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African Lion Rehabilitation & Release into the Wild Program

CCWA

ACT

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"If you know wilderness in the way that you know love, you would be unwilling to let it go.... This is the story of our past and it will be the story of our future."

Terry Tempest Williams

African Lion & Environmental Research Trust (UK)
39 St. James's Place
London
SW1A 1NS
United Kingdom

UK Charity Commission Number 1120572

African Lion & Environmental Research Trust (Zimbabwe)
11 Phillip's Avenue
Belgravia
Harare
Zimbabwe

African Lion & Environmental Research Trust (Zambia)
7th Floor, Godfrey House
Kabelenga / Longolongo Roads
P.O. Box 33066
Lusaka
Zambia

E: **info@lionalert.org**
W: **www.lionalert.org**

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Message from the Founder: Andrew Conolly…

My wife, Wendy, and I bought Antelope Park in 1987. There were already six captive lions on the property, and some of the females had cubs. To give the cubs some exercise Wendy and I used to take them out on walks into the Bush. We started to notice that they were showing behaviours that wild cubs would engage in, something that they could not do when they were in their enclosures, and the more they were out walking the more these behaviours would develop. It was from these observations that I started to think about whether it would be possible to rehabilitate these cubs back into the wild. I watched their natural instincts of stalking animals develop and I believed that these cubs could well survive in a wild environment; we just needed to encourage those natural instincts to develop.

In the following years major headlines appeared around the world in newspapers and various forms of the media about the decline in the number of the African lion and I started to look into it more and more.

What I realised is that we had a possible part answer to help save the lions of Africa.

We're dealing with something important here and it's not something that can be taken lightly, or rushed. It's something into which we need to put a lot of time, a lot of effort and a lot of research. We're sincere about what we're doing and are trying to offer a part solution to the problem in the decline in the number of the African lion.

As the release program developed I received emails from a number of experts in the field supporting the idea that the lions could be rehabilitated; that they could survive in the wild.

I began to think more about the wider implications of what we were doing and understood that if our re-introduction program was to succeed in the long term we would also have to look at the broader issues of habitat protection. Just releasing lions to offset those populations that are being eradicated through habitat encroachment, loss of prey species, illegal hunting and disease was not enough. As such, I founded ALERT in 2005 to develop the release program, but also to start thinking about how to offer solutions in habitat protection through research, conservation and community involvement.

Through much time and discussion we have concluded that only through real community participation in conservation does the lion, or any of Africa's wildlife, have a long term future. At the moment most communities receive little benefit from the wild areas around them and therefore many over-utilize those resources. If we can assist the African people to develop opportunities to improve their livelihood through sustainable use of those natural resources then those communities will have reason to make rational decisions to protect these wild areas. ALERT, through our developing community programs, is working towards practical ways to empower communities for the benefit of truly sustainable use of land.

A limiting factor in how far we have gotten in our various lion release, conservation, research and community programs has been finance. Up until recently ALERT has been totally funded through the partnership with African Encounter. The funds raised by the lion walks and associated voluntourist programs operated by African Impact have been ploughed back into the program to develop the various projects. The legal structures in place in Africa to confirm release sites for the lions also make for a very lengthy, but necessary process. Finally the areas in which we release the lions must be acceptable; must be the right environment for the lions to survive in. We've got to find those right areas and that also takes time and research; we have already made great progress in finding such areas.

Our program is not something that can happen overnight, it will take considerable time, energy, funds and research but I believe that we are providing real answers to the ongoing problems facing Africa's wildlife.

"*There is probably no other species whose distribution range has shrunk over historical times to the extent shown by the lion*" (Smithers, 1983)

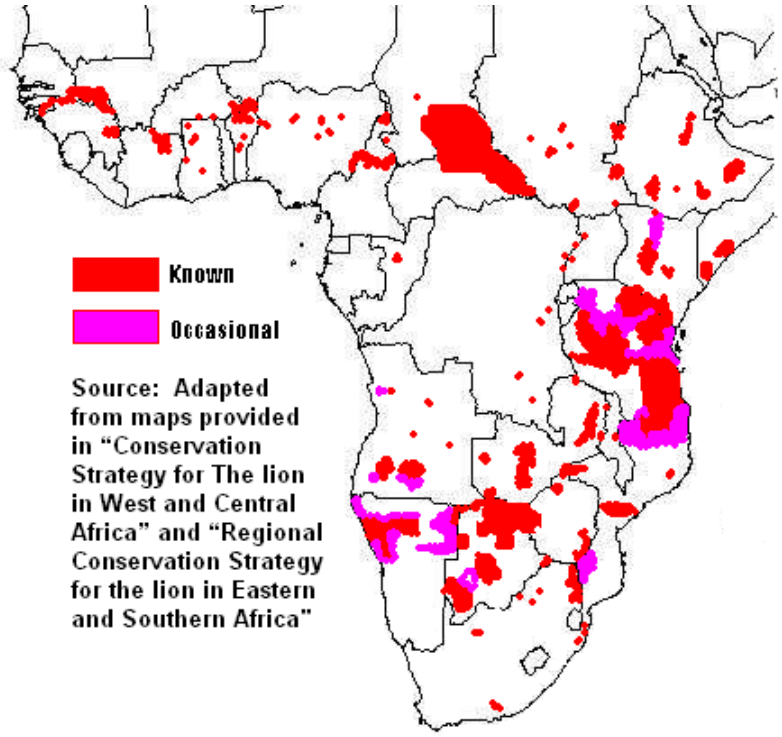
Why Act Now to Save the African Lion..?

Historically, lions were distributed throughout the Mediterranean, the Near & Middle East as far as India, and all of Africa. They were eliminated from their last European strongholds in Greece by 100 A.D. but survived until the 20th century in Syria, Iran and Iraq. The last lion in Iran was shot in 1942. The Asiatic lion sub-species now only exists as a population of around 300 in and around the Gir Forest of north western India.

In Africa, the last wild Cape lion of South Africa was shot in 1865; the last Barbary lion of Northern Africa was shot in 1922. Reduced numbers of lions are still present north of South Africa and Namibia and south of the equator. North of the equator they are found in a narrow belt south of the Sahara Desert on the western side, extending south to link with the southern hemisphere population on the eastern side of the continent.

Lions (*Panthera leo*) are listed as Convention of International Trade in Endangered Species (CITES) Appendix II and are regarded as 'vulnerable' by the International Union for the Conservation of Nature (IUCN) Red List [Version 3.1 2001].

Known and Occasional Distribution of the African Lion



"A species population reduction of 30–50% is suspected over the past two decades (three lion generations). The causes of this reduction are not well understood, are unlikely to have ceased, and may not be reversible. This suspected reduction is based on direct observation; appropriate indices of abundance; a decline in area of occupation, extent of occupation and habitat quality; and actual and potential levels of exploitation."

"Myers (1975) wrote, "Since 1950, their numbers may well have been cut in half, perhaps to as low as 200,000 in all or even less". Later, Myers (1984) wrote, "In light of evidence from all the main countries of its range, the lion has been undergoing decline in both range and numbers, often an accelerating decline, during the past two decades". In the early 1990s, IUCN/SSC Cat Specialist Group members made educated "guesstimates" of 30,000 to 100,000 for the African lion population (Nowell and Jackson 1996)."

"Two surveys have provided the first current estimates of the African lion population, with some ground-truthing. The African Lion Working Group, a network of lion specialists affiliated with the IUCN/SSC Cat Specialist Group, conducted a mail survey and compiled estimates of 100 known African lion populations. Not included were lion populations of known existence but unknown or un-estimated size. The ALWG African lion population estimate is 23,000, range of 16,500 - 30,000 [data collected in 2002 but not published until 2004]. The second survey was carried out by Philippe Chardonnet and sponsored by the International Foundation for the Conservation of Wildlife and Conservation Force. He also compiled estimates for 144 individual African lion populations, grouped into 36 largely isolated sub-populations. His methodology included extrapolation of estimates of known populations into areas where lion status was unknown, and his total figure is larger: 39,000 lions in Africa; range of 29,000 - 47,000." It is also thought that 43% of lions reside in only four populations in three countries and 45% of locations of lion prides have less than 70 animals (Bauer and Van Der Merwe 2004).

It is important to realize that these numbers are based on various categories of what can best be described as "guesstimates". Bauer and van der Merwe's data, for example, are about 70% based on some category of estimation. This is not surprising, as lions are difficult to count accurately. These large predators occur at low densities and individual recognition is difficult and relies on considerable photographic evidence and expertise. Several survey techniques are available but have been used in very few known geographic locations that lions still occur as they are both time-intensive and expensive. Despite such shortcomings, African lion numbers are accepted by most experts to be in sharp decline.

Area	Minimum		Maximum		Estimate	
	Bauer & Van Der Merwe, 2004	Chardonnet, 2002	Bauer & Van Der Merwe, 2004	Chardonnet, 2002	Bauer & Van Der Merwe, 2004	Chardonnet, 2002
West Africa	450	968	1,250	1,358	850	1,163
Central Africa	500	2,092	1,550	3,538	950	2,815
East Africa	8,000	11,268	15,000	18,811	11,000	15,744
Southern Africa	7,500	14,526	12,500	23,425	10,000	19,651
Total	**16,500**	**28,854**	**30,000**	**47,132**	**23,000**	**39,373**

"Like lion numbers, habitat for lions is also suspected to have declined over the past two decades. Since the 1960s, the human population, land cultivation and numbers of livestock have steadily increased (Ferreras and Cousins 1996, Chardonnet 2002). Myers (1975) suggested lion range to total two million square miles or 5,178,000 km², remarking that extent was likely only about half of lion range in the 1950s. The African Mammal Databank project estimated the lion's potential area of occurrence at approximately 10 million km², while noting that much of the most suitable habitat is fragmented and unprotected. The most detailed range calculation is Chardonnet's (2002) estimate of approximately three million km², with about half having some form of protection, from national park to hunting reserve. Overall, habitat for 18% of African lion populations is described currently as declining (Chardonnet 2002)."

"The increase of agriculture and pastoralism has reduced the lion's wild prey base. Lions can be serious problem animals when living alongside humans, as is increasingly the case. Lion predation on livestock is the main form of conflict. The economic impact of stock raiding can be significant: Patterson et al. (2004) estimated that each lion costs ranchers in Kenya living alongside Tsavo East National Park US$290 per year in livestock losses. The scavenging behaviour of lions makes them particularly vulnerable to poisoned carcasses put out to eliminate predators. Lions also kill people."

"**The lion is perceived by local communities as having negative economic value**, either through loss of life and livestock or through loss of income-generating opportunities restricted by protection of the habitat and wild prey lions need to survive. Because area-specific lion conservation measures have often been developed without consultation and active participation of local communities, their needs and capacities have not been taken into account, and there is a resulting **lack of support for lion**s" (Conservation Strategy for the Lion in Eastern and Southern Africa 2006). "Outside reserves, legal protection may have questionable value when it concerns a species that comes into conflict with people, often in remote areas with poor infrastructure. Under such circumstances, **legal protection may serve only to alienate people from conservation activities**."

Objectives of the African Lion Rehabilitation & Release into the Wild Program…

Given the recent, rapid reduction in lion populations across Africa it is ALERT's opinion that **habitat protection methods implemented at the cost of hundreds of millions of dollars over the last 30 to 40 years have so far failed the lion** and many other species. Further, as stated by the IUCN, "*the causes of this reduction are not well understood, are unlikely to have ceased, and may not be reversible.*"

ALERT fully believes in habitat protection for the long term sustainability of the species, and there have been some success stories to applaud, but given we are clearly failing the lion we believe that a range of solutions must be found before the lion becomes critically endangered. Those habitat protection methods that have worked in the past should be extended and ALERT, through our CCWA division, is already involved in this; funding anti-poaching units for example. With greater funding we will enhance our role in this area through education, research and working with communities to reduce livestock lion conflicts.

But **new ideas are necessary to compliment those existing methods if we are to have any real long term success** in habitat protection. ALERT, through our ACT program, supports the notion that **only through local community support can the lion, and other species in Africa, survive.** If the livelihood of communities bordering conservation areas is intrinsically linked to the health of that environment then the community will have reason to protect it, motivated by Africans to the benefit of Africans.

But can the lion wait for us to get habitat protection right? Will the numbers be so low; populations so fragmented and genetic diversity so narrowed within the next 20 years leaving the species in crisis? We, as well as many others believe there is a very real possibility of this nightmare scenario.

ALERT therefore feels it is our responsibility to provide a solution to the problem of how to reintroduce lion into areas that need them when that need arrives; and we feel that we should work on that solution now before it is too late. But where will these lions come from? There is a current belief that the protected areas in many African countries can either be re-colonized by remnant lion populations that still manage to exist, or can be augmented by translocation of wild lions from other areas. We believe that this is highly hopeful and considerably misguided. First, recovery from a small population of lions to re-colonize large areas will be slow and susceptible to many chance events. Second, given their drastic decline, there are few areas remaining that might be considered as sources for new colonists. And third, many wild lion populations are infected with diseases such as tuberculosis that would preclude involvement in reintroduction or reinforcement programs. Therefore, we are of the opinion that the **captive bred lions can be a viable option.**

There are many complications and potential dangers inherent in reintroducing lions back into the wild however; most notably the likely conflicts with humans and their livestock following release; this may be especially true of captive bred lions that might not have learned human avoidance characteristics of some wild lions. There are several reasons that have been put forward to explain why past predator releases have had limited success (Sharma 2005):

- the animals were not given pre-release training;
- their dependence on humans was not curtailed;
- they were released as individuals with no natural social system;
- and that they had no experience of predatory or competitive species.

The Lion Rehabilitation & Release into the Wild Program seeks to find a solution to these problems by using a four-stage program. The intention is to rehabilitate captive bred lions into a limited number of fenced wild environments (stage three), free of any human contact. These lions will give birth to cubs that will be raised within a pride social group in a natural environment such that they will have natural skills comparable to any wild born lion and can therefore be reintroduced into appropriate National Parks and reserves identified for their protection. There are those who believe that Africa has no future destinations for such lions. This is far from the truth. Angola, Mozambique, Zambia and Malawi are resurrecting their protected areas with a diversity of aid programs after years of civil strife and economic instability. Rural communities in those countries were often reduced to starvation unless they could utilize wildlife resources. As a result, there are now massive areas available for carefully planned wildlife reintroduction and eco-system revitalization programs. Such incentives will include the eventual reintroduction of major predators such as lions. Alongside this, our holistic approach to conservation will seek to ensure the sustainability of those reintroduced populations by understanding their environment and ecology better whilst generating support from local communities to protect them.

Message of Support…

Dr Pieter Kat has been involved in a diversity of scientific fields for the past 25 years. With degrees in marine biology, ecology and evolution from three highly regarded universities in the USA, he spent 10 years in Kenya establishing biological research programs at the National Museums. His work there included documentation of biodiversity in the African Great Lakes, genetic diversity among bovid populations in Uganda, Kenya and Tanzania, research on predators in the Masai Mara, and research on a variety of diseases likely to affect predators. He then spent two years at the University of California, Davis School of Veterinary Medicine and at the Center of Disease Control, Atlanta, Georgia, working on rabies virus genetics, African horse sickness and bluetongue virus among carnivores. He was invited by the Government of Botswana to independently study lion populations for 10 years and make recommendations on their conservation and viability. He is an author of over 60 scientific papers on such diverse subjects as taxonomy, ecology, genetics, reproduction and paleontology.

Dr Pieter Kat is a consultant ecologist to the African Lion Rehabilitation & Release into the Wild Program.

"There is no doubt that a very significant decline in lion populations has occurred over the past 20 years, and that the decline is continuing today. This decline has perhaps largely resulted from loss of habitat and problem animal control, but there can be no doubt that trophy hunting has also greatly contributed to the overall loss of lions. This is clearly evident from CITES export figures.

Despite the alarming statistics, CITES, the UN, and other world conservation bodies have remained at best complacent to the predicament of African lions. A recent conference [2006] in South Africa on the status and conservation of lions organized by the IUCN Cat Specialist Group amongst others, called for further research on lion population numbers in Africa, consideration of threats such as human/livestock conflicts, and stabilization of populations in protected areas. Despite the drastic decline in continental lion numbers, conference participants did not consider a need for increased levels of protection for lions through international and local legislation.

I therefore believe the future for lions is in African hands. If the international community does not offer considered support, I suggest we come up with our own solutions. If governments continue to seek income from trophy hunting at the expense of wildlife resources it is up to us to prevent such greed. If numbers are going to be disputed by different groups, let governments step in and ask dispassionate experts to determine how many lions remain in their countries, and then justify off-take on a sustainable basis. Let these same governments decide where they want lions,and, once that decision is taken, vigorously protect these populations.

It is also up to us to come up with positive solutions to reverse the loss of lions. I believe we can do this by promoting directed research on disease threats and wild lion reproduction. Contrary to popular belief, some of the most basic aspects of lion biology are not even partially understood. In addition, **we can begin programs of lion reintroduction in a wide variety of depopulated areas. Such programs will not only be immediately positive, but will also place lions squarely in the category of animals like rhinos whose plight seems to be better appreciated by the international conservation community.**

This is why **I am appreciative and excited to be involved by the initiatives taken by Andrew and Wendy Conolly**. Through years of self-funded and determined effort, they have developed a program of re-introduction that has a very good chance of success. Predators of any description are notoriously difficult to reintroduce, but **now we have at least a workable plan.**

As I said, the future of African lions is in African hands. Let us salute those who have been steadfast to ensure this future, and recognize that any action is better than the currently looming extinction of an African icon if we do nothing."

African Lion Rehabilitation & Release into the Wild Program

Stage One (Rehabilitation Phase One)

Cubs born in our breeding centres are removed from their mother at three-weeks old. Our experience indicates that this increases the survival chances of cubs, and is a practice used by most captive breeding programs among carnivores.

We take the place of dominant members of their pride and train them only to the point that they are safe for us to walk with. This enables us to take groups from six-week old cubs into the Bush as often as possible with experienced handlers. The lions are given every opportunity to build their confidence in their natural environment both during the day and at night. As their experience grows they start to take an interest in the game species they encounter on the walks and by the age of 18 months are able to stalk and bring down many of the smaller and young antelope.

By two-years old the lions are seasoned hunters, and we give them plenty of opportunity to hone their hunting skills.

Stage Two (Rehabilitation Phase Two)

In stage two the lions are given the opportunity to develop a natural pride social system in a minimum 500-acre enclosure. They have plenty of game to hunt, and their progress is monitored closely; however all human contact is removed. Lions remain in stage two until such time that the pride is stable and self-sustaining.

Prior to release into stage two some, if not all, of the lions are radio-collared and all are micro-chipped for identification, DNA and disease tested and vaccinated.

Stage Three (Rehabilitation Phase Three)

In stage three the pride from stage two is translocated into a managed eco-system of a minimum 10,000 acres, where:

- there are no resident human beings;
- there are sufficient prey species to hunt;
- and there are competitive species such as hyena.

The lions in stage three will give birth to cubs, which will be raised by the pride in the managed ecosystem, which is very close to their natural environment. These lions born in stage three with all the human avoidance behaviours of wild lions will develop the skills that will enable their re-introduction into appropriate game reserves, conservancies and National Parks across the African continent.

Stage Four (Reintroduction / Reinforcement Phase)

In stage four lions born in stage three can be released into the wild in several natural social groups as required by the needs of the release area. We are able to provide:

- self-sustaining mixed gender prides;
- female only groups that can be integrated with existing wild prides using proven boma-bonding techniques;
- male-only coalitions to add natural gene flow to an existing wild population.

Credit & Debit card DONATIONS can be made by visiting www.cafonline.org and entering "African Lion" under the charity keyword search.

Alternatively, simply click on the CAF image below.

CAF

Stage One (Rehabilitation Phase One)…

Stage one of the program has been operating at Antelope Park in Zimbabwe since 1999, at Victoria Falls since 2005 and in Livingstone in Zambia since December 2008.

Breeding Program

Our breeding stock, made up of lions from Zimbabwean genetic stock, is held at Antelope Park, our current base of operations. Males and females are kept separately from a maximum of two-and-a half years-old to ensure no uncontrolled breeding takes place, and where possible (based on an individual lion's aggression towards others) the lions are kept in single gender social groups of two or more lions. Records are kept of the lions' origin and parentage, confirmed by **DNA testing conducted by Jean Dubach at the Chicago Zoological Society.**

Jean Dubach is a renowned expert in lion genetics and co-author of the research paper *Molecular genetic variation across the southern and eastern geographic ranges of the African lion* (2004).

We keep females at minimum breeding intervals akin to those of wild lions raising a litter to maturity, which is an average of 20 months with a range of 11 – 25 (Packer & Pusey 1987).

One week prior to "cubbing down" the pregnant female is placed on her own in a specially designed cubbing enclosure complete with a den. Here she will give birth and care for her cubs for the first three weeks of their life. This period allows the cubs the best start in life as they are able to take advantage of colostral secretions in the first few hours or days postpartum; gaining anti-bodies from the mother.

The cubs are removed so that they can bond to a human handler assigned to raise them such that they build enough confidence in their surrogate mother to follow them into the African Bush; a vital part of their pre-release training. The procedure is carried out by placing the mother, usually with food, back in her normal social group whilst the cubs are removed.

We have observed over the years that cubs are very quick to see a handler assigned to raise them as the dominant member of the pride and start suckling and playing with the handler in a completely relaxed way within a couple of hours; up to 18 hours if the cub is slow to accept a synthetic teat. The mothers appear not to be overly stressed by this practice and we observe their behaviour returning to completely normal in their usual social groups within 24 hours.

Care for the lions is carried out under the direction of experienced Lion Managers with veterinary care provided by our consultant vets; Dr Keith Dutlow, BVSc, MRCVS, and Dr Lisa Marabini, BVSc, MRCVS.

"The housing and care of the lions was assessed by the Zimbabwe National Society for the Prevention of Cruelty to Animals and found to be excellent. The ZNSPCA further concluded that the lion breeding program was highly ethical and extremely well managed" (from a report compiled by Dr. R.D. Taylor, Conservation Programme Director for the WWF Southern African Regional Programme Office (SARPO) 10th January 2005).

Regular inspections are conducted by the Zimbabwe Parks & Wildlife Management Authority and the **Zambian Wildlife Authority** to ensure standards are maintained and **Antelope Park is a member of PAAZAB, the Pan-African Association of Zoos & Aquaria,** which provides us with an ethical code to work by in the treatment of our animals.

When the breeding lions are around 10 years old the females will be spayed to avoid uncontrolled breeding and released into a wild area in our "soft release program". Given their time in captivity they will likely need supplementary feeding, but game will be available for them to hunt in the hope that they can live out their days as a socially stable and self-sustaining pride.





Lion Walks

Each set of cubs is cared for by an assigned handler implementing **over 20 years experience of raising lions by Antelope Park**. That handler will spend four to five hours per day with the young cubs (the rest of the time the cubs sleep) helping them to feed on a special milk formula devised by the program; assisting them learn to defecate; and providing a constant presence for them from which they gain security.

Cubs at this age will hide out in the same way that wild cubs will do, using the safe housing designed for them, coming out to suckle and play when their surrogate mother returns. It is through this constant interaction with the assigned guide that the cubs gain confidence in their "mother" meaning they will have the confidence to follow their "mother" into the African Bush to experience their natural habitat.

The cubs are taken out on their first walks at the age of six-weeks old; they are easily frightened and rely on the handler for a sense of safety. Shortly after other handlers are introduced to the cubs to simulate a wild mother introducing her cubs to the rest of her pride, but the surrogate mother is always present to give the cubs the security they need.

As the cubs get older and gain in confidence they are taken on longer walks, covering greater distances and introduced to further members of the "pride". It is through this careful bonding technique that the cubs are able to experience their natural surroundings, necessary for their pre-release training.

Like overly playful domestic dogs (though lions have bigger teeth and sharper claws), cubs need discipline to prevent them from injuring human handlers during their walks. The most effective and humane method is to administer a flick to the side of the muzzle whilst using the word "no" in an authoritative tone. Through this method the young cubs learn the limits of acceptable play behaviour with humans and soon understand the word "no" such that they will cease their play if the command is used. This is the only training that we give the cubs; all other behaviours are encouraged to develop through constant interaction with their environment, prey species that they encounter and through social bonding within their cub group.

When they are young the cubs are fed milk five times a day, but as they grow they are gradually weaned onto meat until they are on a meat-only diet by six-months old.

Tourists are permitted to join the lion walks when the cubs are six months old and again are treated by the lions as dominant members of the pride. In allowing this participation we are able to generate funds, thus eliminating the need for donor funding to operate stage one of the program, as well as raising finance for the later release stages.

"An assessment was undertaken jointly by a team comprising an independent consultant biologist and two members of the Zimbabwe Parks & Wildlife Management Authority. The team reported favourably on this rather unique and specialised activity and their assessment was generally supportive of "Walk with Lions"…

…WWF SARPO has no objections to operations of this nature, provided the principles and practices as developed and implemented by Antelope Park are adhered to."

(from a report compiled by Dr. R.D. Taylor, Conservation Programme Director for the WWF Southern African Regional Programme Office (SARPO) 10 January 2005)

Once we have sufficient cubs being born in stage three of the program to meet the demands in stage four, we will be able to scale down our stage one operation except to ensure gene flow within our stage three release areas.





Developing the Cubs' Natural Hunting Instincts

The cubs will often encounter game on their walks including small antelope such as duiker or steenbok, to the larger species such as wildebeest, zebra or buffalo. It is through repeated exposure to these prey species that the lions are given the opportunity to hone their natural hunting instincts. When the cubs are very young they will do little more than watch the game. Around the age of six-months old they make tentative steps towards the animals they encounter, and even make their first real efforts at stalking. Needless to say these early attempts are unsuccessful. By one-year old the cubs have enough confidence to give chase, and their stalking techniques are developing well. Around 15-18 months old many of the cubs are making their first kills, often birds, monitor lizards or small and young antelope.

Success at hunting is difficult for the young, inexperienced lions, especially during the day, however over the last three years the cubs have managed to make contact with many different animal species from guinea fowl to buffalo. Often the reason a kill is not made is that the cub is too small to bring down the size of prey it has jumped on; or lets its grip on the animal falter through lack of experience. The cubs on walks have managed to kill and eat over 30 animals in the past three years including warthog, baboon, wildebeest and even buffalo.

At around 18-months old the lions are retired from walks and begin to take part in our *Night Encounter* program. This was added to the program in July 2005 in order to give the cubs further opportunities to practice their hunting and therefore give them a higher chance of survival after release into stage two. We stay on a vehicle and use a red filtered spotlight to monitor the lion's progress.

In the wild, cubs aged between 18 and 24 months old will follow their mother and other dominant members of the pride and are led to game. Mostly they will watch the hunt from the sidelines, but gradually they will start to take part, usually unsuccessfully, as they practice their hunting techniques. As such, we find that our younger lions follow the vehicle and are led to areas where we know there is game. The lions then take over and try to hunt. As the lions approach two-years old, where, in the wild, they are now starting to separate from their mother's side, we find that our lions now lead the *Night Encounter*, with us following and are able to take larger game such as wildebeest. The *Night Encounter* takes place in 3,000 acres giving the prey species as much chance to escape as any wild animal.

From here on the lions take charge and we do our best to keep up. More often the lions will pick up scent to lead them to game and their technique in hunting improves as they have had a chance by now to practice on different species on many occasions. They are now more likely to make a kill away from any lights (red-filter) and vehicles and they are able to take down more challenging prey such as the fleet footed tsessebe or hartebeest, or the larger prey more likely to fight back such as zebra. Co-operative hunting techniques also start to become a part of their strategy.

Typically lions are taken out in groups of two to four. Depending on the age and size of the cubs we find some do best if not fed for three days before the hunt whilst others do better after six or seven days.

At the time of writing we have taken out 188 *Night Encounters* and have seen a successful hunt on 40% of those. On eight occasions during a hunt two animals have been brought down by different lions in the same hunt giving or in different hunts on the same night when the first kill was very small. Rabbits, duiker and steenbok are the most common prey for the younger lions whilst impala and wildebeest are most common for the older ones.

Although it is accepted that lions can learn to hunt without this pre-release training as used in our release protocol, typically, this takes place over time with the lions hunting individually at first as they are only able to capture prey of a size that would sustain that individual. Our release protocol is based on releasing prides and we therefore feel that pre-release training allows the lions to learn to hunt prey of a size that can sustain the whole pride immediately upon release, thus allowing for a greater chance of social bonding of that pride.

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CAF

From top right to bottom left:
Maxwell
Kenge
Luke
Muti
Phyre
Mampara
Ashanti

Stage Two (Rehabilitation Phase Two)…

Our first release into stage two took place on 29th August 2007 at the Dollar Block reserve in Zimbabwe.

Dollar Block is a reserve of 64,000 acres located between Bulawayo and Gweru in Zimbabwe. It is full of game including elephant, leopard and many types of antelope.

This reserve has a perimeter game-proof fence as well as an electrified inner fence around the diamond mesh fenced area where the stage two lions were released.

Prior to release the seven lions, two males and five females, were darted so that we could carry out necessary vaccinations and blood tests and then fitted with a radio-collar before being loaded into specially built carrying cages and transported to the holding enclosures at the release site.

On the morning of day four following release the lions made their first kill, an adult eland, and went on to successfully hunt down prey including warthog and impala.

Given the lack of competitive species in this part of the release program, the lions in stage two do not have the opportunity to scavenge; whilst wild lions achieve on average 6% of their meat intake through this practice. As such, from time to time, a carcass was placed so that the pride could discover it.

ALERT PRESS RELEASE

On the morning of 23rd October 2007 our research team discovered the body of Muti, one of our females in stage two of the African Lion Rehabilitation & Release into the Wild Program at the Dollar Block reserve in Zimbabwe. The two co-introduced males, Maxwell and Luke, were in the vicinity, and we presume that Muti's death might have been caused by an aggressive encounter. On the 28th of October Maxwell and Luke were witnessed attacking Mampara, another of the females. During the fight she seemed to have sustained only a single puncture wound to one of her back legs. Her subsequent death suggests that possible internal injuries might also have occurred.

This is a very sad moment for all the staff on the project who had worked with Muti and Mampara to prepare them for release, as early indications suggested they were doing very well at hunting and bonding with the other released lions.

We have extensively discussed this event with our expert consultants; Dr. Don Heath and Dr. Pieter Kat, to try and understand what may have caused this to happen. Although all seven lions seemed to be well bonded in the first weeks after release, the males had been seen starting to chase the females around. Such interactions also occur among wild lions; often after a pride takeover the new males will engage in such activity, but this rarely results in injury as the young females are faster than the males and can get out of the way. When a male can isolate a female however he will attempt to dominate, and such aggression in this case might have resulted in the death of two of the females. We, as well as other lion breeding programs, have experienced such mortality, although the causes of such events are often difficult to determine.

The principal objective of stage two was to release captive born lions back into a natural situation where they could entirely fend for themselves. This was achieved and the lions had started to successfully hunt prey species at the release site and could be considered competent hunters. This should be considered remarkable progress from the captive born cubs that they were. Our careful and dedicated programs have made this a reality.

Early indications were that the released pride was bonding well and behaving in a manner akin to a wild pride. As a result of these recent events we will give even more focus to research into sociality within release prides to ensure that males and females are socially compatible.

Reintroduction of intelligent animals with complex sociality is always difficult. We do the best we can with the information we have available. The reintroduction of wolves into Yellowstone National Park in the USA in 1995 was a similarly complex issue and not without problems and setbacks, although the introduced wolves were wild-caught in Canada. Lions are a species with a solitary heritage in an uncomfortable group situation. They are all individuals attempting to make their best way in a group.

We can only make assumptions as to why Muti and Mampara died - there are many complexities to this occurrence that might not involve male aggression per se. We continually review and refine our release protocols, and will do so again in continued consultation with Dr. Don Heath and Dr. Pieter Kat.

We have acknowledged from the start that this innovative, original and complex program would encounter setbacks. We have no ability to incorporate advice from concurrent or past programs. We are pioneers, and accept all responsibilities associated with that designation. As the lions attain their skills, so will we. ALERT is ultimately dedicated to the conservation of this magnificent species. All beginnings are difficult, but we will dedicate our adaptive and considered energies to succeed.





From top right to bottom left:
Milo
Kenge, Phyre & Ashanti
Athena
Nala
Narnia

A decision was made to remove Luke and Maxwell back to holding enclosures at Antelope Park and to add three females to the existing pride of Phyre, Ashanti and Kenge. Due to the onset of the rainy season this change was delayed until April 2008, during which time the three females at the site were allowed to continue to support themselves. They hunted successfully, even managing to bring down and kill an adult female giraffe.

Following a period in the holding enclosures to bond Nala, Narnia & Athena to the existing females, the newly formed pride was released on 13th April 2008.

Additionally, as a result of the deaths of the two females in the first release we decided to amend our release protocol for stage two such that the females are released first and are given the opportunity to build a strong bond and social structure as well as to show proven hunting ability prior to the introduction of a male. Also, the male/s in question will be at least five years in age. The male (Milo) will be held in an enclosure adjacent to the release site and we expect that when the females are ready for him to be released we will observe a lot of interactions with him through the fence.

On the morning of day four following release, the pride was found in a mixed mopane and acacia woodland in the southern part of the release site having made their first kill – an adult wildebeest. and have gone on to become a fully self-sustaining and socially stable.

In the first week following release the pride remained as one unit for 61% of the time with an additional 22% of the time when at least five lions were together. In weeks two to six we observed the pride split into two sub-groups for c. 70% of the time based on the original lions led by Ashanti in one sub-group and the newly released lions led by Athena in the other. This mirrored the first release when the lions split often to explore their new area. In this second release it was Athena who led her sub-group away whilst Ashanti's sub-group rested presumably as Athena's sub-group were new to the area and had yet to investigate it fully. Both sub-groups hunted separately on many occasions during this period but with similar frequencies.

During week seven following release the pride re-formed and remained together more and more frequently until they were all together 90% of the time from week 14 onwards. Lion prides are dynamic social groups and members come and go, often for lengthy periods.

Ashanti was the clear alpha female during the first release and our studies show that she retained that position following the introduction of three more females. Given that Ashanti and Athena are sisters and are very similar in size it appears that Athena is also seen by the other pride members as a senior lion within the group. These two females, the largest in the pride, received significantly more attention from the "lower" pride members in social interactions and were significantly more likely to lead the pride when walking or hunting. However, it was also observed that Athena showed submission to Ashanti during social interactions between them and Ashanti would usually lead when Athena was present in the group leading us to conclude that Ashanti retained her alpha female role within the pride.

The pride were making successful kills – primarily taking wildebeest although impala and warthog were also hunted – every three to four days and achieved an average daily meat intake comparable with that seen in wild prides.

Having met the two criteria established for success in stage two, the next phase of the program is to introduce a male to the pride. In this case the male in question is likely to be Milo, although we have elected to give the six females a chance to choose for themselves between three males; Milo, Puma and Mickey. Through observations of the interactions between the males and females we hope to establish which of these males the females are most likely to accept into their pride. Preliminary results are confirming our expectations that Milo is the strongest contender.





Deteriorating economic conditions within Zimbabwe began to have a negative impact on our ability to properly service the monitoring program at the stage two release area and a decision was made in September 2008 to move the site to land adjacent to Antelope Park. The new site's location will have many advantages not least that we will be able to significantly increase the size of the release area by using the same amount of fence by removing the restriction on the shape of the area which was a limitation at the Dollar Block site. We will also be able to introduce better site design based on observations of habitat use by the lions in the Dollar Block release area.

The six females were brought back to holding enclosures at Antelope Park next to where the new release area is to be built and three potential males to be released with them were placed in an adjacent holding enclosure so that we can monitor the interactions between the groups and decide which one of the three males is the most suitable to be released with the females when the release area is complete.

While the pride's progress has had to be temporarily halted, Dollar Block can only be viewed as a success. During their time in stage two the pride lived independently for many months. And as the lions have learnt, so have we. The research conducted at Dollar Block has taught us much about lion behaviour, and in particular the complexities of lion sociality – the results from which have led us to review our release protocols and instigate a study among the stage one cubs in an effort to group future release prides with the best chances of social cohesion.

Land for a further stage two release area has been secured in the Dambwa Forest just outside the town of Livingstone in Zambia. The land is owned by the Zambian Forestry Commission and leased to ALERT (Zambia) through a Forestry Concession Agreement, signed on 10th August, 2006. The signing ceremony was attended by Mr. Andrew Conolly, founder of ALERT, along with members of the Zambian Forestry Commission, Wildlife Authority and the Zambian Ministry of Justice.

An Environmental Impact Assessment (EIA) was conducted following a public meeting at which local communities and other stakeholders were able to suggest areas of concern that should be considered during the EIA process. The completed EIA was submitted to the Environmental Council of Zambia (ECZ) in November 2007 for its consideration. ECZ gave approval for the program on 30th May 2008. Construction on the site will commence in early 2009.

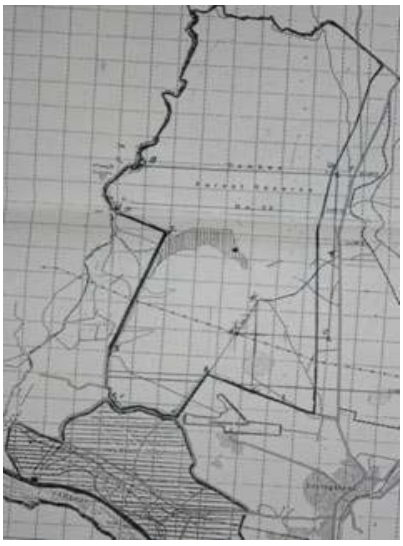
A number of other locations in various countries are currently under consideration as possible stage two release sites.

Stage Three (Rehabilitation Phase Three)…

In stage three the pride in stage two will be darted and moved into a larger area with a greater variety of game species, and more importantly, competitive species such as hyena will be introduced.

The pride will live out a near-wild life in the managed eco-system. This pride will give birth to cubs that will be raised within a natural pride social system, in a near-wild environment and free of any human contact. As such they will gain the skills and have the human avoidance behaviours necessary for their successful reintroduction into the unfenced wild of stage four.

If necessary, cub production in stage three can be controlled by the use of temporary contraception implants. To maintain gene flow within our stage three release prides, pride males can be regularly replaced by unrelated males from other release areas.



Land for a 10,000-acre stage three release area has been secured in the Dambwa Forest just outside the town of Livingstone in Zambia through a lease agreement and a Forestry Concession Agreement.

An EIA was completed and submitted to the Environmental Council of Zambia (ECZ) on 25th February 2008. ECZ made their decision to give the go ahead for the project on 30th May 2008. This is what they said:

"The ECZ has since reviewed the Environmental Impact Statement (EIS) and based on the information provided by yourselves and from written and verbal statements by interested and affected parties and our site verification inspection findings, we have approved your project proposal."

Statement by Mr C.M. Taulo, Principal Extension Officer for the Zambian Forestry Commission

The Department supports the project for the following reasons:

- Protection of forests against destructive human activities has been a very challenging task for the Department over the years and there is no success story to tell about it;
- The Department therefore sees this project as an opportunity to enhance forest protection and recovery – especially in that it has been proposed for a site that was already set aside for total protection and rehabilitation;
- The Department also sees, the proposed financial benefits to local communities as another opportunity to realize the objective of enhancing the forest's contribution to people's socio-economic welfare, one of the objectives of Joint Forestry Management Plan;
- The Department also notes that the project would have benefits to the nation through increased earnings from enhanced tourism products.

Other stage three release areas are currently under consideration.




Stage Four (Reintroduction / Reinforcement Phase)…

When old enough, the cubs born in stage three can be released in appropriate social groups into national parks and reserves that need them, and have been designated for protection.

In areas where there are no wild lions or where existing populations have been depleted leaving available territories we will be able to release mixed pride groups that will establish a territory.

Where existing prides exist we will be able to provide female-only groups that can augment the wild pride through proven boma-bonding techniques (Van Dyk 1997; Kilian 2005; Dros et al. 2005, Hunter et al 2007).

We will also be able to release male-only coalition groups into areas that will naturally take over prides from existing pride males, thereby bringing natural gene flow into other wise genetically closed populations.

We anticipate that our first stage four release will take place in 2011 – 12 and already we have received much interest from across Africa for these lions. Interest has come from private reserves to trans-frontier parks and from Mozambique to the Ivory Coast. As such we have every belief that wildlife managers across the continent are able to look into the future of the African lion and are making appropriate decisions to ensure the sustainability of populations within their areas.

It is accepted that prides released into areas of insufficient size to allow for long term genetically viable populations will need continuous management, as is already necessary for most of Africa's wild lion populations.

Prior to release into stage four, each potential release environment will be evaluated to establish likely success and confirm elements such as the most appropriate form of release, likely home range establishment following release and the prey base within the release area.

We will also look at the proximity of the release are to local communities such that appropriate ACT community programs can be implemented to mitigate possible livestock / lion conflicts, establish education programs and garner support for the wild area in question through various community development projects agreed as priorities with the local community.

Post-release monitoring programs will be implemented to judge the performance of the release pride and any effects on the release environment and local communities.

Credit & Debit card DONATIONS can be made by visiting www.cafonline.org and entering "African Lion" under the charity keyword search.

Alternatively, simply click on the CAF image below.

CAF

Holistic Approach…

The environment is shaped not just by geography and bio-physical factors, but also by socio-economic and political ones. ALERT takes a holistic approach to conservation recognizing that its actions must address all these factors if its programs are to achieve their aims.

"Rather than trying to simply ring-fence what wildlife remains, conservationists need to be restoring whole ecologies to something of their former glory."
Henry Nicholls

ALERT believes that assisting one species in isolation is unlikely to provide a sustainable future for that species; only by looking at the whole eco-system within which that species lives, and through understanding that species' interactions with that environment, can a lasting solution be found to the crisis facing Africa's wildlife.

The aim of the **Conservation Centre for Wild Africa**, CCWA, is therefore to be involved in; in-situ and ex-situ conservation and reintroductions of other threatened species; to engage in habitat protection activities; and implement or facilitate research that will assist in the creation of improved management plans to ensure a wild Africa for future generations.

"In the end, we conserve only what we love. We will love only what we understand. We will understand only what we are taught."
Baba Dioum, Senegalese poet

Through the **ALERT Communities Trust**, ACT, we support the notion that only through local community education and involvement in conservation can the lion, and other species in Africa, survive. If the livelihood of communities bordering conservation areas is intrinsically linked to the health of that environment then the community will have reason to protect it, motivated by Africans to the benefit of Africans.

In view of our holistic approach ALERT has established a variety of conservation and community programs around each of our African Lion Rehabilitation & Release into the Wild Program project locations.

Ambassador for Africa

The African lion is an iconic symbol of Africa; a powerful image that can draw attention not just to this keystone species, but can assist in raising awareness for lesser appreciated species, its environment and the people who live with it.

The African lion; an ambassador for all of Africa's wildlife and its people.

Appendix 1: Media Attention for the Program…

Since 2007 the program has received much attention from the media around the world. In November 2007 the article shown below was printed in **The Independent** newspaper in the UK (readership 745,000). A version of the same article also appeared in the **British Airways in-flight magazine, High Life**, during the month of December 2007. The magazine is provided in every seat pocket of every British Airway's flight globally.

During 2007 **Anglia TV** produced two "taster" films profiling the program. The intention is to film a one-hour documentary for a major wildlife broadcaster in the near future. We have received multiple requests to tell the story of the release program from production companies around the world including: **British Broadcasting Corporation (BBC), AdvanBridge, Southern Star Entertainment, KayeMedia** and **Oxford Scientific.**

Information and articles about the program and its work is featured on numerous web sites (e.g. **wildlifeextra.com, zoocrew.eu,** and **bbc.com**) and in numerous print media from around the world (e.g. **The Times** newspaper (UK) and **Skyways** – South African Airlink in-flight magazine). We have also featured in interviews on radio in a number of countries.

Walking with lions: How captive-bred animals can be returned to the wild…

Swallowing his fear, Richard Grant braves a very close encounter with big cats

It seems dreamlike, impossible. Armed with a stick and a few instructions ("Be relaxed, stand your ground, never show fear or panic...") I'm walking through the African bush with four young lions. Shoulders rolling, tails low, they look so menacing and magnificent, and so utterly capable of turning me into lunch.

This fear cannot be allowed into my mind. It will show in my body language and the lions will see it. They were born in captivity, reared by their handlers to think of humans as the dominant members of their pride. But they are opportunistic carnivores, and have an unerring ability to detect weakness and single out the easy target in a herd or group.

Two lions bound ahead, wrestling each other. Walking towards them, entranced by their play, I lose track of the dominant female as she drifts off then circles back. "Watch your back!" one of the handlers, Marvin, calls out. I turn. The lion is stalking me, head lowered, with that predatory look that the handlers call "cheeky".

I stand my ground and say, "No!" while Marvin distracts her. The look goes out of her eyes and she comes past me at a slow, nonchalant amble before flopping on the ground. "Has anyone ever been hurt doing this?" I ask. "Just the occasional scratch," replies Marvin. "You can pet her if you like." Following his instructions, I approach from the tail end, talking to the lion in firm but soothing tones, and start rubbing her vigorously on the back and sides. You don't stroke a lion gently. Their skin is eight times thicker than ours and a light touch can be annoying, like a fly on human skin. When she turns to play-bite my hand, I scratch on the ground with the stick to distract her. I give her belly a good rub and she stretches out, making a contented groan.

There are two places in Africa where you can walk with lions and both are in Zimbabwe, a country with the world's highest inflation rate, 80 per cent unemployment, and severe shortages of food and fuel under Robert Mugabe's controversial rule. I had misgivings about going there, but I didn't get so much as a hostile glance and I felt glad to be supporting the tourist industry and the Zimbabwe-based African Lion and Environmental Research Trust (Alert).

Alert is a non-profit organization which arranges the lion walks and it is championed by such supporters as Sir Ranulph Fiennes. It also works tirelessly for lion conservation, employing local people in the process.

Since 1975, African lion populations have declined faster than any other species on the continent. Illegal hunting, loss of habitat and disease have been the main factors. A 2004 report by the African Lion Working Group puts the lion population on the continent as low as 16,500 and decreasing, with many living in isolated, inbred and doomed populations.

Alert's main aim is to breed lions then release them into the wild. This was the idea of its founder, a Zimbabwean called Andrew Conolly, who inherited some lions and motherless cubs when he bought the Antelope Park game preserve near Gweru in the Zimbabwe midlands, 20 years ago. With his wife, Wendy, he started walking the cubs in the bush.

"It was amazing to see their hunting instincts develop," Conolly says. "It wasn't something they needed to be taught. All they needed was the opportunity."

Andrew is missing his left arm. It happened when he was still learning about lions and long before he founded Alert. One night he went down to his lion enclosure, acted "overly familiar" with them and was probably lucky to lose just his arm. However, he still loves them for the indomitable predators they are. If anything, it strengthened his determination to work for their future. But he knew it wouldn't be easy.


[image not from the original article]

Others had previously tried introducing captive-bred lions to the wild, almost always failing. The reasons were fourfold: individuals were released instead of prides; they weren't given the time and opportunity to hone their hunting skills; they were too habituated to humans; and they had no experience of competing with species such as hyenas.

Alert, in conjunction with a team of scientists, has come up with a four-stage program to help to rectify these issues. During stage one the cubs are taken from their mothers at three weeks. This may sound cruel, but mother lions are used to losing cubs, mainly because incoming males often kill all young under the age of one when they take over a pride, to bring the females into heat. Both in the wild and in captivity, these mother lions return to normal social activity within a few hours of losing their offspring.

After removing the cubs, Alert staffers bottle-feed and play with them, introducing them to meat, providing affection and discipline, and, at six weeks, beginning a regime of walks. It's during this period that tourists can help to walk the lions, their $100 fee helping to fund the program.

For me, walking with the cubs during this phase one stage started to feel familiar and comfortable. I learnt that the lions are lazy. Sometimes you'll only get 20 paces before they flop down. We may associate lions with courage but the cubs are afraid of water, heights, shadows and most living things that move. The main reason for the walking program is to build their confidence in the bush and to allow their hunting skills to develop. They practice on each other and sometimes on you, laying ambushes and sometimes bounding towards you in a kind of play-charge, at which point you have to raise your arms, say, "NO!"

Like domestic cats, they are much better at climbing up trees than climbing down. They hate being pinched on the back of the thigh. Their tongues are astonishingly abrasive, designed to scrape animal flesh from bone.

As the cubs grow older, human contact is reduced to a minimum; instead, the lions are let out at night to hunt. By the age of two, they are killing nearly all their food, operating as a pride, and are ready for stage-two release. This involves transferring a pride into a semi-wild ecosystem of no less than 500 acres; the lions are expected to sustain themselves by hunting. Then they'll be moved into a wilder stage-three area inhabited by hyenas, where they are removed from all human contact. It's the cubs born during this stage reared by a pride in the wild, with all their natural fear and wariness of humans intact which can then, it is hoped, undergo a stage-four release into national parks and other protected wild areas.

Until I arrived, the Alert program had not yet progressed past stage one, but eight other African countries had expressed interest in replenishing their lion populations this way. So it is on a hot sunny morning that I join about 80 people at the game reserve near Turk Mine, Zimbabwe, to watch the first stage-two release of lions into the fenced semi-wild ecosystem. Emotions are running high. "This has never been done," Andrew tells me. "No one has ever released a captive-born pride into the wild before."

"They look ready," says David Youldon, chief operating officer of Alert. The seven lions, five females and two males, pace their enclosure. The big male, Maxwell, has been in a fight with Phyre, an aggressive female, and both lions bear wounds on their faces. "Not so good for the cameras but normal," David tells us. "It's a hard, violent life being a lion." Sir Ranulph Fiennes, there to lend support, pulls back the gate's release bar and the seven lions pad out into their new 1,000-acre world. The crowd wishes the lions good hunting. Two tough-looking male handlers sob.

On day four, the lions bring down an eland, and it seems from all the blood on her face that Phyre did most of the killing. Two days later they bring down a warthog. The lions are doing as well in their new surroundings as anyone had dared hope. Perhaps the future of the African lion is not as fragile as it seems, after all.”

ALERT PRESS RELEASE

ISSUED JOINTLY BY ANTELOPE PARK, ALERT, AND SIR RANULPH FIENNES IN RESPONSE TO THE SUNDAY TIMES ARTICLE "AFRICAN LION ENCOUNTERS: A BLOODY CON," PUBLISHED ON 10th FEBRUARY, 2008

The article "African Lion Encounters: A Bloody Con," which was written by Chris Haslam, and published in the *Sunday Times* on Sunday 10th February, 2008, is full of inaccuracies. We feel that this article strongly misrepresents ALERT, a trust that is dedicated to ensuring the future of the African Lion, and Antelope Park, where the program is based.

The article claims that "as many as 59 lion cubs raised at Antelope Park have been sold to big-game-hunting operations to be shot for sport." No lion from Antelope Park has ever been, and never will be, intentionally sold for canned hunting. African Encounter is completely against canned hunting. Our freely available information clearly states this. A total of 39 lions have been sold by Antelope Park since the current owners acquired the property in 1987. Thirty seven of those lions were sold, in two groups, one in 1999 and the majority in 2002 to a captive centre in South Africa. There was a pre-condition on the provision of an export permit by the Zimbabwe Wildlife Authority that those lions could not be used for canned hunting.

Furthermore, the lions that were exported were to be monitored by the relevant wildlife authorities within South Africa to ensure that the provisions of the sale were upheld. Two further lions were sold to a private breeder within Zimbabwe, not associated in any way with hunting, in 2005. No other sales of lions have ever taken place.

The article also states that tourists and volunteers "are told that the lion cubs are being raised for release in the wild," and that "captive-bred, hand-reared lions have the potential to become man-eaters, and thus can never be allowed to roam free." At no time are any visitors to the project informed that the captive bred lions will be released into an unfenced area. We are fully aware of the fact that captive bred lions without a natural fear of humans can become man-eaters, and this is why this form of release has never formed part of the release program. All the information provided by Antelope Park and ALERT clearly states that the captive lions are rehabilitated into a fenced, managed eco-system, free of humans, where they will have offspring. These cubs are raised by the pride (stage three of the program), in a natural environment free of any human contact. They will therefore be able to be released into the wild with the same avoidance behaviours towards humans as any wild born lion.

Furthermore, the article states that Antelope Park employs tourists and gap-year students as guides. Antelope Park does not use fee-paying tourists or gap-year students as guides. These self-funded eco-tourists pay for the opportunity to work alongside our guides and lion handlers to further the conservation, research and community work that we undertake.

As a specific example of these eco-tourists, the article mentions "agencies such as Real Gap." David Stitt, Managing Director of Real Gap comments: "As market leaders in the gap break market, Real Gap's policy is to endorse responsible conservation programs. Antelope Park is an ethical, well-managed program. It is clear in all our correspondence with our volunteers that the lions that they work with are part of a captive program. Our volunteers do not have physical contact with those lions in the stages of the program where the aim is eventual release into the reserves and National Parks."

In addition, the Sunday Times article quotes two scientists, Dr Sarel van der Merwe and Dr Luke Hunter of the Wildlife Conservation Society, on the pitfalls of releasing lions into the wild. Antelope Park has actually received a letter from Dr van der Merwe advising us and supporting us on the work and research that we were doing. In an email that was sent on 12th June, 2004, he told us the following: "Generally speaking, the feeling amongst scientists is that captive bred lions cannot survive in a natural environment. I beg to differ. I have reviewed too many reports to the contrary…I believe one can rehabilitate the lions." Additionally, we have also received the following from Dr Pieter Kat, a senior lion expert, in June 2005: "…we can begin programs of lion reintroduction in a wide variety of depopulated areas. Such programs will not only be immediately positive, but will also place lions squarely in the category of animals like rhinos whose plight seems to be better appreciated by the international conservation community. This is why I am appreciative and excited to be involved by the initiatives taken by Antelope Park. Through years of self-funded and determined effort, they have developed a program of re-introduction that has a very good chance of success. Predators of any description are notoriously difficult to reintroduce, but now we have at least a workable plan. As I said, the future of African lions is

in African hands. Let us salute those who have been steadfast to ensure this future, and recognize that any action is better than the currently looming extinction of an African icon if we do nothing."

In August 2007, we released our first pride of lions into stage two; a managed eco-system where the lions have been successfully hunting for six months now. They have brought down prey from warthog to adult giraffe, which is a remarkable achievement from the captive cubs that they were. The ALERT and Antelope Park program is also involved in conservation of other species, research and community development in order to provide sustainable programs to the benefit of Africa's wildlife and its people.

With regards to the treatment of our lions, a letter we received from WWF Southern Africa Regional office (written on 10th January, 2005) following visits by independent ecologists, Zimbabwe Park And Wildlife Authority, and Society for the Protection of Animals, states that the Antelope Park program is "highly ethical and extremely well managed." Keith Dutlow BVSc, MRCVS, and Lisa Marabini BVSc, MRCVS, two vets we have been working with during the past two years, complied to this in a reaction to the article, stating that "as independent consultant vets to Antelope Park since February 2006, we can attest that since that time, no animal has ever been de-clawed, de-fanged, or drugged for entertainment purposes. Also, every lion at Antelope Park has been micro-chipped and no lions have been sold to other operators nor removed from the program under suspicious circumstances since our involvement."

Furthermore, according to the article, "[n]either the Alert program nor Sir Ranulph Fiennes could be reached for comment." Neither Antelope Park nor ALERT are aware of any attempts of the Sunday Times to contact them for information. In fact, the email below sent to us by Sacha Lehrfreund from the Sunday Times Picture Desk, on 6th February, requesting photographs was responded to immediately with an offer of furnishing The Times with details of our lion rehabilitation and release program, but no such offer was accepted. When no response was received, our marketing department placed a call to the picture desk on Thursday 7th February, but this was rudely dismissed. The paper's representative claimed to have no time to talk to us, and refused to transfer us to any of her colleagues.

From: Evans, Sara [mailto:sara.evans@sunday-times.co.uk]
Sent: Wednesday, February 06, 2008 1:46 PM
To: info@africanencounter.org
Subject: Walking with Lions - Pictures for the Sunday Times, London

Hello

We are running a feature in the Travel section about 'Walking with Lions' and I'm hoping that you could supply us with some photographs from Antelope Park, preferably of people walking alongside lions. We will of course credit your organisation. The article would appear on 10th February and we go to press tomorrow, so I'm hoping that you are able to help at such short notice.

I look forward to hearing from you soon.
Thanks
Sacha

Sacha Lehrfreund
Sunday Times Travel
Picture Desk

Contrary to the article's claims, Sir Ranulph Fiennes was never contacted by the Sunday Times either. His response to the article is as follows: "I am proud to be a small part of ALERT and I am ashamed of the uninformed Sunday Times article "African lion encounters: a bloody con" as an example of the worst type of libelous, inaccurate writing. This by a journalist bent on thrashing ALERT, a highly worthwhile body of individuals, black and white, in Zimbabwe whose sterling non profit efforts to protect the endangered African lion deserve praise not lies."

Anyone is free to visit Antelope Park to see for themselves how we operate, and how our various conservation, research and community programs are benefiting Africa. We feel that anyone wanting to make comment about the veracity of our aims should at least make an effort to find out about the program and read the freely available literature.

RETRACTION

The following retraction was printed in the Sunday Times following an investigation by the Press Complaints Commission on 6th April 2008:

"An article "African lion encounters: a bloody con" (Travel, February 10) said that as many as 59 lion cubs raised at Antelope Park, in Zimbabwe, had been sold to big game hunting operations to be shot for sport. We accept that the owners of the park never have and never will intentionally sell lions for "canned" hunting. We regret any impression that Antelope Park co-operated in the supply of animals for hunting."

Appendix 2: Relevant News Articles …

Tanzania Sunday News, November 2006

"A major international conservation group has warned that lions could soon become extinct in large parts of Africa. Lion populations of West and Central Africa are too small to be viable. Lions used to roam freely around much of the world. They died out in Europe about 2,000 years ago and disappeared from Northern Africa and most of South-West Asia 150 years ago.

Africa's largest carnivore is not generally considered an endangered species. But as agriculture spreads through West and Central Africa, lions are losing their habitat. Animals need huge tracts of land in which to hunt. Each male needs between 20 and 200 square kilometres to find food, but that sort of uncultivated space is disappearing rapidly. Lions are also being killed off by poisoning and hunting, which is still legal in some countries. Lion populations have fallen by almost 90% in the past 20 years, leaving the animal close to extinction in Africa.

There are now only 23,000 left, compared to an estimated 200,000 two decades ago. The only hope for lions and other predators is for humans and wildlife to live together. It's not just lions. Populations of all African predators are plummeting. The wild dog population has fallen to between 3,500 and 5000 and there are now fewer than 15,000 cheetahs. People know about elephants, gorillas and rhinos, but they seem blissfully unaware that these large carnivores are nearing the brink...In order to avoid inbreeding, which can lead to damaging genetic weaknesses, each lion population should contain at least 500 animals. But the largest populations in West & Central Africa have c. 200 lions, and most have only about 50.

Lions are at the top of the food chain, and biologists have warned that if the big cats became extinct this could have a serious knock-on effect, with other species of animals coming under threat…

…Zoos are more and more becoming a safe holdout for predators. Far from the caged showcases they used to be, modern zoos seek to preserve and strengthen the bloodlines of the animals they care for. Many zoos try to keep their animals on tracts of land that resemble their natural habitat...There is a long way to go with lions, though, in terms of building population reserves of known bloodlines. Unfortunately, some of the efforts by the largest zoos has been nearly self-defeating due to an over bearing requirements for 'sub species purity' they have taken it too far the other direction).

The day may come when we will rebuild natural populations from zoo animals…The sad truth, however, is that suitable habitat for the African lion is disappearing; and we may someday only have captive lions…

…Another emerging resource in the battle to preserve the lion for posterity is the private animal owner. Although certainly not common place, there are quite a number of private individuals who raise big cats for a variety of purposes. Their expertise often exceeds that of large zoos. In fact, a substantial portion of lions captive genetic potential lies among these people, and the day must came when the large and the small facilities join together in preserving the captive genetic diversity of the African Lion.

One problem with private ownership is that there are occasional situations where a lion or other big cat is abused, or is improperly caged, allowed to escape, injures or kills someone, etc. It needs to be recognized that this is not the rule with these people, but the exception. Unfortunately, animals rights groups and the media tends to blow incidents involving big cats way out of proportion in their goal to either ban ownership of all animals, or to sell newspapers. The damage that is being done to responsible owners by these actions must be recognized and stopped.

London Daily Telegraph, 15 September 2003

"MAN DRIVES KING OF THE JUNGLE TO BRINK OF EXTINCTION. Lions are frighteningly close to extinction, wildlife experts warn today. Twenty years ago, 230,000 lions roamed Africa, but today only 23,000 remain, many of them harbouring feline AIDS and bovine tuberculosis.

Dr Laurence Frank, a wildlife biologist at the University of California warns that populations of all African predators are "plummeting" but say lions are particularly threatened. His findings, published today in New Scientist, which warns that 23,000 is a "shockingly small number" are backed by Tricia Holford, the campaign manager for big cats at the Born Free Foundation.

Dr Frank says that until recently, no-one had noticed the population crash in lions. Although they appeared to be thriving in reserves; once outside the parks they often attack livestock and have been decimated by ranchers, farmers and hunters. A study in the Laikipia region of Kenya found that a lion attacks livestock worth 200 pounds a year on average, equivalent to one cow or three sheep. With better husbandry, solid gates and fences and a night guard, losses can fall. But Dr Frank says "bullets and poison are always cheaper than good husbandry"…

…Miss Holford of the Born Free Foundation said that with such small populations in reserves, male lions frequently failed to find new prides with which to mate…

…Dr Frank believes that if lions are to survive, there must be healthy populations living outside the parks. "The problem is not so much that predators kill people but that they kill livestock."

He says that in the Laikipia Predator Project, ranchers put up with lions attacking their livestock because they are an attraction for tourists. It is the only place in Kenya where wildlife in increasing. "Almost everywhere else big carnivores have had it already." Dr Frank says "In Africa, it's not too late to save the situation."

MSNBC News, 12 June 2008

Conservationists raised the alarm Thursday that lions in Kenya's Amboseli National Park face extinction within a few years unless action is taken to help them.

"The situation has reached a critical level," said Terry Garcia, executive vice president at National Geographic Society. "Unless something is done immediately, there will be no more lions in this part of Kenya, which would be a tragedy."

Fewer than 100 lions are estimated to remain in the 2,200-square-mile region at the base of Mount Kilimanjaro on the Kenya-Tanzania border, the society said. Lions are a major attraction at Amboseli, a popular visiting spot for tourists.

A major reason for the decline of the lions, researchers say, is spearing and poisoning by local Maasai, whose society depends on raising cattle.

"Tensions have always been high between Maasai tribes and the lions in this region where the economy is cattle-dependent," said Dereck Joubert, a National Geographic Society conservationist in Kenya. "Maasai depend on cattle to survive. They view themselves as stewards of the cattle. When their animals are killed, their solution is to get rid of the lions. We need to be able to immediately compensate the Maasai for cattle losses in order to stop the killings."

Compensation for cattle losses

National Geographic announced it is making an emergency grant of $150,000 to the Maasailand Preservation Trust to support a compensation fund for herdsmen whose livestock are killed by lions in and around Amboseli. It will also raise additional money from the public for the program.

Such compensation plans have succeeded in other areas, according to the Kenya-based conservation group Living with Lions.

Between 2003 and 2007, a total of 63 lions were killed in properties owned by the Maasai, Kuku Group Ranch and Olgulului Group Ranch, said Laurence Frank, director of Living with Lions. "On Mbirikani Ranch, where compensation began in 2003, only four lions were killed due to predator-livestock conflict during the same period."

Frank said that in 2006 there was a sharp spike in killings in Maasailand. "Two years later, rates are not as high, but the killings continue to be bad enough that if something is not done immediately, we will see these lions go extinct locally in just a few years."

"It is hard to imagine this part of Kenya devoid of lions and the deep lion roars that so symbolize the savannas," added Joubert.

In a statement, the society also noted that lions are sometimes the victims of ritual killings by young Maasai men. "Slaughtering a lion remains a rite of passage for some Maasai warriors, who test their prowess with spears," the society said. "The ritual involves cutting the tail off the slain lion and then visiting seven villages to dance with the tail in an effort to impress the women."

"Thankfully, as a result of educational programs in the region we have started to see instances of the ritual being rejected," Bonham said. "When the warriors arrive at a village, they are being sent away."

Lion body parts sold to tourists

But lions are also being killed for at least two other reasons.

"Sadly, in the last two years we've also started to see lion claws and teeth sold on the black market to tourists," said Bonham.

And Frank noted that "lions also are killed to garner attention from the outside world. "If the Maasai have grievances that they feel have not been given the attention deserved, they will, in some cases, go on a lion- or elephant-killing spree, hoping this will make the authorities take notice and address their concerns."

That happened in the early 1990s, the society stated, when Maasai completely eliminated lions from Amboseli National Park. "In that instance, the animals were able to come back over time with the help of lion populations from neighboring areas," the society said.

"If we allow lion populations to drop too low in Maasailand, the difference this time is that there is no source of replenishment from surrounding areas, which would make the future of the Maasai lions today much less certain," said Frank.

Zimbabwe Chronicle, Thursday 19 August 2004, Elliot Siamonga, Environment Reporter

"Kenya has launched a fresh bid for the up-listing of the African Lion from the Convention on International Trade in Endangered Species (CITES) Appendix II which allows hunting, to Appendix 1 which bans sport hunting and places them under international protection. Kenya cited as one of the reasons, the fact that lions were now facing extinction due to disease and over hunting…… Kenya has also cited many factors supporting the ban, including the outbreak of the canine distemper and feline immune deficiency virus (FIV) in the lion prides in Southern Africa."

Tanzania Sunday News, September 2006, Gulamabbas Mohammedali

"LIONS in Serengeti national park were in grave danger from diseases that originated in dogs living in surrounding villages. One-third of the entire population of lions in the park had died from canine distemper from 1994 through 1997. Other predators such as silver - backed jackals, bat eared foxes and the very rare African wild dogs were also dying from the disease. More than one thousand lions in the Serengeti had died from canine distemper since 1993. Dogs pass the disease to hyenas who then act as the primary carriers of the disease because they travel long distances and mix with other predators at kills…

…The effects of canine distemper are brutal. The fatal neurological disease is characterized by grand mal seizures. Stricken animals can suffer for days, weeks or even months before they finally succumb or are eaten by other predators.

This is not the first time a disease has spread from domesticated animals to wildlife in the Serengeti region. In the 1940s, a disease called rinderpest spread to wildlife from cattle and killed thousands of wildebeests and gazelle. Rinderpest was brought safely under control through cattle vaccinations, but the threat from canine distemper and rabies are still very real.
"Another outbreak of disease could devastate wildlife populations." It could also endanger human health. If rabies were to spread to wildlife in the Serengeti, the results could be catastrophic…

…lions in the Ngorongoro crater have been knocked severely by several bouts of acute disease over the past 40 years. Between 1994 and 2001, outbreaks of canine distemper virus had kept the lion population low, with numbers dropping to just 29 individuals in 1998…

…There are probably enough prey animals like buffalo in the Ngorongoro crater to support about 120 lions. But at various times over the last 40 years lion numbers have dropped well below that and in the last 20 years there have rarely been more than 60 in the crater. It is believed that disease is the biggest culprit in this population dip.

In 1962, the crater lion population crashed from about 100 to 12, which coincided with an outbreak of blood sucking stable flies. After this severe knock, the population climbed again, to reach over 100 by 1975. Lion numbers then simmered away at fairly stable proportions until 1983, when they went into decline again reaching a low point of 29 individuals in 1998. "Diseases appear to be the only factor that has held the crater lion population below its carrying capacity for the past 20 years."

Although any disease can threaten lions, canine distemper virus (CDV), which normally affects dogs, has been a particular menace to the big cats. The cause of the increase in level of disease is not known….Disease outbreaks could be exacerbated by climate change. In the last 20 years East Africa has suffered many more droughts and floods, which seem to coincide with bouts of disease…

…The 1962 (stable fly) plague coincided with heavy floods that immediately followed severe droughts in 1961, and the 2001 CDV epidemic followed the drought of 2000. Whatever the causes of the diseases outbreak, they put the fragile population of Ngorongoro crater lions at serious risk. Endangered populations could remain at serious risk even with a large, stable food supply and no real threats from competing species. Unless rural Africans benefit far more from ecotourism the "shocking" decline of the continents remaining lions will continue. Fewer than 20,000 lions may now survive in the whole of Africa, though they do not face immediate extinction."

Appendix 3: Animal Husbandry Protocols…

The following has been developed by Antelope Park from over 20 years experience and adapted using the "Guidelines / Specific Concerns for Hand Rearing Carnivores" as prepared by the Zoological Society of San Diego.

No two sets of cubs will follow the same timeline; however, this chronology gives a guideline that is adapted to the individual lion.

At three-weeks old:

The cubs are removed from their mother at three-weeks old. The mother should be coaxed into a neighbouring enclosure and rejoined to her normal social group; and all lions fed. The cubs should be placed carefully into a padded crate for their journey to the nursery enclosure. Picking up the cub should be done by holding it by the scruff of the neck, which will automatically cause the cub to go limp. The cub should also be supported under its bottom with the other hand. The nursery enclosure must have been disinfected and thoroughly cleaned, removing all traces of previous occupants. A den should be created in the enclosure for them to rest in, and bedding placed inside to keep them comfortable.

It is important that the area around the nursery enclosure be kept quiet so as not to scare the cubs. They will sleep a lot in the first few days and should never be woken if asleep. Avoid quick movements and DO NOT PICK UP unless absolutely necessary to do using the method described above. Do not wrap them in towels and blankets as they can get too warm which will cause their fur to fall out.

One handler should be assigned to raise the cubs who will act as a surrogate mother. It is from the confidence in their own safety whilst with their "mother" that will enable the cubs to experience their wild environment.

The first attempt at feeding using specially formulated milk should be at 2200h the day they are removed. They will likely only drink five or 10ml of milk if any at all. If they show no interest at all, leave the cubs for six hours and try again. Continue with a six-hour break between attempts until the cubs start suckling on the teat. It is acceptable to have them try and suck on your finger if it helps get them used to the idea of a teat. This practice must be stopped immediately they start suckling from the bottle.

At between three and six weeks:

At the start, they will not venture far from the den, but they will eventually start to explore the nursery enclosure. The guide assigned to raise them should sit with them during this time so the cubs can start to associate feeling safe when in the company of this person.

The cubs will start to increase the amount of milk they drink during feeds, and grow rapidly. Milk feeds at 0600h, 1000h, 1400h, 1800h, and 2200h. To start with, they will only drink around 20ml per feed, but this will quickly increase to 75 – 100ml. By six-weeks old, they should regularly be drinking around 150ml per feed. For the first week, the cubs will eat very slowly; it could take them up to an hour to drink 75ml.

They will drink small amounts at a time, have a rest, and then come back to it. As they get older, they will speed up and what they have not finished after around 20 minutes should be taken away. If they are able to keep coming back, they will learn that they can take their time about it and feeding will become laborious.

The cubs will need to be stimulated to go to the toilet for the first week until they can regularly go on their own. To stimulate a cub to urinate or defecate, rub your finger, or a warm, damp cloth, around the location you want them to excrete from. It can take up to 15 minutes for the desired response. If you get no response after 15 minutes, leave it for an hour and repeat the procedure. At this age they will urinate several times a day and defecate once every two or three days.

During winter when the nights are very cold, you can put a hot water bottle under the bedding in the den for them to sleep on; this will simulate their mother's body heat. The bottle must be insulated from direct contact with the cubs' skin as it could easily burn them.

Use a soft brush to groom the cubs, and also wipe them with a warm, damp cloth, which will simulate their mother licking them.

At six- to nine-weeks old:

The cubs will now be growing quickly and becoming more social; they will also start to follow the assigned handler around the nursery enclosure. You can begin the first walks with them. They will be easily frightened, but mixing your calls to them between calling "come cubs" and mimicking their own calls, you should find that they follow.

Other guides and handlers should also be introduced to the cubs to simulate the cubs being introduced to the other members of the pride.

Once their front teeth have erupted introduce meat in mince form. Some milk can be added to this to help them with their new diet.

Milk feeds at 0600h, 1000h, 1400h & 2000h. Milk and mince feed at 1800h. As the cubs grow, every time they drink all their milk on each feed for a couple of days, the milk amount should be increased at 25ml intervals. By nine-weeks of age, they will be drinking around 200ml per feed.

The mince content should start with around 125g mixed with 75ml of milk, the meat can be increased if the cubs do not look too "round" after eating, and the milk should be removed after a week.

The cubs will spend less and less time in the den and when they regularly sleep at night outside it can be removed.

At 2 – 4-months old:

The cubs should be walking daily now, and still getting plenty of social interaction throughout the day.

At two months old change the feed to milk feeds at 0600h, 1000h and 1800h and meat feed at 1200h. As before, as the cubs regularly drink all of their milk, the amount can be increased up to 300ml per feed.

After the eruption of the back teeth, the mince feed should be replaced with meat, starting with shin meat. The amount of meat a cub should receive per day is roughly the size of the cub's head. To start with, cut the meat up very small and on each feed, increase the size of the meat until they are able to handle whole chunks by learning how to use their dew claw. This may take up to a week to achieve.

The cubs are used to eating meat pieces that are small enough to swallow whole. As we move them on to larger pieces of meat it is possible that the cub may choke on it to start with as they try and swallow too much at one time. If this happens, hold the cub with one hand under the chest and firmly slap the cub with an open palm on the side of their chest to release the blockage.

At four-months old change the feed to milk feeds at 0600h and 1800h and meat feed at 1200h

At 5 – 7-months old:

This is a very important time in the cubs' life. They grow significantly and are becoming increasingly bold. Getting the lions out into the bush as much as possible is vitally important but they also need a lot of discipline to ensure that they do not try to play with people in such a way that could cause injury. During this time, they are also weaned off milk by gradually dropping the milk feeds in their sixth month whilst increasing the meat feed size accordingly.

At six-months old the meat feed should be changed to once every two days and the cubs should be moved to an enclosure located within a wild environment.

At eight-months old the meat feed should become every three days and the size adjusted accordingly. The feeding schedule should be reviewed regularly as the cub grows, taking into account what animals they kill for themselves.

Bedding

Regular checks should be made of the bedding provided to eliminate potential hazards. Strings or small holes in bedding can contribute to serious injury or death from strangulation.

Identification

Marking each young cub with a livestock marker can be done to eliminate confusion until their physical and behavioural differences are apparent, and make record keeping easier and more accurate.

Enrichment

Throughout the lion's life it is necessary to provide age appropriate enrichment using natural materials for those times that the lion is in an enclosure and not on walks. Adequate space for exercise and exposure to sunlight are also important.

Feeding

After the initial bottle adaptation process, carnivores are usually vigorous when nursing from a bottle. If the hole in the nipple is too large they can easily suckle formula too quickly and inhale the milk into the lungs which may result in a serious and often fatal condition called aspiration pneumonia. The hole size should be large enough so as to not cause frustration, but small enough to avoid aspiration.

Always check milk is still ok and warm it through before feeding. Uneaten formula should be discarded. All equipment used in feeding should be thoroughly cleaned.

If you are having trouble getting the teat into the cub's mouth, slip it in the side of their mouth and move the teat to the front. It is likely they will start drinking once the teat is around the front. As they still have no teeth until around five-weeks old it is all right for them to chew on the teat at this age as this is what they would do on their mother to stimulate the milk. Their back teeth will come through at approx. two months and that is when they need to be taught not to chew by disciplining them when they do; their mother teaches them when they are no longer allowed to chew on her.

Overfeeding is perhaps the most significant risk. The guidelines for determining gastric capacity are 50ml of fluid per kg of body weight. Serious problems can arise when carnivores are over-fed. These include but may not be limited to the formation of excessive gas, diarrhea, vomiting, blood in the stool, gut stasis and painful bloat.

Cubs must be made to sit in front of you with their head raised when feeding. By holding the bottle very firmly at the end you can ensure that the cub stays in one place and avoids you getting clawed if they try to grab the bottle. Hold the bottle at an angle low enough so that the cub does not have to strain its neck up to feed. Some cubs do feed with their head to one side, and this is fine. Never feed a cub lying on its back or when holding it. If the cub moves from the position we want it to feed in, simply pull the bottle away, and hold it in front of the cub at the best position. The cub will soon learn that it has to sit in a certain way to be fed. If the cub starts to sit up too high, simply push the bottle towards them and down. They will move back into the position you want them.

Cubs often hold a paw up and will rest it on your hand or leg. This is fine as it is exactly what they would do on their mother when feeding. Should they bring their claws out however, you should slap the paw and say "no".

After every feed the cubs' eyes and face should be wiped down with a warm, damp cloth and then dried. Excess milk or meat on their faces or bodies will cause other cubs to lick them excessively and may result in a loss of fur as well as attracting biting flies.

Vaccinations

Vaccinations should be administered at appropriate times as recommended by the consultant vets.

Appendix 4: Veterinary Protocols & Health Prophylaxis…

The consultant vets to the program since February 2006 are Dr. Keith Dutlow, BVSc, MRCVS, and Dr. Lisa Marabini, BVSc, MRCVS.

Complete veterinary records are maintained by the vets on each individual animal using standardized formats. These records include microchip numbers, and all examinations, procedures and medications given. Records are to be kept for a minimum of five years after the death or transfer of an animal.

Routine protocols:

1. Permanent identification of all lions in the program to be carried out by placing a microchip subcutaneously at the base of the left ear.
2. All lions to receive vaccinations (including rabies) according to veterinary recommendations.
3. All confined lions to be de-wormed three times a year, alternating the active ingredient at each de-worming.
4. All confined lions to have their external parasite burden kept low by regular application of acaricide.
5. All lions to have frequent health inspections, with sedated examinations if veterinary problems present. Full diagnostic work-ups (including sending of samples to South Africa when necessary) and veterinary treatment to be given as necessary.
6. All confined lions to be fed a dietary supplement (Carnivore Mix) to supplement essential vitamins and minerals which may be deficient in the cuts of meat fed.
7. Females not intended for breeding to be spayed.

Protocol for animals destined for release:

1. Genetic sampling and screening to plan for inclusion in release program (i.e. prevent inbreeding).
2. Depending on the requirements of the region to which the lions are going, blood screens, and specific disease testing will be carried out where appropriate. Lions may have to be quarantined for 30 days prior to departure from Antelope Park, with blood (or other) tests performed at the beginning of the period.
3. Animals to be free of internal and external parasites (de-wormed and an acaricide applied) just prior to transport to new area.

Appendix 5: Enclosure Sizes…

Suitable sizes for enclosures to care for captive African lions (*Panthera leo*) have been put forward by many governing bodies. Some, such as the Zoological Association of America, suggest that as little as 22m^2 per animal is sufficient. More liberal suggestions have been put forward as follows:

"Adequate area should be provided for exercise, and as a guide the formula 1 square metre/kg body weight can be used as a minimum requirement." Source: D. G. Ashton and D. M. Jones, Veterinary Officer and Senior Veterinary Officer, Zoological Society of London, http://www.abwak.co.uk/cats.html

"Enclosure size for one or two medium animals should be 600 square feet [56 m^2] at a minimum. Enclosure size for one large animal weighing over 60 lbs [27kg] should be 1,200 square feet [110 m^2] at a minimum. Each additional animal requires an increase of 25% of the original floor space." Source: Big Cat Rescue's Exotic Cat Standards, http://www.bigcatrescue.org/exoticcatstandards.htm

Most regulatory bodies do not encourage the promulgation of minimum enclosure size regulations as all too often such rulings are taken as the sole criterion for the evaluation of enclosures, and as a result, other requirements for the maintenance of species behavioural integrity are either overlooked or ignored.

As at 1st February 2009 a total of 77 lions of differing ages were being held in enclosures at Antelope Park:

Total enclosure space in use	27,241 m^2
Average enclosure size in use	939 m^2
Average area per lion (all lions)	301 m^2
Average area per adult lion (4y +)	421 m^2

Based on the ages and weights of the lions currently in the program, on average our enclosures are:

256% larger than the suggested minimum by the London Zoological Society and 410% larger than those suggested by the animal welfare organization Big Cat Rescue.

Excluding two enclosures holding our very youngest cubs, the enclosure with the smallest area provided per lion is for a group of two sub-adult females in 92m^2 per lion whilst renovations to improve their permanent enclosure are undertaken. This temporary facility is 36m^2 smaller than that recommended for these animals by the London Zoological Society but 19m^2 larger than that recommended by Big Cat Rescue.

We have had an ongoing program to upgrade our facilities for some time now, building new and larger enclosures as funds become available.

We pay a lot of attention to behavioural enrichment. All enclosures include some form of enrichment for the animals such as trees to climb, for use as a scratching post or to provide shade, some have dens, ramps or other heavy duty toys designed to withstand play by a lion. In addition we regularly provide additional stimuli such as blood and meat frozen in ice blocks for them to lick, or the dung of species found in the Park to sniff and roll in.

The smallest group size in an enclosure is one animal. These are adult males that will not accept other lions. The largest group size is seven females aged two years old. The average group size is 3.1 animals in an enclosure.

Appendix 6: The Lions in the Program…

ALERT was founded in 2005 and at that time there were 51 lions in the program. A summary of the lions that have been in the program since that time is provided below:

	Opening Balance	Brought In	Sold	Born	Died	Closing Balance	Net Change
2005	51	3	2	7	7	52	+1
2006	52	6	0	17	6	69	+17
2007	69	0	0	10	6	73	+4
2008	73	17	0	0	2	88	+15
2009	88	0	0	5	2	91	+3
Totals		26	2	39	23		+40

Figures are correct as at 1st February 2009

Nine of the lions brought in to the program were given to Antelope Park from one owner in Hwange who was no longer able to keep them. Four were rescued from a farm near Bulawayo where they would have been shot unless sanctuary was provided. The remainder was bought from other breeders to bring new genes into the program. Two animals were sold, one male and one female, to another breeding centre within Zimbabwe in 2005.

Of the 39 cubs born into the program over this period six failed to thrive. Of the remaining 17 deaths: one choked on a piece of meat; two were hit by a train in Zambezi National Park, one died as a result of an ectopic pregnancy, one from several internal organ failures and five lions were killed during fights or as a result of injuries from fights with other lions. Seven lions have been euthanized; one suffered from leukemia, two due to complications as a result of a digestive deficiency, and four due to deformities developed in old age.

Location	Total Number	Status	Number
Antelope Park	77	**Breeding:** *Arthur, Casper, Chemma, Luke, Lulu, Maximus, Maxwell, Mickey, Mufasa, Praise, Puma, Sandy, Teddy*	13
		Stage One Walking: *Sahara, Soriah, Tsavo, Thulani, Tanaka*	5
		Stage One Night Encounter: *Acacia, Amandla, Amghela, Chabalala, Chaka, Chando, Chengeta, Echo, Etosha, Lina, Lisha, Lozi, Luangwa, Lungile, Mana, Masai, Msasa, Nandi*	18
		Awaiting Release into Stage Two: *Achillies, Amber, Amy, Apollo, Ariel, Big Boy, Chipo, Cleo, Elsa, Emma, Kwali, Kwezi, Landela, Langa, Lokothula, Ltalo, Mamba, Mambo, Melanie, Paka, Penduka, Phoenix, Zuva*	23
		Awaiting Release into Stage Three: *Ashanti, Athena, Kenge, Milo, Nala, Narnia, Phyre,*	7
		Awaiting Release in the Soft Release: *Alice, Anna, Cheeky, Ezulu, Mafuta, Nadia*	6
		Being Provided Sanctuary: *Lee-Lee, Lola, Nduna, Simba, Slwane*	5
Victoria Falls	4	**Stage One Walking:** *Batoka, Bhubesi, Sango, Swahili*	4
Livingstone	10	**Stage One Walking:** *Kela, Kwandi, Leya, Loma, Rundi, Rusha, Temi, Toka, Tswana, Zulu*	10

Figures are correct as at 1st February 2009. Designations are not fixed.

Appendix 7: Professional Code of Ethics…

1 PREAMBLE

1.1 Members of PAAZAB recognize the need to establish and implement a CODE OF ETHICS to regulate and improve the professional standards under which they operate. They recognize that any Member who fails to strive to meet, or ignores, or knowingly contravenes this code not only places their membership of PAAZAB or accreditation status in jeopardy, but will also bring disrepute upon the profession and the community of PAAZAB.

2 TRADE IN AND MOVEMENT OF ANIMALS AND PLANTS

2.1 All trade in fauna and flora (including import and export) must conform to international conventions and agreements, and to national and local ordinances. No animals or plants should be dispatched until the receiving party has confirmed that it is in possession of all necessary documentation to take delivery.

2.2 Members agree to subscribe to all relevant international conventions and agreements, to national and local ordinances, regarding the disposal, acquisition, transport, and re-location of animals and plants.

2.3 No member shall be party to deliberate misinformation, or the withholding of information, in order to promote and/or confirm trade in or movement of animals and plants, or to obtain the necessary permits for such actions.

2.4 Members agree not to knowingly trade in, donate, or otherwise transfer animals for the purpose of painful or distressing research.

2.5 Members agree to abide by local or national legislation in respect of the supply of exotic species for release on private land. Where this practice is legal, Members agree to responsibly consider all implications of this practice in terms of the conservation and preservation of native fauna and flora.

3 ANIMAL HUSBANDRY

3.1 Members agree to the highest possible standards of animal husbandry, veterinary care, and housing for their animals so as to ensure the application of the principle of the five freedoms of animal welfare listed as follows:

- Freedom from hunger and thirst by ready access to fresh water and a diet to maintain full health and vigor;
- Freedom from thermal and physical discomfort by providing an appropriate environment including shelter and a comfortable resting area;
- Freedom for injury, disease and pain by prevention or rapid diagnosis and treatment;
- Freedom to express most normal patterns of behavior by providing sufficient space, proper facilities and company of the animal's own kind, where applicable;
- Freedom from fear and distress by ensuring conditions and treatment, which avoid suffering.

Where local or national legislation on these matters exists, Members agree to conform to such legislation.

3.2 Members agree to make every effort to maintain the biological and genetic integrity of the taxa in their collection.

3.3 Members agree not to inflict any form of undue and unnecessary pain and/or stress on animals in the collection.

4 RESEARCH

4.1 The very special opportunities for ethical, scientific research that Member institutions offer to science are recognized. Members are encouraged to promote these opportunities, and, where possible, to establish their own in-house "Research Committees" to oversee such aspects as quality, value and progress of research.

4.2 Members agree to submit research proposals to their in-house, or regional ethics committee for approval prior to the commencement of such research and to submit progress reports as required.

5 CONSERVATION BREEDING PROGRAMMES

5.1 Where Members are able to participate in the ex situ breeding of species, for the purpose of release back into the wild, they should do so in partnership with local, national, or international wildlife or habitat/ecosystem conservation authorities or in accordance with the IUCN's Reintroduction Guidelines.

5.2 Members acknowledge the validity of formalized zoo-based co-operative and coordinated conservation breeding programs, including but not limited to, the African Preservation Program (APP) run under the auspices of PAAZAB.

5.3 Members agree to furnish all relevant information in a timely manner when requested to do so by the duly appointed coordinator(s) of such programs

6 ADVERTISING AND FILM MAKING

6.1 When Members are able to allow the use of their animal collections for the making of advertisements and films/videos, it is recommended that they proceed according to the following minimum requirements:

- proceed on a pre-concluded contractual basis, wherein the animal's keeper is present throughout and has absolute control over the deployment of the animal(s) on set, and can prevent or terminate undue stressing of the animal(s);
- where possible, a member of the institution's own Ethics Committee should be present as an impartial observer.

7 ANIMAL TRADE (amended June 2003)

PAAZAB accepts that breeding species may be critical to the well-being and survival of identified taxa, if bred in strict accordance with clause 3.2. Furthermore PAAZAB accepts that animals may from time to time be made available to institutions with similar ethics, or as may be directed by a valid permit issued by a relevant permitting authority, if required, to enhance the genetic profile of the species through breeding, or to extend a conservation message, which will be to the ultimate benefit of such species. PAAZAB accepts that in such circumstances monetary compensation may be received, and that under these circumstances the compensation is ethical

8 PET TRADE

PAAZAB may determine from time to time that the keeping of certain species of wild animals as pets is unacceptable.

9 TROPHY HUNTING

Members agree not to breed, supply or sell animals for the purpose of "canned" trophy hunting. In terms of this Code, herein defined as the practice of restraining or doping animals to be hunted.

10 RECORDS AND INVENTORIES

10.1 In the interests of good management and husbandry, all Members agree to maintain well-kept and pertinent records of the specimens they are holding in their collections.

10.2 When specimens are sold, transferred or exchanged, Members agree to supply the receiver with full correct and pertinent information about the specimen(s), from in-house records.

10.3 Members agree to annually provide full correct and complete information about their collections to the Coordinator(s) of the PAAZAB holding inventory(ies).

11 EUTHANASIA

11.1 Members agree that euthanasia is a management option, but the implementation thereof is subject to review by its in-house ethics committee.

12 APPLICATION AND ENFORCEMENT OF THIS CODE

12.1 PAAZAB will maintain a portfolio of Ethics on its Executive Committee, the holder of which will serve as the chairman. The chairman will appoint a Veterinarian and a SPCA representative or the equivalent, to the Committee. In the event it proves essential to the professional conduct of the Ethics Committee that another appropriate person(s) be co-opted onto the Committee for a particular investigation, the PAAZAB Executive Committee may consider such proposal(s) by the Ethics Committee.

12.2 When convened, this Committee will serve as an investigative body for alleged contraventions of this Code.

12.3 The PAAZAB Executive Committee will be responsible for activating the Ethics Committee, until such time as an alternative mechanism is evolved. Issues considered deserving of investigation under the terms of this Code should be submitted in writing with all supporting documentation to the PAAZAB Executive Committee, which shall decide whether such an issue is deserving of the attention of the Ethics Committee.

12.4 The Ethics Committee, when convened at the request of the PAAZAB Executive Committee, will investigate the matter and submit a report to detailing its findings and recommendations. The Executive Committee will examine the report, and decide whether or not the member is in contravention of this code by majority vote.

Appendix 8: IUCN/SSC GUIDELINES FOR RE-INTRODUCTIONS…

Release into stage four of the Lion Rehabilitation & Release into the Wild Program will follow the guidelines as laid out below:

INTRODUCTION

These policy guidelines have been drafted by the Re-introduction Specialist Group of the IUCN's Species Survival Commission, in response to the increasing occurrence of re-introduction projects worldwide, and consequently, to the growing need for specific policy guidelines to help ensure that the re-introductions achieve their intended conservation benefit, and do not cause adverse side-effects of greater impact.

These guidelines are intended to act as a guide for procedures useful to re-introduction programmes and do not represent an inflexible code of conduct. Many of the points are more relevant to re-introductions using captive-bred individuals than to translocations of wild species. Others are especially relevant to globally endangered species with limited numbers of founders. Each re-introduction proposal should be rigorously reviewed on its individual merits. It should be noted that re-introduction is always a very lengthy, complex and expensive process.

CONTEXT

The increasing number of re-introductions and translocations led to the establishment of the IUCN/SSC Species Survival Commission's Re-introduction Specialist Group.

It is important that the Guidelines are implemented in the context of IUCN's broader policies pertaining to biodiversity conservation and sustainable management of natural resources. The philosophy for environmental conservation and management of IUCN and other conservation bodies is stated in key documents such as "Caring for the Earth" and "Global Biodiversity Strategy" which cover the broad themes of the need for approaches with community involvement and participation in sustainable natural resource conservation, an overall enhanced quality of human life and the need to conserve and, where necessary, restore ecosystems. With regards to the latter, the re-introduction of a species is one specific instance of restoration where, in general, only this species is missing. Full restoration of an array of plant and animal species has rarely been tried to date.

Restoration of single species of plants and animals is becoming more frequent around the world. Some succeed, many fail. As this form of ecological management is increasingly common, it is a priority for the Species Survival Commission's Re-introduction Specialist Group to develop guidelines so that re-introductions are both justifiable and likely to succeed, and that the conservation world can learn from each initiative, whether successful or not. It is hoped that these Guidelines, based on extensive review of case histories and wide consultation across a range of disciplines will introduce more rigour into the concepts, design, feasibility and implementation of re-introductions despite the wide diversity of species and conditions involved.

Thus the priority has been to develop guidelines that are of direct, practical assistance to those planning, approving or carrying out re-introductions. The primary audience of these guidelines is, therefore, the practitioners (usually managers or scientists), rather than decision makers in governments. Guidelines directed towards the latter group would inevitably have to go into greater depth on legal and policy issues.

1. DEFINITION OF TERMS

"Re-introduction": an attempt to establish a species in an area which was once part of its historical range, but from which it has been extirpated or become extinct ("Re-establishment" is a synonym, implying that the re-introduction has been successful).

"Translocation": deliberate and mediated movement of wild individuals or populations from one part of their range to another.

"Re-inforcement/Supplementation": addition of individuals to an existing population of conspecifics.

"Conservation/Benign Introductions": an attempt to establish a species, for the purpose of conservation, outside its recorded distribution but within an appropriate habitat and eco-geographical area. This is a feasible conservation tool only when there is no remaining area left within a species' historic range.

2. AIMS AND OBJECTIVES OF RE-INTRODUCTION

a. Aims:
The principle aim of any re-introduction should be to establish a viable, free-ranging population in the wild, of a species, subspecies or race, which has become globally or locally extinct, or extirpated, in the wild. It should be re-introduced within the species' former natural habitat and range and should require minimal long-term management.

b. Objectives:
The objectives of a re-introduction may include: to enhance the long-term survival of a species; to re-establish a keystone species in an ecosystem; to maintain and/or restore natural biodiversity; to provide long-term economic benefits to the local and/or national economy; to promote conservation awareness; or a combination of these.

3. MULTIDISCIPLINARY APPROACH

A re-introduction requires a multidisciplinary approach involving a team of persons drawn from a variety of backgrounds. As well as government personnel, they may include persons from governmental natural resource management agencies; non-governmental organizations; funding bodies; universities; veterinary institutions; zoos (and private animal breeders) and/or botanic gardens, with a full range of suitable expertise. Team leaders should be responsible for coordination between the various bodies and provision should be made for publicity and public education about the project.

4. PRE-PROJECT ACTIVITIES

4a. BIOLOGICAL

(i) Feasibility study and background research
An assessment should be made of the taxonomic status of individuals to be re-introduced. They should preferably be of the same subspecies or race as those which were extirpated, unless adequate numbers are not available. An investigation of historical information about the loss and fate of individuals from the re-introduction area, as well as molecular genetic studies, should be undertaken in case of doubt as to individuals' taxonomic status. A study of genetic variation within and between populations of this and related taxa can also be helpful. Special care is needed when the population has long been extinct.

Detailed studies should be made of the status and biology of wild populations (if they exist) to determine the species' critical needs. For animals, this would include descriptions of habitat preferences, intraspecific variation and adaptations to local ecological conditions, social behaviour, group composition, home range size, shelter and food requirements, foraging and feeding behaviour, predators and diseases. For migratory species, studies should include the potential migratory areas. For plants, it would include biotic and abiotic habitat requirements, dispersal mechanisms, reproductive biology, symbiotic relationships (e.g. with mycorrhizae, pollinators), insect pests and diseases. Overall, a firm knowledge of the natural history of the species in question is crucial to the entire re-introduction scheme.

The species, if any, that has filled the void created by the loss of the species concerned, should be determined; an understanding of the effect the re-introduced species will have on the ecosystem is important for ascertaining the success of the re-introduced population.

The build-up of the released population should be modelled under various sets of conditions, in order to specify the optimal number and composition of individuals to be released per year and the numbers of years necessary to promote establishment of a viable population.

A Population and Habitat Viability Analysis will aid in identifying significant environmental and population variables and assessing their potential interactions, which would guide long-term population management.

(ii) Previous Re-introductions
Thorough research into previous re-introductions of the same or similar species and wide-ranging contacts with persons having relevant expertise should be conducted prior to and while developing re-introduction protocol.

(iii) Choice of release site and type
Site should be within the historic range of the species. For an initial re-inforcement there should be few remnant wild individuals. For a re-introduction, there should be no remnant population to prevent disease spread, social disruption and introduction of alien genes. In some circumstances, a re-introduction or re-inforcement may have to be made into an area which is fenced or otherwise delimited, but it should be within the species' former natural habitat and range.

A conservation/ benign introduction should be undertaken only as a last resort when no opportunities for re-introduction into the original site or range exist and only when a significant contribution to the conservation of the species will result.

The re-introduction area should have assured long-term protection (whether formal or otherwise).

(iv) Evaluation of re-introduction site
Availability of suitable habitat: re-introductions should only take place where the habitat and landscape requirements of the species are satisfied, and likely to be sustained for the for-seeable future. The possibility of natural habitat change since extirpation must be considered. Likewise, a change in the legal/ political or cultural environment since species extirpation needs to be ascertained and evaluated as a possible constraint. The area should have sufficient carrying capacity to sustain growth of the re-introduced population and support a viable (self-sustaining) population in the long run.

Identification and elimination, or reduction to a sufficient level, of previous causes of decline: could include disease; over-hunting; over-collection; pollution; poisoning; competition with or predation by introduced species; habitat loss; adverse effects of earlier research or management programmes; competition with domestic livestock, which may be seasonal. Where the release site has undergone substantial degradation caused by human activity, a habitat restoration programme should be initiated before the re-introduction is carried out.

(v) Availability of suitable release stock
It is desirable that source animals come from wild populations. If there is a choice of wild populations to supply founder stock for translocation, the source population should ideally be closely related genetically to the original native stock and show similar ecological characteristics (morphology, physiology, behaviour, habitat preference) to the original sub-population.

Removal of individuals for re-introduction must not endanger the captive stock population or the wild source population. Stock must be guaranteed available on a regular and predictable basis, meeting specifications of the project protocol.

Individuals should only be removed from a wild population after the effects of translocation on the donor population have been assessed, and after it is guaranteed that these effects will not be negative.

If captive or artificially propagated stock is to be used, it must be from a population which has been soundly managed both demographically and genetically, according to the principles of contemporary conservation biology.

Re-introductions should not be carried out merely because captive stocks exist, nor solely as a means of disposing of surplus stock.

Prospective release stock, including stock that is a gift between governments, must be subjected to a thorough veterinary screening process before shipment from original source. Any animals found to be infected or which test positive for non-endemic or contagious pathogens with a potential impact on population levels, must be removed from the consignment, and the uninfected, negative remainder must be placed in strict quarantine for a suitable period before retest. If clear after retesting, the animals may be placed for shipment.

Since infection with serious disease can be acquired during shipment, especially if this is intercontinental, great care must be taken to minimize this risk.

Stock must meet all health regulations prescribed by the veterinary authorities of the recipient country and adequate provisions must be made for quarantine if necessary.

(vi) Release of captive stock
Most species of mammal and birds rely heavily on individual experience and learning as juveniles for their survival; they should be given the opportunity to acquire the necessary information to enable survival in the wild, through training in their captive environment; a captive bred individual's probability of survival should approximate that of a wild counterpart.

Care should be taken to ensure that potentially dangerous captive bred animals (such as large carnivores or primates) are not so confident in the presence of humans that they might be a danger to local inhabitants and/or their livestock.

4b. SOCIO-ECONOMIC AND LEGAL REQUIREMENTS
Re-introductions are generally long-term projects that require the commitment of long-term financial and political support.

Socio-economic studies should be made to assess impacts, costs and benefits of the re-introduction programme to local human populations.

A thorough assessment of attitudes of local people to the proposed project is necessary to ensure long term protection of the re-introduced population, especially if the cause of species' decline was due to human factors (e.g. over-hunting, over-collection, loss or alteration of habitat). The programme should be fully understood, accepted and supported by local communities.

Where the security of the re-introduced population is at risk from human activities, measures should be taken to minimise these in the re-introduction area. If these measures are inadequate, the re-introduction should be abandoned or alternative release areas sought.

The policy of the country to re-introductions and to the species concerned should be assessed. This might include checking existing provincial, national and international legislation and regulations, and provision of new measures and required permits as necessary.

Re-introduction must take place with the full permission and involvement of all relevant government agencies of the recipient or host country. This is particularly important in re-introductions in border areas, or involving more than one state or when a re-introduced population can expand into other states, provinces or territories.

If the species poses potential risk to life or property, these risks should be minimized and adequate provision made for compensation where necessary; where all other solutions fail, removal or destruction of the released individual should be considered. In the case of migratory/mobile species, provisions should be made for crossing of international/state boundaries.

5. PLANNING, PREPARATION AND RELEASE STAGES

Approval of relevant government agencies and land owners, and coordination with national and international conservation organizations.

Construction of a multidisciplinary team with access to expert technical advice for all phases of the programme.

Identification of short- and long-term success indicators and prediction of programme duration, in context of agreed aims and objectives.

Securing adequate funding for all programme phases.

Design of pre- and post- release monitoring programme so that each re-introduction is a carefully designed experiment, with the capability to test methodology with scientifically collected data. Monitoring the health of individuals, as well as the survival, is important; intervention may be necessary if the situation proves unforseeably favourable.

Appropriate health and genetic screening of release stock, including stock that is a gift between governments. Health screening of closely related species in the re-introduction area.

If release stock is wild-caught, care must be taken to ensure that: a) the stock is free from infectious or contagious pathogens and parasites before shipment and b) the stock will not be exposed to vectors of disease agents which may be present at the release site (and absent at the source site) and to which it may have no acquired immunity.

If vaccination prior to release, against local endemic or epidemic diseases of wild stock or domestic livestock at the release site, is deemed appropriate, this must be carried out during the "Preparation Stage" so as to allow sufficient time for the development of the required immunity.

Appropriate veterinary or horticultural measures as required to ensure health of released stock throughout the programme. This is to include adequate quarantine arrangements, especially where founder stock travels far or crosses international boundaries to the release site.

Development of transport plans for delivery of stock to the country and site of re-introduction, with special emphasis on ways to minimize stress on the individuals during transport.

Determination of release strategy (acclimatization of release stock to release area; behavioural training - including hunting and feeding; group composition, number, release patterns and techniques; timing).

Establishment of policies on interventions (see below).

Development of conservation education for long-term support; professional training of individuals involved in the long-term programme; public relations through the mass media and in local community; involvement where possible of local people in the programme.

The welfare of animals for release is of paramount concern through all these stages.

6. POST-RELEASE ACTIVITIES

Post release monitoring is required of all (or sample of) individuals. This most vital aspect may be by direct (e.g. tagging, telemetry) or indirect (e.g. spoor, informants) methods as suitable.

- Demographic, ecological and behavioural studies of released stock must be undertaken.
- Study of processes of long-term adaptation by individuals and the population.
- Collection and investigation of mortalities.
- Interventions (e.g. supplemental feeding; veterinary aid; horticultural aid) when necessary.
- Decisions for revision, rescheduling, or discontinuation of programme where necessary.
- Habitat protection or restoration to continue where necessary.
- Continuing public relations activities, including education and mass media coverage.
- Evaluation of cost-effectiveness and success of re- introduction techniques.
- Regular publications in scientific and popular literature.

Appendix 9: Frequently Asked Questions…

Are the numbers of lions in Africa really threatened?

Estimates on lion populations in Africa vary enormously; the two most quoted studies producing a range of 16,500 to 47,132. In truth, no-one knows for sure, and this is due to the lack of a complete survey of range state lion populations, coupled with the complications involved in counting lions.

What is clear, and has been stated by the IUCN and CITES is that a population decrease of 30 – 50% is suspected in just the last 20 years, a decrease sufficient to grade the African lion as a "vulnerable" species. We believe, even without a definitive lion population count, that the reduction in lion numbers is too great to deny that action must be taken now to ensure a solution is found to reverse this trend before it is too late. Most species on the vulnerable list end up on the endangered one.

Our program aims to create a reserve pool of lions than can be released into National Parks and reserves across the African continent as and when needed to restore lions to areas where they used to roam freely, and where conditions still exist to support those re-introduced lion populations.

In addition, we are recommending to governments and conservation bodies that a complete census of lion populations across all range states is carried out to confirm the actual conservation status of the lion, therefore allowing more effective and suitable management policies to be put into place.

There are numerous lion breeding programs in Africa, many of which are criticized for breeding lions purely for commercial gain, either through allowing tourists to interact with the lions or for canned hunting. Is the Lion Rehabilitation & Release into the Wild Program not just another commercial breeding program?

Unfortunately, it is true that there are many breeding programs using the cloak of conservation to hide their true intentions.

There has to be a business aspect to our work, as the lions have to eat, and personnel with considerable training need to be employed. The infrastructure for release sites is also expensive to put into place ensuring that the area is properly fenced to protect the lions inside from being illegally hunted and to protect local communities on the outside. In addition, where necessary, the release site needs to be stocked with suitable game.

African Encounter, trading as African Impact, Antelope Park and Lion Encounter (the latter operated in partnership with Safari Par Excellence) operate the commercial aspects of the program in stage one and as such bear the full costs of that stage which includes land rent, enclosures, vets bills, vaccination drug costs, staffing, maintenance, DNA testing, micro-chipping, replacement of game killed by the lions etc. To unburden ALERT from these costs these organizations are permitted to operate stage one within certain standards as stipulated by ALERT and are required to ensure that the operation is financially self-sustaining. This is enabled by the walk with lions and voluntourist placements.

Although the amount varies from 20 – 50%, at present 35% of the income after commissions to general sales agents gets liquidated by the Zimbabwean Reserve Bank for which compensation is given with Zimbabwe Dollars at the official rate. Surplus funds from these activities goes to a number of places; firstly, donations are given to ALERT (monetary as well as donations of the lions themselves) to assist in the funding of stages two to four, secondly, ALERT requests that on its behalf certain funds are given to local research, conservation or community programs such as Lion Encounter giving to the Victoria Falls Anti-Poaching Unit. What profit is left is kept by the operator which is reasonable given the financial risk taken by it for operating stage one on behalf of ALERT.

Why have you chosen popular tourist locations for the lion walks?

This is very simple. It is to create international exposure to the project and the plight of the African lion. Locations such as Victoria Falls, which is one of the seven natural wonders of the world and one of Africa's foremost tourist attractions, attracts people from all walks of life and all parts of the world. We want to make everyone aware of the program and places like Victoria Falls provide an ideal location.

Are you concerned about the growth of copy-cat operations?

The simple answer is yes, although it should be considered that lion cub-petting and similar encounters with the young of other large cats, bears, elephants, rhino etc have been operating long before ALERT started operations; in fact probably long before the Middle Ages, and to charge ALERT with the birth of such an "industry" is nonsense.

Although some of these organizations have been developed with conservation in mind, there are many that have developed purely for commercial gain and have no long term plan for the animals that are bred. Such operations need to come under careful scrutiny from the relevant authorities and be subject to appropriate legislation. No such legislation currently exists within Zimbabwe, but we have already started to facilitate a study that it is hoped will result in suitable legislation to regulate such operations. We also intend to request additional studies with the same aim in all countries that our program operates.

What about over-production in any of the stages of the release program?

Controls such as temporary contraception are possible in each stage of the program to reduce the number of cubs born, and if necessary, commercial walks can be suspended at any of our lion walk locations until such time that the demand for lions in stage four increases.

Breeding of "special" breeds of a species is common. Is this a practice of the program?

It is not uncommon for breeding programs to "force-breed" certain characteristics or a recessive gene such as breeding white lions, often through cross or inbreeding. It is done to gain a higher price available in the market for those traits. The result is usually animals with poor immune systems and impaired survival skills.

Our commitment is to breeding a reserve pool of lions with the maximum chance of survival in the wild and to preserve biological diversity. Our program therefore follows sound conservation management policies in terms of breeding, in line with the best available scientific knowledge.

Why do you remove cubs from their mother at three-weeks old?

There are several reasons for this practice, the principal one being that the lions can be given the chance to experience the natural surroundings of the African Bush. One reason for the limited success of previous predator release programs is that the animals were given no pre-release training. By giving the lions a chance to spend time in the Bush we are building their confidence as well as giving them the opportunity to practice and perfect their natural hunting ability. The lions are also able to start developing a natural pride social system. As a result of this practice we have seen the lions becoming adept hunters, without human assistance, such that we are able to stop feeding the cubs as they are capable of catching sufficient prey to sate their appetites themselves. Removing cubs from their mother is standard practice for carnivores in most zoos and captive breeding centres.

Removing cubs from their mother does cause the mother to re-enter her oestrus cycle, which is a natural phenomenon in the wild when males take over a pride and kill all the offspring present. This allows them to start producing their own cubs as soon as possible, therefore passing on their own genes. However, we do not take advantage of this natural event in order to produce higher numbers of cubs. Females within our breeding centres are not bred more than once a year, and as much as possible we allow them to maintain a natural cubbing interval of 530 days.

Do you consider the genetics of the lions and the implications to biodiversity in your program?

Lions are most commonly described using seven or eight sub-species classifications, although 24 have been suggested, however these descriptions have been based not on substantial genetic diversity but on external morphological differences of lions in different geographical regions, such as body size, coat thickness and colour, retention of juvenile spots, mane size, density and colouration.

Recent studies have shown that external factors influence morphological differences such as nutrition and physiological stress. For example, West and Packer (2002) scientifically demonstrated a strong positive correlation between mane size and cooler temperatures. A lion translocated to a European zoo for example would have a larger mane than a lion from its warmer home region.

In the 1980s advancements in molecular phylogenetics proposed that modern lions share a common ancestor in the recent past, estimated at between 55,000 and 200,000 years ago. A question arose therefore about the status of lion sub-species. Genetic studies have shown that European cave lions differed far more from modern populations in East and South Africa than those modern populations do from one another (5% sequence divergence vs. ca. 1%). Since the late 1980s the main trend has been towards sorting all previous lion sub-species into two, African and Asiatic.

Two studies of extracted mitochondrial DNA by Dubach et al (2005) and Barnett et al (2006) have produced genetic distinctions between lions of different geographical regions. The former study, concentrating on samples from more southern regions of the lions range shows six haplotypes within two distinct clades of lions; those in south western Africa and those to the east, extending from eastern Kenya south to KwaZulu-Natal. The eastern lions can be further subdivided along each side of the Great African Rift Valley that stretches into South Africa. A similar east-southwest dichotomy among genetic haplotypes was observed in seven African bovid.

The latter study produced similar results, but with DNA samples from a wider geographical range identified 11 haplotypes (including Asia and West Africa, areas not included in the former study). The results are consistent with previously determined phylogeographic patterns in eastern–southern African lions in which two major clades were identified.

These recent findings have implications for lion conservation. As lion populations are increasingly confined to reserves that are closed to gene flow, management of these populations must balance the need to maintain stable densities at or below the carrying capacity of the reserve and, at the same time, minimize loss of genetic variability through drift or inbreeding. Ideally, translocations to increase genetic diversity would mimic natural gene flow by moving only individuals from the nearest areas with similar haplotypes.

ALERT and our partner organization, African Encounter, are committed to research for a better understanding of genetic diversity in lions and maintaining such diversity within wild populations. As such, we have provided DNA samples of our lions to extend the research of Dr. Jean Dubach at the Chicago Zoological Society and will continue to provide support to this valuable project as and when we are able.

Should the African lion be upgraded to CITES Appendix I and listed as endangered?

Upgrading the status of the African lion to “endangered” would raise awareness of the plight of the African lion and end the international trade in lion trophies from sport hunting. There are well-founded arguments from both sides of the aisle as to whether upgrading to Appendix I is the most appropriate decision at this time.

Raising awareness of the sharp decline in the African lion population could kick start a continent-wide conservation effort with the additional funding that species listed as “endangered” attract. But it is not as simple as that. Unless wild animals have a value associated with them there is no reason to protect those animals. When those wild animals under consideration are as dangerous to livestock and to human life as the lion, local communities are likely to seek out and destroy those animals to protect their livelihood.

Both tourism and sport hunting give a value to wild animals. The tourist industry, the world’s fastest growing, is vital to the economy of most African countries however tourists only visit the more easily accessible, picturesque parts of the continent, with the highest game densities; these areas are now fenced into protected National Parks, conservancies and private reserves where lions and other wildlife can roam free and thrive.

Much of Africa however is not a picture postcard and the land is unable to support the wildlife densities that are required by tourists wanting to see the Big 5 in a day. For wildlife in these areas having to survive retribution killing by local communities that live alongside them, the situation is bleak. For animals to survive here the local communities and land owners need to have a reason to conserve their natural resources. The sport hunting industry attracts people who are willing to travel to these more remote locations where wildlife densities are lower, that do not have fancy lodges, where people and livestock live, or where there are tsetse flies, and most will pay a premium for doing so. If you look at Kenya, for example, 70% of their wildlife occurs outside of protected areas (and is on a serious decline). That wildlife needs to have a value for it to exist. Otherwise why would people not kill lions when they eat their cows? There is a lot of land in Africa that is not suitable for eco-tourism and in those areas trophy hunting is a viable land use. In the case of the white rhino where the population crashed to less than 20 individuals, many game ranchers wanted to breed them because of their trophy value. Alongside those rhino protected in National Parks, private hunting concerns were carefully breeding and conserving their assets through limited hunting quotas so that the population could grow to its current level of 11,000 continent-wide. This is a success story made possible by responsible game managers.

However, the image of the sport hunting industry as a force for conservation has been severely tarnished by unethical and unsustainable practices; the canned hunting industry is an abomination; and with most sport hunting very little of the money paid by the hunters ends up in the hands of the local communities having to live with these dangerous animals to compensate them for their livestock losses and hunting organizations and governments pay little attention to monitoring species population numbers to adjust hunting quotas accordingly. In one African country for example, according to CITES, the number of legally traded lion skins and trophies for the 10 year period up to the year 2002 was 1,708. The current estimate of the total lion population in that country is between 1,037 and 1,686. Anyone can do the maths! The sport hunting industry must get its house in order if it is to play a role in conservation.

On the one hand we believe the decline in the number of lions is sufficient for us to have grave concerns for the future of the species and the awareness and funding made possible by upgrading the African lion to Appendix I could foster enough concern that we could start to reverse this trend. However it is also likely that a ban on sport hunting could cause the majority of lions that are not living in protected areas to be killed by local communities unwilling to live with such dangerous animals to both their livestock and their own lives, causing an immediate and devastating crash to the already hard hit lion population.

We believe there is only one answer to this question at present; and that is for all lion range states to conduct a comprehensive study into the actual numbers of lions resident in their countries. Only once we know the extent of the problem can we make informed decisions about how best to conserve the African lion. ALERT is committed to working with governments and other conservation organizations to ascertain current lion populations throughout Africa, to source funding to carry out lion censuses, and to conduct and assist in research to make lion population counts more reliable.

In the meantime, we believe that the evidence is already too great to deny that action must be taken now to ensure the future of the African lion. ALERT therefore supports the African Encounter Lion Rehabilitation & Release into the Wild Program which aims to create a reserve pool of lions that can be released into suitable areas of Africa that no longer have sustainable wild lion populations.