

# Special Report to Hon. Chief Minister of Gujarat: Suggested Measures to Further Strengthen the Protection of Asiatic Lions and Gir Biodiversity (June 2007)

Kishore Kotecha\*

**Editorial note:** This is a special kind of report compiled by Kishore Kotecha, who, among a few other web-wise NGO's keeps track of the issues and news items associated with Asiatic Lion and Gir Forest. He has sent it to the Chief Minister of Gujarat. Kishore has also put this special report including the opinions of many people up on his website and blog but for those of our readers who are web-impaired or web-averse, here it is in black and white. It is a wonderful way to follow up our July 2007 issue of ZOOS' PRINT which was almost totally devoted to various forgotten and new items associated with Asiatic Lion. We hope you enjoy reading it and will appreciate its objectivity and inclusiveness - Editors

## Executive summary

After lion poaching incidents, our Trust thought of gathering opinions from experts globally for better protection and conservation practice for the sake of Asiatic Lions and Gir biodiversity. We contacted various naturalist groups on the net, institutes, NGO's and individuals interested in conservation of Asiatic Lions. We also wrote to related Yahoo groups and email lists. All received responses have been compiled in this report. It may happen that few of the measures suggested are already being practiced and few may not be feasible but most of the suggestions are worth hearing, at least. A few people have promised to send their suggestion directly to Hon. Chief Minister.

The common feeling amongst many people is that when it comes to conservation of Gir, there should be no compromise, and no stone should be left unturned. This is the only way to save Gir and our lions. Again, most of the feedback, directly or indirectly voiced their opinion that conservation methods should be wildlife-centered and not human-centered. Let us forget the vote bank for some time. Such a bold action can be taken only by a bold Chief Minister like Shri Narendra Modi.

Annexed to the report are selected technical notes, write-ups, and emails received, on the basis of which this report is prepared.

## REPORT

### 1. New constructions in and around Gir:

- ◆ No new constructions should be permitted anywhere inside the sanctuary and along animal corridors. (Particular reference to constructions at religious places and nesses).
- ◆ Very limited commercial constructions should be allowed within 20 km periphery of Gir forest. Any new construction within 20 km periphery should be regulated by forest department, i.e. they should obtain presanction from forest department.

### 2. Industries:

- ◆ No new industries or mining should be allowed in 10000 km<sup>2</sup> area where lions have made their home.
- ◆ Strict implementation of pollution & environment laws on existing industries.
- ◆ Existing industries should be made to share part of their profit for conservation of Gir.
- ◆ Lease of existing mines should not be renewed in future.

### 3. Control on land conversion in 20 km periphery of Gir:

- ◆ Agricultural land should not be allowed to be converted for non-agricultural use.
- ◆ Agriculturists from other districts or talukas should not be allowed to purchase land in revenue areas near Gir. This will prevent land hoarding and control land prices, enabling more land to be retained for agricultural use.

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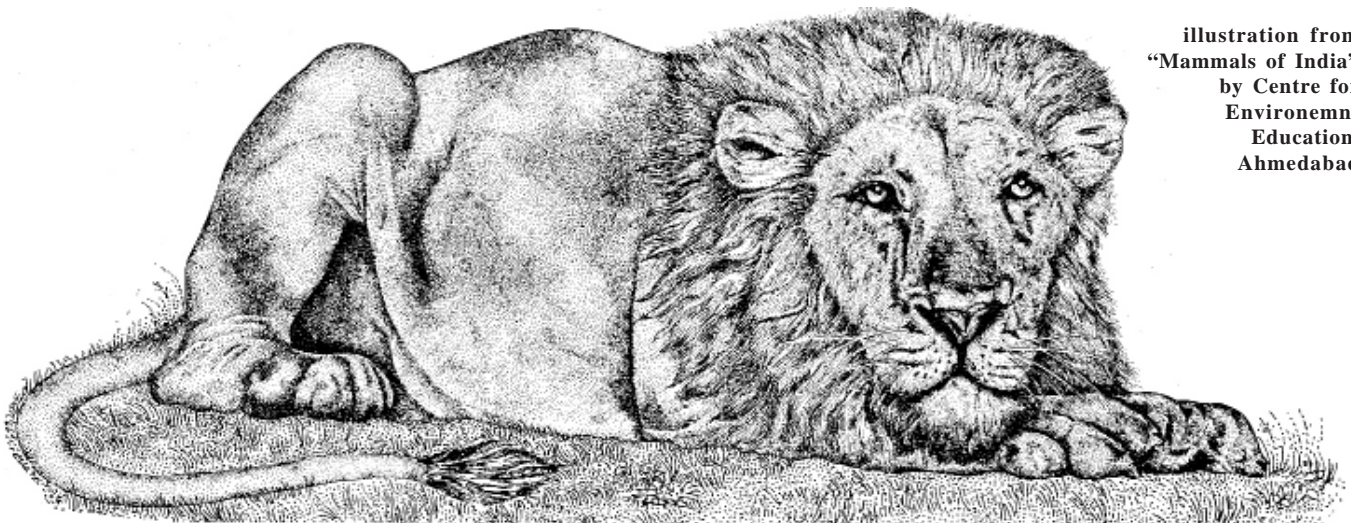


illustration from  
"Mammals of India"  
by Centre for  
Environment  
Education,  
Ahmedabad

◆ Settlement villages should NOT be converted into revenue land.

#### 4. Road networks inside the sanctuary:

- ◆ Eight to nine roads inside the sanctuary have fragmented the forest. Wherever possible roads inside the sanctuary must be closed permanently.
- ◆ All those roads, where closing down is not possible, should be open for vehicles only from 10 am to 3 pm and not 6 am to 8 pm. This should strictly apply to ST buses also.
- ◆ All these roads should have speed breakers at every 100 m and that also without any signboard and unstripped. These roads should never be repaired or widened. The idea is to make traveling on these roads as difficult as possible to discourage people using these roads.
- ◆ Cameras should be set on these roads to find out illegal night time commuters.
- ◆ All check-posts must have computerized check-in and check-out system. This will ensure that any vehicle which has entered has exited in correct travel time.
- ◆ Visavadar to Sasan has alternate road *via* Nani Khodiyar + Moti Khodiyar. Hence usage of the direct road through the sanctuary should be stopped immediately. In 2002, this road through sanctuary was re-opened on the condition that it would be closed once the alternate road is repaired, but since then alternate road has not been repaired and hence sanctuary road is still open.
- ◆ Dhari – Tulsishyam – Una road has alternate solution of Dhari - Khambha – Dhokalava – Una road. This alternate road should be developed and Tulsishyam road should be closed for Una and Diu goers.

#### 5. Use of modern technology:

- ◆ CCTV cameras should be installed at check-posts with 15-30 days recording capabilities.
- ◆ Some cameras (with night vision) should be set up on a few roads and sensitive spots inside the sanctuary to track people entering illegally.
- ◆ Metal detectors to trace metal traps and weapons should be installed at sensitive places inside the sanctuary. Maharashtra forest department has already done trials of this type of detectors.
- ◆ Each lion can be tracked using a grid of transmitting stations, instead of the more expensive Global Positioning Systems. Such systems have been developed. (Appendix-V).
- ◆ Use of Unmanned Aerial Vehicles can be done to check poaching. (Please see more details in email of Ashish Puntambekar Dtd. 17-5-07)

#### 6. Controlled tourism and its benefit to sanctuary:

- ◆ Sanctuary should be declared as plastic free zone.
- ◆ Only limited number of vehicles per day/per route should be permitted for safari.
- ◆ Night safari touts (day time forest employees!!) should be severely punished.
- ◆ Hotels in the area should be made to compulsorily share some portion of their profit for conservation.
- ◆ Local communities should get maximum benefit of tourism instead of biggies from outside. In hotels 80% of their staff should be local.

#### 7. *Maldhari* nesses:

- ◆ Remaining *Maldhari* nesses should be immediately removed from the WLS. Many human activists are against it but it is better to remove them before the new tribal protection law becomes their tool.
- ◆ Once allowed to settle they start demanding

infrastructure & other services which further worsens the situation. Hence, if they choose not to move outside, they should not be given any more urban facilities and infrastructure.

- ◆ *Maldharis* have encroached upon forest land surrounding their nesses. That land should be immediately vacated. To prevent future encroachment and to stop them from expanding, fencing or rubble walls should be constructed surrounding each ness.
- ◆ *Maldhari* and their livestock population have crossed the carrying capacity of Gir forest. In the past two decades *Maldharis* and their livestock have increased many times. It is un-debatable fact that only one species can survive in Gir -- *Maldhari* or Lion.
- ◆ Video cameras with two weeks recording capabilities should be kept to watch *Maldhari* activities.
- ◆ Every year external audit should be done in nesses to find out land encroachment, population growth, livestock growth etc.
- ◆ Although prohibited, guests make night stays at nesses. In fact these are paying guests who want to do *sinh-darshan*!! They should be stopped.
- ◆ Each person and vehicle in each ness should be registered with Gujarat Forest Department. Each person in these nesses should be given identity card to prove genuineness.

#### 8. Open wells are "Virtual death traps":

- ◆ In 2002 census the lion count was 329 and in 2005 it was 359, i.e. an increase of 30 lions in five years, but we have seriously failed to consider that we have lost about 22 lions in these five years by accidental deaths in open wells. This is the most burning issue and should be addressed immediately with a systematic plan to barricade all wells in coming two years.
- ◆ Although Government has declared a Rs. 4000 subsidy, a faster and better way is to bring in some legislation to compel farmers to barricade their existing wells.
- ◆ No new wells should be allowed to be dug. Or at least they should be compelled to barricade wells to be dug in future.
- ◆ Farmer, in whose open well any animal falls, should be penalized.

#### 9. Poaching and Wildlife related crime:

- ◆ Minimum punishment to poachers should be death penalty or life imprisonment.
- ◆ Special solicitors should be hired and special fast track courts should be set up to solve wildlife related cases.
- ◆ State wildlife crime bureau should be formed which should also include ex-serviceman.
- ◆ FD should be given a free hand in dealing with criminals inside the PA.
- ◆ Investigation in recent poaching case has stopped or slowed down. It is imperative to go to the roots of the case and find out the exact chain of poachers and find out final destination of bones, skin etc.
- ◆ 24 hr control room should be set up just like Police Department.
- ◆ Two to four mobile squads should constantly patrol the roads inside and outside the sanctuary.
- ◆ Camels can be used to patrol forest areas. (Instead of motor-cycle). This would not alert illegal immigrants and also enable guards to go off-road spots.
- ◆ Any person illegally caught inside the sanctuary should be given on-the-spot punishment of 2 to 15 days imprisonment by the forest department in their own jail.
- ◆ Heavy fine should be imposed on illegal immigrants, grazers, wood-cutters etc. At present Gujarat Forest

Department charges a few hundred bucks as fine. But it should be raised to minimum Rs.10,000 and onwards. This will serve a dual purpose of crime prevention and also gather money for conservation! (Like traffic police fines.)

- ◆ Registration of non-Gujarati labours coming for work with local police stations / *Talati cum Mantri* or *Sarpanch* should be made compulsory.

- ◆ Everybody is concerned about lion poaching only. But there is regular hunting of other small animals like rabbit, deer etc for meat. This should be stopped immediately. Small animals are a part of lion's food cycle and hence in long term it will have an adverse effect on the lion population also.

- ◆ Gir should be given one mobile forensic lab and one forensic lab in Sasan. This would further speed up solving crimes.

#### 10. Forest land encroachment:

- ◆ Sanctuary areas should be clearly demarcated. This is necessary not only on the periphery of the sanctuary but also at each existing ness inside the sanctuary.

- ◆ Rubble wall or chain link net fencing should be constructed surrounding the sanctuary. This would give protection against encroachment and from animals straying out.

- ◆ Better systems are needed to map village-forest boundaries. New systems are also needed to monitor how a forest is changing in response to ongoing pressures from people, fire, insects, disease, and changes in land use.

- ◆ In most of the peripheral village farmers encroach forest lands adjoining their farms. *Talati* of each village should be asked to find out and control such encroachments.

11. Just as CAG audit in Govt and Semi-Govt offices, **field** audit should be done every year by **external agency** like Wildlife Institute of India or similar. The auditors should audit land encroachments, tree felling, illegal grazing etc. Also some sort of surprise and random field checking should be done by such an agency.

#### 12. Wildlife health management:

- ◆ A well-planned and properly implemented health monitoring system is very essential for long term survival of any species. Please see Appendix-I which is a note on health management of Asiatic lions, received from Dr. Ramesh Sabapara, BVSc & AH, MVSc, Diploma in Endangered Species Management, England.

- ◆ There should be a minimum of two veterinary doctors in Gir. They should also be given proper animal rescue vehicles, with crane arrangements for lifting the animals from wells, when the need arises.

#### 13. Satellite areas:

- ◆ The Asiatic Lion is trying to regain its lost habitat like Jessar, Palitana, coastal areas of Jafrabad, Hipavadli, Gir, Girnar etc. A few of these areas are still categorised under Reserved Forests or Revenue land! They should be defined as Protected Areas as soon as possible.

- ◆ Waste panchayat lands of villages falling in satellite areas should be declared as reserve Forest and massive afforestation should be done on such acquired lands.

- ◆ In most of the villages near the forest there are thousands of hectares of bid (*vidi*) lands belonging to Darbars and royal families. Such lands should be identified and procured immediately as they are only lying as waste lands.

- ◆ The Process of translocation of lions to Barda Sanctuary should be speeded up.

- ◆ Animal corridors should be identified and private revenue land areas falling in such corridors should be purchased by the Government. by paying market price to the farmers.

- ◆ Satellite areas should be fully under the control of the Forest Department. (and not Revenue Department).

- ◆ Regular patrolling by forest staff should be done in satellite areas.

#### 14. Front line and other staff:

- ◆ Young, energetic BUT local persons should be employed as guards. Local man's knowledge about Gir is much more helpful than an outsider Ph.D. fellow.

- ◆ Field staff should be given regular training.

- ◆ Field staff should be given fire-arms, proper commutation and communication facilities.

- ◆ From time to time their good work should be recognized and appreciated by some cash prizes, awards, certificates, best man of the month etc.

- ◆ DCFs should pay surprise visits in their region to find out ground realities and whether staff is performing their duties.

- ◆ It seems that CF (WL) Junagadh is burdened with too many sanctuaries to manage. He should be given only Sasan, Barda and only those areas where lions have made their home.

15. Windmill-based pumps should be installed at artificial water points inside the sanctuary. This would stop people from going to fill up the tank manually and hence fewer disturbances to the animal and assured supply of water.

#### 16. Community based conservation and awareness programmes:

- ◆ Community based conservation has been practiced successfully in Gir since Nawab times, is a very effective means of reduction of man-animal conflict. But now all efforts should be done to keep the same high spirit in minds of local communities because they are now attracted to urban luxuries.

- ◆ Community awareness programmes should be a constant process and not only when poaching occurs or an emergency arises!! This can be done by street plays, movies, dayro, religious katha etc. in peripheral villages and local schools.

- ◆ A separate department headed by a permanent post of DFO should be created which should regularly carry out such awareness programmes.

- ◆ Permanent awareness display boards with the forest department's contact information should be put in each and every village in Gir.

- ◆ Locals should be made aware of direct and indirect benefits they get due to Gir forest. Locals should also be made to visualize and realize the grim scenario of Gir without forest.

- ◆ With very hard work, the late P. P. Raval, late Shri Sinha and Shri S. A. Chavan have formed 300 nature clubs in Gir region. These nature clubs should be involved in conservation process wherever and whenever necessary.

- ◆ Regular camps should be conducted in schools in Gir villages. If the importance of conservation is instilled in Gir children from childhood onwards, it will have very strong and long-term impact in future.

- ◆ Teachers in Gir schools should be trained to explain the need and ways of Gir conservation, so they can impart this to their students on regular and continuous basis.

### 17. Administration:

◆ The entire administration and reporting system from grassroots level should be made efficient and transparent with proper documentation at each stage. For this, the help of a management Guru or ISO consultant can be taken. Also online computerized systems should be set up so that there is no lapse of time in conveying information.

◆ Office of DCF Gir (E) should be at Satadhar and that of DCF Gir (W) should be at Sasan to achieve better performance and prompt response.

18. Gir forest management plan was written many years back. But looking to today's needs, it needs to be rewritten.

### 19. Man-animal conflict:

◆ Farmers should be given electricity during day time for watering their farms. This will reduce man-animal conflict.

◆ Speedy and hassle free process to compensate when cattle are killed. Villagers also complain that they have to bribe the inspecting person to get their claim approved.

◆ Blue bulls and wild boars are big nuisance to farmers. To prevent their crop from being trampled these animals, farmers put electric current in wires and poison in water-tanks, which frequently results in the deaths of lions and other animals. Government and NGOs should financially help farmers to put barbed wire fencing. Although Government is giving 50% subsidy, farmers say that the approved suppliers are not doing a job worth 50% of their share! Some processes should be revised for this aid.

### 20. Religious places:

◆ Five temples inside the sanctuary cause the most trouble and should be moved out if possible. (Pl see email from P. K. Sen, Director, Ranthambhor Foundation, N. Delhi)

◆ Although night stay is not permitted in these temples, one can easily get away with this practice by giving some hundred rupees.

◆ A vigilant eye should be kept on temples so that they do not encroach upon forest land. Annual audit is needed to verify land encroachment by temples.

◆ Temples should not be allowed to do even one sq. ft. of new construction.

◆ Tulsi Shyam land in middle of the National Park is revenue land!! It should be declared as National Park area also.

◆ Tulsi Shyam offers air-conditioned room to night lodgers at Rs.1500 per night. They are also developing the place as if it were a three star hotel. It should be stopped immediately. Specifically no night stays of man and vehicles including ST buses should be allowed here.

◆ All temples should be made to give 80% of their income to Gujarat Forest Department for conservation. (If this happens then let see how many Trustees / Pujaris want to occupy these temples!!)

◆ On festivals like *Janmashtami* and *Maha Shivratri* per day about 1 Lakh so-called pilgrims visit these temples. On these days Gujarat Forest Department relaxes the rules for night stay, entry-exit timings, type of vehicles allowed etc. No such relaxation should be given. Number of pilgrims on these days should be limited with some process like preregistration with Gujarat Forest Department etc.

◆ Video cameras with two weeks recording capabilities should be kept to watch temple activities.

21. Railway track through the sanctuary, if possible, should be removed. Recently no accidents have been reported (!!) in Gir but in other sanctuaries many tigers and elephants have lost their lives.

22. Illegal grazing should be immediately stopped. I have heard that a few lower level staff get their regular '*hapta*' for allowing this activity. Steps like tagging animals, identity cards to legal herdsman etc. should be taken.

### 23. Wood cutting:

◆ Wood cutting activities inside the sanctuary areas are also occurring at many places with un-due favour from lower level forest staff. Sting operations should be carried out to catch the culprits.

◆ Peripheral forests are fast degrading. Prohibition on tree cutting should be strictly followed in private lands within 20 kms from forest boundary, where wild animals are roaming normally.

24. Our lion suffers from genetic bottle neck. It is very much important to have gene pools at various places in Gujarat zoos like Rajkot, Ahmedabad etc.

25. *Lantana* and other weeds in Gir forest should be immediately removed. This will help in the development of more green forest cover and more useful grazing grass leading to more ungulates & prey animals and indirectly rise in lion population and less man-lion conflict.

26. Coordinating Forest Department, Revenue Department and Police Department will help achieve best result. Hence a permanent 'GIR PROTECTION COMMITTEE' should be formed. The members of this committee should be Collector – Junagadh, Collector – Amreli, Conservator of Forest, Deputy Conservator of Forests and top rank police officers from Junagadh and Amreli districts. This committee should meet at least once a month.

27. Exploitation of forest and forest department by local political leaders of surrounding areas (vote bank!) should be stopped immediately.

### 28. Wildlife census:

◆ Lion census should be done every two or three years. This would help us to find out the growth trend before it is too late.

◆ Census should use latest techniques.

◆ Alternate census should be done by Wildlife Institute of India and Gujarat Forest Department.

◆ Live baiting should be permitted for better results.



# Appendices

## Appendix I A Short Note on Health Management of Asiatic Lions Ramesh Sabapara\*

It is a well known fact that the dwindling of wilderness has caused an alarming rate of extinction of species or biological forms during the past 200 years. Biodiversity conservation of several species can be accomplished through the conservation of flora and fauna in their natural habitat (*in situ*) as well as in the captive condition (*ex situ*).

The Asiatic lion is listed in the category of Critically Endangered, whereas, Indian leopard is listed as Endangered in the Red List of Endangered Species by the World Conservation Union (IUCN). Keeping in view the present population demography of these species in the free ranging and captive conditions, there is an urgent need to put all efforts for their better health and long-term survival.

Health monitoring programme is very much essential for sound management of any species. Munson (1994) stated that the impact of diseases can not be assessed without knowledge of prevalent and serious diseases in the populations. A well-planned and properly implemented health monitoring system is very essential for long-term survival of any species.

Apart from habitat conservation, a sound health management and disease prevention program plays a vital role in the long-term survival of any species. Some of the important aspects of health management based on my experience and studies with the Asiatic lions are mentioned below.

◆ Dogs and cats are two most important species of domestic animals sharing many contagious and transmissible disease conditions with lions and leopards. Meager information is available on the pathophysiological conditions of these animals. It is very important to establish sound knowledge of what is happening in this population to predict, plan and implement suitable measures to prevent/handle possible outbreak of a disease that might have an undesirable effect on the free-ranging wild animals of the sanctuary.

◆ To control the spread of zoonotic diseases, zoo staff should be periodically screened for variety of conditions. In case of cat keepers, annual tests should at least be carried out for Tuberculosis, *Salmonella*, *Shigella*, and *Campylobacter* spp. Staff with potential zoonotic diseases should be removed from animal duty till he / she no longer remains a potential disease carrier.

◆ Systemic and comprehensive recording of medical and pathological data is essential in a uniform manner. The use of standard computer programmes (such as ARKS and MEDARKS from ISIS) is advisable.

◆ The use of standard prescribed proforma for post-mortem report, biological sample collection and dispatch is important.

◆ Use of skin tattoos and/or implanted transponders for proper identification of individual animals is recommended. Whenever a wild lion or leopard is captured for any reason, it is advisable to record viscus pattern and other identification mark along with micro-transponder implantation. It helps to identify the same animal captured again in the future and help long-term studies.

◆ Properly designed housing facilities that cater to the physical and psychological needs of large felids should be used. The housing facilities should meet the standards prescribed by the Central Zoo Authority of India. Such facilities are essential for all wild animals in captivity for any length of time.

◆ Since the basic feed given to large felids while in captivity is meat, it should be served with all aseptic precaution to avoid contamination. It is recommended to add essential vitamins and minerals to all animals in captivity to avoid any nutrition-related disorders. Feed should be thoroughly checked for quality and occasionally laboratory examination should be carried out to know the load of pathogenic microorganism. Gross observations for presence of cyst and other contaminants should be done to prevent diseases.

◆ Movements of free-ranging animals into captivity and *vice versa* is common. It increases the chances of disease spread between these two populations. To minimize such disease transmission, a quarantine period of 30 days or more is recommended for every transaction.

◆ Research and development into wild animal health and disease aspects is not given due attention, some pathological conditions having negative effects on the survival of our great heritage, are observed in the captive and free-ranging animals for over decades. The cause of these conditions is yet to be established. There might be many other conditions unobserved but very important for the long-term survival of lions in Gir. It is very important to pay due attention to this aspect and a comprehensive programme implemented to prevent any major catastrophe. It is desirable to have international liaison and scientific collaboration for long-term benefits to the last surviving population of Gir lions.

It is very essential that a second home for Asiatic lions is developed to make sure long-term survival of these animals. However, it is equally important to gain sufficient knowledge regarding potential pathological conditions that might affect the health and survival of transferred lions, and act logically to prevent such disaster.

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## Appendix II

### “Sound science and practical interventions key to saving big cats.” May 21, 2007.

An interview with Dr. Luke Hunter, a biologist with the Wildlife Conservation Society (WCS) heading the Great Cats Program.

*Big cats are some of Earth's largest and most threatened predators. Long persecuted as perceived threats to livestock and humans, hunted for their skins and purported medicinal values, and losing critical habitat to deforestation and conversion for agriculture, big cat populations have dwindled around the world for the past century. Recent years have seen the extinction of two sub-species of Indonesian tiger, the Caspian tiger from western Central Asia, a sub-species of clouded leopard from Taiwan, and the Barbary lion from the wild in North Africa. Meanwhile, populations of the Iberian lynx, Asiatic cheetah and Amur leopard have fallen so low that they would be functionally extinct without current conservation efforts. Tiger populations have declined from more than 100,000 at the turn of the century to less than 6,000 today, while cheetah numbers are estimated at less than 15,000. Even lion populations have dropped: from over 100,000 one hundred years ago to probably less than 40,000 today. Given these trends, it should come as no surprise that big cats have become the focus of intensive conservation efforts. Not only are large predators often the most vulnerable to human pressures and the first to disappear from ecosystems, but efforts to conserve them effectively help protect thousands of other species that share their habitat.*

*At the forefront of these efforts is Dr. Luke Hunter, a biologist with the Wildlife Conservation Society (WCS) where he heads their Great Cats Program. While he has worked in Africa since 1992, in the past year Hunter has tracked highly endangered Asiatic cheetah in Iran and jaguars in the Brazilian Pantanal and is part of an effort to develop a comprehensive plan to conserve the snow leopard throughout its range. Hunter believes that understanding the biological needs of these species — through careful research that sometimes includes tagging and remote monitoring of animals — is the first step in saving them. Alongside that, he strongly advocates collaboration between conservationists and local people to minimize predation of livestock (often overstated) and activities that threaten predator populations. In a May 2007 interview with Mongabay, Hunter discussed strategies for conserving carnivores and offered insight for students interested in pursuing careers in conservation science.*

**Mongabay:** *How did you become interested in wildlife and specifically big cats?*

**Dr. Luke Hunter:** I was drawn to animals and wildlife from a young age. My parents say that I latched onto wild cats when I was three years old and the interest never waned. I am still fascinated by big cats but professionally they interest me now because of the conservation issues surrounding them. All big cats have undergone major declines in numbers and loss of range, which in some cases, has left them seriously imperiled. Lions, tigers, jaguars and numerous other cat species are now “conservation-dependent,” meaning that their persistence in large contiguous populations is now directly connected to targeted conservation action. If we simply stopped those activities, we would certainly lose some key populations; in a handful of critical cases such as the

Iberian lynx, Asiatic cheetah and Amur leopard, we could lose the entire remaining population.

Importantly, conserving wild cats is not simply about the preservation of a handful of individuals for their own sake. Like many large carnivores, big cats require large, relatively wild areas with healthy prey populations. So to protect a viable population of big cats, one has to conserve the entire ecosystem on which the cats rely. It means that cats are very effective tools for conserving biodiversity; setting aside an area large enough to secure a population of tigers or snow leopards also secures the thousands or tens of thousands of species that also live there - everything from the snow leopard's ungulate prey to invertebrates in the soil, to the many plant species that both consume.

**Mongabay:** *Even under ideal settings, predators invariably take the occasional cow or goat. Given this, what's the best way to minimize the impact of predators on livestock? How do you encourage local people not to take up arms against opportunistic predators?*

**Hunter:** I think the key lies in reducing peoples' problems—real and perceived—with carnivores. I say ‘real and perceived’ because carnivores are rarely responsible for the majority of losses experienced by livestock owners. In fact, where really good data are available, it's very revealing that carnivores are often quite far down the list of factors that cause losses. Other causes such as disease, starvation or even where livestock simply goes missing are often far more damaging but people—especially poor, rural people—accept these things as ‘acts of God’ or perhaps just the cost of doing business. However, they often feel that they can address the carnivore threat because it's fairly easy to pick up a gun and go shoot one! So, we attack the problem from all sides. Demonstrating to people that carnivores may not be their greatest problem is the first step but that might not help much unless you can address the other factors; so for example, helping local people with their veterinary needs for livestock might be a very good way to reduce overall losses so that they don't feel the losses to carnivores so keenly. As well as that approach, we now have more tools and techniques than ever to mitigate the damage that carnivores do cause. In many, many cases (not all), a simple change in husbandry approaches can have a dramatic effect. Perhaps all a herder needs to do is bring in or guard his cattle when they are calving, so that the opportunities for carnivores to kill vulnerable calves are reduced. Or maybe he can switch from herding dogs (which traditionally chase livestock when a threat appears, in turn provoking a chase from the predator) to large, livestock guarding dogs that have been used for centuries in places like Turkey and Iran, which chase the threat rather than the herd. We try to work with local people to help them adopt techniques like these, often by providing or helping to provide the materials, training and even covering the costs.

**Mongabay:** *Big cats also face threats from poachers. What's the best way to control illegal hunting?*

**Hunter:** There are two main ways that illegal hunting impacts cats. The first is the targeted killing of cats, usually for their parts because they are valued in some way. This is especially profound in much of Asia where traditional medicinal beliefs drive a demand for bones and other parts of tigers (and other cats). The second major impact of hunting comes when the prey species of cats are hunted for the pot. You can have perfectly good, essentially intact habitat which is useless for big cats

because the prey species have been hunted out by people for their own consumption. Controlling both types of illegal hunting first requires strong enforcement of laws. It isn't very fashionable these days to promote the idea that local people should be prevented from hunting or consuming wildlife products because doing so may have their origins in traditional practices, but there are some species and some places that should be off-limits. Strong laws and the national and international capacity to enforce them are absolutely essential to ensure the persistence of protected areas and protected species. In the case of hunting for subsistence (not for cats, but for their prey species), providing alternatives might be the answer. If local people are relying on the forest for their protein, introducing some limited farming of small stock like pigs and chickens might help (combined with strong efforts to make sure they are not vulnerable to predation, which would create another problem!). And finally education is important. Millions of people consume wildlife products because of their purported medicinal value, the great majority of which have no scientific or medical basis. Convincing people of that is a huge challenge.

**Mongabay:** *Looking at legal activities, can trophy hunting play a role in conservation?*

**Hunter:** In principle, trophy hunting can play a significant role. In parts of east and southern Africa where I'm most familiar with hunting, large hunting concessions can contribute to keeping wild areas wild. If not for the revenue generated by hunting, many of those areas could be viewed by governments for activities that would be far more destructive to wildlife and biodiversity, for example, for livestock, agriculture and so on. Nonconsumptive wildlife tourism is not an option at many of these places because they are undeveloped, too remote, have malaria present and so on. Hunters tend to be more tolerant of these things than the average traveler. Having said that, I think trophy hunting of big cats is managed very poorly in many places. Quotas are often assigned on the basis of very little information or very poor science. Take leopard hunting as an example. Leopard quotas are still most often justified using a badly flawed model produced in 1988 that related rainfall to productivity; essentially, the model predicted that high rainfall areas could support the greatest biomass (including of leopard prey) and therefore, the most leopards. It was a reasonable idea but its execution was very simplistic and it produced impossible over estimates of leopard numbers. Despite being widely and continually criticized by carnivore biologists and wildlife managers, it is still used by governments today to establish harvest levels.

Lion hunting is also problematic. There are now very good data available showing that the impacts of shooting male lions has ripple effects throughout the larger population, a result chiefly of accelerating the natural turnover rate of pride males and therefore, of infanticide—the killing of unrelated cubs when new males take over a pride. Both Craig Packer's team working with his long-term dataset from the Serengeti, and David Macdonald and Andy Loveridge working in Zimbabwe's Hwange National Park have produced very strong arguments for either reducing hunting quotas or limiting the age of males which can legally be shot. I am not opposed to trophy hunting but I feel strongly that it must be based on good science and it must be sustainable. With few exceptions, that rarely happens in the case of hunting large cats.

**Mongabay:** *Why is it important to trap and tag wild animals for conservation work?*

**Hunter:** Doing effective conservation relies on very strong science, and in many cases, the only way to collect the necessary data is to catch animals and fit them with radio-transmitters. Let me give you an example. My team and I recently succeeded in capturing Asiatic cheetahs in Iran for radio-collaring. There are only about 60-100 Asiatic cheetahs remaining in the world, all of them in Iran, and we know very little about them. The collars will help us answer some key questions about their behavior and ecology; the size of areas that Iranian cheetahs require for their home ranges, the routes they take to travel between existing protected areas, the key features in the landscape on which they depend for example, as den sites for females and so on. These questions are more than merely academic, because without the answers, we cannot plan a meaningful conservation strategy that gives the cheetahs the greatest chance of survival. In the absence of such information, the resulting activities or actions are often those which have the least resistance towards them; for example, the places that become parks are those areas which are politically least problematic to protect the areas that no-one else wants or uses. But, if as I suspect, the conservation of the cheetah in Iran hinges on protecting certain landscapes that are also sought after by people, for example, to graze livestock, to convert to agriculture, to put in the next highway and so on, we need to be able to demonstrate with strong science how that will impact the cheetahs. The collars will help to provide those answers.

Equally, it is just as important to ask the question, does conservation of the species require radio-tagging? There are many, many cases where it does not. I often read proposals by graduate students who are wishing to radio-collar cats to address a conservation issue when they could far better achieve their goal by some other means. If the main threat to a lion population living in an African game reserve is being killed by local pastoralists outside the reserve, I'd argue you don't need to collar a bunch of lions to address the problem. The most immediate priority is more likely to involve working with that community to find out why they kill lions and if there are ways to reduce it. Assuming you already know enough about lions and the reasons for the conflict, radio-collars won't help.

**Mongabay:** *How to reduce the risk of injury to wild animals when they are trapped or darted? Is a woozy animal more vulnerable to predation itself when recovering from capture?*

**Hunter:** Trapping or darting animals *does* increase their vulnerability, so it is critical to reduce that as much as possible. The great bulk of biologists I've met are very concerned about this and take great care in reducing the risk. So for example, we use 'recovery cages' for animals coming out of sedation—that is, placing the animal inside a wooden box crate to protect it from danger, and only releasing when it has fully recovered. Also, depending on the species, there are now some anesthetics with effective antagonists that reverse the anesthesia. This is common with ungulates but not with carnivores - newer drugs are proving hopeful for many species. Even without these antagonists, the most important thing we do is remaining with the animal until it is fully recovered. Typically, we move off a short distance to watch the recovery with binoculars without the animal getting agitated by our presence but remaining close enough to

intervene if a threat appears. Having said all this, it is important to note that capture-related accidents of the kind you describe are rare. It can take weeks of effort just to catch one carnivore; the chances that another turns up while your critter is recovering are fairly low.

**Mongabay:** *Do you have any notable close-calls working with big cats?*

**Hunter:** Not really. I was once 'bitten' on the thigh by a lion as he woke up from sedation but he was still very groggy. If you've ever had anesthesia, you can probably imagine what that was like—it was like being mauled by a sponge. He left a few bruises.

**Mongabay:** *How can people at home help protect big cats and other endangered carnivores?*

**Hunter:** Of course one of the most important needs is for funding; there are many good conservation organizations working to save carnivores and all of them rely on donations. A great deal of conservation could never happen without that support—make a donation if you can. Visiting wild areas also helps; whether it's a once in a lifetime trip to the Serengeti or a stay in Florida's Everglades National Park, tourism helps to subsidize the perpetuation and protection of many wild areas. Finally, getting involved politically is tremendously important. Protecting wild areas and wildlife is often politically unpopular because it goes against the interests of powerful, wealthy interest groups, so making a stand is where every individual's voice really counts.

**Source:** [http://news.mongabay.com/2007/0522-interview\\_hunter.html](http://news.mongabay.com/2007/0522-interview_hunter.html).

**Appendix III was withdrawn by author's request.**

## Appendix IV

### Remote Patrol; Nabbing poachers with metal detectors and satellite uplinks

Of all the animals in the Republic of Congo's Nouabalé-Ndoki National Park, from gorillas to buffalo to some 3,000 threatened forest elephants, the human is the most powerful animal of all. And it is unique for having something no other animal possesses: metal. "We are the iron-carrying ape," says Steve Gulick, a visiting scholar at the State University of New York College of Environmental Science and Forestry. When the metal in tow is a machete or a gun, it gives poachers an outsized advantage over their quarry. But now Gulick hopes to turn the tables on poachers with the TrailGuard, a hidden metal detector that is bringing military technology to the field of conservation. "This kind of technology is well established," says Gulick. "It's just not being used by conservation." With satellite links that can alert authorities miles away, the detectors can act as eyes and ears for parks personnel, who have vast areas to patrol and not enough people to patrol them. Remote metal detectors were first used in Vietnam, where the U.S. military set up devices to detect Vietcong troop movements on the supply route popularly known as the Ho Chi Minh Trail. At the time, an airplane would have to circle nearby to pick up a signal from the detector. Now, satellite and Internet technology have made remote metal detectors ubiquitous and more versatile. The TrailGuard is a 25-centimeter-long cylinder that can be buried in the ground on routes frequented by poachers. When someone carrying a large piece of metal passes within a few meters, he or she trips a magnetometer that sends a radio signal to a nearby

satellite uplink which can then alert authorities by email, text message, fax or pager. In addition to betraying a hunting party's location, the device will indicate its direction and how many people are in the group. This April, Gulick plans to install half a dozen TrailGuards in the Goulougo Triangle, a 250-square-kilometer area at the southern end of the Nouabalé-Ndoki park, where researchers are studying the central subspecies of chimpanzee (*Pan troglodytes troglodytes*). The project, funded by the Wildlife Conservation Society (WCS), will serve as a control, with Gulick treating passing researchers as "pseudopoachers" and checking for false alarms from the equipment. Gulick also plans to install the TrailGuard in other areas to establish how regularly they are being traveled. Many of those areas in the Nouabalé-Ndoki park are off limits to people, so "anyone detected is presumably a poacher," says Gulick. For now, the park is so vast, at more than 4,000 square kilometers, that it is virtually impossible to patrol in hopes of catching poachers in the act. If rangers do come upon poachers by chance, they risk being overwhelmed by greater, more heavily armed groups. More often than not, rangers and researchers come upon a kill after the fact. Gulick, who has been helping the WCS patrol since 1994, once found more than 200 rotting elephant carcasses in a single sweep. TrailGuard, says Gulick, should help put the right number of officials in the right place at the right time. It can also help give managers traffic data so they can figure out where best to locate rangers. Already Gulick is fielding inquiries from researchers for other applications. Jim Sanderson, a Conservation International ecologist studying the little-known Chinese mountain cat, is interested in having the TrailGuard alert him when a trap has been sprung. "Often the traps are quite far to walk to and we use a dozen of them. We need to check twice a day or more. Ideally we would know instantaneously when they make a capture," says Sanderson. A TrailGuard alert could save Sanderson as much as eight hours. That's eight hours he can spend doing other work. It's also eight hours an animal won't spend in a trap.

**Source:** *Conservation Magazine*; April-June 2007 (Vol. 8, No. 2)

## Appendix V

### New technology for tracking small animals

The Wildlife Institute of India (WII) and the Dhirubhai Ambani Institute of Information and Communication Technology (DAIICT) have launched a joint one-year project to do away with the need for satellite tracking of smaller animals. Titled 'Wildcense', the project will develop a prototype for keeping track of small animals through a grid of transmitting stations, instead of the more expensive Global Positioning System (GPS). The new system will involve the setting up of base stations in the area where the animal moves. The animals will be collared with battery run chips that will transmit signals to the stations and in turn to the main monitoring system.

As a pilot, nine base stations are to be set up at the WII for a test system with tortoises on the campus. As part of the same project, the DA-IICT will also develop sensor cameras, which are triggered off when they break the sensor beams.

**Source:** Vivek Vijaypalan. 'To keep track of wildlife, WII 'tags' DA-IICT', *The Indian Express*, 24/12/06. Contact: Prof. Prabhat Ranjan, DA-IICT, Near Indroda Circle, Gandhinagar – 382009, Gujarat, India. Tel: 079– 30510543 / 55121110.

## Appendix VI

### Emails Received

◆ **From: Kishore Kotecha [info@asiaticlion.org]**  
**Sent:** Wednesday, May 09, 2007 12:14 AM  
**To:** Asiatic Lion Update  
**Subject:** Your suggestions please

**Hello Friends,**

I am drafting a list of suggestions to be sent to concerned authorities regarding present problems, future improvements needed in conservation of Gir and protection of Asiatic Lions. Why not add your inputs to this list? Please send your suggestions, current problems at Gir, conservation methods or whatsoever that you may feel would help better conservation practice and management of Gir Wildlife Sanctuary. Regards and thanks in advance.

**Kishore Kotecha**  
**Wildlife Conservation Trust - Rajkot, Gujarat, India**

◆ **Ashish Puntambekar [busybric@yahoo.com]**  
May 09, 2007

**Dear Kishore,**

I have been to Sasan Gir a couple of years ago. It is a beautiful place and its shocking that 14 lions have been killed there recently. The real problem is that we are making big reports and a long list of suggestions to the government instead of an ordinance that makes poaching a crime punishable by the death sentence. Better still would be to get a force like the Indo Tibetan Border police or to form a task force of retired military officers and men and post them in the sanctuary with good facilities. The salaries need not be very high if they are given some small scale industry to run to sustain themselves. The retired soldiers should be given just one order "To shoot at sight any poacher or anyone who tries to kill the lions."

I am an army person's son and I think we need to take decisive action to save our country's wildlife. Once guilt is proved ... then and only then should the person responsible be executed. This should apply even to those who employ the poachers. Physical presence at the scene of the crime is not a necessary criterion. You will be suprised how well this will work.

Sincerely,

**Ashish Puntambekar**

◆ **N Mortimer [Nigel.Mortimer@southhams.gov.uk]**  
May 09, 2007

**Dear Kotecha**

I'm sorry but do you mean that there is a proposal to move all the lions from Gir to somewhere else or just take a sub-group to set up a new site and reduce the over-population of the Gir sanctuary? Sorry I'm not really in a position to help but visited Gir in '96 so feel a bit of an interest. I do remember that Gir had more of a feeling of a wildlife park with human communities seemingly right around and up against the limits of the lion sanctuary. I remember wondering that if the conservation project were successful and lion numbers increased, there would be a tremendous squeeze in Gir and increasing conflicts with the human population. I can see the advantages of taking a sub-group of lions away to another site so that you have 2 separate populations - even better if you can extend Gir or at least join the two

populations by some form of wildlife corridor.

**Nigel Mortimer**  
**Marine Conservation Officer – SHDC**  
**Harbour Office, Whitestrand, Salcombe, Devon,**  
**TQ8 8BU Mobile 07971 544010**

◆ **Steve Gulick [sgulick@wildlandsecurity.org]**  
May 9, 2007

**Hello Kotecha,**

Regarding your interest in possible technologies to aid in the protection of the Gir, we are developing technology to detect humans with weapons as they enter protected areas and transmit the detection in real-time to park authorities. For a brief description please see:

- "Conservation" magazine, available online at.. <http://www.conbio.org/CIP/article82inrem.cfm>
- The December 9, 2006 issue of "New Scientist" which is available online at <http://www.newscientisttech.com/channel/tech/mg19225816.000-invented-for-the-military-used-to-defend-wildlife.html> And the Wildland Security website at [www.wildlandsecurity.org](http://www.wildlandsecurity.org). Please contact me if you would like more information.

Best regards,

**Steve Gulick, Director, Wildland Security**

◆ **Supraja Dharini [suprajadharini65@yahoo.com]**  
May 10, 2007

**Dear Mr. Kishore,**

The best method would be to protect the areas expanded by the lion themselves, satillite areas. As the lion and other necessary prey must have also expanded likewise then we don't have to work on rehabilitation. The people visiting Girnar and Palitana should be made aware of the importance of protection given to lion. Have booths by NGO to increase awareness and concern for lion - not just blind religious practices only.

We should not shift the lion to Madhya Pradesh, as it will become easy for poachers to work there - since the people there are not vegetarians and may not have the same reverence the people of Gujarat have for the lion (*Mathas vahan*). Increase forest staff from the existing members families who know the forest well and love the forest not just anyone who just wants a job. On my visit to Gir 2 years back this is what I observed. The new forest guards are not at all interested in expanding their knowledge of the forest or the lion. They are not dedicated also. But persons like Murad, Mohamed and a few others whose fathers where *shikaries* and later turned guide had more knowledge and love for the forest and lion. This is very important and may be selected biology persons (dedicated) to work at the various extensions.

My personal request - along with the concern you have for the lion, please have concern for the 100 leopards languishing behind the Junagadh Zoo. Mr Raval IFS wanted to start a leopard safari and has the place also marked for it and had sent the proposal many years back for approval - it has not come. Please also do some thing for those majestic animals too. My sincere and deepest request to you for them too.

**Supraja**

◆ **Rupali Ghose [rupali2001in@hotmail.com]**

May 12, 2007

Hi, it is always good to share ideas with others and particularly with knowledgeable persons. As my knowledge is really poor on big cats, I can furnish only very few ideas on this problem. Frequent census may create trouble but a well monitoring system can solve the problem.

**Rupali**

◆ **Vidya Athreya [phatrosie@gmail.com]**

May 14, 2007

**Dear Mr. Kotecha,**

1. I think the best way of saving the lion is for part of the money that comes from tourism (religious or wildlife) has to go DIRECTLY into a development fund meant for the people who live inside Gir. That will provide a strong incentive for them to want the lions with them. Also they should be on the board which will decide how the money should be used for their own development (with a focus on education for their children, good transport and access to medical facilities). 2. In my study site in Maharashtra I am trying to work with the social forestry wing of the forest department to plant Agave bulbils around the open wells so that it will provide a good protective barrier for the leopards (who frequently fall into the wells). Maybe the social forestry wing there could also try the same - it is the cheapest and likely to be a long term effective option. Phone +91-9423582394, With regards

**Vidya Athreya, Pune.**

◆ **Chris Searle [chriss@technovaindia.com]**

May 14, 2007

**Dear Sir,**

I have been reading with horror and frustration about the plight of the Asiatic Lion. As an English expat living in Mumbai with a passionate interest in natural history and the environment I am very much aware of the rapid destruction of the natural environment in India and also of the heroic efforts of a relatively small number of people to reverse or at least halt the trend. Despite their best efforts, however, environmental health indicator species, often top predators like the lion and tiger seem to be in terminal decline in this country and if drastic steps are not taken now they will certainly be gone forever. To deny this fact is to have one's head in the sand.

I find myself wondering why, in India, 'the market' does not come to the aid of these animals. In Kenya, many people's livelihoods are linked to the survival of large and charismatic animals in the wild and a large part of Kenya's income is based on their survival.

Animals like the Asiatic Lion have a huge potential for generating revenue, both domestic and international as people from all over the world are prepared to pay for the privilege of seeing them in the wild. Why is this market so poorly exploited in India compared to African countries? India is a nation of natural entrepreneurs and I am amazed that there are not people queuing up to offer business plans that will allow them to make money, bring foreign exchange into the area and to ensure the survival of the lions.

I realise that this method is far from ideal and that the best method for conservation would be to utilise private and government funds to allow these animals to live completely natural and undisturbed lives, however, this route is for a number of reasons, (insufficient funds/ interest, corruption, poverty etc) not viable in India. Just a thought.....

**Chris Searle**

◆ **Parthiv Patel [parthiv\_13@yahoo.com]**

May 14, 2007

**Hello,**

As for me some points which are not in the list which was given by you in an earlier mail. So thought to add some points to it:

- Proper communication channel between locals and authorities (by winning trust) - good equipments and infrastructure (like vehicles, rescue machineries, medicines, wireless sets) - Proper Night patrolling
- Permanent place of veterinary doctor atleast two - timber cutting is very heavy in non-monitored area it should be reduced.
- Fire fighting equipments and training for staff (in case of in summer season it gets on) & among villagers

**Parthiv Patel**

◆ **Ashish Puntambekar [busybric@yahoo.com]**

May 14, 2007

**Hello Everyone,**

Here are some more ideas in response to Shri Kishore Kotecha's note. It is very hartening to learn that Shri Narendra Modi has personally visited Sasan Gir to talk to local officials in an effort to understand the problem and thereby take action to stop the poaching of the majestic lions, 19 of which have been slaughtered in the last 4 months. I have some additional suggestions to make in this regard.

1. Shri Narendra Modi could call on Gen JJ Singh (Chief of Army Staff) in New Delhi when Shri Modi visits Delhi for his normal work.
2. The Gujarat government could make an official request to the Indian Army to recommend a team of its excellent retired officers and men to be employed at Sasan Gir to deal with the menace of poaching.
3. The Army in addition to having guns and men also have excellent equipment to deal with the situation :
  - \* Israeli night vision equipment
  - \* InfraRed cameras hooked to closed-circuit television that can detect movement anywhere within the sanctuary
  - \* Other Israeli equipment that is currently being used to stop Pakistani intrusion into Indian territory.

I have mentioned this pointwise as we now need an action plan that deals with the problem. If the above is done, Mr. Narendra Modi can rest assured that the Army will respond favourably and come to the help of the state. As I have said before, to make this a permanent solution, there needs to be some plan to provide the Army people who are deployed, with the means of earning a decent living (possibly by letting them run a small scale industry to support themselves). Finally, the ex-servicemen must be given a free hand to deal with the problem if they have to shoot and kill a few poachers and traders (The ones who are employing the poachers) then let it be done.

Sincerely,

**Ashish Puntambekar**

◆ Arun Nandvar [nk\_arun@yahoo.com]

May 14, 2007

Dear Mr. Kishore,

I think we need to seriously consider the proposal of transferring a few of the lions to the site already earmarked for this purpose in M.P. I had earlier read the reports about the lions expanding their range outside the present areas. I don't know what extent these could be corroborated. In that case additional areas also should be brought under a sanctuary like "Greater Gir".

Best Regards,

**N.K.Arun, Bangalore**

◆ Hirak Dutta [hirakkdutta@yahoo.com]

May 14, 2007

Dear Kishore,

I wonder how successful will be the Modi government in tackling this sensitive issue, particularly when his political party is facing flak in all fronts and with the recent UP election results out, he will be concentrating more on his seat. Nevertheless, here are my two pence...

1. Introduce legislation in the parliament: Making trafficking of endangered species punishable by death! After all, in the ecological system, if these species goes extinct, we too aren't far behind.
2. Also, foolproof evidence that countries like China are instigating the eradication of endangered species. Efforts to diplomatically corner the country so that it shelves such plans.
3. It's time more educated people become active members of leading political parties, spread awareness at such party level, in all fronts of everyday life, only then one political party can have absolute majority and then only can we expect some changes. Kishore, India has enough laws to prevent every crime, but implementation becomes the issue, and also, strategists are required to see through the chinks in the armor of law which make them blatantly violative. so lets begin, once again, with the legislation part again, and lets hope for a new beginning.

**Hirak**

◆ SK Jain [jeevdaya04@yahoo.co.in]

May 14, 2007

Gir lions (Asiatic Lions) number about 350 in Gujarat. Their number will be same or even less because due to infights for food or supremacy, they will perish. It will also increase risk of contracting infectious diseases. It is advisable that some captive breeding centres or new areas as protected areas be earmarked for translocating them. The species will propagate and survive in better way at different places as they have more territory and food sources also in case of an epidemic in a particular area. The problem of inbreeding will also be taken into account by geneticists, so it is better to segregate them and start a planned captive breeding centre by inducting different genetic pools. I hope your Hon. CM is guided properly by the officials. In the larger interests of species it is advisable to split the large group into few smaller groups and strict anti-poaching measures be taken. It will also check the problems by nilgais (blue bulls) and increasing population of herbivores causing loss to farmers. Crop insurance scheme and compensation scheme can also be started.

**SKJ**

◆ Acima Cherian [acima\_t\_cherian@yahoo.com]

May 14, 2007

Hello Kishore

it seems that I may be playing an old tune but I feel peoples' participation is the way to aggressively and effectively stop poaching, training and using local human resources for purposes like tracking, habitat protection. Their participation in associated fields like tourism, education and research would benefit the people and conservationists. I wonder what the government feels about forming a network of local people working towards conserving the habitat they share with the lions? Also I wonder what the people feel about the possibility of their participation and employment in the field. I know programs like 'cybertracking' and protection of wildlife have been successful in S. Africa, so maybe we need to adapt that kind of infrastructure for our conservation needs?

**Acima**

◆ PK Sen

May 14, 2007

Now, a lion safari outside Gir will have zoo-bred lions which will be fed by the forest staff. Reduction of tourist pressure is the only solution to one minor problem in Gir. What about the *Maldhari's* uncontrolled herds of cattle, milk vans entering in larger numbers, pilgrims population has gone up manifold, trucks plying through day and night and finally the mining activity over-crowding the periphery of the PA?

**PK Sen, Ranthambhore Foundation**

◆ Shekar Som Penametsa [ape@rediffmail.com]

May 15, 2007

Hi Kishore

Glad to hear of your concern for our country's lions. Bharath is passing through a phase because of which I am sure the future generations will have to hang their heads in shame as its citizens. It is amazing that any society could so disregard the plight of its wildlife as we do. Absolutely drastic measures need to be taken immediately to counter both the poachers and politicians. While the latter depletes the forest land area and tree cover, the former depletes the fauna. Many of our wilderness areas are looked after by massively ill funded, under-equipped and understaffed forest departments who are also victims of the local politicians whims and fancies which mostly curtail the forest departments efficiency. Army or other existing ACE fighting forces need to be based and deployed as soon as possible at all the wildlife 'Hot Spots'. As the Army already exists and is well funded and equipped they will be a good deterrent both to poachers, corrupt politicians and other anti-national forces. The Army doing the above actual field work, rather than mock exercises incidentally will be more fighting fit with the jungle patrolling and pursuits. The Army should be guided and advised definitely by forest officials to limit disturbance to forest fauna & flora. I also feel that all of us like-minded people should start a major a major fund which will provide 'Equipment' to various sanctuary staff to combat poaching of fauna & flora? Also we must build up pressure to see that all forest department vacancies are filled up as soon as possible.

Thanking You. Look forward to being of help.

**Som Shekar, President, (A.P.E)**

◆ **Virag Vyas** [virag\_vyas@hotmail.com]

May 16, 2007

Dear Sir,

According to me the poaching results due to lack of patrolling in some of the forest areas and also due to unavailability of the forest staff in Gir National Park, I think new beat-guards and foresters and R.F.O's should be appointed as it falls under the state government. One guard can not cover a 20 sq.km area alone and that becomes even more difficult during night hours. Night patrolling should increase and all the areas/range/beats should have a night patrolling vehicles.

One thing I would like to mention is the local *maldharis* should be taken into confidence as they are easily motivated by these poachers for some share of money which is offered to them. Any one can fall into that as the poachers make millions out of it. Once again I would like to put pressure on hiring forest officials who work on grounds and that is in the hands of our state government. I do not intend to blame anyone through this message. Everyone in the world knows that the lions are thriving here in Gir only because of the full dedication of the forest staff and *Maldharis* as well as many other naturalists and N.G.O's. Once again, Thanks.

**Virag Vyas**

◆ **Jatin Kotecha** [jatinkotecha@yahoo.co.uk]

May 16, 2007

Hi Kishore kaka!,

I believe that the below points might help. - Planting of more trees. - Water harvesting through NGOs. - Monitoring of current stock of lions. - More frequent patrolling. - Further development of the forest areas with stricter controls on tourist activities. - Better medical facilities for the local wildlife. - Promoting the safe guard of Gir by creating awareness in the public.

**Shyam**

◆ **Atul Singh Nischal**

[atulsinghnischal@yahoo.com]

May 17, 2007

Putting some type of tracking device on the lions could be very helpful so you could find out their range more precisely. It would also be interesting to put a \*Critter cam on some of them, and that way you could learn about their everyday lives from their perspective. I've met several college students that have done studies over seas. You could set up some sort of program to allow graduate and undergraduate students to do research in the Gir forest. Other areas of the world have similar concerns. These students would allow you to do studies you might not have the man power for now and some would have ideas for studies that might prove useful. If you do something like that then after you figure out how the programs going to work start contacting science departments of colleges and universities all over the world. Here are some lists to start with [http://en.wikipedia.org/wiki/Category:Lists\\_of\\_universities\\_and\\_colleges](http://en.wikipedia.org/wiki/Category:Lists_of_universities_and_colleges) \*Critter cam = Small Movie Cameras that wild animals can be made to wear on them.

**Atul**

◆ **Rajagopal H** [<hari\_raja2001@yahoo.com>]

May 17, 2007

Friends,

The idea of using pilotless vehicle is fine. It can be used

day and night with appropriate night vision camera. During the year 1992 - 93 in order to track the notorious Brigand and elephant poacher Veerappan in the forests of Karnataka and Tamil Nadu the Karnataka Government then proposed to use hang gliders and microlight aircraft that fly as low as 40 to 50 mph. The NCC Air Squadrons and some private fliers had the machines. But the idea was given up because there were not many enthusiasts to take up the job then. Now adventure flying is on the increase. Many aerosport adventure clubs are functioning in the country. Their services could be of great value for tracking the poachers. I am sure microlight / hang glider pilots would be willing to take on the task if suitably remunerated. This is only a suggestion.

**H. Rajagopal, Mysore**

◆ **Ashish Puntambekar** [busybric@yahoo.com]

May 17, 2007

Hello Everyone,

Here is one more idea in response to Shri Kotechas recent note calling for suggestions for saving the lions in the Gir forest.

I would like to introduce a new concept to solve the problem of poaching in India. This could be considered by the Ministry of Environment & Forests for implementation across the country. The Unmanned Aerial Vehicle (UAV) or the drone is usually used in modern armies around the world to conduct special missions and locate terrorists. It is also used by coast guards and pipeline operators to monitor the countryside at relatively low cost. The drone is a small pilotless aeroplane fitted with cameras and infrared equipment that can locate human targets and equipment in the dead of night by their heat signatures. The suggestion therefore is for the Ministry of Environment to purchase just 2 of these pilotless planes and deploy them across India depending on which sanctuary is having a problem with poachers. Many armies prefer to use UAVs smaller than the American Predator, such as the French-made Sagem Sperwer or the Israeli-made IAI Searcher. Weighing around 270 kg (600 lbs) and with wingspans from 4 to 5 m (14 to 17 ft), these UAVs can be carried near a Wildlife Sanctuary on cross-country trucks, launched from a catapult, and quickly recovered by parachute. Unlike the American built Predator, which is relatively slow and may have a launch site located several hours from the battlefield, these Israeli UAVs can respond quickly if a forest warden needs images immediately. A picture of a UAV on its portable launcher is available on the link below. Notice just how user friendly this system is. [http://www.defence.gov.au/dmo/news/ontarget/mar06/Images/tactical\\_UAV\\_still.jpg](http://www.defence.gov.au/dmo/news/ontarget/mar06/Images/tactical_UAV_still.jpg) The Indian Army has recently bought several such Israeli UAV's and they are currently being used in border areas and in Kashmir. Using the UAV's in Wildlife Sanctuaries across India will be of great use to the Army as it needs to test this system in different terrains. Collaborating with the Ministry of Environment and Forests provides a rare opportunity to the Army to test the systems. It will also solve the poaching problem for many state governments including Gujarat. Since only 2 UAV's are being purchased they can be used across the country based on need. For instance after doing their work in Sasan Gir, they can be packed and sent to Kaziranga where poachers are killing Rhinos. The use of modern technologies such as the UAV can greatly reduce the costs of monitoring the vast areas in sanctuaries across India. They have a big advantage in

that they can locate targets even at night and inform the forest wardens exactly where to look for and destroy poachers. They also enable a much safer operation as forest staff is better informed to take preventive action with much lesser risk of being shot at by the poachers as the UAV circulating overhead can identify targets with precision and give the warden their position with a precision of around 10 centimeters even in the dead of the night.

A combination of UAV technology, night vision infrared equipment and modern Ishopore Rifle's / Uzi submachine guns will ensure that any poacher entering a sanctuary in India will do so in the full knowledge that there is a 90% chance that he will not get out of the area alive.

Comments to this note are most welcome.

Sincerely,

**Ashish Puntambekar**

◆ **Dawn Via [atulsinghnischal@yahoo.com]**

May 18, 2007

In reference to tracking the Asiatic Lions, there is an organization called Earth Watch. They organize experienced and non-experienced volunteers to work with field biologists, research biologists and conservationists around the world. They match people with their skills, experience and interests. Earth Watch does have a group that works with the Chicago Field Museum in Tsavo Kenya. They tag, track and research the maneless Tsavo lions. At the moment there does not seem to be any Earth Watch involvement in India. Maybe this is an organization that can be contacted in order to

set up a research/tracking project with the Asiatic Lions. [www.earthwatch.org](http://www.earthwatch.org) Possibly having a stronger international conservation presence in the area will make it difficult for the poachers especially since they seem to be villagers and not armed to the hilt (as I read in a previous post)

**Dawn**

◆ **Justus Joshua [justmonk@rediffmail.com]**

May 23, 2007

**Dear Kishore,**

There are many things involved in this 1. Staff strength is to be improved. 2. Salaries of the lower staff to be improved so they don't get calmed down with money from the poachers. 3. Villagers around the sanctuaries to be motivated positively so that they, would be part of the conservation effort if not we cannot do anything, as without their knowledge on one can enter the forest. 4. Joint patrol squads comprising both the department and the villagers should be formed and carry out regular monitoring of specific village areas and the adjoining forest. 5. The punishment to the poachers and the main person responsible for this should be severe so that no one will even dare to think of repeating it again. There should not be any much enquiries as it will give more room for escaping from this. 6. All this drama which has resulted in loss of eight to nine lions. An epidemic can wipe out the whole Asiatic Lion population and we will be without this variety of lion for which we are all fighting and working. So let us put our thinking into this issue also (second home for lions).

**Justus**

## **1<sup>st</sup> International Wildlife Reintroduction Conference to be held in April 15-16, 2008 in Chicago, IL, USA**

The IUCN /SSC Reintroduction Specialist Group (RSG) and Lincoln Park Zoo will host the 1<sup>st</sup> International Wildlife Reintroduction Conference April 15-16, 2008 in Chicago, IL, USA. The theme of the conference will be "Reintroduction programs: Applying science to conservation". The conference website, including information about registration and submitting abstracts, is available at [www.reintroduction.org](http://www.reintroduction.org).

The deadline for submission of abstracts for spoken presentations and posters is September 30, 2007. Twenty speakers and 40 posters will be selected for presentation in addition to 12 already invited speakers.

Registration is limited to 275 participants. More information about the conference theme and topics is available at the website [www.reintroduction.org](http://www.reintroduction.org).

The Conference Organizers, Joanne Earnhardt, Devra Kleiman and Fred Launay

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