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## **How ancient methods of livestock management are helping to save cheetahs (*Acinonyx jubatus*) from extinction.**

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It took four million years for cheetahs (*Acinonyx jubatus*) to evolve into the fastest land animal and less than one hundred years for humans to exterminate 90% of their population. With their numbers declining from 100,000 in the early 1900s to 12,000 thousand in late 1990, cheetahs are quickly running out of time (Cheetah.org). Cheetahs might have the amazing ability to reach top speeds of 65-70 miles per hour and have an acceleration rate of 0-50 mph in three seconds, but without human intervention, these natural born runners will be extinct within a few decades. Cheetah numbers are declining rapidly primarily due to habitat loss, conflict with humans and their livestock, and their own lack of genetic variation(Cheetah.org).

The Cheetah Conservation Fund (CCF) was founded in 1990 to reverse these trends before this species is lost to history and picture books. In 1994, the CCF implemented their Livestock Guarding Dog Program, an ancient livestock management technique used to provide farmers with a non-lethal predator control methodology. Turkish livestock farmers have used guarding dogs to protect their herds for five thousand years. This method of coexistence is what inspired CCF to implement their Livestock Guarding Dog Program to help protect livestock so farmers did not need to kill cheetahs. With their success in Namibia, CCF has helped develop Livestock Guarding Dog programs in many other countries (i.e. South Africa, Kenya, Botswana and the United States) to reduce predator/livestock conflict.

### **Introduction to cheetahs:**

Cheetahs are thought to have originated in the United States, in the area known as Texas (Cheetah.org). However, during the last Great Ice Age cheetahs were forced to move southward seeking a warmer climate. During this migration the cheetah suffered a severe reduction in population, resulting in a genetic bottleneck. The effects from the genetic bottlenecks resulted in the challenges which often occur through the lack of genetic variation.

Thousands of years later with the arrival of man and his development of agriculture, cheetahs were faced with another challenge of where to habituate. As the human population continued to grow, the need for more land for agriculture and livestock also grew. In 1900, cheetahs were located in forty six countries within Africa and out through the Middle East and India. Currently cheetahs are located in twenty six African countries and less than one hundred in Iran (Marker, 2002). The largest population is located in Namibia, three thousand.

Cheetahs have been in captivity for thousands of years. They have been tamed as pets, used for hunting, worshiped as gods and a symbol of recognition of royalty. In 1300 AD Mongol's emperor, Akbar the Great had a reported one thousand cheetahs in his personal collection. If one were to look up cheetahs in Renaissance Art, they would not have much luck finding any. But try looking up Hunting Leopard and one might find drawings or paintings of cheetahs with hoods on their faces much like the ones used in falconry.

The earliest record of exhibiting cheetahs in modern day zoos was in 1829 at the Zoological Society of London. Unfortunately, the cheetah did not survive its first year. In 1871

the first cheetah was exhibited in North America at the Central Park Zoo, New York. Cheetahs are exceedingly sensitive animals and are as equally hard to house in captivity. In 1956, most cheetahs did not survive their first year. Philadelphia Zoo was to the first to have a successful captive birth. Since then, many zoos have had success in breeding cheetahs. (Marker & O' Brien, 1989)

### **The problem for cheetahs:**

Namibia is home to over 30% of the entire world cheetah population and 95% of the current Namibian cheetah population lives on commercial or communal livestock farmland. A large majority of Namibians (70%) are mostly dependent upon agriculture as a livelihood (Schneider 1994). Due to farmers' advancement into more and more cheetah territory, the cheetah population declined from 6,000 to less than 3,000 animals in Namibia alone in the 1980's alone. (Marker-Kraus et al., 1996)

Many farmers consider cheetahs and all predators as a major threat to their livestock. It was this fear that led to the removal of all "free roaming" lions and spotted hyena's from Namibia and almost all "free roaming" cheetahs as well. At present, lions and spotted hyenas can only be found in national parks and private ranches.

However, protected areas are not the answer for cheetahs, as they do not thrive in areas with a high density of other predators. These cats are very flighty animals and will abandon kills and cubs when threatened, and thus require a large area to "roam" about freely and safe from other large carnivores. Their flightiness has contributed to their anatomy; they are built for speed, not for fighting. This is a common misconception amongst uninformed farmers. If a cheetah sustains an injury that it cannot learn to compensate for, then it will surely perish. For a cheetah the chance to hunt another day or to have another litter of cubs is the safest route to ensure their own survival.

Currently cheetahs are listed as threatened or endangered on Appendix I of the Convention of International Trade in Endangered Species (CITES), restricting international trade. (CITES,1992) Cheetahs are classified as a protected animal in Namibia, however a cheetah can be shot to protect one's life or property. In Namibia, even wild game on your land is considered your property. Preventative management techniques are used by many farmers (i.e., eliminating the cheetah indiscriminately, independent of livestock loss, by shooting it either on sight or after trapping; Marker-Kraus and Kraus 1997) (Marker, 2001)

### **Understanding how to help man and cheetahs coexist:**

To comprehend the outlook amongst the farming community towards cheetahs, CCF conducted a personal interview survey during 1991-1993 (Marker-Kraus et al. 1996) The survey collected information from the farming community including (1) physical features of the farmland, (2) livestock and wildlife densities, (3) current livestock and wildlife management practices, (4) livestock losses due to predators, (5) interactions between cheetahs and other wildlife, (6) cheetah sightings and removals in the survey area, (7) observations about cheetah behavior, and (8) farmers' attitudes and suggested solutions to reducing conflict with cheetah. (Marker, 2001)

The results showed that Cheetahs were perceived by many Namibian farmers as the cause of excessive economic impact on their livestock. The survey concluded that few farmers were familiar with facts about cheetahs. Misconceptions regarding cheetah behaviors were prevalent with few attempts to control these predators with non-lethal methods. (Cheetah.org)

In order for cheetahs to have a future, CCF knew that farmers would have to be an

intricate part of their survival. In 1994 a new program was implemented to introduce a non-lethal method of predator control and livestock management to Namibian farmers using ancient techniques.

### **History of Livestock Guarding Dogs:**

Livestock guarding breeds are amongst the most ancient breeds of dogs and are believed to have been one of the first uses found for domesticated dogs (*Canis familiaris*). The use of livestock guarding dogs (LSGD) most likely originated in the Middle East and Asia with reports found from regions that are in modern day Iran, Iraq and Turkey, which clearly demonstrate that dogs were employed as flock guardians (Sims & Dawydiak, 1990).

A collection of papers written in c. 150 BC describe the actual techniques of using dogs for protection on Roman farms (Coppinger & Coppinger, 1993). LSGD were also used for thousands of years in European countries like Italy, France and Portugal, however in areas where predators were exterminated, the methods of LSGDs were lost (Smith et al, 2000).

One of the reasons that make LSGDs so effective is the characteristics. LSGD possess an independent, aloof personality, the ability to think for themselves, unbinding loyalty and undoubting courage (Green et al, 1988).

### **The Anatolian Shepherd and Kangal Dog:**

Anatolian Shepherds originate from an ancient lineage stretching back as far as ancient Mesopotamia that were bred to guard livestock from bears, wolves and other large predators that roamed about the countryside. These large and aggressive dogs are native to Turkey and are naturally very watchful with excellent vision, a good sense of smell and great hearing; it is easy to see why ancient farmers would use these dogs to protect their livelihood. (Sansal, 2009)

Kangals also are guarding dogs also indigenous to ancient Turkey, from the small town of Kangal, hence the origin of their name. These guarding dogs are believed to be related to the early Mastiff-type dogs often depicted in early Assyrian art (Ukcdogs.com). These loyal dogs will defend their flocks or the humans, to whom they have bonded, using a display of fearless dominance. For this reason the Kangal guarding dogs have been used for over six thousand years to protect sheep herds from wolves. So many Turks revere these handsome dogs with such esteem they consider them to be their national mascot.

### **CCF's Livestock Guarding Dog Program:**

After studying the effectiveness of LSGD on reducing predation caused by canids (Linhart et al, 1979; Andelt, 1992), CCF wanted to conduct a long-term research study on LSGDs abilities to produce the same results with large felids (cheetahs and leopards) (Marker et al, 2005a). In 1994, CCF began its LSGD program with 10 pure-bred Anatolian Shepherds imported from the United States.

The use of guarding dogs is not new to Namibian farmers. This practice has been employed by farmers for hundreds of years. However, the use of Anatolian and Kangal dogs specifically bred to protect against large predators was original to Africa. The climates and terrains of Turkey and Namibia are surprisingly similar. The Plateau region of Turkey and Asia Minor are as arid as Namibia with very little rain, extreme heat in summer and cold winters. LSGD are expected to work in vast open areas without human supervision.

CCF Livestock Guarding Dog program entails careful selective breeding of the dogs first, followed by attentive selection of a recipient farmer, and training the new owner to train

his/her guarding dog. Once the guarding dogs are trained and placed with their farmer, CCF provides the necessary follow-up care of the dog to ensure it is doing well; this includes supporting the medical care of the puppies by vaccinating and sterilizing them before their placement, and after placement continued care is provided for the dogs placed on the communal farms. Other important objectives of the program are the continuous evaluation of the dog's effectiveness and monitoring how they adapt to the Namibian environment over time. (Cheetah.org)

### **Dog Training:**

Puppies are weaned at 7-8 weeks old and placed with the herd at a young age to live and bond with its new family. Studies have confirmed that a successful bond with the livestock occurs at this age. It is this bond that makes them such fierce protectors. No time is wasted in training the young dog; it goes out with the herder and the livestock right away. The young puppies habituate with the livestock, and become familiar with the African bush, along with the wild animals to be encountered.

Interactions with humans are kept to a minimum to avoid bonding with humans instead of the herd, since this can take away from its effectiveness to protect the herd. The introduction process is a slow and carefully supervised process. To ensure the health of the dogs, herders must check carefully for injury or illness daily.

These dogs live, eat and sleep with the herd and are always on guard. Dogs are not trained to attack or chase, their job is to bark and use posture to scare the predators. A barking dog is usually enough to frighten away a predator, nonetheless physical confrontations do occur and they will engage. As mentioned earlier, cheetahs are not normally aggressive and will flee from a barking dog. (Cheetah.org)

### **Success in Namibia with the dogs:**

A survey was conducted between 1994 and 2002, to see how successful the guarding dogs were on their placed farms (Marker et al. 2005a). CCF has collected data consisting of interviews and questionnaires, with questionnaires being the main method of data collection. The questionnaires ask the same question in multiple ways to ensure the most accurate answer (Marker, 2000).

Of the responding farmers three-quarters of them reported a large decline (80-100%) in volume of livestock loss since the placement of the dogs with the majority of these farmers having benefited economically. Showing that the dogs are overwhelmingly well received and recognized as a benefit on the farms. CCF compiled their results from this long-term research project into two papers. One on the overall effectiveness of the dogs (Marker et al., 2005a) and one on the mortality of the dogs placed on Namibian farms (Marker et al., 2005b, Marker et al., 2005c).

CCF also has observational data on how the dogs interact with predators. Findings showed the dogs became very agitated and would bark loudly at the approach of a predator. Farmers have witnessed their dogs fighting with predators and even sometimes killing jackals, leopards and baboons that were a threat to their herds. To be able to clearly grasp the importance of these findings, the average leopard weighs about 46 kg for males and 30 kg for females, the average Anatolian Shepherd Dogs weigh approximately 40 kg (Marker, et al., 2005c).

As of December 2008 CCF has one hundred twenty working dogs on farms around Namibia. Of those working dogs, seventy five work on commercial farms, seventeen on communal farms and twenty eight on emerging commercial farms. A highlight to the 2008 program year was the placement of one male puppy in the Mara Conservancy in Kenya to live with the local Maasai and guard their livestock (Marker, 2008).

The Livestock Guarding Dog Program has had made such an impact in Namibia, that similar programs are now in place in South Africa, Botswana and Kenya to help protect cheetah populations there as well.

### **The Use of Livestock Guarding Dogs in the United States:**

Since the mid-1970's the use of livestock guarding dogs has been increasing to protect sheep and goats from domesticated dogs and coyotes. To better understand the effectiveness of the dogs here in the United States, researchers at Hampshire College in Amherst, Massachusetts, the U.S. Fish and Wildlife Service's National Wildlife Research Center in Colorado and the United States Sheep Experiment Station in Idaho placed dogs on farms and ranches throughout the country. Virtually right away the researchers "received fewer reports of livestock losses from predators. Most of the cases studied focused on coyote attacks on sheep and goats, although other predators such as domestic dogs, mountain lions and wolves were included... The ability of livestock guarding dogs to protect cows from wolves in northern Minnesota and Michigan has also been tested, and some dogs demonstrated that, if managed correctly, they could be effective." (Stone et al., 2006)

With using LSGD's to protect herds against wolves here in the United States, wolf managers have recommend that in the northern Rockies that the presence of a herder is necessary to scare wolves away. Unlike livestock owners in Europe and Asia that can use their LSGD's without the presence of herders to reduce conflict. (Stone et al., 2006)

In California, mountain lions are the top predator, "Years ago, ranchers and people who had pets and livestock kind of assumed that killing the mountain lion was their only option when there was a problem," said Amy Rodrigues, the Mountain Lion foundation's outreach coordinator. "But if you kill a lion, you just opened up that territory and a new mountain lion is likely to move in and that will just continue the cycle of losing livestock and having to kill more mountain lions." This is the same cycle that farmers around the world face when they remove a predator in their area as well. (Anderson, 2010)

However, "each year, the state Department of Fish and Game issues more than one hundred "deprivation" permits, giving homeowners and livestock owners' permission to hire specialists to euthanize lions that kill livestock and pets or threaten public safety. But the number of cougars killed in California has dropped from a high of one hundred forty eight in 2000 to forty six in 2008." The decline is attributed to tips that include bringing in pets at night, building enclosures to protect livestock and the use of livestock guarding dogs. (Anderson, 2010)

Researchers have been studying the movements of fifteen lions in the Santa Monica Mountains for the past eight years, using GPS and scat tracking. One cat, P-I (the top male in the area) as he is known to researchers in the study, at one point had killed a rancher's animals, but "instead of having P-I killed, the rancher built an enclosure for his sheep and goats and bought Anatolian shepherd dogs." Using GPS tracking, the scientist noticed that the lion returned the following night but was deterred by the dogs. (Anderson, 2010)

### **The future for cheetahs:**

In order for cheetahs to have a chance of a future, many things have to happen. Education is the key!

**Africa-** Farmers' misconceptions of cheetahs have to be broken. CCF combats this with free workshops to farmers on a variety of topics like Livestock Management for Farm Workers with the aim of "farm workers understanding the whys and hows of livestock production practices;" Large Stock Management aimed so "farm workers will come to terms with requirements for sustainable livestock production;" Financial Farm Management so "farmers will learn how to align expected income and forecasted payments;" and Integrated Livestock & Predator Management for High School learners teaching "a holistic overview of interacting factors of livestock production." (Marker, 2008)

**United States-** Many zoos and facilities across the United States are also doing their part to help with cheetah education. The best known example of cheetah education in the United States is the Cat Ambassador Program at the Cincinnati Zoo.

Cincinnati's program was started in 1980 by Cathryn Hilker to bring wild animals into the classrooms for education and conservation. The program got underway with a small collection of cats: "Scruf" an African Lion, "Carrie" a cougar and "Angel" a cheetah in whose memory the "Angel Fund" was founded in 1992. Angel educated students for twelve years and touched over one million people. The Angel Fund allows Cincinnati Zoo supporters the opportunity to be partners in effective ways to protect wild cheetahs and their habitat in southern and eastern Africa, and give cheetahs everywhere a voice and a real chance at survival. (CincinnatiZoo.org) (Cheetahdays.com)

These beautiful cats have captured our hearts in so many different ways; it is now our turn to ensure they will be around for the next century. "A balance needs to be maintained between the economic need of the people and the survival of the species." (Marker-Kraus & Kraus., 1996) CCF implements methods to ensure cheetahs in Namibia have a fighting chance, setting the model for other institutions and governments to follow, ensuring the cheetah as a species has a opportunity to see the next century. However education has to continue with the support of the world community.

"To cherish what remains of the Earth and to foster its renewal is our only legitimate hope of survival." ~ Wendell Berry.

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