

## Swedish Reindeer Herders Welcome Proposed Limits on Predator Numbers

**S**weden's reindeer herders, who say they lose valuable animals to predators, welcomed proposals that could lead to sweeping changes of Sweden's laws on predatory animals, a New York Times (14 January 2000) reported.

The proposals, by a government-appointed investigator, would establish a minimum number of bears, wolves, lynx, wolverines and golden eagles for the first time in Sweden and make it easier to hunt the animals when there are too many or when they threaten livestock. The special investigator also recommended an increase in compensation for reindeer killed by the wild animals and improved enforcement against illegal hunting.

The Swedish environmental protection agency appointed Soeren Ekstroem in February 1998 to investigate the nation's policy toward predatory animals and hunting after the government faced criticism over the rising number of carnivores and the threat to livestock. Ekstroem said Sweden should have a minimum of 1,500 bears, 300 wolverines, 1,000 lynx, 200 wolves and 1,200 golden eagles.

While the figures gave most of the animals room to grow, Ekstroem's suggestions would mean cutting Sweden's lynx population by a third from its current level of 1,500 animals. The proposals, which were compiled in conjunction with reindeer herders, hunters, conservationists and farmers, will be reviewed by other agencies before the government decides whether to submit them to parliament. Current rules are vague, with the environmental protection agency deciding each year how many of the protected animals can be hunted.

The Sami, traditionally reindeer-herding people, have lobbied the government to reduce the danger from predatory animals and to increase compensation for slain reindeer. The Sami, once called Lapps, are the indigenous people of Europe's Arctic. They welcomed the proposals but said more needs to be done.

"It's a very good step to some kind of solution," said Per Gustav Idivuoma, vice chairman of the National Association of Sami, which organizes Sweden's 52 Sami villages in the northern half of the country. "We'll see what the politicians say about this."

## Protected Lynx Suspected Poisoned in Switzerland

**T**hree lynx were found dead in western Switzerland in February, apparently poisoned in a new protest against predation on sheep and the species protected status.

The three animals – a female and her two young – were found in the mountains of Vaud canton (state). Initial tests indicated they were deliberately poisoned, the government said. Criminal charges were filed against persons unknown.

Earlier an investigation was opened into the delivery of four severed lynx paws to a government department in Bern, accompanied by a postcard that said the package came "from the Bern hunting jungle."

Lynx, which were extinct in Switzerland by 1900, were reintroduced in the 1970s with stock from the Carpathian Mountains in Slovakia, and now number about 100, according to specialists. They enjoy protected status, but the authorities can authorize the shooting of individual animals in special cases, such as repeated killing of livestock.

Some lynx have killed sheep, leading to an outcry by the owners, although they are entitled to compensation for losses proven to be due to lynx. According to figures published in the newspaper, 24 Heures, 68 sheep and 93 goats were killed in the canton of Vaud between 1990 and 1999. The newspaper also said that 300,000 sheep were pastured in the Alps. Lynx supporters say that too many sheep are kept, because the owners get government subsidies, although the sheep are not productive.

Anja Jobin, one of Switzerland's leading lynx experts, said lynx took only 0.03% of the sheep, while 2-5% were lost through accidents or disease.

Hunters complain that lynx not only kill roe deer *Capreolus capreolus*, their principal prey, and chamois *Rupicapra rupicapra*, but have made them more wary and difficult to hunt. They also claim that some isolated populations are being decimated.

Predation on sheep has occurred principally in west-central Switzerland. It is claimed that there are too many lynx in the area, and the government has proposed to translocate a number of them to other parts of the country. Researchers are tracking radio-collared lynx to establish their movements and ranges.

Wolves are returning to Switzerland from the population in Italy, and several have been illegally killed in retaliation for predation on sheep. Packs have established themselves in areas of France bordering Italy, and sheepowners have demanded their liquidation because of loss of sheep.

## Studies for the Conservation of the Iberian Lynx

*Report by the Doñana Biological Station Conservation Biology Group\**

**T**he Iberian lynx (*Lynx pardinus*) has been studied at the Doñana Biological Station for many years. The studies during the early years concentrated on improving the knowledge of the natural history of this species. Prior to this, little was known about it, except that it existed. Later, our objective was to consolidate the efforts toward the conservation of the species. The studies include the distribution and the population status of the Iberian lynx, its ecological requirements, and the factors that directly or indirectly condition its abundance.

According to the research performed in the late 80s, there were at that time only a little over 1,000 individuals of *L. pardinus* in the world, distributed in nine areas of Spain and two or three in Portugal. Each one of these areas functioned as a metapopulation integrated by relatively independent subpopulations but interconnected

by the animals (mainly young individuals) that moved freely between them. The majority of these meta-populations are so small that they run a high risk of extinction in the short-term. We have the sad privilege of having the IUCN list the Iberian lynx as the most threatened feline species in the world.

The best known meta-population lives in the Doñana National Park and its immediate surrounding area. It has been studied for a longer period of time. There are 50 animals living in this area. Most of them live in Doñana and only a few reproductive females live outside it. The population is limited by the lack of an ideal habitat since much of the Mediterranean bush has disappeared. It disappeared some time ago during the reforestation strategy, and more recently due to the planting of crops that require irrigation. Since the male lynx shows territorial behavior, the number of reproductive females (also territorial) is reduced by the habitat available in the area. On the other hand, some studies carried out more than 20 years ago proved that the Iberian lynx is an expert hunter and consumer of rabbits (*Oryctolagus cuniculus*), to such an extent that the size of the exclusive areas are inversely proportional to the abundance of such a valuable prey. The reduction in the number of rabbits in Spain since the appearance of myxomatosis, and worsened dramatically by the haemorrhagic illness, brought as a direct consequence the natural lack of resources for maintaining females capable of reproducing.

There is an additional problem. There is a high death rate from non-natural causes. The radio-tracking techniques (since 1983 we have placed neck bands with radio transmitters on more than 60 animals) allowed us to detect cause of death and the areas, or "black zones", of more frequent deaths. Some of the reasons, like the small traps for foxes and rabbits, are difficult to eradicate. In other cases, the death is caused by motor vehicles. To prevent these deaths implies costly and slow infrastructure works, such as the construction of passages under or over the roads for the animals. Nonetheless, some of these measures have taken place thanks to pressure from the researchers. In other instances, however, the solution seems to be very easy. Many lynx, for instance, died drowning in wells; the solution for this was as simple as covering the wells with a wire fence.

The small size and the fragmentation of the lynx population in Doñana are by themselves serious menaces. At the present time,

we are conducting research to detect the main barriers in the habitat that contribute to or reduce the fragmentation, as well as the opposite, that is, the corridors or connections between the apparently isolated patches or spots. We are also working to detect the minimum requirements (in dispersion and density of rabbits, degrees of interference, etc.) to allow reproduction. In parallel, we are developing simulation models that hopefully will allow us to predict with sufficient probability the effects of specific management actions concerning the feasibility of the metapopulation. We are also trying to enlarge our knowledge about the genetics of the lynx, in order to evaluate the risks that might derive from an increasing loss of genetic variability. The results of these studies must constitute an essential scientific basis for any recovery plan of the species.

### Interspecies Relationships in the Carnivore Community of Doñana

The structure and composition of the animal communities are the result of the historic action of competition as well as the result of specific processes. The role of the latter on the population and communities of carnivore mammals is evident. Data about carnivores that kill other carnivores are relatively common. From this evidence, the phenomenon of competition between species of carnivorous mammals is widely accepted, although not well understood.

Apart from the theoretical interest surrounding the phenomenon of the competition in communities of wild carnivores, managers and researchers in conservation biology show interest in its application. This phenomenon also has important effects on

third species. In the case of carnivores, the third species are the prey of all the species that interact.

The Doñana carnivore community is formed by the Iberian lynx (*Lynx pardinus*), which is the main predator, the badger (*Meles meles*), the fox (*Vulpes vulpes*), the mongoose (*Herpestes ichneumon*) and the genet (*Genetta genetta*). The research focused specifically on the following aspects:

1. to study the frequency of direct interactions between the mentioned species;
2. to reveal which are the behavioural mechanisms shown by the unfavored species during the interactions; and
3. to verify if these interactions affect the rabbit (*Oryctolagus cuniculus*), which is the basic prey for most of them in any way.

The results of the studies show how the Iberian lynx is the superpredator of the carnivore community in Doñana. All the carnivore species, except the badger, are killed, although not consumed, by the lynx. On one occasion, a young badger was killed by a fox.

In some areas where the lynx density is high, the density of smaller carnivore species is reduced to very low levels. In some cases, we have recorded how in some optimum habitats the presence of these species is occasional. The abundance of genets and mongooses might depend on the density of lynx.

The effect that the relationship between the lynx and the mongoose has on the rabbit population (which is the basic prey for both species) paradoxically shows that the rabbit population benefits from the lynx presence. This result may have important conservation implications.

\* The Doñana Biological Station is a research institute of the Spanish Council for Research (CSIC). The Conservation Biology Group performs multidisciplinary research: Evolutionary Ecology, Behavioural Ecology, Demography, Population Dynamics, Speciation, Extinction Patterns, Gene Flow, etc. This research provides the scientific basis necessary for the conservation of the biological diversity in all its forms. They are basically oriented towards ecosystems, communities, species and populations in danger of extinction. This group pays a special attention to the problems of the Doñana National Park and its surrounding areas, although it also works in other areas of the Iberian Peninsula, Europe, the Antarctic Continent, and the Neotropical Region.

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< <http://ebd03.ebd.csic.es/English/conservation.html> >