

JUN - 3 1999

**MEMORANDUM**

To: Chief, Office of Management Authority

From: Acting Chief, Office of Scientific Authority

Subject: Convention permit applications for import of sport-hunted cheetah trophies from Namibia

Please be advised that, based on information provided by the applicants, the Government of Namibia, and other sources, we find that the import of these specimens is likely to be for purposes that are **not detrimental** to the survival of the species.

---

Application number	Applicant	Species	Specimen
816287	Fred Bindle	Cheetah ( <i>Acinonyx jubatus</i> )	Sport-hunted trophy
818660	Jimmie Rosenbruch	"	"
818684	Jerome Bofferding	"	"
823758	Harold Alberg	"	"
822461	Virgil Binkley	"	"
829682	Carolny Lysne	"	"
829683	Howard Lysne	"	"
829685	Lonnie B. Cottam	"	"
839607	Franz Metz	"	"
841666	Wayne Lu	"	"
844457	Charles Merryman	"	"
844464	Robert Lange	"	"
844465	John Monson	"	"
008183	Steven Chancellor	"	"
008213	Neil Chamberlain	"	"
011262	Douglas Yajko	"	"

---

SURNAME
<i>R. Yajko 6/3/99</i>

JUN 3 - 1999

## MEMORANDUM

To: Chief, Office of Management Authority

From: Acting Chief, Office of Scientific Authority

Subject: Convention permit applications for import of sport-hunted cheetah trophies from Namibia

Please be advised that, based on information provided by the applicants, the Government of Namibia, and other sources, we find that the import of these specimens is likely to be for purposes that are **not detrimental** to the survival of the species.

Application number	Applicant	Species	Specimen
816287	Fred Bindle	Cheetah ( <i>Acinonyx jubatus</i> )	Sport-hunted trophy
818660	Jimmie Rosenbruch	"	"
818684	Jerome Bofferding	"	"
823758	Harold Alberg	"	"
822461	Virgil Binkley	"	"
829682	Carolny Lysne	"	"
829683	Howard Lysne	"	"
839607	Franz Metz	"	"
841666	Wayne Lu	"	"
<del>841825</del>	<del>Brad Lencioni</del> <i>Alan Lencioni</i>	"	"
844457	Charles Merryman	"	"
844464	Robert Lange	"	"
844465	John Monson	"	"
008183	Steven Chancellor	"	"
008213	Neil Chamberlain	"	"
<del>011260</del>	<del>Clifford Senter</del> <i>Zm</i>	"	"
<del>011261</del>	<del>Roberts Senter</del> <i>Zm</i>	"	"
011262	Douglas Yajko	"	"

## BASIS FOR ADVICE:

### **Findings on previous permits**

In our memorandum of April 24, 1997, we considered information from applicants; the Government of Namibia, Ministry of Environment and Tourism; and others, and we were able to find that, for the number of trophy-hunted cheetahs taken within the Namibian quota system, that such imports would be for purposes that would not be detrimental to the survival of the species. This finding of no detriment was based on the following, which we considered to be the best information available to us at the time.

### **Population Information**

#### *Design of population indexes and implementation of monitoring program*

The Namibian Ministry of Environment and Tourism (MET) had appointed a full-time Predator Coordinator, who was to be responsible for developing a national monitoring program for cheetahs. The person appointed to this position, Dr. Philip Stander, is a well-qualified Ph.D.-level biologist with over 10 years of experience in predator research and conservation in Namibia. According to a letter dated February 27, 1997, from Mr. Malan Lindeque of MET, Dr. Stander was to design a long-term cheetah monitoring program. Therefore, whereas a monitoring program was still in the developmental stages, we expected such a program to be put in place for determining future effects of sport hunting and other forms of offtake of cheetahs, but assessments had been based on existing estimates of population size, offtake levels, and other factors, and by using conservative values when these estimates varied.

#### *Implementation of accurate, standardized methods of documenting total offtake from all sources*

Offtake levels, particularly for removal of animals on wildlife ranches and farmlands to prevent predation, was (and still is) partly determined from actual reports, although an unknown level of unreported offtake was subject to estimation only, usually believed to be 30-50% of the total offtake. This may continue to be a problem, although most individuals involved with cheetahs in Namibia, including the Cheetah Conservation Fund, a non-governmental conservation organization promoting improved protection and tolerance of the presence of cheetahs on farmlands, believe that the removal of cheetahs on ranches and farms, both reported and unreported, is declining.

#### *Requirement for professional hunters and farmers to make carcasses available to experts for demographic analysis*

Mr. Lindeque of the MET had indicated that Namibia may be willing to require hunters, as a condition on hunting permits, to make cheetahs they have taken available for inspection by experts to obtain demographic information (estimated age, sex, and other characteristics). For U.S. hunters, this could be reinforced by requiring that imported sport-hunted cheetah trophies must have been made available to Namibian authorities or their designees for the collection of

such information (see Conditions). This would provide information for management in Namibia as well as for evaluating the effects of sport hunting for the issuance of future import permits, such as determining whether allowable levels of offtake of adult females were being exceeded.

## Management

### *Completion of Management Plan, with basis for quotas*

The Namibian Cheetah Conservation Strategy (Strategy) was sent as a review draft to the Office of Management Authority on July 1, 1996 (received July 8, 1996). At the time, the MET had not adopted the document as a formal management plan for cheetahs, but we understand that this was done in October 1996. The MET has indicated, however, that the Strategy would be updated and revised over the next 12 months to reflect current information (per letter dated October 21, 1996, from G.J. Hanekom, Namibian Minister of Environment and Tourism). Based on discussions with Mr. Malan Lindeque of the MET, provisions of the Strategy were to be phased in, as resources permitted, over time. The Strategy does provide a basis for cheetah quotas, and this was further elaborated by Mr. Lindeque in his February 27, 1997, letter, in which he advised us that the export quotas would be partitioned as follows (annual basis): 50 live specimens, 55 sport-hunted specimens taken in the current year, and 45 sport-hunted specimens from previous years (=total CITES export quota of 150 specimens). Sport-hunted trophies in the current year would be partitioned, with 25 assigned to U.S. hunters and 30 to hunters from other countries. Upon further discussions with Mr. Lindeque during his visit to Fish and Wildlife Service offices on March 20, 1997, he advised that exports of live specimens could be restricted to include only, or predominantly, male cheetahs, to ensure that offtake would be skewed toward a greater proportion of males. The evaluation of the Namibian Strategy and the manner in which quotas were derived were compared with population and mortality estimates and modeling scenarios developed from the population and habitat viability assessment for the Namibian cheetah conducted in February 1996 by the IUCN Conservation Breeding Specialist Group, with broad participation from government and non-governmental entities, which used a different model from that used for the Strategy.

*Information on how Namibia Professional Hunting Association (NAPHA) compacts will relate to the Strategy: Will hunting be limited to compact lands, and/or will non-signatories to the compact be required to collect conservation fees and abide by other terms of the compact?*

Compacts that have been signed between landowners and NAPHA contain a number of provisions to support the conservation of cheetahs, including the assessment of a conservation fee for cheetahs hunted on compact lands. According to Mr. Lindeque, the MET has no authority to regulate the fees collected from hunters, including the conservation fee collected for hunts on lands covered by the NAPHA compact, and therefore they could not impose a requirement for non-signatories to the NAPHA compact to collect the conservation fees or otherwise adhere to compact provisions. However, he agreed that U.S. hunters could be restricted to hunting on compact lands only, and U.S. permits could similarly contain such restrictions (see Conditions)

to ensure that the taking of cheetahs by U.S. hunters is conducted in a manner consistent with efforts to conserve cheetahs. As detailed in our July 2, 1996, finding, signatories to compacts agree to:

- a) cooperate in the Namibian government's cheetah management plan;
- b) take reasonable steps to control the indiscriminate killing of cheetahs on their property and to educate employees, tenants, and others in their vicinity about the importance of cheetah conservation;
- c) manage their property to maintain appropriate habitat for cheetah;
- d) abide by hunting limits established for cheetah by the Namibian government;
- e) assure that cheetah trophies taken on their property are properly documented and tagged, to be consistent with the requirements of CITES and the Namibian government;
- f) levy a surcharge of N\$1,000 as a conservation fee, in addition to the trophy fee, to be administered by the Namibia Nature Foundation in support of cheetah conservation activities (although there is provision for changing this amount);
- g) select a committee to review proposals for funding activities by organizations or individuals that will enhance the survival of the cheetah in Namibia;
- h) be included in a list of properties managed under the compact, such list to be provided to the competent CITES Management Authorities of any country requesting information for trophy import purposes; and
- i) conduct an annual survey of cheetah on properties under their control.

In our previous finding we noted that there were about 100 signatories representing about 3% of the cheetah range in Namibia. We expected that the number may increase further if U.S. hunters, representing 45% of the allowed trophy export quota, were restricted to hunting on compact lands. Furthermore, the compact system appeared to be a potentially valuable mode of educating farmers to reduce indiscriminate or unnecessary removals of cheetahs on farmlands.

### **Recent information supporting a non-detriment finding**

In examining the current permit applications, we are using the same basic criteria, summarized in two critical questions that needed to be answered:

1. Can the cheetah population in Namibia sustain the level of offtake that can be expected if these imports are allowed, and

2. Are there sufficient conservation measures for the species in place or being developed that can justify the expectation that this level of offtake will not result in detriment to the cheetah population of Namibia in the future?

### Sustainability of offtake

Recent information from the Ministry of Environment and Tourism confirms that a total of 34 cheetahs were taken for trophies in 1997 and 59 were taken in 1998. These totals fall within the export quota of 150 cheetah specimens for both live animals and sport-hunted trophies agreed at the tenth meeting of the Conference of the Parties to CITES in 1992. A ban on exports of live cheetahs has recently been lifted, but the number of live cheetahs leaving Namibia is significantly fewer than the 50 animal designated as the portion of the quota to be applied to live animals (Dr. Philip Stander, pers. com.)

While the trophy offtake is within the quota, to find that these removals constitute no detriment we must determine that this offtake in combination with other sources of mortality will not result in a population decline. Two different models have been applied to the Namibian cheetah population: the Vortex model used for the population and habitat viability assessment in 1996 (Berry et al., 1997) and the Erb model developed at the Etosha Ecological Institute for the Namibian Cheetah Conservation Strategy (Nowell, 1996). To develop an opinion on the allowable offtake, we have had to make judgments as to the most appropriate model and information to use. Most of the time, we selected the more conservative decision of the most reasonable options presented, and when we did not do so, we have explained the reasoning behind our decision.

We consider that the stochastic approach used in the VORTEX model provides the better model for estimating the population trends that are likely to occur over time, including the likelihood of a severe decline, when compared to the deterministic Erb model. While there is at present no reliable estimate of the total cheetah population estimate, we have accepted the consensus from the PHVA workshop, which was that the present population consists of an estimated 2500 individuals. Based on several data sources, we assumed that the human-induced offtake occurs in a 2-to-1 male-to-female ratio. While there has been some disagreement on this ratio, in most cases the number of males taken would be higher than this percentage. We recognize that there were other parameters used in the model whose accuracy should be assessed further, but for which we are not aware of bases for any significantly differing opinions.

Furthermore, we have opted to exclude catastrophic losses from the process of determining annual allowable offtake. While we believe that such stochastic effects are likely to occur, when they do occur we believe that population monitoring efforts currently undertaken in Namibia will be sufficient to detect them. We accept that it will be possible for the Namibian government, when a catastrophe occurs, to make the necessary adjustments in offtake to eventually stabilize the cheetah population.

Finally, for the purpose of the calculations of this modeling effort, we have accepted that the present estimated population size (i.e., 2500 individuals over 3 months of age) represents a figure close to the present carrying capacity or the level at which the population will be managed, and can be used as the upward limiting factor in calculating long-term trends in numbers of cheetahs in the population. We realize that drought conditions in Namibia, which have prevailed since 1979, are likely to have resulted in some reduction in the carrying capacity, and presumably with the return of wet years the prey base will increase and the cheetah population may exceed this level.

Therefore, in selecting from the modeling results presented in the PHVA report, we have accepted the conclusion that scenario 36 in Table 3a approximates a stable population, and we compared this 0.058 growth rate from this scenario with information in the no-catastrophe scenario in Table 6, which uses a 2-to-1 male-to-female offtake ratio. This indicates that a natural female natural mortality rate of 10%, a female offtake mortality of 12.5%, a natural male mortality rate of 10%, and a male offtake of 25% constitute mortality levels that would allow for a stable or increasing population. In fact, a female offtake of 15% would still show a positive growth rate according to that same table, but we have used the more conservative figure.

Translating these mortality levels to numbers of cheetahs that may be sustainably removed from the population through hunting requires not only a total population estimate, but age distribution and sex ratio estimates of the population. Assuming the total population is 2,500, then 10% natural mortality is 250 and 12.5% offtake is 312. This assumes that there is no compensatory mortality; that is, as the percentage of offtake increases, we have assumed that the level of natural mortality does not decrease. Then, based on the PHVA report, adult females represent 27% of the population (and presumably 27% of allowable offtake), and with an offtake of 10% or 250 total animals, 68 could be adult females (assuming no sex bias in the take). Thus, the PHVA recommended that an offtake of 60-70 adult females could be sustained. Accepting that the Namibian government could manage for catastrophes by adjusting the offtake when catastrophes occur, and thus could otherwise manage at an annual 12.5% offtake level, the allowable offtake would be 84 adult female cheetah.

In reviewing figures of offtake, we referred to the information on Namibian Ministry of Environment and Tourism's (MET) records and noted that the depredation offtake (all reported offtake not including trophies and live animals) was reported as 145 for 1991 (the extremely low figure for 1992 seems to be an anomaly), and 105 and 116 for 1993 & 1995. The 1994 figure was recorded as an average of 1993 and 1995 figures. These offtake figures are reportedly higher than those presented by the Cheetah Conservation Fund. With the implementation of the compact agreements, we believe that some reduction in depredation take has occurred, and that additional reduction can be expected. Alternatively, a reduction in take on compact lands could be offset or partially offset by an increase in take on non-compact lands, but with the organization of non-compact lands into conservancies (see below), this may not be the case. There is no reason to believe that the total depredation offtake would exceed that which has occurred in recent years. While this suggests that we should use only figures from the most recent year, we have made calculations of projected offtake using both the 1991 figure and the

1993 and 1995 average figure of 111. Reporting rates have been given as low as 50% and as high 70%, but using the more conservative figure, the corrected depredation offtake would be 222 (lower, more recent value for 1993-1995) or 290 (higher, older value for 1991). Assuming that 64% of the depredation offtake was adults and subadults, a total depredation offtake of adults and subadults would be 142 or 186. Assuming an offtake sex ratio of 2 males to 1 female would mean that 47 or 62 females would be removed due to depredation.

In calculating the live animal and trophy offtake, we have accepted the suggestion from Namibia that the live exports could be limited to male-only offtake and export, at least until more accurate estimates of population numbers and parameters can be made. Moreover, Namibia imposed a ban on live animal exports in 1998, which has just been lifted. If the offtake for trophy purposes is limited to 55 total animals (25 for U.S. hunters and 30 for hunters from other countries) and the offtake is 50% females and 50% males, the trophy offtake would consist of 28 females and 27 males. [We are assuming that the export quota of 50 permits for trophies taken in previous years does not represent additional within-year annual offtake; improvement in the permit system means that tags must be issued within 10 days of the kill.]

Adding the individual offtake categories together results in a total offtake of 75-90 adult female cheetahs. Since we have used the most conservative figures at almost each step of the our assessment, we believe that this projected offtake would be sustainable. Actual cheetah trophy exports for 1997 were 49 (32 males, 17 females), and for 1998 were 40 (30 males, 10 females). These totals fall below the calculated allowable offtake as well as the export quotas, and the sex ratio further indicates less pressure on adult females.

#### Design of population indexes and implementation of monitoring program

In his role as Carnivore Coordinator for Namibia, Dr. Philip Stander has developed the Namibia Carnivore Monitoring Programme as a critical component of the Namibian Cheetah Conservation Strategy. The program has as its premise that "sound ecological data, such as reliable population estimate, distribution and population demography are crucial in the implementation of conservation strategies." The monitoring program has multiple objectives and is scheduled to run for 10 years and will include efforts to develop standardized methods for all of the large carnivores in Namibia. The program will focus on eight sites that have been selected from different regions. Four of the sites have cheetahs, and non-government organizations (NGOs) will be directly involved in the monitoring effort. These areas and NGOs are as follows: Kalkfeld (Africat), Waterburg (Cheetah Conservation Fund), Seeis (Okatumba Wildlife Research Center), and Summerdown (Namibian Carnivore Monitoring Program technicians). The short-term objectives include:

1. Development of reliable monitoring and survey techniques for large carnivores in diverse habitats;
2. Determining population demography of key species in key areas; and

### 3. Development and establishment of sustainable utilization packages for the key species in proposed study sites.

The population estimation methods currently used as part of the program are spoor counts, population demography, and mark and recapture. Two full-time technicians have been hired. In the mark-and-recapture effort, 40 cheetahs have been marked; the goal is to mark 300. Because of the high costs and low success rate for mark and recapture for animals such as cheetahs, which occur at low densities, one of the primary purposes of the program is to calibrate indirect methods, or indices. It is being postulated that spoor frequency derived from sufficient samples sizes may be the most reliable index of true density in cheetah (Stander, 1998).

In addition to developing census methodology, it is necessary to develop and implement a permit system that utilizes accurate, standardized methods of documenting total offtake from all sources so that total offtake can be better quantified.

The MET has proposed legislation to require hunters, as a condition of obtaining permits, to make cheetahs they have taken available for inspection by experts to obtain demographic information (estimated age, sex, and other characteristics). At present they only must provide a photograph for later identification with skin or mount, and demographic information is obtained for only 20-30% of trophy animals taken. We therefore recommend that, if U.S. import permits are issued for cheetah hunting trophies, the permits be conditioned to require that imported sport-hunted cheetah trophies must have been made available to Namibian authorities or their designees for the collection of such information. We further recommend that, in the future, permits only be issued if they were applied for and issued before the trophy hunts were conducted. This would insure that cheetah trophies imported into the United States provided biological data that is important to the development of the Namibian Cheetah Conservation Strategy.

#### Conservation Measures to Insure Cheetah Population Stability

There have been several significant developments since these permits applications were received that could have important consequences for cheetah conservation in Namibia.

One measure of the success of the Cheetah Conservation Strategy has been the steady expansion of the Namibia Professional Hunting Association (NAPHA) compacts with landholders. Present estimates are that about 70% of land where cheetahs are taken by professional hunters is under compacts. Furthermore, while we estimated that the N\$1,000 conservation fee required by the compact for each trophy taken would result in perhaps US\$10,000 annually, the actual revenue generated by those hunts in 1998 was N\$18,000 (US\$3000), and NAPHA donated another N\$10,000 to support the current monitoring effort. Moreover, signatories to compacts are required to agree to pay fees and to conduct an annual survey on their land and to manage their property in accordance with the Strategy.

If U.S. hunters were restricted to hunting on compact lands, and assuming all of those trophies are taken annually, this would result in conservation fees of approximately US\$6,250. It is probably unlikely that this level would be achieved, since cheetah hunters are often not successful in obtaining a cheetah, and to hunt a cheetah, a professional guide might take them to non-compact conservancy lands. We acknowledge that such an amount would not solely support the cheetah management and research activities required to operate a comprehensive conservation program for the species. However, such funds will augment other monies already available or that may become available to support cheetah conservation activities, some of which have already been conducted without these fees.

In addition to fees being paid directly for conservation, trophy fees paid to professional hunters and landowners, which may be N\$5,000 or higher, would also help provide incentives to maintain cheetah populations, particularly if these prices increased due to increased competition from U.S. hunters entering the market. The extent to which trophy fees compensate for losses of other wildlife and livestock is not clear. It is obvious that every landowner will not have the opportunity in a given year to collect a trophy fee, since the number of landowners far exceeds the number of cheetahs that may be hunted. However, the increased presence of cheetahs on a given farm would increase the likelihood of a given farmer having trophies to offer (i.e., opportunities for a successful hunt), and therefore may provide some incentive for tolerating the presence of cheetahs.

The second important development is the formation of conservancies under the 1996 amendments to the Nature Conservation Ordinance. Conservancies are groups of farms that join together for the purpose of conserving and utilizing wildlife. With the encouragement of the government, the conservancy movement has greatly expanded in the last two years. Domestic livestock farmers are forming multi-farm conservancies, where multiple farmers operate their lands as a unit for the purposes of game management. Presumably, all members of a conservancy would benefit from a trophy taken on any one member's land, which then increases the potential incentive for individual farmers to tolerate predators such as cheetahs. Merging of the NAPHA compact scheme for game ranches and the conservancies on farmlands should further increase the potential benefits of cheetah sport hunting to a larger number of farmers.

The third significant development in cheetah conservation in the country is the Namibia Carnivore Monitoring Programme. It is the realization that the success of any conservation effort can only be determined with scientific measurement of cheetah abundance as well as estimates of natural mortality and offtake. The monitoring program establishes a priority of developing reliable survey and monitoring techniques within three years. Field personnel have been hired to carry out some of the baseline work, and NGOs have been enlisted to work on developing these methods as well. It includes an effort to calibrate the less intensive methods and to compare estimation methods across carnivore species.

Among the most important recent developments in cheetah conservation is the success of the Large Carnivore Management Forum. It has had fifteen meetings over the past two years, bringing together all stakeholders in cheetah management every six weeks. The permanent members include

Afrileo, Africat, CANAM (Conservancy Association of Namibia formed among farmers to deal with free-ranging wildlife), the Cheetah Conservation Fund, MET, NAPHA, NAU (Namibia Agricultural Union), the Namibian Game Sanctuary Association (Game Ranchers), the Namibian Carnivore Monitoring Program (2 technicians financed by NAPHA, Africat and MET), the Namibian Nature Foundation, Okatumba Wildlife Research Centre, and six veterinary clinics. Other groups with issues to bring to the forum are invited, as is the press. The Forum has been directly involved in developing the monitoring program. It also provides a place for discussion and possible resolution when there are conflicts among constituencies.

NAPHA has approached the MET to discuss ways in which to provide information to professional hunters about problem cheetahs (i.e., those taking livestock) so that sport-hunting offtake can be directed toward animals that would otherwise be taken for depredation purposes. Such an approach, if implemented, could have several positive effects:

1. sport-hunting offtake would then be compensated by a reduced depredation offtake instead of being additive;
2. offtake of depredating cheetahs may be better reported and controlled, since farmers would be reporting such animals in advance of their removal from the wild; and
3. farmers experiencing actual losses of livestock to cheetahs may be able to use such an approach to improve their opportunities for compensation of losses.

Finally, while the United States has not yet authorized the import of sport-hunted cheetah trophies from Namibia, the possibility of such imports has already resulted in positive measures being taken by the Namibian MET and NAPHA, such as:

1. the appointment of a Carnivore Coordinator, who will be responsible for studying and monitoring cheetah populations in Namibia toward their long-term conservation;
2. the development of the Namibian Cheetah Conservation Strategy and its adoption by the MET as a comprehensive management plan for the species;
3. the development of the NAPHA compact system, which targets farmers, who are the primary threat to cheetah survival in Namibia due to perceived threats to livestock and other valuable wildlife; and
4. the development of farm conservancies, which give a legal basis to the common management of farmlands for the benefit of wildlife, both prey and predator species.

Implementation of the Namibian Cheetah Conservation Strategy is still in its formative stages. We find that the present import of cheetah trophies from Namibia may provide some benefits to the species that would offset the removal of a limited number of individuals from the wild. Important

considerations in future findings on such applications include: progress toward full implementation of the Strategy; further study of the population to better assess various population parameters (e.g., improved estimates of population size, age distribution, and sex ratio as well as natural and removal mortality of females, proportion of non-producing breeding-age females, and cub survival to one year) that are important for determining sustainable offtake levels and monitoring of population trends; and continued efforts to reduce indiscriminate removal of cheetahs from the wild. Furthermore, progress should be made toward an improved understanding of disease as a potential limiting factor or threat to the survival of the cheetah.

To ensure that authorizing these imports is consistent with the rationale for arriving at our finding of no detriment, we recommend that any permits that might be issued for imports of sport-hunted cheetahs into the United States be conditioned as follows:

1. Only trophy specimens that were hunted on lands covered by the Namibia Professional Hunting Association compact or a farming conservancy may be imported, and permittees must provide documentation to show that their trophies were hunted on such lands.
2. Permittees should contact the Ministry of Environment and Tourism in advance of the hunt to determine if any blood or other tissue specimens should be collected from hunted animals, to assist in gathering information on disease in cheetahs. Permittees must cooperate in the collection of such specimens, as instructed by the MET or their designee to ensure proper handling of specimens.
3. Permittees must notify the Ministry of Environment and Tourism when a cheetah is taken and make the specimen available to the MET or their designee for purposes of examining the specimen and collecting demographic and other appropriate information that may be useful for monitoring the impact of hunting on cheetah populations and for assessing the status of the population.
4. At the time of import, permittees must provide documentation from the Ministry of Environment and Tourism showing that they have complied with conditions 2 and 3.

**Robert R. Gabel**

---

for the Scientific Authority

OSA:PDratch/RGabel:4/20/99:cheetah.rec

## LITERATURE CITED

Nowell, K 1996. Namibian Cheetah Conservation Strategy *Review Draft* Submitted to Ministry of Environment and Tourism, Government of Namibia.

Seal, U.S., H. Berry, O. Forge, L. Marker-Kraus and K. Nowell. 1997. Life History / VORTEX Modeling Working Group Report. *In* Population & Habitat Viability Assessment for the Namibian Cheetah (*Acinonyx jubatus*) and Lion (*Panthera leo*). IUCN/SSC Conservation Breeding Specialist Group, Apple Valley MN

Stander, P.E. 1998 Spoor counts as indices of large carnivor populations: the relationships between spoor frequency, sampling effort and true density. *J. Appl. Ecol.* 35:378-385.