WILDIZE SUB-SAHARAN LION CONSERVATION PROJECT

OVERVIEW STATEMENT

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The Story

The International Union for Conservation of Nature (IUCN) lists the African lion on the Red List of Threatened Species with a suspected population decline of 30 to 50% in the last two decades (Nowell & Bauer 2004). The most recent population estimate shows a range between 16,500 and 30,000 (Bauer & ver der Merwe 2004). According to the IUCN the biggest threat to lions is the expansion of agriculture and pastoralism, with lion predation on livestock the main form of conflict resulting in retaliatory and preemptive killing of lions.

While there is much discrepancy about exact numbers, most agree that the African lion population has at least been halved since the 1950's. Some estimate the decline may be as high as 95%. One thing is for certain, with likely only about 20,000 lions left today, they are quickly running out of time. If these trends continue, we could lose this majestic symbol of Africa completely in the next 20 years.

In Kenya, alone, the national lion population has been reduced by an average of 100 lions yearly and is a great cause of worry. The Kenya population declined from an estimate of 10,000 in the 1970's to 2,749 in 2002, then to 2,280 in 2004 (Chardonnet 2002). More recent reports from across the continent suggest that not only are lion populations continuing to decline but they are doing so at an even faster rate. "*There is probably no other species whose distribution range has shrunk over historical times to the extent shown by the lion.*" (Smithers, 1983).

So, why are the lions in this periled situation? As with the loss of most biodiversity, no single cause can be blamed. The demise of the lion has been caused by a combination of factors that, together, almost seem to have formed an all out war on this feline species. Habitat loss, conflict with humans, reduced prey base, global climate change, and hunting have all factored in this sorrowful dilemma. When travelling across Africa, you really don't find free-ranging lions anymore. They have all been holed up into protected areas, such as national parks and reserves. Why? Lions, perceived as a threat to one's life or livelihood, are no longer tolerated in their natural habitat. Furadan (also known as Carbofuran), a toxic pesticide that has been banned in the US and the EU, is used by many farmers and ranchers to taint animal carcasses in an effort to kill predators that threaten their income. Furadan kills any animal that consumes or absorbs it, and it is readily available throughout much of the African continent. In Kenya, alone, over a recent six-year period, there were 62 Furadan-attributed lion deaths documented. The number of victims of poisoning is likely higher, as some poisonings most certainly have gone unreported.

Of course, there are also farmers and livestock ranchers who've taken to shooting the cats, as well as many more lost to poachers' snares.

Further complicating these particular factors are the now more frequent droughts induced by climate change. Less water means more competition with livestock on the parts of both lions and their prey. More livestock are being grazed deeper into wildlife reserves, the only places the felines have left to live, and are bringing a host of problems with them. Beyond resource competition, there's also disease, which comes from both cattle and domestic dogs. For the lions who escape poisoning, being shot by farmers and ranchers, snares, drought, and disease outbreaks, there are still more threats. Trophy hunting of these animals is receiving more and more scrutiny. Some 500 lions (mostly males) are bagged by American hunters every year. It's not just the number of trophy hunted lions that is concerning, it is also the effect it has on population ecology. Since it is mostly males who are hunted, the sex ratio is skewed toward females, inhibiting the population's ability to grow and recover. Additionally, trophy hunting has cascading effects through prides of lions because of their dynamic social behaviors. The result of killing a single male could ultimately result in the deaths of several pride members, especially cubs.

Why should we care if these combined factors cause the extinction of *Panthera Leo*? Beyond being aesthetically pleasing, lions have tremendous economic and ecological value. Annually, some $80 billion are brought into Africa by ecotourism. How many people would continue to visit Africa if the Big 5 became the Big 4? Whole nations' economies could potentially collapse as a result of losing this beautiful carnivore. Would the ecosystem still be functional if we lost this species? Yes, but it would not be the same ecosystem. Radical changes over time would see a complete restructuring of the biome. Apex predators maintain a critical balance that allows an ecosystem to exist in the way that it does. The loss of lions would result in increased prey populations. Such a shift of balance would significantly alter the vegetation and even the soil composition. What was once the African savannah may end up something vastly different without this predator.

Wildlize Responds

In order to combat these problems, the Wildize Foundation has begun a Sub-Saharan Lion Conservation Project. This effort is being coordinated through several on-the-ground projects we are currently funding, along with new projects proposed and further envisioned. This pan-African project is attempting to address the numerous underlying causes for the Lion's decline and as much as possible includes local community involvement so as to reduce the conflicts leading to their demise. With numerous American and European funded projects already being attempted to reduce this decline, we feel that the WildiZe efforts stand out by being inclusive of these local communities and our efforts to address systemic change across the continent.

Current Projects

1. In Botswana, Wildize is supporting efforts in mitigating conflicts between lions with prey aversions. In the Ghanzi District, a section of the Kalahari Desert of Botswana, west of the Central Kalahari Game Reserve (CKGR), during twelve months approximately 500 head of cattle were reported killed by predators, primarily African lions and African wild dogs, resulting in approximately $275,000 dollars (US) worth of damage. Wildlife Department officials reported that 54 lions were killed due to potential or actual livestock depredation in the same area. Clearly, no approach to current conflicts can be expected to succeed unless it benefits both humans and predators. There is a well-known behavioral process that can alter the predatory behavior of large predators in a way that powerfully and permanently dissuades them from stalking domestic livestock. This process that Wildize Foundation is supporting could create a much-needed buffer between predators and farmers. Since this process modifies only one specific aspect of predatory behavior, predators remain otherwise entirely unchanged and so continue to play their essential role in the natural ecosystem. Since predators are not removed or displaced but are nonetheless dissuaded from attacking livestock, there is no ecological vacuum that continuously brings in new predators. Instead, as intact predator social groups defend their territories they prevent incursions by new individuals that have not been treated by this process. This process is known as Conditioned Taste Aversion.

Conditioned Taste Aversion (CTA) is a unique and powerful form of learning in mammals. It is a natural defensive mechanism enabling predators to survive encounters with prey with toxic anti-predator defenses. When mammalian predators experience nausea after consuming prey with toxic defenses, they form an aversion to the taste and scent of these prey animals. Long after recovering from the effects of a sub-lethal dose of the toxin, predators avoid the offending prey wherever they are encountered. Evaluation of the possible application of CTA to wildlife problems has shown that predators acquire and express aversions to prey in a manner that could be of use in mitigating conflicts between lions, for example, and livestock growers. A single meal of food containing a hidden dose of an aversion agent can produce very long lasting aversion to the taste and scent of target prey among mammalian predators.

Currently, WildiZe is undertaking a captive study in the CKGR with 20 lions as study subjects. We are using meat baits to product predatory responses toward cattle with the long-term goal to show the CTA treatment is effective in inhibiting future conflicts between predators and farmers. Denver Zoo Associate Researchers Bill Given and Glyn Maude are conducting this CTA study.

The success of the CTA project in Botswana could have long-term ramifications for projects such as Tsavo and other WildiZe projects by helping remove a large source of on-going Human/Wildlife conflicts.

2. Kenya has not had a proper predator rehabilitation program ever since George Adamson was killed in 1989. As a consequence of the conflicts mentioned above, the Nairobi Lion orphanage has more orphaned lions than ever before, too many to accommodate and it is high time to find a new approach to save the largest of Kenya's predator species. For a start, a young male lion, named Kimba, just under two years old, was trapped on a neighboring community ranch (Kuku Ranch) near Tsavo West National Park after having killed 14 goats. A Kenya Wildlife Service vet was called from Tsavo East and tranquilized the lion to give him a proper examination and needed treatment. The vet established the lion to be in poor condition as malnourished, checked all claws and canines and treated him with a broad spectrum anti-biotic, de-wormed him and boosted him with multi vitamins. He also disinfected all wounds which were all superficial and most of them due to the capture and trapping. Unfortunately, despite these efforts Kimba passed away from a sudden on-set of Pneumonia. Much was learned from this initial effort, and more lions are expected in the coming weeks in hopes of forming a true Lion Pride to return to the wild.

Wildize has funded the building of a large enclosure within Tsavo West National Park, away from humans and livestock, where these lions will be fed and trained with live bait to kill. Further efforts are being made to form a pride when releasing lions back into the wild. If we can make this pilot project work, it could well be the beginning of the first predator rehabilitation program in Kenya and will make a real difference to the severely declining lion population in Kenya. WildiZe is working closely with the Kenya Wildlife Service to intiate the CTA protocol after implementation in Botswana.

3. In order to protect Lions, we must understand Lions. In this vein, WildiZe is funding an African Predator Conservation Research Organization (APCRO) study on large carnivores elsewhere in Botswana. The goal of this work is to develop an understanding of emerging disease transmission and underlying reasons for novel disease out breaks in carnivores (African wild dog, lions, spotted hyena) as it relates to current individual health status, inter- and intra-species interaction, range and resource use, heterozygosity, nutrition, and immune status. In general terms, it is to continue and expand a successful ongoing *in-situ* project that continues to have a strong presence in the region and is allowing for intelligent conservation decisions to be made by the appropriate government authorities. This project's goals are to increase the ability to monitor animals remotely by increasing the current collaring numbers and to increase the surveillance of these animals to a level that will make it statistically significant. Thus doing, we will be able to improve the conservation not just in this region of Botswana but for all of the involved countries of the Trans Frontier Conservation Area, the largest designated conservation area in the world (including Botswana, Namibia, Angola, Zambia and Zimbabwe). We also will have a very positive impact on the local people in and near the area through our education efforts. We are able to bring an understanding of disease transmission to authorities

to further the ability to educate local people and demonstrate how they can live amongst carnivores with a minimal amount of losses related to transmissible disease and population management. We are working to increase the number of collared animals to 25 and support the satellite time to monitor them. Animal movements will be monitored by ARGOS satellite system with three times per day fixes on each satellite-collared animal. All collars will be retrieved at the end of the study. This project is being led by Dr. Michael Briggs, DVM, MS.

Normally, the CTA project, the Tsavo West Rehabilitation project and the APCRO Large Carnivore Study would each be done independently with no over-arching coordination. WildiZe is looking to take the captive testing program results in Botswana and apply these lessons to the wild populations being reintroduced in Kenya and to the communities impacted by the research with APCRO to showcase a lasting long-term reduction in livestock fatalities. If this can be established, we believe we will show benefits for local communities and reduce lion killings. Once established in the CKGR and the Tsavo region, WildiZe will look to implement in the Trans Frontier Conservation Area and elsewhere in Africa thus having a continent wide benefit.

Next Stage Projects

WildiZe believes that our efforts cannot stop with the key projects we have underway currently. We are always looking to undertake next level projects that further influence the efforts being done today so that Lions can be recovered and long-term population declines reversed and a positive outcome is affected moving forward. Some of these efforts, as mentioned will be to further understand the CTA impacts on changing the predator response of Lions toward livestock and to introduce new projects implement these results. We are currently in discussions for such projects in Kora National Park and the Maasai Mara National Reserve in Kenya. Other projects WildiZe are considering focus on greater Research and Education.

1. Conservation action is meaningless without monitoring the results. A vast amount of experience has shown that many conservation activities make sense on paper but fail badly at their objectives when put into practice. Thus, WidliZe is looking to support the Mara Predator Project in Kenya. Here, a primary goal of the lion conservation efforts is to establish and maintain a long-term effort to accurately monitor the lion population of the region. Results of this monitoring will allow us to adapt conservation and education activities in light of actual impacts on lion numbers. Because the Mara lions are relatively easy to see, we are doing this by involving the tourism industry directly in identifying all individual lions of the region. This approach not only avoids disturbing the lions through radio collaring or marking, it directly engages both visitors and lodges in conservation of their most important natural resource - the predators for which the Mara is internationally renowned.

2. In conjunction with the Mara Predator Project, WildiZe is looking to educate local communities, through the *Living with Lions* program. *Living with Lions* promotes coexistence of people and wildlife by reminding pastoralists of the cultural, ecological, and economic value of lions and other predators, and of their traditional livestock management methods that can be greatly increased in their effectivness at protecting cattle. The Mara Predator Project was started in 2008, with two goals: 1) Monitoring the long term health of the Mara lion population through involvement of the visitors and the tourism industry in identifying all individual lions resident in the region; and 2) a regional conservation education program to educate people on the value of predators and how to conserve them. WildiZe supports these efforts and is looking forward to further involvement moving forward.

WildiZe Commitment

WildiZe believes strongly that our efforts can have a robust and positive influence on reversing the decline of *panthera leo*, improving human understanding of these magnificent predators, and creating positive local interactions with Lions thus allowing for greater local participation and acceptance of the need for Lion conservation. The work we are undertaking today will have a tremendous impact now and in the future and the necessity is critical. More projects will be examined as we move forward but the need for cutting-edge solutions has to happen now.