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# Aspects of Ecology, Biology and Conservation Strategies of Namibian Farmland Cheetah

By

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## **Abstract**

Namibia has the largest remaining population of free-ranging cheetahs in the world (approximately 2,500), 90% of which are found on commercial livestock and game farms. The management of predators on private land is a complex, difficult issue especially when an endangered species is involved. The primary problem is conflict with livestock farming, to which there are solutions other than traditional lethal predator control. To be compatible with the survival of wildlife, new methods and policies of farm management, wildlife management and predator control urgently need to be incorporated into land management.

Since 1991, the Cheetah Conservation Fund (CCF), a Namibian-based research and educational foundation, has been conducting integrated and multi-disciplinary research to provide baseline knowledge on the biology and ecology of the cheetah to help conserve the species. An overview of CCF's research findings will be discussed and how programs developed in Namibia are now being used in other countries where cheetahs are in need. In addition, ideas as to how Zoo Keepers can assist in cheetah conservation will be presented.

## **Background: Cheetahs in the Wild**

The cheetah was once one of the most widely distributed of all land animals. In 1900, approximately 100,000 cheetahs were found in at least 44 countries throughout Africa and Asia. The last century has witnessed a dramatic decline in the cheetah and it is estimated that less than 15,000 animals remain. In the past 60 years, the cheetah has become extinct in at least 16 countries, and now it is found only in 29 African countries. The last of the Asian cheetahs, less than 100, are found in Iran.

Today, cheetah numbers are declining due to loss and fragmentation of habitat, and a declining prey base. Intra-guild competition from more aggressive predators decreases cheetah survivability in protected game reserves, causing larger numbers of cheetahs to live outside protected areas and therefore coming into conflict with humans and land fragmentation. An estimated 50% of the remaining free-ranging cheetahs are now found in southern Africa.

With an estimated 3,000 cheetahs (20% of the world's population), Namibia harbors the largest remaining free-ranging population. More than 95% of Namibian cheetahs live on commercial livestock and game farmland where they come into conflict with humans. The commercial farmer's economic problems have been aggravated by the extensive bush encroachment across north central Namibia caused by regular droughts, over-grazing, decreased presence of large herbivores like elephants and rhinos, and the reduction of natural range fires. The result is a loss of agricultural land, which is a significant economic problem for farmers, reducing their tolerance for predators such as the cheetah. Additionally, it has been observed that cheetahs have become blinded due to hunting in the thickened bush habitat.

In the 1980's, the Namibian cheetah population halved as farmers killed over 6,000 animals; and in the 1990's, although the killing was reduced, an additional 3,000 cheetahs were removed from the Namibian farmlands. Today, the long-term survival of the cheetah in Namibia lies in the hands of around 1,000 commercial farmers.

## **Problems Facing Cheetah Survival**

Today, the Namibian cheetah population may be the largest and healthiest population of cheetahs left in the world, and understanding their biology and ecology is essential for stabilizing the population and managing a sustainable population for the future. In the future, as wild populations become more fragmented, their management will become increasingly necessary in order to maintain genetic diversity, protect against disease, and against further population declines due to habitat loss, demographic fluctuations, and conflict with humans.

Understanding the human/predator conflict problems within the southern African system is rather complex, however, identifying and implementing effective conflict resolution strategies are key elements to the cheetah's future in this region. Throughout southern Africa, carnivore-livestock conflict has been exacerbated by a change in husbandry during the past century. For instance, in recent decades, domestic livestock is no longer herded or guarded by dogs and as such is more vulnerable to predation. Furthermore, stockmen have lost the tradition of coexistence with large predators and modern protective legislation of carnivores is not matched by positive cooperative attitudes by livestock communities.

For successful conservation, cheetahs require large areas of intact habitat encompassing suitable and available prey, and there must be mechanisms that allow movement of cheetahs between regions to encourage gene flow. Land available for cheetahs in southern Africa has become fragmented by the extensive development of game-fenced farms, where most of the game is "used" for trophy hunting, and the presence of a predator like the cheetah is not tolerated.

Today, the need to conserve the cheetah does not come into the mind of most southern African farmers who have lost livestock or game through cheetah predation. The farmer's interests are in economic gain, be it through the sale of livestock, or selling game as trophies to foreign hunters. The key question to answer here is †"Can the economic needs of the people be provided for, while at the same time the biological and ecological requirements of the cheetah be met? "

## **About The Cheetah Conservation Fund (CCF)**

CCF has as its mission "to be an internationally recognized center of excellence in research and education on cheetahs and their eco-systems, working with all stakeholders to achieve best practice in the conservation and management of the world's cheetahs."

CCF's strategy to save the wild cheetah is a three-pronged process of research, conservation and education. It begins with long-term studies to understand and monitor the factors affecting the cheetah's survival. Results of these studies are used in developing conservation policies and programs to sustain the cheetah populations. Then, CCF actively works with the local, national and international community raising awareness, communicating, educating and training.

## **Research and Conservation Activities and Results**

Our research has shown that cheetahs and farmers can coexist if suitable strategies are employed. The objectives of cheetah conservation must be to encourage practices that tolerate predators through restored habitat; livestock management that encourages non-lethal predator control; and healthy management of wild game populations, via a reduction in both game fencing and the stocking of non-native game species, as well as through the establishment of conservancies.

Strategies for cheetah survival on southern African farmlands must include two important aspects, education and economic development. A multi-disciplined and integrated approach to educate the human population and alleviate poverty is necessary and this may be done through training and creating entrepreneurship opportunities. This does not mean paying farmers for cheetahs.

Our data in Namibia show that the perceived threat to livestock or game from cheetahs was much greater than the actual threat. From our limited research in other southern African countries, this

appears to be similar. Furthermore, in Namibia there was no relationship between the percentages of livestock owned, livestock losses and cheetah problems and removals. The data suggest that there might be some ‘threshold’ level of loss, e.g. 15 or 20 animals per year to any cause, above which the farmer finds the situation unacceptable, regardless of the size of his herd overall, or reason for the loss. Changing the perception that cheetahs are a significant threat to livestock and game is clearly of vital importance if indiscriminate removal is to be reduced. An indication that the levels of tolerance towards cheetahs can be increased through awareness-building and education was shown by the increased proportion of tagged and radio-collared cheetahs Namibian farmers allowed to be released during our research (1991 – current). Most of the releases of cheetah were facilitated through long-term contact and work with farmers and indicate that extension-training programs have positive effects and that continuing such programs, and expanding them, is beneficial.

We believe that education about sustainable land use must be encouraged, with the primary goal of showing how this practice provides direct and indirect benefits to communities. Programs should be developed that train land managers in the environmental value of appropriate range management, optimizing the economic value of a sustainable, mixed wildlife-livestock system designed to avoid land degradation. Such programs should focus on the benefits of natural resource management, attaching economic and cultural values to these resources, and raising awareness of ecological issues. Successful examples of local conservancies and trans-boundary land management planning provide a basis for developing large-scale land management plans for the future.

The availability of a wild prey base for the cheetah is critical in the issue of predator conflict in southern Africa. According to many Namibian farmers, maintaining a substantial population of wild game is the most important key in reducing livestock predation. Therefore, mixed farms with both livestock and wildlife should be encouraged.

The relationship between prey availability, livestock predation and feeding behavior in cheetahs has important management implications. Our data indicate that cheetahs preferentially take wild game species over domestic livestock. Although domestic stock were evident in 6.4% of the scats, confirming that cheetahs do prey upon livestock, two-thirds of the available prey base on Namibian farmlands is livestock, suggesting that cheetahs appear to preferentially select game species. Farmers’ reports support this finding.

Additionally, we work with farmers to test the effectiveness of new livestock and wildlife management strategies that have been identified as management techniques correlated with livestock loss control and changing attitudes. These strategies can be linked economically to assist both cheetahs and farmers., including the effectiveness of Livestock Guarding Dogs—a method of non-lethal predator control that protects farmers’ livelihoods while conserving cheetah. The Anatolian Shepherd, a traditional guarding dog breed from Turkey, is well adapted to arid climates, and is able to work unsupervised on vast open spaces—both conditions similar to those found in Namibia. The hypotheses being tested are that traditional farmers are amenable to changes in livestock management practices to mitigate predator conflict, and that guarding dogs will reduce livestock loss to predators thus reducing the numbers of predators killed by farmers.

CCF breeds, places and monitors dogs, scoring for effectiveness using methodologies developed for guarding dog behavior. As a non-lethal method of predator control, the dogs become the guardians of the flocks, and through loud barking, and attentiveness to the herds, predators avoid these protected flocks. Monitoring also includes investigating livestock losses to predators on farms with and without guarding dogs. CCF’s Livestock Guarding Dog program has generated much interest among farmers, communities, tourists and the media since its inception in 1994. To date, over 160 dogs have been placed on livestock farms. Dogs are monitored and evaluated bi-annually. On farms where dogs are working, livestock losses have been eliminated or reduced and farmers have reported up to an 80% decrease in livestock losses post-placement.

One of the biggest arguments against allowing cheetahs on game farms is the risk of them preying upon expensive, exotic game animals. Many game farmers stock exotic game species on their land for trophy hunters, and these animals are not only more valuable than indigenous game, but may also be more liable to predation than the better-adapted indigenous species. Although results presented from scat analysis suggest that cheetahs prey mainly upon indigenous game species, even a relatively low level of predation upon expensive, introduced game can have economic impacts upon farmers that they are unwilling to tolerate. Therefore, strategies to mitigate such economic losses could include fencing sections of farms to contain expensive game animals. These initiatives should be part of a game farm management plan and linked to permitting regulations as a part of government policy, as most game-fenced areas are not conservation areas but are private businesses. Proposed game laws in Namibia will stipulate that game-fenced areas cannot eliminate wildlife indiscriminately for private gain.



**Anatolian Shepherd Guard Dog**

A longer-term, more sustainable strategy than fencing in small portions of land for game might be the removal of game fencing and, instead, the development of cooperative game management areas in the form of conservancies. Conservancies consist of adjacent farms that join together in broad units where natural resources are cooperatively managed using ecosystem-sensitive management plans. A constitution outlines conservation and management strategies, including the sustainable utilization of natural resources in conjunction with agricultural aims. Conservancy constitutions may include utilization of game for trophy hunting, meat, ecotourism, etc., and provide guidelines to assist farmers in coordinating the management and utilization of species on the farms.

In Namibia, proposed wildlife laws will provide incentives to farmers cooperating in conservancies to encourage large unfenced areas that will promote movement of game species, especially during droughts. Objectives for conservancy development should also include the connectivity of conservancies throughout the country therefore providing corridors for movement of wildlife (game and cheetahs) to ensure gene flow. Strategies such as these, whereby the sustainable utilization of natural resources is encouraged, will be critical components of cheetah conservation outside protected areas.

To reduce the levels of conflict between people and cheetahs, there must be some economic advantages to maintaining cheetahs on private land. Potential economic benefits include ecotourism, trophy hunting and incentives for predator-friendly meat.

As human land-use has the greatest impact on the distribution and abundance of cheetahs, monitoring several parameters, including population fragmentation, health, and habitat loss will be necessary so as to not miss important elements, that may affect species survival. Management of 'problem' animals will continue and necessary strategies must be implemented. Such strategies may include placing individuals in captivity, trans-locating animals, or re-introduction; each provides opportunities for species conservation, but should be conducted under international guidelines. Overall, through collaborative research and multi-disciplined approaches, both within protected areas and on private lands, it should be possible to maintain large intact ecosystems for the cheetah, which is the most critical aspect of future conservation, both for cheetahs and for other large carnivores.

In the future, as wild cheetah populations become more fragmented, their management will become increasingly necessary in order to maintain genetic diversity, and protect against further population declines due to habitat loss, demographic fluctuations, and conflict with humans. Our studies in Namibia have provided the basis for developing effective conservation strategies for the long-term survival of the wild cheetah.

### **Conclusion**

CCF not only endeavors to conserve the cheetah and its habitat, but also to act as a conservation model for other species in conflict with humans. The three Centres of Excellence are therefore interrelated in CCF's collaboration efforts with local, national and international scientists, institutions and universities; in CCF's use of its Model Farm (used for ecological research, practice of conservation management programs and for educating the community on good farming practices); and in CCF's commitment to globalize its programs for use in other countries and with other species in conflict with humans. Already, CCF is supporting a small satellite office in Kenya. In addition, CCF has trained and helped develop satellite programs in Botswana, Zimbabwe, South Africa, and Iran, where it continues to provide support, advice, and monitor progress.

In order to meet the challenges facing the cheetah, CCF needs the funds to conduct research, conservation and education. CCF encourages AAZK Chapters throughout the country to assist us in our fundraising needs. AAZK Chapters could help raise fund through one of the following:

- Develop a Run for the Cheetah (throughout the country)
- Hosting a Cheetah Cha-Cha fundraising event (Contact the Hogle Zoo for how they have done this fundraiser)
- Sponsor a non-releasable cheetah at CCF
- Sponsor a livestock guarding dog

In order for the cheetah to survive, it needs humans' help. The race is on, and it's up to us!



*Photos courtesy of Cheetah Conservation Fund*