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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

Group of Experts on Conservation of Large Carnivores

Oslo, 22-24 June 2000

Report

*Document established by
the Directorate of Sustainable Development*

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The Bern Convention Group of experts on Conservation on Large Carnivores met for the first time in Oslo, from 22 to 24 June 2000.

The Standing Committee is invited to examine the enclosed report and

1. take note of the report of the Group of experts and on the information on the situation of large carnivores in Fennoscandia;
2. thank the Norwegian authorities for the excellent preparation of the meeting;
3. examine and, if appropriate, adopt the terms of references for the group of experts (Appendix 6);
4. examine and, if appropriate, adopt the draft recommendation proposed (Appendix 7).

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1. Opening of the meeting by the Secretariat and by Large Carnivore Initiative for Europe (LCIE)

Mr Eladio Fernández-Galiano, from the Secretariat, welcomed participants (list in Appendix 2) and presented the terms of reference of the group of experts. He was particularly happy to announce that the Standing Committee to the Bern Convention had adopted in December 1999 its Recommendation No. 74 (1999) on the action plans for the Conservation of Large Carnivores (see Appendix 4). Following that adoption, the Standing Committee had considered appropriate the creation of the present group of experts.

The delegate of Portugal proposed a small modification of the terms of reference of the group, which was accepted and sent for approval by the Standing Committee. Amended terms of references proposed to the Standing Committee are found in Appendix 6 to this document.

The Secretariat thanked the Norwegian authorities for the warm welcome and excellent preparation of the meeting and thanked the Large Carnivore Initiatives for Europe (LCIE) for having helped to draw up the programme.

The Secretariat informed the group of experts that the LCIE Action Plans for bear, wolverine, wolf, lynx and Iberian lynx would be printed in the next months by the Council of Europe.

The representative of LCIE, Mr William Pratesi-Urquhart, thanked the Council of Europe for having been receptive to the LCIE and, in particular, to its five action plans, as well as for the organisation of the workshop in Tale (Slovakia) in 1998 and in Oslo in 2000.

2. Election of Chair and Vice-Chair

Mr Ovidiu Ionescu (Romania) was elected Chair and Mr Jon Swenson (Norway) Vice-Chair. For the session of the first day, on conservation of large carnivores in Fennoscandia, Mrs Gunn Paulsen (Norway) was elected Chair.

3. Adoption of the agenda

The agenda was adopted as it figures in Appendix 3 to this document.

4. Management of Large Carnivores in Fennoscandia

Day 1 of the Conference was devoted to this issue. The contributions by participants are including in Appendix 1 to this document.

Although there were no formal conclusions at the end of the first day, the following points seemed to receive the consensus of most participants:

- Large carnivores are a fundamental part of Scandinavian heritage and play an important role in natural and semi-natural ecosystems in Fennoscandia, so policies should endeavour to maintain viable populations of lynx, bear, wolverine and wolf in the Peninsula. Co-operation among Finland, Norway and Sweden is necessary for the management of those populations, so such co-operation is to be promoted in the framework of the Bern Convention and in other appropriate fora (Nordic Council, CBD, etc.).
- Large carnivores may cause conflict with sheep farming and reindeer herding practiced by the Sami people, so all solutions have to be explored to make co-existence possible and minimise conflict. A compromise needs to be reached between the conflicting interests, for which all parts (farmers and voluntary groups supporting carnivores) will have to make concession. The Bern Convention offers an appropriate platform for dialogue in that respect and it needs to be interpreted flexibly.
- Sami cultural identity linked to traditional reindeer herding is to be protected as the Council of Europe also stands for the protection of the cultural diversity of the peoples of Europe.
- Present conflict is the result of the success of policies aimed at recovering large carnivores populations in Finland, Sweden and Norway but damages to livestock need to be brought under control so as not to endanger the legitimate interest of sheep farming and reindeer herding. Preventive measures need to be given priority where they may realistically work but removal of individual carnivores causing intolerable damage should also be contemplated.

- A more in-depth study of reindeer herding and free-ranging sheep farming needs to be conducted to estimate the impact on those activities of present large carnivore populations in comparison to other factors (loss of habitat, overgrazing, etc.).

5. Recommendation No. 74 (1999) of the Standing Committee

The Recommendation was adopted by the Standing Committee in 1999 and it figures in Appendix 4 to this document.

The Secretariat read the main points of the recommendation. The chair invited Contracting Parties to the Bern Convention to implement the recommendation by drafting and implementing the necessary action plans at the national level.

6. Presentation of the contributions by starts on the implementation of action plans

Different states presented reports on the status of large carnivores in their territories. Appendix 5 to this document contains reports from the following states: Albania, Austria, Croatia, Czech Republic, Estonia, Finland, France, Hungary, Italy, Lithuania, Moldova, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Switzerland, Tunisia, Ukraine

7. Examination of issues of particular concern

7.1. Ecological corridors for large carnivores

In the framework of the Pan-European Biological and Landscape Diversity Strategy, the Council of Europe is responsible for the setting up of a Pan-European Ecological Network. The network will be composed of core areas, corridors and buffer zones. Core areas will be those designated by states for Natura 2000 and the Emerald Network. The Council of Europe is interested to know how design of corridors can adapt to the biological dispersal of some species such as large carnivores. A study was commissioned to Mr Luigi Boitani in that perspective [*Document STRA-REP (99) 14*]. Mr Boitani briefly presented the study, highlighting the need to maintain good carnivore in transboundary areas to act as corridors for the dispersal and genetic communication of species.

7.2. Migration of species from Slovenia into the Alps

In the context of corridors, Mrs Jana Vidic from Slovenia explained the crucial role that her country has in the dispersal of bear and lynx into Austria, Italy and Switzerland. This key role of Northwest Slovenia was confirmed by Mr Urs Breitenmoser, as the Alpine lynx population is now divided into two isolated groups and a recolonisation of the Eastern Alps is highly desirable. Concerning bear, the situation is even more important, as Austrian populations depend mainly of migration from Slovenia. Unfortunately, the area, which acts as a corridor for bears, has also a high level of conflict. Even if it contains only a few bears, it accounts for 80% of all the damage caused by bears in Slovenia in particular years and public pressure against bears is building up quickly. To maintain such corridors, Slovenia hopes to receive more support from neighbouring states.

The group decided to include a paragraph on the topic on the recommendation to be submitted to the Standing Committee for possible adoption. It was also suggested that the three states ask for a LIFE Project on the conservation of the transboundary population.

7.3. Action plan for wolf in France

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The delegates of France presented in detail the colonisation of wolf in the last years and explained the important conflicts that it is causing with livestock raisers as damages have increased substantially.

France has prepared an action plan on the conservation of pastoralism and wolf that was presented at the meeting. The amended plan has as final objective the maintenance of a population of wolf in France involving a control of the damages caused by wolf to livestock breeders. Damage will be limited by the implementation of prevention measures and by thinning wolf populations where damage is too high. Areas will be defined in which wolf conservation will be the main objective and other in which limitation of damage will become a priority.

The amended plan will take into account the presence of the existing reproductive packs, the areas where pastoralism is a priority both in ecological and economic terms and the existence of administrative structures connected to conservation (three national parks and two natural parks).

The representative of LCIE presented the opinion of LCIE on the previous action plan for pastoralism and wolf in France, insisting that it would have been a bad idea to change the status (protected/not protected) of wolf in different areas. The amended plan seems more satisfactory in that concern. LCIE was ready to amend its former opinion. A revised one will be sent to the Bern Convention Secretariat.

Regarding the transboundary aspects of wolf conservation, it was agreed that the Alpine population could only be properly managed jointly by the three states involved (France, Italy, Switzerland). The experts reaffirmed the idea that the Alpine wolf population should be managed as a distinct unit, even if it may have some genetic contact with the Apennine population. It was also clear from the obligations of the three states under the Convention (and of Italy and France under the EU Habitats Directive) meant that the population had to be maintained in a favourable conservation status.

The group acknowledged the will and efforts of the Government of France – similar to those of Norway – to accept wolf populations that have recolonised its territory and to minimise conflict with livestock raisers. A draft recommendation was proposed for possible adoption by the Standing Committee (see Appendix 7).

7.4. Lynx in Switzerland

The Swiss representative, Mr Hans-Jörg Blankenhorn, presented the situation of lynx in his state since its reintroduction nearly 30 years. Lynx has been extending to most potential favourable habitats in the west and south of Switzerland, but seemed now stopped in its progression by lack of appropriate corridors. Conflicts had been (and still are) important, although damage is compensated by the Federal governments and the Cantons. In some areas, lynx density – and damage – was high, so a decision has been taken to remove animals and translocate them to eastern Switzerland, where they may form new populations (and presumably extend to Austria). In the future, it is not excluded to proceed to control by the most appropriate means healthy populations in areas where damage will be high.

Mr Breitenmoser, responsible of the “Status and Conservation of Alpine Lynx Population” (SCALP) also explained conflicts with the hunting community caused for what was perceived as an excessive pressure of lynx on game species. Such was an aspect that needed to be addressed in Switzerland.

The group took note of the information provided, welcome the progress in SCALP – specially the reintroduction of the species into new cantons (see Appendix 7) – and stressed the importance that a eastern Alps lynx population would have for the establishment on a continuous lynx population stretching from the western Alps to Slovenia. As draft recommendation was proposed.

7.5. Large Carnivores in the Baltic States

The LCIE representative informed the group that a sub-regional initiative has been launched for the Baltic States. A first meeting had been held in Riga on April and a second meeting was being prepared for the autumn.

The group considered that it was important that the Baltic regions maintained the present favourably conservation status of its large carnivores populations, in view of the good prospects for economic development of those states for the next decade. Regional co-operation among the Baltic States was strongly recommended (see draft recommendation, Appendix 7).

The group also wished that a recommendation be made for a similar co-operation on the Carpathian region (see draft recommendation, Appendix 7).

The Secretariat informed that, in the draft programme of activities of the Convention for 2001, a support had been planned for the drafting of a strategy for Large Carnivores on the Baltic States.

7.6. Wolf in southern Spain

The representatives of Spain explained the difficult situation of wolf populations in southern Spain. While in the north of Spain wolf live in cereal plains and mountains with relative good wolf habitats, in South Spain the species survives in mountains and hilly areas where most of the big properties have turned to game reserves (mainly for red deer, fallow deer and wild boar). Although the wolf is strictly protected in South Spain, the species is not welcomed in these properties and is often poached.

It has been very difficult to implement its protection, although a recovery plan is being prepared in the region of Castilla-La Mancha. In Andalucía wolf populations appear mainly in protected areas and a study about population status and threats is being carried out by the University of Jaén.

The group took note of the information presented and made a specific recommendation to Spain (see Appendix 7).

7.7. Information on Large Carnivores on Albania and “the former Yugoslav Republic of Macedonia”

The representative of LCIE pointed out the lack of information on large carnivores for these two states. Mr Urs Breitenmoser, responsible for the Balkan lynx project, presented briefly the results of a meeting on the conservation of lynx in the southern Balkans and insisted on the importance of maintaining a viable population of lynx in Albania, “the former Yugoslav Republic of Macedonia”, Bosnia-Herzegovina and Yugoslavia if lynx was to be present in the neighbourly areas of Bulgaria and Greece.

7.8. Evolution of the Iberian lynx population

Mr Borja Heredia, Spanish representative, and Mr Alejandro Rodriguez presented an update of the situation of the species in Spain (see Appendix 5). In March 1998 a population viability assessment workshop had been held in 1998 in co-operation with IUCN. In 1999 a strategy for Lynx conservation was approved by the National Commission on Nature Protection. The status of the species is still deteriorating, having become the most endangered cat species in the world. Estimates of population size were from 1000 to 1200 in 1990, but numbers have certainly decreased. The Spanish authorities have started new surveys and genetic analyses, as well as management agreements with landowners (see Spanish report and Mr Rodriguez paper in Appendix 5 for details).

Although many well-financed conservation projects have been developed the last years, and some are still on-going, there is little evidence that those projects have helped improve the conservation status of its populations. An *ex-situ* conservation project focused on experimental captive breeding has been prepared and will be submitted to the National Commission on Nature Protection for approval.

In Portugal the situation is not favourable either. A national survey pointed out to the existence of five areas (three transboundary) and less than 40 to 50 animals (see Portuguese report in Appendix 5°).

The group took note of the very regrettable decline of the species, discussed on some of the problems involved and included a specific recommendation (Appendix 7).

8. Possible recommendation to the Standing Committee

See draft recommendation in Appendix 7.

9. Future activities of the group – Operation of the group of experts between meetings

The Secretariat informed that the Standing Committee was reconsidering the working methods of all its working groups. The proposals of the Standing Committee point out towards the establishment of a tighter co-operation with different voluntary bodies. For the present group of experts, it had been proposed to conclude a Memorandum of understanding between the Council of Europe (in its capacity as Secretariat of the Convention) and LCIE so that the meeting of this group of experts may be linked to some of LCIE meetings and an even greater role is given to LCIE in the follow up of Recommendation No. 74 of the Standing Committee. The next meeting of the group of experts could thus be in 2003, when LCIE is to meet in plenary. Work between the meetings could be arranged by collaboration with LCIE and the Council of Europe Secretariat.

The group hoped such an arrangement could be concluded. The Secretariat thanked LCIE for the extremely openness shown to Bern Convention initiatives and announced that it would work with LCIE for the conclusions of such a Memorandum.

10. Other business

None.

APPENDIX 1

Contribution to the Seminar “Large Carnivores in the Fennoscandia Peninsula”

1. Welcome

by Mr Jo Stein Moen, Assistant Deputy Minister of the Environment

Chairman, experts and secretariat of the Bern-convention, ladies and gentlemen.

It is a pleasure for me, on behalf of the Ministry of Environment in Norway, to welcome you all to our country. We are proud to host this meeting, and we are eager to make this a valuable experience for all of you. We hope to be able to present some of the challenges and conflicts arising from carnivore management in Scandinavia, with focus on both the biological and ecological aspects, and depredation problems and consequences for sheep farming and reindeer herding. As you all know, carnivores are of nature predators. Usually, if their prey is wildlife populations not utilised by man, carnivores are regarded as a symbol of a sound ecological environment. However, when they turn to other prey, which we either keep for farming, pet animals, or where man is a competing predator through hunting, carnivores very soon become a difficult management issue.

In Norway, the management of carnivores is very much a political question. In 1992 the parliament had a broad discussion on all aspects of carnivore management, and concluded that Norway should strive to establish viable populations of bear, lynx, wolf and wolverines. At the same time we should try to make depredation problems as small as possible, without endangering the population goals. As a consequence of this policy, the carnivore populations have grown throughout the 1990's. And growing populations generate more depredation problems on livestock and semi-domesticated reindeer herded by the Sami-people. The increasing populations and damage problems generated another full parliamentary debate in 1997, where the existing policy of 1992 was confirmed. Since then, single topics in carnivore management have been discussed in the parliament several times a year, but the general policy of 1992, confirmed in 1997, is unaltered.

At this point I should perhaps add that we regard the Norwegian conflict with carnivores partly to be a result of past history of over-exploitation of the populations, and partly a result of our rural district-policy, where we want to keep the tradition of a small-scale diverse farming communities throughout the country. I know that you will be given more details on this matter later on today, so I will not go into further details. But I still want to emphasize that while we killed off carnivores and lowered the population levels to close to zero, we opened for a change in agricultural practices. For the past decades we have developed a practice of free-ranging sheep and extensively herded reindeer spread over most parts of Norway. This change of practice has altered the prey base of carnivores in Norway, and our ability to cope with the problems. When we implement a carnivore policy which aims to increase carnivore numbers and re-establish them in new areas, we of course run into major conflicts with other interests in the society!

But, and this is important in the context of this conference:

Those conflicts are anticipated. We know they are coming, and we have to be able to deal with them. Anyhow, there is no simple solution available to us. We can not kill all carnivores, we can not remove all the sheep or reindeer, and we can not teach the carnivores not to eat sheep or reindeer. So where does that leave us? It leaves us with the only possible answer: We have to learn to live with the carnivores and with the conflicts, and step by step find old and new ways to cope with the conflicts.

We believe that this is not a question where it is possible to be fundamentalistic either way. Conservationists acting and arguing against the taking of any carnivore individual are keeping the fire burning as much as a farmer advocating the extermination of wolves. Mind you, such views are the extremes. But those views are often what catches the interest of media, and thereby are presented to the public. That is why the Bern-convention and conferences like this are important. It gives the participants a possibility to exchange views on common problems, to hear all parties at the same time, and to confront and learn from each other. Hopefully this conference will also result in specific recommendations to the parties. Thus, the conference will provide both the experts, other participants, and press with a common background and information. Finally, let me remind you all that managing carnivores is not really a biological issue. It is about people and their preferences and attitudes.

On behalf of the Ministry of Environment, I wish you all a very good conference. Thank you very much for your attention.

2. Large Carnivore Management in Norway

by Mr Terje Bø, Head of Section, Directorate for Nature Management

Chairman, experts and other participants, ladies and gentlemen

The theme of my presentation here today is about how we manage large carnivores in Norway. This is indeed a complex and difficult matter, primarily because it contains a very large variety of problems and different angles. Anyhow, I will try to give you some headlines, and pursue some of those in more detail, either in this presentation, or if questions arise, later today during the panel debate. To give you some background, let's keep in mind the management goals given in today's regulation on management of large carnivores in Norway.

Management regulations of July 93 (Will be revised in July 2000)

§ 1 Aim

The aim of this regulation is to ensure that populations of bear, wolverine, wolf and lynx are viable in the long term. Within this frame predation caused by these carnivores on sheep/cattle and reindeer shall be kept as low as possible.

Let's then look at some history:

You have heard from The Ministry of Environment today how the current management policy of rebuilding populations, and at the same time prevent damage to livestock and reindeer, have been debated by parliament twice during the 90's. This policy, and the need to rebuild populations is historically caused by a population decline. If we go back to around 1840, state bounties were introduced to encourage the killing of large carnivores and a lot of other species. Large bounties and good prices on pelts led to general population decline. In fact, bears and wolves were functionally extinct by the 1970's. To illustrate this, let's look at the development of the different populations as we can interpret from the hunting statistics.

1. Slide of bear hunting statistics
2. Slide of wolf hunting statistics
3. Slide of lynx hunting statistics
4. Slide of wolverine hunting statistics

So, as you have seen from the slides, the populations have been very low in numbers, this of course affects the distribution throughout the country. As an example we can look at the distribution of lynx and bears through this period.

5. a. Slide of bear distribution
5. b. Slide of bear distribution

6. Slide of lynx distribution

Historically low numbers and limited distribution are factors that may well be important in deciding future management practice, and shed some light on different management options. We are therefore currently funding research on genetic variation in all four species. Not surprisingly, results indicate a previous bottleneck situation for all the carnivore species. This should be kept in mind, especially when we consider population viability, and when we evaluate current management

Because of the low numbers, conservation measures were introduced in the 1960's and 1970's. As a consequence populations have grown in numbers and spread back into habitats from which they were exterminated. This is clearly a result of reduction in kill rates of carnivores, caused by the conservation measures implemented in the 60's and 70's. It does not mean that we have eliminated killing carnivores, neither legally nor illegally. Overall mortality may have slowed down the population growth, but still the mortality has been lower than production, and consequently there has been room for population growth. The present situation is given in the next slide.

Status of carnivore populations 2000 (Norway)

<i>Species</i>	<i>Numbers</i>	<i>Trend</i>	<i>Distribution</i>
Wolf	36-39	Inc.	Inc
Lynx	500+	Stable	Inc
Wolverine	200+	Inc	Inc
Bears	26-55	Inc	Stable

But, establishing viable populations is only one part of management goals set by parliament. To reduce the conflict with other society interests, and especially reduce the number of livestock and reindeer killed is the other part. Those two goals are clearly in conflict with each other, and it may seem impossible to achieve both at the same time. Common sense tells us that increasing carnivore populations kill and eat more prey. So what do we do then? There are a lot of options, but the management today is based on two main strategies: Those strategies are:

- 1. Management of carnivores must be based on a principle of area zonation**
- 2. Carnivores causing excessive damage run the risk of being killed.**

Area zonation:

Core areas for bear and wolverines, management zones for wolves and lynx.

Killing carnivores:

Ordinary hunting for lynx, (quota-regulated)

Licensed hunting and taking of individuals for wolves, bear and wolverines

One important effect of those principles is that they create a better way for people to anticipate management decisions in any given situation.

To be able to show you a little more how those principles work, lets concentrate on the two species lynx and wolf. This is not a random choice, because they represent the two species where complaints against the management have been brought to the attention of the Bern Convention. It is also the most numerous (lynx) and the most endangered (wolf) of the populations.

There is also available comprehensive documentation in English in the material you have received when arriving at this conference.

By describing the management of these two populations in more detail, I hope you will get a better understanding of how those principles work. Lets start with the lynx.

The lynx has been a widespread and relatively numerous species in Norway in the last few decades. In 1997 the parliament found that lynx should be managed in a way that kept a relatively large number distributed over most of Norway. But in the areas to the west, where lynx were found only as stray animals, and the depredation risk is high due to a high density of free-ranging sheep, lynx were to be kept out of this area.

7. Slide of lynx-free areas

This has since been implemented in the management practice. We can of course give no guaranties that lynx will not occur occasionally in the west coast, but current regulations give farmers and other interested parties access to a non-regulated hunt for two months (February-March) each year. So far this has been sufficient to avoid large-scale depredation by lynx in the western coast of Norway.

In the rest of the country local populations are kept fairly stable. We kill about a 100 lynx each year, of an estimated winter-population before hunting of 500 + individuals. The hunting is regulated by fixed quotas, where total number and number of adult females are regulated. All carcasses from the hunt is collected and analysed for different aspect like sex, age, radioactivity, reproduction, stomach contents, genetics etc, etc.

The county governors have the authority to issue a licence to kill lynx out of the hunting season, if they cause damage to either sheep or reindeer.

Then lets have a look at the wolf. The wolf population has just recently recovered from a very low population level. If we look at only the last decades, the wolf was bordering on total extinction in both Norway and Sweden.

8. Slide of population development for wolves

We will shortly receive the annual report from the population monitoring project of wolves. Preliminary results are that the population in winter 1999/2000 consisted of 67-81 (62-78 in 1999) wolves in the winter population in Scandinavia. The composition was 6 functioning family groups, or reproducing wolf packs. In addition to those packs we had 6-10 pairs, and we expect new packs will be established this summer. Thus, we expect around 10 breeding pairs this summer, and a further increase in population size.

The management goal we are working at just now, given by parliament in 1997, is that we want 8-10 family-groups of wolves before we reconsider our management tools. We know that managing wolves will be difficult in the future. A high depredation risk and predation rate, high reproduction potential and high dispersal rates and dispersal distances make the wolf situation complicated towards the sheep farming in Norway. Some of you will ask why it is not complicated towards the reindeer herders? This is because of the management zoning policy for wolves. The parliament decided in 1997 that all of the sami reindeer herding areas should be kept free of reproducing wolf packs and pairs.

9. Slide of sami reindeer herding area

This year the government has proposed to further limit the area where wolves shall be allowed to establish reproducing units. This proposal will shortly be distributed in a general public hearing, and revised before it is finalised in winter 2000/2001. Generally, I believe that you do not have to a prophet to guess the reactions among sheep farmers and some of the other people living in those areas. Those living outside the "wolf Zone" will want to stay there, and those inside will want the zone changed so that they will be on the outside.

10. Slide in proposal for wolf zone

The government proposal advocates lifting management restrictions on wolves outside of the wolf zone, allowing the taking of individual wolves on a relatively low level of depredation on livestock. Lifting the restrictions will also include the removal of pair and family-groups established outside of the wolf zone. As you can see of this slide the area where wolves will be allowed to expand is not very large. You may also note that two of the existing wolf packs are established outside of the wolf Zone.

So what are the conclusions on all those area based zoning practices, whether it is wolf zone, core areas or whatever. The conclusion is that those are just tools to make the carnivore management predictable to all involved. The same management practice is implemented on different levels inside or outside the management zone/core area. For instance, a licence to kill a bear will be issued on a low level of depredation on sheep if it is outside the core area, compared to inside, where the bear population is given priority.

Management zones/core areas:

Inside	Outside
Carnivore priority	Sheep/reindeer priority
Preventive measures	
Change of agr. practice	Licensed hunt
Quota-regulations on lynx hunting	No quota for lynx hunting
Carnivores killed on high levels of depredation	Carnivores killed on low levels of depredation
Priority for money	Low priority for money

Now, this all sounds reasonable and predictable for all parties involved. But, the carnivores do not care much about bureaucratic decisions on borders and numbers. Therefore, conflicts arise continuously both inside and outside the management zones, and they need to be solved quickly. Thus, carnivore management in Norway is a profession of fast compromises between two conflicting management goals. Whatever the outcome of a given situation is, we can be assured that one or both sides in the conflicts disagree. This is probably also why the press finds carnivore management a good thing. There is always a conflict going on!

There are many possible ways to solve or reduce this conflict, but one essential factor has to be available, and that is money. Money for compensation, money for hunting, money for change of agricultural practices, preventive measures, research and development, etc.

So far, with the political interest in this issue, money has been available. Our budget for the year 2000 is now approximately 132 million Nkr, or 15,3 mill USD/16 mill EURO.

This budget goes mainly to compensation and preventative measures.

Carnivore management budget 2000

*Total 132 million Nkr (15,3 million USD)**

Theme	Mill. Nkr	Mill USD
Comp. Sheep	55 mill	6,4 mill
Comp. Reindeer	25 mill	2,9 mill
Preventive measures	42 mill	4,9 mill
Research	4 mill	0,5 mill
Monitoring	4 mill	0,5 mill
Hunting	2 mill	0,2 mill

*** (excluding salaries etc for management authorities)**

Finally let me conclude this presentation with some opinions. Be aware that what you have heard in this presentation is a very short version of a complex management situation. My colleagues and myself will of course be available to elaborate on those and other topics you want to hear more about during this conference.

You must also be aware that we do not claim to have the solution to the conflict situation with carnivores regaining lost territory. We do not believe that there is such thing as a simple solution, only a lot of compromises and hard work from all involved. Only that way we will be able to balance the different interests involved in this conflict.

Conclusions:

- **The policy of viable populations stands.**
 - **No time schedule to achieve this is given.**
 - **Management options must be a dynamic tool, adjusted as populations develop.**
- Research and monitoring are essential to create a common base of understanding processes, both biological/ecological and human attitudes.**

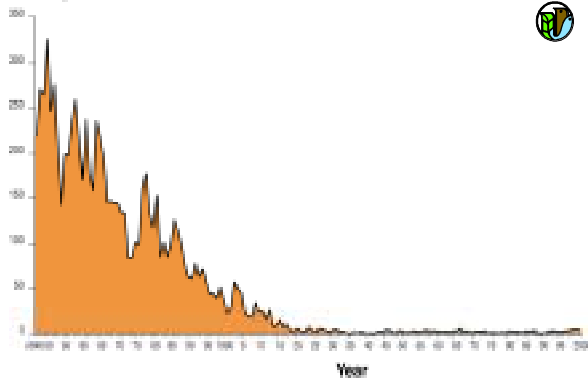
We have a firm policy of establishing and keeping viable populations of the species involved. This policy is not likely to change. Not only because of our own wildlife management regulations, but also because we have taken on an obligation through signing different international agreements, including the Bern Convention. I believe that we can discuss the ways and means to fulfil those obligations for hours and days, and other countries may have a different approach to this than Norway. We consider our national and international obligations as an obligation of results, and methods to be adjusted and implemented at our own timing and priority. We know that killing carnivores is controversial both nationally and internationally. Still, we believe that the taking of individuals is necessary, both to avoid extreme depredation on livestock and reindeer and to give both people, management and prey the necessary room for adjustment.

We know that we have to live with the conflicts for many years to come. Therefore we hope that this conference is a start of a process that gives us opportunity to report more in detail on developments, and have discussions on current management options.

Thank you very much for your attention

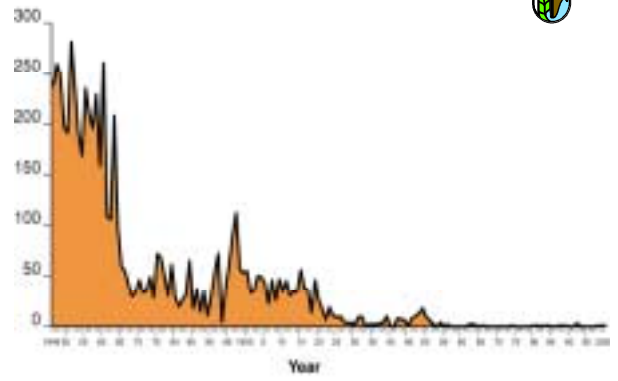
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Hunting statistics of bear 1846 - 2000



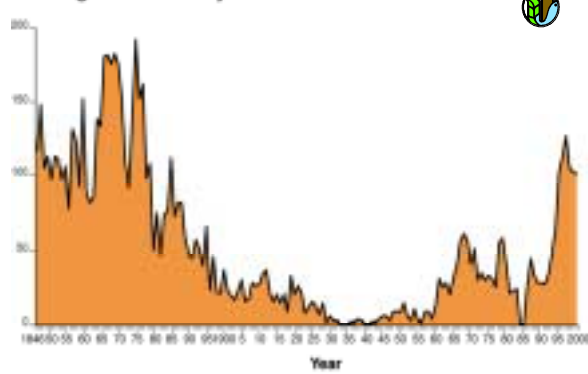
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Hunting statistics of wolf 1846 - 2000



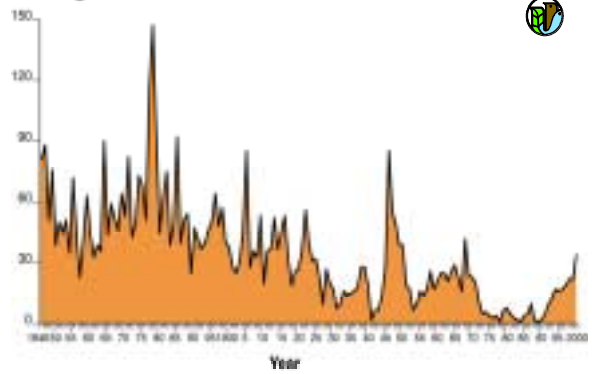
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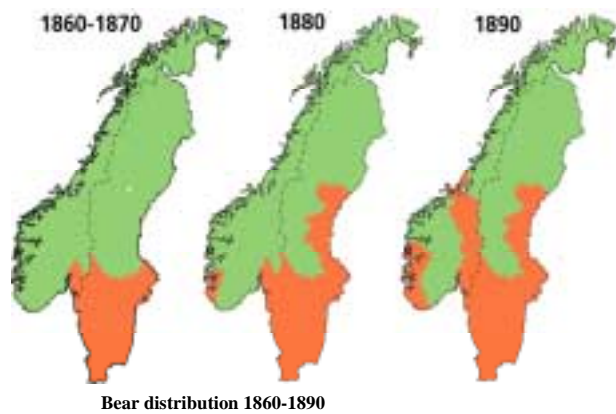


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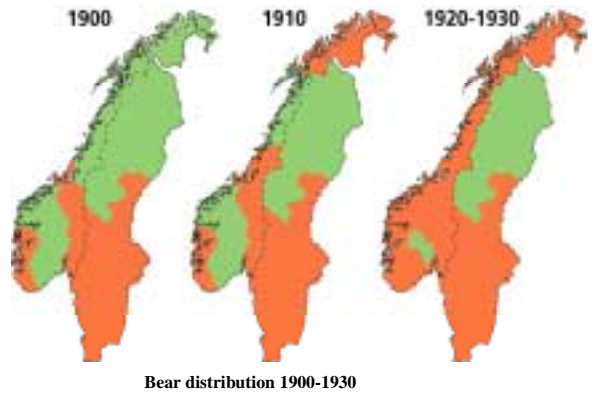
Hunting statistics of wolverine 1846 - 2000



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5.b



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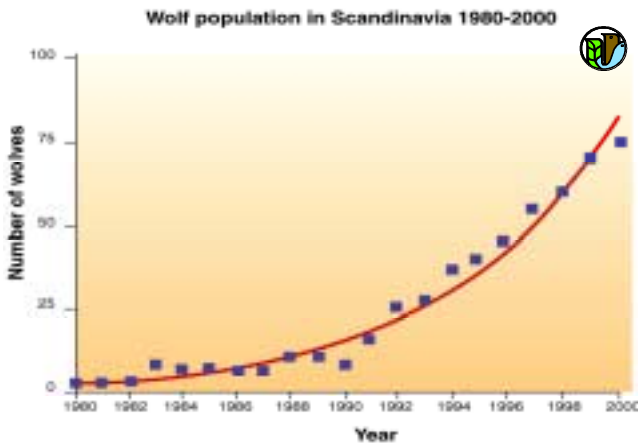


Lynx distribution 1850-1970

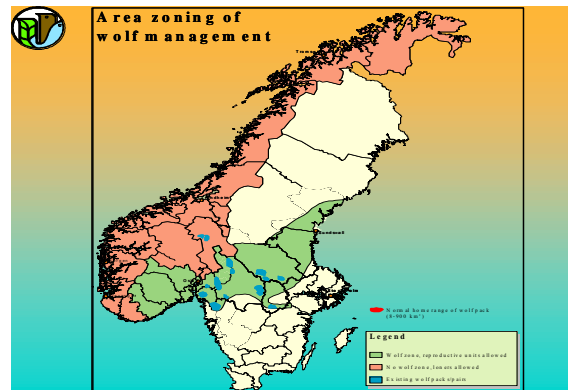
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3. Research co-operation, Norway-Sweden

by Mr Reidar Andersen, Norwegian Institute for Nature Research

Summary

In this project we will focus on brown bear, lynx, wolves, their interaction with their prey species, and the socio-economic and socio-cultural effects of planned management practises. Biological field data will be collected by building on the existing methods and techniques from ongoing projects in Norway and Sweden. There will be an extensive co-operation with relevant projects in Sweden for all three carnivores involved, furthermore, a close relationship is needed between this project and planned and ongoing monitoring projects for large carnivores in both Norway and Sweden. A broad international co-operation will secure the use of data from other European countries as well. Existing data regarding area use by wolf will be analysed. In the project we will adapt an active adaptive management strategy. More specifically we will try to incorporate biological and socio-cultural knowledge in carnivore management in a way that ensures the generation of new knowledge, and the effective use of this knowledge in management. To facilitate this the project will depend upon the active work of an Advisory Group.

Setting the scene

Large Carnivores and their prey in Scandinavia

From being almost exterminated from large parts of Scandinavia a few decades ago, LC are again increasing in numbers and distribution in both Sweden and Norway. In the last twenty years, the wolf has been recovering naturally in several parts of Europe, including Sweden and Norway. The brown bear population in Scandinavia is expanding (7) and is the fastest growing population yet studied (8). Similarly, the lynx occupies larger areas than ever both in Norway and Sweden. This all happens at a time when the main prey of LC in Scandinavia is at a historically high level. This contrasts with the fact that moose, red deer and roe deer were practically gone from both Sweden and Norway in the mid 19th century. Less than 100 roe deer survived in southern Sweden and moose were gone for nearly 75 years in large parts of Scandinavia, basically due to human over-harvest. Following an exceptional population increase during the last decades, however, the number of harvested cervids in Norway reached 106 500 in 1997, a 750% increase from 14 000 cervids harvested in 1957. Adding the numbers of moose and roe deer harvested in Sweden, Scandinavian hunters were able to shoot nearly ½ million cervids in 1997. Clearly, the re-establishing LC are offered a dense prey base.

Management problems and scientific challenges

There are no "true wilderness areas" big enough to sustain viable populations of large carnivores in Norway and Sweden. Furthermore, in the last couple of decades the Scandinavian "carnivore distribution map" is turned up-side down. Carnivores do not thrive in the northernmost parts of the peninsula where human population density is low. On the contrary, most large carnivores can be found close to the most densely human populated areas. Hence, wolves, bears and lynx (and to a lesser degree wolverine) have to be managed in multi-use rural and urban landscapes. Consequently, man is without doubt the most important species in the large carnivore debate.

When LC are returning to their former range or increase in numbers it causes a lot of concern. In particular, local people in many rural areas feel that the number of LC is far above what can be accepted, but the increasing carnivore populations are bid welcome by other groups. Indeed, according to the present management goals in Norway and Sweden, the number of LC will be allowed to more than double in the next few years. Although this represents formal public policy, and is sanctioned by Parliament (St. meld. 35 1996-97), it is highly contested. In the foreseeable future the management of LC will therefore inevitably be associated with difficult political priorities and substantial conflict. This will require new knowledge from both the biological and the socio-cultural arena.

How do we solve an unstable situation of escalating conflict?

In both Norway and Sweden managing Large Carnivores (LC) presents an unstable situation of escalating conflict. Even on a national level it resembles what has been called "wicked" problems, *i.e., there are no right or good solutions, simply more or less useful and acceptable compromises.*

A discourse is a complex set of values and attitudes constituting the "message" various groups try to place on the political agenda. The carnivore conflict consists of several competing discourses (scientists, managers, farmers, conservation interests etc), and a major part of adaptive management is the negotiation between discourses. Consequently, in order to develop successful strategies, we must better understand the complex "carnivore discourse" in society. In other words – the multifaceted socio-political arguments carried forth by different groups for or against large carnivores. This is what social scientists in more popular terms might call "the meaning of the wolf".

The LC-*livestock* conflict in Norway is becoming one of the most visible and contested issues of rural development, and has stimulated studies on both social, psychological, and cultural aspects. Furthermore, not only farmers are sceptical to LC, hunters both in Norway and Sweden feel that LC can destroy the *ungulate* (i.e. moose and roe deer) populations, and in some rural areas in both countries, people have changed their outdoor activities in *fear of LC*.

Consequently, for integrated decision-making, we need more updated information in both countries regarding the LC – human conflict as well as a more precise information regarding the establishment and growth of LC populations and their effect on ungulate populations and livestock.

ROSA- A Scandinavian co-operation

There are several obvious reasons for Scandinavian co-operation:

- Trans-border populations of carnivores
- The need for co-operation to solve complex ecological, economical and cultural factors
- Secure a better transfer of information between research projects
- Establish common strategies for information and communication to target groups
- Develop common methods that secure an active adaptive management

A total of 8 separate projects are connected to ROSA; 5 in Norway, 2 in Sweden and one common bear project. To secure an optimal use of both economic and personal resources, the wolf projects (2 in Norway and one in Sweden) have a common co-ordinator, while the two lynx projects have a secretary (alternating between Norway and Sweden) responsible for writing/editing the common yearly progress reports. In addition, two projects related to the human dimension are connected to ROSA.

Integrated decision-making

In ROSA we would like to use management as an active research tool. This implies a rapid transfer of new knowledge, not only biological but also socio-cultural, into carnivore management in a way that ensures the generation of new information. In this process we will use the principles of “*The Adaptive Management Approach*” where the analyses of single factors affecting survival, growth and dispersal of resources, as well as the human dimensions, are viewed in an integrated model. *A precondition is that management actions are planned so that it is possible to assess their outcome.*

How to perform active adaptive management

There are two kinds of science influencing renewable resource policy and management: One is a science of parts, e.g. analysis of factors affecting survival, growth and dispersal of the resources involved. The other is the science of integration of parts. It uses the results of the first, but identifies gaps, invents alternatives, and evaluates possible consequence against planned and unplanned interventions in the whole natural system.

In the present context this may involve a two-way interaction between management and research. The data available are used to structure a range of alternative response models, and a policy choice is made that reflects some computed balance between expected short-term performance and the long-term value of knowing which alternative model (if any) is correct (i.e., the active management approach).

Design and acceptance of management occurs when simple explanations of the causes of and solutions to problems achieve sufficient credibility in scientific, government and public communities. *Unfortunately, scientific uncertainty can be high as long as acceptability is high.* Furthermore, time, personnel and funding are usually insufficient to obtain all the information desired by the manager when a decision must be made. *And a decision delayed is a decision made!*

To conclude, performing active adaptive management means that researchers must co-operate with managers to design management actions in a way that enhance the measurement of causality between management strategies and their outcome. Furthermore, adaptive management allows flexibility and response to uncertainty, and represents the only way science can be integrated meaningfully into the management process.

The advisory group

To secure a real active adaptive management approach, the Norwegian projects have established an Advisory Group (AG). The AG will produce guidelines for project activities, based on existing knowledge and governmental management goals. Furthermore, if successful, the AG will also serve as a guide for further refinement of governmental management policy. The AG consists of scientists from the project, managers from the Directorate for Nature Management, and representatives from various pressure and/or interest groups, in addition to representatives from Sweden. To help establish the AG, a professional facilitator was hired. To obtain clear objectives and activity levels, the facilitator used a “log-frame” approach (LFA).

LFA is an analytical tool designed for a objectives-oriented project planning and management

The key words are: Objectives oriented, target group oriented and participatory

Using LFA will help ROSA to:

- Clarify the *purpose* of, and the justification for, a project
- Identify *information requirements*
- Clearly define the *key elements* of a project
- Facilitate *communication* between all parties involved
- Identify how the success or failure of the project should be *measured*

The important step from information to communication

Information regarding large carnivores normally goes *from* the Ivory Tower (where most scientists and managers live) to the grass root level where the “users” are. On the contrary, communication regarding large carnivores goes *between* the Ivory Tower and the grass root level. The most important task to ROSA will be to secure a real communication between the parties involved. ROSA will take at least two steps in this direction. First we will secure the use of monitoring methods for LC that have local support and involve local people both in Norway and Sweden, and secondly, we will develop web pages that allows an inter-active exchange of information between all parties involved.

4. Future activities of the Large Carnivores Initiative for Europe (LCIE)

by Mr Callum Rankine, Large Carnivore Initiative for Europe

Model Project on Rural Development in Spain – Action for the Iberian Lynx.

The LCIE and WWF-Spain will build on work to set up some model projects that can demonstrate how landowners can live in harmony with the Iberian lynx (and in other areas, the wolf). The project would also look at working in one or more Natura 2000 sites in order to capitalise on the Habitats Directive and CAP reform work undertaken by WWF-Spain.

Manual on Romanian Rural Development Project

Over the last few years WWF has supported and has been proud to be associated with the Carpathians Large Carnivore Project. This project has used the presence of large carnivores in the area to build up a local tourist industry. The benefits of this are being accrued by the local population (both human and carnivore!). This project will produce a manual in order to help set up similar projects.

Restoration of the Alpine Wolf Population

The wolf faces an uncertain future in the Alps if current attitudes prevail. There are several activities that we need to undertake in order to give the wolf a more positive future. These include a monitoring system in Austria, Italy and Switzerland. Secure damage compensation systems on the national level. An Alpine campaign aimed at the general public showing positive aspects of wolves and wolf management plans which have the support of all interest groups.

Evaluation of the Natura2000 network in relation to the conservation needs of Large Carnivores

It is clear that all important areas for large carnivores should be covered under the Natura2000 network. However we need to find out if this is actually the case. We will be comparing the suggested Natura2000 sites with areas known to be important for large carnivores and a position paper will be produced. This paper will then inform our advocacy work.

Website

Recently the LCIE launched its own website (<http://www.large-carnivores-lcie.org>). This is linked to WWF and partner organisation websites. The site will be the central communications tool for the LCIE as it will be used to disseminate all the publications produced by the LCIE as well as many relevant publications produced by our partners. The site will be constantly managed and regularly updated.

FAQ Brochure

The information collected by our Human Dimension studies shows that knowledge levels relating to European large carnivores are very low. This brochure aims to address this by answering the most frequently asked questions (FAQ's). It will be translated into English, French, German, Italian and Spanish.

Balkan Large Carnivore Network

There are various activities within this project including networking, databases, education and public awareness. The project will collect data on large carnivores in this area, at the same time strengthening the networks of interested parties. The information will then be used to derive conservation strategies and increase public awareness.

SCALP – Status and Conservation of the Alpine Lynx Population

The Eurasian lynx was extinct in the Alps by the end of the 19th Century. The species was re-introduced into Switzerland, Slovenia and Austria although the Austrian population did not fare well and there is scant evidence of it there today. The other two populations increased and spread into neighbouring countries. The aim of the SCALP programme is to bring the lynx back to all of the Alps.

Resource inventory of educational materials

The aim of the project is to gather (through a questionnaire) a list of existing educational materials. These will be used to assess the common messages being communicated for each carnivore. A report will be produced which will contain a summary of key messages by stakeholder group. The report will also suggest what types of material may be most effective

The LCIE is involved in several other projects (such as the Baltic Large Carnivore Initiative) and more are included every year. The Core Group meets twice yearly and the full group meets every two years. More information on our activities can be found on our website (see address above).

5. Presentation of the Large Carnivores Initiative for Europe (LCIE)

by Mr Magnus Sylven, WWF International & Mr William Pratesi Urquhart, LCIE Co-ordinator

The Large Carnivore Initiative for Europe and its species Action Plans

MISSION STATEMENT

THE LARGE CARNIVORE INITIATIVE FOR EUROPE (LCIE)

“To maintain and restore, in coexistence with people, viable populations of large carnivores as an integral part of ecosystems and landscapes across Europe”

BACKGROUND

- Europe, once a broad mosaic of natural habitats ideal for large carnivores, is now left with only scattered tracts of suitable “wildland”. Brown bear, wolf, wolverine, Eurasian lynx and Iberian lynx still occur in Europe but they are forced to live in highly fragmented and human-dominated landscapes.
- There was widespread and bitter opposition to large carnivores in the past but today there is increasing public interest in their conservation. However, the predatory behaviour of large carnivores often conflicts with local economic activity, especially livestock farming.
- Their current distribution is often confined to border areas, which therefore requires cross border co-operation in order to conserve and manage populations.
- The presence of large carnivores is a measure of regional biodiversity. Viable populations of large carnivores demonstrate Europe’s contribution to the conservation of global biodiversity.
- The political development within Europe, particularly within the European Union, with the partial disintegration of national borders and more unified legal and planning requirements, creates new and promising opportunities for the successful management of large carnivores populations on a European wide scale.
- Implementation of the Natura 2000 sites in Europe, the increased priority to the conservation of natural areas, and the Pan-European Biological and Landscape Diversity Strategy (PEBLDS), give exciting opportunities for enhancing Europe’s biodiversity.
- It is clear that the challenge of conserving large carnivores is complex and dynamic, involving ecological, economic, institutional, political, and cultural factors and any attempt to solve this conservation issue must take this into account. Realistically, no single agency, organisation, or institution will be able to solve the carnivore conservation issue alone. No single plan or strategy can be completely comprehensive and correct as a guide for action and continual monitoring is required.
- Recognising these opportunities, and the need to build strong partnerships with land managers, researchers, citizens, government officials and international organisations and Conventions, the World Wide Fund for Nature (WWF), together with partner organisations and experts in 17 European countries, has decided to get to grips with the issue so that the future for large carnivores (brown bear, Eurasian lynx, Iberian lynx, wolf and wolverine) can be substantially improved, while the opportunity still exists. The first steps towards the development of a “Large Carnivore Initiative for Europe” were taken at a meeting in Abruzzo National Park, Italy in June 1995. Based on input from two subsequent workshops in Neuchatel, Switzerland (September 1995) and Oberammergau, Germany (January 1996), a programme plan has been developed building a network of interested parties and activities.

ACTIONS

- Create a network of interested parties including land managers, researchers, citizens, government officials and international organisations and Conventions;
- Act as a focal point for information relative to large carnivore conservation in Europe;
- Develop and implement new ideas and methods to ensure the coexistence of brown bears, lynx, wolves and wolverines with people;
- Support and build on existing initiatives and projects within Europe, and encourage Europe-wide co-operation in order to avoid duplication of effort.;
- Disseminate valuable experience and knowledge from different countries;
- Encourage public discussion on the future of large carnivores within Europe, especially with regard to rural support systems which maintain the economic and social well being of local people as well as conserve viable populations of large carnivores;

- Address issues in four important fields of activity:
 1. Conservation of Large Carnivore populations and their habitats; Integration of large carnivore conservation into local development in rural areas;
 2. Support for large carnivores through appropriate legislation, policies and economic instruments;
 3. Information and public awareness with the aim of obtaining the acceptance of large carnivores by all sectors of society.

SPECIES ACTION PLANS

Large Carnivores in Europe

Europe once offered a wide range of natural habitats for its large carnivore species. Today, however, relict brown bear populations are dangerously small and highly fragmented in Southern, Central and Western Europe. The Iberian lynx has recently been labeled by the IUCN as the most critically endangered cat species world-wide. Wolf populations are under intense human pressure throughout most of their range. The Eurasian lynx has disappeared in much of Europe and even though wolverine numbers in Fennoscandia appear to have stabilised since it became protected, illegal hunting is still a constant threat.

Like many conservation issues, the future of Europe's large carnivores is dependent on cross-border co-operation between nations and, importantly, on managing their interaction with human activities. The challenge of conserving large carnivores is complex and must involve a wide range of stakeholders including land managers, local communities, governments, international Conventions and NGOs.

In response to this challenge, WWF International (the World Wide Fund for Nature), together with partner organisations and experts in 17 European countries, launched a Large Carnivore Initiative for Europe (LCIE) in June 1995. Since its inception the Initiative has grown rapidly with experts from 25 countries actively involved and many others expressing interest. The aim of the LCIE is to support and build on existing initiatives or projects across the continent, avoid duplication of effort and make the most efficient use of the available resources. One of the many activities that was identified as being of priority for the conservation of Europe's large carnivores was the elaboration of Pan-European Conservation Action Plans for the five species.

Species Action Plans for the Conservation of the Brown Bear, Wolf, Eurasian Lynx, Iberian Lynx and Wolverine

This Plan is one of a series of Pan-European Action plans elaborated for each of the five species at present dealt with under the LCIE (Brown Bear *Ursus arctos*, Wolf *Canis lupus*, Eurasian Lynx *Lynx lynx*, Iberian Lynx *Lynx pardinus* and Wolverine *Gulo gulo*). The plan should be seen as complimentary with the other four plans and actions should be co-ordinated with those taken under the other plans since in many cases a natural guild of native predators is desirable.

The plans go beyond detailed analysis of local populations' needs and focus on the specific issue of managing the species throughout Europe, stressing the necessity for a continental approach and co-ordinated national efforts. It is hoped that one of the great values of these Plans will be that they generate coherence to actions throughout the whole range of each given species.

These Plans are not management plans per se, but rather aim to form the basis for decisions at **international level** pointing at the importance of using **populations** as the management unit, which are often transnational. These Pan-European plans stress the need for national management plans to be drawn up in collaboration with neighbouring States where necessary, and in order to facilitate this process a volume on Guidelines for developing Large Carnivore Management Plans (D. Hofer and C. Promberger 1998) has just been produced by the LCIE.

These Plans serve as an important communication tool and their recommendations should be used to influence players in the conservation sphere at local, national, and international levels. They also provide a baseline record against which to measure change in future years as well as a common framework and focus of action for a wide range of players.

The responsibility for the elaboration of the plans was assigned to teams working under some of the top European experts for each species. During the preparation of these action plans the authors consulted a wide spectrum of sources including management authorities, researchers, NGOs and the literature. This open process included a workshop for governmental experts in Slovakia organised by the Council of Europe (Bern Convention Secretariat) specifically to discuss the five Action Plans in October 1998.

Endorsement

The Council of Europe document "Guidelines for Action Plans for Animal Species" (T-PVS-(ACPLANS)(97) 8) underlines the importance of producing Action Plans for large carnivores at a Pan-European level: "It also makes good ecological sense to choose species that serve as protective "umbrellas" for other species. Such a single species effort avoids many bureaucracies and provides many "inclusive benefits". Umbrella species are species whose own area requirements provide some index on the area requirements of the ecological systems that support them. Top carnivores or other large-bodied, long-lived slowly reproducing species at the top of their ecosystems food-chain are good examples...." The document states that "The Council of Europe through its Committee of Ministers or the Bern Convention's Standing Committee are in excellent position for endorsing such Plans."

Common Themes

All five Action Plans have clearly identified a number of important common themes, which include the following fundamental guiding principles:

- there is a need to concentrate conservation efforts at the population level, which often requires cross-border co-operation;
- the principle of management of large carnivore through a system of zoning including core areas, buffer zones and corridors;
- where re-colonisation of areas by large carnivores is desirable, the following principles should be applied:
 - priority should be to firstly support natural re-colonisation,
 - secondly to work on the augmentation on non-viable populations,
 - thirdly to release animals into areas in order to join up non-viable populations, and
 - finally, to carry out releases into new areas.
- it would be highly desirable that each country sets up a specific body that is responsible for large carnivore management issues, and who would be charged with the preparation of national management plans (A single body that is responsible for all large carnivore species is desirable);
- wherever compensation systems are in place, these should be tied to prevention incentives;
- with regard to identified "problem" animals, which create local damage, emphasis should be given to maintaining populations and not by concentrating on individuals (apart from rare exceptions);
- in-depth and scientific human attitude studies (including work on conflict resolution) have to be initiated;

The points made above just give a brief indication of some of the more important common themes or principles that are shared by all five action plans that have been elaborated as part of the series

Implementation

It is very important that these Action plans once "endorsed" are acted upon. These Action Plans should guide national authorities in the elaboration of National Plans and the implementation of these plans must be carried out by professional teams that involve a wide range of appropriate interest groups. The plans themselves can act as important fund raising tools to help spark off the implementation. In countries where more than one of the large carnivore species is present the elaboration of National Action Plans (as recommended by these Pan-European Action Plans) for each species should be in harmony with one another.

Conclusion

Finally we would like to thank the authors, all those who have provided data and comments and the Council of Europe for all the hard work and support that has been put in to this. We would also like to thank WWF Netherlands, Sweden, Norway, Mediterranean Programme and the Council of Europe for providing the funding for the elaboration of the Plans. We hope that these plans will form the basis for collaborative pan-European conservation work for these species over the next ten years, and that the success can be an example to other Initiatives.

6. Sheep farming and large carnivores in Scandinavia

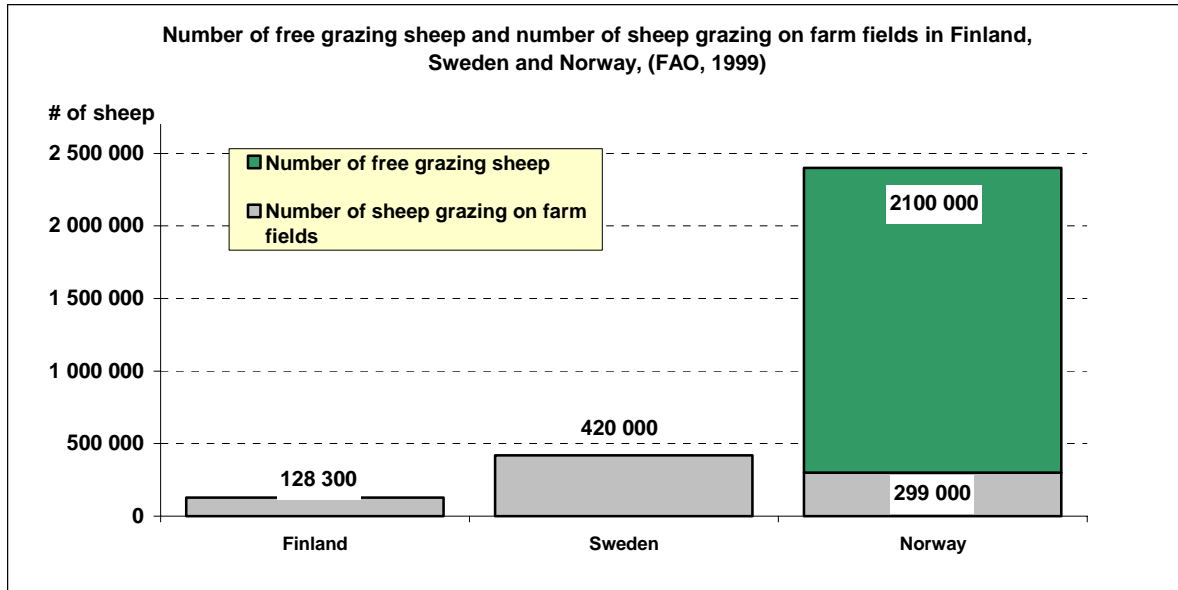
by Ms Veronika Seim, The Norwegian Farmers Union, Norwegian Farmers and Smallholders Union, The Norwegian Association of Sheep and Goat Breeders

Introduction

In Scandinavia, Norway is undoubtedly the country where conflicts between sheep farming and large carnivores are highest. This has several reasons, but the most obvious is our prevalent use of pastures.

Since predation from large carnivores has been absent for a long time, husbandry is now adapted to the situation where animals could be let out for free grazing in forests and mountain pastures. Here they are looked after periodically. From May to September, 88 % of the 2.4 mill sheep in Norway are let out for free grazing.

Figure 1



Sheep farming is less common in Finland (128 000 sheep) and Sweden (420 000 sheep), and grazing by livestock in these countries exists only on farm fields. The structure of land property and topography are also different.

The history of pasture use in Norway

The availability of rich pastures has been the main reason why human settlements in inland Norway have been possible. Every part of the so called “wilderness” of Norway has, since old times, been divided into pastures representing a farm’s or a group of farms’ traditional grazing-rights. Today 33 400 farms base their production on animals let out to graze free (1998).

The government has over the last decades strongly encouraged people to continue to live in rural areas and harvest from their natural resources.

The value of grazing our uncultivated pasture

In addition to 2.1 mill sheep, 65 000 goats, 240 000 cattle and 6 000 horses are let out to the pastures each summer. The amount of fodder these animals harvest in uncultivated pastures each year corresponds to 320 mill feed units (1 feed unit = 2800 kcal). To be able to produce the same amount of energy on cultivated fields, we would require 5800 average Norwegian grain producing farms as well as huge amounts of chemical fertilizers, herbicides, tractors, harvesters and other equipment.

Norwegian landscape and nature

The number of farms and animals in Norway was previously much higher than it is today, and our landscape and nature are therefore strongly influenced by the activity of humans and grazing livestock. Nevertheless, some people, in and outside Norway, still seem to believe that our rural areas can be compared to the wilderness of for example North America.

Reduced grazing and human activity has recently resulted in, like many places in Europe, a high degree of overgrown areas. A lot of species which are now in IUCN’s Red Data Book, live in biotopes which exist only in such semi-natural landscapes (30 % of the vascular plants, 33 % of the butterflies, 76 species of the field-fungus, and 27 species of birds). It should be unnecessary to underline the ecological advantage of livestock grazing in this context.

Political goals and promises (Norway)

(St. meld. 35 (96-97)/ Inst. St. 301)

- Viable populations of wolf, bear, lynx and wolverine.
- Maintain harvesting of the pasture fodder-resources by free grazing livestock and reindeer at 1997 level.
- Keep the farmer's economic consequences from re-introduction of large carnivores at a reasonably low level. (example: full governmental compensation for loss of animals due to large carnivores is authorized by law.
- Reduce conflicts

The way to solve problems and reach the goals

A list, proposed by the government containing 20 loss-preventive actions.

The problems between sheep farming and large carnivores

1. Preventive actions

Preventive actions affecting livestock have low effect and/or are extremely expensive.

An example is a herding project in the Speke Valley, 1999 where herders looked after 2400 grazing sheep protecting them from 10-12 wolves. Losses were reduced, but the costs was 9 mill NOK (= 74 mill EUR).

This year many loss-preventive projects were, as a result of cooperation between farmers and the government, planned in detail. When the extent and costs for these projects increased further, however, the Norwegian government could not come up with the funding required as promised.

Preventive actions affecting carnivores, including the possibility of taking out special killer-individuals, are not sufficiently used to reduce losses. The government has maintained strict protection of wolf and bear on an individual level, while license- and quota hunting for lynx and wolverine has not been successful.

2. Population size - large carnivores

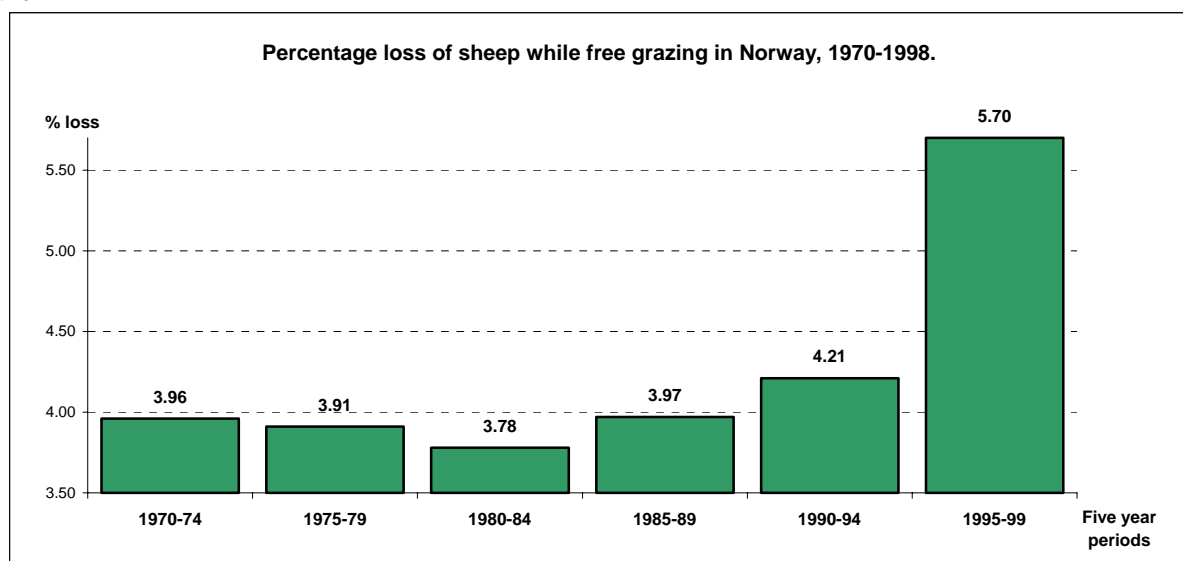
There is always a debate going on regarding the size of populations of carnivores we have and need. Some organizations demand keeping self-sustainable populations of large carnivores in each and every Scandinavian country, no matter how small the countries are, and irrespective of costs and conflicts. Finland and Sweden have already proposed keeping quite large populations, which will of course also affect sheep farming in Norway.

3. Loss of livestock

Estimated average loss of free grazing sheep over time and regions in Norway without large carnivores would have been 3.5 %, which is low compared to other animal husbandries. Since large carnivores were reintroduced (end of the 1980s), the losses of livestock have increased heavily each year. Wolves, which for several reasons often cause the worst conflicts, have lately developed less fear of humans and have started to kill livestock even on farm fields.

In 1999, farmers applied for compensation for more then 50 000 sheep. This corresponded to 6 % of the free grazing sheep in average for the country, even if loss due to predation is still marginal in the south and southwest part..

Figure 2



In Hedmark county, which has the longest history of large carnivores in Norway, losses were steady at 3.3 %

until 1988. Now losses are close to 9 % despite the intensive use of loss-preventive actions and reduction of farms in the worst areas.

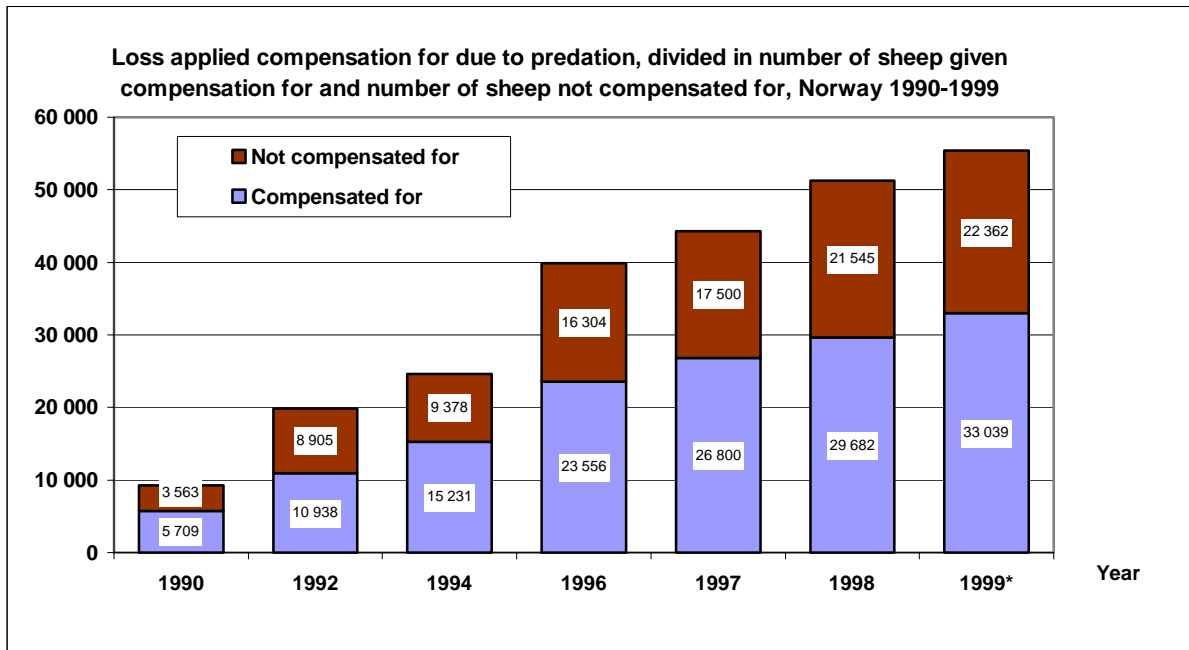
Since large carnivores are quickly spreading to new pastures and because finding the carcasses and assessing the cause of death often might be difficult, we are sure that the hidden numbers of loss to predators are high.

The government is not capable of keeping losses and conflicts down according to the aims it expressed when Norwegian carnivore management was planned and approved.

5. Compensation for loss

Despite the fact that the difference between number of lost animals before and after re-introduction of large carnivores are higher than the number of animals farmers claim to lose due to predation, only 60 % of sheep the farmers applied compensation for are being compensated. In 1997, the loss higher than normal without large carnivores, was 49 500 sheep, while only 44 300 sheep were applied compensation for.

Figure 3



Conclusion

Unlike other Scandinavian countries, Norway has a widespread use of its “wilderness” for grazing livestock. This has strongly influenced the landscape, and special considerations, in addition to the value of keeping large carnivores, must be taken into account regarding biological diversity.

Norwegian sheep farming, which uses renewable resources to raise livestock with (at least previously) good animal welfare, has until now been strongly encouraged by the government.

Today, the motivation and the economy of the Norwegian farmers are over the edge of what we can manage. The increasing population of wolves results in the worst conflicts. We feel that the Norwegian government is about to lose control over the population of carnivores as well as the conflict situation.

To reduce the loss and conflicts, which must also be a rational strategy for protecting the large carnivores, Norway must, hopefully together with other Scandinavian countries, in collaboration with the Large Carnivores Initiative for Europe and you the experts, find more integrated management plans for large carnivores.

The farmers associations are convinced that such cooperation, in the spirit of what is written in the Bern Convention, would give us a self-sustainable population of large carnivores in Scandinavia, which also people in rural areas could appreciate and feel responsible for.

7. Reindeer herding and carnivores

by Mr Per Mathis Oskal, Reindeer herder's Association

The Sami Parliament refers to the Bern Convention Group of Experts on Large Carnivores meeting organised by the Council of Europe, which is to be held between 22-24 June 2000 at Hurdalssjøen. The Directorate for the Management of Natural Resources has, in conjunction with and the Bern Convention Group of Expert's secretariat, been given the responsibility of organising the programme for the meeting. It is the understanding of the Sami Parliament that the main focus of the first day of the meeting will be directed at a number of issues and challenges pertaining to the management of wild carnivores, where a presentation on this theme is intended to be given to the participating countries and observers.

The management of large carnivores is an extremely important issue for the Sami Parliament since it directly affects the material base of Sami culture. It is therefore regrettable that the Sami Parliament, as a democratically elected body, is not a part of the ongoing efforts and processes. It is the considered view of the Sami Parliament that one of the results of this omission is that, as far as the management of carnivores is concerned, the indigenous element is missing from the equation. Moreover, given the fact that there are a number of significant differences of opinion between what is best for the management of carnivores, what is best for Sami interests, the Sami Parliament strongly feels that in a process as important as this one it should have the opportunity to play its part in presenting its perspective and putting forward its proposals. The Sami Parliament would like to further point out that, for the purposes of dealing with the management of large carnivores, it would be natural to treat Sami territory as one entity: Norwegian, Swedish, Finnish and Russian territory alike.

Sami culture is inextricably linked to its primary industries. Safeguarding and further developing Sami culture must therefore be approached from a holistic perspective, whereby attention is focused on both society and the individuals who constitute that society. Whenever political measures and legislation come into play with regard to policy making affecting the Sami and other indigenous people, whether that may be on a national or an international level, this link between industry and culture is drawn even more sharply into focus.

It is the view of the Sami Parliament that the management of wild carnivore must be seen in the context of the material base underlying the successful practice of Sami culture. Some of the central elements that constitute this material cultural base include industries such as reindeer herding, the farming of land, and husbandry. It is therefore a prerequisite that these industries are provided a real opportunity to be further developed and promoted. In this way, it becomes crucial for the Sami Parliament that the necessary favourable conditions and framework be created for the successful practice of reindeer herding and agriculture in Sami areas.

Biological diversity is vital to the existence of indigenous people the world over. The Sami Parliament considers the safeguarding of biological diversity to be such a crucial element of this existence that it accepts that a certain level of natural carnivores population needs to be present in Sami areas.

At the same time, the Sami Parliament is of the opinion that the population of certain individual carnivore is today too high in many areas. The management of wild carnivore has led to an enormous increase in the carnivore population in Sami areas. This, in turn, has led to huge losses and unfavourable conditions for the reindeer herding industry and the farming of land. In many areas this carnivore population has reached such a level that it threatens the very existence of these same industries. Records show that losses incurred by reindeer herders now threaten the very material base necessary for the continuing of business in some areas. Earlier surveys reveal that carnivores constitute between 64 and some 75% of total losses incurred in reindeer herding in south Sami areas.

The Sami Parliament wishes to emphasise in the strongest possible manner the importance of a system of management of large carnivores that guarantees and protects the foundation for successful farming of domesticated livestock and reindeer. In Sami areas carnivore levels must be kept at a level that does not pose a threat to the local Sami community as a whole. The Sami Parliament also wishes to highlight the fact that the management of carnivores does not simply entail protection, but also an adjustment of carnivore numbers so as to not constitute a threat to the existence of traditional forms of Sami businesses and industries.

The Sami Parliament lays great importance on the outcome of the Bern Convention being set against the backdrop of development in international legislative for indigenous people witnessed over the past decade. This applies in particular to Article 27 of the 1996 UN Convention on Civil and Political Rights, now incorporated in Norwegian law (cf. Human Rights Legislation of 1999) and in ILO Convention No. 169 on indigenous peoples and tribal peoples in independent areas. The notion of culture in Article 27 of the UN Convention also encompasses the material prerequisites for a thriving culture.

ILO Convention Article 6 clearly states that governments, whenever new legislation is under consideration or administrative measures are being drawn up which might directly affect the indigenous population, have a duty and an obligation to consult and confer with their respective indigenous population by means of careful and circumspect legislation and above all through their representative channels and institutions.

It is the view of the Sami Parliament that any outcome regarding the fulfilment of requirements of the Bern Convention be set against the obligations Norway has set for itself in its policy towards the Sami people, along with the legislative obligations that have been established through national and international legislation regarding indigenous rights. In order to fulfil such requirements laid down in the Bern Convention an initial step in this work should be that a quota of each individual species be established as soon as possible.

The Sami Parliament is aware of the fact that Norske Reindriftssamers Landsforbning (NRL) [the Association of Norwegian Sami Reindeer Herding] has been invited to participate in the meeting. The Sami Parliament fully supports the NRL and their work in the policy of management of wild carnivores.

8. Large Carnivore protection

by Mr Rasmus Hansson, WWF

Let me make one thing clear: WWF Norway recognizes the serious problems large carnivores can create. We do not want Norwegian carnivore populations to grow into heaven. We do not oppose regulation of populations of killing of problem animals.

But let's also be frank about this: The status of large carnivores in Norway should not impress anyone. We are a relatively large, sparsely populated, stinking rich country with a high environmental profile. Still, we are finding it seriously troublesome to live with 500 – 600 lynx, 125 -140 wolverines, 20 – 30 wolves and 25 – 50 brown bears. With the exception of the lynx, these Norwegian carnivore populations are way below the critical size for even short-term survival.

The Norwegian lynx population can sustain a harvest. WWF, however, is critical to at least three elements of the lynx management: Firstly, the current system based on tracks, transects and reported observations does not provide sufficiently accurate population data. Last hunting season lack of snow prevented tracking, leaving little basis for population updates. Secondly, the annual quota setting is decentralised to county level, where the committees setting quotas are dominated by farming and hunting interests. The result tends to be quite high local quotas and a total quota of about 23 –28 this year %. Usually, considerably less than this quota is taken, but the take has been up to 75% of the quota. The combination of high quotas, little central control and inaccurate population data does not guarantee a safe lynx management.

The wolverine licence hunt that is taking place in northern Norway is acceptable, Wolverines take a lot of sheep and reindeer, and it is necessary to limit this conflict. It should be borne in mind, though, that 150 wolverines is not a large population, and it has not grown much lately. WWF is therefore very critical to the fact that a hunting quota of up to 15 animals is set for the more or less isolated population of only 40 wolverines in southern Norway. Local "wolverine-committees" keep proposing quotas of almost half of this obviously vulnerable population the population. Wolverines cause substantial problems for sheep owner in the area, but it is illustrating for the sheep/carnivore situation in Norway that despite this the number of sheep released for grazing in the largest south Norwegian wolverine core area has been increasing for years.

With the exception of the far north-eastern corner of the country, Norway does not yet have a reproducing brown bear population, and as such Norwegian brown bears should clearly not be listed as *vulnerable*, but as *threatened* according to the criteria of the Berne Convention. Bears in Norway are to a large extent young males connected to the Swedish population. Still, a conditional licence for killing 6 bears has already been issued for this year. If a female is shot the establishment of a Norwegian population would be delayed even further. In addition, the Norwegian government is planning a large artillery firing range within the main Norwegian core area for bears, in Hedmark.

WWF would like to commend the new Norwegian government for presenting a clear proposal for a "wolf management area" in Norway. This is a controversial proposal which is obviously earning the government considerable criticism. The good thing about it is that it moves the management debate one important step further, and it creates a much clearer obligation for the government to actually follow up and ensure that Norwegian wolves can exist within that area. There are, however, some very problematic aspects to the proposal too. Not only is the proposal a serious restriction compared to the former situation, where wolves were in principle allowed all over southern Norway.

It is hard to understand why two of the largest and most sparsely populated municipalities on the Swedish border in Hedmark, Trysil and southern Engerdal, are taken out of the new wolf management area (northern Engerdal is OK; it is reindeer herding area). These municipalities have very low sheep densities and totally only about 65 farms with more than 20 sheep each. These counties are good wolf habitat, in particular compared to a large number of much smaller municipalities inside the wolf area, with much more people and sheep.

Secondly, the wolf management area does not cover the home ranges of the only two wolf packs that are currently well established in Norway. The Ministry of Environment has made clear that these two packs will be killed when the Norwegian target for the south Scandinavian population, 8 – 10 established packs, is reached. The problems this policy creates are several. It sends the rather dubious signal that severe culling is initiated the moment the population reaches what is biologically a very restricted size indeed. It will create an irresistible pressure to take out those packs asap, and a precautionary approach will be very difficult to maintain as soon as someone claims that 8 Scandinavian packs are established. And finally, the government might find that little is gained with respect to conflict reduction by taking out these packs. The resistance against wolves is likely to be just as fierce anyway within the proposed area where wolves are supposed to establish from now on.

The main problem with large carnivores in Norway is obviously conflicts with sheep farming. I'll wrap up with a couple of comments and challenges related to this.

There will always be conflicts between large carnivores and extensive animal husbandry. In Norway it is commonly claimed that our extreme conflict level is inevitable, because it is impossible to do much about our traditional sheep farming practices, which, are based on limited herding and guarding, and on sheep races with no anti-predatory behaviour.

I find this attitude hard to accept. Everybody understand the despair of small-scale farmer who is already under pressure by centralization, falling prices and WTO agreements, when he finds twenty sheep molested by some carnivore. What he can hope for today is financial compensation and a licence to kill. But 36 000 Norwegian sheep farmers receive 2,6 billion NOK in annual subsidies,. Their activity is thoroughly regulated by detailed laws, procedures and agreements. Sheep farming is just as much a means to maintain the political goal of maintaining a rural population, as it is a private business. Norwegian governments have always been good at using it's heavy apparatus and subsidies to shape and change Norwegian farming the way they want it. These days, for instance, 1200 dairy farmers are being bought out of business, at a cost of at least a billion NOK, due to over-production of milk. Such farms are the very bedrock of Norwegian farming. But very little effort has been put into ensuring that this apparatus also works to fulfil Norwegian goals for large carnivores. You might even suspect the opposite. The responsibility for carrying out the carnivore policy, and paying for damage reducing measures and for damage done, is entirely left to the environmental sector. By contrast, policies and regulations regarding for instance pollution etc. are integrated in the farming subsidies and regulations system. Carnivores are the exception.

WWF clearly supports the goal of maintaining small scale and extensive farming in Norway. WWF was the most active NGO at the Seattle WTO meeting, supporting the opposition to the single-minded push for liberalising all food trade. But we are confident that the large bureaucracy and the 2,6 billion NOK that is allocated to supporting sheep farming, can also be used in ways that reduces carnivore – sheep conflict, while not damaging the industry. Positive incentives for adaptation and conflict reduction are conspicuously lacking today. The challenge is for the government to integrate its carnivore objectives into farming and other policies and measures, just like pollution and other environmental policies have been integrated.

Today, the chairwoman of the Norwegian Farmers Association claimed that all wolf be exterminated from Norwegian soil. The immediate reason was a wolf (probably) killing 20 sheep. Last season wolves killed at least 650 sheep. This season it is certainly going to be more. But wolverines killed at least 14 000. And 130 000 sheep died on the pastures altogether, 80 000 - 100 000 of them out of disease, accidents etc., *not* carnivore attacks.

The challenge for Norwegian farmers is obviously to realize the fact that no Norwegian sector or industry can any longer base its future existence on keeping carnivores more or less extinct from Norwegian fauna. Norwegian sheep farming, in particular, is relying heavily on promoting an image as a green, clean, resource-wise and environmentally friendly alternative to international industrialized farming. That does simply not go together with a very negative attitude to large carnivores, and with reluctance against seeking solutions.

Which is why I end up being an optimist. The potential for finding constructive solutions with the farming interests is considerable, if we use the means that arte available. Lynxes, bears, wolverines and wolves are established in Norway. They are going to stay and become increasingly accepted, and the next time you visit Norway I believe there's going to be a little more of them.

9. Monitoring of Large Carnivore in Scandinavia

by Mr Morten Kjørstad, Directorate of Nature Management

The need for effective census and monitoring programs for large carnivores is a central theme in the respective action plans. This represents both a technically difficult and expensive task. In the last few years a great deal of resources have been invested in these issues in Scandinavia, and a brief presentation of the methods and organisation of large carnivore monitoring in Norway and Sweden follows.

There is a great deal of cross-border research co-operation between Norway and Sweden on large carnivores. Norway and Sweden are also co-operating on the development of methods for monitoring large carnivores, and comparable methods are largely in use in the two countries. In Norway, a national monitoring program for large carnivores will be implemented this summer, and in Sweden a proposal for a national monitoring program for large carnivores was presented in January.

Distribution, population status, and management goals for the four large carnivores in Scandinavia:

Lynx

Lynx are distributed over the greater parts of both countries. Norway and Sweden have a common goal for continuous reproducing populations, spread over large areas (with the exception of some areas in south-western Norway), and we consider that this goal has been fulfilled. The common Swedish-Norwegian population of lynx is estimated at approximately 2 000 animals, 500 in Norway and 1 500 in Sweden. For lynx in both countries there is a particular need for monitoring population development in areas where hunting occurs.

Wolverine

Wolverines are found in the same areas as reindeer, which are their most important prey. There is a small population of wolverines in southern Norway, and the population is more or less isolated from the larger population in northern Norway and Sweden. To secure the small population from extinction a core area has been established for wolverines. The meaning of core area is that the carnivores have a very strong protection inside the core area, as compared to outside.

Norway and Sweden have a common goal for continuous reproductive population's spread over large areas in the north, and we consider that this goal is fulfilled. The common Swedish-Norwegian population of wolverine is estimated at approximately 500 animals, 200 in Norway and 300 in Sweden.

In the south, Norway has a particular management goal of 8 – 10 annual reproductions inside the core area, and that the exchange of individuals between this population and the population in northern Norway and Sweden should occur. This goal of 8 - 10 annual reproductions is not yet fulfilled.

Because of the relatively small population size, there is a particular need for monitoring population development in Scandinavia. Norway has a special need for monitoring for the number of annual reproductions inside the core area, and to monitor if there is an exchange of individuals between this population and the population in northern Norway and Sweden.

Bear

There are established five core management areas for bears in Norway, and the core areas are established in connection with the breeding-areas in Sweden.

The Swedish-Norwegian population of bear is estimated at a minimum of 1 000 animals, of which only 40 – 50 are in Norway. Norway aims to establish reproducing females inside the core areas, and in the long term to secure minimum viable populations inside the two southernmost core areas. In Sweden, there is a proposed goal of 1 000 animals as a minimum for Sweden, and that the population therefore can continue to grow slowly.

Based on the low number of females in Norway, there is a special need for monitoring the number of adult females and annual reproductions, especially in the two core areas in southern and central Norway. In addition, monitoring of bear population development in Sweden is important because bears are harvested.

Wolf

Norway and Sweden have a common working goal of establishing at least 8 – 10 wolf packs in Southern-Scandinavia. This working goal is intended to define a population level where active management strategy will be implemented. Preliminary results from this winter show 6 family-groups and 6 – 10 pairs. Thus, we may have around 10 breeding pairs this summer.

Needs for monitoring are primarily focused on family groups and pairs.

Monitoring methods that will be used in Scandinavia to monitor the four large carnivores:

General methods used for all four species:

- I. Documented depredation on livestock and semi-domestic reindeer.
- II. Chance observations from the public.
- III. Carcasses of large carnivores killed accidentally or by hunters.
- IV. Genetics.
- V. Observations from moose hunters.

The methods I – III give information about distribution, while the methods IV and V in addition give information about population size (IV) and development (V). Genetics (from faeces or hair) can be used to separate individuals from each other, and can therefore be used to tell how many different individuals there has been inside a limited area.

Other monitoring methods will differ for the different species:

Lynx

For lynx, monitoring is specifically targeted for areas where hunting is carried out. Monitoring in such areas will be based on accumulating observations of family groups to obtain an annual minimum estimate, and the use of transect lines to obtain an index.

Wolverine

Monitoring of wolverine in northern Norway, the south Norwegian core area, and inside sami reindeer herding area in Sweden, will consist of searches for natal dens every year.

Bear

Monitoring of bears will be carried out through periodic mark-recapture surveys. Methods will vary, but genetic methods, and radio-collared individuals, will be used. In addition, signs of females with cubs and dens will be collected through the general methods.

Wolf

Monitoring of wolves will consist of the registration of packs and pairs through the extensive use of snow tracking. In research areas, radio-collared animals will give additional information.

Fennoscandian co-operating

Norway and Sweden are co-operating very closely within both research and monitoring of large carnivores. We also hope to extend this co-operation to include Finland. Through effective co-operation we hope to be able to overcome the formidable economic and logistical problems that large carnivore monitoring presents.

10. Local aspects from the municipality of Trysil in eastern Hedmark county concerning two national goals:

- to conserve viable populations of the large carnivores in Norway,
- to maintain a future sheep husbandry utilising the forest and mountain areas in Norway

by the Mayor of Trysil

Geography

The municipality of Trysil is situated in eastern Hedmark county with a long border against Sweden. This fact is the main reason for Trysil to have the longest conflict in modern times in Norway between large carnivores and sheep husbandry. This is also a special challenge for the future management of both carnivores and sheep at a local level.

History

Large carnivores in Trysil have the last 20-30 years recovered from being nearly extinct, to populations that today are viable (Lynx), or will be in the near future (Brown bear and wolf). Especially for the brown bear this is a result of a long-time conservation strategy in Sweden.

After the Second World War and until about 1985 sheep numbers in Trysil increased, but the last 4-5 years the number of sheep has decreased. However, the number of sheep owners has been reduced to the half the last 25 years. The main reason for many of the smaller sheep owners to finish their husbandry is the still increasing losses of sheep to large carnivores.

The last few years about 10% of the sheep in Trysil are killed by carnivores each summer.

Future

The national goals concerning large carnivores both in Norway and Sweden will result in even larger populations of carnivores in the future.

From a local view this is a threat to a future use of our large forest and mountain areas for sheep grazing, and the national goal of maintaining a sheep husbandry in this areas will be difficult to achieve. Because of this, local farmers and landowners may also lose a possibility of a future income.

Solutions

From a local view we respect and agree that we must secure populations of large carnivores in Norway. However, it is also a local wish to be given better opportunities to shoot those individuals of carnivores that make the largest damage to sheep.

It is also a local wish that the government will give resources to develop more sustainable solutions to solve the conflict. Today almost all the resources are used to short-term solutions, mostly of them with poor results.

It will be absolutely necessary to maintain a sheep husbandry in Trysil, that the Government give resources to evolve and change the way of keeping sheep in this areas, and that give the farmers a reasonable long-term income and reduces the losses to carnivores.

APPENDIX 2

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APPENDIX 3

Programme of the Seminar

Wednesday 21 June 2000

Arrival of participants

Thursday 22 June 2000

Session 1

9.00 – 9.15 am	Welcome to Norway <i>Mr Jo Stein Moen, Assistant Deputy Minister of the Environment</i>
9.15 – 9.30 am	The objectives of the Conference <i>Mr Eladio Fernández-Galiano, Bern Convention Secretariat</i>
9.30 – 10.10 am	Large Carnivore management in Norway <i>Mr Terje Bø, Directorate for Nature Management</i>
10.10 – 10.30 am	Coffee break
10.30 – 11.10 am	Research co-operation, Norway-Sweden <i>Mr Reidar Andersen, Norwegian University of Science and Technology</i>
11.10 – 12.10 am	Presentation of large carnivore action plans <i>Mr Callum Rankine, Large Carnivore Initiative for Europe</i>
12.10 – 1.00 pm	Questions and comments
1.00 – 2.30 pm	Lunch

Session 2

2.30 – 2.45 pm	Sheep farming and carnivores <i>Ms Veronika Seim, Farmers' Associations</i>
2.45 – 3.00 pm	Reindeer herding and carnivores <i>Mr Per Mathis Oskal, Reindeer herder's Association</i>
3.00 – 3.15 pm	Large Carnivore protection <i>Mr Rasmus Hansson, WWF</i>
3.15 – 3.45 pm	Coffee break
3.45 – 4.00 pm	Monitoring of Large Carnivore in Scandinavia <i>Mr Morten Kjørstad, Directorate of Nature Management</i>
4.00 – 4.20 pm	Prey base of Large Carnivore <i>Mr Olle Liberg, Grimsø Research Station, Agricultural University of Sweden</i>
4.20 – 4.45	Questions and comments

Session 3

4.45 – 6.00 pm	Panel Discussion
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Friday 23 June 2000

9.30 am – 1.00 pm	Second part of the meeting: Bern Convention Group of Experts on Large Carnivores – See agenda
2.30 – 5.30 pm	

Saturday 24 June 2000

Excursion to see habitat of large carnivores and meet people involved in conflict resolution

Sunday 25 June 2000

Departure of participants

Agenda of the group of experts

1. Opening of the meeting by the Secretariat and by Large Carnivore Initiative for Europe (LCIE)
2. Election of Chair and Vice-Chair
3. Adoption of the Agenda
4. Management of Large Carnivores in Fennoscandia (on 22 June, see programme for the day)
5. Presentation of Recommendation No. 74 of the Standing Committee
6. Presentation of the contributions by states on implementation of action plans
7. Examination of some issues
 1. Ecological corridors for large carnivores [*STRA-REP (99) 14*]
 2. Migration of species of Slovenia into the Alps
 3. Action plan for wolf in France
 4. Lynx in Switzerland
 5. Large carnivores in the Baltic States
 6. Conservation of wolf in southern Spain
 7. Information on Large Carnivores in Albania and “former Yugoslav Republic of Macedonia”
 8. Evolution of Iberian lynx population
8. Possible recommendations to the Standing Committee to the Convention
9. Future activities of the group. Operation of the group of experts between meetings
10. Any other business

NB. Contracting Parties to the Convention are invited to send to the Secretariat a summary report (2 or 3 pages) of activities carried out in their own state to implement action plans for bear, wolf, lynx, Iberian lynx and wolverine.

APPENDIX 4

Convention on the Conservation
of European Wildlife and Natural Habitats

Standing Committee



Recommendation No. 74 of the Standing Committee (adopted on 3 December 1999) on the conservation of large carnivores

The Standing Committee of the Convention on the Conservation of European Wildlife and Natural Habitats, acting under Article 14 of the Convention,

Having regard to the aims of the convention to conserve wild fauna and its natural habitats;

Recalling that Article 1, paragraph 2 of the convention requires Parties to give particular emphasis to the conservation of endangered and vulnerable species;

Noting that large carnivores form a unique and interesting ecological group with a specialised and fragile position in the trophic chain;

Noting that large carnivores are absent from wide areas of Western Europe where they were frequent and well represented in previous times;

Noting the decline in the population of the Iberian lynx (*Lynx pardinus*) and the reduction of its range since the convention was signed in 1979;

Noting the isolation of populations of large carnivores in some mountain ranges, and the dramatic decline of some populations;

Desirous to avoid a further loss of biological diversity in Europe and wishing to promote co-existence of viable populations of large carnivores with sustained development of rural areas in appropriate regions;

Aware that the drafting and implementation of Action Plans may be a useful tool to redress the situation;

Recalling its Recommendation No. 59 (1997) on the Drafting and Implementation of Action Plans of Wild Fauna Species;

Recalling its Recommendation No. 1 (1988) on the conservation of the brown bear (*Ursus arctos*), No. 17 (1989) on the conservation of the wolf (*Canis lupus*), No. 19 (1991) on the conservation of the Iberian lynx (*Lynx pardinus*), No. 11 (1991) on the conservation of the European lynx (*Lynx lynx*), No. 37 (1992) on the conservation of the Cantabrian bear and No. 43 (1995) on the conservation of threatened mammals in Europe, and its Resolution No. 3 (1996) on the setting up of the Emerald Network;

Referring to the Action Plans on large carnivores presented by the Large Carnivore Initiative for Europe sponsored by the World Wide Fund for Nature (WWF) (documents T-PVS (98) 23, 24, 25, 26 and 27);

Desirous of taking prompt action for the conservation and appropriate management of large carnivores;

Considering these action plans as guidelines for competent national authorities;

Recommends Contracting Parties to the convention and invites observer States to consider drafting and implementing (or, if appropriate, reinforcing) national Action Plans for the species listed in the Appendix to the recommendation; take note, in that context, of the above-mentioned Action Plans presented by the Large Carnivore Initiative for Europe.

Appendix: List of large carnivores covered by this recommendation

- Brown bear (*Ursus arctos*)
- Wolf (*Canis lupus*)
- Eurasian lynx (*Lynx lynx*)
- Iberian lynx (*Lynx pardinus*)
- Wolverine (*Gulo gulo*)

APPENDIX 5

Reports from the States

5.1. Austria

Distribution and situation of Brown Bear (*Ursus arctos*), Eurasian Lynx (*Lynx lynx*) and Wolf (*Canis lupus*) in Austria

by Mag. Bernhard Gutleb, Government of the Federal State Carinthia

Austria is consisting of nine federal states (provinces), each of them has its own hunting law and nature conservation law. In most federal states the three species are in hunting law without a hunting season, in some they are in nature conservation law and in one they are in both. In whole Austria bear, lynx and wolf can only be shot with a special permission if they have proofed to be dangerous or depending on killing livestock.

At the moment there is no wolf population established in Austria. The so called last autochthonous wolfs were shot around 1880. Due to their high mobility wolfs from the Dinaric mountain range (Croatia, Slovenia) always could and still can reach Austria. In the 20th century one or two wolfs were shot or killed by traffic almost each decade, their origin remained more or less mysterious. All shots after 1970 were illegal, hunters often said they thought it was a fox. In the future wolfs may reach Austria from the southwest (Italy-Switzerland), the south (Croatia-Slovenia) or the north (Czech Republik-Germany).

The lynx was eradicated in Austria at the end of the 19th century. Between 1977 and 1979 nine lynx (3 females, 6 males) were released in the border area of Styria and Carinthia (southern Austria). After some years of regular lynx observations the remaining individuals dispersed and probably not any lynx of this line is left. There are still few lynx observations in Austria, mainly along the border to Slovenia and to the Czech Republic. There are some single lynx individuals in Austria, but due to a lack of reproduction one can not speak of a population. The return of lynx to Austria will depend upon immigration from Slovenia or Czech Republic. The release of lynx would be another way, but hunters and rural population are opposing.

Austria is a bear country with a long tradition. At the end of the 15th century still whole Austria was bear country. From 1500 to 1900 each century between 70 and 256 individuals were killed in the forested area of Austria (about 50.000 km²) officially, probably the real number was much higher. In the middle of the 19th century the bear was extirpated in most parts of Austria but survived in the very southern Province Carinthia, the triangle of Austria, Italy and Slovenia.

In the time before 1860 bears were regularly harvested and observed in this region and judged to be present in most hunting areas. Between 1860 and 1971 bears were observed in 28 of 111 years with maximum 16 years discontinuation (longest discontinuations: 1895-1911, 1871-1884, 1884-1895, 1940-1950). At the moment there are 12-15 bears in the triangle of Austria, Italy and Slovenia with regular reproduction on the Slovenian side and incessantly proofs of bears with occasional observation of females with cubs in Austria and Italy. Since 1971 damages caused by bears (and lynx) are covered by an insurance from the Carinthian Hunting Association, meanwhile this system was extend to all other bear-provinces.

Following the increase of the bear population in Slovenia after 1950 bears were more often observed in Austria too. In 1972 a long-distance migrant from Slovenia settled in the Styrian - Lower Austrian Limestone Alps. During 1989-1993 three bears captured in the wild (2 females and 1 male from Slovenia and Croatia) were released in this area. They produced offspring in 1991, 1993 and 1996 (8 cubs) and an unknown number of cubs in the following years. They form the second core area of bears in Austria. The total population here currently amounting to about 15 individuals. For the whole of Austria the bear population is estimated to comprise 25-30 individuals.

In 1993 a bear attracted public attention in Styria by causing continuous damage. In 1994 damage and the number of conspicuous incidents further increased in Lower Austria, Upper Austria and Styria, which could no longer be explained by the behavior of one single bear. The human population started to be more and more concerned and the conservation of bears was increasingly put in question. Two bears were lost through kills. Afterwards hardly any damage was recorded in the areas in question. 1995 was the last time that remarkable damages occurred (Carinthia). Most of damages were associated with sheep kills and beehives.

In the years 1995-1997 a bear management plan sponsored by the LIFE program of the European Union was worked out. All Interest groups like federal authorities, local hunters, foresters, farmers, bee keepers etc. were heavily involved in the elaboration of the plan. Since 2000 Carinthia is the first Province to have a person so called "bear advocate" who is handling all bear related matters like monitoring, controlling of damages, information of the public etc.. The acceptance of the rural population for the brown bear is much higher than for the other two species but still a lot of work has to be done in the field of public awareness.

If the Austrian bears are not cut off from the source population in Slovenia and Croatia and skilled game biologists specially working on bears can be implemented to more Provinces there seems to be a realistic chance for the survival of the small Austrian population. Even a natural recolonisation of bigger parts of the Alps, a topic of European dimension, seems possible in the future.

5.2. Croatia

Status and plans in large carnivores management in Croatia

by Mr Djuro Huber, Biology Department, Veterinary Faculty in Zagreb

According to the existing legislation in Croatia, lynx and wolf are fully protected by the Nature protection law while bear is a game species managed by the Hunting law. The penalty (compensation) for killing of lynx or wolf is 40 000 HRK (10 000 DEM). Bear annual hunting quotas are determined by the local hunting units based on 15% of the estimated population size and according to the approved local hunting management plan. Hunting is done from elevated shelters over bait during the hunting season from 1 October through 15 May. "Committee for monitoring of large carnivores populations" formed by the Ministry of Environment and Physical Planning co-ordinates the actions around wolf and lynx, and is attempting to influence the bear management.

After the autochthonous lynx has been exterminated in Croatia around 1903, the species returned in 1974 following its reintroduction to Slovenia in 1973. The fact that the reintroduction was done by the animals taken from the Slovakian Carpathian Mountains is still the cause of complains due to hunters believes that the autochthonous lynx was much smaller and did not prey on big game. Lynx is legally protected since 1982 but the yearly hunting quotas (except in the last two years) have been approved. Hence, until 1999 at least 188 lynxes have been hunted or killed in other ways in Croatia. The estimation of lynx population is 70 to 90 animals. The work on the lynx management plan is ahead to determine, among other things, the policy of population regulation by hunting.

Wolf switched in 1995 from the category of a "harmful" animal free to be killed by any means to the category of fully protected species. Illegal shooting continued but the state is paying for damages on livestock. The population estimate ranges from 100 to 150 individuals. Aiming to save the viable wolf population on the largest possible area of Croatia the "Temporary wolf management plan for Croatia" has been issued. The plan separately treats the zone of Gorski kotar and Lika where the natural prey is the main wolf food (81% according to the scat analyses) and the zone of Dalmatia where wolves feed predominately on livestock (86%). The long-term component of management plan requires all development plans for the wolf-inhabited areas to consider the presence of protected and globally threatened predator. Furthermore the natural prey base should be increased, hunting management plans must consider the wolf presence and its influence on game species, livestock guarding methods must be improved, subventions should replace damage compensations, wolf populations should be intensively scientifically studied (telemetry tracking started in 1995), public attitude should be professionally surveyed (big survey was done in 1999) and the educational campaign should be initiated. As a short-term measure an option of regional and temporal legalisation of wolf killing was foreseen in the case of exceptionally big damages. The responsible Minister has not used this option yet. Among other short term measures are the continuation of professional examinations of damage complaints, donations of sheep guarding dogs of "tornjak" breed (so far 16 given and about 60 planned), helping farmers in construction of safe sheep night shelters, augmentation of natural prey (wild boar), registration of livestock and farmers.

Bear population estimate in Croatia is uncertain, being in the range of 380 to 620 individuals belonging to all age categories. The number of sexually mature animals may be 220 to 360. Results of recent survey showed that the existing way of bear management is not enough co-ordinated, as it is based on local population estimates without taking in consideration the situation in the whole Croatia. Such management should be modified in relation to the bear status and protective measures based on the Bern Convention. It has been recommended that all persons involved in the bear management as well as the representatives of other interest groups make agreement about the mutual work on the bear management plan for Croatia.

Common problem in the management of all large carnivore species; bear, wolf and lynx in our case, is that all event related to them raise high public interest and frequent conflict reactions. The damages which these carnivores do are provoking frequent negative media reactions. That leads to the individual ideas of the benefit of eventual extermination of some large carnivore species, as an undesired remnant of the past, which was cleared in the civilised world long time ago. On the other hand in the technologically advanced countries the approach to the total protection of each individual carnivore is getting increasing support. For the future of large carnivore populations neither of this two extreme approaches is optimal. Their management requires complex approach of all human interest groups, careful scientific monitoring of all ecological and sociological circumstances in the field, and continuous upgrading of practical solutions. Experience tells that there are no definitive solutions, either in space or in time.

Conservation of large carnivores is the especially sensitive problem in small countries as Croatia and Slovenia, which cannot hold their own minimum viable populations. This species also need large home ranges which are stretching over national borders. The survival of large carnivores directly depends on their status in neighbouring countries and about the event in their habitat. Common populations of bears, wolves and lynx in Croatia and Slovenia are the most western viable populations in Europe, and are critical for the survival of this species in Europe. Therefore the close co-operation in making management plane and in scientific research is required. It is crucial that neither side do threaten the habitat quality by the introduction of incompatible economy or by other interventions.

5.3. Czech Republic

Conservation status of large carnivores in the Czech Republic

At present, three species of large carnivores occur in the Czech Republic: brown bear (*Ursus arctos*), eurasian lynx (*Lynx lynx*) and wolf (*Canis lupus*). Brown bear and wolf reach the Czech Republic only by a margin of their range. Their occurrence has been occasional so far but there are no stable populations. Unlike that, the lynx is characterised by viable stable populations in particular regions and a tendency to enlarge its range in the Czech Republic.

Legislation

All species are listed as specially protected species in the Decree No. 395/1992 Gazette, implementing some provisions of the Act No. 114/1992 Gazette, on Protection of Nature and Landscape. They are also included in the list of the game species under the Act No. 24/1962 Gazette on Game Management and the Decree No. 134/1996 Gazette implementing some provisions of the Act. According to the decree, the brown bear and the wolf are allowed to be hunted all year round, the lynx may be hunted from January 1 till February 28. Permits and exceptions from the strict protection regarding hunting are approved by state nature conservancy institutions. The protection of biotopes of the species is also an obligation resulting from the Act on Protection of Nature and Landscape. The species are secured from killing, disturbance, hunting or injury. The Act on Damage Compensation caused by certain specially protected species came into force in May 2000 and it includes the three named species of large carnivores. The Czech Republic has been a contracting party of Bern Convention since 1997. However, the Czech Republic ratified the Convention with exemption of the bear and the wolf.

Brown Bear – *Ursus arctos* Linnaeus, 1758

Distribution in the Czech Republic

The brown bear became extinct in most of the regions of the Czech Republic during 17th and 18th century. The last report comes from the Šumava Mts., where the killing of so-called ‘last she-bear of Šumava’ is said to be 1856. Other unverified reports of the occurrence of the bear are dated between 1864 and 1898. However, in Moravia the bears persisted a little longer. They became extinct in the Jeseníky Mts. during the end of 18th century. At least six individuals were hunted and killed in the Beskydy Mts. after 1885. In 1908, occurrence of a stray from Slovakia was documented in the area.

After the Second World War, the first occurrence of the bear in the Czech Republic was documented on the east of the country – in the Moravskoslezské Beskydy Mts. in 1973. In early 1980s there were several reports of the bear’s occurrence in the area. Also, wintering was documented in this period. After 1983 the bears concentrated in scarcely populated border areas, where they were observed almost every year. Since late 1980s there has been further movement of the population to the south but mainly to the west. Wintering was documented in another mountain area of Moravia, in the Jeseníky Mts. Some individuals were even observed as far as in the Orlické hory Mts, but these were likely to be migrating animals, whose occurrence was considered only temporary. So far, monitoring of signs of bear’s presence in the Beskydy Mts. confirmed only occurrence of migrating individuals. Nevertheless, with respect to the species occurrence in adjacent regions of Poland and Slovakia the bear can be expected to inhabit north-eastern part of the Beskydy Mts on regular basis.

Conservation status

Some problems are encountered in relation to the new occurrence of the bear in the Czech Republic. In the area of the Moravskoslezské Beskydy the Frýdek-Místek municipality dealt with several cases of damage compensation caused by bears. Specifically, they concerned damage on bee colonies and on sheep. With increasing number of such cases chances of illegal hunting can be expected to grow which could negatively affect conservation status of the brown bear in the Beskydy Mts. Other factors negatively influencing well-being of the brown bear population in the Beskydy Mts. are: large numbers of visitors to the mountains, forest fruit collection, forest destruction and other disturbances caused by logging and a dense network of forest roads.

Brown bears are found mainly in the Beskydy Protected Landscape Area (PLA, category of large-scale protected area under the Act on Protection of Nature and Landscape). The Administration of the Beskydy PLA regularly monitors signs of bears’ presence in co-operation with volunteers; it also tries to educate local people. The Administration compiled a booklet for inhabitants of remote mountain areas and tourists that was sent to local municipalities. Occurrence of a stable bear population outside the area is improbable in the near future. The brown bear in the Czech Republic represents the westernmost part of the Carpathian bear population. Its conservation status fully depends on the actual state of the Western Carpathian bears (i.e. Slovakia). The Malá Fatra National Park is considered to be the main area from where the bear expands.

The wolf *Canis lupus*, Linnaeus 1758

Distribution in the Czech Republic

The main decline in number of wolves on the territory of the Czech Republic was recorded in the 18th century. Some wolves had been occasionally killed in the area of the Šumava Mts. until the end of the 19th century. Last documented reports of wolves come from the eastern part of Moravia, from the Beskydy Mts. The wolf was recorded even at the beginning of the 20th century, but these were likely to be migrants from Slovakia. Wolves appeared occasionally in other regions of the Czech Republic. However, the majority of them were individuals that escaped from captivity and in some cases they were even able to reproduce (the Šumava Mts.- 70's).

A group of wolves counting five individuals was observed in a remote part of the Beskydy Mts. in the mid 90's. It seemed likely that these wolves inhabited the area on regular basis. However, around 1997, the wolves disappeared in the area, probably due to the illegal hunting. Some animals may have returned to Slovakia. In winter 1998/99 some wolves were occasionally observed in a border area near Jablunkov and in the southern part of the mountains. Since 1999 signs of presence of one to three wolves have been regularly recorded in other parts of the mountains. In the last three years evidence of the wolf's occurrence in the Šumava Mts. was also proved through direct observation, signs of presence of bears and two dead animals were found.

Conservation status

Since 1994, damage on livestock caused by wolves has occurred. The Frýdek-Místek municipality announced that the wolves strangled 245 sheep in 1995. Such a high number was in fact caused by mistaking big hounds for wolves. Some of the damage happened because owners of the sheep took no protective measures against a possible occurrence of wolves. In the following years the number of killed sheep significantly decreased. The last documented case is from June 1999 when twelve sheep were killed by wolves. Paying compensation is often complicated by difficulties of distinguishing damage caused by wolves and feral dogs.

The Beskydy Protected Landscape Area Administration monitors areas where the wolf has been recently spotted. As the population of the wolf in Slovakia increases further expansion of the wolves from the area can be expected.

The Eurasian Lynx *Lynx lynx*, Linnaeus 1758

Distribution in the Czech Republic

Native lynx population got extinct in most of the Czech Republic during 18th century. At present there are four main regions of permanent occurrence on lynx in the Czech Republic. It is estimated that there are from 100 to 150 individuals older than one year.

The largest area with the most numerous population is in southwestern Bohemia. Mountainous ranges of Šumava were the last refuge of lynx in whole Bohemia. The date of extinction is not exactly known, but it is supposed to be the end of 19th century.

Some animals of unknown origin were sporadically observed in 1950's and 1960's. The present population was established in 1970-72, when from 5 to 9 lynxes were released on the German side of the border. They spread relatively quickly into the Czech part of mountains. First breeding was recorded in 1973. A special project was implemented and to a great extent it helped to stabilise the population. 18 Slovak lynxes were re-introduced between 1982 and 1989. First estimates of the population size were from 25 to 27 individuals at the end of 1980's. Well preserved habitats of the region, existence of a closed border zone and military areas and sufficient quantity of released animals seems to contribute to the fast increase in numbers of lynx. A study conducted between 1991 and 1992 concluded that there were around 42 territorial individuals in the area of 1500 km². In 1994 the population size is estimated to be 56 adult lynxes (75 including young). In 1995 the inhabited area covered territory of 5000 km². It included the Šumava Mts. and their foothills, the Český les Mts., the Plánický hřeben Ridge, the Blanský les Mts. and the Novohradské hory Mts. The population size is between 70 and 100 independent individuals whose territories extend to neighbouring areas in Germany and Austria. Further expansion of lynx into suitable regions continues. There are reports of them from Slavkovský les Mts., Doupovské hory Mts. and other adjoining areas. They are repeatedly observed in the Brdy Mts. However, the total size of the lynx population is not increasing at all, it may be even slightly decreasing. Their territories are getting larger because the prey is getting shy and cannot be easily approached. Other reasons are low numbers of young as well as illegal hunting.

The Moravskoslezské Beskydy Mts. has been inhabited the longest time. It is a margin of the large continuous range of lynx in the Western Carpathians. The lynxes had lived there up to the end of 19th century. The occurrence in 1930's was of a transient character, but lynxes were recorded again as early as after 1945. Breeding and population increase continued until the end of 1950's when the population reached its maximum of 25 individuals. Protests of professional hunters due to the losses of roe deer resulted in legal hunting from December 1 till the end of February during the period from 1962 to 1975. This was the reason of sharp decline in the number of lynx, in 1967 the population size decreased to between 4 and 8 migrating animals. In 1970's the lynx occurred rarely in the Beskydy Mts. There were a couple of

observations and findings of tracks, but even during this period breeding was documented. In 1976 and 1977 no evidence of lynxes was found in places of their former occurrence. Except of legal hunting, the reasons of the decrease are illegal hunting and migration both to Slovakia and to the west. At present the population size is estimated to be from 10 to 15 resident individuals. The inhabited area is connected with lynx range in Slovakia.

Other area inhabited for a long time is in the Jeseníky Mts. According to historical data lynx had occurred here until the middle of 19th century. The last was shot in 1852. Lynxes re-appeared in Jeseníky during 1940's. They were sporadically found there in subsequent decades, perhaps due to regular migration from Western Carpathians. Findings of traces in Nízký Jeseník confirm the theory. There was an increase in number of lynxes in Jeseníky in 1980's, and they reached a peak in 1988. At that time lynxes lived also in neighbouring areas of Králický Sněžník, Nízký Jeseník Mts. and Rychlebské hory Mts. Their population size was estimated to be from 15 to 18 individuals. A sharp decrease followed and recently there have been not more than 5 animals. The reasons of so high fluctuation are not well known. In case of the decrease illegal hunting played an important role. There are no available data on lynx occurrence from Jeseníky Mts. from 1997 to 99. It can be caused by a lack of observers in remote areas.

A small sub-population lives in the Bohemian Switzerland National Park. According to historical data the last lynx was shot here at the end of 18th century. More recent records come from the years 1932-35. At that time lynxes did not occur anywhere else in neighbouring areas. Other data come from 1960's and since that time there has been plenty of observation confirming permanent occurrence. In 1990's the population size can be estimated to include 6 individuals. Their territories probably extend into neighbouring PLAs and Germany. Most of actual data indicate communication with South-Bohemian population.

With regards to the enlargement of lynx distribution, increasing number of records come from regions that serve as corridors among subpopulations. It means migration is in progress. In Žďárské vrchy lynx was reported for the first time in 1989. In 1992 it was observed in its eastern part, which could signify it comes from the Jeseníky Mts.

Conservation status of the lynx

Re-introductions in 1980's helped to establish the most numerous population in the Czech Republic. The Conservation Action Plan of the lynx in the Czech republic is their natural continuation. The aim of the Action Plan is to maintain stable population of the lynx in the Czech Republic and to lower the risk to its well-being. The initial period of the Action Plan authorised by the Ministry of Environment of the Czech Republic began in 1998 and it shall be finished in 2000. The project included a survey of lynx population and damages caused by lynx. Three zones of differing level of protection were defined in the Czech Republic.

A zone – the strictest protection

It covers 13,5% of the territory of the Czech Republic. The area is already inhabited by the lynx or is suitable for future colonisation. Hunting of lynx is totally prohibited. Its capture is permitted only in special cases for reasons of nature protection.

B zone – strict protection

Trapping or hunting is permitted only exceptionally. The number of captured animals should not exceed 5% of the total population number per year, i.e. about 3 to 8 individuals. Ministry of the Environment issues the permits under the Act No. 114/1992 Gazette, On Protection of Nature and Landscape.

C zone – no lynx population

Environmental conditions are not suitable for persistent occurrence of the lynx. The zone covers about 1/3 of the country. In cases of lynx permanent occurrence, hunting is allowed from January 1 till the end of February.

Institute of Vertebrate Biology of the Academy of Science of the Czech Republic has been carrying out a long-term study of the lynx population in the Czech Republic. Food and droppings are analysed and telemetry is used to monitor the lynxes in southwestern Bohemia. Seven lynxes were equipped by radiotransmitters and gathered data are being analysed. The goal is to try to find out the causes of death and to obtain cadavers of illegally killed animals with guarantee of confidentiality. 75 skulls have been analysed, out of them 47 were of unknown origin.

An information campaign is an important part of the Action Plan. The Ministry of the Environment paid for a production of a videofilm "The lynx in the fog" and publishing of a brochure "The Large Carnivores in Our Environment". The brochure contains detailed information on present distribution of large predators in the Czech Republic, instructions for identification of their traces as well as various ways how to protect livestock against predation. The film and the brochure were distributed in all areas concerned.

5.4. Estonia

Conservation status of large carnivores in Estonia

by Ministry of the Environment, Department of Nature Conservation

There are three species of large carnivores in Estonia: wolf, brown bear and European lynx. Wolverine is only the occasional visitor in Estonia.

The official number of large carnivores is based on reports from hunters i.e. on non-scientific estimates in Estonia.

Monitoring of lynx and wolf bases on regular snow tracking in selected areas. Number of bears is estimated by observations of voluntary observers and registering and measuring their tracks, thus estimating specimens.

Wolf

Estonian wolf population is a part of the North-Western Russian population. In Estonia wolf is distributed all over the country.

The evaluation of the population size has been carried out since 1954. The biggest influence to the abundance of Estonian wolf population is migration from Russia and Latvia to Estonia. According to the official data there was 200 wolves in Estonia in 1999.

In Estonia wolf is a common game animal. The wolf hunting has never been limited in Estonia.

The number of wolves is regulated in Estonia because they are regarded as a threat to cattle breeding and also to public health (rabies). The development of wolf population in Estonia seriously affects also the condition of population of wild boar and roedeer. In Estonia wolf diet consists of wild boar (42%) and roedeer (48%). Both of these species are on the northern boundary of their range in Estonia.

The sustainable regulation of wolf population is necessary in Estonia, because without hunting the abundance of wolves will increase up to 800-1000 individuals, due to the natural immigration from east and sufficient number of prey species. This kind of phenomena was witnessed in Estonia after the II World War.

The scientists and hunters have proposed the establishment of seasonal limits for wolf hunting during the breeding season (April the 1. – August the 1.). This idea will be expressed in the action plan for wolf also (the action plan is under preparation already).

The Estonian proposal of the Council Directive of 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, is to exclude Estonian wolf population from the Annex II and Annex IV. It is proposed that the Estonian wolf population will be added to Annex V.

Brown Bear

Brown bear is the largest carnivore in Estonia.

Estonian bear population has a connection with the Russian bear population.

In Estonia bear is distributed all over the country, except on islands.

The evaluation of the population size has been carried out in Estonia since 1954, hunting statistics are also available from 1965. According to the official data there was 600 bears in Estonia in 1999. The biggest influence to the abundance of Estonian bear population is the migration from Russia to Estonia.

The number of bears is regulated in Estonia by hunting, because they are regarded as a threat to the agriculture and cattle breeding. The official number of individuals hunted annually is 30-40.

In Estonia brown bear is a game animal, which hunt is strictly limited, both seasonal limits and hunting quotas are set.

The sustainable regulation of bear population has to be continued in Estonia. Without hunting the abundance of bears will increase quickly because of the natural immigration from east.

The development of bear population in Estonia will seriously affect agriculture (beehives and crops, especially oats) and animal husbandry, also it will have a negative impact to the abundance of moose population.

The Estonian proposal of the Council Directive of 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, is to exclude Estonian brown bear population from the Annex II and Annex IV. It is proposed that the Estonian brown bear population will be added to Annex V.

European Lynx

Lynx is currently the only feline in Estonia, who is distributed all over the country.

Population of lynx has been stable during the last ten years. The evaluation of the population size has been carried out in Estonia since 1954. Hunting statistics are also available from 1963. Which give indication of population trends. According to the official data, the number of lynx was 1000 in 1999.

In Estonia lynx is a game animal, which hunt is strictly limited, both seasonal limits and hunting quotas are set. The number of lynxes is regulated in Estonia by hunting, because they are regarded as a threat to the public health (rabies) and to the roedeer population as well. In Estonia The diet of lynx consists mostly of hare and roedeer.

The sustainable regulation of lynx population is necessary in Estonia, because without hunting the abundance of lynxes will increase quickly.

The Estonian proposal of the Council Directive of 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora is to exclude Estonian lynx population from the Annex II and Annex IV. It is proposed that the Estonian lynx population will be added to Annex V.

Projects initiated:

1. Action plan for large carnivores.

Action plan for wolf, brown bear and European lynx is under preparation already. It will be completed by autumn 2000. This action plan will obtain as the main document of scientifically sufficient regulation of large carnivores in Estonia.

2. Monitoring of wolf and lynx number during winter

A cross-country large carnivores track-counting have been initiated. All over the country hunters have been asked to count the numbers of fresh tracks of lynx and wolf in their hunting area and report this to local hunting authorities.

The tracking day should optimally be the same all over the country, due to the movements of the carnivores.

3. Cross-boundary track-counting of large carnivores

There is need for cross-boundary track counting in Estonia. This kind of project has been initiated since winter 1999 to find out the migration of large carnivores from neighbouring countries to Estonia.

4. Fingerprinting

Identification of brown bear individuals in Estonia from DNA analyses will be conducted in co-operation with Tartu University. DNA is extracted from hairs and scats of brown bears. At the moment primers for the research is expected in near future. Mitochondrial DNA was successfully extracted from bear feces.

5.5. Finland

by Mr Ilpo Kojola/Finnish Game and Fisheries Research Institute

The number of brown bear has roughly five-folded from the early 1970s and also recent findings provide evidence about increasing trend. Since the 1970s, the species has been gradually recolonizing western and southern parts of the country. There exist at least 840, probably 1150-1250 brown bears in Finland. Numbers are difficult to estimate reliably despite of ca. 5,000 observations recorded annually by local experts. Estimates on numbers and sustainable harvest are largely based on litter observations, because females with young have the smallest home ranges. Radiomarking was initiated in 1998 and 21 bears have been radiocollared to date. Brown bear densities peak in the easternmost parts of the country, and a considerable proportion of bears have their home ranges partly in the Russian side. Only 20-23% of bears are living in the reindeer husbandry region. Human attitudes are influenced by fear of bears, for example 60% of Finnish people living outside the reindeer husbandry district regard brown bear as dangerous to humans.

There exist ca. 100 wolves and 10 wolf packs in Finland. Packs occur exclusively in the easternmost parts of the country, 2-3 of these packs have their dens in Russian side of the Finnish-Russian border. Population estimates are mainly based on radio- and snowtracking. We are presently following 12 radiomarked wolves shared by 6 packs. Only 8-12 wolves are annually moving within the reindeer husbandry district, in most cases having their origin in the northwestern Russia. Wolves have been reported to kill 22 % of semi-domesticated reindeer killed by predators. In recent years attacks on dogs have been impairing public acceptance of wolf in Finland. Encounters with dogs have shown clear spatial and temporal clusterization which indicates that only a few wolves have been actively seeking for dogs.

Number of wolverine has been increasing during the last twenty years presently reaching 120-130 individuals. Of these wolverines, at least 30-40 % have home ranges that extend either into northern Scandinavia or into northwestern Russia. One half of wolverines is living in the reindeer husbandry area, where densities are highest in the northernmost fell area. Elsewhere in Finland wolverine has been documented to reproduce only within wolf territories, i.e. in the easternmost Finland. Monitoring is based on reports by local experts, track countings along wildlife triangle transect lines and separately organized track countings in northern fell areas. Wolverine is reported to kill more semi-domesticated reindeer (ca. 35 % of all kills) than the other predators, including the Golden Eagle. No damage to livestock husbandry outside reindeer district has been reported so far. The species has been reintroduced into central and western Finland. Wolverine has been fully protected since 1982.

There exist 850-950 lynxes in Finland. Numbers are fivefold higher than twenty years ago. Lynx causes very little damage to property, largely because only 5 % of Finnish lynxes are living in the reindeer husbandry area. Outside the reindeer husbandry district, regional differences in lynx densities are huge, while not showing a consistent trend, dislike other large carnivores, in east-west direction. Monitoring are based on reports by local experts and track countings in wildlife triangle census. The majority of Finnish lynxes are dependent on mountain hare as a source of energy. The mortality rate of lynx is probably associated with the fluctuations in mountain hare densities. However, annual harvest of 50-70 lynxes has allowed numbers to increase.

Large carnivores are far more expensive in the reindeer husbandry district covering 35 % of Finland than elsewhere in the country, although the majority of bears, lynxes and wolves live outside the reindeer district. During last years the sum of money annually paid to compensate for reindeer killed by predators has formed ca. 90 % of all compensation (8-10 mill FIM) paid for damages caused by predators in Finland.

5.6. France

Si la France abrite des populations d'ours, de loup et de lynx, la situation des ces trois espèces est particulièrement contrastée.

I. Le loup

Contexte

Après extinction complète dans les années 30, le loup a fait sa réapparition naturelle en France - même si certains s'efforcent de nier ce retour naturel - en 1992 dans le parc national du Mercantour, en provenance d'Italie. Depuis lors il poursuit son expansion vers le Nord des Alpes.

La population française de loup était estimée durant l'hivers 2000 à une trentaine d'individus, répartis dans cinq régions (Mercantour, Queyras, Monges, Vercors et Belledone). En comptant les meutes installées du côté italien, la population totale pour les Alpes occidentales est estimée à une cinquantaine d'individus adultes présents de façon permanente.

Le loup constitue un révélateur de la fragilité d'un élevage ovin subissant de nombreux handicaps et aléas naturels que les différentes aides publiques compensent difficilement. Or cet élevage constitue dans de vastes territoires la dernière activité économique pérenne assurant un entretien de l'espace.

Actions passées

Dès 1993, un plan d'action a été mis en place par le ministère chargé de l'environnement avec l'appui du parc national du Mercantour. Il a permis d'observer le comportement des loups, de mettre en place un dispositif d'indemnisation des attaques sur les troupeaux de moutons et de développer des pratiques pastorales permettant de réduire la prédation (chiens de protection, enclos mobiles, cabanes d'alpage, aides bergers, ...).

Ces premières mesures ont été reprises et amplifiées dans le cadre d'un programme LIFE cofinancé par le ministère chargé de l'environnement et la Communauté européenne de 1997 à 1999 pour un montant de 8 millions de francs H.T. Les objectifs de ce programme étaient d'accompagner le retour du loup dans les Alpes du Sud en améliorant la connaissance sur l'espèce, sa répartition, son évolution, son impact sur la faune sauvage et domestique, et de mettre en place des mesures d'accompagnement en faveur du pastoralisme : compensation des dommages, mise en place de chiens de protection, de parcs de contention la nuit, la mise à disposition de bergers auxiliaires pour améliorer la garde nocturne des troupeaux.

Résultats :

Les dégâts imputables aux loups en 1998 ont été les suivants pour une population de 25 à 30 loups:

Département	Nombre d'attaques	Moutons indemnisés	Montant de l'indemnisation
Alpes Maritimes	208	691	907 199 F
Alpes de Haute Provence	5	7	13 550 F
Hautes Alpes	31	241	242 750 F
Savoie	21	110 à 150	estimation : 150 000 F
Isère	35	161	178 660 F
Total	300	1210 à 1250	1 492 159F

Le niveau de prédation à l'échelle régionale reste infime, mais sur certaines exploitations, des mesures de prévention sont indispensables pour maintenir la prédation à un niveau supportable.

Les mesures de prévention ont prouvé leur efficacité comme en témoignent les données des Alpes Maritimes : pour la première fois en 1998, le nombre d'animaux indemnisés a baissé (691 contre 789 en 1997), alors que la population de loups continuait de croître légèrement dans ce territoire (20 en janvier 1998 contre 19 un an auparavant).

Actions nouvelles :

Un deuxième programme LIFE loup d'un montant de 18.6 MF, a été agréé par l'Union Européenne, et a démarré en juillet 1999 pour une durée de trois ans et demi. Ce programme qui concerne l'ensemble de l'arc Alpin vise :

- à suivre l'expansion géographique du loup grâce à la mise en place d'un réseau de correspondants, et l'identification par analyse génétique des indices de loup (poils, fèces) à travers l'évolution de la répartition et de la composition des meutes et l'exploitation des ressources alimentaires dont le cheptel domestique.

- à mettre en place des actions de prévention et de compensation des dommages, comprenant la mise en place de mesures de prévention des dégâts sur les troupeaux dans les zones exposées au loup: 150 chiens de protection, 100 parcs de regroupement nocturnes, le recrutement de 20 aides bergers pendant la saison d'estive et de quatre techniciens assurant le conseils aux éleveurs ainsi que la compensation des dommages causés par le loup.
- à l'amélioration de l'acceptation du loup par les populations concernées grâce à des actions de communication (diffusion des connaissances et sensibilisation)

Le plan d'action national

Un plan d'action pour la préservation du pastoralisme et le loup dans l'Arc alpin a été rédigé conjointement par les ministères chargés de l'agriculture et de l'environnement afin d'assurer une cohabitation durable entre le loup et le pastoralisme. Ce plan (diffusé en séance) était basé sur le principe d'un zonage des alpes entre des territoires d'expérimentation et des territoires de gestion du loup, a fait l'objet d'une large concertation auprès des partenaires locaux et des instances associatives et socio-professionnelles.

Des modifications importantes ont été apportées au plan initial avec un abandon d'un zonage des Alpes en ce qui concerne le statut de protection du loup. En revanche, des territoires d'action prioritaires seront désignés en fonction de leur importance pour la conservation du loup et du pastoralisme, où les actions en matière de prévention des dommages seront réalisées. Sur l'ensemble du territoire alpin, le loup est protégé, mais dans le respect des engagements de la France vis à vis de la directive Habitats et de la convention de Berne, des interventions ponctuelles (capture ou destruction) peuvent être autorisées selon un protocole strict, sans que cela n'empêche l'accroissement de la population.

Une coordination transfrontalière franco-italo-suisse, a démarré avec la constitution d'un comité de coordination transalpin sur le loup, qui s'est réunis à Paris en juin dernier. Ce comité a pour but l'échange d'informations sur l'état des populations et une harmonisation des politiques de gestion du loup dans les trois pays.

II. L'ours

Situation

Dans les années 1950, la population d'ours des Pyrénées est estimée à 70 individus. Actuellement il ne subsiste que 4 à 5 ours adultes, un subadulte et un ourson dans le Haut-Béarn, ainsi que deux adultes réintroduits en Pyrénées centrales à partir de Slovénie en 1996 et 1997 et quatre subadultes.

Mise en œuvre du plan d'action au niveau national

La survie de cette espèce protégée passe par la conservation des habitats naturels qui lui sont favorables et l'acceptation de sa présence par les bergers qui subissent les attaques et par les hommes dont les activités occasionnent des dérangements préjudiciables à l'animal : réalisation de pistes et routes sylvo-pastorales, coupes forestières, développement de certaines formes de tourisme, chasse mal contrôlée.

A la suite d'un plan de conservation de l'ours établi en 1984 qui s'est heurté à des oppositions locales, deux chartes ont été signées par les collectivités locales et l'Etat :

- L'une en 1993 a permis la réintroduction expérimentale de trois ours slovènes (génétiquement proches des ours pyrénéens) dans les Pyrénées centrales. Malgré les efforts entrepris pour favoriser l'acceptation locale des ours réintroduits et de leur descendance, les dégâts causés par les ours subadultes en 1999 et en 2000 en Ariège dans un secteur qu'ils ne fréquentaient pas jusqu'à présent ont entraîné un fort rejet local qui s'est traduit par le vote d'un amendement demandant le retrait des ours introduits dans les Pyrénées, lors de l'examen de la loi chasse au parlement. Si cet amendement a finalement été supprimé, le Ministère de l'Aménagement du Territoire et de l'Environnement s'est engagé à réaliser un débat public concernant le programme de réintroduction des ours, tout en renforçant les actions de prévention des dégâts causés par les ours. Un audit du programme sera réalisé au cours des prochains mois afin de rédiger un plan d'action pour les ours des Pyrénées, qui sera soumis à débat public.

- L'autre charte, signée en 1994 a permis la mobilisation de responsables du Haut-Béarn pour la conduite de diverses mesures favorables à la fois au développement économique des vallées et à la nécessaire préservation de l'ours : meilleur suivi des animaux, nourrissage, aménagements et plantations forestiers adaptés, prévention des attaques de troupeaux. Un projet de renforcement de la population d'ours béarnaise n'a pas pu se concrétiser en 2000. Le bilan des cinq premières années de l'action de l'Institution patrimoniale du Haut-Béarn dans la mise en œuvre de la charte de développement durable des vallées béarnaises et de protection de l'ours devrait permettre d'établir les bases d'une restauration de la population d'ours et de son habitat dans le cadre du contrat de plan Etat -régions qui débute en 2000.

III. Le lynx :

Situation :

Le lynx est présent en France sur trois massifs :

1. Dans le massif jurassien :

Les lynx issus des réintroductions effectuées en Suisse se sont installés dans ce massif dans les années 70. Leur aire de présence couvre actuellement la quasi-totalité des massifs forestiers sur une aire continue de 5 500 Km².

2. Dans le massif alpin :

L'aire totale de présence couvre une superficie de 2 200 Km², répartie en plusieurs îlots de superficie minimum localisés dans les cinq départements des Alpes du nord. Aucune aire de présence continue n'a pu être mise en évidence.

3. Dans le massif vosgien

Le lynx a fait l'objet d'un programme de réintroduction d'animaux en provenance de Tchécoslovaquie dans les années 80. Il couvre actuellement une superficie totale de 1 700 Km², formant une aire continue sur le versant alsacien des Vosges moyennes et du sud. La colonisation des Vosges du nord ne s'est en revanche pas encore produite. La poursuite de la réintroduction dans cette région pourrait être envisagée.

La prédation sur le cheptel domestique :

Les dégâts sur les moutons sont essentiellement centrés dans le massif du Jura. En 1998, 51 troupeaux ont été attaqués dans ce massif causant la mort de 147 ovins, soit moins de 0.5% des effectifs ovins. Si la plupart des élevages ne sont pas touchés ou de manière épisodiques, chaque année deux à six foyers d'attaque sont identifiés, liés à l'apparition d'individus ayant un comportement prédateur sur les ovins. Une à deux autorisations de capture de ces individus à problèmes ont été délivrées chaque année, entraînant une diminution des pertes.

La possibilité, parallèlement à l'indemnisation des dégâts, d'intervenir ponctuellement sur les lynx à problèmes, a permis de diminuer les tensions sociales qui existaient au moment de son retour, et a contribué à son acceptation par la population locale.

5.7. Hungary

Short report on the conservation status and government's projects on the Hungarian population of Wolf (*Canis lupus*) and Lynx (*Lynx lynx*) as large carnivores¹

by the Ministry of Environment and Regional Policy

Distribution

Wolf

At the end of the 19th century the Hungarian wolf population declined significantly and it has been extirpated from most of the country. During the 20th century only occasional occurrences have been recorded. These occasional occurrences were most "frequent" in the periods of World War I and II. For current occurrence only few, sporadic and sometimes contradictory data are available. It is certain, however, that the wolf is present again in the country since ca. 1990. Two major ranges developed by the end of the 20th century, which are not connected with each other neither in the origin of the animals, nor in the habitat's local conditions.

- Out of the two areas, the population is more stable with more frequent occurrences in the north-eastern part of Hungary. The resettlement (spontaneous range expansion) originated from the Carpathian population. In the region of *Aggtelek* and *Zemplén* hills the continuous presence of a small population can be concluded from various observations, with signs of reproducing individuals. The source of the animals is thought to be from the migrating Slovak population. Sporadically, wolves appear in some other regions of the Northern Uplands, such as in the *Bükk*. According to the observations the wolves occupy the inner regions of the mountain's deep forests. In this region most of the forests are actively managed and beside timber production game management is also significant. In the last 15 years, wolf occurrences were registered also in the eastern part of the country, at the Romanian border and in the north-eastern *Szatmár-Bereg* region, even in open lowland areas.
- At the southern part of the *Danube-Tisza* Plane region and in the *Bácska* region, migratory individuals settled down from Yugoslavia and /or Romania. The occurrences are more casual here, but there are confirmed records of specimens with young.

Lynx

Although the lynx occurred in the present Hungarian territory for centuries, in the 20th Century it was considered to be extinct in Hungary. As a consequence of the growing Carpathian lynx population, the number of records started to increase in the country since the 1980's. Its Hungarian occurrence is now limited to the region of the Northern Uplands. The occurrence of the lynx is tightly linked to forested hilly areas. The pattern of occurrences is varying from year to year. According to the surveys permanent or occasional occurrences were registered in the *Börzsöny*, *Mátra*, *Zemplén* and *Aggtelek* hills, with sporadic records in the *Bükk* and in the *Tarna* hilly region in the last 15 years.

Brown bear

Occasional, rare immigrant in the most northern, hilly region. The individuals are vagrants from the Slovak population.

Population size

Wolf

Similarly to a number of other countries, lack of information and, in some cases, unreliable data characterise the state of the Hungarian knowledge. According to the available shooting data, questionnaire surveys, and the occasional field surveys the population size has been rather fluctuating in the last three decades, but it shows an increasing trend. Observations refer to 1-3 specimen in one pack. According to our present knowledge the number of wolves is likely to be around 15-25, but out of this, breeding families are not more than 2-5. No information is available on the offspring's number.

Lynx

Similarly to the wolf, there is a lack of sufficient information on the numbers of lynx in Hungary. According to the available shooting data, questionnaire surveys, and the occasional field surveys the population size in the last two decades has been fluctuating, but with an increasing and more balanced trend than in case of the wolf. Signs of reproduction (i.e. young individuals) are also recorded. However, most recently the population is probably declining (disappearance of well-known occurrences).

¹ Compiled by Zsombor Baltay, Gábor Magyar and Gábor Nechay, considering also the action plan on *Canis lupus* and *Lynx lynx* drafted by László Szemethy, Gábor Firmánsky and Miklós Heltai.

Brown bear

Occurrence of single individuals or individuals with cubs are occasionally recorded along the bordering area to Slovakia (occasional sightings of bears and observations of tracks and droppings).

Conservation status

Wolf

Until 1985 the wolf was considered to be extinct in Hungary. Following the reappearance of the wolf in the Hungarian fauna in the second half of 1980s, hunting was permitted by the regional hunting authorities which, following heavy media criticism after the first cases, asked the approval of nature conservation inspectorates as well.

Since 1993 it is listed as protected species. Its "nature conservation value" or "penalty value" is 50,000 HUF (ca. 200 Euro). Deliberate killing, on an individual basis, is allowed only with authorisation of the competent National Park Directorate (these directorates operate outside the areas of national parks as regional nature conservation authorities as well, in the administrative regions).

Lynx

Similarly to the wolf, lynx was also considered to be extinct (last individuals observed in 1915) in Hungary up to the 1980s. On an individual basis hunting of stragglers was permitted occasionally in a similar way as in the case of wolves. Since 1988 the lynx is protected and since 1993 listed as a strictly protected species. Its "nature conservation value" or "penalty value" is currently 250.000 HUF (ca. 1000 Euro). No hunting permit was issued to lynx since the beginning of its protection.

Brown bear

Since 1993, the brown bear is legally protected, its "nature conservation value" or "penalty value" is 50,000 HUF (ca. 200 Euro).

Nutrition

Wolf

The nutrition habits of Hungarian wolves require further surveys. The sporadic Hungarian observations concur with international data. The wolf's wintertime prey consists mainly of mouflon and young deer (calf, hind) in the *Zemplén*, while in the summer period mainly of small rodents. According to the observations in *Bácska*, wolves obtain food mainly from carcass disposal sites and from sheep flocks.

Lynx

Domestic observations merely show the lynx to prey predominantly on roe-deer and mouflon, occasionally on red deer calves. Its feeding behaviour/pray spectrum needs certainly further studies.

Brown bear

No data from Hungary exist. Feeding habits are probably mostly vegetarian.

Habitat requirements

Wolf

Analysis of exact habitat requirements in Hungary is not available, a comprehensive survey needs to be conducted in the matter. According to current data it turned out that wolves stay close to the centre of their range.

Lynx

There is no detailed information about the habitat requirements of lynx. Observations exist only from large continuous forests.

Brown bear

The individuals coming over to Hungarian territory stay in hilly and forested areas.

Land use, migration

Wolf

Land use and migration is the least known behaviour element. Due to the local habitat conditions, rich prey abundance and wolf density, no migration of significant level is expected. It is a question however, whether the detected/observed wolves in Hungary are migratory ones from neighbouring countries or have a permanent territory here; what is the distribution of their (moving) range between neighbouring countries; which neighbouring country's population are Hungarian wolves connected with?

Lynx

The above said is valid to the lynx.

Government's projects

There is no ongoing government's project. However, elaboration of an action plan on lynx and wolf is in preparation. According to the draft plan as main factors of threat are:

- habitat fragmentation
- forest management
- tourism
- extensive livestock breeding
- illegal killings
- other human factors

The main tasks of studies are:

- studies of the feeding behaviour
- range and population monitoring.

5.8. Italy

by the Istituto Nazionale per la Fauna Selvatica

In 1999 the National Wildlife Institute - the Italian government agency for the study and conservation of wildlife – has been delegated by the Ministry of Environment to produce an Action Plan for the Conservation of the Wolf. The production of a national action plan represents an important step for the wolf conservation, because Italy is characterised by a highly fragmented political and administrative system, often limiting the coherence of the instruments implemented for addressing wolf management problems.

In respect to the task, between 1999 and 2000 we produced a draft of the plan, that has been recently sent to a list of experts, indicated by the Ministry of Environment, for comments. The planned time schedule is to convene all the experts within this summer, to discuss all the comments, and to then arrive to an agreed version of the action plan for next autumn, and to a final version within this year.

The present version of the draft has been produced on the basis of the guide lines of the European Action Plan, and of the Italian experiences in wolf conservation and management. In respect to the importance of promoting a transboundary co-ordination in wolf conservation, we carefully considered the recent French Action Plan on the Wolf, and the positions of the Swiss experts and authorities on wolf conservation.

The main principles proposed by the present preliminary version of the draft, that will be discussed with the Italian experts, are the following:

1. scope of the Action Plan is to maintain the wolf population in the Apennines, and to promote, in coexistence with people, a further expansion of the species across the Alps, in order to arrive to re-connect the Alpine population with the Slovenian wolves.
2. The conservation of the wolf requires the resolution of the conflicts with human activities. In this respect, it is critical to involve farmers and hunters in the conservation efforts.
3. The presence of an established population of wolves in the Alps, makes essential a transboundary communication and co-ordination among Italy, France and Switzerland in order to promote - carefully considering the different social, political, and economic contexts among the three countries- common guide lines for the management and conservation of the species. In this respect, the creation of a permanent table of consultation among the Alpine countries appears an essential step.
4. The control of problem individuals, if based on explicit numerical objectives ensuring the maintenance of a viable population of wolves in the long term, can result to be sustainable for the wolf population, coherent with the international guide lines on wolf conservation, and, under certain circumstances, can represent an effective tool for resolving local conflicts. Nevertheless, wolf control appears socially and culturally unacceptable for a large part of the Italian society, and it is not considered in the management tools included in the Action plan.

Updated information on the re-introduction of the Brown bear to the Italian Central Alps

The range of the Brown bear in Italy is limited to the population of central Apennines, and to a residual population of 3 old individuals in the Adamello Brenta Natural Park (Central Alps). More over, some individuals are occasionally recorded on the eastern Alps, arriving from Slovenia and Austria. A translocation project aimed to re-establish a viable population of at least 50 bears in the Central Alps was proposed by the Adamello-Brenta Natural Park administration, in co-operation with the Province of Trento. Therefore, a feasibility study was realised in 1998 by the Italian National Wildlife Institute: causes of population decrease, habitat suitability, costs of the project, potential impact of bears to human activities, and attitude of residents toward bears were analysed. A survey on the attitude of the local population towards the Brown bear, carried out through 1,500 telephone interviews, indicated a positive opinion of 75% of the residents, raising to over 80% when stating that bears will be constantly monitored, and that problem individuals will be removed or destroyed. In this respect, an emergency team has been created, training rangers to aversion and trapping techniques.

The feasibility study indicated that the translocation has good probabilities to be successful in the medium-long term. In the Central Alps there are still about 1,700 km² of suitable habitat for the bear, that can sustain a population of about 50 animals. The predicted cost of the project is high, but it has been considered sustainable by the administrations funding the translocation, and funds for damage prevention and compensation have thus been approved.

On the basis of the positive results of the feasibility study, the project was approved by the Italian Ministry of Environment and by all competent authorities. The re-introduction is partly funded by CEE through a "LIFE" program, and is carried out in co-operation with the National Wildlife Institute and with the authorities of Slovenia, where bears are captured.

The re-introduction, co-ordinated by Dr. Andrea Mustoni, started in 1999; captures in Slovenja were organised by the Forest service co-ordinated by Dr. Marko Jonozovic. A male (Masun, 3-5 years old, 99 kg) was trapped in May 26th and a female was trapped 4 days after (Kirka, 3 years, 55 kg). Each bear was transported to the Central Alps immediately after capture, by using a van with air conditioning and a video system to constantly check the animal. In the first year after release, the 2 bears were located twice a day by radio-telemetry; they moved less than expected and did not cause any damage to livestock or bee-hives. The female moved in an area of about 19,000 ha, while the male, after several months of limited activity, last December started increasing his activity, firstly moving in a valley about 35 km far from his previous home range, and than going further westward.

On the basis of the encouraging results of the first year, we decided to release 3 more bears (1 male, 2 females) in 2000. Last May Daniza (female, about 100 kg, 3-5 years old), Joze (male, 140 kg, 5-6 years old), and Irma (female, 113 kg, 5 years old) were captured in Slovenja, equipped with a radio-collar and 2 ear transmitters, and transported to Italy under the supervision of a veterinarian. In the next years we plan to release at least 4 more bears, for arriving to a minimum of 9 animals. The final aim is to arrive in the next 20-50 years, through natural reproduction of the released bears, to a population of 50 animals in the Central Alps.

5.9. Moldova

by the Ministry of Environment and Territorial Development

In conformity with Action Plans for Large Carnivore in Europe in the frame of Bern Convention, the Institute of Zoology of Academy of Science of Moldova would like to inform that: from species of large carnivores the territory of Republic of Moldova is populated by the wolf (*Canis lupus*). The numbers of wolfs in years 50 have been enumerated around 300 animals. During years 70th there number have been reduced till around 20 animals (Uspenschi, 1979 in the monografy "Mamiferes").

In the further time the wolves have been interrupted to reproduce, arising sporadically speaking the food in wintertime. In the last ten years the wolf was observed in some sites. For example, in autumn of 1995 in the wood alongside commonness Batîr and mihailovca, Cimişlia sector Lapuşna District were observed two adults wolfs, and in autumn and winter period of 1996 it was discovered the tracks of 4 wolfs in the Zloţi forest after tearing many colts, sheeps, goats in the wood. It is possible that a couple of wolfs have reproduced in that wood.

Other case of wolf apparition in seeking of food it was mentioned nearly communa communa Advarma from the South part of republican 1994.

Causes of wolf disparition are following:

- direct crushing and chasing,
- absence for reproduction sites,
- poaching, etc.

It is possible in the future wolf to appear sporadically in transit from Carpati mountains, from Romania, or from Ukraine forest.

5.10. Poland

Conservation status of Large Carnivores (Brown bear, Wolf, European Lynx) in Poland

Large carnivores in Poland are considered, both by governmental institutions and the public, to be valuable element of native fauna. Growing ecological awareness of the society resulted in using large carnivores as a flagship species of NGOs conservation activities. One should, however, be aware that large carnivores are potentially conflict species with human activities. Thus, the major role of government nature conservation agencies is to mitigate possible conflicts.

Distribution and population size of large carnivores in Poland is very different for the species concerned. Brown bear inhabit only south-eastern part of the country (the Carpathian Mountains) and its number is estimated at about 100 individuals. Number of bears has been relatively stable during last 10 years. European lynx occur in two separate locations: lowland population inhabits the north-eastern part of the country, while the mountain population can be found in the Carpathian Mountains. Number of lynx is estimated to be below 300 individuals, and their number has steadily decreased during recent years. Wolf has the most extensive distribution in Poland: its core area are in the Carpathian Mountains and the north-eastern Poland, but it can be found also in eastern Poland and in few locations in western part of the country. Number of wolves is estimated to be more than 900 individuals and the population has slightly increased during last 5 years.

There is an agreement between wildlife management authorities and scientists involved in carnivore research that the officially reported numbers of brown bear and European lynx is probably close to the actual ones. In the case of the wolf, there is however considerable controversy. Some experts argue that the number is considerably overestimated and the actual number is below 600 individuals, while others claim that the number of wolves is even more than 1 000 individuals.

Currently, all large carnivores are strictly protected in Poland and included in the Polish Red Data Book of Animals. They are also considered very important species in currently prepared Natura 2000 for Poland. Brown bear is protected since 1950s, while Eurasian lynx and wolf are under protection since 1996 (actually, the wolf is protected over all Poland since 1999). Strict protection means not only that a species cannot be killed, but also that all activities and manipulations which are changing unfavourably its environment are prohibited. Law is enforced relatively well, however a few cases of poaching are reported annually.

In case of necessary management intervention (habituated bears, excessive damages to livestock by wolves) a special permission can be issued by the Ministry of Environment to take adequate steps against species concerned. Such steps can include negative conditioning of problem animals, immobilisation and translocation live trapping for captivity, are killing.

Damage caused by large carnivores (e.g. livestock, crops, beehives) is compensated by the states through provincial nature conservation authorities. Damage compensation scheme involves a participation of local forester, veterinarian, and a livestock owner to describe damage scale and propose a compensation quota. Current compensation system work relatively well, however it still should be improved, especially to pay for losses without too time consuming procedures.

Future activities of the Ministry of Environment concerning large carnivores will follow actions suggested in Action Plan for Brown bear, Wolf and European lynx) worked out by the Large Carnivore Initiative for Europe. A National Strategy of Wolf Conservation was already prepared in 1999 and is in a process of consultation with other governmental institutions, livestock owner organisations, wildlife managers, and NGOs. It is planned to prepare National Strategies for Brown bear and European lynx in the near future.

Important activity is going to be preparing and introducing a reliable system of monitoring numbers and population trends of large carnivores. Input from several ongoing research projects on these species will be crucial for producing a successful monitoring scheme. Populations of large carnivores often occur in transboundary wilderness areas. That is why, the Ministry of Environment is going to work to co-ordinate with neighbouring countries conservation/management activities focused on shared populations of large carnivores.

5.11. Portugal

by the Instituto da Conservação da Natureza

I. Iberian Lynx in Portugal: status survey and conservation problems

1. Distribution and status of the Iberian lynx in Portugal

The Iberian lynx was an almost unknown species in Portugal until the 1970's, then a first survey determined a preliminary national distribution (Palma, 1980) with occurrences in Serra da Malcata, Contenda-Barrancos and the Algarve mountains.

The first study (Palma 1977 and 1980) on this species ecology and conservation was carried out in Serra da Malcata, a central-east area of Portugal. At that time, massive habitat destruction in this area, caused by industrial forestations, was the trigger for a national campaign for lynx conservation that culminated with the creation of the Serra da Malcata Nature Reserve in 1981.

National data were collected in a non-systematic way by Vasconcelos (1989). From 1995-97 a conservation lynx project was developed by Institute for Nature Conservation, co-financed by LIFE/CE, during which new data was gathered, providing a better assessment of the national situation.

National distribution was based on direct inquiries, using a systematic methodology covering selected areas of the country. Several authors refer the adequacy of these methods when great extension of territory has to be covered and for monitoring presence and abundance of species with cryptical behaviour and occurring at very low densities such as lynx (Easterbee *et al.* 1991; Rodrigues & Delibes, 1990 and 1992; Gros 1998; Stahl 1998). Sightings or deaths reported by gamekeepers, hunters and other people whose activities are related with the field were accepted as positive after careful confirmation.

The results obtained revealed a restricted and highly fragmented present distribution. Five areas of occurrence were identified, three of them transborders (Malcata, S. Mamede, Guadiana valley) and the two others (Sado valley and Algarve-Odemira) possibly composing an isolated metapopulation. Other dispersal occurrences through the country – such as Gerês, Montesinho, Mira and Serra de Ossa - can indicate residual areas or large dispersal movements.

To make a comparative analysis with Spanish data, population size was estimated adapting methodology from Rodriguez & Delibes (1992). Considering the data obtained by sightings from 1986 to 1996, a Portuguese population size of 40-53 adult animals was estimated. Considering the size of national territory, these values already indicated a startling situation. However, intensive field search of signs done over the last two years in two different areas - Malcata and Algarve-Odemira –did not show evidence of resident lynxes.

Serra da Malcata Nature Reserve studies over last years (Castro 1992; Sarmento *et al.* 1997; Sarmento & Cruz 1998a) allowed us to observe a decrease in densities pointing to a serious local pre-extinction status:

Period	Number of lynxes (N)	Area (Km ²)	Mean Density (N/100 Km ²)
1992	5-8	125	5.2
94-95	4	210	1.6
96-97	2-3	190	1.3
98-99	1	160	0.3

We don't have this type of information for the other nuclei in the country. However sightings data from 1990-1997 and 1994-1997 showed a general decrease in observations and presence area.

In conclusion, considering a pessimistic scenario, we may be in the presence of a collapse of social organisation, with dispersed individuals with very large territories and probably no breeding.

2. National Action Plan of Iberian Lynx

One of the main goals national LIFE project was to collect information to support the elaboration of a National Plan for lynx conservation.

Now a technical proposal for the National Action Plan of Iberian lynx is going to be discussed with other key-actors responsible for its implementation, such as governmental institutions, management authorities, researchers and NGO's. We identified as main issues for lynx conservation:

- adequate habitat and prey management;
- more effective species protection;
- creation of specific legislation;
- creation of socio-economic incentives;
- monitoring and research;

- increasing public information and awareness;
- co-operation/co-ordination between entities and countries involved in lynx conservation
- population reinforcement/reintroduction

The National Action Plan of Iberian lynx is in articulation with the Action Plan for the conservation of the Iberian lynx in Europe, incorporating its main themes.

3. On going activities

The implementation of National Action Plan is foreseen to all lynx areas. Some of those actions are already taking place at a local level and are as follows:

- **Protection of important areas for lynx conservation**

The most important lynx occurrence areas were proposed to be integrated in Natura 2000. Some of them have already been included in the National Sites List - 1st phase (August 1997) and others will be integrated in the National List - 2nd phase, soon to be approved. We hope it will allow a more effective control of any change in land use and more co-ordinated management.

Identifying corridors between occurrence areas to reduce the risks of inbreeding is a critical issue and the National Action Plan propose a detail study on different landscape scales in order to provide a rational habitat evaluation that will help decision making in lynx conservation.

- **Habitat protection and restoration**

In Serra da Malcata Nature Reserve habitat management is being carried out more intensively since 1988 in public areas. Actual LIFE project "Recovery of habitat and prey of the Iberian lynx in Serra da Malcata" (2000-2003) will allow to restore significant areas of Mediterranean forest and scrubland, through elimination of exotic species, forestation with native species and promotion of natural regeneration.

Many lynx areas are currently affected by human activities (intensive forestation, tourist pressure, large infrastructures building) causing severe changes in the habitat. Under the Habitat Directive and Environmental Impact Assessment legislation such projects are now submitted to evaluation before hand. This assessment process is still in an experimental phase. Dialogue between entities needs to begin at conception planning level.

Economic incentives need to be more efficiently applied to preserve Mediterranean vegetation and increasing rabbit populations but it also necessary a change on European agriculture and forestation policies.

- **Rabbit population recovery**

In Serra da Malcata Nature Reserve the Institute for Nature Conservation owns 1 936 ha of natural land, where rabbit increase measures and habitat improvement are being preferentially implemented.

However most lynx areas are private lands. In some of those areas in Serra da Malcata Nature Reserve agreements with the owners also allowed to carry out conservation actions. In Algarve management agreements with hunting associations have been established over five years. These agreements provide technical and economic support for improvement of lynx prey density. We also intend to implement this type of contracts with local landowners and establish agreements with hunting managers to buy rights for small game species.

Main measures taken to increase rabbit density are:

- creation of small scattered pastures/harvests in the middle of shrub areas;
- construction of artificial shelters near pastures;
- experimental restocking with radio-tagged rabbits;
- creation of rotating non-hunting reserves at local scale;
- reducing or when possible halting rabbit hunting during some years to help recovery;
- veterinary monitoring of rabbit diseases;
- creation of breeding enclosures for rabbits.

All these actions have been monitored to evaluate rabbit responses to habitat management. Serra da Malcata Nature Reserve obtained an increase in mean rabbit densities from 1.3 rabbits/ha to 2.4-4.8 individuals/ha with continued actions over three years. We do not yet have results from Algarve.

- **Reduction of non-natural mortality causes**

Poaching seems to be the main lynx man-caused mortality in Portugal and Spain (Rodriguez & Delibes 1990, Ferreras *et al.* 1991, Ceia *et al.* 1998). Only in Malcata a routine search for illegal capture methods (leg-traps and snares) is being carried out. In the National Action Plan reinforcement of vigilance and awareness campaigns are foreseen to overcome this threat.

- **Research and monitoring**

Ecological studies and monitoring Iberian lynx

Different methodologies are being used for lynx detection. Local distribution has been done based on lynx sign search (Palomares *et al.* 1991, Gil-Sánchez *et al.* 1999) along tracks in two areas – Malcata Nature Reserve (since 1990) and mountain areas of Algarve (since 1996). A very low number of scats and footprints was found. A similar study, made by an University (Faculty of Sciences, University of Lisbon), is going on (since 1999) in the area that will be flooded by Alqueva dam, a big infrastructure in Guadiana river, near the lynx occurrence area called Guadiana valley, still without conclusive results.

Although trapping is being carried out in Malcata since 1994 (total trapping effort of 3562 trap/nights) and in Algarve in small scale, no lynx captures have been performed. Tracking lynxes with trained dogs is an alternative method under consideration.

Since 1998 camera trapping with associated scent stations has also been used as a complementary way to detect lynxes but has been without results. Almost all the other occurring carnivores were registered. A wider use of this technique will start this year.

Diet studies were done in Malcata (Palma 1980; Castro 1992; Sarmento *et al.* 1997) confirming lynx preference for rabbit, even when this prey exists in low densities and revealing the inexistence of alternative preys. In this area the carnivore community is currently being monitored, in terms of spatial distribution, abundance and predation impact.

Many questions on space use of populations remain unanswered due to absence of telemetric studies.

Sighting lynx data have been used to evaluate habitat in presence/absence lynx areas in Algarve-Odemira (Rodrigues 1997) and Sado valley (Monteiro 1998) and to construct a local spatial model of lynx habitat and distribution in the absence of further information (Palma *et al.* 1999).

Wild Rabbit ecology and monitoring

Local studies have been done in Malcata (Sarmento & Cruz 1998a, Sarmento *et al.* 1998b) Algarve-Odemira (Rodrigues 1997) and Sado valley (Monteiro 1998) to evaluate distribution patterns and density and also to determine habitat parameters that influence presence and abundance of the wild rabbit. Since 1999 a study to evaluate rabbit distribution and abundance, made by the Faculty of Sciences, University of Lisbon, is also going on in the area of Alqueva dam.

Rabbit distribution in Algarve-Odemira and Sado valley shows a heterogeneous pattern, with discontinuous range and small pockets of abundance. There is also a strong correlation between rabbit abundance and lynx sightings. Rabbit density is presently being determined in Algarve to evaluate its potential to maintain resident lynxes.

Genetic study

Genetic analyses using specific regions of mitochondrial DNA (Palomares *et al.* 1999) are being done to identify scats from different lynx areas collected during field work. No samples have yet been definitely identified as lynx. Depending on the sample size of confirmed lynxes the study can continue using microsatellites, a technique already used with other Portuguese samples in 1996 in collaboration with the Institute of Zoology (London). Population parameters such as genetic variability, migration and distance between populations can be obtained.

Viability analysis

A model to analyse the Iberian lynx's probability of extinction has been developed. Several simulations permitted the identification of parameters particularly important for lynx population such as adult mortality and short time extinction in the absence of migration. These results show the importance of combining habitat restoration and population reinforcement.

- **Public education and awareness**

After identifying the different target groups and main conflicts with human population in lynx areas specific initiatives are taken to influence the public attitude about lynx conservation: a presentation for urban citizens and an itinerant exhibition through lynx areas and special sessions for hunters, landowners, local politicians, university students and children; a school project called "The Lynx in our area", a game and a book for children; distribution of pamphlets, posters and pins; and publication of articles about lynx projects.

- **Captive and "semi-captive" breeding**

Portugal is involved in the Experimental Captive Breeding Program for Iberian lynx, a current technical proposal, submitted to approval to Spanish Administration. It will allow the creation of one breeding centre in Portugal, with the objective of producing lynx for restocking. For the implementation of this process it is necessary to identify and improve the areas where restocking or reintroduction would be conducted, being a long-term process.

4. Lynx conservation: co-ordination and planning

Only national and cross-border co-ordinated efforts will allow the implementation of the National Action Plan of Iberian Lynx and an effective lynx conservation.

Portugal has representation in the Lynx Work Group in Spain and in the Captive Breeding Group.

The discussion of the National Action Plan will integrate representatives of different sectors: other government institutions, management authorities, researchers, NGO's, hunters, and landowners, all responsible for its implementation and success. Spanish representatives will also be invited for this discussion.

Co-ordinated elaboration with Spain of management plans for shared sites Natura 2000 and its implementation should be considered to optimise the efficiency of transborder lynx populations.

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II. Wolf conservation in Portugal

Wolf conservation in Portugal is under the responsibility of Instituto da Conservação da Natureza (ICN), the governmental agency for nature conservation. Grupo Lobo (Wolf Group), a non-governmental organisation dedicated exclusively to wolf protection, and the Zoology Department of the Lisbon Faculty of Sciences are the other major interpreters on the conservation of the species.

Background information

- Conservation Status – classified as *Endangered* species (Portuguese Red Data Book, 1990)
- Legal Status – fully protected under the Wolf Protection Act (Lei 90/88) and regulation (Dec-Lei 139/90)
- Distribution area: approx. 18 000 Km² (North - 13 000 Km², South - 5 000 Km²)
- Two subpopulations: North and South of Douro river
- Population size (summer): 250-300 individuals (20/30 south of Douro)
- 54-57 wolf packs (7 south of Douro)
- Global trends:
 - North of Douro - slow decrease (stability or slight increase at local level)
 - South of Douro - fast decrease (stability at very small areas)

Ongoing activities in view to implement a Wolf Action Plan in Portugal

Since the enforcement of the Wolf Protection Act several studies were made on wolf and wild prey conservation and improvement and on livestock damage management. Based on all the gathered data and according to Recommendation nr 74 of the Council of Europe Standing Committee, a document with the basic guidelines for the Wolf National Action Plan was prepared by ICN and is going to be discussed with other key-actors responsible for its implementation: governmental institutions, management authorities, researchers, Grupo Lobo and other NGO's.

The Wolf National Action Plan will be set in articulation with the Action Plan for the conservation of wolf in Europe, incorporating its main themes.

Working issues:

Research and monitoring

- **Wolf population monitoring system** – based on the analysis of damage occurrence area, direct observations and presence signs, it has been possible to follow up the number, size and approximate location of most of the wolf social units. Specific criteria were established and a special form was prepared to register all data.
- **Wolf studies** - studies are being held by Grupo Lobo and the Zoology Department of the Lisbon Faculty of Sciences, on wolf ecology, parasitology, feeding habits, genetics, predation and population fragmentation, using several techniques, including microsatellites, radio-tracking, scat analysis and others.
- **Dead wolves collecting and death causes monitoring systems** –since 1999 a system is working to get all the possible data about dead wolves collected. Contacts have been established with the Portuguese scientific community to know the data and samples the different institutions wanted to be collected. Since the beginning of 2000 a centralised treatment of dead wolves has been set at a veterinary laboratory, under responsibility of ICN, to obtain data about death causes, genetics, pathologies and other relevant information.
- **Wolf damage monitoring system** - legally, when a wolf attack does occur, the owner has to inform ICN within 48 hours since he noticed it. Then, a verifying team goes on site to check the situation and to see if damage was really caused by wolves. In this case and if the minimum livestock protection measures were taken, an indemnity value is calculated upon the tables made by the Ministry of Agriculture for livestock prices and that value is paid to the livestock owner. To improve the efficiency of the wolf damage working team an exhaustive form to register wolf damage data was created and a handbook was edited to help this team to have a more professional and uniform procedure. To allow a faster data processing a new wolf damage database is now being finished.

Wolf damage management

Livestock protection measures stated on actual regulation (Dec.-Lei 139/90) are not fit to the reality of the different grazing systems used on the wolf distribution area, leading to the increase on the problem of wolf damage to livestock. Since 1997, ICN focused a great attention on the ways to minimise it. All the livestock grazing systems used in the wolf distribution area were analysed and grouped in six major systems taking into account the following aspects:

- characteristics of grazing (herd dimension, range, species)
- relationship with man (shepherd)
- relationship with guarding dog

– defence against wolf attack

The minimum requirements for prevention of wolf attacks were identified for each system and are considered in the proposal for the new regulation of the wolf protection law (ready to discussion with partners before submission to final Government approval).

In order to reduce wolf damage on livestock, actions have been taken to promote the use of guarding dogs. Grupo Lobo, with the support of other entities, has a project with the simultaneous aim of conservation of autochthonous breeds of guarding dogs, providing shepherds with young dogs and veterinary support. At a smaller scale, Montesinho Natural Park is also providing shepherds with young dogs from a local breed.

Agri-environmental measures

To promote the improvement of the new regulation and to help livestock owners to increase the use of protective measures against wolf attacks, ICN prepared a proposal of economic incentives to include in the Agri-Environmental measures funded by the European Union (supported by the Common Agricultural Policy). Different EU countries dealing with similar problems could use these measures.

Wolf protection law and regulations

Ten years past the application of the law some problems were detected almost related with penalties on illegal killing of wolves and the minimum protection measures requested by the State to indemnify the livestock owners. Therefore a new regulation of the law was prepared and will be soon discussed.

Wild prey population studies (wild boar, red and roe deer)

As wild prey populations have a great importance on wolf conservation, studies have been set on distribution area, bio-ecology and follow up of some populations. Low densities or absence of deer are common scenery to almost all the wolf distribution area. Therefore, improvement or re-introduction of wild prey populations is of major concern on wolf conservation policies. ICN and Coimbra University on the 1995-1997 LIFE Project for wolf conservation have done experimental re-introduction of roe deer. A pilot project is being prepared in collaboration with the Ministry of Agriculture and Porto University with the aim to clarify the roe deer genetics and to improve densities or re-introduce roe deer in areas identified as important for wolf conservation.

Environmental education and public awareness

Grupo Lobo has a major role on this issue, with several initiatives like a newsletter, a webpage, and visits to schools. They also run the Wolf Recovery Centre, located near Lisbon, where visitors can learn about wolves and their place in the ecosystem. Contact between man and wolf can be settled and people can sponsor individual wolves, establishing affective links with these animals.

An itinerant exhibition and actions directed to particular target groups are also present on Grupo Lobo initiatives. A study on public attitudes is now running at a national level and a few others are under preparation.

ICN is preparing a brochure for the livestock owners explaining the new regulation, what protective measures must be taken and how to deal with wolf damages to have access to indemnization.

Implementation of the Plan

Only national and cross-border co-ordinated efforts will allow the implementation of the Wolf National Action Plan. Co-operation with Spain will be needed particularly in what concerns conservation and monitoring of cross-border packs, with a special attention to the area south of Douro river, where a particular attention must be given to habitat fragmentation and corridors.

Food supply must be a constantly present subject in order to reduce wolf dependence on livestock, reason for most of the human-wolf conflicts.

Management plans of Natura 2000 sites will necessarily contribute to the implementation of the plan.

5.12. Romania

by the Ministry of Waters, Forests and Environmental Protection

Brown bears

Throughout recent history, bears have occupied the extensive forests in the mountains and hills of Romania. Due to human persecution, the number of bears decreased to less than 1,000 individuals by the 1940s. In the early '50s they reached their lowest population size with an estimated number of 860 animals. Since then, the management of the species dramatically changed. The strict protection, combined with low harvests and supplementary food, allowed the bear population to steadily increase. Due to these measures, the population reached a peak of almost 8,000 individuals in 1988, definitely overpopulation for the inhabited area. After the revolution in 1989, the number of bears decreased substantially due to poaching, illegal use of poison, a high legal harvest by local and foreign trophy hunters, and the killing of problem bears. Nowadays, the population is officially reported to be about 5,500 bears. Because that level of the population involved a high level of conflicts as well, the official policy was to reduce the population to an "optimum number" for the suitable areas. This number is about 4, 500.ex. The distribution of brown bears corresponds, with few exceptions, to areas situated above 800 meters altitude and covers coniferous forests, mixed forests, and beech and oak forests. The population is located mainly in the mountains (93%), with only 7% living in the hills of northern Transylvania. Bears have their highest densities in the north-central part of the Romanian Carpathians, especially in the counties of Mures, Neamt, Harghita, Covasna, Brasov, and Buzau. Towards the west and northeast, the density is lower but still high compared to other parts of the European bear range.

The Apuseni Mountains, the northern part of the West Carpathians, are home to a smaller population of approximately 250 to 300 bears. Although there seems to be a gap between the population in the Apuseni Mountains and the main Carpathian population, there is little doubt that the two populations are connected. Bears are known to migrate over long distances and there is contiguous forest throughout this area, free of barriers for such migrations. The Romanian bear population is one of the few strong and healthy populations in Europe and, although the Romanian Carpathians represent only 1.4% of the European surface west of Russia, they are home to about 43% of all European bears. The Carpathians of Romania have international importance in the conservation of brown bears

Wolves

After World War II, wolves were present in all forested parts of Romania and numbered over 4,000 animals. However, excessive livestock depredation occurred and as a result in 1955, the government launched a campaign to control wolf numbers. Intensive hunting, trapping, searching for wolf dens to kill the pups, and particularly the use of poison, reduced wolves to a low level up until the late sixties. Until 1967, the wolf population had declined to about 1,500 and only the remoteness of the mountains and the increasing number of deer and wild boar saved the wolf from even further decline. The species, however, had completely disappeared from the forests in the plains. After this, the wolf population started to slowly increase again because the number of hunters decreased, and thus the hunting pressure on the species. Then, the aim of wildlife management was to keep a rather small wolf population.

Due to the fact that other species, such as brown bears, wild boar, and birds of prey also suffered from poisoning, the use of poison was forbidden in 1991. Until then, the wolf population had continued to increase slowly and, according to official numbers, reached about 3,100 individuals in 1996. This represents about 30% of all European wolves west of Russia. Wolves have the farthest-reaching range of all three large carnivores in Romania and even settle parts of the foothills northwest of the mountain chain, where the forest cover is not as contiguous as in the higher elevations. In contradiction to bears, the wolf population has a continuous distribution in the West Carpathians and no gaps are reported between the Apuseni Mountains and the main Carpathians. According to the official numbers, the highest densities of wolves occur in the central and north-central part of their range, where large continuous forests still exist.

Although approximately five million people live in and around the Romanian Carpathians, wolves, along with bears, have one of their European strongholds in this mountain range. It is, in fact, one of the only places where the European wolf still lives in densities, which are probably close to natural conditions and still coexist over much of their range with human economic activities. They are distributed almost continuously over the Carpathian Mountains and their population densities are very high compared to other parts in Europe.

Lynx

Very little data about the specific biology of lynx population in Romania is available. The species has little economic value as trophy for foreign hunters doesn't cause damage on livestock, and their only interaction with human interests is predation on ungulates. Due to these facts, not much scientific attention was given to the species. During the anti-wolf campaign in the sixties and seventies, lynx were legally excluded from persecution. According to reports from hunters during this time, they were, however, affected by the use of poison. Lynx seemed to have suffered more from predator control than wolves, for two reasons: they have a low natural population density and reproduction rate, and they are more vulnerable to trap and shoot.

For 1999 the lynx population size is officially estimated to be about 1,800 animals. Lynx occurrence is reported almost exclusively from areas with large, contiguous forests. Their geographical distribution is the smallest of the three carnivores and the highest population densities are in the county of Harghita and in the Apuseni Mountains. Compared to other countries in Europe, lynx density in the Romanian Carpathians seems to be extremely high. I believe, however, that the number of lynx is a little overestimated. Even if the actual number of lynx were only one-half of what is reported, the Romanian lynx population is still having European significance. With the exception of Fenno-Scandinavia, lynx occur in Europe in small and highly fragmented populations. Although reintroduction programs have brought the species back to Switzerland, Slovenia, and the Bohemian Forest, all reintroduced populations are based only upon a few individuals and they are still considered threatened. Besides the Nordic countries, the Carpathians are the only lynx population in Europe, where the species is continuously distributed over more than 100,000 sqkm. Romania, again, is the backbone of the lynx distribution in Central and Eastern Europe.

Golden Jackals

In small numbers in Romania as long as the wolf population was well represented in the whole area, the golden jackal start to increase his number after the disappearing of the wolves in the south plain and in Dobrogea. As a result of a free ecological niche and a strong source population in Bulgaria, the golden jackal start to be more and more present and realize stabile populations near Danube. The official estimation is now about 300 ex.

Romania joined and ratified the Bern Convention in 1993, which conflicted with the existing hunting law and large carnivore situation in Romania: only the lynx was listed as protected species and could be hunted only with a special license. Bears had a special status and could be hunted with an individual license, wolves weren't protected at all and could be killed by any means year-round, golden jackal has a period of protection from spring to autumn. A new hunting law resolved this conflict in 1996. According to this law in accordance with the Bern Convention, wolves and bears are completely protected. The lynx and the golden jackal have a hunting season limited to October 15th until March 1st, with harvest quotas and only individual licenses being issued for lynxes. The new hunting law, however, gives allowances for hunting wolves and bears if they cause damage to livestock. In this case, licenses to hunt wolves and bears can be issued by the Department of Wildlife Management in the Ministry of Waters, Forests and Environmental Protection.

5.13. Russia

by Mr Vladimir Fedotov, State Informational – Analytic Center of game animals and the Environment

The method of defining the number of animals and the state of resources of Large Carnivores in Russia

The work on the registration of number of game animals in Russian Federation is carried out annually by means of unified methods. The state service of the registration of the hunting resources of Russia supported by the Department on protection and rational usage of the hunting resources of the Ministry of Agriculture of Russia (further - Department), estimates the number of main species of game animals in various parts of the country separately and in Russia as a whole.

The number of game animals, the tendencies of its change and the analysis of the state of resources of game animals in Russia are annually published in state reports «About the state of the natural environment of Russian Federation».

The basis of obtaining the information on the number of the majority of species of game animals is the Winter path registration. The registration operations by this method cover now the larger part of the territory of Russia. In 1999 50,6 thousand registration paths were treated. Their total length was 515,9 thousand km.

This method, worked out by our specialists, is used not only in Russia, but also in Finland. This method is being introduced in northern Sweden and Canada.

The investigation of daily activity tracks of animals is necessary for defining the Recounting coefficients of the Winter path registration. The Recounting coefficients are used to define the number of game.

The defining of Recounting coefficients is carried out by the Informational - analytical center of game animals and the environment, where I work. On the basis of the analysis of the number of animals in oblasts, krajs and independent republics, the singling out the quotas of prey, in particular of large carnivores (except for the wolf!) is planned for the following game period.

The number and the length of the paths of the Winter path registration of game animals in Russian Federation, and also the number of investigated tracks of daily activity of animals, are represented in table 1.

Table 1. Amounts of works on Winter path registration in Russia

	Quantity of the paths	The paths treated	Total length the paths treaded, km	The tracks of daily activity investigated
1992	26599	22096	250496	3531
1993	29018	24104	267045	3627
1994	32261	26793	299299	5073
1995	34633	29640	329292	5556
1996	39656	35364	390361	6381
1997	44386	40540	435638	7570
1998	50022	46664	506165	8364
1999	50647	47446	515916	9537

In 1998 the method was modified. We took into account our experience in Finland, where the system of constant registration paths is organized. We've introduced the method in our country. The reliability of the registration results has increased. Another important factor is the precise location of the path on the landscape. Consequently the registration work is being controlled and it increases the quality of the work.

The climatic conditions, which influence, in particular, the providing of forage for the animals, cause the long-term fluctuations of number of the animals.

The estimation of the state of the environment of game animals is carried out on the basis of the materials of Center of meteorology of Russia, plus the information from the reports of territorial subdivisions of the Department is taken into account.

An the beginning of the 90s the climatic period was unfavorable, which influenced the number of game animals.

The efficiency of natural vegetative forages lowered, and the wetlands, important for game, dried out.

Bad economic situation caused the growth of illegal hunt, which also caused the lowering of the number of game in 1992-1995

In 1997-1999 the situation changed. The number of majority of species game animals in Russia as a whole has increased (table 2).

Nowadays in Russian Federation there are considerable resources of game animals. In Russia in 1999 lived more than 1,2 millions of Caribou, 632 thousand of Elks, 669 thousand of Roe deer, 174 thousand of Wild boars, 1,1 million of Sables. The resources of Water birds are estimated as 80-95 millions specimens.

The influence of the man, can change the fluctuation amplitude of the number. However, the main reason of fluctuations are determined by natural climatic factors. The animals are extremely vulnerable during the unfavorable climatic periods. During these periods it is necessary to limit the legal prey of game and to strengthen the struggle against the illegal one.

Table 2. The Number of Game in Russia

Species	The number of specimens in 1998, (thousands)	The number of specimens in 1999, (thousands)	The change in number in 1999, in % to 1998
Red deer *	163.6	174.0	+6,4
Caribou	1220,6	1231,6	+0,9
Wild boar *	172.9	173.6	+0,4
Musk deer*	152,3	156,4	+2,6
Caucasian aurochs *	48,2	48,5	+0,6
Roe deer*	663,8	669,3	+0,8
Elk *	631,2	631,7	+0,1
Sika deer*	11,5	13,3	+15,7
Bighorn sheep *	49,7	49,7	0
Squirrel*	9765,3	8952,9	-8,3
Beaver **	252,7	258,4	+2,3
Brown bear***	122,6	121,9	-0,6
Wolf*	47,3	44,3	-6,3
Otter **	56,9	60,9	+7,0
Ermine *	994,8	1034,2	+4,0
Alpine hare *	4283,3	4778,4	+11,6
European hare *	812,4	778,0	-4,2
Kolinsky*	293,3	271,6	-7,4
Corsac fox*	32,1	29,3	-8,7
Martens*	156,6	169,1	+8,0
Fox*	513,8	517,6	+0,7
Wolverine*	26,1	25,7	-1,5
Lynx*	28,2	28,7	+1,8
Sable**	1057,2	1077,4	+1,9
Polecats*	91,8	94,8	+3,3
Beard partridge*	902	1147	+27,2
Wood grouse*	3364	4209	+25,1
Hazel grouse *	8185	15929	-12,4
Partridge*	3279	3684	+12,3
Black grouse*	8739	8582	-1,8

* - the number on March 1 is given

** - the number on October 1 is given

***- the number on May 1 is given

Table 3. The prey of main species of game in Russia

Species	The prey in the hunting period of 1996-1997	The prey in the hunting period of 1997-1998	The prey in the hunting period of 1998-1999	The change in the amount of prey in the hunting period of 1998-1999, in % to 1997-1998
Red deer	4313	3682	3918	+6,4
Caribou	26566	60131	63440	+5,5
Wild boar	9343	10259	11888	+15,9
Caucasian aurochs	115	121	136	+12,4
Roe deer	21406	19556	17451	-10,8
Elk	21684	17202	16090	-6,5
Sika deer	482	419	498	+18,9

Species	The prey in the hunting period of 1996-1997	The prey in the hunting period of 1997-1998	The prey in the hunting period of 1998-1999	The change in the amount of prey in the hunting period of 1998-1999, in % to 1997-1998
Bighorn sheep	134	81	123	+51,9
Beaver	5034	4828	4019	-16,7
Brown bear	2443	2488	2730	+8,3
Otter	389	291	310	+6,5
Sable	97960	125658	132478	+4,7

Brow bear

The number of the brown bear from the end of the 80s has varied insignificantly as a whole, though at the beginning of the 90s it was a little bit higher than in modern times, - about 130 thousand specimens.

The number of bears in the European part of Russia varies slowly, nowadays it is at a high level (table 4), the southern boundary of the area, having shifted a little bit to the north during the previous decade, now is stable. In the Asian part of Russia the number of bears depends on the harvest of cedar nut, spawning of salmon, etc. And therefore the number of these animals varies more abruptly in comparison with the northern part. In the years of poor harvests of main forages the mortality of the bear increases during the winter hibernation, and the number of not sleeping bears increases also. The situation like that was observed in Evenkiya in 1998.

The prey of the brown bear in the last game period has noticeably increased – nearly to 9 %. On the whole the level of the prey of the bear is quite moderate.

In full the game resources of this animal is used in Udmurtiya, where the registration of the bear is organized well. It is necessary to remark, that the profit from bear hunting for the state and for the game farms is especially high. For example, in the game farms 132 licenses are sold, at a quota of 60 specimens. It allows to provide a lot of the hunter with the licenses, that promotes the reduction of illegal hunt. Thus, it is known beforehand, that the total prey of the bear will not exceed the quota, given to the region. Thus, the total high productivity of hunt (8,8 % is preyed from the number, the quota is realized almost to 90 %) causes its attractiveness. The coefficient of success of hunt (ratio of number of the preyed bears to the number of the bought licenses, expressed in %) in 1998 is not very high - 40 %. In Komi-Permyatsky independent district, for example, where the coefficient of success of hunt is more than 60 %, the low quota and the low demand for the license (about a half from the quota) caused the fact that less than 2 % from the stock of brown bears were preyed upon. It is lower than in Russia as a whole. As a rule, the high percent of resource usage in the regions is connected with the excess of the number of the sold licenses in comparison with the quota: in Yaroslavskaya oblast, where the quota is also mastered almost to 90 %, the number of the sold licenses exceeds the quota twice. As in both regions (and in some other) the stock of the bear does not reduce, it is possible to make a conclusion that there is no illegal hunt there.

As a whole it is possible to suppose, that the state of resources of brown bear in Russia is satisfactory. Special protection in the places of popular hunt is not required. This species is taken under protection in the nature reserves.

Table 4. The number and the prey of Brown bear in Russia.

Economic regions, republics, krais, oblasts, independent districts	The expert estimation of number, the 2nd quarter, (thousands)			The prey in the hunting period of 1998-1999, quantity
	1997	1998	1999	
Russia	118,49	122,62	121,89	2730
Northern Region	18	18,45	19,75	582
Arhangelskaya oblast	6	6	6,5	141
Vologodskaya oblast	4,5	5	5,5	247
Kareliya republica	2,5	3	3,3	127
Komi republica	4,5	4	4	35
<i>Murmanskaya oblast</i>	0,5	0,45	0,45	32
Northwest Region	3,4	3,7	3,7	101
Leningradskaya oblast	1,4	1,5	1,5	34
Novgorodskaya oblast	1,2	1,3	1,3	35
Pskovskaya oblast	0,8	0,9	0,9	32
Central Region	3,96	3,98	3,93	158
Brjanskaya oblast	rare	rare	rare	-*
Vladimirskaya oblast	rare	rare	rare	-
Ivanovskaya oblast	0,06	0,06	0,06	3

Economic regions, republics, krais, oblasts, independent districts	The expert estimation of number, the 2nd quarter, (thousands)			The prey in the hunting period of 1998-1999, quantity
	1997	1998	1999	
Kaluzhskaya oblast	rare	rare	rare	-
Kostromskaya oblast	1,9	2	2	71
Moskovskaya oblast	rare	rare	rare	-
Smolenskaya oblast	0,2	0,22	0,22	2
Tverskaya oblast	1,2	1,2	1,2	51
Yaroslavskaia oblast	0,6	0,5	0,45	31
Volgo-Vjatsky Region	5,5	5,51	5,51	225
Kirovskaya oblast	4,6	4,6	4,6	196
Mariy Ael republica	0,35	0,35	0,35	12
Nizhegorodskaya oblast	0,55	0,56	0,56	17
Chuvashskaya republika	rare	rare	rare	-
Povolzhsky Region	rare	rare	rare	-
Tatarstan republika	rare	rare	rare	-
Northern-Caucasian Region	1,92	1,87	1,97	40
Dagestan republika	0,25	0,27	0,28	1
Kabardino-Balkarskaya republika	0,5	0,4	0,33	1
Krasnodarsky krai	0,54	0,6	0,7	24
Adigeia republica	0,07	0,04	0,04	-
Severnaya Osetiya republica	0,12	0,12	0,12	-
Karachaevo-Cherkesskaya republica	0,4	0,4	0,45	14
Ingushetiya republika	0,04	0,04	0,05	-
Ural Region	11,71	11,11	11,25	349
Bashkortostan republica	2	2	2	49
Orenburgskaya oblast	0,06	0,05	0,05	3
Permskaya oblast	5,5	5	5	144
Komi-Permyatsky independent district	1	1	1,1	16
Sverdlovskaya oblast	2	2	1,9	77
Udmurtskaya republika	0,7	0,6	0,7	53
Chelyabinskaya oblast	0,45	0,46	0,5	7
Western-Siberian Region	12,3	12,7	12,98	242
Altaisky krai	0,4	0,5	0,5	23
Altai republicai	3	3	3	16
Kemerovskaya oblast	1,9	1,8	1,9	75
Novosibirskaya oblast	0,3	0,3	0,3	8
Omskaya oblast	0,4	0,4	0,3	25
Tomskaya oblast	2,5	2,8	2,9	34
Tyumenskaya oblast	0,6	0,6	0,6	-
Hanti-Mansiysky independent district	2,4	2,5	2,7	47
Yamalo-Nenetsky independent district	0,8	0,8	0,78	14
Eastern-Siberian Region	20,7	22,7	20,9	176
Buryatiya republica	2	2	2	19
Irkutskaya oblast	4	4,5	4	25
Ust-Ordinsky Buryatsky independent district	rare	rare	rare	-
Krasnoyarsky krai	4,5	5,3	4,8	99
Taimirsky independent district	0,2	0,2	0,2	2
Hakasiya republica	1,3	1,5	1,3	16
Ievenkiysky independent district	3	3	2,7	-
Tuva republica	2,2	2,2	2	12
Chitinskaya oblast	3,5	4	3,9	3
Far East Region	41	42,6	41,9	857
Amurskaya oblast	2,9	3	3,3	133
Kamchatskaya oblast	7	7	6,5	335
Korjajsky independent district	3	4	4	34
Magadanskaya oblast	2,5	2,5	2,5	43
Chukotsky independent district	1,8	2	2	16
Primorsky krai	2,3	2,2	2,1	31
Saha (Yakutiya) independent district	12	12	12	70
Sahalinskaya oblast	3	3	3	64
Habarovsky krai	6	6,4	6	120
Evreyskaya independent oblast	0,5	0,5	0,5	11

* - prey of the brown bear in the given region during a season of game 1998-1999 was not produced

Wolf

This species in Russia has never been protected, and on the contrary, always was exposed to a rigid regulation of number. During the economic stability in the country the insurance companies paid premiums for its prey within the year round.

The minimum number of the wolf in the last two decades was in 1990, then the number began to increase and reached its maximum (in Russia as a whole) in 1995-1996.

In the subsequent years in Russia the number of the wolf remained at a high level. At the same time in a number of economic regions of the European part of Russia at the end of the 90s the decrease of number of the wolf has been observed.

In Northern economic region the number of the wolf in the last decade noticeably has begun to reduce since 1986, having reduced up to 2-2,5 thousand at the end of the 80s. Then the control over the stock of the wolf was nearly lost and the number exceeded 4 thousand in 1995-1996. After that, on the background of worsening of the fodder base it again turned out to be at its minimum.

In the 80s there was a similar situation. Then the number of the wolf increased sharply and reached its peak in 1994-1995. In the last years, the number of the wolf has reduced twice because the level of prey was higher than in the 80s.

In Central economic region the minimum number was in 1990 (the level of prey, accordingly, has decreased from 2 to 0,8 thousand). The maximum number was observed in 1993-1996, after which at a level of the registered prey over 1,3 thousand specimens, the number of the wolf began to reduce (tab. 5).

In Volgo-Vjatsky economic region the peaks of number were observed in 1986 and 1996. Most wolves concentrate in Kirovskaya oblast. The modern number insignificantly differs from the depression of 1990 (0,8 thousand).

The number of the wolf is more flattened in Central-Chernozemny economic region, where except for the Voronezhskaya oblast, the low density of the population of the wolf is the characteristic. In the Voronezhskaya oblast there are more reserves with better protective and fodder conditions, than in other areas of this economic region. The prey of the wolf in the economic region as a whole is equal or even exceeds the number of its gain.

The situation in Povolzhsky economic region is sharply contrasting: in northern areas and in Tatarstan the density of the population of the wolf is not very great, but in steppes there are many wolves. In the 80s in Kalmykia there were few wolves, however, now for this Republic as well as for other southern areas the high number of this species is a characteristic.

The level of prey here still is insufficient, so that not only to compensate for the gain of the wolves and the inflow of them from Kazakhstan, but also to reduce the stock of these carnivores up to the tolerable mark.

The high number of the wolf is saved also in Northern-Caucasian economic region, where there are many steppes, mountain habitats and reserved territories.

The number of the wolf in Ural economic region is constantly high. 1/3 of these wolves live in Bashkortostan Republic, where the prey on the wolf can't compensate for the annual gain. The noticeable increase of the number of the wolf in Orenburgskaya oblast can be explained by its inflow from Kazakhstan. In Sverdlovskaya and, especially, in Permskaya oblasts the intensive control over the number of the wolf is carried out. In Kurganskaya oblast this carnivore does not go beyond control during the whole of the described period. In the Udmurt Republic the control has been restored for the last 3 years: in 1999 the number of the wolf is the lowest for the last 20 years.

In the Western-Siberian economic region the number of the wolf is still high, it sticks at a level, which was marked in the first half of the 80s and from the middle of the 90s, but the peak of the number probably ended in 1998.

In the Eastern-Siberian and in the Far East economic regions the decrease of the number was observed at the end of the 80s, the growth of the number – at the beginning of the 90s, and by now the growth has stopped at a high level. The tendency of the decrease of the number is more often marked in the regions, where the control over the number of the wolf - in Buryatiya Republic, Amurskaya oblast and Khabarovskiy krai is better.

Table 5. The Number and Prey of the wolf in Russia

Economic regions, republics, krajs, oblasts, independent districts	The number of animals, (thousands)			The change in number in 1999, in % to 1998	The prey in 1998, animals
	1997	1998	1999		
Russia	46,37	47,30	44,27	-6	14844
<i>Northern Region</i>	3,5	2,60	2,34	-10	864
Arhangelskaya oblast	1,0	0,68	0,58	-15	198
Nenetsky independent district	0,2	0,15	0,13	-13	-
Vologodskaya oblast	0,8	0,58	0,5	-14	373
Kareliya republica	0,46	0,4	0,38	-5	160
Komi republica	0,95	0,69	0,7	1	118

Economic regions, republics, krais, oblasts, independent districts	The number of animals, (thousands)			The change in number in 1999, in % to 1998	The prey in 1998 , animals
	1997	1998	1999		
Murmanskaya oblast	0,09	0,1	0,05	-50	15
Northwest Region	1,4	1,32	1,05	-20	808
Leningradskaya oblast	0,5	0,5	0,4	-20	351
Novgorodskaya oblast	0,3	0,27	0,25	-7	179
Pskovskaya oblast	0,6	0,55	0,4	-27	278
Kaliningradskaya oblast	0,08	0,08	0,08	0	24
Central Region	2,22	2,0	1,64	-18	1389
Brjanskaja oblast	0,15	0,14	0,11	-21	107
Vladimirskaia oblast	0,05	0,04	0,03	-25	19
Ivanovskaja oblast	0,08	0,08	0,06	-25	29
Kaluzhskaja oblast	0,17	0,14	0,1	-29	126
Kostromskaja oblast	0,25	0,23	0,2	-13	86
Moskovskaja oblast	0,05	0,05	0,05	0	29
Orlovskaya oblast	0,02	0,02	0,02	0	14
Ryazanskaya oblast	0,13	0,1	0,1	0	75
Smolenskaja oblast	0,5	0,46	0,4	-13	414
Tverskaja oblast	0,7	0,6	0,45	-25	338
Tul'skaya oblast	0,02	0,02	0,02	0	17
Yaroslavl'skaja oblast	0,1	0,12	0,1	-17	135
Volgo-Vjatsky Region	1,11	0,96	0,84	-12	582
Kirovskaya oblast	0,5	0,45	0,4	-11	285
Mariy Ael republika	0,09	0,06	0,05	-17	39
Mordoviya republika	0,12	0,13	0,16	23	57
Nizhegorodskaya oblast	0,36	0,29	0,21	-28	184
Chuvashskaya republika	0,04	0,03	0,02	-33	17
Centralno-Chernozemny Region	0,52	0,53	0,44	-17	399
Belgorodskaya oblast	0,07	0,07	0,06	-14	66
Voronezhskaya oblast	0,3	0,3	0,25	-17	240
Kurskaya oblast	0,08	0,08	0,05	-37	63
Lipetskaya oblast	0,02	0,02	0,02	0	7
Tambovskaya oblast	0,05	0,06	0,06	0	23
Povolzhsky Region	2,04	2,45	2,45	0	1909
Astrahanskaya oblast	0,55	0,68	0,69	1	492
Volgogradskaya oblast	0,5	0,55	0,51	-7	528
Kalmykiya republika	0,45	0,6	0,75	25	404
Penzenskaya oblast	0,06	0,09	0,07	-22	30
Samarskaya oblast	0,03	0,02	0,02	0	6
Saratovskaya oblast	0,25	0,3	0,24	-20	310
Tatarstan republika	0,1	0,13	0,12	-8	50
Ulyanovskaya oblast	0,1	0,08	0,05	-37	89
Northern-Caucasian Region	2,63	2,93	2,86	-2	1560
Dagestan republika	0,7	0,8	0,9	13	346
Kabardino-Balkarskaya republika	0,1	0,1	0,1	0	22
Krasnodarsky krai	0,55	0,6	0,57	-5	230
Adigeya republika	0,05	0,07	0,07	0	41
Rostovskaya oblast	0,6	0,7	0,5	-29	643
Severnaya Osetiya republika	0,08	0,08	0,06	-25	52
Stavropolsky krai	0,2	0,26	0,35	35	127
Karachaevo-Cherkesskaya republika	0,2	0,15	0,15	0	78
Ingushetiya republika	0,05	0,05	0,04	-20	21
Chechenskaya republika	0,1	0,12	0,12	0	
Ural Region	3,06	2,98	2,84	-5	1069
Bashkortostan republika	0,9	1,0	0,99	-1	224
Kurganskaya oblast	0,06	0,09	0,07	-22	30
Orenburgskaya oblast	0,19	0,17	0,25	47	37
Permskaya oblast	0,61	0,41	0,39	-5	235
Komi-Permyatsky independent district	0,13	0,15	0,14	-7	23
Sverdlovskaya oblast	0,8	0,8	0,7	-12	296

Economic regions, republics, krais, oblasts, independent districts	The number of animals, (thousands)			The change in number in 1999, in % to 1998	The prey in 1998 , animals
	1997	1998	1999		
Udmurtskaya republika	0,11	0,1	0,09	-10	89
Chelyabinskaya oblast	0,26	0,26	0,21	-19	135
Western-Siberian Region	3,36	3,73	3,32	-11	1570
Altayskiy krai	0,39	0,47	0,5	6	306
Altai republica	0,5	0,6	0,5	-17	494
Kemerovskaya oblast	0,26	0,31	0,24	-23	89
Novosibirskaya oblast	0,19	0,14	0,14	0	72
Omskaya oblast	0,32	0,3	0,2	-33	56
Tomskaya oblast	0,5	0,55	0,5	-9	250
Tyumenskaya oblast	0,3	0,31	0,29	-6	173
Hanti-Mansiyskiy independent district	0,5	0,6	0,5	-17	83
Yamalo-Nenetskiy independent district	0,4	0,45	0,45	0	47
Eastern-Siberian Region	14,2	14,97	14,56	-3	2607
Buryatiya republica	1,6	1,8	1,5	-17	475
Irkutskaya	3,0	3,0	3,0	0	370
Ust-Ordinsky Buryatskiy independent district	0,12	0,12	0,22	83	12
Krasnoyarskiy krai	1,7	1,85	2,0	8	418
Taimirski independent district	1,0	1,0	1,0	0	47
Hakasiya republica	0,48	0,54	0,55	2	158
Ievenkiyskiy independent district	3,0	3,0	2,8	7	294
Tuva republica	1,2	1,2	1,2	0	365
Chitinskaya oblast	2,0	2,3	2,2	-4	468
Aginskiy Buryatskiy independent district	0,1	0,16	0,09	-44	-
Far East Region	12,25	12,75	11,85	-7	2063
Amurskaya oblast	1,7	1,6	1,4	-12	504
Kamchatskaya oblast	0,15	0,14	0,12	-14	19
Korjaskiy independent district	0,7	0,9	1,0	11	47
Magadanskaya oblast	0,8	0,9	0,8	-11	56
Chukotskaya oblast	1,0	1,2	1,2	0	418
Primorskiy krai	0,25	0,31	0,35	13	53
Saha (Yakutiya) independent district	5,0	5,0	5,0	0	881
Sahalinskaya oblast	0	0	0		0
Habarovskiy krai	2,5	2,5	1,8	-28	72
Evreyskaya independent oblast	0,15	0,2	0,18	-10	13

Lynx

In the 90s the dynamics of the number of the lynx shows the decrease of its resources on the territory of Russia. Before 1995 the number of the lynx did not exceed 35 thousand; then it reduced further, and from the beginning of 1996 it hasn't risen higher than 30 thousand. In 1999 in the majority of economic regions of Russia there has set up a tendency for the number of the lynx to grow.

The further reduction of its resources went on only in the districts of the Western-Siberian economic region. In the Far East economic region in 1999 the reduction of the number was also registered, but in a number of regions – Amurskaya and Kamchatskaya oblasts, Korjaskiy independent district – the number began to grow slowly. The simultaneousness of peaks and depressions in separate economic regions is revealed weakly, the same with the phases of the number dynamics. In the regions of the European part and the Urals as a whole the increase of the number up to the point of 13 thousand specimens was marked in 1992-1993, and it reduced to the minimum point of 9,7 thousand specimens on this territory in 1997. In 1999 the number of the lynx was close to average in the 90s in Northwest, Volgo-Vjatskiy, Povolzskiy, Ural economic regions, and it was marked below the average level in Northern, Western-Siberian, the Far East regions. A little bit higher it was in Central and Eastern-Siberian economic regions.

The registered prey of the lynx still does not reflect precisely enough the real legal prey of this species. In the period of 1998-1999 according to these data 626 lynxes were preyed upon, and the most full information came from the Northwest, Central and Ural economic regions. In the regions, where the information is got from, the quantity of non-returned licenses on the prey upon lynx is quite big - more than 70 %. Taking this into account, the total legal prey, in the period of 1998-1999 could be 18 % higher than that officially registered. In the regions of East Siberia which has

presented the data, 43 % from the total amount of the prey, registered in Russia, was preyed, and in the regions of the Urals and the Far East – each 15% respectively.

The specimens of this species have a vast hunting area. Therefore to protect these territories effectively it is necessary to allocate vast areas for the natural reserves. In existing reserves of Russia the lynx, together with other species of animals, is under protection. The creation of new reserves requires major financial expenditures. In the conditions of modern Russia it is widely spread to prohibit the prey of this animal in those districts where its existence is under threat. However, these measures have proved to be ineffective in the struggle against the illegal hunt.

Wolverine

The considerable part of the area of the Wolverine in Russia is situated in northern regions, where it is hardly possible or impossible to use the main method of registering the resources of game animals - the Winter path registration. These are Nenetsky independent district, the tundra territories of Yamalo-Nenetsky independent district, Taimir, the north of Yakutia, Chukotka. The number dynamics in these regions can also differ from what is observed on the territories controlled by the registration, and its parameters are especially difficult to reproduce at the correction of the objective registration data. However, the available data allow to assume, that in the 90s the number of the Wolverine, be it reduced, would be reduced insignificantly. The total resources of the Wolverine in Russia in 1999 were estimated as 25,7 thousand specimens.

For the last two seasons in Russia the prey upon 574 wolverines is registered, that, probably, insufficiently fully reflects the amount of prey of this species, as, for instance, out of 20 regions of the Eastern-Siberian and the Far East economic regions the information about the prey on the Wolverine has come only from 6 of them. But in 2000 nominal single licenses on the prey upon the Wolverine and the Lynx were introduced. It makes possible to expect considerable improvements in the gathering the statistical data on the prey of these species.

As well as the Lynx, the Wolverine has a vast hunting area, and that makes it difficult to protect this species and to create new reserved territories.

5.14. Slovakia

by the Ministry of Environment

Large Carnivores Conservation Status in Slovakia

Competencies for protection and regulation of wildlife are divided between the Ministry of Environment and the Ministry of Agriculture.

In respect to EU accession process, Bern Convention Action Plans and WWF Initiative for Large Carnivores a national group of experts is being created to involve conservation, hunting and forest management experts. Also a new legislation for nature and landscape protection is being prepared. It is anticipated that zone system will be established for regulation of large carnivores populations.

Wolf (*Canis lupus*)

During the past period - from 1975 -1994 the wolf was protected within the protected period set up by the Order on manner, time and conditions of hunting No. 172/1975. Hunting period lasted from September 16th-February 28th. In 1994, the Act on Nature and Landscape Protection introduced wolf as an all-year round protected animal, as one listed in CITES annexes. However, this status of protection was neglected by hunters and Slovak Environmental Inspection undertook several lawsuits with hunters associations which hunted wolf in compliance with hunting rules but in discrepancy with the nature protection legislation. Unfortunately, the Highest Court always decided in favour of hunting associations, which lead to continuing 5 1/2 months hunting period for wolf.

To solve this unfavourable situation of disregarding of nature legislation, the new legislation was prepared and negotiated with the Ministry of Agriculture and Slovak Hunting Union representatives. A new period of conservation was accepted by all parties lasting from January 16 - October 31. On June 21st, 1999 the amendment of the Order on manner, time and conditions of hunting of the Ministry of Agriculture, and as of July 1, 1999 the Ministry of Environment Order No. 93/1999 on protected plants and animals and societal valuation of protected plants, animals and trees were put into a force.

Through this process the following goals were met:

1. legislative discrepancies in protection of wolf and large carnivores between the two ministries were solved
2. hunting period of wolf was cut down into one half of the previous period
3. hunting within reproduction period is now prohibited
4. via legal hunting the illegal shootings are minimised and availability of data on population and bionom of wolf increased

In response to a number of critical complains with respect to the change of hunting period received from hunters public as well as from nature conservation NGOs, as of December 1999 there was organised a seminar on management of bear, wolf and cormorant under auspices of the State Secretaries of the ministries of agriculture and environment. As an outcome of the seminar there was adopted a set of recommendations (8) to assist in implementation of Action Plans for bear, wolf and cormorant. One of the demands is also an assessment of positive or negative impact of implementation of new protection period for wolf to be undertaken within the years 2000-2001. The wolf population is estimated to reach up to 400 individuals. However, illegal huntings are still being recorded.

In 1999 following projects were implemented:

1. Brochure "Who was it?" for identification of damage caused by large carnivores resp. by dogs, This publication was disseminated to all levels of relevant local and state administration.
2. Active cooperation with Poland started, focused on information exchange, international protection, (Association for Nature Wolf)
3. Opportunities for reintroduction of wolf to Belgium was discussed with RC WOLF / Belgie

Although there is a telemetrical equipment available, the project on wolf monitoring and management in Slovak Carpatians, has not started yet.

Brown bear (*Ursus arctos*)

1. Distribution and population number

Brown bear population in Slovakia represents the western border of the Central-European distribution area of this species.

The centre of bear occurrence is the Tatra Mountains (West, High, Belianske and Low), the Ve³/₄ka and Mala Fatra Mountains, the Kremnicke Mountains, the Polana Mountain and the eastern part of the Slovak Ore Mountains. The area is spontaneously spreading to west- and southwards. From the point of conservation of the genetic variability, a stable connection between the Western-Carpathian isolated population and the substantially larger Eastern-Carpathian population is desired.

2. Habitat requirements

The optimal biotope of bear is situated in the areas of coniferous and mixed forrests from the 5th to the 7th wood vegetation belt. Particularly the *Fraxineto-Aceretum*, *Abieto-Fagetum*, *Abieto-Piceetum* and *Fagetum-Abietinopiceosum* wood types from 700 to 1250 m above the sea level.

3. Population size

The population number is estimated by hunters' statistics to be at about 1200 individuals. However, this is highly overestimated number and real estimation is max. of 600-800 individuals. (Remark to the stated numbers: there is no universal counting methodology of bears and the statistics are created by counting from the reports of individual hunting subjects. With regard to an individual area of one bear, which in average represents 18,8 square km of hunting ground, the same bear is counted several times by the individual subjects.)

4. Conservation status

According to the Act of the No. 287/1994 on Nature and Landscape Protection the Brown bear is a preserved species. Also, under the amended Act on hunting the bear belongs to the all-year-round preserved species. Therefore, a bear is regulated only via permit issued by the Ministry of Environment of the Slovak Republic.

5. Brown bears and humans

The damages to livestock caused by bear are refunded by the state via Ministry of Agriculture, with the exception when the hunting grounds are not owned by the state, these are reimbursed by the user of the hunting ground.

The recorded damage is caused mainly to livestock, sheep and bee-colonies. In 1999 the state administration quoted the damages to be more than 660 000 Sk (approx. 100 000 FF).

The level of damages can be substantially reduced by the usage of more-row electric fences, but also by reasonable placement of the apiaries and by keeping the cattle away from the forest areas.

6. Hunting

The increase of damages resulted in the effort to regulate the number of the bear population, through „regulative hunting“ according to the „Conception of development of hunting in Slovakia“ (HELL et al 1973), where a target number was defined to be 300-350 individuals. In the actualised version (1983) it was increased to 350-400 individuals.

The planning of the regulative hunting started from the number equal with 5 % of the population, later this amount raised to 10%. Before 1989 a regulative hunting was focused on heavy, trophy male-bears. This resulted in disturbed sexual and age structure of the bear population with the superiority of females, and in speeding up the growth of the population and its strong rejuvenation. The effort to change this situation ended in planning of the regulative hunting in accordance with the weight categories, where the killing of as much as 90 % of individuals weighing 100 kg was planned. Thus the probability of killing young males or females without young ones increases. This could contribute to improve the sexual and age structure of the population, affected by one-sided hunting.

The permit is issued by the Ministry of Environment of the Slovak Republic after submission of application based on exceptions in the recent period, level of damages, detailed description of proposed manner of hunting, number and age category, estimation of population within the relevant area and on the principle of excluding the areas within the Third to the Fifth Level of Protection (National Parks, Nature Reserves). Deadline for applications is January 31st. Last year there were issued exceptions for shooting of 67 bears for 45 subjects. From this amount 28 bears were hunted up.

7. Rules for regulation of brown bear population

For judging the requests for the regulative hunting of bear the State Protection of Nature asserts the following principles:

- permanent development of bear populations in Slovakia
- sustainable natural sexual and age structure of the population
- excluding of hunting of the bear in protected areas with the Third to the Fifth Level of Protection
- concentration of hunting activities to areas of high and repeated damages on livestock and bee-colonies
- preferential shooting of synantropic bears
- creation of continuous connection between the western and the eastern population

European Lynx (*Lynx lynx*)

During the past period from 1975-1994 the lynx was protected within the protected period set up by the amendment of the Hunting Act No. 172/1975. Hunting period lasted from September 16-February 28. In 1994, the Act on Nature and Landscape Protection introduced wolf as an all-year round protected animal, as one listed in CITES and Bern

Conventions annexes. However, this status of protection was neglected by hunters, therefore the Ministry of Environment prepared new legislation which was negotiated with the Ministry of Agriculture and Slovak Hunting Union representatives. This resulted in putting into a force the Order of the Ministry of Agriculture from June 1999, and as of July 1, 1999 the Ministry of Environment Order No. 93/1999 on protected plants and animals and societal valuation of protected plants, animals and trees, which provide an all-year round protection for lynx.

Currently, there are implemented several partial monitoring programs, mainly in large protected areas - national parks and protected landscape areas. Systematic monitoring of lynx is planned for the model area Velka Fatra, where telemetrical equipment is planned to be used. In 1999 the expert group of nature conservation professionals was enlarged with experts from the hunting associations. Also, within the Ministry of Agriculture the Forestry Research Institute is being involved in research programs and in statistical evaluations of populations of game animals (Hunters statistics).

5.15. Slovenia

by Mrs Jana Vidic, Ministry of Environment and Physical Planning

Protection status of large predators in Slovenia

Three species of large predator live in Slovenia - brown bear, wolf and lynx. Their central habitat consists of large connected forests (Slovenia is 54% forest covered) in the south of Slovenia, especially in the area of Snežnik, Kočevje and central Notranjska. Individuals of all three species migrate from there in various directions, including the Alps.

The link between the central region with the area of Gorski Kotor and Velebit in neighbouring Croatia is extremely important for their survival, where are similarly present all three species of predator, which form a unified population unit with Slovene individuals.

It is considered that around 400 bears, around 100 lynx and some 10 wolves live in Slovenia.

Since 1993, all three species have been protected (Ordinance on the protection of threatened animal species, Official Gazette RS, no. 57/93), although hunting them may exceptionally be permitted by the minister responsible for agriculture or hunting.

The largest number of exceptional permits are issued for shooting bear, for the purpose of preventing conflict with people and enabling the coexistence of people with bears. In the last five years, an average of 46 bears annually have been taken from nature (shot, captured for resettlement, run over on roads and railways, other causes).

In 2000, we are preparing in Slovenia a strategy of managing large predators. For the moment, a professional proposal of management of brown bear has been prepared. The main aims are preserving the species and ensuring coexistence with people. We therefore envisage measures for protection of the bear and measures for protection of people from bear, in relation to the local population, farming, forestry, tourism, recreation and gathering the fruits of the forest, and building infrastructural facilities. The measures are specific and variously strict in the central area of the habitat, on the edge of the area, in the corridor region, which leads from the central region towards the Alps and to areas in which bears are only exceptionally present.

We envisage that the strategy will be adopted by the Government RS since it is necessary to achieve a harmonisation of interests with all competent ministries, especially those with responsibility for agriculture, hunting and tourism. We intend to prepare strategies for wolf and lynx in the same way.

In the political co-ordination of the strategies, we anticipate the most problems in relation to maintaining the corridor regions towards the Alps. In one past year, a few bears caused 80% of all damage to domestic livestock in a corridor region in that year, but some 100 bears in the central region, where people permanently coexist with the bears, only 20%. We are aware of the importance of the corridor region for the passage of large predators to the neighbouring countries of Italy and Austria, but we expect national or local authorities in the mentioned neighbouring countries similarly to adopt a strategy of protection or management of large predators which will be co-ordinated with activities in the space. It has already been shown too often that the return of large predators to the Alps is only a wish of nature conservation organisations, which is unrealisable without achieving a popular consensus. Slovenia will not be able to maintain the corridors, especially if their justification and sense is not ensured with co-ordinated and politically confirmed strategies in neighbouring states. In addition to the financial burden of the damage caused, because of cases of conflict in the corridor areas, general public opinion is also turning against the bears and harming the established tolerant attitude in the central area where people traditionally live with large predators.

The main factors threatening large predators in Slovenia are:

- changes in the habitat because of new and intensive human activities in the area, among which, because of the spread of settlement into open nature, increased tourist and recreational activities and the construction of traffic infrastructure, especially motorways which sever the historic connections between forest ecosystems and prevent or hinder linkage among population units, and other roads which enable greater access for people into the area,
- the fear of the local population of the return of large predators to historical habitats in the sub-Alpine and Alpine region,
- interventions in the population of brown bear which has changed the age and sex structure.

The most important measures for the protection of large predators in Slovenia are, in particular:

- the adoption of a national strategy of managing large predators, on the basis of which, among other things, conservation, agricultural and hunting interests will be co-ordinated and on the basis of which action plans will be produced,
- the founding of protection regions (three large regional parks are in process of being founded, which cover a significant part of the central living space of large predators),
- agreement with Croatia on joint efforts at protection of large predators.

5.16. Spain

by the Directorate-General for Nature Conservation, Environment Ministry

Cantabrian Brown Bear (*Ursus arctos*)

Legal status

“Endangered” in the Red Book of Spanish Vertebrates, in Royal Decree 439/90 governing the National Endangered Species List and in Decree 32/90, which gave rise to the Regional List of Endangered Vertebrate Species of the Principality of Asturias.

Considered a “Priority Community species” due to its inclusion on Annexe II of Habitats Directive 92/43/CEE and in Royal Decree 1997/1995, which transposes it to Spanish legislation.

Included on Annexe II of the Bern Convention as a “Strictly Protected Species”.

Recovery plans

Spain has five brown bear recovery plans:

- Decree 34/89 of May 18 authorising Cantabria’s Brown Bear Recovery Plan (Cantabria Region Official Gazette 02.06.89)
- Decree 108/90 of June 21 setting out a protection statute for the brown bear in the Autonomous Region of Castilla y León and authorising the Recovery Plan. (Castilla y León Official Gazette N° 122 of 26.06.90)
- Decree 13/91 of January 24 authorising the Asturias Region Brown Bear Recovery Plan. (Principality of Asturias Official Gazette N° 49 of 28.02.91)
- Decree 149/92 of July 5 officially sanctioning Galicia’s Brown Bear Recovery Plan. (Galicia Official Gazette N° 114 of 16/07/92)
- Regional Decree 268/1996 of July 1 giving official recognition to Navarra’s Brown Bear Recovery Plan. (Navarra Official Gazette N° 93 of 02.08.96)

Conservation status

Spain hosts some of the most threatened bear populations in the world. These populations face growing threats involving habitat loss and fragmentation, demographic limitations and loss of genetic diversity.

Since the first quarter of the last century the brown bears of the Cantabrian Mountains have been distributed in two populations (western and eastern) thought to be totally unconnected. Recent genetic studies on these two populations appear to confirm this hypothesis. The distribution area covers 5,000 km² although data on errant individuals extends this figure to nearly 7,000 km². The western population census figure of 50-65 bears producing an annual average of five litters was greatly exceeded in 1999, with at least eight new families being recorded. The census of the eastern population by means of molecular techniques yields 20 individuals, but no litters were recorded in 1994, only one per year between 1995 and 1997 and none in 1998. 1999 saw an improvement, with two new families being recorded.

Analyses of the evolution and dynamics of the above populations appear to indicate that the risks of extinction are high. The most important threat factors are human-caused bear mortality and habitat loss and fragmentation. Furthermore, the small size of these populations is in itself a danger, and extinction may occur as a result of stochasticity. In international terms, bear population viability depends on there being several hundred bears and areas of several thousand square kilometres.

National strategy

The National Strategy for Brown Bear Conservation, passed by the National Nature Protection Commission on October 19, 1999, aims to ensure the long-term viability of the brown bear populations in the Cantabrian Mountains by increasing numbers and distribution, assuming the limitations inherent in coexistence with rural communities and the socio-economic development of the latter.

This aim will only be achieved if the main objectives outlined below are met.

- Reduction in the number of bears killed by people.
- Conservation and improvement of bear habitat.
- Guaranteeing connections between the two subpopulations and clusters within them.
- Ensuring public support for bear conservation.

The strategy indicates guidelines and measures to orient revisions of the recovery plans, which will have to be more specific as regards conservation actions and include a system of priorities to tackle initially the main threats.

The strategy will be applied in the current and potential bear distribution ranges described in the recovery plans and in the corridor between the two bear populations on the Asturian and Leon sides of the Cantabrian range, which the regions concerned will include in the geographical scope of their respective recovery plans.

Effective compliance with this strategy necessarily depends on co-ordination between all the sectors involved and on the will of those responsible for applying it to work towards a common aim, assuming and fulfilling each and every one of their commitments. Only in that way will this document make a real contribution to ensuring conservation of the Cantabrian brown bear.

Workshops and seminars

In recent years, the following events have been held:

“*Brown Bear Conservation in Europe. A Challenge for the Twenty First Century*”. This seminar was organised by the Directorate-General for Nature Conservation (Environment Ministry) at the State-run hotel (“parador nacional”) in Fuentes Carrionas, Cervera de Pisuerga, Palencia from 26-28 March 1998. A report on this seminar will be published in the near future.

Co-ordination

A Brown Bear Working Group has been set up under the aegis of the Wild Flora and Fauna Committee. The group comprises experts, representatives from the regions concerned and qualified personnel from the Directorate-General for Nature Conservation. One of its tasks has been to draw up the National Strategy for Brown Bear Conservation.

The Directorate-General for Nature Conservation has hired a Brown Bear Co-ordinator whose duties are as follows:

- to advise the Directorate-General for Nature Conservation and the regions that so require on all matters concerning Cantabrian brown bears,
- to co-ordinate monitoring and survey activities. Take part in national and international meetings,
- to co-ordinate and promote implementation of the recovery plans.

Studies

The following are being carried out:

- “*Genetic Study of the Spanish Brown Bear Population*”
Budget: 33.900.000 ptas – Duration: 1997, 1998m and 1999
Aims:
 - Individual genetic identification.
 - Estimate of the size of the Cantabrian population.
 - Determine the number of breeding females, birth intervals, individual differences between females, movements, den use.
 - Specialisation in bears as regards damages; identification of bears for possible future release and relationship with native bears, etc.
- “*Programme Concerning Survival of Females with Cubs in the Cantabrian Mountains*”
Budget: 20,000,000 ptas – Duration: 1998, 1999 and 2000
Aims:
 - Locate, monitor and keep under surveillance family groups consisting of females with cubs, thereby helping to ensure their survival.
 - Annual census of family groups and estimate of annual productivity, estimate of annual survival rates of young and causes of mortality.
 - Identify threat factors affecting family groups.
 - Analysis of intra- and interspecific relationships and their effect on the survival of family groups.
 - Evaluation of the impact of human activities on the movements, activity and survival of family groups.

The following are planned:

- A study on *brown bear habitat* for a total of 14,000,000 ptas.
- An agreement with Asturias to restore the Pajares corridor and to organise a campaign against the use of snares.
- An agreement with Castilla y León to restore the Leitariegos corridor.
- An agreement with the Fundación Oso Pardo (Brown Bear Foundation) and FAPAS (Asturian Wildlife Conservation Fund) to staff surveillance patrols on private hunting reserves.

Life projects

The following are being carried out:

- “*Action Programme for Brown Bear Conservation in the Cantabrian Mountains*”
Community grant : 6,469,2000 euros (75%) – Duration: 1992-1999
Beneficiaries: Autonomous Regions of Asturias, Cantabria, Castilla y León, and Galicia as well as the Fundación Oso Pardo.

- “*Conservation of Threatened Vertebrates in the Pyrenees*”
Community grant (Spanish bear subproject): 1,526,447 euros (75%) – Duration: 1994-1999
Beneficiaries (Spanish bear subproject): Autonomous Regions of Aragón, Navarra and Cataluña.
- “*Brown Bear Conservation in Asturias*”
Community grant: 529,248 euros (70%) – Duration: 1998-2002
Beneficiary: FAPAS (Asturian Wildlife Conservation Fund)
- “*Conservation of Breeding Subpopulations of Brown Bear*”
Community grant: 436,928 euros (70%) – Duration: 1998-2002
Beneficiary: Fundación Oso Pardo
- “*Ancares de León: Co-ordinated Management of Two Adjacent SCIs*”
Community grant: 430,682 euros (50%) – Duration: 1999-2002
Beneficiary: Regional Government of Castilla y León
- “*Ancares de Galicia: Co-ordinated Management of Two Adjacent SCIs*”
Community grant: 504,299 euros (50%) – Duration: 1999-2002
Beneficiary: Regional Government of Galicia

Iberian Lynx (*Lynx pardinus*)

Legal status

“Endangered” in the Red Data Book of Spanish Vertebrates and in Royal Decree 439/90, which governs the National List of Threatened Species.

It is considered a “Priority Community Species” as it is included on Annexe II of Habitats Directive 92/43/CEE and in Royal Decree 1997/1995, which transposes it to Spanish legislation.

It is included on Annexe II of the Bern Convention as a “Strictly Protected Species”.

Conservation status

The Spanish lynx is declining throughout its historical distribution area and is considered by the IUCN to be the most threatened cat species in the world.

On the national list drawn up in 1988, there were estimated to be around 1000–1200 lynx spread mostly in small subpopulations that are isolated one from another (Sierra Morena, Montes de Toledo and Doñana). More recent estimates provided by the Wild Flora and Fauna Committee’s Lynx Working Group (although not at national level) indicate that some regions (Extremadura and Castilla–La Mancha) have experienced a population decline of around 50% in less than ten years.

In recent years, there has been a 50-60% decline in Castilla–La Mancha and a 44-66% fall in Extremadura compared with the 1988 census estimates. Numbers for Doñana are stable (40–60 individuals), while in Castilla y León no comparative information is available. Lynx experts are currently in general agreement that there cannot be more than 600–800 lynx left in Spain and Portugal.

The lynx’s decline, which began in the sixties, was aggravated between 1989 and 1996 by the appearance of viral hemorrhagic disease in rabbits. Lynx live in extremely low densities in increasingly divided and isolated subpopulations, and the outlook for the near future is that the aforementioned decline will continue.

National strategy

The “Strategy for Spanish Lynx Conservation” includes the technical bases to develop lines of action that will serve as guidelines for the drafting of the recovery plans of regions where lynx are currently found i.e. Andalucía, Castilla-La Mancha, Castilla y León, Extremadura and Madrid. This strategy encompasses the knowledge and experience available on Spanish lynx to date, opening up a line of proposals that have been agreed upon and prioritised. As yet no recovery plans have been passed.

The strategy received the go-ahead from the Wild Flora and Fauna Committee and was approved by the National Nature Protection Commission on February 25 1999.

Its aim is to ensure conservation of the Spanish lynx in the long term. It will be in force indefinitely and will be reviewed at Working Group meetings and updated every 4 years.

The strategy will be applied in the lynx’s potential distribution range i.e. areas where it is currently found, well-conserved surrounding areas and the corridors linking the different populations.

Direct responsibility for applying the strategy lies with the Central Government and the regional governments, but the inclusion of other sectors involved in its conservation (private landowners, NGOs, local communities, hunting sector, etc.) is envisaged.

As a result of Portugal having been invited to take part, there is liaison with the Instituto da Conservação da Natureza (ICN) via a Portuguese representative in the Spanish Lynx Working Group.

The priority conservation actions in the strategy are divided into 13 basic strands; namely:

- Co-ordination and co-operation
- Habitat protection and restoration
- Reduction of isolation between subpopulations
- Hunting management
- Increase in food availability (rabbit)
- Avoidance of non-natural mortality
- Research
- Monitoring of lynx populations and prey populations
- Captive breeding programmes
- Awareness-raising
- Development of specific regulations. Pilot actions
- Information flow
- Material and financial resources

Workshops and seminars

- The Directorate-General for Nature Conservation jointly organised with the IUCN Conservation Breeding Specialist Group a workshop on “*Viability of Populations and Habitat of the Spanish Lynx*” on February 21-24 1998 in Cabañeros National Park.
- The Spanish Lynx Conservation Strategy proposes the use of captive breeding as a back-up tool for lynx conservation. In response to this need, on October 25, 26 and 27 1999, a technical meeting was held in the Natural History Museum in Madrid to implement an *Action Plan for Captive Breeding Spanish Lynx*.

Co-ordination

Within the Wild Flora and Fauna Committee, a Spanish Lynx Working Group was set up consisting of experts, representatives from the regions concerned and advisors and qualified personnel from the Directorate-General for Nature Conservation. One of the group’s tasks was to draw up the National Conservation Strategy.

The Directorate-General for Nature Conservation of the Environment Ministry has hired a Spanish Lynx Co-ordinator whose functions are to:

- advise the Directorate-General for Nature Conservation and the regional governments on all matters pertaining to lynx
- co-ordinate lynx monitoring and control activities
- attend national and international meetings about the species
- co-ordinate and promote implementation of the conservation strategy

Studies

The following are being carried out:

- “*Development of a Captive Breeding Programme for Iberian Lynx*”
Budget: 2,000,000 Ptas – Duration: 2 months
- “Population diagnosis”
Budget: 44,000,000 pts – Duration: 2000, 2001 and 2002
Aims: determine the size of Spanish lynx subpopulations in priority areas
- “Management Agreements with Owners of Private Estates / Fundación CBD”
Budget: 90,000,000 ptas – Duration: 3 years
- “Management Agreements with Owners of Private Estates / ADENA-WWF”
Budget: 90,000,000 ptas – Duration: 3 years
- Implementation of the project “DNA Analysis of Lynx Scat” is planned
Budget: 16,000,000 ptas – Duration: 2000, 2001 and 2002
- Implementation of the project: “Actions for Rabbit Restocking for Lynx and Imperial Eagle” is planned.
Budget: 18,800,000 ptas
- Implementation of the project “Lynx Conservation Actions on the State-owned Estates of Lugar Nuevo and Quintos de Mora” is planned.

Life projects

- “*Programme of Actions for Iberian Lynx Conservation*”
Community grant: 2,000,000 euros (75%) – Duration: 1994-1998
Beneficiaries: Regional governments of Andalucía, Castilla-La Mancha, Castilla y León, Madrid, CSIC (Higher Council for Scientific Research), the Environment Ministry.

- “*Conservation of Lynx pardinus in Extremadura*”
Community grant: 827,512 euros (60%) – Duration: 1998-2002
Beneficiary: Regional Government of Extremadura
- “*Conservation of the Imperial Eagle, Black Stork, Black Vulture and Iberian Lynx in Private Natural Areas in Castilla-La Mancha and Extremadura*”
Community grant: 1,196,495 euros (70%) – Duration: 1999-2002
Beneficiary: Fundación CBD

Wolf (*Canis lupus*)

Legal status

Bern Convention. The wolf was originally on Annexe II of the Bern Convention (strictly protected), but the Spanish Government made a reservation and included it on Annexe III (protected species, exploitation of which shall be regulated in such a way that the populations do not become endangered).

Habitats Directive (92/43/CEE). North of the Duero, the populations are included on Annexe V (may be subject to management measures). South of the Duero the wolf is on Annexes IV (strictly protected) and II (must be subject to habitat conservation measures) as a priority measure.

State and Regional Regulations. In accordance with Conservation Act 4/89 and the decrees implementing it, the wolf is not on the Endangered Species List, which empowers the regional governments to take decisions regarding its management.

In the northern Spanish regions of Galicia, Cantabria, the Basque Country, La Rioja and Castilla y León (north of the Duero) the wolf is a game species. In Asturias, it is not listed as a game species nor is it protected; however, in practice it is considered a protected species, but subject to management measures.

In Extremadura, Castilla la Mancha and Andalucía, it is a protected species.

Conservation status

Almost all the wolves in Spain occur in a continuous population in the north western quadrant of the country, where there are estimated to be about 2,000. The population has increased in terms of numbers and has spread over the last 30 years. There are also small isolated threatened subpopulations in Sierra Morena and along the border with Portugal (Extremadura and Salamanca).

Over the last ten years, the recovery of the northern population in Spain has been consolidated. It appears to be stable in most of the country, with a slight increase on the northern and eastern edges of its distribution area i.e. Asturias, Cantabria, the Basque Country and La Rioja. However, on the cereal table land of Castilla y León, there density has increased considerably and wolves have crossed the River Duero. The small population currently living south of the river has great potential for growth, which will foreseeably allow it to reach the Sistema Central range in a few years' time.

In Sierra Morena, there may be just a few dozen wolves, particularly in Andalucía. Wolves may have become extinct in Extremadura in the last ten years. An increase in the population south of the Duero can be expected in the future.

Co-ordination

A specific wolf working group exists under the aegis of the Wild Flora and Fauna Committee. There are plans to draft a conservation strategy, which would serve as a frame of reference for the regions to draft their respective action plans.

In 1999, the Environment Commission of the Spanish Parliament passed a non-legally binding proposal for several wolf conservation measures.

Workshops and seminars

- *International Seminar on Wolf Conservation and Management in Spain*
(San Lorenzo de El Escorial, Madrid, June 8-10, 1999).

This seminar brought together qualified personnel from the regional governments, Spanish wolf specialists, researchers from universities and the CSIC, representatives of the main NGOs and international experts such as David Mech (President of Wolf Specialist Group of the IUCN) and Luigi Boitani (responsible for drafting the Wolf Action Plan for Europe for WWF's European Large Carnivore Initiative).

Studies

- "*Applied Studies to Mitigate the Effects of Motorways on Spain's Wolf Populations*"

Budget: 12.272.800 ptas – Duration: 1998 and 1999

Aims:

- To study the ecology and impact of infrastructures on a wolf population living in agricultural environments.
- Design more effective corrective and compensation measures to limit the barrier effect on wolves and on other large mammals.
- Publicise the problem of fragmentation caused by the road network.
- Develop a technical co-operation project with the regional administrations.

On recent actions undertaken for the conservation of the Iberian lynx in Spain

by *Alejandro Rodríguez, Miguel Delibes and Pablo Ferreras*

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Update: June 2000

After the thorough process of discussion on the successive drafts of the Action Plan for the Conservation of the Iberian lynx in Europe, whose final stage was the meeting held in Slovakia in October 1998, a definitive Action Plan has been produced under the auspices of the Large Carnivore Initiative for Europe. Further, this Plan is being considered for endorsement by European institutions. Since 1998 the course of conservation action has proceeded in some fields. In the present document we outline the main advances during this period in the implementation of conservation measures which agree with those considered in the Action Plan. We also discuss some shortcomings that, in our opinion, hinder the development of important actions.

1. Coordination of lynx conservation

The Spanish Lynx Working Group of the Wild Fauna and Flora National Committee is today the forum where administrative decisions concerning the conservation of the Iberian lynx are debated and coordinated. The Lynx Group is chaired by a member of the Spanish Ministry of the Environment and gathers representatives of the Regional Governments (abbreviated RG henceforth). We think that such a group should be complemented by a consultative board in which researchers, conservation experts, NGOs and external consultants will discuss and produce recommendations from a purely technical standpoint. The Lynx Group has taken three important steps in accordance with the Action Plan:

- a. the preparation of a Spanish Strategy for the Conservation of the Iberian lynx, which was approved in 1999 by the National Commission for the Conservation of Biodiversity (i.e. the immediately upper level of political decision with regard to the Wild Fauna and Flora National Committee). This strategy offers a set of recommendations aligned with goals and actions considered in the Action Plan. This document, as the product of consensus within the National Commission, has influence but not legal value, because conservation action is restricted to RG.
- b. the designation in 1999 of a person responsible to promote the contents of the Strategy and facilitate the collaboration between RG; this person has been hired by the Ministry of Environment.
- c. the incorporation of representatives of the Portuguese administration as permanent members of the Lynx Group since February 2000. This will hopefully lead to an improved coordination of policy proposals affecting lynx in both countries as well as coordinated transborder management of international populations.

One problem with the National Strategy for the Conservation of the Iberian lynx deals with its ambiguity. The Strategy itself is merely a framework: whereas it contains a list of actions, these are not ranked according to their relative priority. It does not consider a time schedule neither allocates specific financial resources to particular programs or tasks. Whereas the Strategy was the result of an agreement between all administrations involved, the competence for lynx conservation is in the only hands of the regions. RG should claim for the important role laws attribute to them and take the initiative for conservation action, complementing the otherwise stimulating leadership that the Ministry of Environment has played while launching both the Strategy and the Lynx Group.

Since the Spanish laws appoint conservation duties to RG, the really important advances in administrative commitment with *in situ* conservation measures should be made through Regional Recovery Plans. Some of these are under preparation or have already been written, but no one has been approved by the correspondent government. For instance, the Andalusian Recovery Plan was written in 1999 and is now being reviewed by the administration for legal consistency.

To some extent the roles of the Ministry of Environment and RG, as established by law, have been reversed in practice. The Ministry should encourage and coordinate while RG should execute conservation actions for the Iberian lynx, and not the other way round (see examples below). This change of roles may greatly limit the efficiency of conservation measures.

2. Habitat protection and restoration

Little new has been done in this respect. Some RG spend a part of available resources allocated to lynx conservation in the maintenance of local patches of open land, often planted with cereal or pastures, which makes homogeneous scrubland tracts closer to the more patchy habitat requirements of lynx. The main advance in habitat protection will be in the declaration of new reserves, or the increase of restrictions in existing ones, within the Nature 2000 Network. However, there is a serious delay in the definition of "lynx area", the area where the long-term conservation plans should be applied. Currently, this undefinition creates problems to regional administrations when deciding which areas should be proposed as candidates for the Nature 2000 Network of reserves. In some cases, it is argued that the species is not present anymore or that the habitat has been altered in some way to exclude areas recently inhabited by lynx. Nevertheless, by thinking in this way one forgets that these areas (even if altered) are privileged as the most easily

restored for lynx natural recolonization or future reintroductions. In this regard, it is remarkable that at the moment the European Commission considers "insufficient" the list of 'Sites of Community Importance' (SCIs) presented by Spain, apparently because not enough area is included to guarantee the survival of the Iberian lynx, among other species.

One change that draws our attention is that, in accordance with the action 2.5 of the Action Plan, from this year on, in Extremadura the EIA studies require an additional favourable report from the Regional Conservation Agency, which hopefully will benefit the preservation of lynx habitats.

3. Recovery of rabbit populations

The most important advance under this heading has been a new experience, again promoted by the Ministry of Environment through two NGOs (CBD-Habitat Foundation and ADENA-WWF): the agreement concerning land management between NGOs and several private owners in small areas of Eastern Toledo Mountains and Sierra Morena (some 3000 ha and 1000 ha, respectively). The area in Toledo Mountains harboured the second most important lynx population both in density and numbers, just before a drastic decline which started 15 years ago. The particular conditions of the agreement may vary from one owner to another, but in all cases there is an economical incentive attractive to owners (e.g. buying hunting rights during one or more seasons without hunting) and an assumed benefit for lynx habitat, specifically the enhancement of rabbit populations. Protocols for this action have been based on a document with guidelines for game management in lynx areas. This document has been brought forward by ADENA-WWF and produced at the beginning of 2000.

4. Reduction of mortality causes

The agreement between private owners and NGOs mentioned under action 3 is also aimed at promoting the owner's strict observance of regulations concerning traps and the complete avoidance of disturbing human activities. In areas containing lynx populations standard methods for predator control such as snares are now completely forbidden.

5. Public education and information

During the last year, the Iberian lynx has remained highly ranked in the treatment that media devote to nature conservation issues. Several events around the Iberian lynx and its problems have drawn the attention of many journalists both in Spain and abroad. The press campaign explaining the Large Carnivore Initiative for Europe and the publication of an excellent book of lynx pictures can be cited among these events.

6. Habitat connection between isolated lynx populations

The current discussion about the limits of the future SCIs, i.e. the elements of the Nature 2000 Network, will be crucial to satisfy the connectivity requirements between lynx populations. This is another point which underlines the importance of being generous in selecting the SCIs' boundaries having the recovery of Iberian lynx in mind (see also comments to action 2).

7. Reduction of the risk of inbreeding

No measure has been taken.

8. Captive, semi-captive breeding, and reintroduction

In the light of the results of the recent Portuguese survey (1994) and the last regional surveys in Spain (1995-1996), the possibility that the lynx has disappeared from many of the areas shown in the 1988 distribution map (see Action Plan, p. 40) has gained strength. Indeed, nowadays only there is proof that lynx still exists in some localities of Eastern Sierra Morena and the coastal plain of Doñana. Therefore, as a cautionary measure, the urgency to design and develop an experimental program of captive breeding has been stressed. In October 1999 researchers, technicians and representatives of the administrations met in a workshop held in Madrid, once again called by the Ministry of Environment. As a result, a detailed proposal of a Captive Breeding Plan for the Iberian lynx has been prepared. It contains objectives and actions regarding the establishment of priorities within the Plan, the management of captive animals, reproductive physiology, genetics and demography, health, reintroduction, and organizative aspects. The third draft of this document is now being discussed. So far, the main problems with this Captive Breeding Plan is that both the role of different institutions and the origin of financial resources for specific tasks and materials have not been adequately clarified.

Regarding action 8.4. of the Action Plan, a preliminary assessment of the Alcornocales Natural Park (Cádiz, S Spain) as a potential site for lynx reintroduction has been made in the framework of compensatory measures following the construction of a highway dissecting such potential lynx area.

9. Monitoring and research

Actions undertaken for lynx conservation, both before and after the elaboration of the National Strategy and the LCIE Action Plan, have never been monitored at a technical level. These actions have been primarily funded by EU LIFE programs. Established administrative controls have been efficient in assuring that the amounts invested

corresponded to program goals (e.g. a given number of rabbit restocking attempts). However, assessing the real efficiency of these actions, in terms of measurable benefits for lynx populations has generally been neglected. Further, since these actions apparently have not changed the declining population trend of the Iberian lynx, a crucial question is “why not?”. Obviously we need detailed information on the techniques and protocols used as well as on their effects on some ecological parameters expressing the lynx response. As this information has not been collected we have learned little despite the work done, and we are not in a better position to correct mistakes or to improve the benefits of future actions for the lynx. It is therefore extremely important that every conservation action will

- a.* include enough funds in its budget for monitoring its biological efficiency, and
- b.* define its objectives so that the success of the action could be determined by objective data (a vague definition would be e.g. “improve food abundance in the area”, while a more testable one would be “increase rabbit density from 0.5 ind/km² to 0.9 ind/km²”).

Under the auspices of the Andalusian Regional Government, important advances have been made in the development of an objective method to identify Iberian lynx remains (tissue contained in scats, hair, skin and so on). Mitochondrial-DNA markers specific for the Iberian lynx have been isolated. After several tests evaluating the probability of obtaining false positives due to factors such as scat age it has been concluded that this molecular technique has an almost complete diagnostic value. Besides, this method is affordable and quick to perform, thereby applicable to large scale surveys. Therefore, soon it will be possible to draw a new lynx distribution map based on objective data. Individual identity could also be recognized both through DNA analysis and camera-traps baited with lynx urine. These can be used to estimate population size at smaller spatial scales.

New knowledge on lynx habitat requirements has been recently published: specifically a comparison of habitat characteristics of lynx just before dispersal, during dispersal, and just after settlement, and a description of the features of breeding dens. Two more studies have addressed the interspecific relationships (mostly exploitative and interference competition) between Iberian lynx and Egyptian mongoose, red fox, and Eurasian badger. Other contributions include a list of intestinal parasites in a lynx population living in Sierra Morena, and a description of one death attributed to tuberculosis in the Doñana area.

10. Estimated current population trend

In spite of the efforts summarized above the status of the Iberian lynx is more and more worrying. There is indication that most populations are still declining, and could locally be close to extinction. For instance, intensive trapping (with both cameras and real traps) has been performed in several areas of Toledo Mountains and Sierra Morena without positive results. Preliminary results of DNA analyses indicate that scats collected by volunteers in many localities can not be attributed to the Iberian lynx. Sightings or other indirect evidence are becoming rare in areas where they were not some ten years ago. All this information suggests that increased efficiency in conservation action is now more needed than ever.

5.17. Sweden

The Situation of Large Carnivores in Sweden

by Ms Lena Berg & Mr Anders Bjärvall, Swedish Environmental Protection Agency

The four species of large carnivores in Sweden – brown bear, lynx, wolverine and wolf – are all legally protected. However under certain conditions the Environmental Protection Agency (EPA) can allow limited controlled hunting. Details on the extent of recent such decisions will be given below for each species.

In 1998 the Government appointed a Commission to draft a proposal for a future national policy for the large predators. According to the directives the Commission should consider a wide spectrum of biological, hunting and economic issues. The policy should also safeguard biodiversity and genetic variation to allow the species to survive in their natural habitats and in viable populations. This Carnivore Commission submitted a final report in January 2000. The report was distributed to various authorities, organisations etc for hearing with end of June as deadline. After consideration of comments received during this hearing-process the plan is that the proposal will result in a proposition to the Parliament.

As far as livestock is concerned the most abundant prey for large carnivores in Sweden by far is the semidomestic reindeer. There are no wild reindeer in Sweden. Based on extensive field studies it has been estimated that at least 20 000 semidomestic reindeer are killed annually by large carnivores. From 1996 there has been a completely new system for compensation of these losses. Through 1995 the reindeer owners were compensated only for reindeer which were found dead and where it could be verified that a large carnivore (or a golden eagle) was responsible. From 1996 the reindeer owners are compensated in relation to verified reproduction or confirmed presence of the carnivores based on a field inventory. The total cost for 2000 for this system is 35 million SEK. The principle was decided in 1995 but is still not regulated by any legislation. The Commission now has proposed a special ordinance concerning the right to compensation.

There have been recent changes also as far as other livestock than semidomestic reindeer is concerned. Under current regulations the county administrative boards have funds to contribute with measures to prevent damage by wildlife including carnivores and also to compensate for damage that has occurred.

Poaching is an old problem where new information recently has become available. The Carnivore Commission assigned to the different research projects on large carnivores to try to estimate the extent of poaching on each respective species. Separate reports, mainly based on information from radiocollared animals, are included in the Appendix to the main report. The conclusions are alarming. Poaching of large carnivores takes place on a large scale in Sweden, often with cruel methods. Particularly for the wolf and the wolverine, the illegal hunting may have severe consequences.

In late June national Action plans for all four species were adopted by the EPA. Information from the Agency on large carnivores is available under www.internat.environ.se/index.php3

Brown bear

Since 1943 when brown bear hunting again was allowed after a period of total protection, different surveys show that the population has been growing steadily. The most recent calculation – in 1996 by the Scandinavian Bear Project – estimated the population at around 1 000 bears. It means that the number of bears has tripled in about 60 years. This development has taken place in spite of a legal harvest of almost 1 500 bears during the same period.

A system for controlled hunting has been in force since 1981. The EPA sets annual quotas for all areas where hunting is allowed and when the quota is filled in an area or the season is over hunting is stopped. For a number of years the total annual quota has been just above 50 bears. Most of them have been shot. In 1997 a complaint about the Swedish bear hunting was made by a Swedish NGO to the European Commission. The organisation claimed that the hunting was not in accordance with the rules in the Habitats Directive. After some correspondence and a meeting in Stockholm however, the Commission in 1999 concluded that the Swedish bear hunting does not mean any transgression of existing rules.

The Scandinavian Bear Project, initiated in 1984 and still running, has significantly increased our knowledge about the species. The project has generated some 100 published articles, covering e.g. home range size, activity, movements, age of first reproduction, number of cubs per litter, interval between litters, mortality, food, infanticide, genetics and danger to man.

The report from the project on the extent of poaching of bears, published in the appendix of the final report from the Carnivore Commission, concludes that the illegal kill probably is equal to or even higher than the legal.

Lynx

The official shooting statistics reflect the considerable variation in the Swedish lynx population during the last decades. From the mid 1960ies to the mid 1980ies there was a steady decrease indicating a drastic decline in the population. Towards the end of this 20 year-period the EPA estimated that the total population might have been as low as only a few hundred individuals. However, under cover of protection, from 1986 in Sweden outside the reindeer management areas and from 1991 in the whole country, the number started to increase again. Estimations based on winter-surveys of snow-tracks indicate that the total population in 1999/2000 might have been approaching 1 500 individuals.

There was a need to keep the total protection for four years but from 1995 the EPA has allowed some controlled hunting primarily to try to reduce the damage caused by lynxes in areas with semidomestic reindeer. The first year only six lynxes were allowed to be killed but the number has grown and in 2000 the total permit was 183 lynxes out of which 165 were killed. The inventories on which the new system for compensation for carnivores in reindeer management areas are based, clearly indicate that this harvest has reduced the number of lynxes and thus reasonably also the extent of damage.

Also the lynx hunting was reported to the European Commission in 1997 with the same outcome as with the bear hunting. The Commission found that there had been no transgression of the rules in the Habitats Directive.

Research-projects based on radio-collared lynxes were initiated in 1994. In a report to the Carnivore Commission – published in the Appendix to the final report from the Commission – the projects try to quantify the extent of poaching on lynxes. The material is limited but indicates that the illegal hunting might be of the same magnitude as the legal.

Wolverine

The wolverine is unevenly distributed within the reindeer management area where the population – based on the inventory which is part of the compensation system – last winter was estimated at 270 individuals. From the mid 1970ies to the early 1990ies the population decreased but in the late 1990ies the species to some extent returned at least within part of its range. In addition reproduction of wolverine has been confirmed in 1999 and 2000 in a forested area outside the reindeer management area.

The wolverine has been fully protected since 1969 but with possibilities for the EPA to allow – under certain conditions – restricted controlled hunting. On single occasions in recent years this possibility has been utilised to reduce damage in situations with local concentrations of wolverine reproductions in the reindeer management area. Wolverine kits in a den or the female and her kits have been killed or alternatively the kits have been transferred to a zoo.

A research-project, initiated in 1992, has tried to utilise the fate of the radio-collared animals to evaluate the extent of poaching. The report, similar to the ones mentioned above, is included in the Appendix to the final report from the Carnivore Commission. Radio-collared wolverines have been illegally killed even though these animals are regularly monitored and the project stresses that poaching might have a significant effect on the population dynamics of the wolverine. The project particularly points out that illegal killing can be an obstacle for wolverines to get re-established outside the study-area.

Wolf

During the 1980ies and 90ies the number of wolves increased strongly from around or even less than 10 mainly in Sweden, to 59-75 individuals of which several had spread into Norway. The number in April 2000 included six packs of which probably five were the result of reproduction in 1999. One pack was exclusively in Norway, two of the territories covered areas on both sides of the border and the remaining three were in Sweden. The number also included from six to nine resident scent-marking pairs. In February 1999 an adult male had to be killed because of a severe injury. Apart from this, no wolf has been legally killed in Sweden since February 1993.

A Swedish-Norwegian research project on wolves was initiated in late 1998 when seven individuals were radio-collared. In January-February 2000 another 11 wolves were equipped with radio. Some of these wolves have demonstrated very extensive dispersal movements over central and southern parts of the Scandinavian Peninsula.

The research-project has already lost radio-collared wolves due to poaching but has not been running long enough to allow a scientific evaluation of the extent. However, of 40 wolves known to have died in Scandinavia from December 1977 to March 2000, 13 were illegally killed. For comparison, only six were killed after a previous permit from an authority. Moreover, of the 40 wolf deaths all but one were caused by man. Traffic – trains or cars – was the most common cause of death.

5.18. Switzerland

The Situation of Large Carnivores in Switzerland

by Urs Breitenmoser¹ and Hans-Jörg Blankenhorn²

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According to the Swiss *Federal Law on Hunting and on the Protection of Mammals and Birds Living in the Wild* (Swiss Hunting Law) and its corresponding ordinance (Swiss Hunting Ordinance), the three large carnivores bear, wolf and lynx belong to a list of animals with special responsibilities of the federal authorities. The “Big Three” are year-round protected from hunting, and wildlife services of the cantons can remove specimens causing damage to livestock only with permission of the Federal Office for the Environment, Forest and Landscape (FOEFL). On the other hand, the FOEFL has far-reaching duties in regard to the prevention and compensation of damages. Furthermore, the Swiss Hunting Ordinance obliges the FOEFL to draw up management plans for these specially listed species. After problems with wolf and lynx management in recent years, the implementation of such management plans have been given high priority.

The lynx, reintroduced in the 1970s in the Jura Mountains and the central and western Swiss Alps, has undergone fluctuations in both, distribution and abundance. At present, two small populations exist in Switzerland (Fig. 1), numbering some 100-150 individuals. The Jura population extends also over the French part of the mountain range and seems to be of moderate density. The population in the Alps, however, has increased in the north-western Swiss Alps in recent years and reached a density of about 2 adult individuals per 100 km². Parallel with the lynx abundance, damage to livestock has increased and the roe-deer population decreased. In 1999, a total of 193 domestic animals, mainly sheep, were compensated as lynx kills. The impact of lynx on livestock and wildlife has caused a violent controversy in the north-western Swiss Alps. In spite of the high lynx abundance in this region, the lynx population did not further expand. On the contrary, monitoring data indicated that the lynx presence was declining in the central Swiss Alps, and large parts of the eastern and southern Swiss Alps are still not occupied (Fig. 1). Obviously, lynx, which show a relatively low capacity to disperse, have problems to overcome barriers of high mountain ridges or human altered valleys between geographical compartments (Fig. 2).

The wolf intrudes into south-western Switzerland from the expanding population in the French and Italian Alps. Damages to sheep herds first occurred in 1995/96, then again in 1998 and in 1999 (Fig. 1). In winter 1998/99, two wolves were killed in the upper Rhone valley, one illegally shot, the other killed by a car on the Simplon pass road. In 1999, some 250 free roaming sheep were killed or disappeared in the central part of the canton of Valais, all attributed to probably only one wolf. When the attacks continued in spring 2000, the FOEFL authorised the wildlife department of the canton of Valais to shoot this wolf.

The brown bear is not (yet) present in Switzerland. However, when the population in the eastern Alps further expands or the restocking of the remnant occurrence in the Trentino region succeeds, the south-eastern Swiss Alps may see the immigration of bears in the coming years. The FOEFL has instructed the KORA (coordinated research projects for the conservation and management of carnivores in Switzerland) to produce information material for the brown bear and for the other large carnivores, which can be downloaded from the internet at [HTTP://WWW.KORA.UNIBE.CH](http://WWW.KORA.UNIBE.CH).

Research activities in the past three years concentrate at (1) the study of the impact of lynx on wildlife and livestock in the north-western Alps by means of radio-telemetry, (2) the testing of preventive measures against wolf (mainly livestock-guardian dogs) and lynx (protective collars and deterrents) attacks on sheep, and (3) the evaluation and implementation of monitoring systems.

The political focus was on the drawing up of the management plans. The FOEFL installed a national task force including the relevant interest groups, the cantons, and experts to draft such plans, which are then given into consultation to the cantons and the public. The objective of the lynx management plan is the conservation and maintenance of a viable lynx population in Switzerland and in the Alps. In order to achieve this goal, methods for the prevention of carnivore damages in livestock have to be developed and implemented, and large carnivore management has to be sustainable considering their impact on other wildlife species, agriculture and forestry. The most important aspects of the management plan are:

- The future management of lynx will be based on geographical compartments as shown in Fig. 2. In every compartment, a regional management board for large carnivores including the local authorities and the interest groups shall be installed. The concept defines three chronological stages: stage 1 (present status): Lynx distribution is clustered; stage 2 (near future): Lynx is spreading into all suited habitat areas of Switzerland; stage 3: lynx occupies all suitable habitat and is considered viable.
- A monitoring system for the lynx population is established and continued in all stages.

- Livestock damage: The confederation and the cantons organise and reimburse local programmes for carnivore damage prevention. They compensate for animals killed by a lynx if reasonable preventive measures were applied and the sheep was not killed inside a forest. If 15 sheep are killed within a radius of 5 km in a year (12 sheep if damages occurred in the previous year), permission can be given to capture or shoot the lynx on this pasture. The removal of lynx specialising in livestock is possible in all stages.
- Interventions into the lynx population shall be allowed if within a compartment the impact of lynx on wildlife (mainly ungulates) is considered too high or if due to lynx predation, another wildlife species (e.g. capercaillie) is threatened.
- In stage 2, interventions into local lynx populations shall be done mainly in the form of translocations of individuals into other compartments. In stage 3, sustainable shooting of lynx on a regional scale will be possible.

The concept defines the present and future competences for the cantons in regard to interventions into the local lynx populations. The cantons are given more competences in regard to lynx management, in order to allow them to take part in the programme of active lynx translocations from compartments of high density to areas not yet occupied. As Switzerland is only a part of the potential Alpine lynx population, the federal authorities hope to cooperate with all other Alpine countries and international institutions in order to secure the long-term survival of the lynx throughout the Alpine arc.

The “Concept Lynx Switzerland” was agreed upon by the federal and cantonal authorities in spring 2000 and will be published in August 2000. A first draft of the wolf management plan is presently being discussed in the national task force and should be ready for a public consultation by the end of the year 2000.

Fig. 1. Area of continuous lynx occupancy (light grey) in Switzerland and areas of wolf presence since 1995 (dark grey = regions of wolf attacks on sheep herds; stars = wolves illegally shot and killed on the road).

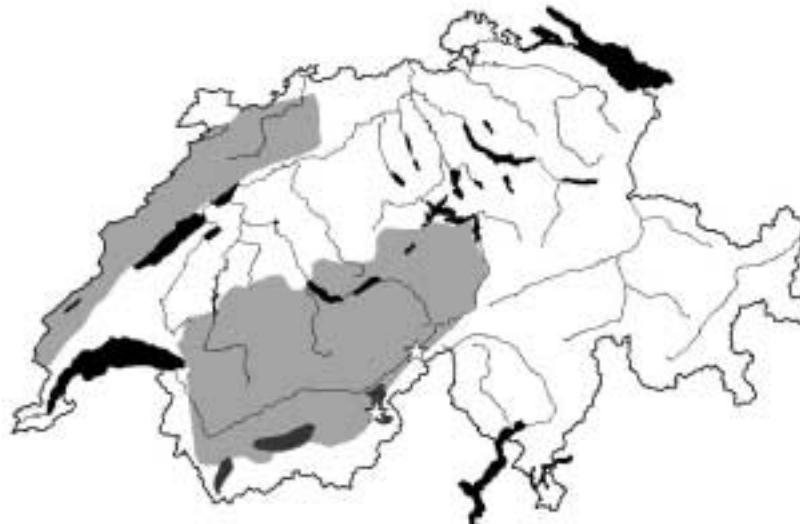
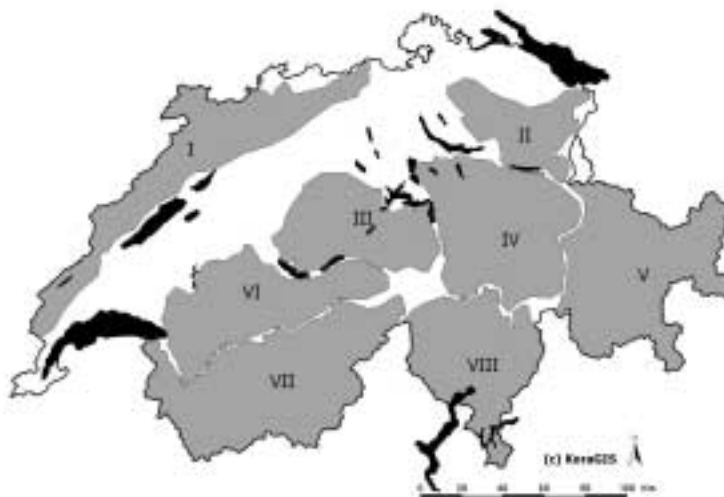


Fig. 2. Geographical compartments for the management of lynx and wolf in Switzerland. Translocations of lynx are presently planned from the compartment VI (north-western Alps) to the compartment II (north-eastern Switzerland).



5.19. Tunisia

by the Ministry of Agriculture, Directorate General of Forestry

The protection and conservation of wildlife in Tunisia are matters of priority for the Tunisian Government which has ratified several international conventions, more particularly the Washington and Bern Conventions.

Several projects for the reintroduction of wildlife species formally present in Tunisia have been carried out in recent years. Mention may be made, by way of example, of the Oryx, the Mhorr gazelle, the ostrich, the mountain gazelle, the Serval, etc.

While the main efforts have been aimed at the Sahel-Sahara antelopes, wild carnivores have also received attention.

I. The principal wild carnivores of Tunisia

1. Hyena (*Hyaena hyaena*)

A rare protected species found mainly in the hilly brushlands in the north, centre and south.

2. Weasel (*Mustela nivalis*)

Rare species which frequents the brushlands and forests north of the Dorsale mountain range.

3. Zoril (*Poecilictis libyca*)

Rare species to be found mainly in the brushland and rocky areas in north and south, in ancient olive groves and in oases. The northern variety is darker than the southern.

4. Otter (*Lutra lutra*)

Rare species of which frequents the wades, lakes and dams north of the Dorsale range.

5. Jackal (*Canis aureus*)

Common species found throughout Tunisia, particularly in steppeland, brushland and forests.

6. Fox (*Vulpes vulpes atlantica*) including Rüppell's fox (*Vulpes rueppelli*)

Common species found in the south and extreme south of Tunisia.

7. Fennec (*Fennecus zerda*)

Rare protected species to be found in the sand dunes and the Nebkhas south of Chott El Djerid. A very popular species in Tunisia, it was chosen as the logo of the Environment Ministry and symbolises for children the "nature warden" combating attempts to harm the environment.

8. Monk seal (*Monachus monachus*)

Very rare protected species concentrated on the northern coast of Tunisia (islands of La Galite, Galliton and Zembra).

9. Cheetah (*Acinonyx jubatus*)

Very rare protected species occasionally observed passing through the region of the Grand Erg Oriental.

10. Caracal (*Caracal caracal*)

Very rare protected species found in the forests and brushlands of north-western and central Tunisia.

11. Serval (*Leptailurus serval*)

Protected species not recorded in Tunisia since the 1940s. It used to frequent the dense forests of cork oak and the El Feidja region.

12. Sand cat (*Felis margarita*)

Rare protected species found in the extreme south in rocky brushland regions.

13. Caffre cat (*Felis libyca*)

Relatively rare protected species to be found throughout Tunisia in forests and brushland.

14. Genet (*Genetta genetta*)

Common species present in brushland, forest and oasis habitats throughout Tunisia.

15. Egyptian mongoose (*Herpestes ichneumon*)

Common species frequenting wetlands north of the Dorsal range.

II. Reintroduction of the Serval (*Leptailurus serval*) in Tunisie

This species was no doubt exterminated in Tunisia in the mid 20th century.

In 1991, one male and two females, bred in Munich zoo, were acquired and raised in a breeding centre at Dar Chichou (Cap Bon, Tunisia).

The reintroduction of these Serval was planned in two stages:

- raising and breeding of Servals in a wire netting enclosure at Dar Chichou;
- transfer of the captive-bred Servals to an acclimatisation enclosure in El Feidja national park and subsequent release in the wilderness area of the national park.

At the age of five months, the young Servals are separated from the mother and placed in the acclimatisation enclosure of El Feidja national park.

The transfer of the young Servals from the Dar Chichou breeding station and their reintroduction in the El Feidja national park is carried out in two phases.

The young Servals are first kept in an acclimation enclosure (10 x 10m) near a spring. Some months later they will be released into the adjacent forest. The enclosure is surrounded on all sides with large-mesh wire netting which allows birds and small rodents to enter, but is open to the sky. The enclosure is also fitted with a service gate and a small aperture half way up the fencing which will enable the Servals to leave the enclosure while preventing hens or rabbits from doing so.

The grass and scrub within the enclosure are left intact. Two crates are also provided where the Servals can shelter or mate.

For two months, the Servals are fed with live chickens or rabbits. Chicken feed is also spread to attract birds and small rodents from the surrounding woodlands.

After the two-month period, the small aperture in the wire netting is opened to allow the Servals to leave, but the same food is still provided inside the enclosure to enable them to return from time to time to seek food and shelter.

III. Results of Serval reintroduction in Tunisia

Date of release in El Feidja national park	Numbers	
	Males	Females
12.12.1994	1	1
01.08.1995	1	-
19.06.1996	2	-
07.05.1997	2	3
18.12.1997	-	2
17.02.1999	1	1
05.02.2000	1	1
Total	8	8

A few Servals have been observed in El Feidja forest and in the adjacent part of Algeria since the start of the reintroduction scheme.

5.20. Ukraine

by the Ministry of the Environment and Natural Resources

State of wolf (*Canis lupus*), lynx (*Lynx lynx*) and bear (*Ursus arctos*) in Ukraine

Wolf (*Canis lupus*)

Wolf is considered to be common species in Ukraine. As other species their number changed from year to year depending on nature conditions and anthropogenic pressure. As well adaptable species, the wolf increased in number during the time of economic and social instability. For example during Civil War in 1917–1919 the wolf distributed all over Ukraine but before the Second World War their number had sharply decreased up to 100 times because of intensive human prosecution. During the II World War their number had been increased and in 1947–1949 was estimated up to 7000 individuals. In 1946–1967 there were caught (hunted) about 35000 wolf and in 1969 wolf's number did not exceed 300 individuals. Then the wolf's number is steadily increased (see table).

In general, the wolf considered to be harmful species especially for cattle, sheep and other animal stock used by humans. Although, the human-wolf relation are always a subject of strong discussion among scientists, wide public, farmers, and nature conservationists.

Wolf is a hunting species in Ukraine and its taking from the wild is regulated by hunting legislation. The wolves are hunted under control of the regional bodies of State Committee for Forestry. There are no hunting quota for wolves in Ukraine.

There is a monitoring of wolf number in Ukraine. Usually, rangers and hunters collect data on the wolf number and distribution and then give this information to the regional forestry departments. They generalize the information for their region (oblast') and send it to the State Committee for Forestry, the body which is responsible for management of hunting species including wolf.

If wolves occur within the protected area, they also should be protected as any other species of wildlife, according to the status of this territory.

There is no scientific programme on national level but some scientists study wolf on a regional level.

Wolf is included to the appendix II of the Bern Convention. As Ukraine is a member state of the Bern Convention, there is an intention to give more attention to the wolf as well as other large carnivores. There is a great interest in participation of Ukraine in Large Carnivore Initiative in Europe. On the 19th Meeting of the Standing Committee of the Bern Convention in 29 November – 3 December 1999, Recommendation No. 74 on the conservation of large carnivores was adopted. There were outlined, *inter alia*, “to consider drafting and implementing (or, if appropriate, reinforcing) national Action Plans for the species listed in the Appendix to the recommendation”. The wolf is covered by this Recommendation as well. A number of measures towards the wolf conservation and study is proposed for Ukraine in the Action Plan for wolf.

There is a discussion now to start joint conservation project on large carnivores in Carpathian region together with Carpathian countries (Poland, etc.)

Table 1. Number of wolves in Ukraine, as a whole and per oblast' (administrative unit in Ukraine), number estimated/hunted (killed). The data are given according to the annual Statistical Bulletin of the State Committee of Statistics.

Region of Ukraine	1993	1994	1995	1996	1997	1998
Ukraine as a whole	1760/679	2043/619	2064/756	2146/940	2172/798	2227/967
Crimea		2				
Volynska oblast'	46/22	62/31	60/11	68/33	73/22	66/27
Dnepropetrovska oblast'	63/44	81/29	67/41	80/28	97/26	116/66
Donetska oblast'	20/15	30/13	37/15	44/37	56/27	39/34
Zhitomyrska oblast'	162/82	195/72	243/83	281/102	192/37	199/93
Zakarpatska oblast'	167/22	179/10	125/26	117/29	147/47	124/37
Zaporizka oblast'	49/14	57/12	60/32	54/31	40/32	33/18
Ivano-Frankivska oblast'	89/19	86/17	106/12	99/25	115/32	121/32
Kyivska oblast'	62/26	100/28	140/22	96/34	132/37	145/56
Kirovogradska oblast'	19/2	38/2	26/4	23/-	44/7	79/36
Luganska oblast'	144/62	238/105	232/115	319/146	239/122	305/143
L'vivska oblast'	133/49	110/45	145/33	106/20	123/46	80/43
Mykovaivska oblast'	48/6	58/12	61/15	57/23	91/21	88/17
Odeska oblast'	42/33	58/28	43/26	80/31	46/23	86/33
Poltavska oblast'	40/30	54/41	60/39	41/50	39/26	38/23
Rivnenska oblast'	159/24	164/35	145/63	144/70	141/61	201/49

Region of Ukraine	1993	1994	1995	1996	1997	1998
Sumska oblast'	103/63	87/5	132/48	142/79	133/62	133/41
Ternopil'ska oblast'	37/9	30/7	9/3	8/4	12/4	10/2
Kharkiv'ska oblast'	64/37	43/31	43/26	65/25	88/32	96/68
Kherson'ska oblast'	56/31	47/21	79/23	77/36	98/21	65/28
Khmelnitska oblast'	33/3	27/6	19/6	26/3	25/1	36/1
Cherkaska oblast'	19/17	56/14	28/12	23/12	18/6	18/9
Chernivetska oblast'	40/6	36/5	43/7	29/5	27/8	19/7
Chernihiv'ska oblast'	165/63	204/45	157/94	164/116	196/98	176/104
Kiev	-/-	3/-	4-	3/1	-/-	4/-

Lynx (*Lynx lynx*)

Lynx is represented in Ukraine by two subspecies dwelling in Polissya and Carpathians. The species mostly distributed in Ukrainian Carpathian. Small populations are available in the forested area in Manevitsky district of Bovyn' oblast'. Some individuals occur also in Polissky Natural Reserve (Zhytomyrska oblast'). Single animals have been recorded in the northern part of Chernihiv'ska oblast' and Sumska oblast' (came from Byelorussia). Before the 19th century lynx was distributed in Polissya and Forest-Steppe province.

Lynx habitats in Ukraine include mostly hardly accessible sites in coniferous and mixed forests. In mountain area animals go up to 1200 m above sea level.

Lynx number in Ukraine reaches 400–500 individuals and tends to decline.

Main factors which cause lynx population decline are poaching, habitat degradation due to forestry activity and recreation load, transport infrastructure development, and disturbance.

Lynx is included in Red Data Book of Ukraine under category II (vulnerable). It is protected in Polissya Natural Reserve, Carpathian Biosphere Reserve, Carpathian National Natural Park, zakaznik (a kind of protected area) "Rys" (Lynx) in Manevitsky district of Volyn'ska oblast'). Proposals of creation of new protected areas are under consideration.

Bear (*Ursus arctos*)

Bear is the largest carnivore in Ukraine, typically inhabiting vast forested area. In Ukrainian Carpathian bear occurs up to upper forest border. Main habitats includes bush in forest cutting areas rich in berries. In autumn animals go down to beach and oak forests. Winter bear habitats include mostly coniferous and mixed forests where they build bear's lair and hibernate.

Bear population number in Ukraine tends to decline. In accordance to hunting statistics total number of bears in Ukrainian Carpathian is estimated to be 300–400 individuals. The highest level of bear population number in Ukrainian Carpathian had been recorded in 1968 – 1236 individuals, in 1974 their number was 1135, and in 1978 – 973. Main declining factor is poaching. Other factors include habitat degradation, disturbance, and environmental pollution.

Bear is not included in the Red Data Book of Ukraine. Nevertheless, it is protected by law and its hunting is allowed only in exclusive cases under strict control.

For all three species, a scientific program aimed at study of present status of population of animals and elaboration of conservation measures is expected to commence in the year 2000. During its implementation, recommendations of the Standing Committee of the Bern Convention relevant to the large carnivore conservation will be taken into account.

APPENDIX 6

Revised terms of reference of the group of experts on Large Carnivores

- to review the status and conservation problems of large carnivores in the territory of Contracting Parties and observer States of the Convention;
- to suggest appropriate conservation action with the aim of maintaining viable populations of large carnivores where this is realistic, and in accordance with Article 2 of the Convention;
- to propose ways and methods to avoid or minimise conflicts of large carnivores with rural economy so that the co-existence of man with these species may be integrated in a comprehensively sustainable development of appropriate rural areas;
- to follow-up the drafting and implementation of national or regional Action Plans on the species, collaborating as necessary with the states on the technical matters involved;
- to promote the identification of Areas of Interest for large carnivores so that they may be used in the setting up of the Emerald Network of Areas of Special Conservation Interest and in the identification of areas for the Pan-European Ecological Network (Action Theme 1 of the Pan-European Biological and Landscape Diversity Strategy);
- to help the update of LCIE Action Plans, their enlargement to new territories not yet covered and to promote the drafting of Action Plans for other relevant species such as *Caracal caracal* and *Panthera pardus*;
- to propose draft recommendations to the Standing Committee in the field of conservation of large carnivores;
- to promote public awareness and information on large carnivores and their conservation;
- to assist the Standing Committee on any matters related to large carnivores and to make any proposal that may improve the effectiveness of the group.



APPENDIX 7

Convention on the Conservation
of European Wildlife and Natural Habitats

Standing Committee

Draft Recommendation No. ... of the Standing Committee (adopted on 1 December 2000) on the implementation of action plans for large carnivores in Europe

The Standing Committee of the Convention on the Conservation of European Wildlife and Natural Habitats, acting under Article 14 of the Convention,

Having regard to the aims of the convention to conserve wild fauna and its natural habitats;

Recalling its Recommendation No. 59 (1997) on the drafting and implementation of action plans of wild fauna species;

Recalling its Recommendation No. 74 (1999) on the conservation of large carnivores;

Desirous to avoid a further loss of biological diversity in Europe and wishing to promote co-existence of viable populations of large carnivores with sustained development of rural areas in appropriate regions;

Referring to the Action Plans on large carnivores presented by the Large Carnivore Initiative for Europe sponsored by the World Wide Fund for Nature (WWF) [*Document T-PVS (2000) 17, 22, 23, 24 and 25*];

Taking note of the information presented by the different states regarding the implementation of its Recommendation No. 74;

Expressing its regret and concern over the decline of the Iberian Lynx (*Lynx pardinus*) in Portugal and Spain;

Conscious of the conflicts that may be caused by large carnivores – and specially wolf – when they recolonise areas where from they had disappeared in the past, and appreciating in particular the efforts of some Contracting Parties aimed at the establishment in their territories of permanent populations of those carnivores;

Recommends that:

Wolf in the south of Fennoscandia

Norway and Sweden:

- continue their present policy aimed at the maintenance in the south of the peninsula, of a viable population of wolf shared between the two states, while at the same time minimising conflicts with sheep farming and traditional reindeer herding.

Bear and lynx populations in the Eastern Alps

Austria, Italy and Slovenia:

- co-ordinate the technical and political aspects of management of large carnivores in the region, so as to recognise the critical importance of Slovenian populations;
- establish a framework of transboundary co-operation, including a technical group on the management of large carnivores population shared by the three states.

Slovenia:

- adapt, through the most appropriate methods, existing roads to crossing by large carnivores, so as to maintain the connection between the populations of large carnivores at the south and nord-west of Slovenia, thus facilitating its passage to other Alpine states;
- manage bear and lynx habitats in the corridor areas so as to build up healthy populations and thus enhance their natural dispersal.

Wolf in Western Alps

France, Italy, Switzerland:

- recognise, for management purposes, the Alpine wolf population as a distinct unit, different from other neighbouring population;
- collaborate for the joint management of the Alpine wolf population, establishing appropriate political and technical contacts and structures;
- endeavour to maintain the Alpine wolf population in a favourable conservation status;
- take account, in that context, of the enclosed position statement of the Large Carnivore Initiative for Europe.

Lynx in Switzerland and the Alps

Switzerland:

- carry on the proposed re-introduction of lynx in the east of Switzerland, so as to permit the species to occupy its potential habitat in the east of Switzerland and in the Eastern Alps, permitting a possible recolonisation of Austria and Italy;
- contact Austria, Italy and Liechtenstein to establish with them a possible framework for the management of lynx in the Eastern Alps, taking into account Recommendation No. 74 of the Standing Committee and the LCIE action plan for lynx in Europe.

Austria, Italy, Liechtenstein:

- prepare for a possible migration of lynx from Switzerland.

Bear, lynx and wolf in the Baltic region

Estonia, Latvia and Lithuania:

- establish a framework for co-operation on large carnivores in the region in view of drafting and implementing a common action plan for large carnivores in the Baltic states that may facilitate the co-ordinated management of those species;
- take account, in that context, of Recommendation No. 74 of the Standing Committee of the action plans on bear, lynx and wolf mentioned.

Bear, lynx and wolf in the Carpathian

Czech Republic, Poland, Romania, Slovakia and Ukraine:

- establish a framework for technical and political co-operation on large carnivores in the Carpathian that may lead to a co-ordinated management of transboundary populations and to their maintenance in a favourable conservation status.

Wolf in the south of Spain

Spain:

- urgently takes measures to recover the species in the south of Spain, approving and implementing the necessary recovery plans, enforcing protection laws and measures against poaching reinforcing.

Iberian lynx

Portugal and Spain:

- protect in the Natura 2000 Network areas of potential interest for the species, in particular those where lynx was still present a few years ago and may be recolonised, and also corridors facilitating connectivity among populations;
- identify and promote incentives for actions which may improve the restoration of mosaic habitats appropriate for lynx through an adequate use of economic incentives, removing incentives which have a negative impact on conservation and promoting management agreements where relevant;
- make particular efforts to reduce the human-induced mortality, in particular by strengthening the control on poaching and avoiding road kills by establishing alternatives for construction of new roads in lynx areas and by building efficient passages on identified high-risk crossing sites roads.

- promote research of the different populations of lynx, paying special attention to small populations and areas of unstable occurrence of the species preventing their extinction;
- monitor results of research and conservation projects developed in the last years, to see whether they have actually helped improve the conservation of status of any of the subpopulations of the species.
- carry out bilateral and multilateral programmes/actions of lynx conservation involving several states and entities, to enhance cooperation, exchange of experiences and awareness of a shared responsibility;
- promote contacts between lynx experts from others disciplines (genetics, computer modelling, GIS technology, etc.).

Portugal:

- urgently approve and effectively implement a national action plan on Iberian Lynx, taking into consideration Recommendation No 74 (1999) of the Standing Committee and the LCIE Iberian Lynx Action Plan.

Spain:

- urgently approve and implement Iberian lynx recovery plans in the regions of Madrid, Castilla-la-Mancha, Andalusia, Extremadura and Castilla y León taking into account the national strategy, Recommendation No. 74 of the Standing Committee and the LCIE Iberian lynx action plan mentioned;
- Endorse and implement the captive breeding program which has been prepared by the Spanish authorities, in order to ensure the availability of stock for future reintroduction and restocking.

APPENDIX – TO BE REVISED

LCIE position on the wolf*

The Large Carnivore Initiative for Europe (LCIE) welcomes the active role of the French Government in searching for a solution to the increasing conflicts between the expanding wolf population and the pastoralism activities in the Alps.

The LCIE is pleased that the French Government confirms the willingness to protect the wolf in France and to contribute to the recovery of a viable wolf population in the Alps.

The LCIE is also pleased to read that the Action Plan is based on the fundamental principle of the participation of local communities and interest groups in the process of planning the management and conservation of the wolf.

The LCIE is also aware that the management of the wolf in a densely populated country is a very difficult technical, political and social task and that there is no general solution that can be applied without substantial adaptation to local conditions. This is especially true in France where the wolf has returned after a long period of absence and where livestock husbandry methods are no longer adapted to the presence of any large predator.

In view of these special difficulties, we wish to call the attention of the French Government to the Action Plan for the European Wolf, that was endorsed by the Standing Committee of the Bern Convention in December 1999 and, in particular, to some aspects of the Action Plan that should be considered if the goal of ensuring wolf survival in France and the Alps is to be reached:

1. Minimum numbers and areas

A plan of management seeking a compromise between wolf presence and reduction of damages should have explicit numerical objectives. The wolf conservation targets should be expressed in a minimum number of wolves (or reproductive units) that the plan seeks to achieve in the Alpine region. By applying known average wolf densities, the minimum number will also bear an implicit evaluation of the minimum area that will be necessary to support the minimum wolf population. These targets would appear to be necessary if the plan seeks the endorsement of the EU and possible implementation within the constraints set by the Habitat Directive.

It is very difficult to establish the minimum number of wolves that would ensure a viable population (or – using the words of the Habitat Directive – a favourable conservation status). The LCIE is currently working to provide the conservation community with the most scientifically correct evaluation of these numbers for large carnivores in the European context. However, for current purposes, we suggest the adoption of the minimum number of 150 wolves (or 15-20 reproductive units) which has been repeatedly used in several wolf recovery programs in North America. The plan will have to provide a system that will ensure full protection for at least this number of wolves, and any zoning and/or wolf culling should be calibrated to ensure the minimum spatial configuration of protected areas for these wolves.

2. Transboundary management

The small wolf population of the western Alps is currently living in an area that encompasses land in France and Italy, with first signs of activities also in Switzerland. The above number of 150 wolves can be expected to be spread among these areas in three countries, but it is fundamental that this small population is managed as one biological unit. Therefore, it is essential that the plan is prepared, co-ordinated and implemented with the political and technical inputs from all three countries. We believe that a management plan of the wolf in the Alps should not be attempted by any country without the participation or at least the co-ordination of neighbouring countries.

3. Management Zoning

The proposed plan uses zoning as the main tool to manage wolf/livestock conflicts and to provide a rational approach for wolf recovery. While zoning remains the best possible solution for wolf management in areas where wolf populations have reached a stable distribution, it should be used with much caution in areas where wolf populations are still highly dynamic and have not yet stabilised. There are three orders of problems when implementing a zoning system:

- a. zoning cannot be expected to be decided and planned at local level, because the social and political litigation and negotiation will increase dramatically to the point of paralysing the process and impeding the implementation of a sound zoning system that is effective also from a biological point of view. At local level, it is unlikely that communities will accept hosting wolves unless there is a potential for their management.
- b. zoning can be designed at very different scales: the more we know of wolf movements and habitat choices the better we can design a zoning system. Knowledge for a zoning system in the Alps is currently adequate only for a large-scale approach. In fact, presence and movements of wolves is still highly dynamic and there is no reliable method to predict the fine scale ranges and corridors for the expanding population. From this perspective, it would be wiser to wait the wolf population to be more stable in the region before attempting a final zoning scheme.

- c. application of zoning to a small and expanding population is even more difficult because a small population is an easy target to stochastic and deterministic threats to survival: limiting wolf numbers and ranges in a small population may prove to be a very difficult exercise unless it is kept at very conservative levels.

Therefore, we suggest that the French Government adopt a more cautionary approach in designing a zoning system for the wolf in the Alps:

- a. the zoning is designed by the national government on the basis of sound conservation biology principles, the inputs from local communities and the co-ordination with neighbouring countries.
- b. the zoning is initially strongly conservative (very large areas of wolf protection) for wolf conservation in order to allow wolf expansion and fluctuations of its small numbers. In particular, we suggest that
 - i. the areas where the wolf will never be allowed to live are not at this stage introduced in the plan,
 - ii. the areas where the wolf is fully protected are designed to allow the survival of at least 150 wolves, and are suitably connected by effective corridors,
 - iii. the areas of possible wolf control are maintained under strict control of a national authority which will oversee the decisions of wolf removal on a case by case basis, depending on biological and economic considerations.

The LCIE is aware that the French Government is involved in a difficult exercise and, should the Government wish to use our expertise, we would be honoured to contribute our best collective knowledge.