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Improving the Cheetah Conservation Fund's Livestock Guarding Dog Program through the Dissemination of Visual Media

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May 6, 2005

Dr. Laurie Marker
Director
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Dear Dr. Marker:

Enclosed is our report entitled “Improving the Cheetah Conservation Fund’s Livestock Guarding Dog Program through the Dissemination of Visual Media.” The report was written in Namibia from March 12 through May 7, 2005. Preliminary work was completed in Worcester, Massachusetts, USA, prior to our arrival in Namibia. Copies of this report are simultaneously being submitted to Professors Addison and Weininger for evaluation. Upon faculty review, the original copy will be catalogued in the Gordon Library at Worcester Polytechnic Institute. We appreciate the time that you and Mandy Schumann have devoted to us.

Sincerely,

Melissa Coonradt
Matthew Field
Jessica Tatem
David Gibson

Improving the Cheetah Conservation Fund's Livestock Guarding Dog Program through the Dissemination of Visual Media



An Interactive Qualifying Project Report
Submitted to the faculty of
Worcester Polytechnic Institute
In partial fulfillment of the graduation requirements for the
Degree of Bachelor of Science

May 6, 2005

By

Melissa C. Coonradt

Matthew N. Field

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Submitted To

Professor W.A. Bland Addison
Professor Stephen J. Weininger

Sponsor / Liaison

Dr. Laurie Marker
Mandy Schumann



Abstract

This project addressed problems with the dissemination of information regarding the raising and training of livestock guarding dogs for the Cheetah Conservation Fund's Livestock Guarding Dog Program. Through interviews with commercial and communal farmers we were able to determine the preferred method for receiving raising and training information for livestock guardians, which led to the development of a detailed storyboard for the production of an instructional video as well as a pictorial poster to be placed in farming areas.

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Appendix I: LSGD Raising and Training Poster	Melissa

** Main authorship of each section was given to the person(s) who took responsibility for the majority of the writing in that section. All portions of this project report were edited and revised by all members of the group.*

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We would like to thank Michael, our translator for helping with our interviews and Armas, the CCF herder, for letting us follow him through the veld and helping to provide information and photographs for our training and care poster and storyboard.

We would also like to thank Dr. Laurie Marker, director of the CCF for sponsoring our project.

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Melissa, Matt, Jess and Dave

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Executive Summary

The cheetah (*Acinonyx jubatus*) once ranged across the African continent from South Africa to the Mediterranean Sea, throughout Saudi Arabia to India and north to Turkmenistan (Nowell, 1996). In 1975, the worldwide population was estimated to be roughly 30,000, though a drastic fall in numbers continued through the 1980s until the population dropped to 15,000 or less in the early 1990s (Marker, Mills & MacDonald, 2003). The major decline in the cheetah population can be attributed to many factors. Among them are loss of habitat, declining populations of prey, competition with other large carnivores, lack of genetic variation, poaching, trophy hunting and, to a large extent, preventative killing of cheetah by farmers who see the cheetah as a threat to their livestock (Marker-Kraus, 1997).

To date, Namibia is home to the largest population of cheetah in the world with an estimated 2,500 animals or 20% of the cheetah in Africa. Without preservation efforts, this could change as 90% of cheetah in Namibia are currently living outside of protected areas (Marker, 2003). Namibian landowners, by law, own all wildlife on their property. As a result, Namibian farmers can legally “remove” any cheetah seen as a threat to livestock or humans. Throughout the 1980s farmers removed 6,829 cheetah from their lands; most were trapped and killed (Marker-Kraus, 1997). Currently, the cheetah is protected in Namibia and is listed in Appendix I of the Convention for International Trade in Endangered Species of Wild Fauna and Flora (CITES, 2004). The International Union for Conservation of Nature and Natural Resources also lists the cheetah as a threatened species on its red list (IUCN, 2004).

The Cheetah Conservation Fund (CCF), based in Namibia, works to develop conservation strategies to preserve the wild cheetah population through a vision that one day there will be “a world in which cheetah live and flourish in co-existence with people and the environment” (<http://www.cheetah.org>). Since 1994 the CCF has been working on a program with local farmers to prevent unnecessary deaths of both cheetah and livestock through the Anatolian Shepherd Livestock Guarding Dog program. Through surveys conducted between 1993 and 1999, the CCF found that farmers are generally “open to new information and approaches” as well as being “receptive to management proposals to mitigate the damage caused by predators” (Marker, Mills & MacDonald, 2003). The result has been the successful implementation of a non-lethal predator management strategy, which has allowed for the placement of more than 200 Anatolian Shepherd dogs with Namibian farmers and their livestock.

Despite the success of the Livestock Guarding Dog (LSGD) program, many farmers do not properly care for their livestock guardians. Our project examined the problems observed by the CCF in the 2004 Anatolian Shepherd Health Survey. Many of the expectations we had, based on the CCF’s survey results, changed through the completion of our own interviews and visits to communal farms. Our initial assumption that commercial and communal farmers would require two separate forms of educational media proved not to be the case. Additionally, we encountered some attitudes regarding the LSGD program and the care of dogs that we had not previously considered. These discoveries allowed us to make recommendations to improve the LSGD program while taking into consideration the beliefs of local farmers.

We found that both commercial and communal farmers would prefer an instructional video to receive LSGD raising and care information. Commercial farmers generally preferred the idea of an instructional video because of time constraints and busy schedules while communal farmers preferred a video for ease of understanding, a direct result of widely varying degrees of literacy. An additional benefit to using a video to convey information is that it can be viewed and discussed by many people within a given community, therefore enhancing the understanding of proper care and training.

We observed that many of the dogs found in farming areas are not properly cared for because they are seen as being expendable. Dogs can be found in abundance in most farming areas and if a dog dies, it can easily be replaced. The Anatolians that are provided by the CCF are used only to protect smallstock—sheep and goats. In the case of commercial farmers, smallstock is not a very lucrative business. The greatest source of income on many of these farms is cattle. We feel that the problems observed on commercial farms with regard to the poor care of some dogs may be because the dogs are not a priority to the farmer, as the animals being protected are not the most important source of income. The same may be true on game farms, where most of the revenue is gained through the sale of a variety of antelope for trophy hunting as well as meat production (Schumann, 2004). By contrast, in the communal areas where subsistence farming is prevalent, smallstock is incredibly important.

Many communal farmers, however, do not have the means to provide the proper veterinary care and nutrition for their LSGDs. A great deal of a communal farmer's limited income is invested in smallstock because they are the farmer's livelihood. The LSGDs appear to be seen as an additional expense rather than a beneficial investment.

Based on responses from our interviews, we chose to develop a storyboard for an instructional video and a pictorial poster to address the areas most in need of improvement for the raising and care of livestock guarding dogs. It is important that farmers, especially in the communal farming areas, receive information in a format that will be useful for the raising and training of livestock guarding dogs, as a successful livestock guardian will substantially reduce the number of animals lost to predators, thereby maximizing productivity for the farmer while reducing the number of unnecessary removals of predators from the farmland.

CHAPTER ONE: INTRODUCTION

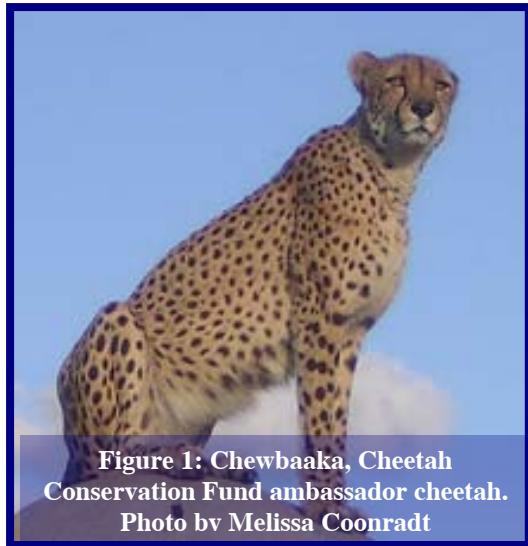


Figure 1: Chewbaaka, Cheetah Conservation Fund ambassador cheetah.
Photo by Melissa Coonradt

The cheetah (*Acinonyx jubatus*) (Figure 1) once ranged across the African continent from South Africa to the Mediterranean Sea, throughout Saudi Arabia to India and north to Turkmenistan (Nowell, 1996). In 1975, the population was estimated to be roughly 30,000, though a drastic fall in numbers continued through the 1980s until the

population dropped to 15,000 or less in the early 1990s (Marker, Mills & MacDonald, 2003). The major decline in the cheetah population can be attributed to many factors. Among them are loss of habitat, declining populations of prey, competition with other larger carnivores, lack of genetic variation, poaching, trophy hunting and, to a large extent, the preventative killing of cheetah by farmers who see the cheetah as a threat to their livestock (Marker-Kraus, 1997).

To date, Namibia is home to the largest population of cheetah in the world with an estimated 2,500 animals or 20% of the cheetah in Africa. Without action, this could change as 90% of cheetah in Namibia are currently living outside of protected areas (Marker, 2003). Namibian landowners, by law, own all wildlife on their property, which also allows Namibian farmers to legally “remove” any cheetah seen as a threat to livestock or humans. Throughout the 1980s farmers removed 6,829 cheetah from their lands; most were trapped and killed (Marker-Kraus, 1997). Currently, the cheetah is protected in Namibia and is listed in Appendix I of the Convention for International

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The Cheetah Conservation Fund (CCF), based in Namibia, works to develop conservation strategies to preserve the wild cheetah population through a vision that one day there will be “a world in which cheetah live and flourish in co-existence with people and the environment” (<http://www.cheetah.org>). Since 1994 the CCF has been working on a program with local farmers to prevent unnecessary deaths of both cheetah and livestock through the Anatolian Shepherd Livestock Guarding Dog program. Through surveys conducted between 1993 and 1999, the CCF found that farmers are generally “open to new information and approaches” as well as being “receptive to management proposals to mitigate the damage caused by predators” (Marker, Mills & MacDonald, 2003). The result has been the successful implementation of a non-lethal predator management strategy, which has allowed for the placement of more than 200 Anatolian Shepherd dogs with Namibian farmers and their livestock (<http://cheetah.org>).

Despite the success of the Livestock Guarding Dog (LSGD) program, many farmers do not properly care for their livestock guardians. Our project examined the problems observed by the CCF in the 2004 Anatolian Shepherd Health Survey (Appendix B). We did our own interviews with communal and commercial farmers to determine the preferred method for receiving guarding dog training and care information. Based on responses from these interviews, we chose to develop a storyboard for an instructional video and a pictorial poster to address the areas most in need of improvement for the raising and care of livestock guarding dogs. It is important that farmers, especially in the

communal farming areas, receive information in a format that will be useful for the raising and training of livestock guarding dogs, as a successful livestock guardian will substantially reduce the number of animals lost to predators, thereby maximizing productivity for the farmer while reducing the number of unnecessary removals of predators from the farmland.

CHAPTER TWO: BACKGROUND AND LITERATURE REVIEW

The increasing development of land for human use means the line between cheetah hunting grounds and farmlands is continually growing thinner. This sharing of land demands a responsible solution on behalf of man to ensure the coexistence of livestock and cheetah. The purpose of this background and literature review is to gain a greater understanding of the economic and environmental impact brought about by the decline in the cheetah population throughout Africa and addresses the use of livestock guardian dogs and other methods of non-lethal predator management.

Reasons for the Declining Cheetah Population

The cheetah is recognized as a threatened species by the World Conservation Union (IUCN) and is protected under the Convention for International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Marker, 1998). Multiple factors affect the survival of these large cats; many are the result of human actions while others appear to be evolutionary.

Scientists have estimated that the cheetah population may have experienced a genetic bottleneck at the end of the last ice age, approximately 10,000 years ago. Coinciding with this apparent bottleneck was the large-scale extinction of larger vertebrates on some continents (Menotti-Raymond & O'Brien, 1993). The drastic decrease in population resulted in a large reduction in genetic variability. The low level of variability means that the offspring of any given cheetah are very closely related to the

other cheetah in a given area, creating one of the most serious complications for the survival of cheetah today.

Testing for genetic diversity has shown that the cheetah can be compared, on a genetic level, to purposely inbred laboratory animals or livestock (O'Brien, 1994). Not only does the reduction in genetic variability result in complications associated with reproduction, increased infant mortality and morphological irregularities; it can also result in a diminished immune system, leaving the species more vulnerable to changes in the environment (Marker, 1998).

Beyond genetics, the cheetah is threatened by human encroachment, which is increasingly shrinking the cheetah's natural habitat and prey base, forcing its movement into areas where competition is strong with other predators. Nearly 90% of the wild cheetah population in Namibia lives on farmlands instead of on the protected lands reserved for them (Marker, 1996). The cheetah is shy and avoids confrontation with other carnivores, frequently resulting in loss of a kill as well as young cubs. Cheetah are often removed from farmlands by farmers who perceive them to be a threat to their livestock. Additionally, poachers, looking only for a trophy kill, are a danger to the cheetah population (<http://www.cheetah.co.za>).

All of these factors combine to limit the cheetah's future. Without greater measures to increase awareness and improve protection, the future of the cheetah is grim. This is why the CCF is working to further educate all Namibians on the importance of preserving the wild cheetah population, with special attention being given to school children and farmers.

Strategies for Conserving the Cheetah

Reasons for conserving a particular species vary depending on an individual or group's point of view. Ecological philosophers from Rachel Carson to Bill McKibben have long argued that the conservation of any species is of great value. Separate from the argument of conserving an endangered species merely to prevent extinction is the idea that they can play a significant role in the economy, especially in developing nations like Namibia. Farmers and safari organizations stand to benefit from money earned through ecotourism if their land is home to cheetah.

Regardless of any economic benefit there may be in conserving a species, the CCF holds the opinion that responsibility needs to be taken for a disappearing species, because human encroachment is largely to blame for the population decline. Cheetah have been a part of the ecosystem on our planet for millions of years, yet it is only in the last one hundred years that their population has plummeted to a mere 15,000. One can acknowledge that extinction is a natural process and it has been happening since life began. However, the current rate at which plants and animals are becoming extinct is very rapid, much greater than at any other time in the last 65 millions years (<http://www.cheetah.org>). Without any major changes in the climate in most parts of the world over the last one hundred years, one can only suspect that humans are almost entirely to blame. Therefore, it seems proper that we should feel some obligation to prevent the complete extinction of yet another species.

Two of the most commonly used methods for the conservation of endangered species are reproduction in captivity and protection in the wild. In captivity, attempts to

increase the population are accomplished through breeding, although for cheetah this has not proven to be a very effective method. Alternatively, wildlife reserves are set up and laws are established to protect the endangered species. A combination of both methods can be utilized to create and carry out a species recovery plan especially in cases, like that of the cheetah, where extinction may not be far away.

In the case of the cheetah, captive breeding poses many problems. Success rates are very low and even when breeding is successful the programs fail to decrease inbreeding (O'Brien et al. 1987). The limited breeding successes are all the offspring of a relatively small number of cheetah (Marker, 1998). Use of a surrogate species to help increase the number of animals in a particular population is one approach that has been used to help alleviate the problem of limited genetic variability in other endangered species (Andelman & Fagan, 2000). This technique selects closely related species, or subspecies, and attempts to interbreed them to increase the amount of genetic variation. Although it does not protect the "pure" species, the surrogate species plan has been utilized in the preservation of the Florida panther, a puma subspecies.

Like the cheetah, the panther population is very small and lacks genetic variability; in an attempt to improve variability, Texas pumas were introduced into Florida (O'Brien, 1994). It is obvious that interbreeding between similar species does not result in conservation of either of the *original* species. Instead, this technique attempts to increase the population and probability for viable offspring. When and if the animals are able to reproduce, problems can arise with the creation of a hybrid. In many cases, endangered species laws are not set up to protect hybrids though reserves can still be established in an attempt to protect these animals.

Increasing public awareness about environmental issues has created a market for commodities that are produced in an environmentally sensitive manner. One such approach to cheetah conservation is the Cheetah Country Beef program that is being developed by the CCF in collaboration with the Conservancies Association of Namibia (CANAM) and the Meat Corporation of Namibia (MeatCo). The Cheetah Country Beef program is an incentive program which allows Namibian farmers to receive an additional N\$0.60 per kilogram of beef sold to MeatCo in return for their cheetah friendly farming practices. To be involved with the program, farmers must be a member of CANAM and must also sign a contract stating that they will discontinue the trapping and killing of cheetah (<http://www.cheetah.org>). The CCF is currently drafting a contract that will be given to farmers interested in participating in the program.

Another method through which conservation awareness can be improved and funds can be raised for conservation programs is by taking advantage of the country's valuable market for ecotourism. Ecotourism is a business that brings millions of dollars into some countries annually. The allure of a safari is a substantial draw for people to travel to countries like Namibia. Without its populations of exotic wildlife this appeal would be diminished. With so many complications encountered in conservation attempts, it may prove to be more cost effective to prevent species from becoming endangered rather than waiting until they are on the brink of extinction to attempt recovery (Cardillo et. al., 2004).

Benefits of Tourism for Namibia

Agriculture, mining, fishing and tourism are the largest sources of income for the Namibian economy. Tourism is the third largest contributor, earning an estimated 4.7% of the total GDP in 2004 and employing more than 20,000 Namibians (WTTC, 2004). Nearly one million people visit Namibia yearly with approximately one third of all tourists coming from South Africa. The Namibian government is making efforts to encourage more people from Europe, the United States and Australia to visit the country. A wider variety of tourists from other parts of the world would give Namibia the opportunity for added variety in tourist activities and destinations (*Namibian Economist*, 2003).

After gaining independence in 1990, the government began efforts to redistribute land and give all Namibians fair and equal opportunities. Despite the progress that has been made over the last fifteen years, a great deal of land and money continues to remain in the hands of white people of European descent, while many black Namibians live in poverty on government owned lands. Although communal farmers are generally able to produce only enough to provide for their family, there is increasing opportunity for them to make money through tourism. Foreigners visiting Namibia tend to be attracted to rural areas where they can fully experience nature and traditional African culture. In this way, tourism creates employment opportunities for Namibians living in areas with limited job options (*Namibian Economist*, 2003).

One increasingly popular source of foreign capital is ecotourism. Wildlife tours, safaris and trophy hunting bring visitors deep into the most remote areas of Namibia's

national parks, wildlife refuges and private lands. A portion of all money received through tourism is used to maintain protected lands, which make up 15.5% of Namibia's entire landmass (<http://met.gov.na>). Outside of wildlife reserves protected by the government, commercial and communal farmers are able to benefit from having cheetah on their land. One feature of the farmlands that attract cheetah are "play trees"—tall serpentine trees, perfect for climbing and lounging. These trees are vital parts of Namibian ecotourism as they are often the best place for tourists to see cheetah (Marker, 2003).

By providing farmers with dogs to guard their livestock and reducing the need to trap and kill cheetah, the CCF can further educate farmers about the economic advantages of having these large predators on their land. Even though chances of tourists seeing a wild cheetah while passing through farming areas are very slim, nature lovers will visit these areas in hopes of seeing this very secretive cat (Schumann, B. personal communication, March 17 2005).

Development of Two Farming Communities in Namibia

With the exception of the extreme north, Namibia's arid climate does not permit the growing and harvesting of arable crops; therefore in most of the country, tribal people have used pastoral farming in its place. During the early 1800s, native tribes began to be replaced by white settlers who often acquired land through violent means. Throughout the 1830s and 1840s, nearly 12,000 white Dutch farmers settled in Namibia, displacing many of the native people. Over the next one hundred years rising conflicts between the Herero people and white German settlers led to the death of nearly 60,000 Herero and

Nama people. This violent history underlies the distinct separation between communal and commercial farmers of the Waterberg area, though through the implementation of apartheid policies, the two communities became further divided.

Today, Namibia's agricultural sector continues to be divided between commercial farming and communal farming, with commercial farms encompassing 52% of available agricultural land (IFAD, 2005). The majority of commercial farmland is owned by people of European descent. In contrast, communal farmers, who account for a quarter of the Namibian population, are predominantly black subsistence farmers with little or no other source of income. The communal farmer's livestock are not only a necessity to life, but also a significant part of cultural traditions, as livestock are viewed as a status symbol required for weddings, funerals or as dowry (Undi, 2003).

Following Namibia's independence from South Africa in 1990, the government began efforts to redistribute land to black Namibians who had been forced to live in specially designated areas under apartheid. The redistribution program seeks to give all Namibian citizens equal access to land that will be productive. Though, despite the best efforts of the government, much of the land has proven to be unproductive because many Namibians have poor farm management skills and have a tendency to overgraze their land.

Commercial lands are generally more productive because these farmers are required by law to regulate the grazing of their livestock as well as the number of animals on the land (Undi, 2003). The larger, commercial farms can be separated into domestic livestock farms and game farms. In contrast to communal farmers, who tend to raise livestock primarily for consumption by their own families, the animals raised on

commercial lands are used mainly for meat sales. Commercial livestock farms produce mostly cattle, although there is some farming of goats and sheep. The difference between commercial and communal farming areas is very evident, as there is little or no grass in the communal areas while commercial farms tend to have an abundance of grasses and other foliage for grazing (Figure 2).



Figure 2: Communal farming areas are heavily overgrazed; no grass is able to grow in these areas, even during the rainy season. Photo by Melissa Coonradt

Impact of Overgrazing Livestock on the Namibian Landscape

Early in the twentieth century, farming became imbalanced with expansion of large commercial farms, the exclusion of native species and fencing of large areas to prevent game movement. The introduction of Karakul sheep for wool production in the early 1900s allowed for the expansion of traditional pastures into areas that were

previously thought to be unusable for cattle and goats. The influx of sheep on the already stressed land created a higher demand for grass and savannah plants than could be met by nature. Over time, thorn bushes and shrubs replaced the grass leaving little for livestock and native game species to graze. The continued overuse of farmlands, especially in communal areas has left its mark on the Namibian landscape. Grass is unable to grow in most areas and some believe that even a heavy rainfall would not bring it back (M. Schumann, personal communication, March 30 2005). The problem is exacerbated by the lack of management within communal farming areas. Most farmers do not use fences to keep their herds in a given area, which inhibits the implementation of any sort of pasture rotation. By allowing livestock to roam freely there is no way to control what areas are used for grazing or to prevent animals from foraging in places where a farmer may want to reestablish grass. Overgrazing has not only left the land scarred, the overall lack of edible plant life has forced native game species from the communal areas. Efforts are being made to establish conservancies within communal farming areas with the hopes of returning antelope to the land (M. Schumann, personal communication, March 30, 2005).

One of the negative results of overgrazing is that the land is left open for bush encroachment. The problem is magnified by years of drought and lack of pasture rotation. At present, bush encroachment is a major threat to Namibian farmlands, leaving little for livestock to graze. Bush encroachment is also making it difficult for game to move around the land and can cause injury to the cheetah. The CCF has developed a program to address this problem; *Bushblok* is firewood manufactured from the chipped up remains of thorn bushes removed in the area. The *Bushblok* is marketed as being long-lasting,

super-hot firewood that creates minimal smoke and leaves little ash. The sale of *Bushblok* provides a form of sustainable rural business while restoring the savannah habitat that cheetah thrive in. The *Bushblok* factory is located in Otjiwarongo, creating jobs for local residents. As a commercial enterprise, the program intends to remove camelthorn and other species of encroaching bush, while providing a modest return to farmers in addition to increasing usable pasture and rangeland. *Bushblok* is sold in Otjiwarongo, though a British company recently arranged for the first shipment outside of Namibia.

Local Perceptions of the Cheetah

When the CCF was established by Laurie Marker in 1990, she recognized that the attitude of local Namibians toward the cheetah had to be better understood in order to help save these predators. Beginning in 1991, the CCF conducted a survey among 241 farmers living throughout central Namibia. Over the next eight years the CCF provided the farmers with information about predators, conservation and livestock management. Results from the initial survey showed that farmers who believed cheetah were a problem on their land removed an average of 29 cheetah per year. Farmers who did not consider cheetah to be a problem still removed an average of 14 per year (Marker & Dickman, 2003). The number of removals was greater on game farms, which is to be expected because cheetah would be naturally attracted to wild game as opposed to domestic livestock. The study found, however, that nearly 92% of cheetah removals were because farmers saw a potential threat to their livestock (Marker & Dickman, 2003).

Through the surveys, the CCF learned that many farmers were unaware of the cheetah's plight throughout the world, because of their abundant local population. Respondents in the survey asked that the CCF do more to teach people about conservation ecology, and therefore the CCF began working with the Ministry of Education to develop a Teacher's Resource Guide. The first guide entitled, *Cheetahs: A Predator's Role in the Ecosystem*, was printed in 1994. At that time, the CCF began educating primary and secondary school faculty and visiting Namibian schools to teach the importance of preserving predators and the environment (<http://www.cheetah.org>). By teaching farmers about the role the cheetah plays in the ecosystem as well as effective livestock management techniques, the CCF saw a decrease in the number of annual cheetah removals over time (Marker & Dickman, 2003). In contrast to data from previous surveys, reported removals appeared to be the result of actual livestock losses rather than the preventative killings that were previously observed.

Survey responses from 1993 to 1999 indicated that some farmers are increasingly more tolerant of the cheetah's presence on their farmland, though they will still kill cheetah that are perceived to be a direct threat to livestock (Marker & Dickman, 2003). Farmers may also be more likely to kill cheetah if they have lost a number of livestock to predators, regardless of the type of predator. Results from the annual survey show that farmers are increasingly more willing to accept new approaches to livestock management techniques while learning about cheetah and other large predators.

Cheetah Prey Preference: Wild Game versus Livestock

Since European settlers colonized Namibia in 1884, commercial livestock farming has been a vital part of the Namibian economy. With so much of the fertile land in Namibia being used for agriculture, the cheetah also found farmlands to be an ideal hunting location because of limited competition from other predators as well as the presence of wild game and domestic livestock (Marker-Kraus, 1997). Without modern notions of nature conservation, many farmers found the cheetah's presence on their land to be a nuisance and often removed the animals to prevent the loss of their livestock.

Until recently, it was unknown to what extent the cheetah's diet included domestic livestock. A study was done by the CCF to determine the cheetah prey base. Research was done by collecting feces samples from cheetah, a technique also known as scat analysis. The results of that experiment showed that cheetah prey on everything from birds to large antelope, but are rarely accountable for the death of domestic livestock (Marker, et al., 2003). However, cheetah do occasionally kill domesticated livestock. From the results the CCF was able to conclude that in the majority of cases cheetah prey on the game species that are indigenous to the area, although 6.4% of observed prey species were domestic livestock (Marker et al., 2003). Overall, each cheetah consumes approximately 2.8 calves and 1.2 sheep per year. When the numbers were adjusted to take into consideration the density of cheetah on Namibian farmlands and the average size of a farm, it was determined that the maximum number of deaths as a result of cheetah predation were 10.3 calves and 4.4 sheep per farm, per year. (Marker et al., 2003).

The estimated number of domestic stock lost each year to cheetah may not be a great financial burden for commercial farmers who have a much greater number of animals, but an annual loss of only four sheep could prove to be devastating to a subsistence farmer. Another important difference is between farms that raise game and those that do not. It was found that there is significantly more threat of cheetah predation on game farms than on domestic livestock farms; the finding is not surprising as it would be natural for cheetah to hunt game. While farmers may wish to maximize the use of their land and funds for domestic livestock without having to maintain wild populations of game, many farmers responding to the CCF survey acknowledged that it is important to maintain a population of wild game in order to reduce the number of livestock kills and eliminate conflicts between cheetah and farmers (Marker, 1996).

Despite the availability of protected lands for the cheetah, the cats still populate the majority of farmlands, which is where 70% of wild game animals live (Marker, 1996). During times of drought or perhaps in part because domestic livestock are easy to obtain, cheetah are known to prey on sheep, goats and calves. For this reason, the CCF has helped farmers to implement a number of methods for protecting livestock, such as designated calving seasons and keeping livestock penned overnight (Marker, 1996). The most recent project, begun in 1994, is the Livestock Guarding Dog program, which places Anatolian Shepherd puppies with farmers for the protection of livestock thereby eliminating the need for farmers to kill cheetah.

The Anatolian Shepherd

The Anatolian sheepdog originated in Turkey, where it was first used as a livestock guardian (New Zealand Kennel Club); it is estimated that the breed has been in existence for over 6,000 years (American Kennel Club). The dog's size and temperament make it



Figure 3: Livestock guarding dog, working with the CCF goats.
Photo by Melissa Coonradt

a perfect candidate for working as a livestock protector and its light colored coat allows the dog to blend in with a herd of goats or sheep, where it can go unnoticed by predators (M. Schumann, personal communication, March 28, 2005). The dogs “are highly intelligent, large, extremely fast and agile, powerful, determined, instinctively protective of their charges and very territorial” (Westminster Kennel Club). In addition, the dogs are well adapted to drastic climates and have a life span of ten to thirteen years (New Zealand Kennel Club). For the reasons listed above, the CCF chose to use Anatolians for the protection of smallstock for their Livestock Guarding Dog program in Namibia (Figure 3).

Dr. Ray Coppinger, who donated the original ten Anatolians to the CCF, has noted that there is nothing out of the ordinary about the LSGD project in Namibia; it is simply the adaptation of a common livestock protection technique to help an endangered species (Coppinger, personal communication, February 1, 2005). Regardless, the dogs

are an effective tool for the prevention of predation by cheetah, as they bond with their herd and can protect the livestock without ending the predator's life. The popularity of these dogs in Namibia has given the CCF many great opportunities to promote livestock protection (Schumann, personal communication, March 3, 2005).

Guarding Dogs vs. Herding Dogs

A LSGD is specially bred to protect livestock from predators. The dogs are placed with livestock at an early age, allowing for the development of a strong bond with the livestock they will be protecting. The livestock accept the LSGD as a part of their group while the LSGD considers the livestock its pack. LSGDs can work independently of humans and are frequently left alone with livestock, although the CCF works hard to promote the use of both a herder and a dog for the greatest protection against predation and other causes of livestock loss. Livestock guarding dogs are bred to have a calm demeanor and can often be found sleeping with the animals they are protecting.

Examples of LSGD breeds are the Anatolian Shepherd, Akbash, Castro Laboreiro, Great Pyrenees, Komondor, Kuvasz, Maremma, Polish Tatra, Shar Planinetz, and Tibetan Mastiff (SAFRR, 2005).

In contrast to guarding dogs, herding dogs are generally not allowed to bond with livestock and are never left alone with them. Their actions are directed by hand gestures or calls given by a shepherd. The behavior of herding dogs around livestock is predatory, as they tend to have more of a stalking behavior than guarding dogs, though the dogs are trained not to injure the animals they are moving. Unlike guarding dogs, herding dogs are

bred and trained to help a farmer move livestock from one pasture to another. Breeds commonly used for herding are the Border Collie, Bernese Mountain Dog, Beauceron, Alpine Shepherd, German Shepherd, and Icelandic Sheepdog.

A wide variety of indigenous breeds found in Namibia have some herding bloodlines. Despite having strong herding instincts, these indigenous breeds work quite well as guarding dogs. Many communal farmers use mongrels with Border Collie or Kelpie bloodlines for the protection of their livestock. The CCF acknowledges that these dogs are very useful in guarding domestic stock and encourages the use of mongrels for protection, but stresses that, like the Anatolian, mongrels need training and proper care to work effectively. The CCF has also articulated the advantages of using larger breed dogs, as they are better able to confront large predators. Strong emphasis is placed on the importance of providing a large guarding dog with a well-formulated diet that will allow the dog to develop strong, healthy bones and thus be a productive working dog (CCF, 2004).

Livestock Guarding Dogs at the Cheetah Conservation Fund

The CCF began the Anatolian Shepherd Livestock Guarding Dog Program in 1994 as a form of non-lethal predator management. The program was well received by commercial farmers and in 1997 was expanded to include communal farmers. To date, more than 200 dogs have been placed on farms where they protect sheep and goats (<http://www.cheetah.org>). The CCF offers the pure bred dogs to commercial farmers in exchange for a mandatory N\$700 donation that helps to cover the cost of vaccinations

and sterilization prior to placement on a farm. In January, 2005 the CCF began asking communal farmers for a donation of \$N100 to help pay for puppies (M. Schumann, personal communication, March 3, 2005).

The use of dogs to protect livestock is not a new concept to Namibians. Farmers have been using smaller breeds of dogs for livestock protection for many years, so the CCF saw the use of Anatolians to save cheetah as a way to expand and improve on the practices already known and used in the area. The CCF chose to use Anatolians for their program because they have been used for thousands of years in the mountains of Turkey where it is very hot in the summer, cold in the winter and there is little rainfall—a climate similar to that of Namibia. Weighing 120 to 150 pounds, the Anatolian makes a more suitable contender against large predators than the smaller breeds some farmers use (<http://www.cheetah.org>).

The Anatolian program has been quite successful and is very popular. The CCF has a long waiting list of farmers who would like Anatolian puppies. Encouraging as this may be, the demand cannot be met and has forced the CCF to look more closely at developing indigenous breeds to be good livestock guardians. More of an emphasis is now being placed on the training and use of mongrels in communal areas as opposed to purebred Anatolian Shepherds. The CCF has also begun work with the African Wilddog Conservancy to develop indigenous breeds within the conservancy. Recently, an Anatolian/mongrel cross was bred in an attempt to create a smaller dog while maintaining the good guarding traits.

Dogs are only given to farmers who want them. The CCF expects farmers will continue training the dogs until they have matured completely. Additionally, farmers are

expected to keep the dog's vaccinations up to date, provide high quality food pellets to ensure proper skeletal development and check the dog frequently for the presence of parasites. In the 2004 Anatolian Health Survey, the CCF found that many of the working dogs were not being properly cared for. Some of the most frequently occurring problems were lack of lead training for the dogs, vaccinations not kept up to date, farmers absent from their property and therefore not supervising the dog, poor parasite control, poor nutrition, lack of access to water and a lack of commitment on the part of owners to make their dog into a successful guard. The CCF maintains, "you get out what you put in" (Schumann, 2004). Our task was to use the information gathered by the CCF, as well as information obtained through our own interviews with farmers, to uncover the most prevalent problems with the raising and training of livestock guarding dogs. We developed a storyboard for the production of an instructional video as well as a pictorial poster designed for easy use by both communal and commercial farmers.

CHAPTER THREE: METHODOLOGY

The focus of this project was to identify and find solutions to problems in the methods being used for training and care of Anatolian Shepherd dogs that have been donated to farmers by the CCF. After identifying areas in need of improvement, our task was to develop the plan for an instructional video that can be given to Namibian farmers as a guide for the raising and training of a livestock guarding dog. Throughout the project we dealt with two distinct groups: commercial farmers and communal farmers. Research we did before arriving at the CCF implied that we would need to create a separate instructional module for each group.

To begin our work in Namibia, we spoke directly with commercial and communal farmers to see how they felt about the raising and training information that has been provided by the CCF in the past. We asked how the farmers would like to receive information about the dogs: in the form of a video, a written document or an illustrated book. We also asked how long each farmer would be willing to sit and watch an instructional video and how many pages he or she would be willing to read for an illustrated book or written document. For the final part of our survey, we asked what farmers felt they needed more information on: selecting a dog, diet and nutrition, training the dog or veterinary care. After speaking with both groups of farmers we determined that most would prefer information in the form of a video. For this reason we designed a storyboard to outline a video that can be used for community informational assemblies presented by a person with knowledge in the care and training of livestock guarding dogs.

A total of twelve interviews were completed for our project, although we were unable to represent both groups of farmers equally in our survey because of the distance

that must be traveled between farms. Throughout our interviews with communal farmers and the CCF herder, a translator who speaks Otjiherero and Oshiwambo, the languages of many communal farmers in the region, accompanied us. He helped us to complete our interviews and also provided some insight into customs of the farmers in the area.

On March 29 we spoke with commercial farmers at the Ngarangombe Conservancy meeting at Rietfontein Dairy. Of the conservancy members present at the meeting we were able to survey nine farmers who kept smallstock on their farms. Four of the farmers surveyed have livestock guarding dogs or have used them in the past, while five farmers have never used a livestock guarding dog. The following day we spoke with two communal farmers who have Anatolian Shepherds in the communal farming area near Okakarara. While visiting the communal area we were able to film the dogs at work and take still pictures for possible use in both our video and poster. At our final stop in Okondjatu we met with representatives from the African Wilddog Conservancy who are currently working with the CCF to begin a livestock guarding dog program within the conservancy based on the model set up at CCF. The CCF keeps a herd of goats, which are used to aid in the early stages of training for Anatolian Shepherds. We spent two days in the veld with the CCF's herder to observe the dogs at work. During our visit we filmed the dogs working and interactions between the herder and dogs.

Before starting our work in Namibia our intention was to actually produce an instructional video. After arriving at the CCF we realized how involved this endeavour would be and how unprepared we were to undertake such a great task. Our lack of experience with film production combined with limited time to complete the project and

the lack of professional-quality recording equipment forced us to reassess the feasibility of this goal. Instead of focusing our efforts on filming we put the majority of our work into developing a detailed storyboard, which includes still photographs and in-depth instructions for the training and care of a livestock guarding dog. The footage we were able to collect will be used to emphasize the information outlined in the storyboard. Using that footage and our storyboard, the CCF will be able to continue work for the production of an instructional video.

In addition to an instructional video storyboard, we created a pictorial poster to be posted in farming areas. The poster presents the basics of selecting and training a livestock guarding dog, with a strong emphasis on the wide variety of dogs that can be used for livestock protection. Members of our team took photographs used in the poster, while other pictures were taken from the CCF photo library. Both the poster and instructional video storyboard were designed using Microsoft PowerPoint. The poster will be sent to Windhoek for printing in English and will eventually be translated into Afrikaans and Otjiherero or Oshiwambo, making it easier to read for many communal and commercial farmers.

CHAPTER FOUR: RESULTS AND ANALYSIS

The purpose of the instructional module is to further instruct farmers in the raising and training of livestock guarding dogs to create the most effective working dogs. After careful consideration, we decided that a variety of guides would be best to disseminate training and care information. The information we collected through interviews and past surveys was compiled and made into an informative poster and instructional video.

The instructional video was designed to be partially interactive, with breaks at the end of each act for question-and-answer sessions. The storyboard for a video was laid out in a way that will allow for use of the video without necessarily having CCF staff present. With enough background information about the livestock guarding dog project, a conservancy representative, for example, should be able to field questions and facilitate discussion regarding the footage.

Analysis of 2004 CCF Anatolian Health Survey Data

From the inspection of the Anatolian health survey data provided by the CCF, few conclusions could be drawn due to the fact that there are many incomplete surveys and thus a very small useable sample for each category. Regardless of this problem, comparisons of various categories were completed to determine the consistency of the data collected.

We first compared the body condition scores (BCS) of the dogs to how the dogs were working (Table 1 of Appendix C). The CCF set up the range of BCS from a score of one which is emaciated to five which is grossly obese; a BCS of close to three is the most ideal situation for a working dog (Schumann, 2004). This analysis was done to

determine if body condition has an effect on dog effectiveness. Although there was no statistically significant difference, it was determined that dogs with a BCS of three are better able to perform their work of guarding the herd; dogs with a BCS less than ideal were slightly less effective at their task. For a BCS of greater than three there was no data supplied in the survey.

We next looked at the dogs' ability to work and compared that with whether or not they were bonded with the stock (Table 2 of Appendix C). It was determined that there is a correlation between these two factors. It was found that dogs bonded to the stock are never ineffective and in the few cases where dogs had not bonded to the stock they are never excellent workers.

The dogs' ability to work and whether or not the farmers suffered losses was then evaluated (Table 3 of Appendix C). The datum we have shows that there is no correlation between the loss of livestock and receiving a dog. A more effective analysis would take into account the farm size and frequency of predation in the area, as well as the number of livestock losses prior to the farmer receiving the dog. We feel that this is necessary because dogs that lost livestock were rated as good or excellent by their owners. The same rating was given to dogs that did not lose livestock. It is possible that dogs that lost livestock were given excellent ratings due to the fact that they are on farms that normally suffer massive losses. Although losses may have occurred, the number of losses could still be a reduction from the losses suffered preceding the dogs' placement.

The effect of behavioral problems on dogs' ability to work was then considered (Table 4 of Appendix C). Common behavioral problems reported are chasing game, biting livestock, staying home, attacking people, or refusing to come home. It was

determined that dogs without behavioral problems are more able to perform their duties than dogs with behavioral problems.

The owners' perception of their dogs' protectiveness and their ability to work was analyzed (Table 5 of Appendix C). This comparison was completed to make sure that the farmers realize that the dogs' protectiveness is connected to their effectiveness. We concluded that farmers who rated their dogs highly in protectiveness also rated their dogs highly in effectiveness, and vice versa. These results help to confirm the accuracy of the survey responses.

The owners' involvement with the dogs and the dogs' ability to work was then compared (Table 6 of Appendix C). The data shows that an owner who is involved on a regular basis rates his/her dog as excellent. Owners that often spend time and owners that sometimes spend time with their dogs rate their effectiveness as good. Owners that never spend time with their dogs rate the dogs' performance as fair. There is no data to show how effective dogs are when they are only cared for by herders. The data allowed us to conclude that the more time an owner dedicates to training and caring for the dog; the more effective it will be at guarding livestock.

Owner opinion of dog health and the CCF's opinion of dog health were studied to determine if owners have the same perceptions as the CCF (Table 7 of Appendix C). It was concluded that both groups are in agreement; for the most part, owners do understand what an appropriate body condition is for their animal as established by the CCF regulations.

WPI Instructional Module Survey

In total, twelve surveys were completed at the March 29, 2005 Ngarangombe Conservancy Meeting and through visits to three communal farms. The nine farmers we spoke with at the conservancy meeting were all commercial farmers. Six of our surveys were completed by farmers who currently own, or have in the past owned, LSGDs. The remaining six surveys were completed by farmers who have never owned LSGDs.

We were able to determine from the communal farmers surveyed that the best method for information dissemination is an instructional video. It was brought to our attention that in communal areas, the benefit of the video is that it can be viewed by the whole community at one time. A literary document would not be as effective due to language barriers and differences in education. Although language barriers are still a concern for the video, Mandy Schumann from the CCF has stated that it is relatively easy to produce the video in different languages. The majority of commercial farmers would also prefer an instructional video. These farmers are incredibly busy and do not have the time to devote to lengthy documents; additionally, the CCF has noted that people are “lazy to read” (M. Schumann, personal communication, March 29, 2005). In one case, a commercial farmer recommended that e-mail updates concerning LSGD training and care advances be sent to owners. Unfortunately, this method is not practical for all farmers, as many do not own computers.

Through our survey we learned that all dog owners had reduced livestock losses once the dog was in place. The dogs were rated as excellent or good workers in all cases. Some behavioral problems were mentioned, but in most cases these problems arose in the

younger years of the dogs' lives. These problems included chasing livestock, chasing game, and not being attentive to the livestock by staying home when it is very hot. Problems such as chasing livestock are common in LSGDs around the age of six months. Puppies are very playful in this stage of development. Lack of owner involvement is most likely to blame for the LSGDs chasing game. Once a dog learns to hunt, this behavior is incredibly difficult to reverse. When game is chased, the dog needs to be reprimanded immediately to deter it from hunting again. In the cases that we observed, lack of access to water while in the veld was the probable cause of the dog staying home when the weather was hot. These cases indicate that owners are not receiving enough information about the care and training of their dogs.

The surveys indicated that farmers need more information on puppy selection, diet and nutrition, veterinary care, training, and vaccinations. In the communal areas, it became clear that owners do not understand the various diseases that working dogs are susceptible to; they also do not understand the importance of vaccinations. One potential owner noted that it is easy to recognize when a dog is sick, but the communal farmers have no information that will allow them to diagnose the illness. Therefore, information describing the symptoms of common LSGD ailments is needed.

One farmer responded to our survey, stating that he does not need a LSGD because he is already using a herder. The farmer's response was carefully considered and included in the storyboard to express the importance of using a guarding dog and herder to protect livestock. It is doubtful that any herder remains with the livestock at all times. This leaves the livestock susceptible to predation, especially at night. Therefore, a herder

working alone is not a complete replacement for a LSGD. LSGDs remain with the herd continually, and are able to protect them in the kraal as well as out in the veld.

Developing the Storyboard for an Instructional Video

Through the analysis of our surveys and interviews, we determined that both commercial and communal farmers would prefer an instructional video giving information about the care and training of LSGDs, as opposed to a written document or pictorial booklet. The advantages of videos are that they are more entertaining than reading, highly visual to clarify the script, and can be translated into many languages using voiceovers. This medium very well suits the needs of busy commercial and communal farmers with varying languages and literacy abilities.

The video is meant to be partially interactive with breaks for question and answer sessions. It has been developed so that it can be presented by persons other than CCF staff members. With enough background information about the program, conservancy representatives and agricultural extension officers will be able to field questions and facilitate discussion regarding the use of LSGDs.

Due to lack of experience and time, however, the instructional video was never realized. No one in this project group had any professional experience filming video. Attempts to obtain usable footage proved to be quite a task. When the footage that we were able to collect was reviewed, it was clearly not of professional quality. Most of the footage was very shaky, and shadows appeared in the shots. We found that an entire day could be spent filming to collect only 20 minutes of usable footage. These preliminary

attempts to produce a video convinced everyone that the production of the video is a job for a professional. Therefore, we applied our experience of LSGD training and care to create a storyboard for the future production of an instructional video.

The storyboard frames all of the concepts needed for the video in a PowerPoint presentation. The slides are broken down into various acts and scenes that contain script, photos, and recommended footage to be acquired. A professional producer, with the aid of our script and recommendations, will be able to generate a professional quality video for distribution to commercial and communal farmers throughout Namibia. The completed storyboard can be referenced in Appendix F.

Developing the Pictorial Poster

Through our interviews we found that most farmers would prefer to have information about raising and training livestock guarding dogs in the form of a video. Additionally, we decided to make a poster to be placed in commercial and communal farming areas to demonstrate proper care of a livestock guarding dog when the viewing of a video is not practical. The poster was designed as a basic overview of how to select a livestock guardian, proper nutrition and the consequences of failing to meet dietary needs, the importance of maintaining the dog's health through routine veterinary care, as well as raising and training techniques, which emphasized the significance of the livestock-dog-herder bond.

The poster was designed to meet the needs of the two types of Namibian farmers—commercial and communal. Text was included on the poster for farmers who

can read, but photos were used to clearly illustrate the information being conveyed. The photos are intended to be self-explanatory, with red “x’s” showing undesirable conditions for a livestock guarding dog and green checks indicating proper care, treatment and guardian selection. Group members took some of the photographs used in the poster while others were obtained from the CCF photo library. The completed poster can be seen in Appendix G.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

After the completion of our interviews and surveys, many of our hypotheses changed. Our assumption that commercial and communal farmers would require two separate media proved not to be the case. Additionally, we discovered interesting attitudes regarding the LSGD program that we had not previously considered. These findings allowed us to make recommendations to improve the LSGD program.

Our surveys disproved the supposition that commercial and communal farmers would require two distinct instructional modules. We found that both groups would prefer an instructional video for receiving LSGD training and care information. Commercial farmers tended to prefer the video due to time constraints and busy schedules. A 30-minute video can deliver the same amount of information as a lengthy document, but has the advantages of interaction and entertainment. Communal farmers, on the other hand, preferred a video due to their varying degrees of literacy. An additional benefit to using a video is that it can be viewed and discussed by many farmers in a community.

Through our interviews with commercial and communal farmers, we uncovered many intriguing points of view. These attitudes were unexpected by the project group, and were only revealed through visits to the farms. One such standpoint is the competition between herders and guarding dogs. A popular, though inaccurate, belief was that if one has a herder, there is no need for a guarding dog and vice versa. The CCF maintains that the best livestock management team is a good herder and well-trained guarding dog. However, we observed that some herders believe that they will be replaced by the dog. This is simply not the case, as a guarding dog's job is to protect the

livestock, not direct it. The herder still upholds the important job of guiding the livestock through the veld. We recommend that during the distribution of each dog, the CCF discuss the purpose of the LSGDs with herders as well as farm owners. This will eliminate negative attitudes towards the LSGD, and increase the likelihood of success.

The Anatolians that are provided by the CCF are used only to protect smallstock, sheep and goats. In the case of commercial farmers, smallstock is not a very lucrative business. The greatest source of income on many of these farms is cattle. The possibility exists that problems observed on commercial farms with regard to the poor care of some dogs may be because the dogs are not a priority to the farmer, as the animals being protected are not the most important source of income. The same may be true on game farms, where most of the revenue is gained through the sale of a variety of antelope for trophy hunting as well as meat production (Schumann, 2004).

In the communal areas, where subsistence farming is prevalent, smallstock is incredibly important. Many communal farmers, however, do not have the means to provide the proper veterinary care and nutrition for their LSGDs. A great deal of a communal farmer's limited income is invested in the smallstock because they are the farmer's livelihood. The LSGDs appear to be seen as an additional expense rather than a beneficial investment. Farmers do not recognize that, in the long run, the LSGD saves money by preventing the loss of livestock. Therefore, simple preventative measures such as vaccinations are not carried out due to the fact that the farmers can barely allocate funds to get through day by day. We recommend that a program be established to improve knowledge about money management in these communal areas. It has become

apparent that there is a lack of awareness about the importance of budgeting and making long-term investments.

During our visits to communal farms and through the completion of interviews with communal farmers, it was determined that Anatolian Shepherds may not be the best breed of LSGD in Namibia. Due to the Anatolians quick growth, bone deformities often resulted from lack of proper diet and nutrition. Work is currently being done at the CCF to crossbreed Anatolians with smaller indigenous dogs. The resulting medium-sized offspring will have the guarding characteristics of the Anatolian and the local adaptations of the indigenous dog. This will result in a strong guarding dog that is better suited to the Namibian environment and is also less costly to care for. It is our recommendation that the CCF continue to expand upon the LSGD program with the new direction of using indigenous breeds of dogs. Though their guarding qualities are definitely superior, the Anatolian is not the best guarding dog for Namibia. The ease of care and increased resistance to the harsh environment of the country found in mongrels would improve the dogs' success while also downplaying the prestige of owning an Anatolian.

A great deal of importance has been placed on the livestock guarding dog program as a way to protect not only the cheetah, but also livestock. The CCF has worked to educate all people about the importance of good livestock management to prevent livestock losses. It needs to be realized that cheetah are not the problem, humans are; humans have moved into the home range of the predator and are now providing an

easy kill by improperly managing their animals. If livestock are managed properly, predators will not have the opportunity to take an animal and will therefore no longer be viewed as a “problem.” The CCF continues to work hard to convey the importance of the dog-herder team in livestock management.

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APPENDIX A: Cheetah Conservation Fund (CCF)

With the largest, healthiest population of cheetah living in Namibia, it is fitting that the CCF's International Research and Education Center has its headquarters there. The objective of the CCF is to preserve the wild cheetah population through conservation and education. Founded in 1990 by Dr. Laurie Marker, the CCF is continuously creating new projects by actively working with the local Namibian population. Through its work the CCF strives to:

- Create and manage long-term conservation strategies for the cheetah throughout their range.
- Develop and implement better livestock management practices, eliminating the need for farmers to kill so many cheetah.
- Conduct conservation education programs for local villagers, farmers and school children.
- Continue intensive scientific research in cheetah genetics, biology and species survival. (<http://www.cheetah.org>)

The CCF is linked to many groups internationally and has non-profit entities in the United States, Great Britain, Canada, Kenya, South Africa, and Botswana. The organization is also linked to the Cincinnati Zoo and Botanical Gardens and the WILD Foundation. The organization is funded largely by donations collected at its many chapters worldwide.

After discovering through a 1991 survey that cheetah were being killed mainly to prevent the deaths of livestock and not because they were actually killing livestock, the CCF began the Anatolian Shepherd Livestock Guarding Dog program in 1994 to help protect the wild cheetah population. To date, more than 200 CCF-bred Anatolian Shepherds have been placed with Namibian farmers and are protecting livestock herds. Through its work with local farmers and their livestock the CCF has been able to

implement successful non-lethal predator management strategies. The success of this project has helped to improve relations between the CCF and local Namibian farmers in turn increasing the chance for cheetah's to survive in the wild.

APPENDIX B: 2004 Anatolian Health Survey Performed by the CCF

FOLLOW UP
LSGD Questionnaire

Name: _____ Date: _____
Phone: _____ Address: _____

1. How is your guarding dog working: _____ Excellent _____ Good _____ Fair _____ Poor
2. Is it doing what you thought it would do Yes: No:
3. Has there been economic benefit to having the dog? Yes: No:
4. Is the dog with the herd all the time? Yes: No:
5. During the night, does your dog stay: __ With the flock __ With the herd __ At the house __ Elsewhere
6. Does the dog appear to be part of the stock? Yes: No:
7. Is the dog submissive to members of the herd? Yes: No:
8. Are the dog and stock bonded together? Yes: No:
9. Are there any other dogs with the herd? Yes: No:
10. Does the dog interact with other dogs? Yes: No:
11. Have you had stock losses since you have had the dog? Yes: No:
12. How many losses and by what? _____
13. Since you have had the dog, any stock losses by: __ Jackal __ Cheetah __ Leopard __ Caracal __ Theft
14. Any behavioral problems such as: __ Chasing Game __ Biting livestock __ Staying home __ attacking people
15. Were problems reported to CCF? Yes: No: Immediately: Later:
- If not, why not? _____
16. Do you have a herder? Yes: No:
17. Was there a change of herder during this time? Yes: No:
18. Has the CCF given you enough direction _____ too much _____
19. Do you and the herder share information on the dog and its progress? Yes: No:
20. Was corrective training of behaviour problems effective? Yes: No:
21. How would you rate your dog's protectiveness of your stock?
_____ Excellent _____ Good _____ Fair _____ Poor
22. Has it effectively guarded against any predators? Yes: No:
If so, please describe: _____
23. How would you describe your dog's condition (health)?
_____ Excellent _____ Good _____ Fair _____ Poor
24. How would you describe your involvement with your dog?
_____ Regular basis _____ Often _____ Sometimes _____ Never _____ Only herder
25. Would you recommend the LSGD programme to other farmers? Yes: No:

If no, why not? _____

26. Are vaccinations up to date? _____ yes _____ no Date of last 5-in-1? _____
Date of last rabies vaccine? _____ Date of last worming? _____ Wormer: _____

APPENDIX C: 2004 Anatolian Health Survey Results

Table 1: Body Condition Score vs. Effectiveness

BCS	Dog Effectiveness (%)	Sample Size
Less than ideal (< 3)	Not Working	0
	Excellent	33
	Good	38.1
	Fair	28.6
Ideal (3)	Not Working	9
	Excellent	36.4
	Good	45.5
	Fair	9
Greater than ideal (> 3)	No Data	

Table 2: Dog-Stock Bonding Effecting Dog Productivity

Dog Bonded to Stock	Dog Effectiveness (%)	Sample Size
Yes	Not Working	0
	Excellent	33
	Good	52.8
	Fair	13.8
No	Not Working	33
	Excellent	0
	Good	33
	Fair	33

Table 3: Livestock Lost As a Measure of Dog Effectiveness

Livestock Lost since dog placement	Dog Effectiveness (%)	Sample Size
Yes	Not Working	0
	Excellent	31.3
	Good	56.2
	Fair	12.5
No	Not Working	4.5
	Excellent	31.8
	Good	45.4
	Fair	18.2

Table 4: Behavioral Problems Affect Dog Effectiveness

Behavioral Problems	Dog Effectiveness (%)	Sample Size
Yes	Not Working	6.3
	Excellent	18.8
	Good	50
	Fair	25
No	Not Working	0
	Excellent	42.1
	Good	42.1
	Fair	15.8

Table 5: Protectiveness-Effectiveness Comparison

Protectiveness	Dog Effectiveness (%)	Sample Size
Excellent	Not Working	0
	Excellent	66.7
	Good	27.8
	Fair	5.6
Good	Not Working	5.6
	Excellent	0
	Good	83.3
	Fair	11
Fair	Not Working	0
	Excellent	0
	Good	0
	Fair	100
Poor	No Data	

Table 6: Owner Involvement Alters Effectiveness

Owner Involvement	Dog Effectiveness (%)	Sample Size
Regular Basis	Not Working	0
	Excellent	39.3
	Good	50
	Fair	10.7
Often	Not Working	12.5
	Excellent	12.5
	Good	50
	Fair	25
Sometimes	Not Working	0
	Excellent	0
	Good	100
	Fair	0
Never	Not Working	0
	Excellent	0
	Good	0
	Fair	100
Only Herder	No Data	
Unknown	No Data	

Table 7: Comparing dog health status determined by owners and by the CCF

Owners' Opinion of Dogs Health	CCF determined BCS*	Sample Size
Excellent	1	0
	2	57.1
	3	42.9
	4	0
	5	0
Good	1	12.5
	2	43.8
	3	43.8
	4	0
	5	0
Fair	1	16.7
	2	66.7
	3	16.7
	4	0
	5	0
Poor	1	100
	2	0
	3	0
	4	0
	5	0

*note: 1=emaciated, 2=thin, 3=ideal, 4=heavy, 5=grossly obese

APPENDIX D: Interview Protocol

Interview Questions for
Ngarangombe Conservancy Meeting & Communal Farmers
without Livestock Guarding Dogs
30 March 2005 & 31 March 2005

Through our interviews we will establish the best method for delivering training and care instructions for livestock guarding dogs in order to make the Cheetah Conservation Fund's Guarding Dog Program information dissemination more effective. We are trying to gauge how farmers feel about the information they have already been provided with and are asking for recommendations from farmers of ways to improve the information.

Interviewee:

Interviewer:

Recorder:

1. Are you currently / have you ever used livestock guarding dogs on your farm?
 - Currently
 - In the past
 - Not at all

2. What have you heard about the Cheetah Conservation Fund's Livestock Guarding Dog Program? From what source(s)?

3. How has this influenced your decision to participate (or not participate) in the livestock guarding dog program?

4. If you know about the program but have not participated thus far, why not?
 - Not enough information
 - Cost
 - No predator problem
 - Do not feel it will be beneficial
 - On the waiting list
 - Other

5. What would make this program something you would take advantage of?

6. If you were to receive a guarding dog, what would be your preferred method for training and care information?

- Instructional video
- Illustrated Booklet
- Literary Document
- Other _____

6a. How long would you be willing to sit and watch an instructional video

- 15 minutes
- 30 minutes
- 60 minutes
- Other _____

6b. How many pages would you be willing to read for a literary document

- 10
- 25
- 50
- Other _____

7. Can you make any additional recommendations for improvements you would like to see for the CCF's Livestock Guarding Dog Program?

Interview Questions
Ngarangombe Conservancy Members & Communal Farmers
with Livestock Guarding Dogs
30 March 2005 & 31 March 2005

Through our interviews we will establish the best method for delivering training and care instructions for livestock guarding dogs in order to make the Cheetah Conservation Fund's Guarding Dog Program information dissemination most effective. We are trying to gauge how farmers feel about the information they have already been provided with and are asking for recommendations from farmers of ways to improve the information.

Interviewee:

Interviewer:

Recorder:

1. Are you currently / have you ever used livestock guarding dogs on your farm?
 - Currently
 - In the past
 - Not at all

2. Do you use Anatolians to guard your smallstock, or do you use mongrel breeds?
 - Anatolian
 - Mongrel

3. If you previously owned a dog, but do not currently own a dog, why have you chosen not to get another one?

4. Has the dog helped to reduce the number of smallstock lost annually?
 - Yes
 - No

- 4a. By how much?

5. How well do you feel your dog works/ed?
 - Excellent
 - Good
 - Fair
 - Poor

6. What is (are) the most common behavioral problem(s) you have encountered with your guarding dog?

- Chasing game
- Biting livestock
- Staying home
- Attacking people
- Other _____
- No problems

7. Do you feel that the CCF has provided enough information for the proper training and care of your dog?

- Yes
- No

8. What areas in the care and training of your dog would you like to have more information on?

- Selecting a dog
- Diet / Nutrition
- Training
- Veterinary Care
- Other _____

9. What is your preferred method for receiving training and care information for your dog?

- Instructional video
- Illustrated Booklet
- Literary/written Document
- Other _____

9a. Length of instructional video

- 15 minutes
- 30 minutes
- 60 minutes
- Other _____

9b. Number of pages you would be willing to read for a literary document

- 10
- 25
- 50
- Other _____

10. Can you make any additional recommendations for improvements you would like to see for the CCF's Livestock Guarding Dog Program information dissemination?

APPENDIX E: Training and Care for a Livestock Guarding Dog

TRAINING LIVESTOCK GUARDIAN DOGS

The training of a LSGD is very unique. It is unlike the training that show dogs or herding dogs are exposed to. The success of a LSGD is dependant upon the dog's personal temperament and training. This appendix is dedicated to identifying inborn characteristics to look for when purchasing a pup, and distinguishing proper training methods.

Important Inborn Traits

Before purchasing a pup, it is very important to look for favorable traits found in successful LSGDs. This step may be the difference between an effective LSGD, and a wasted investment. The process begins by visiting reputable breeders. A reputable breeder is one that can guarantee their pups are free from serious defects such as hip dysplasia. They should also do pedigree analysis to search for less obvious defects (<http://www.LSGD.org>). Once a reputable breeder has been located, one should carefully examine each of the pups and observe their behavior. The sex of the pup has not been determined to make a difference in its ability to be an LSGD. The pup should be between six and eight weeks old. If an older pup is desired, be sure that it has been raised with members of the flock (Andelt, 2004). The pup should have a well-shaped head, jaw and teeth. The teeth should have an overlapping, scissor-like bite. The pup's muscle and bone structure should be examined to be sure that it does not have any physical weaknesses. The pup should not be shy or overly dominant. A shy pup may grow up to be skittish and unable to effectively protect its flock, whereas an overly dominant pup

may injure members of its flock or attack humans that come too close to them. Also, be sure to look for any irregular discharges from the pup's eyes and ears.

Whenever possible, the parents of the pup should also be examined. Traits found in the parents are likely to occur in the pup later in its life. Be sure that the parents have strong shoulders, legs and feet. Also pay close attention to their temperament. If they are shy, dominant, or generally unfriendly, the pup will most likely obtain these qualities.

Proper Training Methods

Once a physically fit pup with quality inborn traits is obtained, the training process can begin. It is important to keep in mind that the training LSGDs require is much different than that of show dogs or herding dogs. They do not simply undergo obedience training. A properly trained LSGD is trustworthy with its flock, attentive to its flock, and protective of its flock (Lorenz & Coppinger, 1996).

In order for the pup to develop these characteristics it is essential that it is reared with members of the flock it will guard. This process should begin when the pup is between three and eight weeks old. "Data from one study suggests that the process begins at three weeks [of age], peaks at six to eight weeks and levels off by 12 weeks" (Saskatchewan Agriculture, Food and Rural Revitalization [SAFRR], 2005). It is essential that the pup has developed a bond with the flock by eight weeks old, or there is a good chance that it will not stay with them. Once the pup is placed with the flock human contact should be minimized. The pup should also not be allowed to play with other dogs. If it is treated like a pet, or allowed to play with other dogs it will form a stronger bond with humans or dogs instead of with its flock.

Ideal places to rear a pup are inside a barn or in a small pen from which it cannot escape. Three to six members of the flock should be placed in the area with the pup. If the pup is intended to guard sheep, lambs or sheep that will not harm it should be used. If it is going to guard cattle, use small calves. It is a good idea to put chicken wire between the pup and the flock when it is very young so that it does not get trampled or hurt. A bad experience with the flock at such a young age may compromise the chances that the pup will guard the flock. Chicken wire is ideal because it provides protection while still allowing some contact between the pup and flock. Once the pup gets bigger and can handle itself the chicken wire can be taken down. At this stage, a section of the pen should be made into an area where the pup can go eat or rest away from the flock. Throughout this process, the pup should be monitored to be sure it is adjusting to the flock (Andelt, 2004). Be sure to rotate members of the flock into the pen during this process so that the LSGD can become familiar with each member of its flock.

At approximately 16 weeks of age the pup is old enough to leave the pen. At this point, the pup has been able to bond with the flock and should be introduced to its working environment. Walk the dog around the property and allow it to meet other livestock, farmhands, machinery, LSGDs and herding dogs. This will help prevent the dog from guarding its flock against these things later. The dog will most likely respond to this freedom by doing a lot of exploring. This is not a problem as long as it returns to the flock in a timely manner. This is a good time to see how trustworthy and attentive the young LSGD is. A trustworthy LSGD is one that does not chase, bite, or injure members of the flock. The owner may leave the LSGD with the flock and not worry about it

hurting the flock. An attentive LSGD is one that does not stray from the flock. Any unwanted behaviors should be immediately corrected.

At this point some basic obedience should be introduced to the LSGD. The LSGD should know the meaning of “come” and “no” (Andelt, 2004). This will help the LSGD understand what is right and wrong, and will also allow the farmer to catch it when needed. Once the LSGD has been trained in these commands and has been determined to be trustworthy, attentive, and protective, it is up to the farmer when to leave the dog unsupervised with the flock. Most LSGDs are left unsupervised around six to eight months old (Lorenz & Coppinger, 1996).

In the early stages check up on the LSGD frequently to be sure that it is being trustworthy and attentive. Also, make sure that the dog is able to find food and water. It is a good idea to build a doghouse and place an automatic dog feeder near it. Placing salt licks on the doghouse will also prove to be a good investment. This will provide a communal feeding ground for the LSGD and flock, allowing them to mingle and further their bonds with one another. The doghouse will serve as the LSGDs home site. Dogs tend to return to their home sites and one does not want this to be the farmer’s household. The automatic dog feeder is able to hold approximately a week worth of food. This will prevent the LSGD from associating food with its owner, helping to minimize the human-LSGD bond (SAFRR, 2005).

Potential Problems and their Solutions

Not Trustworthy.

Studies have shown that there is a good chance that a LSGD will seriously injure a member of the flock in its first year. This is especially true for pups; they tend to play with the flock as they would a littermate. Poor behavior includes chasing, biting and mounting (Rigg, 2001). Even though this usually results from play it can become a serious problem. If the flock respond with fear and begin to run, the LSGD may chase and bring them down, resulting in injury. A potential solution to this problem is to reduce calorie intake. This playful behavior may be due to excessive energy intake. Place the LSGD on a diet with reduced calories. Do not reduce the quantity of food (Rigg, 2001).

It has also been documented that LSGDs may injure sick or old sheep (Lorenz & Coppinger, 1996). Sheep with bad foot rot or ones that have had their heads stuck in fences have been injured. The best solution for this situation is to either treat the sick sheep or to remove them from the flock entirely. The LSGD should not be removed.

Not Attentive.

Most LSGDs tend to doze among the flock during the day, however, they are still aware of their surroundings. Many tend to leave the flock for short periods of time as well. This is usually due to the LSGD investigating the perimeter around the flock. This is usually not a problem if they return in a timely fashion. Some believe that the reason a LSGD will wander is because it is attracted to a bitch in heat. Neutering the LSGD will

help to prevent this behavior, and has not been shown to have any negative effects on its ability to guard (Lorenz & Coppinger, 1996).

Robin Rigg (2001) suggests that the lack of shelter against bad weather, mosquitoes, and heat also may affect attentiveness. It is suggested that the LSGD be supplied a doghouse for a home site. In the hot summer months, the LSGD should have its under-fur brushed out and be given plenty of water. Longer haired breeds may even benefit from being sheered.

The most common problem related to attentiveness is the LSGD returning to a household or area of human activity. This is usually because the LSGD was treated as a pet during the early developmental stages, forming a strong human-LSGD bond. The result is that the LSGD is less effective, because it is not primarily attentive to its flock (Lorenz & Coppinger, 1996).

Not Protective.

Most problems related to protectiveness stem from poor attentiveness. If the LSGD is not attentive to the flock it will in turn not be very protective of them. A LSGD's ability to protect is also related to its aggressiveness. A LSGD's aggressiveness is determined by its age, personality and sex. Many LSGDs do not display signs of dominance until 18 months of age (Lorenz & Coppinger, 1996). In some cases the LSGD will not act dominant in the face of a potential predator. Their barks often act as a warning signal of danger to the farmer, however. Therefore, a LSGD should never be punished for not acting dominant, as long as they signal danger.

The flocking pattern is attributed to a LSGDs ability to protect. If the flock is large and widely scattered, a single LSGD will not be very protective. Predator density is also a factor. When there are more predators in the area, there is less chance that a single LSGD will be able to keep track of all possible threats. In these situations one or two more LSGDs should be introduced to the flock to increase protectiveness.

Other Issues.

Any other forms of predator control should be removed prior to the introduction of LSGDs. Snares, traps, and poisons can kill LSGDs if they have not been properly trained to avoid them.

CARING FOR A LIVESTOCK GUARDIAN DOG

LSGDs are a significant investment. The value of LSGDs increase with the time spent in training. The livestock that they protect also represent a considerable amount of money. Hence, it is very important to maintain the dog's health with routine inspections and proper care.

A local veterinarian should be contacted to be sure that the dog's vaccinations are current. Information about worm medications can also be obtained. Puppies purchased from a reputable breeder most likely received puppy vaccinations. The LSGDs ear canals, eyes, teeth and feet should be checked regularly. Ear canals should be kept free of hair build-up and observed for abnormal discharges. Eyes should be checked for

discharges as well. Teeth should be checked for soundness and proper bite (USDA, 1999). The nails and hair on the LSGD's feet should be clipped.

Cuts and abrasions should be taken seriously. They may become infected or abscessed (Andelt, 2004). Bone conformation and muscle development can be observed at the same time. The LSGD's coat should be removed of any burrs or mats. Failure to do so may result in serious skin infections (USDA, 1999). Long haired dogs should be trimmed periodically to avoid matting.



The adult LSGD can eat approximately two to four pounds of food per day (USDA, 1999). This is due to the amount of energy spent investigating the perimeter of flocks. It is also partially due to the size of the dog. An automatic feeder should be placed in the LSGD's pasture. It should have a barrier to prevent livestock from getting to the feed, and it should be filled routinely. A constant water supply should be adjacent to this feeder. Dry food generally provides enough nourishment for the LSGD, but supplements recommended by veterinarians should be used as well.

In addition, the LSGD should be given a doghouse as mentioned in the section entitled "Training Livestock Guardian Dogs." This will provide the dog with shelter during inclement weather. It will also give the dog a home site. The use of other predation control methods should also be terminated. Snares, traps, and poisons should be removed, or the LSGD should be properly trained to avoid these things. Neighboring farms should be alerted to the LSGD presence so that LSGD is not accidentally shot. Any change in the LSGD's behavior, eating habits, or excrement could be a sign of a serious problem and should be further investigated.

APPENDIX F: Raising and Training a Livestock Guarding Dog: A Farmer's Guide (Storyboard)

**RAISING AND TRAINING
LIVESTOCK GUARDING DOGS:
A FARMER'S GUIDE**

Prepared for the Cheetah Conservation Fund by:
Melissa Coonradt
Matthew Field
David Gibson
Jessica Tatem
&
Mandy Schumann



Your Best Team!



A good herder and guarding dog working together will provide the most protection of your livestock.

Selecting the Right Dog



Medium Guarding



Herding – border collie



Small guarding



Large guarding



Herding – Kelpie

Act 1: Selecting the right dog

Scene 1: What is a guarding dog?



Large guarding

A livestock guarding dog (LGD) is specially bred to protect livestock from predators. The dogs are placed with livestock at 6-8 weeks, allowing for the development of a strong bond with the livestock they will be protecting. The livestock accept the LGD as a part of their herd while the LGD considers the livestock its family. Guarding dogs are bred to be calm and not aggressive towards livestock.



Medium guarding

Act 1: Selecting the right dog

Scene 2: Important traits to look for in your guarding dog

Stocky & strong vs. lean & fast

A strong and stocky dog is better equipped to defend the animals it is protecting. A guarding dog is brave and protective of its herd; the dog can stand its ground and bark at predators.

Strong and Stocky



Lean and Fast



Act 1: Selecting the right dog

Scene 3: Choosing the most suitable dog size for your farm

Large dogs vs. small dogs

A large dog is more costly to care for. It grows more rapidly than a smaller dog and therefore requires food of a higher quality for proper bone growth.

A dog that is too small is not able to defend livestock.

The most desirable guarding dog is of medium-large build with a square frame. A good guarding dog does not have to be purebred. The right indigenous breeds are just as likely to make good guarding dogs as full-blooded Anatolians.

LARGE



SMALL



MEDIUM



Act 1: Selecting the right dog

Scene 4: Do the parents exhibit guarding behaviors?

When selecting a puppy it is important to know if the parents are also effective guarding dogs. Good guarding traits in the parents should be passed down to their puppies.



ACT 1 SUMMARY

- A livestock guarding dog bonds with livestock during the first few months of its life. This bond causes the dog to be protective of its herd.
- Stocky strong dogs are better able to protect against large predators than lean fast dogs.
- Large dogs are more intimidating to predators but cost more to feed. Small dogs cost less to feed, but are not as intimidating. Medium size dogs are ideal because they do not cost as much as large dogs, but they are able to protect better than small dogs.
- Select dogs with good guarding qualities.

QUESTIONS
OR COMMENTS?

Raising and Training a Livestock Guarding Dog



Act 2: Raising and Training a Livestock Guarding Dog
Phase 1: 6-12 Weeks

Scene 1: Handling the guarding dog

It is important that a puppy trust its handler as this will allow for behavior correction throughout the life of the dog. Contact should take place only in the working area (kraal or veld) so the dog will associate positive reinforcement with working around the livestock.



Act 2: Raising and Training a Livestock Guarding Dog
Phase 1: 6-12 Weeks

Scene 2: Introduce the puppy to the livestock it will be working with



Introducing the dog to its livestock at 6-8 weeks of age makes the bond between livestock and dog strong.



When the livestock come to the kraal at night, protect the puppy from aggressive ewes until it is old enough to escape them.

Act 2: Raising and Training a Livestock Guarding Dog
Phase 2: 3-6 months

Scene 5: Herd Introduction



At 3-4 months, the puppy is ready to go out into the veld with the herd. The herder or owner should observe the interaction. A herder should accompany the puppy occasionally to monitor the dog's behavior and progress and ensure it is able to keep up with the livestock.

Act 2: Raising and Training a Livestock Guarding Dog
Phase 2: 3-6 months

Scene 6: Lead training

Lead training is important!

Being able to control your dog enables care and vaccinations to be given. The initial introduction to livestock and other animals in the surrounding area should take place on a lead. Lead training should begin at 3 months of age.



Act 2: Raising and Training a Livestock Guarding Dog

Phase 2: 3-6 months

Scene 7: Diet/Nutrition

At this point, the puppy is still rapidly growing and requires proper nutrition for healthy development. Remember, calcium is extremely important for proper bone growth and lack of this mineral will result in bone deformities.

It is important to make sure the dog is eating the food it is given. Attention should be given to the dog to ensure that the livestock are not stealing its food.

Diet should consist of a good quality pelleted food soaked in water. Mealie pap, milk, or bones should be added 3-4 times a



Act 2: Raising and Training a Livestock guarding Dog

Phase 3: 6 - 12 months

Scene 8: Handling a playful puppy



A playful puppy does not mean a bad guarding dog. Most dogs go through a playful phase. Owners must teach the dogs not to chase and play with their livestock.



A runwire can assist in training the dog not to chase livestock. It is important to remember that the dog must still be able to reach water and shelter from the sun. Make sure the runwire is made of lightweight chain, and cannot reach a fence to prevent the puppy from being tangled or hanged.

ACT 2 SUMMARY

- Guarding dogs should be placed with their herd at 6-8 weeks of age to allow a bond to be formed.
- It is important that guarding dogs be handled so that they can be handled for veterinary care.
- They should only be handled, however, when in the kraal or when working in the veld.
- Be sure that the dog is lead trained.
- Vaccinations should always be kept up to date to ensure that the guarding dog is healthy enough to work. If this is not done, the dog may die.
- Puppies should be fed good quality pelleted food with goat milk for added calcium. This will ensure proper bone growth.
- At 3-4 months the puppy is usually ready to go out into the veld with its herd.
- If your puppy is too playful with the livestock when it is young, a runwire may be installed to prevent it from chasing livestock.

QUESTIONS
OR COMMENTS?

Routine Veterinary Care



Act 3: Routine Veterinary Care

Scene 1: The importance of keeping your dog healthy



The dog's health should be monitored. The dog to the left was not cared for properly, and will not be a good guarding dog due to bone deformities. Routine vaccinations should be given yearly to help prevent disease, however regular checks of the dog's condition should be done as well to look for ticks and to ensure that it is not sick.

Health Condition



Act 3: Routine Veterinary Care

Scene 2: Basic Wound Care

Open wounds should be treated to avoid infection. The hair surrounding an open cut should be shaved to avoid matting and collecting dirt near the wound. If no antibiotics are available, flush the wound with salt water and a syringe every day until the wound heals.



Act 3: Routine Veterinary Care

Scene 3: 5-in-1 Vaccinations

The 5-in-1 vaccination is a yearly injection that will prevent your dog from contracting 5 of the most common dog diseases. If left untreated all of these diseases can kill your dog.

5 Common Disease Symptoms

Distemper: symptoms include discharge from the corner of the eyes, slime coming out of the mouth and loss of weight. A dog can survive distemper but will become lame and develop a wobbly head.

Parvovirus: a dog with this disease will develop bloody diarrhea and can die if left untreated.

Adeno virus: this disease affects the dog's eyes and can lead to blindness.

Leptospira: symptoms of this disease include fever, shivering and muscle tenderness, followed by vomiting and dehydration with increased heart rate. Leptospira also affects the kidneys and if left untreated will lead to death.

Hepatitis: affects the liver and can be fatal.

Act 3: Routine Veterinary Care

Scene 4: Rabies Vaccinations



Rabies can spread to humans through a bite or saliva from an infected animal (jackal, dog, cow, etc). Symptoms of this disease include: unexplained aggressiveness, a sudden change in personality, salivating and loss of coordination. There is no cure for this disease but it can be prevented through vaccinating. After working to train your dog to be a successful guardian it is a waste to lose it to something which can be avoided.

Act 3: Routine Veterinary Care

Scene 5: Common ailments to watch for

Tick Bite Fever & Biliary Fever: symptoms include a high fever (the dog feels hot) and weakness (often interpreted as laziness), pale eyelids and gums, and nose bleeds. Discharge from the eyes and nose may also be observed. If left untreated this will lead to death.

Worms: Working dogs should be dewormed regularly. Deworming does not make a dog immune to worms. It only removes current infestations, which is why deworming should be repeated at least every 3-4 weeks.

Symptoms of a severe worm infestation include:

- a potbelly in puppies
- vomiting
- poor coat (coarse or dull)
- lethargy (dog appears lazy)
- depression (dog appears tired and sad)
- diarrhea (runny poop)



Hyaloma tick: these ticks have a very sore bite and result in a chunk of skin around the bite dying and falling out. These ticks should be removed as soon as possible, to reduce the amount of dead tissue that falls out. Keep wounds clean until they can heal.

Act 3: Routine Veterinary Care

Scene 6: Special Care for Pregnant Bitches

Dogs that are pregnant need more care. Special attention should be given to ensure that they are receiving enough food to feed themselves as well as their puppies. Once the puppies are born, continuation of this care should be given throughout the time the bitch is producing milk.

Poorly Fed Bitch



Healthy Bitch



ACT 3 SUMMARY

- In addition to vaccinations, dogs should be regularly checked for parasites and worms.
- It is very important to care for wounds on your dog. When no antibiotic is available, flush the wound with salt water using a syringe.
- Be sure that your dog receives the 5 in 1 vaccination.
- Vaccinate your dog for rabies to ensure the health of your dog, livestock and family.
- Remember that pregnant bitches need more good quality food to help feed their puppies.

QUESTIONS
OR COMMENTS?

Common Behavior Problems and Preventative Measures



Act 4: Common Behavior Problems and Preventative Measures

Scene 1: Chasing Game



All dogs at some stage may begin chasing game. Once this behavior has begun it will not be easily stopped. It is crucial to discourage any hunting behavior before it becomes a problem. In addition, do not confuse the dog by using it for hunting purposes. A dog that is out hunting is not protecting your livestock.

Act 4: Common Behavior Problems and Preventative Measures

Scene 2: Staying at Home



Dogs that appear to be lazy on hot days may be acting this way because they are thirsty. Make sure your dog has water available to drink at all times and especially before they leave for the veld. Pelleted food must be soaked in a lot of water before feeding.

If a dog that has access to water and is not sick comes home, immediately return it to its livestock.

Act 4: Common Behavior Problems and Preventative Measures

Scene 3: Aggressive Dogs

This problem may occur when the dog is ill treated or not handled frequently enough to become familiar with people. It is important that the people caring for the dog can handle it. This will allow for vaccinations and parasite checks to take place without injury or stress to the owner or dog. There is no need to risk the safety of yourself or your family by encouraging an aggressive dog.

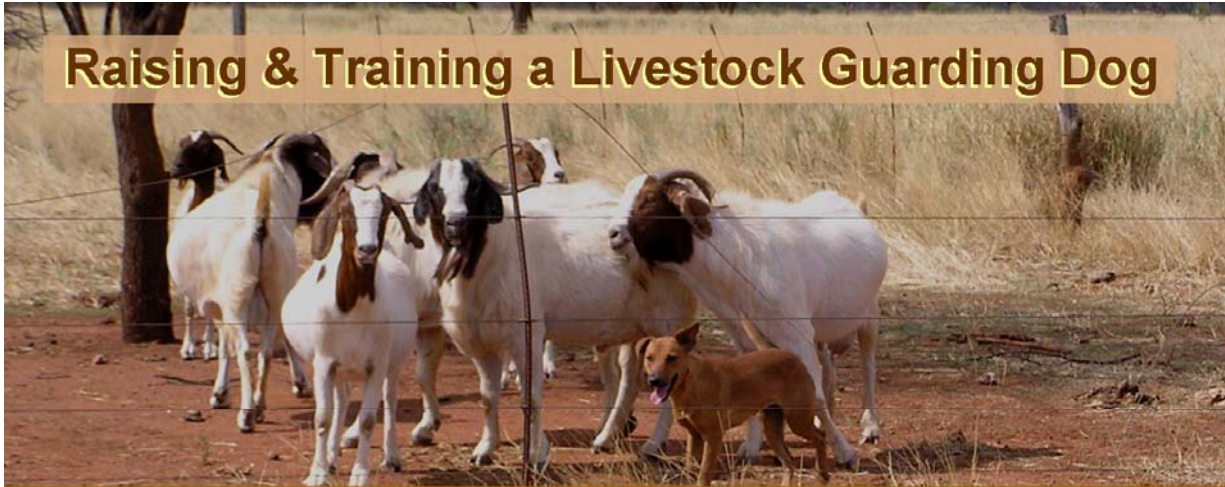


ACT 4 SUMMARY

- Be sure to prevent your dog from chasing or hunting game. Once this behavior is learned it is hard to correct.
- Be sure to keep water available to the dog at all times.
- Remember to handle your dog. If there is no bond between the owner and dog, the dog will not allow you to handle it and may become aggressive.

QUESTIONS
OR COMMENTS?

APPENDIX G: Raising and Training a Livestock Guarding Dog (Poster)



Raising & Training a Livestock Guarding Dog

Careful selection and care will produce a successful livestock guarding dog.



Without proper diet and care your dog will not be able to work. A dog with deformed bones cannot walk far.



Bonding with livestock and a herder is important for the development of your livestock guarding dog.



Routine veterinary care is an important part of maintaining the health of your livestock guarding dog.



For more information about raising and training livestock guarding dogs contact CCF at:
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