratoga 1/138	1	Portion 138 of 53	2,217.5613
Saratoga 1/53,	1	Portion 53	1,156.1914
Simmenthal 1/43	1	Portion 43	5,139.1898
Suiderkruis 1/142	1	Portion 142	2,569.5960
Sweetwater 1/126	1	Portion 126	2,187.2043
Sweetwater 1/40	1	Portion 40	13,690.2119
Werda 3/4	3	Portion 4	1,498.9310
Wilzenau 1/ 152	1	Portion 152	5,111.8665
Wilzenau 1/ 155	1	Portion 155	5,050.5054
Wilzenau 1/150	1	Portion 150	3,634.7494
Wilzenau 1/151	1	Portion 151	4,953.7504
Wilzenau 1/160	1	Portion 160	5,851.8457
Ypello 3/5	3	Portion 5	557.7897
			95537.3147

1.5 Extent of the property

The total size of the properties listed above is 95 537.31ha in size. However, some parts of some of the properties above does not farm part of the bigger "open" reserve as they are cut off by national roads from the reserve.

Another farm, Ella 1033, are fenced off separately and used for breeding of sable.

The size of the reserve that is available to lions to roam is **88 374ha.** See the attached map in Section 2.9.2

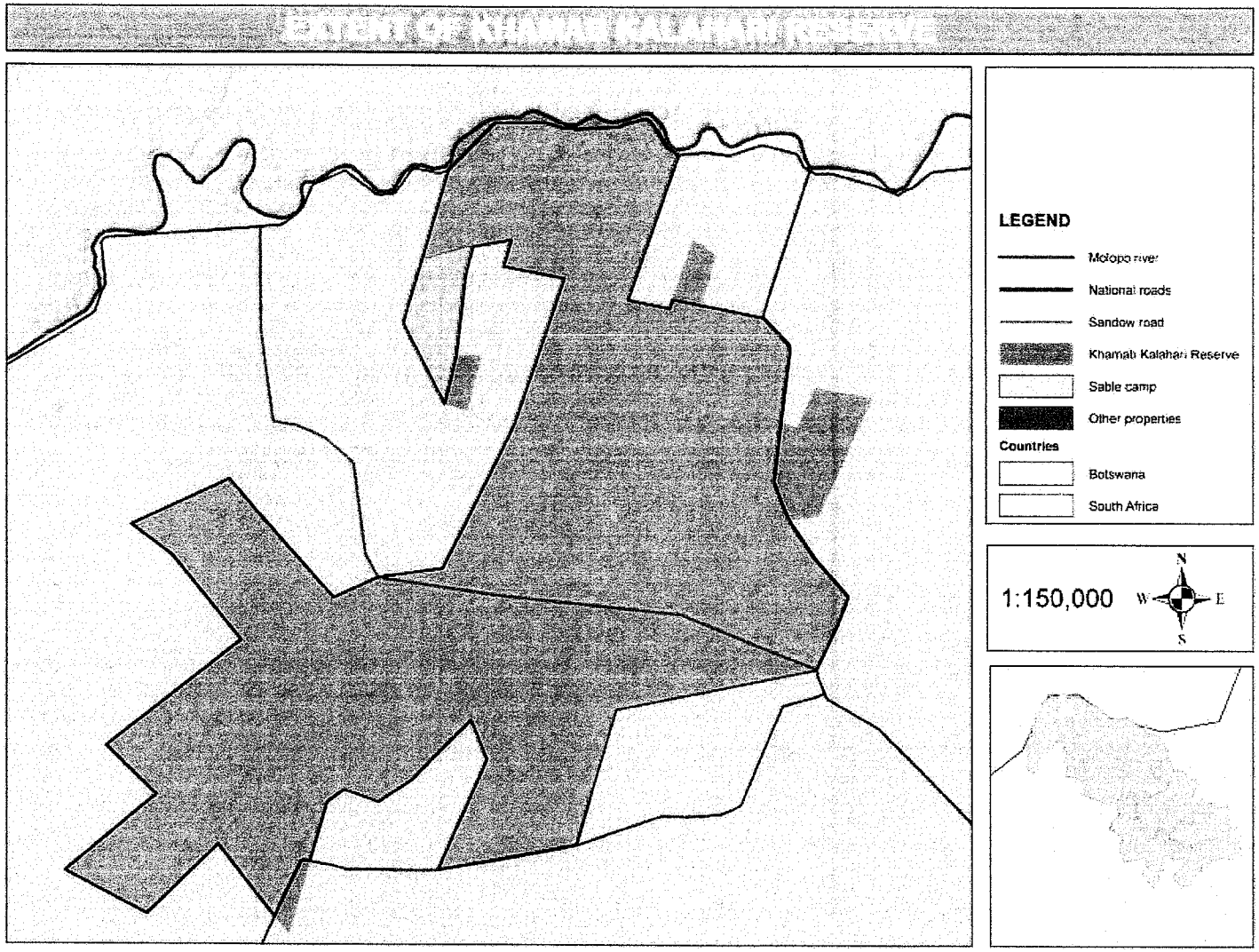


Figure 1: The extent of Khamab Kalahari Reserve

1.6 Land use on neighbouring properties

There are no crop and/or irrigation farming on any neighbouring farms or anywhere in the district close to Khamab. The land use on farms neighbouring Khamab Kalahari Reserve are limited to stock or game farming, hunting and a Big 4 game reserve.

The neighbouring farms, owners, land use and separation from the reserve are listed in the table below.

Table 2: Land use on neighbouring properties

FARM NAME	OWNER	LAND USE	DISTANCE
Ypello	Jan du Preez	Cattle farming	Immediate neighbour
Rusthof	Erich Graubner Jnr	Cattle farming	Immediate neighbour
Harmonie	Erich Graubner Snr	Game farming and hunting	Separated by Provincial road
Van der Merwe's Rust	Blikkies Bosman	Cattle farming	Separated by Provincial road
Suiderkruis	Khamab Kalahari Reserve	Game farming	Separated by Provincial road
Wilzenau	Hans de Klerk	Game farming and hunting	Separated by Provincial road
Wilzenau	Gideon Keyser	Cattle farming	Separated by Provincial road
Maginot	Piet Haasbroek	Cattle farming	Immediate neighbour
Allegheny	Marius Hamman	Cattle farming	Separated by Provincial road
Mannerheim	Government	Cattle farming	Immediate neighbour
Mannerheim	Harry Claasen	Game farming and hunting	Immediate neighbour
Phoenix	Government	Cattle farming	Immediate neighbour
Aurora	Marnus Steyl	Game farming and hunting	Immediate neighbour
Gemsdraai	Jaco Holtzhausen	Cattle farming	Immediate neighbour
Watersend	Jaco Holtzhausen	Cattle farming	Immediate neighbour
Nuutbegin Game Reserve	Dr Dawid Griesel	Big 4 Game reserve	Immediate neighbour
Ester	Pierre Bruwer	Cattle and game farming	Immediate neighbour
Wilzdale	Pierre Bruwer	Cattle and game farming	Immediate neighbour
Poland	Sakkie Koekemoer	Cattle and sheep farming	Immediate neighbour
Finland	Government	Cattle farming	Immediate neighbour
Lucy	Government	Not used	Immediate neighbour
Jeannette	Government	Not used	Immediate neighbour
Montana	Godfrey Moagi	Cattle and game farming	Immediate neighbour
Tosanjoley	Marius Prinsloo	Game farming and hunting	Separated by Servitude road
Bushy flats	SW du Preez	Cattle and game farming	Separated by Servitude road

1.7 Compiler of the management plan

Hanno Kilian

Ecologist: Khamab Kalahari Reserve

E-mail address: ecologist@khamab.co.za

Tel nr: 053 938 0015

Cell nr: 082 851 7296

Qualifications: Universtiy of Pretoria BSc (Agric); BSc. Hons (Wildlife Management), M.Sc (Wildlife Management)

1.8 Proximity to settlements, communities and tribal land

See attached map in Section 2.9.1 to see the location of KKR in the Molopo district and the distribution of surrounding settlements and towns.

The distances given below in Table 3 were measured from the centre of the reserve, as well as from the closest boundary of the reserve.

Table 3: Distances from release site to closest settlement

	DISTANCE FROM CENTRE OF RESERVE	DISTANCE FROM CLOSEST BOUNDARY
Settlement		
Bray	49km	33km
Vorstershoop	38km	15km
Tosca	86km	68km
Pomfret	48km	33km
Werda (Botswana)	33km	2.5km
Communities and tribal lands		
Werda (Botswana)	28km	1km
Morokweng communal areas	53km	38km

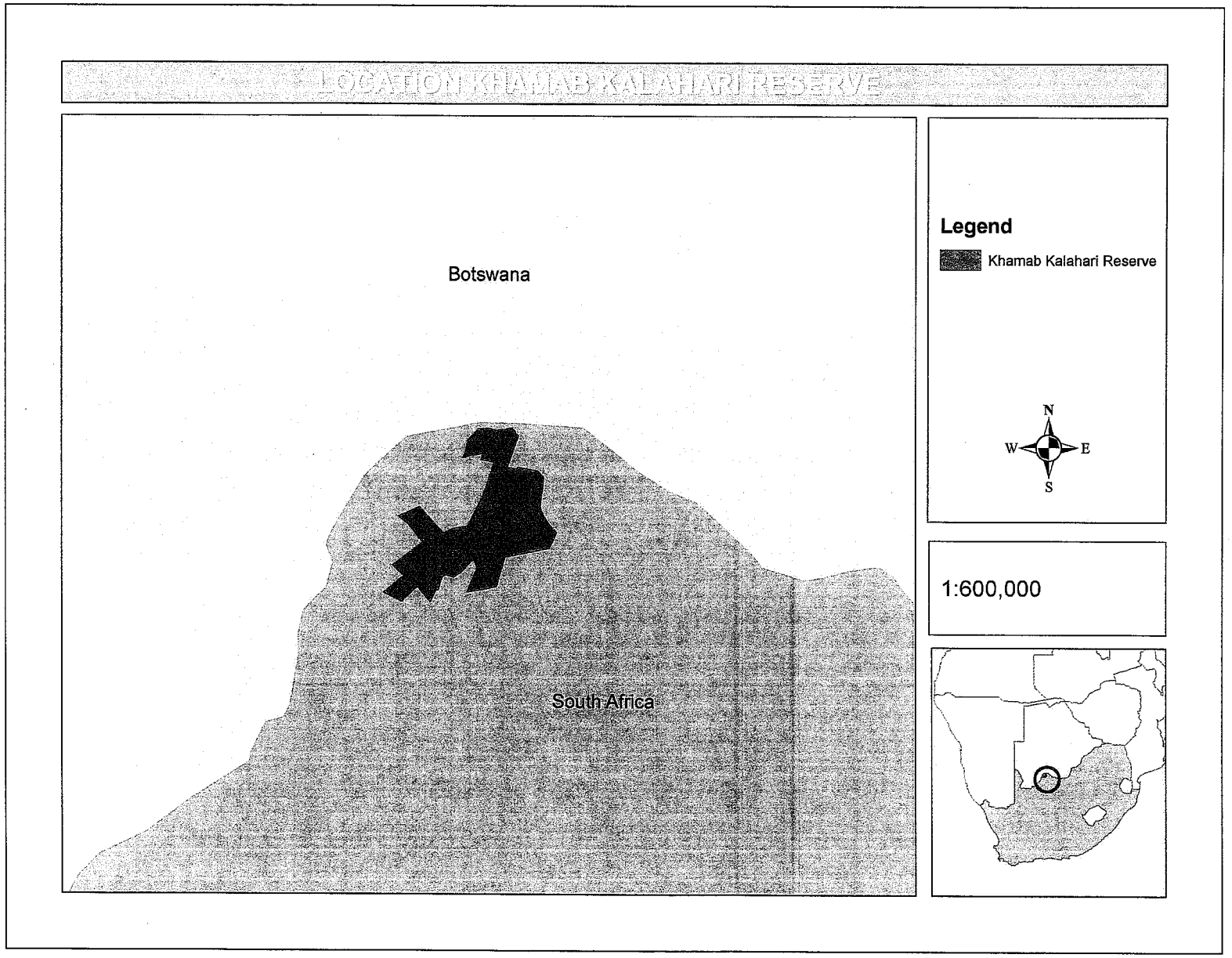


Figure 2: Location of Khamab Kalahari Reserve

1.9 Potential for enlarging the property

When Khamab started in 2007, there was an extensive drive to acquire a large portion of land, and several farms were bought and consolidated to shape the 95 500ha property.

Although it is not priority at the moment, there is potential for enlarging the current property by purchasing other neighbouring properties if they become available on the market. KKR will pursue these options if they are available at the right price in order to consolidate the current reserve.

1.10 Specifications of the perimeter fence

The fence line has been inspected and approved and are up to DACE specifications for the keeping of large game and predators.

The total height of the fence is 2.4m. The bottom 1.2m is fenced with bonnox, with 8 steel wires completing the top 1.2m.

On the inside of the fence there are five electrified strands at heights of 20cm, 50cm, 120cm, 180cm and 240cm as per specifications.

200mm line – on a 22cm double offset bracket with earth
500mm line – on a 22cm double offset bracket with earth
1200mm line – on a 22cm offset bracket
1800mm line – on a 40cm double offset bracket with earth
2400mm line – on a 40cm double offset bracket with earth.

An additional trip and earth wire about 60cm away from the main fence, and 10-20cm from the ground with an additional earth wire.

The voltage of the fence ranges between 6000V-8000V, and the entire fence line of 230km is patrolled on a daily basis.

The fence line is kept clean from plant material by the application of herbicides at a distance of 1m on both sides of the fence. A further 4m strip on the inside and a 2m strip on the outside are disked with a tractor and disk once a year to keep vegetation clear from the fence.

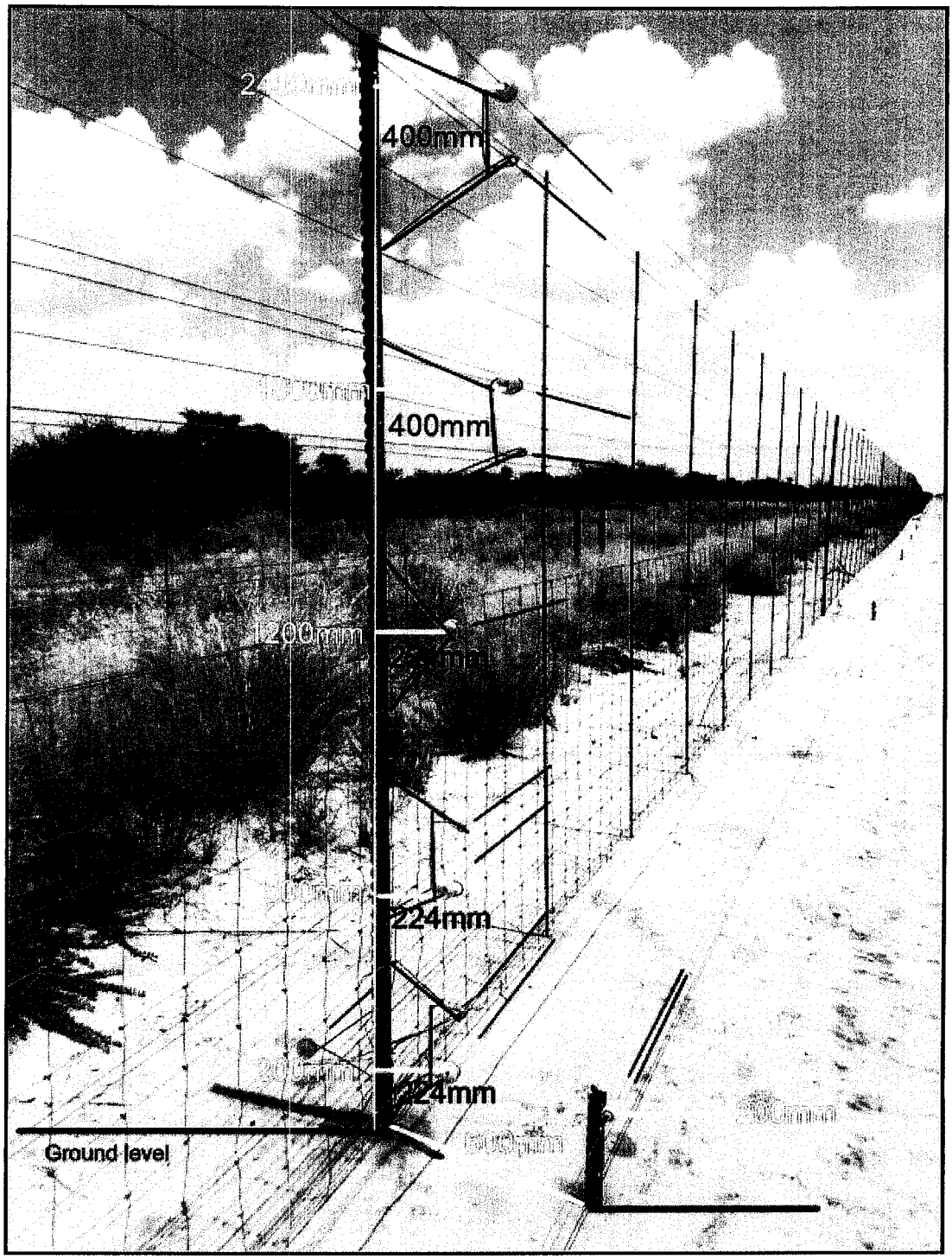


Figure 3: Photograph showing the KKR fence line, with heights and electrification indicated in different colours.

2 ECOLOGICAL

2.1 General climatic and hydrological data

2.1.1 Rainfall

Khamab Kalahari Reserve falls within the summer rainfall region of Southern Africa, with the majority of rain occurring between October and April. The mean annual rainfall according to farmers in the area is estimated at 320 mm, with a high annual coefficient of variation (CV) of 34%. This means that the area is semi-arid with a rainfall pattern that is erratic and unpredictable for any one year or series of years (Collinson & Brett 2007)

As to be expected in an arid environment, the annual mean rainfall across the reserve varies a lot between season to season. The period of 2011 to 2013 was very dry, with the 2012/13 season being particularly dry with only 188.3mm on average across the reserve. The perception during the 2013/14 season was that it was also very dry, but that was largely due to long periods during the rainfall season without any rain, and then the figures were bolstered when the majority of the rainfall all came in a short space of time towards the end of the season, as can be seen lower down in this document.

Table 4: Annual rainfall figures at the different weather stations on Khamab from July 2010 to June 2014

	Rainfall (mm)				**Annual mean**
Weather station	**2010/11**	**2011/12**	**2012/13**	**2013/14**	
Esperance	502.6	285.8	223.8	423.2	358.9
Ngwaphiwane	345.2	235.8	176.2	371.4	282.2
Sweetwater	401.8	249	164.8	447.6	315.8
Mean	416.5	256.9	188.3	414.1	318.9

This rainfall pattern can often be visually seen during the rainfall season, when thundershowers often pass the reserve on the south-eastern and eastern side, or on the north-western side. This is also reflected in the rainfall figures in Table 1 above.

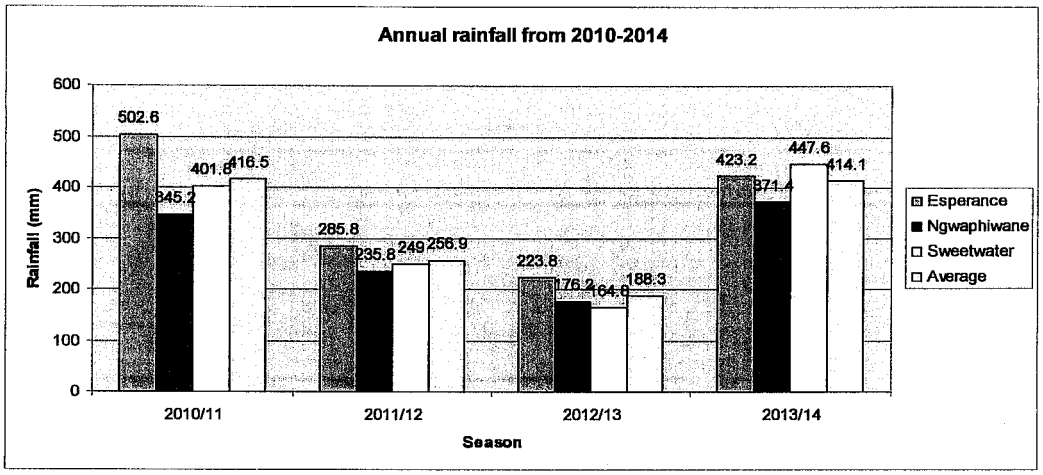


Figure 4: Annual rainfall at the different weather stations on KKR from July 2010 to June 2014

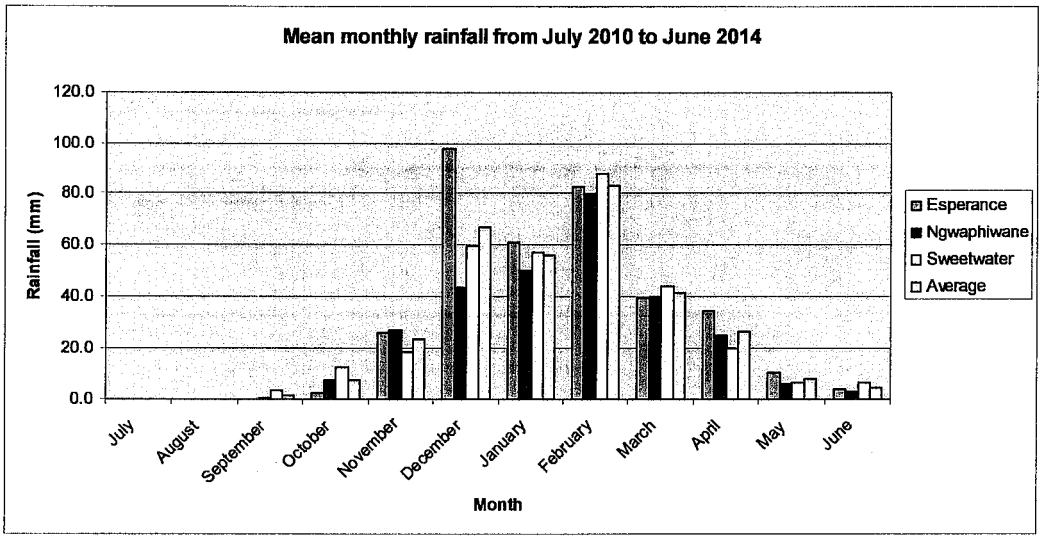


Figure 5: Mean monthly rainfall at the different weathers stations on KKR from July 2010 to June 2014

2.1.2 Temperature

Since the reserve started measuring temperature in 2010, the highest temperature measured on Khamab was 43.2°C which was measured at Esperance in October 2011, and the coldest temperature recorded was -7.1°C at Sweetwater in July 2012.

Over the last four years, the three months with the warmest mean temperatures were November, December and January, with January having the highest mean temperature of 26.7°C.

However, the highest mean maximum temperature is 40.3°C during November, followed by October and December with 39.7 °C each.

On average over the last four years, June has been the coldest month with a mean of 12.5°C, followed by July with 12.6°C.

The lowest mean minimum temperatures have been in June with -4.5°C, followed by July with -4.4°C.

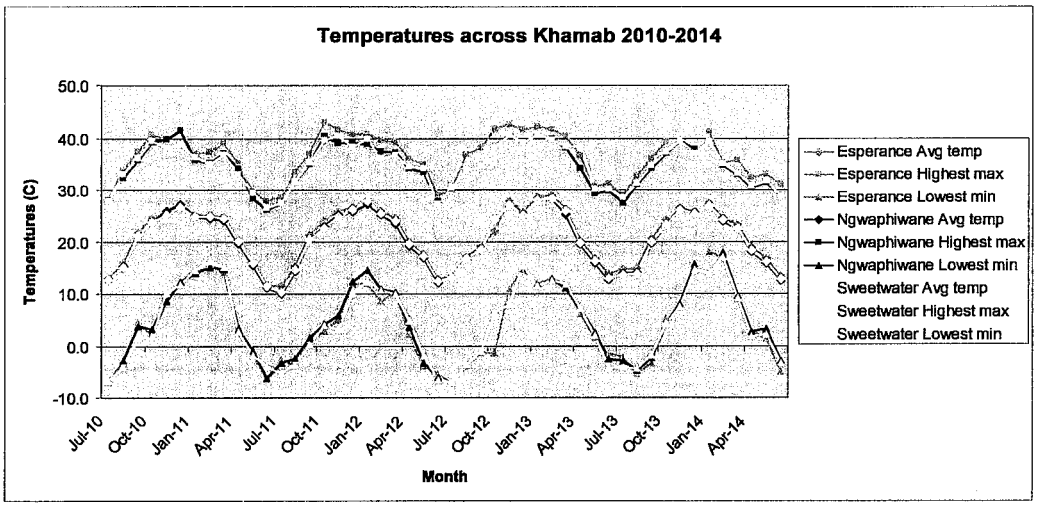


Figure 6: Monthly temperatures at the different weather stations on KKR from July 2010 to June 2014

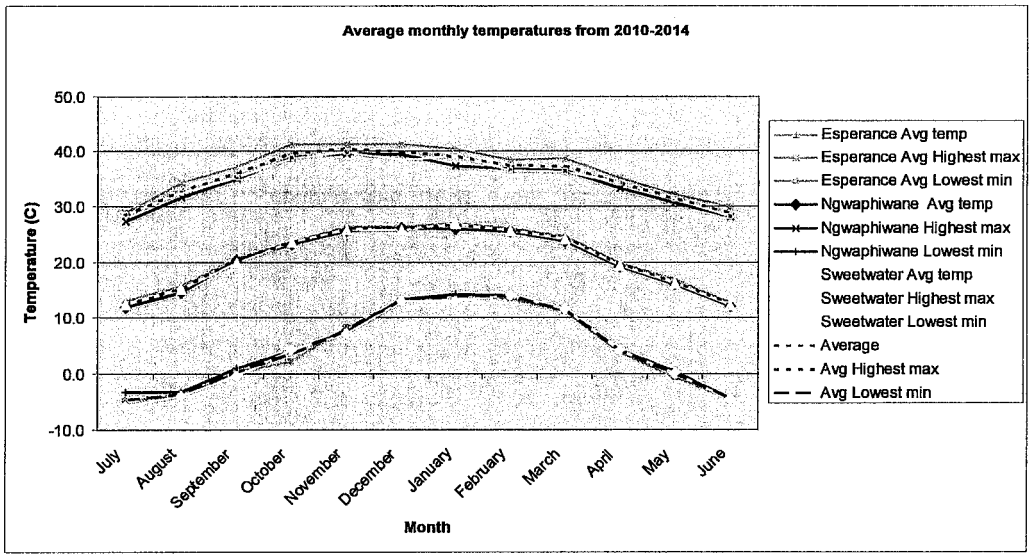


Figure 7: Mean monthly temperatures at the different weather stations on KKR from July 2010 to June 2014

2.1.3 Hydrology

The region is drained by the Molopo River. Although this river meanders for a great distance along the border between South African and Botswana before eventually joining the Orange River below the Augrabies Falls, it seldom has any surface flow. The fossilized Pephane River flows through the area to the southwest of KKR, but no other river courses (neither perennial nor ephemeral) are present on the reserve. Short-lived floods of the Molopo have occurred in recent years which attract a large number of water bird species into the area.

Accordingly, the key feature of the area is the complete absence of perennial surface water. This phenomenon has been the most important influence on the presence, abundance and distribution of indigenous plant and animal species.

Another significant feature of the area is the presence of endorheic pans (pans that do not possess an outflow). A number of large pans are present on the reserve. After the occurrence of heavy thunderstorms they may hold water for some time.

For the following reasons these pans add incredible value to a wildlife conservation project such Khamab Kalahari Reserve:

- The distribution of game animals (both herbivores and carnivores) tends to be highly concentrated on these pans and their immediate surrounds.
- This is due the soil nutrient status and soil moisture retention capacity of these pans being significantly higher than that of the "sea" of red sands making up the substrate of most of the area
- The presence of ephemeral surface water in these pans after thunder storms allows for "mini migrations" of certain water dependant game species (e.g. zebra) to grazing in areas that they normally avoid due to the absence of perennial surface water

The water table is generally very deep with boreholes being sunk to depths of 200 m. Due to the critical importance of groundwater in this semi-arid area with no perennial surface water, boreholes and the immediate surrounding areas are regarded as sensitive areas.

2.2 General description of geology and soils

The most visible geological feature of KKR is the substrate of red windblown sands of the Kalahari Group which occur uniformly over most of the reserve at depths which in places exceed 1.2 meters. These Kalahari sands are underlain by tillites, sandstones, mudstone and shale's. However, due to the depth of the sand substrate these rock formations are not visible on the landscape surface. Localised areas of exposed limestone (calcrete) occur along the Molopo River and in and around the edges of the pans. The Molopo river course is underlain by quartzites.

This uniformity of substrate on KKR is very different to most other areas in South Africa where landscapes are normally characterised by a mosaic of different soil and rock substrates. A less visible but, nevertheless, important additional feature of the geology of KKR is that groundwater is found at great depths beneath the deep layer of sandy substrate

Apart from its characteristic red colour and sandy texture, a key feature of the soil substrate is its relatively high fertility status. Another key feature is the very limited water-retaining capacity of the soil and the high infiltration and flatness means that there is virtually no runoff and all rain penetrates the soil. Soil erosion is thus of very little concern in this part of the Kalahari.

On a more scientific note these soils can be described as generally well-aggregated (apedal) and freely drained with a high base status which is the result of limited leaching under an arid climate. Soils of the river beds and pans are more alluvial in nature and their fertility status is even higher than that of the surrounding red sands. Occasional patches of lighter coloured sands (whitish to grey) are found in small depressions that intersperse the sea of red sands.

2.3 Vegetation Biome and Bioregion

KKR falls within the Savanna Biome of South Africa. This biome, which covers one-third of the country, is the most widespread of the biomes found in South Africa. As there are considerable climatic and therefore species variations within the Savanna Biome, with an east to west declining rainfall gradient, it has been considered useful to sub-divide this *biome* into six *bioregions*. Accordingly, KKR falls within the *Eastern Kalahari Bushveld Bioregion* which is that part of the Savanna Biome that extends westwards from Mafikeng to the Botswana border in the west and the Orange River in the south.

At a more local level the vegetation type in which KKR occurs has been classified and named in various ways over the years by various authors as follows:

- Kalahari Thornveld - Acocks (1975)
- Kalahari Plains Thorn Bushveld – Low & Rebelo (1996)
- Molopo Bushveld – Mucina & Rutherford (2004)

The above vegetation types are thus essentially synonymous with each other but for convenience the most current of these, namely Molopo Bushveld, will be used in this report. In broad terms the Molopo Bushveld may be described as follows:

- Structure – open woodland to a closed shrubland
- Prominent tree species – *Acacia erioloba, Boscia albitrunca, Ziziphus mucronata, Acacia mellifera, A. luederitzii* and *Terminalia sericea*
- Prominent shrub species – *Acacia haematoxylon, Acacia hebeclada, Grewia flava, Rhus burchelli, Rhus tenuinervis, Lycium cinereum, Euclea undulate, Ehretia rigida* and *Rhigozum trichotomum*
- Prominent grass species – *Schmidtia pappaphoroides, S. kalahariensis, Stipagrostis uniplumis. S. ciliata, Cenchrus ciliaris, Andropogon chinensis, Aristida diffusa, Digitaria eriantha, Urochloa mozambicensis, Panicum coloratum, Setaria verticilata, Cynodon dactylon, Eragrostis lehmanniana, E. rigidior; Heteropogon contortus* and *Melinis repens.*

Large specimens of *Acacia erioloba*, commonly known as the Camel Thorn, are a key feature of this veld type and for that matter the Kalahari as a whole. Unfortunately, large specimens of this species are scarce over most parts of KKR except on the deeper sands along the banks of the Molopo River. Their scarcity in KKR and the surrounding farms is attributed by some local land owners to large scale felling of the larger trees for fence posts and charcoal production in the past. However, field observations suggest that the scarcity of large specimens is more likely to be substrate influenced (large trees confined to pockets of deeper sand underlain by a relatively high water table) and hence a natural ecological phenomenon rather than man induced.

The floors of the scattered pans of the Molopo Bushveld are dominated by grasses such as *Sporobolus coromandelianus, Enneapogon desvauxii* and shrubs such as *Rhigozum trichotomum* and *Monechma incanum.*

The essential characteristics of the vegetation of the Molopo Bushveld can be summarised as follows:

- **Low tree and shrub diversity:** This is in keeping with an observed marked decrease in the diversity of tree and shrub species along an east to west gradient within the Savanna Biome. Accordingly species to area ratio in this part of the Kalahari is less than half the average for the Savanna Biome. The cause of this is the combination of the low

erratic summer rainfall, high evapo-transpiration and winter frosts. In such harsh climatic conditions deep soils are needed for trees and shrubs to survive. Thus if the deep sands were not present the tree and shrub diversity of this area would be even lower.

- **Low community/habitat diversity:** Prior to the impact of cattle farming the vegetation was, according to historical accounts, conspicuously uniform throughout i.e. open woodland dominated by *Acacia erioloba* and *Boscia albitrunca* with a low shrub under storey of *Grewia flava*. The exceptions to this are where *Terminalia sericea* thickets on patches of deep white sands and the sparsely scattered pans that is virtually devoid of shrubs and trees. This tendency towards vegetation uniformity, and hence a low diversity of vegetation communities and habitats, is due to:
  - The extremely harsh and evenly spread climatic conditions on the one hand
  - Together with the very uniform nature of the topography, altitude, geology and soils, throughout the area.

  Such uniformity is very unlike most other areas in South Africa where high variability of the components of the physical environment (especially soil patchiness) causes high variability in the vegetation pattern and hence high habitat diversity.

- **High palatability and nutritional value:** Despite the low species and habitat diversity, the vegetation is extremely palatable and nutritious. In sharp contrast to other areas in South Africa almost every tree, shrub and grass species that occur in the Molopo Bushveld are readily grazed or browsed by domestic and wild herbivores alike. This is due to the fertile and alkaline nature of the red Kalahari sands. The end result of this is that, despite the low vegetation diversity of the area, the Molopo Bushveld has the potential to carry a wide variety of large wild herbivores and carnivores.

2.3.1 Summary of the vegetation of Khamab Kalahari Reserve

The KKR consists of three distinct major plant communities with different sub-communities and variants totalling 11 different vegetation-cum-habitat units.

According to Mucina & Rutherford (2006) the vegetation of the study area falls within the Molopo Bushveld (SVk11) also known as Kalahari Plains Thorn Bushveld by Low & Rebelo (1996) with the Southern Kalahari Salt Pans (AZi4) vegetation type comprising small sections within KKR Reserve.

The vegetation of the **Molopo Bushveld (SVk11)** is described as open woodland and closed shrublands. The trees *Acacia erioloba, Boscia albitrunca* and *Terminalia sericea* together with the shrubs *Lycium cinerium* and *Rhigozum trichotomum* are characteristic. Dominant grasses include *Cenchrus ciliaris, Aristida stipitata, Aristida meridionalis, Eragrostis lehmanniana* with common forbs such as *Hermannia tomentosa, Limeum fenestrate, Sienna italica, Geigeria ornativa* and *Hermbstaedtia fleckii.* Biogeographically important taxa include the trees *Acacia luederitzii* var. *luederitzii* and *Acacia haematoxylon* and the graminoids *Antephora argentia, Megaloprotachne albescens* and *Panicum kalahariense* (Mucina & Rutherford 2006).

Unfortunately large sections of this vegetation type has been degraded due to human actions such as agriculture and intensive tree removal using herbicides that has led to bush densification by plant species such as the tree *Acacia mellifera,* the shrub *Grewia flava,* and the forbs *Geigeria ornativa* and *Tribulus terrestris* to name a few.

Communities 1 and 2 of the KKR are classified within this vegetation type. Community 1 (*Verbesina encelioides-Schmidtia kalahariensis* Grassland) is typical of water points and degraded areas (old cattle kraal sites). It occurs as small units scattered throughout the

reserve. Some of these areas are bare open patches and should be monitored to prevent the vegetation from overgrazing, while the other areas have relatively good herbaceous cover and provides grazing to animals for short periods. The *Grewia retinervis-Acacia erioloba* woodland (community 2) comprises the largest section of the reserve. The area is relatively homogeneous and flat with different variants mainly as a result of past management practices. These areas provide good grazing to animals with various important grazing grass species (e.g. *Schmidtia pappophoroides, Stipagrostis uniplumis, and Eragrostis lehmanniana*) prominent and dominant. No erosion was observed. Large scale herbicide application has unfortunately resulted in a catastrophic decline in woody species and can be seen with the many dead tree trunks remaining only (see photo below).



Although these actions may lead to an increase in grass production in the short term, it eventually leads to total degradation of diverse and species rich ecosystems. Trees and grasses are elements of this ecosystem and if excessive disturbances occur in the one element it will also influence the other. Trees play an important role in the ecosystem where they provide shade and cooler, more moist conditions to grass and other forb species preferring such conditions. Apart from also being a source of food for browsers, they also act as resting and sleeping places for animals and generally have a higher diversity of species growing underneath them. Grasses are important in protecting the soil from erosion and exposure to the environment. They also provide nutrients to the soil due to decomposition of dead material while being the only source of food for grazers. Although there is a constant competition between the grass and tree layer there are also interspecific completion between different tree species as well as between the different grass species themselves. Thus a disturbance in any one of the tree or grass layer will not only have an influence on the grass-tree interaction, but also on grass-grass and tree-tree interactions. That could therefore lead to a complete change in species composition and dominance.

Trees are normally removed to provide improved grazing. If selective removal is affected it could indeed improve the production potential of the veld. However, if large scale non-selective clearing takes place it will lead to an increase in production of the grass layer in the short term due to the higher nutrient conditions of the soil where trees used to be. However, once these nutrient sources have been depleted over a few years the high production grasses will die off quickly only to be permanently replaced by pioneer and low production grasses. At the same time indigenous invasive woody species could easily establish and form dense impenetrable stands leading to a further decline in grass production of the veld.

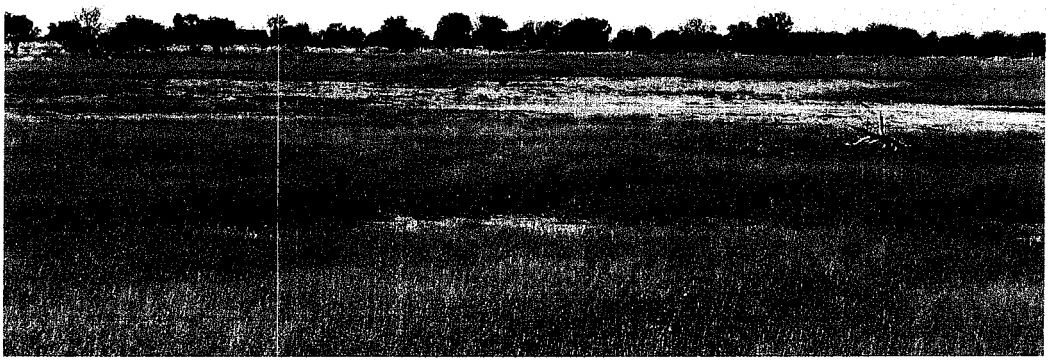
Many of these changes have been observed within the study area, where various species such as *Grewia flava* and *Acacia mellifera* have become prominent in areas where large-scale

tree removal has taken place. The grass layer in these areas has also become very homogeneous with only one or two grass species dominating. Thus a loss in biodiversity has occurred in these areas. Trees also act as refuge areas for different herbaceous species. This has also been observed during the field surveys with most of the different grass and forb species recorded per plot occurring underneath trees and dead tree trunks.

It therefore seems as though the previous large-scale tree removal did negatively affect some areas of the reserve. However, the fact that no intensive grazing has taken place for many years has allowed some areas to show signs of recovery. Large areas typical of *Acacia erioloba-Boscia albitrunca* veld are still present with higher species richness than the bush cleared areas.

The Southern Kalahari Salt Pans (AZi4) comprises low grasslands on pan bottoms and are sometimes devoid of vegetation (Mucina & Rutherford 2006). These pans are located on sandy sediments of the Cenozoic Kalahari Group and consist of sandy loam sand with a high calcium and phosphate content. These pans are exposed to the environment for the largest part of the year with water present only for short periods in the rainy season (Mucina & Rutherford 2006). Some larger pans do however keep water for longer period, but the pans are mostly shallow.

These pans are all present within the reserve and add to the diversity and species richness of the area. No signs of overutilization or degradation were observed during the surveys and the vegetation is typical of the vegetation type.



2.3.2 Species lists

The list of species identified during the vegetation surveys are presented in **Appendix 1**.

2.4 Disturbed or degraded areas such as bush encroachment and soil erosion

As a result of the flat topography and sandy soils into which water quickly infiltrates, as well as a good vegetation cover, soil erosion from both water and wind is largely absent from the reserve.

See the detailed description of degraded areas as a result of the use of herbicides to control bush encroachment in the past as described above in the summary of the vegetation.

SECTION B: MANAGEMENT GOALS AND OBJECTIVES

3 CONSERVATION ON KHAMAB KALAHARI RESERVE

Khamab was established in 2007 as a private venture in the Molopo district of the Eastern Kalahari Bushveld. It started with several properties being bought and amalgamated into a single property which is fenced with electrified game/bonnox fencing around the entire outside perimeter of 230km, with all the internal fences removed. The result is a property of just over 90 000ha which is completely open for animals to roam freely.

The size of the property makes it the biggest conservation area in the Northwest province by some margin, and in that regard Khamab plays a key role in conservation in the Northwest province. KKR's size means that it conserves a significant portion of the Eastern Kalahari Bushveld.

The vision, mission and key objectives of Khamab Kalahari Reserve is given below, emphasising the commitment of the reserve to conservation as well as highlighting that conservation is the only objective of the reserve (Collinson & Brett 2007).

3.1 Khamab Vision, Mission and objectives

3.1.1 Vision

The vision for KKR is to create a game reserve that:

- *Comprises unspoilt landscapes and habitats that visually typify the Kalahari Bushveld.*
- *Sustains the full spectrum of African wild herbivores and carnivores that naturally occurred in such landscapes/habitats in the past.*
- *Enables the ecological* processes *of the system to function with as little management intervention as possible.*

3.1.2 Mission

In realising this vision, KKR's mission is to establish a conservation icon that is held in high esteem both nationally and internationally for its positive contribution to wildlife conservation and the community at large.

3.1.3 Key Objectives

KKR's mission will be accomplished through the achievement of the following key objectives:

- Re-establish and sustain viable populations of the full spectrum of wild herbivore and predator species that occurred naturally in the Kalahari Bushveld in the past by undertaking a scientifically based reintroduction program and thereafter applying sound conservation practices
- Attain a high level of success in the conservation of endangered species such as black rhino, cheetah, wild dog and birds of prey by conducting comprehensive research programs and state of the art conservation management
- Eliminate those plant and animal species that are deemed to be alien to this bioregion or for other reasons ethically unacceptable including domestic livestock

- Rehabilitate the Kalahari Bushveld landscape to resemble its former natural state by removing all signs of the visually unappealing structures of past farming and other land use and land development practices
- Restore/simulate the natural ecological processes (e.g. fire frequency, surface water distribution, migration, herbivory and predation) and vegetation pattern/composition of the Kalahari Bushveld that have been disrupted/depleted/distorted by past farming practices.

Therefore, in striving to achieve these key objectives described above, the primary reason for keeping lions on Khamab is to have the full spectrum of carnivores that occurred in this landscape in the past. Coupled with this is to allow the ecological processes of the system to function with as little intervention as possible, of which lions as top predator should play a vital role.

3.2 Conservation partnerships and memberships

As captured in the vision of the reserve, Khamab wants to make a positive contribution to the conservation of wildlife and ecological processes, and hence the commitment to contribute to conservation at all levels. This includes the conservation of endangered species like wild dog (*Lycaon pictus),* cheetah (*Acinonyx jubatus)* and black rhino (*Diceros bicornis).*

In this regards Khamab participate and partners in the following conservation groups:

- Wilddog Advisory Group
- National Cheetah Metapopulation
- Lion Management Forum (LiMF) – one of the founding members

3.3 Game species and numbers present on the property

The table below shows all the species present on Khamab that was seen during the annual aerial census of 2015 (Kilian 2015).

Table 6: The results of the 2015 census.

SPECIES	TOTAL 2015
Black rhino	xx*
Blue wildebeest	2488
Buffalo	191
Cheetah	15
Duiker	90
Eland	1317
Gemsbok	3929
Giraffe	137
Impala	31
Kudu	459
Ostrich	43
Red hartebeest	870
Sable	7
Springbok	807

Steenbok	424
Warthog	769
Waterbuck	9
White rhino	xx*
Zebra	1161
Grand Total	14719

*Black and white rhino numbers are not included for security reasons.

3.4 Mammal species on Khamab

The full list of large mammal species occuring on Khamab is included in Appendix 2.

3.5 Endangered species conservation on Khamab

Khamab Kalahari Reserve conserves and is home to 2 mammal species currently on the IUCN Red List as endangered, while 5 others are lists as vulnerable or near threatened.

Black rhino - Critically endangered

African wild dog- Endangered

White rhino - Near threatened (population decreasing)

Leopard - Near threatened (population decreasing)

Brown hyena - Near threatened (population decreasing)

Elephant - Vulnerable

Cheetah - Vulnerable

Lion - Vulnerable

3.6 Waterhole distribution policy

The general belief amongst wildlife managers in South Africa is that *"the more water points provided, the more productive the wildlife and the healthier the vegetation"*. Put another way it is widely believed that many closely spaced water points is the universal remedy for achieving wildlife conservation objectives. This belief is unfortunately based on "intuition" rather than "good science". As a consequence of this much money and time is spent on the development and maintenance of permanent water points when it could have been spent better on other. In opposition to this "intuitive" approach, a "good science" approach to permanent surface water provision has been slowly gaining acceptance over the past two decades. For example it is now firmly entrenched in Kruger National Park – South Africa's premier protected area – as the outcome of some bitter lessons learnt along the way viz. declines in rare species numbers, undesirable eruptions in elephant numbers and bush encroachment due to the past practice a dense network of permanent water points throughout the Park. This gradual move to a "good science" approach has also been influenced by experience gained in semi-arid areas elsewhere - including both wildlife and domestic livestock grazing systems - where permanent water point provision was based on intuition rather than science. (Collinson and Brett, 2007) .

The effect that the distribution of surface water has on heterogeneity and ecological processes in a system is better understood, and is starting to play a much bigger role in how ecosystems are managed. The use of surface water by animals influences faunal distribution patterns across a range of spatial scales like landscape patterns. This is largely attributed to how different species utilise space at various distances from water sources. Some animals like gemsbok and eland would not need close association with water sources, while others like impala, buffalo and elephant would have a much closer association with available water sources. This in turn will influence species like lion, which tend to associate more with water sources, and how they impact on prey populations (Gaylard et al 2003)

Water distribution will also create community level patterns. These patterns that are influenced by surface water availability and distribution include direct changes to faunal compositional diversity and changes brought about indirectly by changing the frequency or intensity of ecosystem processes such as competition. An example of this is the requirements of diverse habitats necessary for the coexistence of the spectrum of carnivores, where cheetah prefers more open tree savanna and wild dog more densely wooded areas. Extensive water provision will lead to homogenization of the landscape vegetation structure, which in turn threatens the coexistence of carnivores (Gaylard et al 2003)

As said, surface water distribution will influence vegetation patterns on a landscape as well as ecosystem and population levels. On a landscape level the water distribution influence the landscape mosaic of vegetation condition and type, for example the influence that elephants or some intensive grazer will have on vegetation closer to water sources. On an ecosystem level water distribution will influence the formation of piosphere effects around water sources, where the increasing distance away from water source tend to decrease the density of the woody component and an increase in the grass component. The quantity and quality of the herbaceous community tends to improve with distance away from a water source (Gaylard et al 2003)

From these lessons learnt the challenge for KKR is to approach the provision of artificial water points for game in a way that is in accord with its vision and the foundation for the achievement of its objectives (Section B Point 3.1).

Very few reserves have the space available to implement this strategy with regards to water distribution. KKR does have enough space and are in the position to implement this management strategy.

When the reserve was started, there were more than 100 water points on KKR, and the distance between these points is in most cases were less than 5 km, giving a maximum foraging distance from water of 2.5 km. They were maintained by pumping and piping from boreholes. Prior to the acquisition of the land for establishing KKR, the primary purpose of these water points was to provide drinking water for cattle. On a few properties they provided for game animals.

From lessons learnt from the Kruger Park *"learning by doing experiment"* and from similar experiences elsewhere, it was recognised that KKR's conservation vision and objectives (as described elsewhere) would certainly not have been realised if the permanent water points on KKR were maintained in place as they existed at the time and that the prevailing water points had to be drastically reduced in number and realigned in cognisance of the ecological principles implied in the management objectives and modern thinking with regards to water distribution as described earlier.

Accordingly, the plan for the KKR was to reduce the number of permanent water points to a total of 8 and locate them as indicated in the configuration presented in Figure 13 below.

However, some of these old waterholes are being kept as temporary waterholes that can be used in the event of very severe droughts to provide water points in areas far from the permanent water points where some forage may still be in existence. To provide for such exceptional circumstances, five such water points and associated infrastructure (equipped boreholes, pipelines) will be maintained in a dormant state but in good working order.

In deciding on the number and configuration of permanent water points for KKR the following was taken into account:

- If restoration/simulation/maintenance of ecological processes was the sole objective of KKR then the ideal water point configuration would be either:
    - A single water point situated in the centre of the game reserve; or
    - A line of water points in the north that simulates a linear source of surface water - as would have been the case during the times when the Molopo River was perennial.
- However, to carry populations of water dependant species that are large enough for sustaining genetic viability, this ideal configuration will not suffice – especially for elements of the big 5 such as lion, elephant, buffalo and rhino
- Sustaining these species is an essential element of KKR's vision as well as for achieving the secondary objective (strategy) of creating meaningful economic activity on KKR through tourism and trophy hunting
- Furthermore, for tourism to be successful it is preferable to have more water points (and hence more localised concentrations of animals) spread over a wider geographic area than that of the ideal configuration – but with the rider that water points still need to be widely spaced from each other so as to encourage these desirable localised concentrations of animals from game viewing i.e. the number and spacing of water points needs to be optimised
- This desired optimum configuration of water points for tourism is also of great benefit for reducing territorial conflict (especially black rhino) and conflict between carnivore prides/packs (especially lions and wild dogs).
- While from a tourism perspective it is ideal to place water points on pans it is important from a species diversity perspective to leave a large number of pans free of permanent water i.e. water independent species (springbok, gemsbok, hartebeest) are highly reliant on pans for grazing and when permanent water is provided on pans these water independent species have to compete with water dependent species for this grazing
- Water points were moved away from fences as far as possible to reduce the density of prey animals along the fence and the possible associated effect of predators regularly chasing prey into fence lines
- One pan was kept on a large pan to provide the spectacular views associated with large numbers of animals on a large open pan
- Pans were positioned on natural depressions or very small pans (panlets)

On the basis of the above, the number and configuration of permanent water points indicated in Figure 13 represents what is considered to be a balanced compromise between competing objectives and strategies for the start-up phase. The merits of this compromise will then be evaluated over time by the process of *adaptive management*. In the meantime this start up configuration will be strictly maintained in place and only considered for

modification if the evaluation of monitoring feedback clearly indicates that objectives and strategies are not being achieved – and that this is clearly a consequence of the behaviour of populations and processes not conforming to the assumptions discussed earlier.

Waterholes were kept as natural as possible to simulate ephemeral water sources that are found in these depressions after rainstorms, albeit permanent in this case. Where these depressions were very sandy, clay from the Molopo River was used to seal these depressions to create waterholes. This provides a natural feel to the waterhole, as well as provide place for animals to roll, as well as provide habitat for frogs etc. See the photographs below of the water points on Khamab

There are no permanent open water on KKR, so these waterholes are all pumped from boreholes through and extensive pipe network system.

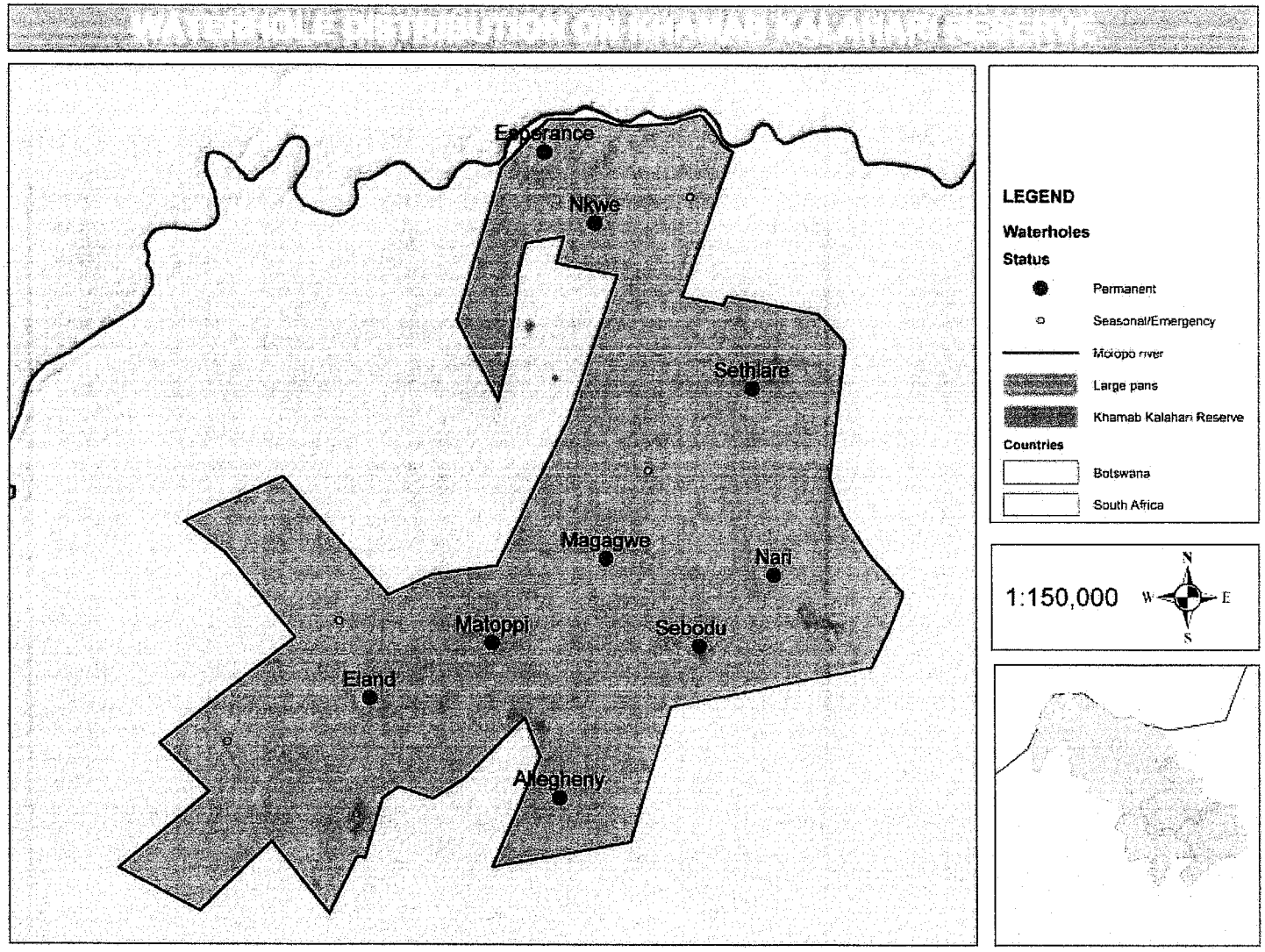


Figure 8: Waterhole distribution on Khamab Kalahari Reserve

Allegeny pan



Eland pan



Esperance pan



Magagwe pan



Nari pan



Nkwe pan



Sebodu pan



Sethlare pan



3.7 Fire management

Fire is a common disturbance in many terrestrial ecosystems, where it consumes enormous quantities of biomass. In Africa savannas, fire, climatic variability, soils, and large herbivores interact to shape the vegetation, driving spatial and temporal heterogeneity across the landscape. Fire affects the plant communities through large scale, episodic removal of biomass and the delivery, in some cases, of lethal temperatures to plant materials. It has been described as a large generalist herbivore (Bond 1997) that sometimes competes with, sometimes replaces, and sometimes facilitates herbivory. Many studies have shown that the exclusion of fire from savannas leads to an increase in woody biomass, and this has been interpreted that fires are essential for the persistence of savannas. However, in dry environments the exclusion of fire does not lead to the formation of forests, but rather to a denser form of savanna (Van Wilgen and Scholes 1997). Almost all plant species in arid savannas are able to survive repeated, frequent burning largely by resprouting. Pockets dominated by fire-intolerant species are not a feature of the landscape. Debates on the role of fire in such savannas therefore focus not on the conservation of fire-sensitive species but rather on their role in promoting dominance by certain species over others. Grass-tree coexistence may be made possible by separation of rooting niches, with trees having sole access to water in deeper soil horizons, and grasses having preferential access to, and being superior competitors for, water in the surface soil horizons.

Veld burning in conservation areas has for decades been, and still are, a contentious aspect of the management of southern African vegetation for three basic reasons. Fire is an obvious ecosystem driver (Walker 1987); there are important gaps in our understanding about the actual effects of fire including the interactive effects together with other factors such as herbivory (Bond 1997); and multiple practical fire management options appear to be available to managers (Bradstock *et al.* 1998). These three factors imply that managers realise the importance of fire, feel the need to choose between options to manage it, but acknowledge that the decisions are currently being taken on imperfect knowledge.

Natural fires as a result of lightning played an important role in the development of ecosystems in Africa (Biggs 2004), and the fire climax grasslands and the savanna areas owe their very nature to their long history of fire which has apparently played such an important role in their development. One area of continuing debate is the understanding of the role of early man in shaping the landscape with fire, as contrasted to a hands-off wilderness management. Modern human impact has grossly affected the historic natural fire pattern, or pattern which could reasonably be expected to prevail had human population growth and cultural practice not changed so rapidly and dramatically (Braack 1997). Humans have created roads, firebreaks, cultivated areas etc. which serves as barriers for the spread of fires over large areas. Also the tendency of modern humans to see fires as "destructive" and "bad" led to natural fires that were put out too often, probably resulting in more "damage" to the ecology than would have happened if the fires were left to burn.

Scientists realised that fire was a key determinant of savanna ecosystems and one of a suite of drivers that influence ecosystem dynamics and heterogeneity (Van Wilgen et al 2003). However, the interpretation of this influence resulted in managers applying very rigid and fixed regimes, burning areas at the same time of the year and at the same interval. Research has now shown that this have a negative influence on biodiversity by favouring those species with a life cycle better adapted to the specific burning regime. Also, a believe that fires are only good during a certain time of the year also led to some loss in biodiversity. Contemporary ecological thinking emphasizes the importance of disturbance processes in maintaining the composition and structure of savanna ecosystems, and fire is recognised as the most important disturbance process of all.

The Kalahari probably didn't see many anthropogenic fires as the original inhabitants of this land were San people, who were hunter/gatherers and not herdsman, and therefore would have no reason to start veld fires to provide grazing for their livestock. All it would have achieved was to burn away resources, which they could ill afford.

Given the high number of lightning strikes reported for the Kalahari area, it is reasonable to assume that historically fires would have been an important factor in maintaining ecosystem function in the region. It can probably also be safely assumed that in the past there was probably little permanent animal impact on the vegetation of the Kalahari due to a lack of open water, and that fires would have been an important factor in the productivity and stability of the plant communities of the Kalahari in the past, although there were relatively few (Scholes et. al 2002). Dougill and Cox (2003) suggests that the introduction of domestic livestock to the Kalahari has been accompanied by significant changes in the rangeland ecology, reflected most obviously in a shift from herbaceous to woody plant species. The exact mechanisms behind this remain unclear, and it remains uncertain whether the vegetation changes are a direct response to increased grazing pressure, or whether they reflect more fundamental changes in ecosystem function. Observations in some studies suggest that bush encroachment can be explained solely by the interactions between livestock pressure and abiotic environmental conditions, in particular rainfall variability and fire frequency. The significance of the applicability of the fire and herbivory explanations of bush encroachment is, they suggest, that vegetation changes are reversible.

Sources of historical occurrence of fires in the Kalahari system are limited, but Van der Walt and Le Riche (1984) said that fires in 1934, 1968 and 1974/5 were recorded for the southern Kalahari (nowadays Kgalagadi National Park), but that in the northern Kalahari with a rainfall of 500mm+ that fires burn every year. They only occur in large intervals in the semi-arid southern Kalahari (Jeltcsh et al 1997), but their effect is of considerable importance.

It is important to realise that fire in extensive natural settings is so varied under different circumstances, and these specifications sufficiently flexible, as to give management considerable freedom of judgement in implementing the intended achievement of the goals. Indeed, a more rigid programme is likely not to succeed in achieving biodiversity aims. Therefore, understanding the background and intention is crucial and management should not be criticised for consequences which may arise founded on good or even reasonable judgement on their part, in the rare events when unexpected changes of, for instance, weather conditions, lead to large fires. As mentioned this is a learn-by-doing approach, but if implemented correctly can be hugely positive for the conservation of biodiversity on Khamab Kalahari Reserve.

3.8 Rehabilitation programme for degraded areas

As described earlier in the discussion and conclusion of the vegetation description in Point 2.4.4, the degradation on KKR is limited to the widespread killing of trees due to non-selective bush clearing with chemicals (tebuthiuron) by aerial application in the past. This practice occurred over large areas of the reserve, and is still continuing in large areas of the Molopo district today. Unfortunately there is no rehabilitation that can be done that can rehabilitate these areas to what they formerly were. The chemicals need to work itself out of the system over time. Due to the slow growing nature of trees like *Acacia erioloba* and *Boscia albitrunca,* it will take a long time for the bush to recover to its natural state, even after all the chemicals have disappeared from the system. However, good veld management practices and prevention of overgrazing will assist the recovery, as stated by Brown & Bezuidenhout (2010).

Some areas of bush encroachment are present on KKR, mostly areas that have been overgrazed in the past and where no chemical bush clearing has been done. If encroachment occurs on areas where non-selective chemical bush clearing have been done in the past, both the woody and herbaceous components tend to become homogenous, resulting in a loss of biodiversity (*pers. obs*). Also, the bush tends to recover in thick stands of indigenous bush, eventually resulting in a loss of grass. Where the bush becomes encroached in areas that has never been cleared, or selectively cleared, it stills lead do a decrease in the grass layer, however, but the biodiversity in these areas is still high.

Areas of bush encroachment make up a small percentage of the surface area of KKR, and bush clearing is not of prime importance at the moment. The emphasis should rather be on restoring the natural mechanisms and processes that keep the balance between the woody and grass layer.
These processes include the placement of waterholes according to scientific principles (as described earlier in the document), the implementation and use of fire in the system, as well as ensuring an herbivory component that is in balance with its resources. Grazers have an important distal influence on the composition structure and pattern of savannah vegetation, while herbivory by browsers (especially elephant and black rhino) can also have a profound and more proximate influence. The introduction of elephant in the system will therefore assist and play a valuable part in restoring the natural processes that regulate the interactions between the grass and tree components.

The results of the vegetation monitoring programme, as discussed in detail earlier, will determine extent to which the above veld management interventions (herbivory, veld burning) contain and reverse bush encroachment – especially the vigorous coppice that occurs following bush clearing efforts by the previous land owners. Should the monitoring feedback indicate that the fire interventions are not having the desired effect then bush clearing interventions will be considered according to the following guidelines:

- No bush clearing will be done within a 5km radius from permanent water points
- Beyond this radius, bush clearing will focus on the coppice of previously cleared areas i.e. already encroached areas within this zone will be left untouched
- Aerial applications of chemicals will only be considered as a bush clearing technique in very localised areas

- Chopping by hand and spot spraying directly on the plant will be considered as will the use of contractors

3.9 Population management of other wildlife species

As described earlier in Section B in KKR's vision, it is stated the vision of Khamab is to allow the ecological processes to function with as little management intervention as possible. Therefore the management of other wildlife species will be kept to the minimum, as far as possible.

Predator numbers on the reserve are still establishing (some predator species like spotted hyena has not been introduced yet), and have not yet reached levels where they can exert a large enough impact on the prey population to prevent it from growing to levels outside the limits of acceptable change. The ecological management approach with regards to water distribution, fire, herbivory and predation as described above has not been fully realised yet, and it will take some time for all the processes to develop to an extent where they will keep animal populations inside the established limits of acceptable change.

To avoid overgrazing of the veld until predator numbers reach a level where they will start to exert pressure on prey population, large numbers of gemsbok, eland, blue wildebeest and zebra has been sold in 2012, 2013 & 2014, with another removal planned for 2015. These animals are captured through live capture by a game capture operator.

The number of animals that are sold through live capture gets determined after the annual aerial game census, where the whole reserve is counted systematically over a period of 7 days. Also taken into consideration are the known animals that are killed by predators during the year, and extrapolated for the whole predator population. This will be done up to a point where enough data has been collected through monitoring to accurately determine the impact of predators on prey.

The limits of acceptable change (see the discussion in Point 3.10.1 below) will constantly be evaluated based on the outcome of the vegetation monitoring programme. If the impact of the herbivore population is found to cross the lower limits of acceptable change, the population will be reduced and the lower acceptable level adapted to levels as indicated by the monitoring programme.

Predators also fall under the same approach, and the vision of as little management intervention as possible also applies to predators. We know, and information from other game reserves indicate likewise, that predator-prey relationships are complex processes that are not easy to understand, and the balance between predator and prey are not easy to establish. A lot of reserves struggle to find that balance, and are often ham struck with objectives that does not allow them the freedom to let processes continue a little longer in search of the point where the natural control mechanisms start to come to the fore (Millet et al 2013). On KKR the approach would be to only intervene if predation reaches levels where it crosses levels of acceptable change and from which prey populations are unlikely to recover.

3.10 Preferred herbivore density

3.10.1 Carrying Capacity

The concept of 'carrying capacity' is rather nebulous and consequently it has been defined in many ways. An essentially loose definition of the concept in an ecological context is:

"The number of animals that the habitat/vegetation of a given area can safely carry/maintain in the long term without risk of habitat degradation and species extinction"

In a commercial production context a more appropriate definition would be as follows:

"The number of animals that the habitat/vegetation of a given area can carry/maintain in a sustained long term productive state or a state that maximizes long term sustained yields"

In arid areas such as KKR with unpredictable variable rainfall patterns, and hence highly variable vegetation production from season to season, there is no such thing as a static or fixed carrying capacity. Instead the so called carrying capacity in reality is something that fluctuates widely and unpredictably over time. In these circumstances the usefulness of the concept becomes highly questionable with respect to herbivore management decision making for KKR.

Thus, in the context of KKR it is better to manage and make decisions in accordance with a range of so called carrying capacity estimates with upper and lower limits (i.e. *limits of acceptable change*). In this context carrying capacity estimates have some use at the start-up phase in providing the "pointers" within this range or the "ball park" estimates for placing start up stocking rates within the range. Furthermore, in the absence of any exact science basis for determining this range of estimates the following approaches were adopted in this report (Collinson & Brett, 2007):

- According to the knowledge and experience of local farmers and herbivore ranchers the overall herbivore carrying capacity for the Molopo area is:
  - 1AU/10 ha in good to average rainfall years[1]*
  - Much lower than this for drought years
  - 1AU/20ha if the aim is to adopt a cautious approach that minimizes the risk of die offs in drought years
- The current herbivore stocking rates of the nearby Molopo Game Reserve were then compared with the figures provided above by local farmers and they were found to concur i.e. during the current good rainfall years the total stocking rate has been sustainably maintained at 1AU/12 ha

Footnote: [1] **An AU (Animal Unit) is a standard animal with a mass of 454 kg which is used as a standard measure in carrying capacity estimates. Different species with different body masses are then assigned AU equivalent on the basis of this standard e.g. Conventionally in South Africa, carrying capacity has been expressed as the number of hectares required to support an AU (ha/AU or AU/ha). Recently, the use of an AU as a standard measure in the carrying capacity estimates has come under criticism due to the fact that it has several shortcomings. The critics of the use AU as the standard measure recommend biomass (with kg as the unit) as a preferred alternative. Nevertheless, due to its familiarity in the South African context this report has persisted with the AU concept.*

- More scientific general equations (using average annual rainfall and soil fertility parameters) for estimating carrying capacity provide figures ranging from 1AU/10ha to 1AU/30ha for a mean annual rainfall of 320mm

3.10.2 Limits of Acceptable Change

Having established a carrying capacity range and start-up stocking rate guidelines, and in keeping with KKR's vision and mission *(allow ecological processes to function with minimal management intervention)*, herbivore management, after the start-up phase, needs to be conducted as follows:

- The total overall stocking rate of established herbivore species should be allowed to fluctuate between an upper limit of 1AU/10ha and a lower limit of 1AU/30ha
- Apart from rare and/or valuable species, management interventions such as removals, predator control, feeding, veterinary treatment, supplementary introductions etc. should only be undertaken if herbivore populations fluctuate to such an extreme that they increase or decrease outside the range of these limits. *(Note that with this approach, some die offs of common species during droughts would need to be tolerated in keeping with the vision/mission)*
- For rare and/or valuable species such as black rhino, white rhino, and buffalo a far more hands on management approach would be required. In this respect, intervention including selling off of surplus animals (before food becomes scarce), feeding in times of drought and veterinary treatment would be major challenges for achieving maximum productivity through low mortality and high birth rates.

4 BASE FOR DEVELOPING A LION MANAGEMENT PLAN

4.1 Background to lion management on small reserves

As prelude to the lion management plan, let us look deeper into the typical breakdown of natural population factors that happen in small enclosed reserves.

Naturally lions live in groups or prides in order to defend territories from other groups, or to defend cubs from roaming males and/or males wanting to take over prides (Miller et al 2013). The typical situation on small fenced reserves is that there is often no roaming males, or sometimes no other prides and/or roaming groups. As a result there is no pressure for prides to stay intact, often leading to complete disintegration of pride structures. This in turn affects predator-prey relationships because the impact of several individuals and/or small groups of lions making multiple kills is bigger than the case with more stable prides making less kills, even if the total number of lions on the reserve is similar.

The typical situation on small reserves is that male coalition take-overs are a scarce occurrence, which is the prime reason for cub mortality in natural populations (Miller et al 2013). Pride males often stay with a particular pride for many years, sometimes leading to inbreeding when these males start mating with their daughters, reducing the genetic variability of the population.

Lion populations on small reserves often have a lower age of first breeding, shorter breeding intervals and larger litter sizes than their counterparts in natural populations (Miller & Funston 2014). This is probably partly management induced, but there are also arguments for the theory that because of the absence of roaming males and more prides, there are less social and resource stress in the populations. Increasing social and resource stress results in females loosing body condition, which in turn could affect fecundity. It could lead to females breeding at a later age, as well as less often.

Furthermore, management actions like culling or regular removals as ways of controlling population numbers can have the opposite effect in that it increases population growth rates (Miller et al. 2013). The reason for this is that it does not mimic natural population drivers, but are more similar to removals from a population due to natural disasters. When a population is under pressure from natural disasters, for example recovery after a disease outbreak, it can often respond by increasing its growth rate.

4.2 Objectives of lion management on Khamab Kalahari Reserve

Lion management on Khamab should strive to:

- manage the lion population in such a way that they form part of Khamab's vision by seeing them as an ecological process that should function with as little management intervention as possible
- keep the lion numbers within the levels of acceptable change, allowing for natural fluctuations in population size, and ensuring that they do not reach levels where the prey populations are unable to recover from
- allow natural population regulation mechanisms to play a role in the maintenance of the lion population
- keep the genetic integrity of the population intact
- to ensure that lion population does not grow to levels where the continued existences of endangered predators like wild dog and cheetah are in jeopardy
- minimize the prevalence of diseases in the lion population

- make Khamab a leading role-player in lion conservation community regarding the management of lions on small reserves
- contribute to lion conservation as a whole by participating in a lion meta-population management approach as suggested by the Lion Management Forum ("LiMF")
- minimize lion/human conflict situations

4.3 Principles incorporated in the lion management plan

System based approaches to conservation management include at least one of the following elements: allowing natural processes to play out, restoring ecological processes or mimicking the outcomes of ecological processes.

In line with the Khamab Kalahari Reserve's Vision, Mission and Key objectives, lion management on Khamab should primarily allow natural processes to play themselves out, as far as possible. However, realities and experience on small to medium sized, fenced reserves, have indicated that, although good to aim for, are not viable in practice, and that management intervention needs to be more intense, especially when managing a large carnivore like lion.

Therefore, the management plan must primarily attempt to restore ecological processes that control lion populations. Secondary it should aim to, in conjunction with the restoration, mimic social factors that impact on lion population control, rather than direct management actions based upon carrying capacity approaches.

Keeping in mind the reason for the breakdown of natural processes as described earlier, the natural population control mechanisms that can be restored or mimicked are:

- More prides
- Roaming males
- Coalition take over and infanticide
- Age of first and last breeding
- Litter intervals
- Litter sizes

4.3.1 Restoring ecological processes

In order to allow for natural mechanisms of population control, Khamab should aim to have at least two or three prides on the reserve, and possibly more depending on how the lion population develops. There should then be at least one roaming male coalition per pride to add social pressure on the population. As summarised earlier, increasing social pressure could potentially lead to increase in litter intervals and decrease in litter sizes.

More roaming male coalitions could potentially lead to more regular natural coalition take-overs, and this should be allowed to happen. In case natural take-overs do not occur, due to several factors, this should be mimicked by removing pride males regularly by live removal (providing other reserves with males or swopping males with other reserves) or hunting. Pride males should be allowed to ideally have two (or maximum three breeding cycles) and then be removed, or a natural pride take over should be encouraged by allowing competitor males to come through the ranks or being introduced.

This approach is new in lion conservation and as far as knowledge stretch, has not been implemented on any small fenced reserve in South Africa. Although the theory behind this

are sound, the effect of this on a small population is still unknown. This approach therefore needs close monitoring and regular scrutiny with regards to its effectiveness. The potential of this is widely recognised at the Lion Management Forum (LiMF), but because of the practical implications, especially in small reserves, is not that easy implement. The size of Khamab may make it more viable as a management tool than on the majority of other reserves in South Africa.

4.3.2 Mimicking of natural control mechanisms

If results from the above approach do not prove to be successful, ways to mimic the natural population regulation mechanisms can be introduced. This should ideally be done in combination with the above approach, and only under extreme circumstances be introduced as an "exclusive" option.

By carefully incorporating contraceptives as part of a lion management approach, it can fulfil a valuable role in mimicking natural control mechanisms. As described earlier, the age of first breeding, inter-litter intervals and age of last breeding can be controlled with the use of contraceptives. Here they can be used to increase the age of first breeding and increase litter intervals, and reduce the age of last breeding to be more in line with natural patterns as described earlier.

Contraception should be used with care. There have been some negative effects on population dynamics of lions reported when contraception has been used as a management tool for example prides splitting up, lionesses becoming over weight and sometimes unable to come into oestrus again . Although this is based circumstantial evidence on not documented literature, there are enough reports on this to probably have a certain amount of truth to it, even though not documented scientifically. Contraceptives should only be used in a way that will mimic natural population control mechanisms, and should not be used in a blanket approach in the population. In natural populations it is very unlikely that a number of females in a population will be without cubs for extended periods of time and this very unnatural approach should therefore not be induced by the use of contraceptives. However, if contraceptives are used carefully and as part of a well thought out management approach, can be an effective tool in controlling lion population growth. Like with restoring ecological processes, monitoring should be done to test the affectivity of mimicking these factors, as well as picking up any negative consequences of this approach.

Litter sizes could potentially be reduced by a current experimental procedure of unilateral tube tying. This is a surgical procedure where one tube of the uterus of the lioness gets tied or removed, which mean that fewer cubs can be conceived. Some reserves have started to use it, and the effectiveness of this procedure in natural conditions is still unknown, although it worked well in zoo situations. However, it does show some huge promise as a way of reducing population growth rate. Although it invasive and requires surgical intervention which can be expensive, it is a once-off cost, where after there are not regular interventions with the specific lioness, and in the long term probably the better option.

4.4 Management considerations in the management plan

4.4.1 Excess lions and population control

Lion numbers on Khamab should only be reduced if the lion population on Khamab reaches a level where it prevents the reaching of objectives of the reserve as a whole, or the specific objectives of the lion management plan.

However any decisions to reduce or control the population should be made with care and only if it proves that objectives cannot be achieved as a result of a larger lion population.

Several options are available for population control of the lion population: live removals to other reserves, hunting of specific individuals, culling (euthanasia) and contraception.

a. The options to remove live animals for introduction to other reserves have decreased dramatically of the past few years. The majority of reserves in South Africa belief that their lion populations are too large, and are looking for translocation opportunities. There is an oversupply of free-roaming lions from game reserves, so finding an outlet for lions for translocation will not be easy. However, this should be the preferred method if young animals need to be removed, and should be attempted first before other options are considered.

   If males in their prime need to be removed for genetic purposes (see below), they should be considered for swopping for other males (see below) from other suitable and credible reserves.

b. If specific adult individuals needs to be removed for whatever reason, and it is impossible to remove them alive, they should be considered for hunting. However, individuals that are part of a stable pride should not be hunted while in the presence of the pride. Hunting should only be applied as a simulation of a natural population process, and not as a means of generating income.

   Old males that have reached the end of their lives can be considered for hunting. Males in their prime can also be considered for hunting if there is no need to introduce new genes by swopping with other reserves (see above), or if there are no other reserves that form part of LiMF (see below) who are looking for lions for introduction.

   In small populations there are often single lionesses with a tendency to move off and spend most of their time on their own. Although un-documented, previous experience indicates that the offspring from such lioness show similar tendencies later in life. These animals are often shy, don't get seen often, and therefore don't contribute much to the game viewing experience. However, they add considerably to predation impact. In order to promote pride structures once the population and prides have established, these animals should be removed, preferably alive by translocation to other reserves. This strategy should be monitored for its effectiveness, and will hopefully contribute to more stable pride structures.

c. Euthanasia (culling) can be used in exceptional circumstances if the above options have been explored and if no alternative solutions can be found. However, because of the controversial perceptions of euthanasia, it should be done with the utmost care. Animals should not be euthanized in the presence of other individuals that are not earmarked for euthanasia. The best method of euthanasia is to first dart and immobilize all animals earmarked for euthanasia, remove them from the area, and then to kill them while they are asleep.

   Euthanasia of cubs is both a very sensitive topic, as well as hard on the person that needs to do it. In natural lion populations, low survival rate of cubs is one of the prime natural population control processes that appear to break down in small, fenced lion populations. In terms of simulating natural control mechanisms, euthanasia of cubs could be a good way of achieving the objective.

However, as with other euthanasia described above, this should not be done in presence of the mother or other pride members. Furthermore, not all the cubs from a littler should be euthanized. By leaving at least one cub, it will prevent the lioness from going into estrus immediately.
As mentioned, the euthanasia of cubs is extremely controversial, and should be debated openly and honestly by the Khamab management team.

d. Euthanasia should not be adopted as a rule as a quick fix, but underlying problems that cause over-population should be addressed as far as possible.

e. The use of contraceptives to control population numbers has been described in more detail earlier. Contraceptives should be used with care in a well thought out management approach.

4.4.2 Genetic integrity

In open systems genetic integrity is ensured through normal social behavior of lions, but these mechanisms often gets broken down in small populations. As a result some reserves with small lions populations face inbreeding issues, which is often amplified by management actions like euthanasia, contraception etc. However, by mimicking natural control mechanism and social behavior as described above, inbreeding problems are unlikely to occur on Khamab. However, whenever a lion needs to be darted for the first time for whatever reason, genetic samples should be taken and send for analysis to continuously monitor the genetic integrity of the population. If test results show indications of continuous decrease in genetic variability and integrity, serious steps to introduce new genetic material should be made as soon as possible. This can largely be achieved by participation in a meta-population management approach as described later in this document.

4.4.3 Disease and general health

Diseases play important roles in the functioning of natural systems, whether it is to control population numbers or maintenance of genetic diversity. It is therefore often important in natural systems that diseases dynamics play out in order to increase ecological heterogeneity. However, in small and/or fenced populations, it is important that managers think through the potential impacts of diseases carefully. Some diseases can severely deplete or in some cases completely exterminate a small population. And in a fenced reserve as an "island" there is no opportunity for natural re-colonization of the population. The establishment of the populations often came with lots of effort and financial implications, and it would therefore be ill advised to let certain diseases play itself out.

However, it also doesn't make sense to contracept or euthanize lions to prevent the population from getting too large, and then on the other hand also vaccinate to protect lions from diseases.

To not remove the important role that diseases play in the functioning of the system completely, it will therefor make sense to vaccinate core individuals only. This will allow diseases to still play a role in controlling the population, but will prevent the complete removal of the whole population as a result of the disease. However, vaccination should not be seen as a must do, and it is up to KKR management to decide on the necessity of vaccination.

Key diseases of lions to look out for are canine distemper virus (CDV), bovine tuberculosis (BTB), rabies and feline immunodeficiency (FIV). Some of these diseases has the potential to

kill a large percentage or exterminate the population, and should be avoided where possible. Furthermore, some of the diseases like BTB and rabies has the potential to spread into other animal populations as well, and should therefore be avoided. FIV seems to be present in most lion populations, and should not be a serious concern, but should be monitored.

Whenever lions get darted for whatever reason, blood samples should be taken and analyzed for these diseases if possible. The skin test for BTB has not been perfected for predators, and need boma time and follow up tests. It should not be a concern unless new animals are brought in from the Lowveld or KZN regions.

However, diseases that affect single animals and with a low probability to spread in the population should not be a concern. If animals do get infected by some means, they should not be treated unless it is an animal that has value for a particular reason, for example a new introduction for genetic reasons.

Similar rules should be used for injuries etc., even if it is life threatening. If it is an animal that doesn't have a high genetic value, or high potential economic value, these animals should be allowed to either die naturally as a result from the injury, or to recover naturally on its own. Lions have a remarkable ability to recover from what we as humans see as serious injuries, and even broken legs etc. have the ability to recover well. Managers often over-react to injuries on lions, but each case should be evaluated on its own merits.

4.4.4 Conflict with other predators

It is known that lion can have a large impact on con-specific predators, in specific wild dogs, cheetahs and brown hyena. However, some of the other smaller predators are also killed by lions, although unlikely to such an extent that it will threaten the existence of the small predators.
It was reported in some reserves that the populations of wild dog and cheetah were virtually killed to extinction on some reserves by lions, while on others the impact appears to be less severe.

However, both these species also have the ability to increase in numbers quickly, and as a result can have a high impact on the prey populations on a reserve. Lions serve as an important population control mechanism in natural systems.

Therefore, it must be accepted that lions will kill a significant number of other predators, and this must be allowed without interference. However, the status of small predators needs to be monitored closely, particularly for impact of lion killings on the population. Cheetah and wild dog are more endangered than lion, and therefore should have a higher conservation status on the reserve than lions. Khamab should aim to contribute to the conservation of both these species by providing excess animals for relocation to other reserves.

Only if it appears that the lion population will cause local extinction of any of the smaller predators should it be a concern, and should measures be implemented to combat this.

4.4.5 Effect on biodiversity/prey populations

In natural populations lions regulate the number of prey in most savannas systems. However, in small and fenced situations they are known to negatively affect prey populations, and this influence gets magnified on reserves where large scale hunting or continuous live removals for sale take place. Models have shown that increased numbers of predation in combination with regular harvesting can drive fenced prey populations to extinction. However, the same effect is also witnessed on reserves where hunting and live removals are not a regular occurrence, the difference is that it takes place over a longer period. Without careful

monitoring and sometimes regulation of large predator numbers, ungulate populations can decline more rapidly than managers expect.

However, the effect of waterhole distribution on the predator-prey relationships on small fenced reserves has not been tested. The limited waterholes on Khamab might or might-not influence the potential impact of the lion population on the prey population, as well as on other predators like cheetah and wild dog. There is the potential that the predator-prey relationships on Khamab might be more balanced in comparison with other much smaller fenced reserves, taking into account both the size and limited water distribution on Khamab. Therefore, Khamab management should not over-react when the lion population increases rapidly initially, and appears to start having an impact on the prey population. Natural ecological balances takes time to develop, and likewise might take time for the growth rate of the lion population to respond to the impact on prey population numbers.

The impact of the lions on the prey should continuously be monitored and modeled in order to get a good understanding of the predator-prey dynamics. This should also indicate if some sort of equilibrium between the predators and prey are possible in the context of water distribution, or if the pattern on Khamab will follow what is seen elsewhere on other fenced reserves.

As a starting threshold of potential concern (TPC) for the prey population, if a 15% decrease in the prey population can be attributed to high numbers of lion

4.4.6 Meta-population management

The major reason for the introduction of lions in fenced reserves is by far majority done for tourism purposes, rather than ecological reasons. Most small lion populations get micromanaged and in isolation from other populations, which has the net effect of reducing the conservation values of these small lion populations on a regional scale. This prompted an initiative by several private and government management agencies as well as biologists dealing with lion management, to form the Lion Management Forum (LiMF), with the purpose of enhancing the conservation status of lion population on small fenced reserves. It also attempts to find solutions to lion management issues and challenges on fenced reserves.

Part of this strategy is to group small lion populations on fenced reserves together to form a larger lion meta-population. The idea is to have regular movement of lions between the different meta-population reserves by swopping of animals from time to time, and to work together to mimic a much larger natural lion population. All reserves will still have its own management objectives and measures, but by having regular contact and assisting each other by creating opportunities for movement of animals, will prevent micromanagement of the populations, and in that way increase the conservation value of each small population.

Khamab was one of the founding members of LiMF, and should continue to participate in this initiative. In this way it can achieve several of the objectives of the reserve as a whole, as well as the vision of keeping a lion population as described earlier.

4.4.7 Human conflicts and compensation

Conflict between humans and lions (and all other predators) should be avoided at all costs. This implies keeping the electrified boundary fence in perfect condition to minimize the risk of escaping to almost zero. However, even if the fence is in perfect condition, the chance of a large predator escaping are always present, and in the case of a large predator escaping, Khamab management should react immediately to either capture the animal and return it back to the reserve, or destroy it if no alternative is available, and/or the escaped animal poses danger to the life a human outside the fence.

In case the escaped animal causes damage outside the reserve if it escapes, Khamab should have a compensation policy to repay damages to the affected parties. Whether this compensation policy is covered by insurance, or from allocated budget funds are to the discretion of the management team. However, they need to ensure the public liability etc. is in place in case the escaped animal causes the death of a human being.

In order to ensure the continues respect that the large predators have for the electrified fencing, it should be ensured that all fences on Khamab to which predators have access to, be electrified and in good condition. This include fences around camps, houses etc. The reasoning behind this is that animals will increasingly test fence lines in attempts to escape if they regularly come into contact with fences without electricity or electrified fences that are not working properly.

The first line of preventing predator/human conflict situations is a proper working boundary fence line.

In the case of an animal escaping the reserve, but gets captured and returned to the reserve, such an animal should only be giving one chance. The next time it escapes again (except in exceptional circumstances which is not the fault of the escaping animal), the animal should be destroyed as soon as possible to avoid escaping turning learned behavior.

Khamab should develop a policy for the compensation of neighbors in the case of any large predator escaping the reserve and causing damage on neighboring properties, as well as for liability in the possibility of a human being killed by an animal that has escaped from the reserve.

4.5 Monitoring

The effectiveness of this management approach will depend on a detailed monitoring program. An adaptive management route should be followed to make this management approach work. For the success of any adaptive management approach information the outcomes of decisions are very important in order to feed back in future decision making processes. Therefore, to get a good understanding of the outcome of decisions in this regard, a stringent and detailed monitoring program is critical. This monitoring program needs to be permanent and ongoing. Lions as apex predators are important drivers in the ecosystem and can have top-down effects on ecosystem processes.

5. DETAILED ADAPTIVE LION MANAGEMENT APPROACH FOR KHAMAB KALAHARI RESERVE

As described earlier, the lion management plan on Khamab is based on two strategies.

Strategy 1 focusses on the restoration of ecological processes, while **Strategy 2** involves the mimicking of natural control mechanisms that regulate lion populations.

The core of the lion management plan is based on the **flow diagram (Appendix 3)** which serves as decision making process on which management decisions can be based, and is very important in understanding the management process as described below.

5.1 Strategy 1 (Restoring ecological processes)

Strategy 1 should be the preferred (primary) management strategy to start off lion management on Khamab. As mentioned earlier, it is still untested, and therefore need to be monitored closely before decisions on its effectiveness can be made. Should it proof effective, it should remain the primary management strategy for managing lions on Khamab.

This strategy entails the following:

- Establish at least 2 prides on Khamab
- Establish at least 3 bachelor male coalitions
- Allow 2 or max 3 breeding cycles for pride males
- Remove pride males by live removal (preferable) or hunting (if no translocation options are available). Timing of removal will be important (try to remove when there are very young cubs or pregnant females pregnant). This should open opportunities for infanticide.
- Allow a young coalition to take over.
- Replace the coalition that took over with new, young coalition (either from outside of Khamab if new genes are needed or from within Khamab population).

Female dispersal groups should be allowed to establish prides to test for the increase in social pressure on the population. Khamab can potentially accommodate 3-5 prides based on home range size and available habitat.

Once fairly stable prides are established, lionesses that become loners should be removed, preferably by live removal.

Male coalitions should be restricted to maximum of one for each pride. Extra male coalitions should be removed by live removal (preferable) or hunting (if no translocation options are available) if they are old enough.

Pride sizes are not important and should self-regulate. However, if large prides leads to a significant increases in predation on large herbivores like rhino or buffalo, this strategy should be re-evaluated.

5.1.1 Monitoring

Monitor the outcome of Strategy 1, in particular population growth (inter-litter intervals, age of first breeding, cub survival).

Monitor the effects of these actions on the lion population growth and social structures.

Continuously monitor the effects of the lion population and the different management approaches on the prey populations.

Closely monitor impact on prey population, and use in predator-prey models to determine the effect of different management options on the predator-prey relationships.

If a decrease in prey populations can be attributed to lion predation (decrease of 20% of prey population), find the reason/s for this:

- Is the lion population to big?
- Are there too many prides?
- Are the prides to large?
- Too many single animals or bachelor groups?
- Is it related to environmental factors like water distribution?
- Is it a combination of the some of the above factors?

These can be answered with the use of models, using data from a monitoring program.

If the conclusion to above questions is that the lion population is too big, find the reason for why it is too big, and what can be done to remedy it.

- Is Strategy 1 not working, or not working well enough?
- Can Strategy 1 be adapted to make it work better?
- Should Strategy 2 be combined with Strategy 1 to make it more effective?

5.2 Strategy 2 (Mimicking natural control mechanisms)

Strategy 2 can be followed in case Strategy 1 does not prove successful. However, it should be kept in mind that the restoration of ecological processes will take time, and the natural drivers that are attempting to be restored with Strategy 1, need to be given ample time to start being effective.

However, should monitoring indicate that Strategy 1 does not lead to the desired results, Strategy 2 can be incorporated, and should ideally be combined with Strategy 1. Only in extreme cases should Strategy 2 be used on its own.

Strategy 2 involves mimicking natural control mechanisms that control lion populations

If a large lion population is responsible for decrease in prey numbers, the population needs to be reduced. Mimicking natural population control is important in this instance.

The best way to reduce impact on prey is to remove small dispersal groups, or a whole pride. In such a case the whole group or pride should be removed and no individuals left behind. This mimics normal dispersal or immigration and should not impact the surviving groups much.

The best option for removing a whole group is through live removals and relocation. However, options for relocation are becoming increasingly rare, and if it is a small group of only two animals they can be removed by hunting, alternatively if it is a larger group with young animals should be euthanized.

If this becomes a regular occurrence, other measures to reduce population growth should be implemented, but again should be focused on mimicking natural mechanisms.

- Unilateral tube tying to mimic decrease in litter sizes, but also mimic reduced cub survival into adulthood.
- Cub survival can be mimicked by euthanasia of cubs.
- Using once off contraception on young lionesses to increase age of first breeding.
- Using contraception on old lionesses to reduce age of last breeding
- Using single contraception in between litter to increase inter litter interval.

Of the above options, unilateral tube tying shows the most promise, and information should become available with regards to its effectiveness as more and more reserves are starting to use it as a management option.

6. REFERENCES

ACOCKS, J P H 1975. *Veld types of South Africa* (2nd Ed). Memoirs of the botanical survey of South Africa no. 40, Botanical Research Institute, Department of Agricultural Technical Services, Republic of South Africa.

BOND, W.J. 1997. Fire. Pp. 421-446. *In:* COWLING, R.M., D.M. RICHARSON & S.M. PIERCE (eds.). *Vegetation of Southern Africa*. Cambridge: Cambridge University Press

BRAACK, L.E.O. 1997. A Revision of parts of the Management Plan for the Kruger National Park. Volume VIII: Policy proposals regarding issues relating to Biodiversity Maintenance, Maintenance of Wilderness Qualities, and Provision of Human Benefits. South African National Parks, Skukuza. Available at http://www.sanparks.org. (Scientific Services, Management Plan)

BROWN, L. & BEZUIDENHOUT, H. 2010. *A vegetation classification and description of the major plant communities of the Khamab Kalahari Reserve.* Unpublished report. Khamab Kalahari Reserve.

COLLINSON, R & BRETT, M. 2007. *The development and management framework for the Khamab Kalahari Reserve.* Unpublished report, Khamab Kalahari Reserve.

DOUGILL. A. & COX. J. 1995. Land degradation and grazing in the Kalahari: New analysis and alternative perspectives. Pastoral Network 38c. ODI London.

GAYLARD, A., N. OWEN-SMITH & J.V. REDFERN. 2003. Surface water availability: Implications for heterogeneity and ecosystem processes. Pp. 171–188. In: DU TOIT, J.T., K. H. ROGERS & H. C. BIGGS. (eds). The Kruger experience: Ecology and management of savanna heterogeneity. Washington: Island Press.

JELTSCH, F., MILTON, S.J., DEAN, W.R.J., VAN ROOYEN, N. 1997. Analysing Shrub Encroachment in the Southern Kalahari: A Grid-Based Modelling Approach. *Journal of Applied Ecology* 34(6): 1497-1508

KILIAN, P.J. 2015. Aerial Census Report 2015. Unpublished report. Khamab Kalahari Reserve.

LOW, A.B. & REBELO, A.G. (eds) 1998. *Vegetation of South Africa, Lesotho and Swaziland.* Department of Environmental Affairs and Tourism. Pretoria.

MILLER, S.M. & FUNSTON, P.J. 2014. Rapid growth rates of lion (Panthera leo) populations in small, fenced reserves in South Africa: a management dilemma. *South African Journal of Wildlife Research* 44(1): 43–55

MILLER, S.M., BISSETT, C. , BURGER, A.,COURTENAY, B., DICKERSON, T., DRUCE, D.J.,FERREIRA, S., FUNSTON, P.J., HOFMEYR, D.,KILIAN, P.J., MATTHEWS, W., NAYLOR, S., PARKER, D.M., SLOTOW, R., TOFT, M. & ZIMMERMANN,D. 2013. Management of reintroduced lions in small, fenced reserves in South Africa: an assessment and guidelines. *South African Journal of Wildlife Research* 43: 138–154.

MUCINA, L. & RUTHERFORD, M.C. (eds) 2010. *The vegetation of South Africa, Lesotho and Swaziland.* Strelitzia 19. South African National Biodiversity institute, Pretoria.

VAN DER WALT, P.T. & LE RICHE, E.A.N. 1984. The influence of a veld fire on an *Acacia erioloba* community in the Kalahari Gemsbok National Park. *Koedoe* 1984:103-106.

VAN OUDTSHOORN, F.P. 2002. *Guide to grasses of South Africa.* Briza, Arcadia.

VAN WILGEN B.W., TROLLOPE W.S.W, BIGGS H.C., POTGIETER, A.L.F. & BROCKETT, B.H. 2002. Fire as driver of ecosystem variability. Pp. 149-170. *In:* DU TOIT, J.T., ROGERS, K.H. and BIGGS, H.C. (eds). *The Kruger Experience: Ecology and management of savanna heterogeneity.* Island Press, Washington, London.

WALKER, B.H. 1987. *Determinants of Tropical Savannas.* Oxford: IRL Press.

APPENDIX 1: PLANT SPECIES LIST

The following is a list of species identified on KKR during the vegetation survey: (Brown & Bezuidenhout, 2010)

ACANTHACEAE
Barleria rigida Nees
Blepharis integrifolia (L.f.) E.Mey. ex Schinz
Monechma divaricatum (Nees) C.B.Clarke
Monechma incanum (Nees) C.B.Clarke

AIZOACEAE
Gisekia africana (Lour.) Kuntze var. africana
Limeum argute-carinatum Wawra & Peyr.
Limeum fenestratum (Fenzl) Heimerl
Limeum viscosum (J.Gay) Fenzl ssp. viscosum var. viscosum
Plinthus karooicus I.Verd.
Plinthus sericeus Pax
Trianthema parvifolia E.Mey. ex Sond. var. parvifolia

AMARANTHACEAE
Amaranthus praetermissus Brenan
Hermbstaedtia fleckii (Schinz) Baker & C.B.Clarke
Kyphocarpa angustifolia (Moq.) Lopr.
Pupalia lappacea (L.) A.Juss.

AMARYLLIDACEAE
Boophane disticha (L.f.) Herb.
Nerine laticoma (Ker Gawl.) T.Durand & Schinz
Pancratium tenuifolium Hochst. ex A.Rich.

ANACARDIACEAE
Rhus tenuinervis Engl.

ANNONACEAE
Monanthotaxis angustifolia (Exell) Verdc.

ASCLEPIADACEAE
Pergularia daemia (Forssk.) Chiov.

ASPARAGACEAE
Asparagus africanus Lam.
Asparagus species

ASTERACEAE
Chrysocoma obtusata (Thunb.) Ehr.Bayer
Dicoma capensis Less.
Eriocephalus aspalathoides DC.
Felicia muricata (Thunb.) Nees
Gazania krebsiana Less.
Geigeria ornativa O.Hoffm.
Helichrysum lineare DC.
Hirpicium echinus Less.
Hirpicium gazanioides (Harv.) Roessler
Nolletia arenosa O.Hoffm.
Pentzia globosa Less.
Schkuhria pinnata (Lam.) Cabrera
Verbesina encelioides (Cav.) Benth. & Hook.
Vernonia poskeana Vatke & Hildebr.

BIGNONIACEAE
Rhigozum brevispinosum Kuntze
Rhigozum trichotomum Burch.

BORAGINACEAE
Ehretia rigida (Thunb.) Druce
Heliotropium ciliatum Kaplan

CAPPARACEAE
Boscia albitrunca (Burch.) Gilg & Gilg-Ben.
Cadaba aphylla (Thunb.) Wild
Cleome angustifolia Forssk.

CHENOPODIACEAE
Chenopodium hederiforme (Murr) Aellen var. dentatum Aellen
Salsola kali L.
Salsola rabieana I.Verd.

COMBRETACEAE
Terminalia sericea Burch. ex DC.

COMMELINACEAE
Commelina africana L.
Commelina benghalensis L.

CONVOLVULACEAE
Convolvulus sagittatus Thunb.
Ipomoea magnusiana Schinz
Ipomoea species
Merremia verecunda Rendle

CRASSULACEAE
Kalanchoe paniculata Harv.

CUCURBITACEAE
Citrullus lanatus (Thunb.) Matsum. & Nakai
Cucumis africanus L.f.
Acanthosicyos naudinianus (Sond.) C.Jeffrey

CYPERACEAE
Bulbostylis hispidula (Vahl) R.W.Haines
Cyperus obtusiflorus Vahl
Cyperus species
Kyllinga alba Nees

DRACAENACEAE
Sansevieria aethiopica Thunb.

EBENACEAE
Diospyros lycioides Desf. ssp. lycioides

EUPHORBIACEAE
Chamaesyce inaequilatera (Sond.) Soják
Phyllanthus maderaspatensis L.

FABACEAE
Acacia erioloba E.Mey.
Acacia haematoxylon Willd.
Acacia hebeclada DC.
Acacia luederitzii Engl. var. luederitzii
Acacia mellifera (Vahl) Benth. ssp. detinens (Burch.) Brenan
Aspalathus laricifolia P.J.Bergius
Aspalathus suaveolens Eckl. & Zeyh.
Crotalaria orientalis Burtt Davy ex I.Verd. ssp. orientalis
Cullen obtusifolia (DC.) C.H.Stirt.
Dichrostachys cinerea (L.) Wight & Arn.
Elephantorrhiza elephantina (Burch.) Skeels
Indigofera alternans DC. var. alternans
Indigofera auricoma E.Mey.
Indigofera charlieriana Schinz var. charlieriana
Indigofera daleoides Benth. ex Harv. var. daleoides
Indigofera flavicans Baker
Indigofera species
Lebeckia macrantha Harv.
Lotononis platycarpa (Viv.) Pic.Serm.
Melolobium microphyllum (L.f.) Eckl. & Zeyh.
Requienia sphaerosperma DC.
Rhynchosia nervosa Benth. & Harv.
Rhynchosia species
Rhynchosia totta (Thunb.) DC.
Sericorema remotiflora (Hook.f.) Lopr.

HYACINTHACEAE
Ornithogalum species

ILLECEBRACEAE
Pollichia campestris Aiton

LAMIACEAE
Salvia runcinata L.f.
Acrotome inflata Benth.
Leonotis ocymifolia (Burm.f.) Iwarsson

LORANTHACEAE
Tapinanthus oleifolius (J.C.Wendl.) Danser

MALVACEAE
Hibiscus pusillus Thunb.
Pavonia burchellii (DC.) R.A.Dyer
Pavonia senegalensis (Cav.) Leistner
Sida chrysantha Ulbr.

MOLLUGINACEAE
Hypertelis salsoloides (Burch.) Adamson var. salsoloides

OXALIDACEAE
Oxalis semiloba Sond.
Oxalis species

PAPAVERACEAE
Argemone ochroleuca Sweet

PEDALIACEAE
Harpagophytum procumbens (Burch.) DC. ex Meisn.
Sesamum triphyllum Welw. ex Asch.

POACEAE
Anthephora argentea Gooss.
Aristida congesta Roem. & Schult. ssp. congesta
Aristida meridionalis Henrard
Aristida stipitata Hack.
Brachiaria nigropedata (Ficalho & Hiern) Stapf
Cenchrus ciliaris L.
Chloris virgata Sw.
Dactyloctenium aegyptium (L.) Willd.
Digitaria eriantha Steud.
Enneapogon cenchroides (Roem. & Schult.) C.E.Hubb.
Enneapogon desvauxii P.Beauv.
Eragrostis bicolor Nees
Eragrostis biflora Hack. ex Schinz
Eragrostis echinochloidea Stapf
Eragrostis lehmanniana Nees
Eragrostis obtusa Munro ex Ficalho & Hiern
Eragrostis pallens Hack.
Eragrostis rotifer Rendle
Eragrostis trichophora Coss. & Durieu
Eragrostis truncata Hack.
Melinis repens (Willd.) Zizka
Oropetium capense Stapf
Panicum coloratum L.
Pogonarthria squarrosa (Roem. & Schult.) Pilg.
Schmidtia kalihariensis Stent
Schmidtia pappophoroides Steud.
Setaria verticillata (L.) P.Beauv.
Sporobolus rangei Pilg.
Stipagrostis obtusa (Delile) Nees
Stipagrostis uniplumis (Licht.) De Winter
Tragus racemosus (L.) All.
Tricholaena monachne (Trin.) Stapf & C.E.Hubb.
Urochloa oligotricha (Fig. & De Not.) Henrard

POLYGALACEAE
Polygala hottentotta C.Presl
Oxygonum delagoense Kuntze

PORTULACACEAE
Portulaca kermesina N.E.Br.
Talinum crispatulum Dinter ex Poelln.

RHAMNACEAE
Ziziphus mucronata Willd.

RUBIACEAE
Kohautia cynanchica DC.
SCROPHULARIACEAE
Aptosimum albomarginatum Marloth & Engl.
Aptosimum elongatum Engl.
Aptosimum procumbens (Lehm.) Steud.
Peliostomum leucorrhizum E.Mey. ex Benth.
Selago densiflora Rolfe
Selago dinteri Rolfe ssp. dinteri

Senna italica Mill. ssp. arachoides (Burch.) Lock
Striga gesnerioides (Willd.) Vatke ex Engl.

SOLANACEAE
Lycium bosciifolium Schinz
Lycium cinereum Thunb. sensu lato
Lycium hirsutum Dunal
Solanum incanum L.
Solanum species
Solanum supinum Dunal

STERCULIACEAE
Hermannia species
Hermannia tomentosa (Turcz.) Schinz ex Engl.
Hermannia vestita Thunb.
Melhania rehmannii Szyszyl.

THYMELAEACEAE
Gnidia polycephala (C.A.Mey.) Gilg

TILIACEAE
Corchorus asplenifolius Burch.
Grewia flava DC.
Grewia retinervis Burret

UMBELLIFEREAE
Trochomeria debilis (Sond.) Hook.f.

VERBENACEAE
Lantana rugosa Thunb.

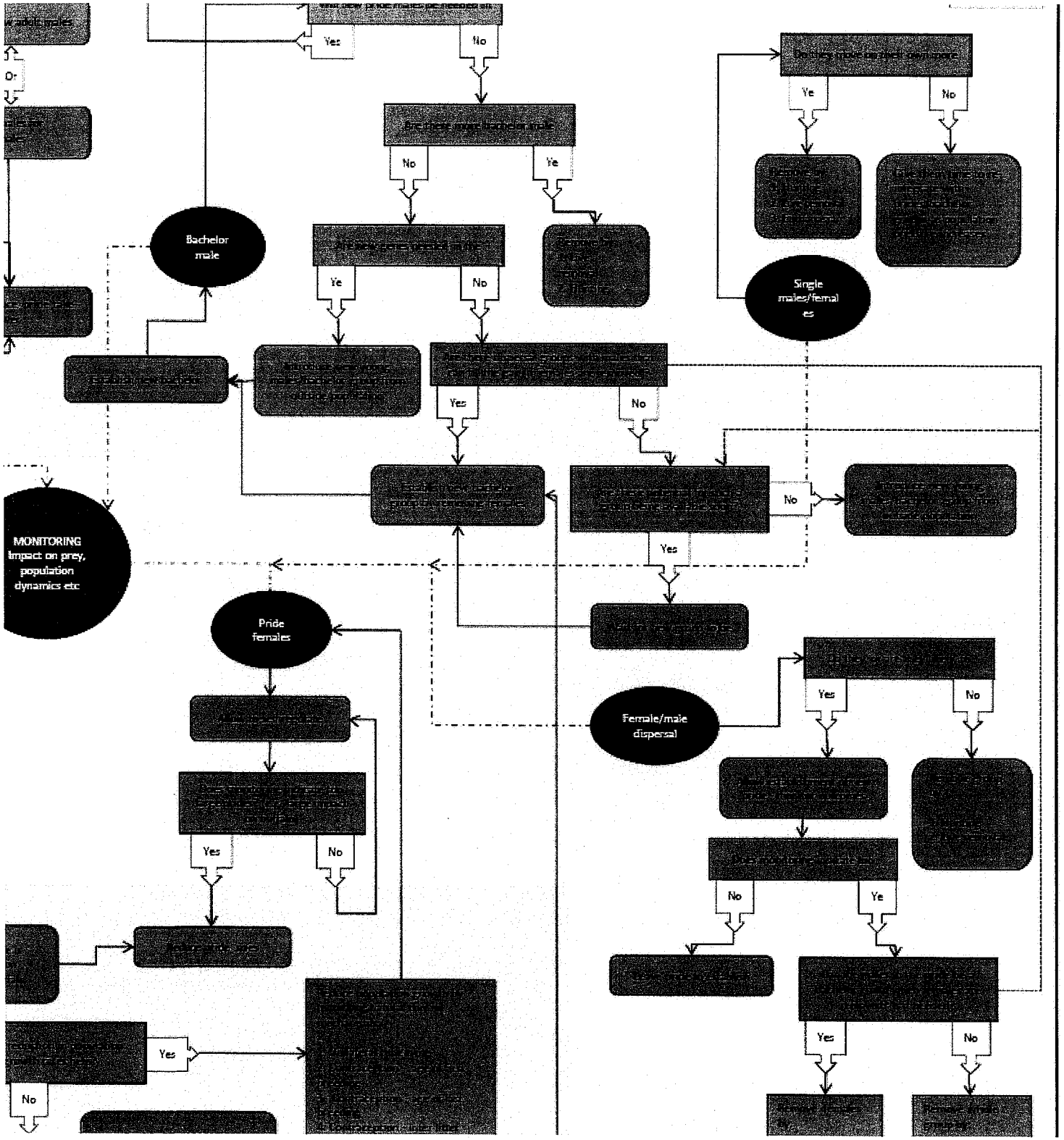
ZYGOPHYLLACEAE
Tribulus zeyheri Sond. ssp. zeyheri
Zygophyllum prismatocarpum E.Mey. ex Sond.
Zygophyllum pubescens Schinz

APPENDIX 2 : LARGE MAMMAL SPECIES LIST

English name	Afrikaanse naam	Scientific name
Chacma baboon	Kaapse bobbejaan	*Papio ursinus*
Vervet monkey	Blouaap	*Cercopithecus pygerythus*
Pangolin	Ietermagog	*Manis temminckii*
Cape hare	Kaapse haas	*Lepus capensis*
Scrub hare	Kolhaas	*Lepus saxatalis*
Porcupine	Ystervark	*Hystrix africaeaustralis*
Springhaas	Springhaas	*Pedetes capensis*
Ground squirrel	Waaierstertgrondeekhoring	*Xerus inauris*
Aardwolf	Aardwolf	*Proteles cristatus*
Brown hyena	Bruin hiëna /Strandjut	*Hyaena brunnea*
Leopard	Luiperd	*Panthera pardus*
Lion	Leeu	*Panthera leo*
Cheetah	Jagluiperd	*Acinonyx jubatus*
Caracal	Rooikat	*Felis caracal*
Serval	Tierboskat	*Felis serval*
Small spotted cat	Gekolde kat	*Felis nigripes*
African wildcat	Vaalboskat	*Felis lybica*
Black-backed jackal	Rooijakkals	*Canis mesomelas*
Bat-eared fox	Bakoorvos	*Otocyon megalotis*
Cape fox	Silwervos	*Vulpes chama*
Wild dog	Wildehond	*Lycaon pictus*
Honey badger	Ratel	*Mellivora capensis*
Striped polecat	Stinkmuishond	*Ictonyx striatus*
Small-spotted genet	Kleinkolmuskejaatkat	*Genetta genetta*
Suricate	Stokstertmeerkat	*Suricata suricata*

Yellow mongoose	Witkwasmuishond	*Cynictis penicillata*
Slender mongoose	Swartkwas muishod	*Galerella sanguinea*
Antbear	Erdvark	*Orycteropus afer*
White rhino	Witrenoster	*Ceratotherium simum*
Black rhino	Swartrenoster	*Diceros bicornis*
Burchell's zebra	Bontkwagga	*Equus burchelli*
Warthog	Vlakvark	*Phacochoerus aethiopicus*
Giraffe	Kameelperd	*Giraffa camelopardalis*
Blue wildebeest	Blouwildebees	*Connochaetus taurinus*
Red hartebeest	Rooihartbees	*Alcelaphus buselaphus*
Common duiker	Gewone duiker	*Sylvicapra grimmia*
Springbok	Springbok	*Antidorcas marsupialis*
Steenbuck	Steenbok	*Raphicerus campestris*
Impala	Rooibok	*Aepyceros melampus*
Sable	Swartwitpens	*Hippotragus niger*
Gemsbuck	Gemsbok	*Oryx gazella*
Buffalo	Buffel	*Syncerus caffer*
Kudu	Koedoe	*Tragelaphus strepsiceros*
Eland	Eland	*Taurotragus oryx*
Waterbuck	Waterbok	*Kobus ellipsiprymnus*

NOTE: Small mammals like rodents not included in this list.


Yes
No
Bachelor male
Ye
No
Single males/females
Yes
No
MONITORING Impact on prey, population dynamics etc
Pride females
Female/male dispersal
Yes
No

KHAMAB KALAHARI RESERVE LION POPULATION

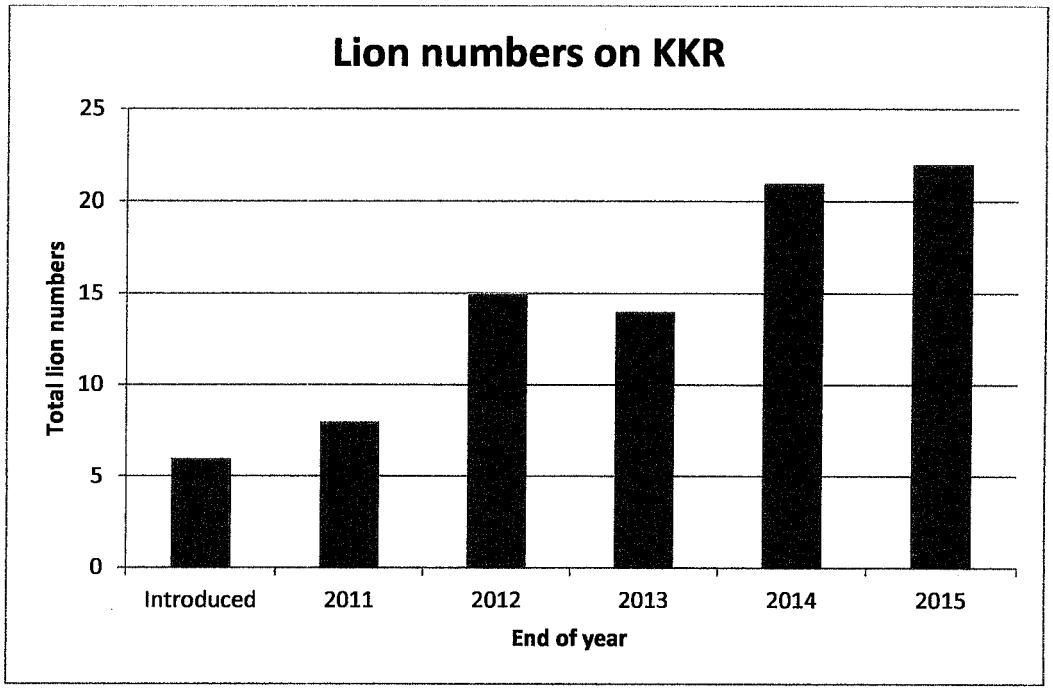
The first lions were introduced to Khamab Kalahari Reserve (KKR) in July 2011 with the introduction of two young adult males and two young adult females. Another two unrelated males were introduced in September 2011.

Several litters were born from the first group that was introduced.
In January 2014 the second introduced group of males ousted the first males as pride males and pushed them onto the western edge of the reserve, where they lived on their own for the following 18 months without integrating with the KKR lions again. These males were trophy hunted in August and September 2015.

In the meantime two new litters were born from the conquering males that pushed the original males out of the pride.

The current size of the population is 22 lions, with several young males from the first litters now at an age that they need to be removed from the reserve to prevent inbreeding with mothers and sisters.

This population size of 22 is the known number of lions on KKR and is not estimated. The lions are currently not in fixed prides, but occur in several smaller groups on KKR at present.



New genetic material in the form of new young males will be introduced soon, as guided by the KKR lion management plan, to replace the young males that needs be removed.

TROPHY HUNTING OF LION ON KHAMAB KALAHARI RESERVE

Lion management on Khamab Kalahari Reserve (KKR) is directed by a comprehensive Lion Management Plan. This document describes how trophy hunting of lion fits in with the Lion Management Plan for KKR, as it is not described in detail in the lion management plan itself.

Some of the key objectives of the lion management plan on KKR are to:

- manage the lion population in such a way that they form part of KKR's vision by seeing them as an ecological process that should function with as little management intervention as possible
- keep the lion numbers within the levels of acceptable change, allowing for natural fluctuations in population size, and ensuring that they do not reach levels where the prey populations are unable to recover from
- allow natural population regulation mechanisms to play a role in the maintenance of the lion population
- keep the genetic integrity of the population intact
- to ensure that lion population does not grow to levels where the continued existences of endangered predators like wild dog and cheetah are in jeopardy

The reason for introducing lions to KKR was first and foremost as integral part of the ecological system and processes. Lions, as apex predators, play a vital role in the health of ecological systems. For KKR, having lion on the reserve is about the conservation of the species, as well as the conservation and restoration of the ecological processes with which lions are involved.

The unfortunate reality of the majority of reserves in South Africa is that they are relatively small in relation to natural systems (despite KKR being 90 000ha or 222 000acres in size), and completely fenced. This implies that some sort of management is needed as natural processes cannot be left to play out completely on their own.

One unfortunate consequence of the conservation success of lions on free-roaming reserves in South Africa is that it was too successful and resulted in overpopulation on most reserves. Coupled with the fact that natural immigration cannot happen because of the presence of fences, implies that management needs to intervene to keep the lion populations at levels where the prey populations can sustain the predation by lion. Management also needs to intervene to keep the genetic integrity of the lion populations at healthy levels. This includes removing certain individuals from time to time, introducing new genetic material, or using other measures to keep populations at sustainable levels.

High lion population numbers are mostly controlled through culling or contraceptive techniques. As a result of the overpopulation of lions on most reserves, translocation options are extremely limited and virtually nonexistent for males over their prime. Various regulations also make it extremely difficult to translocate lions to other parts of Africa where lion populations are under pressure.

As KKR is privately owned, it has to be operationally self-funding in achieving its economic objectives. Unlike state reserves that are funded publicly, KKR is dependent on sourcing its own income from within the reserve itself. Hunting forms an integral part of the ecological as well as economical management plan of the reserve, and contributes 30% to the total income generated annually for the operational management thereof. This is achieved by means of a very conservative removals quota drawn up in conjunction with the reserve ecologist annually.

The balance of the income is generated by live game removals, breeding and sale of high value species, as well as small scale - low impact, photographic safaris.
The income generated by hunting and live game removals are dictated first and foremost by ecological factors and not with the sole function of earning an income. They are adapted annually according to the fluctuations in populations as well as local weather patterns.

The lion population on KKR are completely free-roaming, the majority of the lions being born on the reserve. They can roam over the entire area of the reserve (90 000ha), and are completely reliant on catching their own prey for food. Their movements are only restricted by the perimeter fence line, while inside the reserve itself there is no restriction or control over where they roam. Therefore, except for the outside perimeter fence, the lions on KKR live as any natural free-roaming population would have done, and there is no human interference at all in their day to day lives.
However, due to management considerations and population control as described above, it may be necessary to remove lions from the reserve from time to time. With the reserve being self-funding, it makes sense to earn income from hunting them instead of the other alternative which is culling, if no live translocation options are available.

Because of the unpredictability of the availability of males that can be hunted, there are no fixed quotas for lion hunts on KKR. Some years there might be one or more lions available for hunting, while other years there might be no lion available. Lions on KKR are not bred for hunting. Hunting is seen as just another tool in the lion management toolbox, as is translocation, culling, contraception etc. Compared to these options, which cost money to implement, hunting provides the additional benefit in that it generates income, which is directly ploughed back into the conservation and management programmes of the reserve.

KKR do not condone, support or associate with the intensive lion breeding and hunting industry in South Africa at all. KKR believes that hunting should only be used as tool that benefits the conservation of lions as a whole, and not just as a vehicle to generate money as seen in the captive lion industry. KKR management is of the opinion that trophy hunting used as part of a well thought out lion management plan can greatly benefit the conservation of free-roaming lion populations on fenced reserves, and also earn vital income that can be used directly to the benefit of conservation programs.

APPLICANT:

CLAY PARKER

MAP OF HUNTING CONCESSION

"X" marks the spot of the location.

