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Abstract: Laurie Marker is answering Johann Vaatz questions about cheetahs trophy hunting. Which kinds of animals could be taken for trophy hunting? There are still too many informations missing about cheetahs to answer this question. But a proven livestock killing animal should be removed from the free-range, and therefore, these animals could be trophy hunted. What conditions must the farmer fulfill, which would satisfy our scientific needs, to stop unnecessary killing and trapping? The CCF would welcome the more active involvement of hunters and farmers in all aspects of cheetah research. Another way is to practice preventative farm management. What is an ethical way of hunting the cheetah? The ethical way to shoot a cheetah is to track it and give the cheetahs as fair a chance as the hunter has. But often cheetahs are trapped and shot. This is not ethical.

16 May 1994

Mr. Johann Vaatz
President
Namibia Professional Hunters Association
P.O. Box 11291
Windhoek

Dear Johann,

Thank you for your letter of 30 March informing us of the special sub-committee called Raspeco. We appreciate your involving us in this committee and hope that together we can address cheetah conservation here in Namibia.

You have asked us to respond to several questions. The answers to some of these questions are very hard, as the information is not yet available to make clear-cut decisions. Together, with the assistance of NAPHA members, we hope that some of these questions can be answered over time. We have enclosed a copy of the talk we gave at the NAPHA AGM as background and reference for this letter.

1. Which kinds of animals could be taken for trophy hunting?

1.1 Is the cheetah population big enough to take any cheetah as long as the farmer binds himself to certain conditions?

These two questions are the most difficult to answer as limited information exists on the demography of the population. We do not know the sex and age structure of the population or the rate of recruitment into the population. The size of the population, is the population big enough, can only be assessed by understanding the demography of the population and understanding its long-term health in order to viably sustain the population for the long-term.

To address your first question, the taking of each type of animal can create certain problems. These problems can affect both the farmers or the cheetah population. For example, removal of a female cheetah with cubs that are not of an age where they are able to hunt on their own can result in livestock-killing problem animals because the young cubs are not efficient hunters yet and find that catching livestock is easier. Therefore, we would not recommend taking a female that fits into this category. Shooting a female will also reduce the breeding population thus affecting the recruitment into the population.

Understanding the behavior of cheetahs is very important in looking at which animal could be shot. Cubs begin to follow the female at about 6 weeks old and stay with the mother until they are about 18 months old, at which time they leave the female. The cubs usually stay together for a few months until the female(s), come into heat for the first time and the males (brothers) are chased out of the area by dominate male cheetah(s). These young males then become transients and usually move great distances in their dispersal. The theory suggests that these animals also disperse to avoid inbreeding or incest.

Transient animals may wander for a year or more before settling down. These animals may find areas vacated by older cheetahs who have died of old age or who are old enough to be displaced. The other transient young, along with the displaced aged, are probably forced into poor environments, away from good prey habitat, and perhaps into areas where chances of contact with humans are increased. These animals may be the best selection for trophy hunting, but it will be difficult to know which animals these are.

Movement of transients into an area will occur more rapidly when removal of cheetahs takes place either through trophy hunting or live capture (ie. the vacuum theory). Research has suggested that removal of residents, territorial animals, from an area would increase cheetah densities because transients vie for a gap created by removal of an established resident. This then causes more problems for farmers as there are more cheetahs coming onto the farm.

If adequate cheetah habitat surrounds an area undergoing cheetah removal, replacement will probably at least equal removal. But if removal is going on equally in all areas, the population will decline. Information from other feline research suggests that if an area is isolated from other areas of good cat habitat, replacement of a declining population in this area occurs much more slowly. Therefore, not only of importance is what kind of cheetah to shoot, but the areas where trophy hunting takes place is also important to the population.

We do not know what the natural mortality is for adult resident cheetahs under normal conditions. We also do not know the rate of survival of cubs or the rate of recruitment into the population. Therefore, all of these questions will need to be answered before we can provide you with an appropriate answer to your question, "is the population big enough to take any cheetah".

The next point is to address these two questions in terms of how they relate to the hunters and farmers. Neither group has any real way of knowing the sex or age of animals that they plan to trophy hunt. They also do not know if the animal is transient or resident, or what may be the family structure of a group they might see. Since trophy hunting is usually competitive, there is always going to be the problem that the largest animal in a group will probably be shot. This then takes us back to the first example that I gave as to potential problems in creation of livestock-killing animals, by taking a mother out of a group of teenage cubs. A proven livestock killing animal should be removed from the free-range, and therefore, these animals could be trophy hunted. But again, who really knows what animal is the livestock killer?

2. What conditions must the farmer fulfill, which would satisfy our scientific needs, to stop unnecessary killing and indiscriminate trapping?

The Cheetah Conservation Fund would welcome the more active involvement of hunters and farmers in all aspects of cheetah research. The greatest problem for conservation biologists and government agencies is the actual monitoring of the populations. Estimates of the status of cheetahs here in Namibia have developed somewhat through the use of official records. I have included a set of tables and graphs which show two sets of official government figures, the figures turned into the Ministry of Wildlife, Conservation, and Tourism for permits and use by the Convention of International Trade in Endangered Species (CITES), and the figures collected by the Livestock Inspectors from the Ministry of Agriculture, Department of Veterinary Services. The third set of figures comes from CCF and was collected through personal interviews from 240 farmers over a two-and-a-half year period from 1991-1993. These three sets of figures show major differences in the numbers of animals removed, and the official records can be very misleading in providing adequate monitoring of a population. The official records do not provide the actual numbers of animals removed because the people do not report properly. This official information is better than nothing, but better quantification is badly needed. Hunters and Guides can therefore assist in more accurate record keeping and in encouraging the gathering of accurate information by the farming community as well.

Understanding the over-all health and genetic make-up of the cheetah population is critical to the long-term survival of the species. The hunters can assist with this process through collecting samples and measurements on animals that are shot. CCF could provide collection kits which include simple instructions and storage containers for the collection of the samples. A detailed measurement chart would also be provided by CCF. And, if the skeletons were unwanted by the hunter, CCF would like the skeletons for further research on morphology. This type of cooperation

would provide invaluable information, and the hunters would be assisting in the long-term conservation process.

Another area of research support would be to work with CCF in a capture, tag and release program. This would, over time, provide very valuable information on population density and dispersals and a better understanding of the demographics of the entire population. If animals were captured and tagged, CCF would also be able to collect other biological samples from the animals (blood and tissues) for ongoing monitoring of the genetic health of the population and for screening for infectious viruses in different regions of the country. The farmers/hunters would then have a better idea of what animals are on their land and could gain a better understanding of which animals may be available for trophy hunting. It is CCF's belief that the involvement by the hunters and farmers is invaluable in the long-term survival of the cheetah.

Another way to reduce unnecessary kills of cheetahs, is to practice preventative farm management practices so that livestock is not opportunistically killed by cheetahs, which may then develop into problem animals. Game farms are another problem for the cheetah. Game farmers should be encouraged to protect their game through the use of electric fences. As they are making money out of their game, they must also invest in their game's protection--and not just at the expense of the lives of the cheetahs in the region.

Sustainably utilizing the wildlife prey populations is also an important component of reducing problems for the cheetah, thus reducing unnecessary cheetah kills. Hunters should encourage farmers to maintain large enough wildlife populations in the areas where they are hunting. Communication between neighboring areas should also take place so as to know the take of the region of all wildlife including the cheetah.

The economic contributions of hunters is well known; if legal hunting of the cheetah is stopped, this will not stop people killing the cheetah. To hunt or not to hunt is not the main problem; it is how can we secure a habitat for the future for this species. The solution to the cheetah's problems lies in stopping the practice of intentionally reducing cheetah numbers for the sake of livestock or game and in developing practical and workable conservation strategies for the future of the species. A question we have is: How will trophy hunting benefit the farmers and stop indiscriminate killing of cheetahs if only a limited percentage of the farmers are trophy hunters (mainly German)? What about the other people who don't trophy hunt the cheetah thus don't derive economic benefit from it as a trophy?

3. What is an ethical way of hunting the cheetah?

Since it is very rare on this earth to be able to hunt an endangered species, Namibia has a very special trophy to offer in the cheetah. But, trophy hunting must be done ethically. It is a well-known fact that many farmers names are available to hunters, and if a hunter has a client who wants a cheetah, he calls the farmers who have more cheetahs in their area, often because there is a playtree on the farm. Cheetahs are then trapped in the trap, and the hunter is called. The cheetah is either shot in the trap or in a small camp. This is not ethical. It works the other way as well. Farmers will set traps, and when a cheetah is caught, they will call up hunters and offer the cheetah as a trophy. Or they use the cheetah which is caught in the trap as bait for another cheetah (everyone knows that cheetahs are very social and if one is caught in a group the others will come back), and then shoot the cheetah when it comes to the one in the trap. This is not hunting a cheetah. Hunting a cheetah is very difficult.

The ethical way to shoot a cheetah is to track it and give the cheetah as fair a chance as the hunter has. Although this is very difficult it is the only ethical way to hunt a cheetah. Hopefully, by improving the ethics of the hunters and guides and by involving them more fully in the research, thus making them managers of the species that they help to consume, we can assist in reducing unethical hunting.

We hope this letter serves to assist you with your directions in the Raspeco sub-committee. We would like to assist on this sub-committee if we may. As we have discussed with you before, it is very important to raise the price of the cheetah as a trophy and an excellent idea to spread the funds around. Please let us know if we can be of any further assistance.

Most sincerely,

Laurie Marker-Kraus and Daniel Kraus
Co-directors,
Cheetah Conservation Fund

P.S. We have also enclosed a copy of the summary report from the research team that was here in February. We thought that you would enjoy reading it as you were a part of it in the end. Also, our phone number has changed, the new number is 0651 4216.

To the cheetah hunters, we need your help in nurturing the species you consume, The day of killing cheetahs as vermin is past. Contribute to our awareness and help us to keep the habitat and prey base that is essential to the cheetah. Value it as the ultimate, pristine trophy that it is.

The statement that hunters save wildlife. Be this as it may, killing an animal like a cheetah for trophy hunting is difficult to justify. Even more so than killing the cheetah for protection of livestock. But even harder to justify is the killing of the cheetah to produce more game so that the game can be killed by people, as the game still dies.

The extent of inbreeding depression in natural populations is still virtually unknown, but it is becoming increasingly more clear that if possible birds and mammals do not generally mate with close relatives. To aid this, most species, both males and females move different distances from their birth places to their breeding site. Consequently, matings between siblings become less likely. Genetic Management, Kurt Benirschke, IZY #17, pg50-59.

Records show several anomalies which can be assumed to have a simlily complex background. They include cleft palate in several species of animals including lions and cheetahs, parrot mouth in Pere DAvid's deer, Aoudad and Sable antelope, and European bison with umbilical hernia. The incidence of these malformations is either very low or they have not yet been properly diagnosed. To resolve their true genetic component is extremely difficult, particularly when, as is the case with endangered species, only limited numbers are available for investigation.

The precise pathogenetic mechanism involved in multifactorial anomalies is poorly understood. It is assumed that the varying reactions in laboratory mice where cleft palate are seen are reactions due to a different embryological timetable for palatine closure and/or different skull configurations. Suffice to say that one gene is not responsible for this, or for most other congenital abnormalities. Should they appear in a population, only close scrutiny of environmental agents and identification of susceptible genotypes will help in their control. In Guernsey and Jersey breeds of cattle, foetal endocrine failure associated with deformity of the head and pituitary asplasia (Kennedy et al, 1967). Both are wide spread in cattle and are believed to be caused by autosomal recessive genes which, when homozygous, produce the lethal effect. In sheep, the ingestion of Veratrum californicum and other nutritional toxins produces severe cranial malformations which also result in prolonged gestation, however, mediated through pituitary/adrenal failure, is the same as that in cattle.

Cataracts: At first sight such a juxtaposition of events would seem to require a genetic explanation. A plethora of infectious, environmental and genetic conditions leads to various forms of disorders. Cataracts are uncommon in domestic cats and that they have only been seen once in

other felids, in a juvenile cheetah. (this had to do with possible genetic causes of cataracts in Siberian tigers at SD).

Long experiences in research have shown that Inbreeding results in an enhanced degree of homozygosity of alleles. When mutant genes are responsible for specific structural abnormalities or abnormal protein conformation, disease processes become manifest. There is every reason to believe that in species where the numbers are low, homozygosity and illness will appear.

Pedigree analysis, meticulous autopsy study, and wider biochemical analysis will all be necessary to achieve desired goals. Some of the diseases can be studied in their homozygous and heterozygous states from fibrous tissue cultures others from serum and blood cells. If we set about collecting, analyzing and storing as many samples as possible for present populations, then in the event of abnormalities developing in the future, the material for a systematic enquiry will be on hand.

FROM National Wildlife Magazine, Oct 83, Draining the Gene Pool by Richard Wolkomir.

Some of California's rare tule elk suffer from short lower jaws, which impedes feeding. Schonewald-Cox suspects this may be an unwelcome effect of inbreeding that arose because the biologists who established the herd started with too few individuals.

Genetics and Conservation- Thomas Foose

Whatever the management program, the animals specifically selected for removal or reproduction will best be identified by genetic criteria as to maximize preservation of genetic diversity. Both genetic and demographic management must be applied with in constraints imposed by the sociobiology of the species. It is not merely enough, or even possible merely to regulate numbers. Age distributions also must be managed, and that each age class must contain an equal or greater number of animals than any older age class.

- A. The age and sex structure of the population at particular times- that is how many animals of each sex are in each age class
- B. The age and sex specific survivorships- how long animals live on the average or what are the chances that an animal will survive to a certain age
- C. The age and sex-specific fertilities - how well animals of various ages usually can be expected to reproduce.

Reproduction or more simply breeding, even if it is prolific, is a prerequisite for but is not equivalent to long-term propagation and preservation. Species must be managed genetically and demographically as biological populations.

IUCN Bulletin Vol 16 No 1-3

One pitfall must be mentioned. When a population becomes too small, demographic stochasticity, (chance extinction due to such factors as a disease epidemic or as a one-sided sex ratio resulting from few births in the population) becomes a greater danger to the population's survival than loss of genetic diversity.