

Cheetah Conservation in Namibia



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Overview

The cheetah (*Acinonyx jubatus*) is thought to have descended from *Miracinonyx* (American cheetahs), which lived in North America during the Pliocene period (5.2 to 1.6 million years ago). Over time, the species migrated across continents, and evolved. The cheetah of 200,000 years ago closely resembled the modern cheetah, with large populations living in savannah and grassland areas of Africa and the Middle East, and smaller numbers in Europe, India, and China. Today, wild cheetahs exist on only two continents: Africa and southwestern Asia. It is classified as *Vulnerable* on the IUCN Red List, and the population is in serious decline. Two subspecies, the Northwest African cheetah (*Acinonyx jubatus hecki*) and Asiatic cheetah (*Acinonyx jubatus venaticus*) are listed as *Critically Endangered*. Threats include loss of habitat, declining prey bases, and conflict with farmers and ranchers due to a perceived competition with livestock for space. Without meaningful habitat conservation efforts in Africa, the cheetah could face extinction.

Most of Africa's cheetahs are found outside of protected areas, yet there has been little work done on cheetah conservation efforts outside of protected areas. These cheetahs survive on agricultural lands and are often in conflict with human and livestock interests. It is important to study the unprotected areas because cheetahs may not be able to maintain viable populations in most protected areas because of increased competition with other large predators. Cheetah populations also lack genetic variation and are therefore more susceptible to environmental changes, which further compromises their recovery. As most cheetahs occur in unprotected areas,

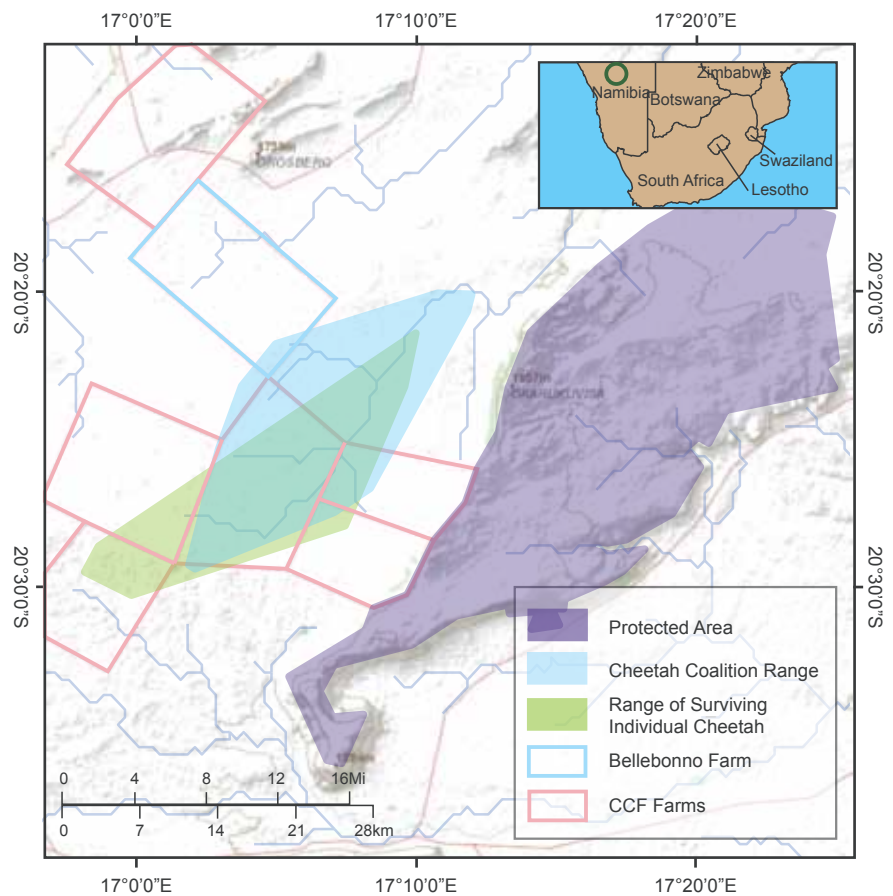


Figure 1: Map illustrating the difference in the ranging pattern of the cheetah coalition, and of its surviving cheetah, in relation to the protected area and farmlands of the Namibia research area.

Without effective habitat conservation efforts in Africa, the cheetah could face extinction.

and need large areas, they require conservation action on a landscape scale, including habitat restoration and human-wildlife conflict mitigation.

With property in Namibia totaling 46,000 hectares, the Cheetah Conservation Fund (CCF) aims to protect the cheetah and its ecosystems. Since 1996, Earthwatch has worked with Dr. Laurie Marker and CCF on a 7,000 hectare farm called "Elandsvreugde" (meaning "Eland's Joy") in the farmlands of Namibia, to better understand cheetah ecology.

Namibia is home to the largest free-ranging population of cheetahs. Ninety-five percent live on commercial livestock farmland (outside protected areas).

However, they have suffered significant declines. Many farmers indiscriminately capture and remove cheetahs as "pests," believing them to negatively affect their livestock and wild game industries.

The goal of this project is to ensure the long-term survival of the cheetah, and its grassland savannah habitat, by implementing a multi-disciplinary program in research, conservation, and education. The research will provide the baseline data and long-term studies necessary to understand the factors influencing cheetah survival on these farmlands, and develop policies and programs to sustain Namibian cheetah populations.



The project objectives are:

- To conduct biomedical studies to understand and monitor the health of wild cheetah populations
- To support genetic research on cheetah populations to provide accurate population estimates and determine the degree of relatedness
- To develop a habitat improvement program to enhance the survival of the cheetah and other indigenous wildlife
- To reduce cheetah removal and farmer-wildlife conflict by

providing alternative livestock management practices

Outcomes

Twelve Earthwatch volunteer teams fielded in 2010. Volunteers participated in wildlife surveys, helped with various aspects of cheetah husbandry, contributed to the archiving of research documents, and carried out radio tracking and monitoring of cheetahs.

Although most cheetahs examined by the project's researchers are released back into the wild, some must remain at CCF

for various reasons, such as orphaned cubs that come to CCF at a very young age and didn't have the opportunity to learn survival skills in the wild from their mother. Or seriously injured animals that, while healed, continue to have an impairment that would preclude a successful release to the wild. This offers the team a way to compare studies between wild and captive cheetahs—which are used as a control group.

In 2010, the researchers performed 107 veterinary exams on 67 captive and wild cheetahs. These included exams to check the status of the cheetahs' teeth, eyes, kidneys, and noses. They also collected wild and captive cheetah scat (for the second year) to determine their parasite load and assess their overall health. The parasite load of the captive cheetahs was compared to that recorded in previous seasons, to determine if there was a need for de-worming. The prevalence and abundance of parasites was highly variable among the captive cheetahs and there was no significant correlation between parasite load and age, sex, density of cheetahs in enclosure, or time since the last anti-parasitic treatment. The study also found that treatments with certain anti-parasitic treatments effectively decreased parasite load. Recommendations on how to reduce parasite transmission will be made (which CCF can implement), and an anti-parasitic treatment schedule was developed.

Endoscopies on all of CCF's captive cheetahs were also conducted to monitor the presence of gastritis—a possible cause of which is stress. They found the cheetahs to be very healthy, and the work provides a baseline for comparison with other captive populations. CCF also continues to bank sperm, serum, plasma, white and red blood cells, as well as hair and skin samples on all cheetahs that undergo medical workups.

Accurate population estimates for cheetahs are critical for our conservation work, but this number is difficult to ascertain because cheetahs maintain widespread home ranges. For that reason, non-invasive camera traps are used to monitor the species' whereabouts. For the fifth year,



Figure 2: Volunteers collect cheetah scat, which is analyzed to determine cheetah health, and to identify the prey that they feed on.

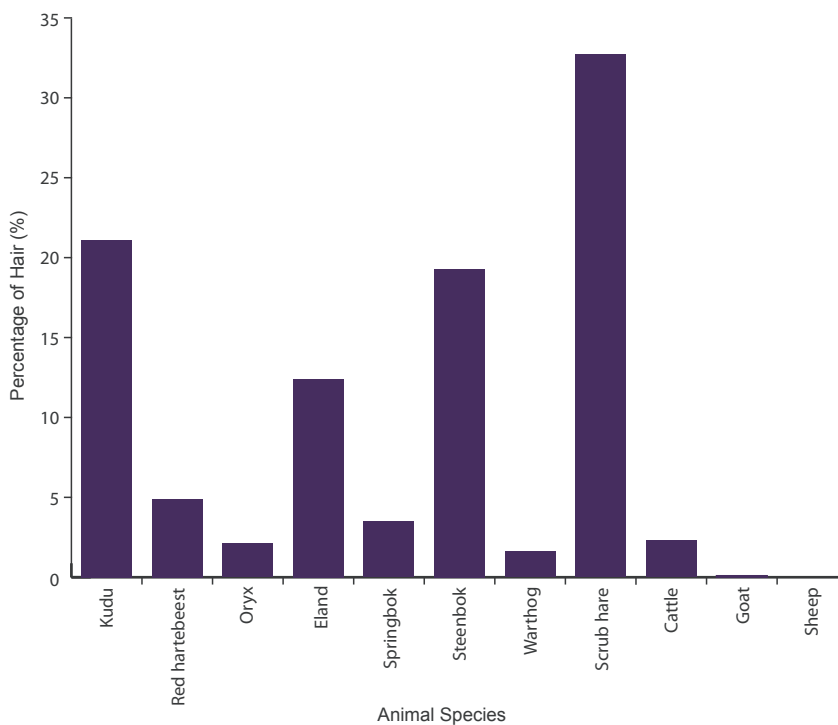


Figure 3: Hairs found in cheetah scat in 2010 were analyzed and sorted by species. The percentage of hair found from each prey species is presented in this graph.



Figure 4: Researchers and volunteers record VHF signals and GPS data points of cheetah to better understand their ranging patterns, diet, and general activity.

researchers continued their census research using camera traps on CCF's property. In the June 2010 census, 10 of the 15 camera trap stations had captured over 7,300 images of cheetah. Of these, 11 different individuals were identified including one cheetah with four cubs and another with three.

Over the past few years, two resident male cheetahs that formed a coalition (common behavior amongst males that enables them to obtain territory easier than if they were alone) have roamed on CCF property and neighboring properties to the northeast. One cheetah was fitted with a Very High Frequency (VHF) radio collar in March 2008, while the other was fitted with a GPS recording satellite collar (also with VHF capability) in August 2009. Researchers and volunteers recorded VHF signals, GPS data points, and visual sightings of these animals in order to better understand their ranging patterns, diet, and general activity. In mid-August 2010, the cheetah with the VHF radio collar was found dead, raising questions of how his coalition mate will respond in terms of his ranging patterns and efforts or ability to defend the territory established with his coalition partner. A new project in design for 2011 will monitor possible

outcomes by analyzing the available historical data to understand the ranging and behavior patterns of the coalition, and to use the information as a baseline to compare future activity. This work will yield important insights on cheetah societal dynamics.

Earthwatch scientists are currently conducting a project on how to successfully re-introduce cheetahs into the wild by establishing a "training ground." Four previously captive females were released into the 4,000 hectare Bellebenno Game Camp in 2010. Researchers are closely monitoring the behaviors of the individual cats to ensure their health and adaptation to their new environment. Based on earlier successes CCF has had releasing cheetahs, the scientists decided to use the camp as a means to gather information on feeding ecology, habitat preference, and survival techniques/strategies. The cheetahs were observed daily and volunteers collected data on their movements, hunting success, and preferred vegetation type.

The four cheetahs were briefly returned to captivity in late December 2010 to await transfer and release to the 50,000-hectare Erindi Private Game Reserve in early January 2011. CCF

will continue to use this training method to release many more cheetahs that have been held in captivity, and provide their model as a basis which other organizations and countries can implement for their own cheetah reintroductions and releases.

Research into the efficacy of swing gates at controlling animal movements at the Game Camp continued in 2010. The desired outcome is to keep the re-introduced cheetahs inside the camp, while allowing smaller animals (especially those that are natural diggers, such as warthogs) to come and go. The swing gate concept is a reliable and cost-effective tool to protect game-fenced farmland structures from damage due to burrowing/digging animals. The structures exclude predators from an enclosure while allowing the free-range movement of smaller mammals. This unique predator-friendly management plan could help to reduce unnecessary radical actions (shooting, trapping, poisoning) and save the farmers on costly preventative measures such as electrical fencing.

A long-term study on the feeding ecology of cheetahs continues. Scientists analyze the hairs found in cheetah scat to identify the prey that the cheetahs fed on. Prior CCF research has indicated that cheetahs prefer game to livestock—key information that can be used in human/wildlife conflict management strategies. Such evidence is vital in raising awareness amongst the local farmers who may perceive the cheetahs as threatening to their livestock.

Recent Publications

Passmore, B. R. and Marker, L. (2010) How ancient methods of livestock management are helping to save cheetahs (*Acinonyx jubatus*) from extinction. *Proceedings, Animal Behaviour Management Alliance (ABMA) 2010 Annual Conference*, 25-30 April, Pittsburgh, US

Stein, A.B., Fuller, T.K., Damery, D.T., Sievert, L. and Marker, L. (2010) Farm management and economic analyses of leopard conservation in north-central Namibia. *Animal Conservation*, **13(4)**:419-427