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Group of Experts on Conservation of Large Carnivores

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Action Plan for the conservation of the Eurasian Lynx *(Lynx lynx)* in Europe

Document established by
Urs Breitenmoser

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by

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The process behind the elaboration of the action plans

Each Action Plan was first elaborated by the author in early 1998. These first drafts included input and comments from many experts throughout Europe. In October 1998, governmental experts then discussed the Plans at a meeting organised by the Council of Europe in Slovakia, after which the authors incorporated the comments received.

The Plans were then reviewed by the Bern Convention Contracting Parties in December 1998 and again by the European Commission and EU governmental experts at a meeting of the Habitats Directive Scientific Committee in September 1999. All the comments received (and forwarded to the authors by the Commission via the Bern Convention Secretariat) were included in the final draft version presented at the Bern Convention Meeting of The Contracting Parties in December 1999. At this meeting, some governments advised that they still wished to comment on National Actions related to their respective countries and they were given until end February 2000 to send their comments to the Council of Europe.

The authors have made every effort to incorporate all the comments received into the final Action Plans and apologise unreservedly should any have slipped through the net. It is clear from the above that these Plans have been through an exhaustive, collaborative process and received a wide consensus, culminating in Recommendation No. 74 (Dec 1999) of the Bern Convention Contracting Parties, December 1999. Where differing figures have been given by various national experts (in particular as regards population numbers), every effort has been made to include both (or all) totals.

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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"

A LARGE CARNIVORE INITIATIVE FOR 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 carnivore 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, bus 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 Neuchâtel, 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;
    2. Integration of large carnivore conservation into local development in rural areas;
    3. Support for large carnivores through appropriate legislation, policies and economic instruments;
    4. Information and public awareness with the aim of obtaining the acceptance of large carnivores by all sectors of society.

Species Action Plans

Preface

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 labelled 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

This "endorsement" procedure has been supported in the Council of Europe document "Guidelines for Action Plans for Animal Species" (T-PVS-(ACPLANS)(97) 8) which states the following: "Multi-country Action Plans that are elaborated by co-operative efforts of non-governmental organisations should seek the endorsement of some intergovernmental body. By doing so, they do not gain legal binding force, but the governments addressed will be more inclined to take them into consideration, and funding possibilities will also be favoured. The Council of Europe through its Committee of Ministers or the Bern Convention's Standing Committee are in excellent position for endorsing such Plans".

Indeed this very same Council of Europe document 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...."

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 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.

Magnus Sylven (WWF International, Chair, LCCG)
William Pratesi Urquhart (LCIE Co-ordinator)

Executive Summary

This action plan for the Eurasian lynx (*Lynx lynx*) addresses the conservation of the lynx on a pan-European level. Although the conservation and management units in Europe are the countries, the vast areas, over which viable populations of large carnivore species will expand requires for international concepts. The focus of all conservation and management activities must be the population. Regardless to the global status of a species, each population as an integral part of a local ecosystems should be preserved. All lynx populations in Europe expand over several countries, and in many cases, the national part of a population would not be viable by itself. This requires cross-border co-operation. The actions recommended refer to this pan-European approach (chapter 4), but are also listed for each single country (chapter 5). This emphasises the need for national action plans, which should form the basement for both, national management system and for a sound Cupertino with the neighbouring countries.

In historical times, the lynx was widespread in Europe wherever it found the suitable habitat (forests) and a sufficient prey base (most important small ungulates such as the roe deer). First, the lynx lost large parts of its European area as a result of deforestation and the expansion of agriculture. Then, the destruction of the prey base – ungulate populations were heavily reduced in many parts of Europe – and finally the direct persecution as a consequence of conflict with human interests (depredation on domestic stock and competition for game) became more important. The lynx depends more on wooded habitat and on wild prey than the wolf or the brown bear. Consequently, the lynx disappeared from areas in central and southern Europe, where the other large carnivores were able to survive. The regeneration of forests, the remarkable recovery and expansion of the roe deer, and legal protection allowed lynx in recent decades to recover or to be re-introduced. Human attitudes in most lynx areas, however, have not considerably changed since the species disappearing. The rural society of Europe still regards large predators as pests or competitors. The survival of the lynx in Europe today is less a question of the ecological conditions than of the co-existence with the people living in the same area. Therefore, any conservation or management strategy must consider human dimension aspects a priority.

In accordance with the general principle to maintain and restore, in co-existence with people, viable populations of large carnivores as an integral part of ecosystems and landscapes across Europe, five general goals are defined in chapter 3 for the conservation of the Eurasian lynx (*Lynx lynx*):

1. To reduce the conflicts between humans and lynx in order to enhance the human acceptance of the predator.
2. To save threatened autochthonous lynx populations.
3. To secure the long-term survival of viable populations through proper management.
4. To restore lynx in all areas suited to host viable populations.
5. To support restoration of small local populations if they can be maintained as a sub-population of a viable regional population.

The objectives of the Action Plan (chapter 3) address (1) policy and legislation; (2) species conservation and habitat protection; (3) conflicts with humans; (4) socio-economic incentives; (5) public awareness; and (6) monitoring and research.

The following actions on a pan-European level are listed in chapter 4:

4.1. Policy and species conservation.

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. National management groups → national lynx management plans; cross-border management.

4.1.3. The lynx is protected by law. Harvest is in accordance with the goals formulated in the management plan.
4.1.4. Law enforcement intensified in case of poaching.

4.2. Recovery of endangered or extinct populations.
4.2.1. Strict legal protection and law enforcement.
4.2.2. Identify status → establish monitoring programme.
4.2.3. Analyse historical decline, identify threats, remove limiting factors.
4.2.4. Public information campaigns → support of the people.
4.2.5. Increase viability of small and isolated populations through establishment of a viable meta-populations.
4.2.6. Analyse genetic status of threatened populations (→ re-stocking…).
4.2.7. Re-introduction programmes for potentially viable populations.

4.3. Resource management: habitat, corridors and food supply.
4.3.1. The forest and landscape management in favour of lynx. Halt deforestation; manage forests to provide good habitat for lynx and for prey species.
4.3.2. Connect sub-populations (part of meta-population) by habitat corridors.
4.3.3. Secure food supply through proper management of prey species.

4.4. Conflicts with humans: depredation and competition to hunters.
4.4.1. Livestock husbandry (sheep, goats, semi-domestic reindeer): adapted procedures and measures to prevent depredation.
4.4.2. Compensation of economic losses. Compensation systems should aim to promote the co-existence.
4.4.3. Rules for removal of lynx causing intolerable damage.
4.4.4. Incorporate impact of lynx on wild prey in hunting management.
4.4.5. Tolerabel harvest of viable lynx populations.

4.5. Public awareness and public involvement.
4.5.1. Information campaigns about lynx conservation and management.
4.5.2. Detailed educational programmes for specific interest groups (hunters, livestock owners).
4.5.3. Integrate local people into planning and implementation of lynx management plans (boards merging all interest groups).
4.5.4. Involve local people permanently into decisions on lynx management.

4.6. Research and monitoring.
4.6.1. Coordinate applied research; exchange methods, ideas, and results.
4.6.2. Establish national/local monitoring; co-ordinated between countries.
4.6.3. Human dimension research projects → conflicts humans – lynx.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements.
4.6.5. Long-term research projects on impact of lynx on prey population.
4.6.6. Applied and co-ordinated projects for protection against depredation.

Special emphasis should be given to proper monitoring systems. Every conservation or management action requires sound knowledge on the distribution and number of lynx in any country. The huge variability in the lynx densities reported for the European countries (Table 2) indicate that adequate or standardised census methods are still lacking. It was not the aim of this document to clarify discrepancies in the data obtained; on the contrary, contradictions should underline the need for further research.

1. Introduction

The Eurasian lynx (*Lynx lynx*) is one of the cat species with the widest distribution in the world. Most of its area is in Russia (Siberia) and Central Asia. In Central and in Western Europe, the species was eradicated or – as in the north – seriously reduced. The lynx is, compared to other large carnivores such as the wolf (*Canis lupus*) or the brown bear (*Ursus arctos*), an unknown species to a great public. There are fewer tales, myths, and prejudices attached to this elusive species, but there are also less historical data available. The people and the media are less interested in the conservation of the lynx than in the return of the wolf and the bear, but among hunters and farmers, the lynx has often a reputation as bad or worse as its larger cousins. To understand the human dimension in its recovery, it is important to know the special ecological status of the Eurasian lynx within the *Lynx* genus. There are three other recent *Lynx* species: the bobcat (*Lynx rufus*) and Canada lynx (*Lynx canadensis*) from North America, and the Iberian lynx (*Lynx pardinus*), which is restricted to Spain and Portugal. These three medium-sized carnivores prey mainly upon lagomorphs. The Eurasian lynx, however, is a larger predator that preys upon the smaller ungulate species, such as roe deer, chamois, reindeer, and domestic sheep, and consequently causes conflicts with human interests.

Reviews of the history and the contemporary distribution of the Eurasian lynx in Europe were first produced by Kratochvil and colleagues in 1968 in behalf of the International Union for the Conservation of Nature (IUCN, now The World Conservation Union) and the World Wildlife Fund (WWF, now World Wide Fund for Nature). In 1978, three symposia were organised to discuss the re-introduction of the lynx in some West European countries. All proceedings[1] compiled the experiences of the different translocation projects, but also presented updates on the status of the species in the European countries. Ten years later, the Council of Europe produced a report[2] on the conservation of the lynx in the Council of Europe member states based upon information gathered from correspondents from all European countries.

For this present Action Plan, we have repeated the inquiry with the help of colleagues from all countries in Europe where the species exists (see list of contributors). The Action Plan should provide general guidelines for the conservation of the Eurasian lynx in Europe with exception of Russia, Belarus, and Moldavia.

2. Background information

2.1. Description of the species

The Eurasian lynx (*Lynx lynx* Linnaeus, 1758; order *Carnivora*; family *Felidae*) is the third largest predator in Europe, after the brown bear and the wolf. The appearance of the lynx is very characteristic; it has a short body, long legs and large feet, a round head with a short neck, triangular ears with black tufts, and a short black-tipped tail. It has often a flared facial ruff. A lynx walks on its fingers. The front feet have five fingers (the fifth one does not touch the ground), whereas the hind feet have only four fingers. The claws are sharp, strong, and retractile; especially the claws of the front feet are perfect tools to seize prey. As a result of the Eurasian lynx' vast geographical distribution and the long-lasting anthropogenic fragmentation of its range, it shows high phenotype variation. Consequently, up to 11 subspecies were described within its range. The division into subspecies is based on morphological criteria and requires revision. All European lynx, however, are of similar size.

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[1] Wotschikowsky 1978; Kempf 1979; Festetics 1980

[2] Nature and Environment Series, No. 45, 1990

Pelage

Pelt colour is very variable within and between different parts of the species' area. It always, however, consists of a combination of two elements: general coloration and spotting. The coat is greyish with various tint (rusty, yellowish, or reddish) along the back and sides of the body, but creamy to white at the belly. There are three major coat patterns: spotted, "striped", and unspeckled.

Size and weight

Sexual dimorphism is pronounced in lynx, males being larger than females. Body mass of adults ranges between 12-35 kg (information about body mass of lynx over 40 kg are doubtful). Total body length is 70-130 cm; height at shoulders 65 cm.

Skull

The lynx' skull has a round shape and is relatively high. The facial part of the skull is shortened – permitting a high biting force of the canines – and the zygomatic arches are well developed. The intermediate part of the skull between the facial part and the brain-case is very small, and the skull crests poorly developed. The mandible is short and massive with a wide ramus and strong processes. Lynx have 24 deciduous and 28 permanent teeth: I 3/3, C 1/1, P 2/2, M 1/1. The carnassial teeth (M_1 and P_2) are large and strong.

2.2. Distribution and population numbers

In historical times, the lynx existed throughout Europe with the exception of the Iberian Peninsula (although *L. lynx* and *L. pardinus* may have occurred sympatrically in the Pyrenee region), most islands, un-forested coastal regions, and the north-west of northern Europe (Fig. 1). As a consequence of human activities, the lynx disappeared from most of its European range, first in the south, and later in the north. The lynx may have reached its minimum number around 1950, when even the Nordic population was considerably reduced. In the second half of the 20th century, legal protection helped the species to recover in the Nordic countries as well as re-introduction programmes in certain areas of central and western Europe. At present, the species is continuously distributed in the Nordic countries and Russia, but broken into small and scattered populations in central and western Europe. Furthermore, several isolated "occurrences" of unclear origin exist in western, central and southern Europe. The present distribution, status, and size of the lynx populations and occurrences in the European countries are summarised in Figure 1 and in the Tables 1 and 2. There is no consistency in how he data were gathered in the single countries. The considerable differences e.g. in reported lynx densities however emphasise the need of further research. We distinguish the following populations[3]:

Nordic population (Nord): Norway, Sweden, and Finland; 873,000 km^2; 2,500 lynx. The Nordic population extends into Russia's Karelia and is through Russian territory connected with the Baltic population. The Nordic population has considerably recovered since the 1950s and is the largest since the 1850s. It is today stable or slightly expanding. All Nordic countries allow quota hunting.

[3] All figures on area, population size etc. are approximative and only rough summaries of the data given in the tables and for the individual countries.

Baltic population (Balt): Estonia, Latvia, Lithuania, Belarus, Poland, and Ukraine; 60,000 km^2; 2,000 lynx. The Baltic population is the south-westernmost part of the vast Nordic and Russian-Siberian population. Both the area and the number of lynx are difficult to estimate, as the distribution is very scattered and the population estimations are inconsistent. The general trend is stable or decreasing. The lynx is hunted in Estonia and Latvia, and year-round protected in the other countries sharing the Baltic population.

Carpathian population (Ca): Czech Republic, Slovakia, Poland, Hungary, Ukraine, Romania, FR Yugoslavia; 104,000 km^2; 2,200 lynx. The Carpathian population is the largest lynx population in Europe completely isolated from the Russian-Siberian population. The Carpathian lynx is quite distinct form the northern specimens and has been described as an own subspecies. The status of the lynx in the Ukrainian Carpathian Mts. is unknown. The lynx is hunted in Romania, and year-round protected in the other countries.

Bohemian-Bavarian population (BB): Czech Republic, Germany, Austria; 6,000 km^2; 100 lynx. The population in the Bohemian-Bavarian forest is re-introduced. The total area available is limited, and the population is isolated from all other lynx populations. A hypothetical connection to the Carpathian population exists through the Jeseniky Mts. and the Laberiver Sandstone Mts. occurrences.

Balkan population (Balk): FR Yugoslavia, Albania, FYR Macedonia, and Greece; 1600 km^2; 50 lynx. Status, distribution, and number of lynx in the Balkan population are unclear, but there can be no doubt that this autochthonous population is highly threatened and urgent actions are needed.

Dinaric population (Din): Slovenia, Croatia, and Bosnia-Herzegovina; 10,000 km^2; 200 lynx. The Dinaric population was re-founded in 1973, and was the most dynamic of all re-introduced populations. Its today status is unclear, as the data from Croatia are inconsistent, and from Bosnia-Herzegovina completely missing.

Alps population (Alp): France, Switzerland, Italy, Liechtenstein, Germany, Austria, Slovenia; 40,000 km^2; 150 lynx. The Alps population consists of several isolated occurrences, all founded through re-introductions. The clear discrepancy between the large area occupied and the few lynx estimated demonstrate the difficulties to interpret the scattered observations. None of the present nuclei can be regarded as viable.

Jura population (Jura): France, Switzerland; 11,000 km^2; 30 lynx (Swiss part only). Re-introduced in the 1970s, the population may today have up to 100 individuals. Habitat and prey base is perfect, but the total area available is limited and connections to other (potential) populations unsure.

Vosges Mts. population (Vos): France; 2800 km^2. Re-introduced in the 1970s into a limited area, today's population size is unknown. There may be an expansion to the north (Palatinian Forest occurrence) and a potential connection to the Jura Mts. population.

Pyrenean population (Pyr): France. At least the French part of the Pyreneans used to be part of the area of the Eurasian lynx not too long ago. Whether the species still exists today is matter of discussion. Regardless to this debate, the population must be considered virtually extinct.

2.3. Life history

Habitat

The common belief that lynx inhabit only forested areas is only partly true. This is the case in Europe and Siberia, where they live in large deciduous, mixed, and coniferous forests. In central Asia, however, lynx also inhabit quite open and sparsely wooded regions, including semi-deserts and areas above the permanent timber line. In northern latitudes, the cats can be found roaming in the tundra.

Land tenure system

Lynx are solitary living animals, except for females with the offspring of the year. Both males and females occupy individual territories, which are marked with gland secretions, urine and probably faeces. Usually home ranges of males overlap to a certain extent, whereas ranges of females overlap only slightly if ever. In Scandinavia, some mothers were observed to have totally overlapping home ranges with their daughters. Home ranges of males are larger than those of females. Generally, adult males share their home ranges with one or two females. Home range sizes vary considerably depending on habitat type, composition of prey community, and density of prey. Reported individual differences in home range size among different social, age, and sex categories varies to a large extent with the method and duration of investigations. According to the literature, home range size ranges from 25-2000 km^2. Studies based on telemetry have brought precise estimates of home range size of lynx in Europe: 180-2780 km^2 for males and 98-759 km^2 for females. The highest values were found in Scandinavia. There is little seasonal variation in the home range size of males, but females occupy very small home ranges while nursing kittens (late spring to summer). In Scandinavia, female lynx roamed over 33-100 km^2 during the first 8 weeks follwing birth. Females with kittens extend their home ranges gradually until winter. Mean distances travelled by lynx within their home ranges per night depend on age, sex, social status, prey density, hunting success, etc. They ranged from 1-45 km; females with kittens usually travel over shorter distances. When a lynx has a fresh kill, it can stay in its proximity for several days. The activity pattern is determined by sunrise and sunset. Lynx are mainly active at dusk and at night, and rest during daytime, except for the rutting period when lynx are active also during daytime.

Food ecology

Many different items can be found in the lynx' diet. However, the staple food of lynx are ungulates, whenever available. From the community of ungulates, lynx select the smallest species: roe deer, chamois, musk deer. In northern Scandinavia, semi-domestic reindeer are in some areas the most frequent prey. Larger ungulates such as red deer, moose, or wild boar will sporadically fall prey to lynx. In some areas with low ungulate availability, essential prey of lynx are lagomorphs, birds and rodents. Lynx diet varies seasonally, small and young prey are killed mostly in late spring and summer. Livestock (sheep, goats, poultry) is killed rarely in areas with autochthonous lynx populations, but more frequently in Norway. Damages to livestock create a special problem where lynx has been re-introduced, as in Switzerland, France, Austria, etc. A lynx's consumption rate averages 1-2.5 kg of meat per day. Wherever lynx prey on large ungulates (red deer, wild boar), the youngest prey category is selected. Among the lynx's victims, some studies have revealed a rather high percentage of debilitated prey. Where the staple food of lynx is roe deer, which has the same body mass as the predator, all age and sex categories are preyed upon. The impact of lynx on prey populations has been widely disputed, however without enough evidence. Suggestions that lynx can nearly eradicate prey have not been confirmed by recent studies, but is suggested in marginal roe deer habitat at the edge of the roe deer's range in northern Europe, where lynx were able to kill 30% of the roe deer population on a yearly basis. In Switzerland, re-introduced lynx were able to considerably reduce roe-deer or chamois abundance in a certain situation, whereas on average, only 3-9% of the coexisting community of wild ungulates were consumed. In Poland up to 36% of roe deer and 13% of red deer were taken by lynx. The influence of lynx predation on a local ungulate community depends on the structure of the prey community, age and sex structure of the ungulate population, number and social structure of the lynx population, other causes of mortality and abiotic factors. In addition, the impact of predation considerably changes over time. At the time being, we do not have enough (long-term) case studies to generalise about lynx predation.

Reproduction and mortality

Mating takes place from February to mid-April. Males follow the females to check their reproductive status, depending on climatic factors. Lynx have induced ovulation. Oestrus lasts about three days, and a male accompanies a female all that time, and they copulate often. Parturition takes place after 67-74 days, usually in late May. Litter size varies from 1-5, but most often, 2-3 kittens are born. A lynx cub weighs about 300 g. Kittens follow their mother until the next mating season. They leave the mother at an age of 10 months, when they have a weight of 9-14 kg. Females are sexually mature at the age of two years, whereas males usually reproduce for the first time when they are three years old. Lynx can be sexually active for a relatively long time; in nature, females reproduced at least until 14 years and males until 16-17 years.

The lynx has no natural enemies. Sporadic cases of lynx killed by wolves, wolverines, and tigers have been reported. A lynx could also be fatally injured by a large prey animal during the hunt. Lynx can suffer from various parasites and diseases, such as rabies or parvovirus (see chapter 3.3). The natural mortality among juvenile lynx is high, at least half of them do not reach adult age. Currently, the main mortality factors are man-caused factors such as traffic accidents, poaching or overhunting. In nature, lynx were reported to live up to 17 years, whereas in captivity, they can reach an age of 25 years.

Demography and population dynamics

Under natural conditions, lynx density is probably regulated by prey density and social interactions among lynx. There is no evidence for the widespread belief that the number of lynx is inversely correlated with the number of wolves inhabiting the same area. In present time, man is the ultimate limiting factor of lynx density. In periods of political chaos and wars, lynx populations always recovered, because the established system of predator control ceased to function. Up to now, reliable data on lynx demography are available for one native (Poland) and one re-introduced (Switzerland) population. In Scandinavia three further studies are under way. In Poland, lynx density (adults) ranged 1.9-3.2 indiv./100 km^2 (2.8-5.2 indiv./100 km^2 including kittens). In Switzerland, density of adult lynx ranged 0.94-1.43 indiv./100 km^2. In southern Norway a density of 0.25 indiv./100 km^2 has been found. In a newly occupied area in south-central Sweden, lynx density was estimated to be around 1 indiv./100 km^2. In Poland, sex ratio in the lynx population was 1:1. Adult males constituted 29% of all lynx, reproducing females 23%, kittens 35%, and subadults 12%.

2.4. Lynx and humans

Public attitude

The lynx is less known and therefore even more mythical than other large carnivores, such as wolf and brown bear. But this elusive species had the reputation to be a ferocious and mercyless killer, probably because of the typical silent and "unaffected" behaviour of the cats. Today, in most areas where several large carnivores coexist with humans, the lynx is seen as a minor problem than the other predators. However, people's view of the lynx can differ between regions. Today, the negative human attitude towards lynx basically roots in two conflicts: ***a.*** with hunters, who blame lynx for reducing the game abundance and availability, and *b*. with livestock breeders because of depredation. The broad public in general has no clear conception of the lynx.

Threats to humans

Lynx pose no danger to people. Contrary to brown bear or wolf, there are not even anecdotes about man-eating lynx, though in old hunting books, the lynx is said to be dangerous when wounded. The very few cases where lynx have injured humans were all accidents with wounded, captured, or rabid lynx (one incident reported from Slovenia). There is no report of any spontaneous attack of a lynx; even females pushed away from their litters do not defend their cubs. They will, however, attack dogs approaching the kittens, even if the dog is accompanied by people.

Damage to livestock

All reviews of depredation by lynx concluded that livestock losses to lynx are relatively low compared with those to other large predators, and that in most European countries, the lynx is not regarded as a major problem to livestock husbandry. The exception is Norway, where the number of sheep killed by lynx has steadily increased over the past years and reached some 8000 in 1995. The mean annual loss of about 5000 sheep to lynx in Norway is outstanding. The second most important loss was reported from France, where 208 sheep were killed in the Jura Mountains in 1990. All other countries reported annual losses of 10 – 100 sheep at most.

Depredation on sheep is a consequence of unattended pasturing in carnivore habitat. This form of sheep husbandry is typical for regions where large predators were absent or scarce for a long time. In the re-introduced lynx populations in the Swiss Alps or in the French Jura Mountains, depredation caused severe public conflicts, although the number of sheep killed by lynx were low compared to the total losses to other causes. The problem was more psychological: farmers had lost the tradition of co-existence with large predators and did not accept the lynx as part of the natural system.

A problem specific to Norway, Sweden, and Finland is the predation of lynx on semi-domestic reindeer. In 1995, 87 reindeer were compensated as lynx kills in Finland, in 1996, 1768 in Norway, and in 1994, 2563 in Sweden, respectively (Tab. 4). In Sweden, the state no longer compensates owners for the loss of semi-domestic reindeer to lynx. Instead, the local reindeer management association receives a payment for each confirmed presence of a family of lynx on its grazing area.

2.5. Threats and limiting factors

The factors limiting a threatened species can be understood from the analysis of its decline. For the lynx, however, this is more the task of a historian than of an ecologist, and even for him it would be a hard job to do, as the lynx had lost most of its original range in western and southern Europe before the time when written records were produced. Nevertheless, the careful analysis of the history of the lynx of the past 200 years can help to understand the needs for its recovery.

Deterioration of habitat and prey base

Throughout its wide range in Eurasia, the lynx occupies mainly forested habitat with good populations of adequate prey. Lynx must have found favourable conditions in all prehistoric continental Europe. Until 1800, the lynx had disappeared from all western and southern European lowlands, surviving only in large mountain ranges such as the Pyrenees and the Massive Centrale in France, the Alps, or the Bavarian-Bohemian Forest, and in the forest complexes of northern and eastern Europe. The species reached its low in the middle of the 20th century, when all western European populations were extinct, the eastern and south-eastern European populations were restricted to the Carpathian Mts. and the Balkan Mts., respectively, and even the Nordic population was dangerously reduced and divided.

We can assume that the disappearance of the lynx from the European lowlands was the result of persecution combined with deforestation and the expansion of cultivated areas and the human population, and that its final destruction during the 18th and 19th centuries was additionally promoted through the decline of the wild ungulate populations, which were very low or even extinct in many European countries between 1800 and 1950. In north-eastern Poland, the lynx density was correlated to the roe deer abundance over the past 125 years. From all large carnivores of Europe, the lynx depended the most on dense cover habitat and on abundant prey. Different to other predators, lynx feed only on prey they kills themselves, and the prey spectrum is rather narrow. The most important prey is the roe deer, followed by other small ungulate species (reindeer, chamois, domestic sheep), and then by hares and galliformes (capercaillie, black grouse, ptarmigan, etc.). Only in some areas in the north (Norway's Hedmark, Finland, Ural Mountains), the lynx was known to live in good densities before the arrival of the roe deer or other small ungulates. As a consequence of its specialised feeding habits, the lynx is most vulnerable to changes in habitat and prey base. The decline of wild prey forced the lynx to feed on domestic sheep and goats, which in return promoted its persecution and caused a fatal lack of food in wintertime, when livestock was hardly available.

In some areas of the lynx' range – mainly outside the scope of this action plan – the destruction of the natural prey base and clear-cutting are still the most important threats. In most European countries, however, the populations of the wild ungulates have increased over the past few decades. The roe deer has returned to areas formerly lost in western and central Europe, and has expanded its range in the Nordic countries. Large scale deforestation has not only been halted, but in many remote areas of Europe, forests have expanded considerably, especially in mountain ranges and other areas not suited for intensive agriculture. Such regions have also seen a decline in the human presence and have therefore regained their substance as lynx habitat. The lowlands of western and central Europe, however, remain a wasteland for the large cat.

Direct human caused mortality

Historical data available from the 18th and 19th century – summarised in various local publications – manifest the importance of direct persecution of the large predator, as the shooting and trapping of a lynx qualified for payment of a bounty. In this respect, the historical record is biased and difficult to interpret. We think that the conclusion from historical data overrated the significance of the direct persecution compared to the effect of the destruction of the ecological resources of the species, as latter was not recorded in any way. But doubtless the over-hunting of an ecologically stressed lynx population can lead to its rapid elimination over a large area, especially if the distribution of the species is discontinuous as a result of the human impact on the habitat. On one hand, the lynx has a rather high reproductive potential (see chapter 2.3) compared to other large carnivore species, and can compensate for certain losses, on the other hand, the specific land tenure system of the species does not allow a clumped distribution as in wolves or bears. As a consequence, the lynx is more vulnerable to a general reduction of its abundance.

In Białowieża Primeval Forest (Poland and Belarus), deliberate persecution of lynx resulted in the near-extinction of the lynx twice, from 1890-1914 and from 1960-70, but both times, lynx densities were poor because of reduced ungulate abundance. Even today, poaching is the most important mortality factor in Białowieża. There has been a controversy about the number of lynx that could be hunted in Sweden, Finland and Norway without harming the population in recent years. Formerly high hunting quotas in Solovenia or illegal killing of lynx in Switzerland

or in the French Vosges Mountains have been considered to be the reason for the halt of the expansion or even the decline of these re-introduced populations. In addition, re-introduced populations in western and central Europe suffered additional losses due to traffic accidents, which can cause important losses in expanding populations. Although a viable lynx population will tolerate a controlled harvest through hunting or trapping, over-exploiting or illegal killings can threaten a local population, especially a small one.

Diseases, demographic and genetic factors

There is little evidence for the effect of diseases or intrinsic factors on the population dynamics of lynx. In Sweden and Finland, sarcoptic mange (Sarcoptes scabies) caused losses in the lynx population that were speculated to be a threat to the population. Rabid lynxes were occasionally reported from France, Slovenia, Slovakia, Croatia and Russia, but as the lynx is not a vector species of rabies, the disease does not persist within the lynx population. Other diseases were only sporadically reported, e.g. Panleucopaenia, Feline Infectious Peritonitis, or Panleucopaenia felis. Parasites mentionned were Trichines, Nematodes and Cestodes. In captive-bred lynx, 12% of the juvenile mortality is due to diseases such as Rachitis, Pleuritis, Pneumonia, or fatal parasite infection of Toxocara mystax.

No data are available on intrinsic demographic or genetic factors in lynx. It has been argued that inbreeding may affect a re-introduced population based on few founders only, but this hypothesis has not been tested up to now.

Sources of conflicts and negative human attitudes

The conflicts with hunters are again most prominent in areas where lynx have been re-introduced. Hunters oppose re-introduction programmes of lynx not only because they regard the predator as competitor for game, but also because re-introductions are often promoted by nature conservation organisations, which are not famous for their enthusiasm for hunting. In western Switzerland, nature activists expressively advocated the re-introduction of lynx as a way to subdue hunting. The quantitative effect of the lynx on its prey population – which is the matter of discussion among hunters, game managers, and scientists – is not really understood yet. There is evidence for a small to moderate influenced of lynx predation, but also for a significant mortality among roe deer due to lynx predation. Experience from the Swiss Alps indicate that distribution and abundance of roe deer can change considerably after the re-introduction of lynx at least temporarily. Such changes, however, were not observed in the Jura Mts. (France and Switzerland) or the Vosges Mts. (France). A modification of the hunting and wildlife management may be required after the return of the lynx.

2.6. Legal status, conservation status and recent conservation measures

International Treaties

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)

Listed under Appendix III. Member countries are obliged to protect species listed in this appendix. Harvesting through hunting or trapping is allowed, but only in such way that a populations will not be threatened, and with certain restrictions: closed seasons must be defined, exploitation has to be restricted in space and/or time if the status of a population is not satisfying, trade has to be regulated, and the use of devices for hunting or trapping listed in Appendix IV is prohibited. Comment: Appendix III lists most of the game species and allows for traditional management of these species; consequently, no signature state made any objection to the classification of lynx, as it was the case for the wolf.

EU Habitat Directives (92/43 EEC)

The lynx is listed in Appendix II (animal and plant species of community interest whose conservation requires the designation of special areas of conservation; with exception of the Finish population), however not as a priority species, and in Appendix IV (animal and plant species of community interest in need of strict protection).

IUCN Red List

Listed under the subcategory "Least Concerned" within the category "Lower Risk", which includes taxa that do not qualify for the categories "Critically Endangered", "Endangered" or "Vulnerable". The subcategory "Least Concerned" lists species not qualifying for the one of the other two subcategories "Conservation Dependent" or "Near Threatened". Comment: The Eurasian lynx does indeed not qualify for any of the other categories. Nevertheless, the status of the Eurasian lynx populations throughout the species' Asiatic range do depend on the amount of furs harvested (which in term depends on the market prices and on the cyclic harvest of Canada lynx pelts). As the producer countries are also the important markets, the CITES treaty alone cannot guarantee for a sensible harvest. All populations in Europe depend on proper management or are vulnerable to threatened. On a pan-Eurasian level, we would at least define the lynx as "Management Dependent".

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Lynx lynx is listed under Appendix II, which contains species that *a*. are not necessarily threatened with extinction but may become so if trade is not controlled, and *b*. look so similar to endangered species (listed under Appendix I) that they are difficult to distinguish. Comment: Both aspects are important for the conservation of the two European lynx species. There is a high demand for lynx pelts on the international market. Some Western European countries such as Germany or Italy are among the principal importers. The most important producers are Canada (*Lynx canadensis*), the USA (*Lynx rufus*), and Russia (*Lynx lynx*). Eurasian lynx populations – especially those in Europe – are more vulnerable to over-harvesting than those in North American, as the Eurasian lynx has a lower abundance and recruitment. Furthermore, the *Lynx* species are not easy to distinguish. The variability in size, coloration, and pelt pattern is larger in *Lynx lynx* than between the species. The Iberian lynx (*Lynx pardinus*) is one of the most endangered cat species and listed under Appendix I.

European Union Regulation (EC) No 338/97 of 9 December 1996

The Eurasian lynx is listed in Annex A of this regulation on the protection of species of wild fauna and flora by regulating trade.

General remark

A problem common to all international treaties is that they focus on species instead of populations. The appropriate unit of any conservation strategy for eco-systems however should be viable populations. In the case of the lynx, which is globally not an endangered or threatened species, but which has a particular situation in each of the countries covered through this Action Plan, none of the conventions mentioned above contributes anything to the aim to re-establish the species into its traditional range or to solve the conflicts with human interests.

Legal Status in the European Countries

The legal status of the lynx in the European countries is summarised in Tab. 5. All of the 23 countries listed do provide a certain legal protection to the species, regardless of whether they are signature countries of the Bern Convention or not. In 15 countries, the lynx is protected year-round, in 6 countries, the species is hunted during a restricted season in winter, most often

combined with some form of quota regulation. The open season for lynx varies considerably from country to country (Tab. 5), starting as early as 1 October in Latvia to as late as 1 February in Norway and 15 February in Sweden. The problem of an early starting hunting season is that young lynx are not able to survive on their own if the mother is shot. A radio-tagged young female lynx who lost its mother in mid-January in the Swiss Alps was able to survive and to kill roe deer and chamois; it is however unlikely that she could have done so much earlier.

Conservation Strategies and Action plans

For conflict species such as the lynx, the definition of its legal status and the regulation of the harvest is not enough for a proper management aiming to conserve the species in a given area. Furthermore, a monitoring system with proper methods must be established, and – in areas with sheep or goat husbandry – the conflicts rising from depredation need to be managed. Although compensations and subsidies as long-term instruments to solve carnivore-livestock conflicts are widely disputed, most countries addressing the problem have applied any form of reimbursement for livestock killed by lynx (Tab. 4). In several countries, lynx causing too much damage in livestock herds are eliminated, but only in four countries (Norway, Sweden, France, and Switzerland) are additional damage prevention measures especially for lynx applied or tested (Tab. 4). The use of protective devices such as protective collars is however very limited.

In 12 out of the 23 countries listed in Table 5, a monitoring system for lynx is established, and in 5 countries, public information campaigns have been launched. In 10 European countries, specific research programmes on lynx are carried out at present (Tab. 5). Management and conservation strategies are important to be communicated, and should be discussed on an international level where populations stretch over several countries. In order to do so, all measures should be summarised in National Action plans for the lynx. So far, a action plan is ready only in Hungary, one is in preparation in Switzerland and Sweden, and Norway has a "White paper on the management of large carnivores", which was approved by the Parliament.

3. Goals and objectives

Although *Lynx lynx* is not endangered as a species in its whole area or in Europe, each population deserves to be conserved as an integral part of a local eco-system. Regarding the historical decline of the species in Europe, the most important threats were (a) habitat loss through deforestation, (b) loss of the prey base through decline of the wild ungulate populations, and (c) direct persecution as a result of predator-livestock conflict (depredation) or of negative attitude of people towards predators. As the size of a population decreases, additional threats can be (d) overhunting and losses through traffic accidents and (e) loss of genetic diversity through inbreeding or stochastic events. Measures to overcome these threats have to be taken on the level of legislation, management, and public information, both on the national and international level. The focus must be on the population as the most important conservation and management unit. However, as the management division under a common legislation usually are the countries, national conservation strategies and action plans should be prepared in accordance with those of neighbouring countries in order to ensure a common management policy.

3.1. Goals

In accordance with the general principle to maintain and restore, in co-existence with people, viable populations of large carnivores as an integral part of ecosystems and landscapes across Europe, five general goals can be defined for the conservation of the Eurasian lynx (*Lynx lynx*):

1. To promote the co-existance between humans and lynx in order to enhance the human acceptance of the predator.
2. To save threatened autochthonous lynx populations.
3. To secure the long-term survival of viable populations through proper management.
4. To restore lynx in all areas suited to host viable populations.
5. To support restoration of small local populations if they can be maintained as a sub-population of a viable regional population.

3.2. Objectives

To achieve these goals, the following objectives can be formulated for the different aspects of conservation and management:

Policy and legislation

- National policy and legislation is adapted to the conservation needs of the lynx population(s) of the country. They respect the status of the species in the Bern Convention and back the policy of neighbouring countries sharing the same population.
- Any threatened population is given strict legal protection.

Species conservation and habitat protection

- Any viable population is managed in a way that its long-term survival is guaranteed. National action plans are implemented that address the local protection, harvest, or control of the species.
- The legal protection of any threatened population is implemented. Measures are taken to prevent all illegal killing of lynx.
- The reason for the decline or extinction of local populations is understood, and threats responsible for the decline of the population are removed.
- Adequate habitat is on a quantitative and qualitative level maintained or restored to allow the long term survival or recovery of the local lynx population.
- The prey base – mainly smaller ungulate species – is managed or re-established in a way to provide the necessary food resource for the local lynx population.
- Target areas *a.* to host isolated viable populations or *b.* to expand existing populations are identified in regions where the lynx disappeared.
- Natural recolonisation through spontaneous immigration from nearby populations is stimulated wherever possible. Carefully designed re-introduction programmes are carried out in areas suitable to host viable populations or sub-populations of viable meta-populations.

Conflicts with humans

- People know that lynx are not dangerous for humans.
- Hunters accept the lynx as an integral part of the autochthonous fauna even if they compete with the predator for game. Hunters are allowed to harvest lynx to an extent that does not intimidate the long-term survival of the local population.
- Conflicts emerging from depredation are managed in a way that allowes sheep breeders, reindeer owner etc. to co-existe with the lynx.

- Poaching or illegal killing of lynx is restricted to an extent where it does not threaten the long-term survival of a population.
- Local interest groups are involved in decision concerning lynx management. Public involvement is enacted as far as general princples of conservation – e.g. the frame of the Bern Convention – allow for it.

Socio-economic incentives
- The negative economical effects of depredation are reduced to an extent where a long-term existence of lynx in livestock breeding areas is possible.
- Socio-political conflicts as a possible hidden background of lacking acceptance of large carnivores are understood and resolved.

Public awareness
- The public attitude towards lynx is in favour of the species' long term conservation.
- People are informed about the status and the conservation needs of a local lynx population and they understand the significance of the conservation and management mesures to be taken.
- Local recovery programmes are supported through sincere information campaigns.

Monitoring and research
- The present status of the population is known and its development is monitored. Management decisions are based upon proper knowledge of the population's status.
- Any change of the legal status of a lynx population is backed by widely accepted (scientific) insight in the effect of the change on the long-term survival of the population.
- All recovery or re-introduction programmes are accompanied by scientific programmes suited to document the accomplishment of the project.

4. Actions required to meet goals and objectives on a pan-European level

The conservation of the lynx in Europe requires international co-ordination and cross-border co-operation. Habitat suitable for the species is limited on this densely populated continent, and most often found in border regions. As a consequence, most viable (or potentially viable) populations stretch over several countries. No protected area in Europe is large enough to host a viable lynx population. In most parts of its actual or future distribution, lynx will have to compete and co-exist with intensive human use of the landscape. As the lynx – like all large carnivores – is a conflict species, lynx populations will have to be managed, and, most likely, viable lynx populations will be harvested. To avoid over-exploiting of a multi-national population or to prevent the risk that management measures in one country could corrupt the conservation strategy of its neighbour states, international concepts are needed. The following actions proposed on the pan-European level can, however, be included in national action plans or could be adapted to fit national or local requirements.

4.1. Policy and species conservation

Policy, legislation and conservation measures should refer to the main goal to secure the viability of any population and consider the present status of the local lynx populations. A framework of international treaties and national laws should advocate these long-term goals, and national or local action plans should provide guidelines to monitor and maintain the local population and to administer conflicts.

Actions:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. All countries establish national lynx management groups. They produce national lynx action plans on the population level according to this Action Plan. Countries sharing lynx populations secure cross-border management.

4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.1.4. Law enforcement is intensified in areas where poaching is an important threat for the population.

4.2. Recovery of endangered or extinct populations

There are presently two kinds of endangered lynx populations in Europe: (1) autochthonous populations which are reduced in space and number, and (2) re-introduced populations which have not yet reached the size of a viable population. Threatened autochthonous populations should be given all priorities in conservation. At present, the Balkan population (FR Yugoslavia, Albania, FYR Macedonia and Greece) is the most threatened autochthonous lynx population in Europe. Re-introduced population which most likely are not yet viable are the Alps population (France, Switzerland, Italy, Liechtenstein, Austria, Germany, and Slovenia), the Jura population (France and Switzerland), the Vosges population (France), the Bohemian-Bavarian population (Czech Republic, Germany and Austria), and possibly the Dinaric population (Slovenia, Croatia, and Bosnia-Herzegovina). For areas, which can potentially host viable populations, the chance of natural re-colonisation must be analysed, and – if a spontaneous return is not possible – re-introduction programmes should be designed. However, any re-introduction needs a careful evaluation of the (historical) reasons for the extinction of the lynx, of the current availability of significant resources, and of the potential conflicts emerging form a translocation project.

Actions

4.2.1. The lynx should be given strict legal protection and the law should be enforced.

4.2.2. Identify the status of small and isolated populations and establish a monitoring programme.

4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.

4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.5. The viability of small and isolated populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.2.6. The genetic status of threatened populations (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.

4.2.7. Carefully designed re-introduction programmes should be carried out in accordance with the IUCN guidelines for re-introductions in areas that can potentially host viable populations.

4.3. Resource management: habitat, corridors and food supply

Suitable habitat and a sufficient prey base of wild ungulates are important for the existence of a lynx population and the prevention of depredation. For meta-populations, habitat corridors are crucial for the exchange of individuals between the sub-populations.

Actions

4.3.1. The forest and landscape in lynx areas or potential lynx areas should be managed according to the requirement of the species. Deforestation is halted wherever it is a problem for the survival of the lynx, and forests are managed in a way to provide good habitat for the lynx and for its most important local prey species.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4. Conflicts with humans: depredation and competition to hunters

The main sources of conflicts with humans are the depredation (lynx killing livestock and semi-domestic reindeer), and the competition of the predator for game with the hunters. The general principles to reduce the conflicts from depredation are (1) to prevent depredation, (2) to compensate livestock owners for the losses, and (3) to kill nuisance lynx. Conflicts with hunters can be reduced by (1) adapted management of the ungulate species and (2) careful harvest of the lynx population.

Actions

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote prevention systems and the co-existence of livestock breeders with lynx rather than simply pay losses to the owners[4].

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

[4] To simply compensate losses tend not to reduce the risk of illegal killings of lynx and do not generally encourage the livestock owners to take preventive measures. In Sweden, an alternative system was introduced in 1996, where the livestock owners are not payed per losses, but per predator present in their area.

4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it[5].

4.5. Public awareness and public involvement

In most European countries, the human population is split in an urban majority and a rural minority. People living in rural areas are those who have to co-exist with the large carnivores. Furthermore, they are often those who exploit the nature in a traditional way and who are economically disfavoured, compared to people living in the industrial centres. Urban people, on the other hand, who are not confronted with the large carnivores, often have a romantic view of the nature or are indifferent. The contrast – and conflicts – between urban centres and rural regions are often the underlying reason for the very emotional manner in which carnivore controversies are carried out. For the return and the maintenance of animals such as the lynx, it is important that all people learn about the reasons and the consequences of large carnivore conservation and management. It is furthermore important that all people understand that the conservation of a population is not equal to the protection of each individual. But to educate the people is not enough to assure the co-existence of humans and large carnivores. As large carnivores are often the symbols of hidden socio-economical conflicts, people should also be involved into lynx management. Local people should feel responsible for the long-term survival of the indigenous wildlife including the carnivores, and in turn, they should get the right to protect their particular interests.

Actions

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

4.6. Research and monitoring

Conservation and management decisions should base upon sound knowledge of the situation and research should become a permanent tool of wildlife management. There are many particular questions regarding lynx management that must be addressed in local research projects. Researchers and wildlife managers will profit from scientific knowledge gained elsewhere, but often, a specific situation and the necessity for local acceptance of the findings will urge the responsibles to carry out regional research programmes. Here, we will list only topics, which we consider to be of general interest, or where we identify an essential lack of understanding. In regard to lynx conservation, these questions are: (1) Population dynamics: Though the first aim is to establish viable populations, it is not known what size a viable lynx population must have. In this context, we should also learn more about the spread of a lynx population (land tenure system and dispersal of young lynx), about the habitat requirements and the potential to adapt to a human altered environment. (2) Genetics: In regard to the viability of a population, its genetic status might be of crucial importance. We know however little about the genetic problems of real populations. Genetic relationships between isolated lynx

[5] This is an action aimed at reducing of conflicts; it is, however, in consistent with some national and European legislation.

population are furthermore substantial for the design of sound re-introduction programmes. (3) Lynx-prey relationship: As conflicts with hunters due to competition for game are one of the most main problems in lynx conservation, the impact of lynx on local ungulate populations must be addressed, in order to incorporate natural predation in the design of hunting systems. (4) Human dimension research: The true problems for the future conservation of lynx might not be any ecological constraints, but the conflict with humans. Consequently, we should know the underlying reasons for such conflicts in order to advance towards a co-existence of man and lynx. Finally, scientific projects could help to solve some very practical problems: (5) Prevention and limitation of depredation: Losses of livestock will remain the most important argument against lynx conservation. To allow the lynx to return or to survive in areas of livestock husbandry, we need to develop methods to protect livestock from depredation. (6) Monitoring: To conserve and manage a lynx population, we need to know its status and dynamics (spatial distribution, density, and population trend). Most countries today produce numbers of lynx for local populations. However, the huge differences in population densities reported for this document – which cannot be explained from habitat differences only – reveals the need to improve our monitoring methods and to calibrate them between neighbouring countries.

Actions

4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.

4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx (and between people in regard to large carnivores).

4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.

4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

5. Required actions by countries

The actions proposed in chapter 4 are listed for each country[6] below and summarised in Table 7. To the following list of countries, we add signature states of the Bern Convention which at present do not have any lynx population, but which are in the potential area of expansion.

Albania AL

Albania shares the Balkan population with its neighbouring countries. This is the most threatened autochthonous lynx population in Europe and should be given high priority in conservation. Albania first should gather basic data about the status and the threats to the population and secure the species legal protection.

[6] Countries are listed in alphabetical order.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. Establishment of a national lynx management group that produces a national lynx action plan according to this Action Plan. Cross-border management is secured.

4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.1.4. Law enforcement is intensified in areas where poaching is an important threat for the population.

4.2.1. The lynx should be given strict legal protection and the law should be enforced.

4.2.2. Identify the status of the population and establish a monitoring programme.

4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.

4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.5. The viability of the population should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.2.6. The genetic status of the population (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.

4.3.1. The forest and landscape in lynx areas or potential lynx areas should be managed according to the requirement of the species. Deforestation is halted wherever it is a problem for the survival of the lynx, and forests are managed in a way to provide good habitat for the lynx and for its most important local prey species.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Austria A

There might be some remnant lynx in Austria form the re-introduction in the 1970s, and some immigrating lynx from the Slovenian re-introduction, and – in the northwest of the country – from the re-introduction in the Czech Republic, but there is no population. Austria should co-operate with the other countries of the Alpine and the Bohemian-Bavarian populations.

Actions recommended:
4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.1.4. Law enforcement is intensified in areas where poaching is an important threat for the population.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.
4.2.2. Identify the status of the population and establish a monitoring programme.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.5. The viability of the population should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).
4.2.6. The genetic status of the population (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.
4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.
4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.
4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.
4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Bosnia-Herzegovina BIH

Bosnia-Herzegovina's original lynx population went extinct. The country is now the southern edge of the expansion of the lynx population re-introduced to Slovenia. However, no data on the present status of the population are available.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.
4.2.2. Identify the status of the population and establish a monitoring programme.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.5. The viability of the population should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.2.6. The genetic status of the population (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.

4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.

4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.

4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Bulgaria BG

Bulgaria's lynx population(s) are virtually extinct. It is, however, possible that isolated individual(s) live at the western border. Plans for re-introducing the species were discussed, but not realised.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.
4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.

Croatia CR

Croatia's original lynx population went extinct. The country is now re-colonised through lynx expanding from the population re-introduced to Slovenia.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.
4.2.2. Identify the status of the population and establish a monitoring programme.

4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.5. The viability of the population should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.2.6. The genetic status of the population (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.

4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.

4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.

4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Czech Republic CZ

The Czech Republic shares in a narrow strip at its eastern border the Carpathian population. In the Bohemian Forest at the border to Germany, a re-introduction programme is carried out. Furthermore, there are two lynx occurrences in the north, which could potentially act as corridors between the Carpathian and the Bavarian-Bohemian population.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.

4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.2.1. The lynx should be given strict legal protection and the law should be enforced.

4.2.2. Identify the status of the populations and establish a monitoring programme.

4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.5. The viability of the populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.2.6. The genetic status of the populations (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.

4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

Estonia EST

Estonia's Baltic lynx population is stable to increasing, and harvested. The population density would be astonishing high, concluded form the area occupied and the number of lynx estimated.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

Finland FIN

Finland shares the big, increasing Nordic lynx population.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.

4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.

4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.

4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

FR Yugoslavia YU

In the south-west, Yugoslavia shares the highly threatened Balkan population, which needs urgent conservation measures. In the east, the country has a lynx occurrence that seems to be an expansion from the Carpathian population, though separated by the Danube.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.

4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.2.1. The lynx should be given strict legal protection and the law should be enforced.

4.2.2. Identify the status of the populations and establish a monitoring programme.

4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.

4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.5. The viability of the small and isolated populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.2.6. The genetic status of threatened populations (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.

4.3.1. The forest and landscape in lynx areas or potential lynx areas should be managed according to the requirement of the species. Deforestation is halted wherever it is a problem for the survival of the lynx, and forests are managed in a way to provide good habitat for the lynx and for its most important local prey species.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

France F

The lynx population in the French Pyreneans has to be considered extinct. This is the latest population of the Eurasian lynx to disappear in Europe. In the Vosges Mountains, the lynx has been re-introduced. To the Jura Mountains and to the French Alps, lynx from re-introduction programmes in Switzerland have expanded. The best lynx presence in France is in the Jura Mountains.

Actions recommended:
4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.1.4. Law enforcement is intensified in areas where poaching is an important threat for the population.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.
4.2.2. Identify the status of the population and establish a monitoring programme.
4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.5. The viability of the small and isolated populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).
4.2.6. The genetic status of the threatened populations (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.
4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.

4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.

4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.

4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

FYR Macedonia MK

FYR Macedonia shares the Balkan population with its neighbouring countries. This is the most threatened autochthonous lynx population in Europe and should be given high priority in conservation.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.

4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.2.1. The lynx should be given strict legal protection and the law should be enforced.

4.2.2. Identify the status of the population and establish a monitoring programme.

4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.

4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.5. The viability of the population should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.2.6. The genetic status of the population (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.

4.3.1. The forest and landscape in lynx areas or potential lynx areas should be managed according to the requirement of the species. Deforestation is halted wherever it is a problem for the survival of the lynx, and forests are managed in a way to provide good habitat for the lynx and for its most important local prey species.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Germany D

There is no viable lynx population in Germany, but several occurrences, and several re-introduction programmes have been proposed. Germany shares the Bavarian-Bohemian re-introduced population, and the potential lynx population in the Alps with neighbouring countries.

Actions recommended:
4.2.2. Identify the status of the populations and establish a monitoring programme.
4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

Greece GR

There are probably at present no lynx in Greece, but the country shares the Balkan population with its neighbouring countries. This is the most threatened autochthonous lynx population in Europe and should be given high priority in conservation.

Actions recommended:
4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.

4.2.2. Identify the status of the population and establish a monitoring programme.
4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

Hungary H

At its northern border, Hungary has part at the Carpathian population. The lynx occurrence is weak, but there is potential habitat to expand the population.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.
4.2.2. Identify the status of the population and establish a monitoring programme.
4.2.3. The historical decline of the lynx should be analysed, threats to the population identified, and measures to remove the limiting factors (see below) taken.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.5. The viability of small and isolated populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).
4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.
4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

Italy I

The Italian Alps host some lynx immigrating from the re-introductions in Slovenia, Austria and Switzerland. Furthermore, there are two occurrences of unknown origin. Italy is a very important country for the recovery of the Alpine lynx population.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.1.4. Law enforcement is intensified in areas where poaching is an important threat for the population.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.
4.2.2. Identify the status of the populations and establish a monitoring programme.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.5. The viability of small and isolated populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).
4.2.6. The genetic status of threatened populations (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.
4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.
4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.
4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.
4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Latvia LV

The lynx in Latvia is widespread and can be harvested. Latvia's lynx management is substantial for the conservation of the species in neighbouring Lithuania and Belarus.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

Liechtenstein FL

Liechtenstein has at present no lynx. The country however is part of the potential population of the Alps.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.

4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

Lithuania LT

Lithuania's lynx population is small and split in several occurrences. The conservation of the species in Lithuania is vital for the link of the Baltic population.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.

4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.2.1. The lynx should be given strict legal protection and the law should be enforced.

4.2.2. Identify the status of the population and establish a monitoring programme.

4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.5. The viability of small and isolated populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).
4.3.1. The forest and landscape in lynx areas or potential lynx areas should be managed according to the requirement of the species. Deforestation is halted wherever it is a problem for the survival of the lynx, and forests are managed in a way to provide good habitat for the lynx and for its most important local prey species.
4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.

Norway N

Norway's lynx population – part of the big Nordic population – is, in spite of a continuous harvest, increasing and expanding. Outstanding is the amount of depredation of lynx on sheep in Norway.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.
4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.
4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Poland PL

The lynx population in the lowlands of north-eastern Poland is stable, but almost isolated from the rest of the Baltic population. The southern part of Poland belongs to the large Carpathian population. In the small Kampinoski national park, a re-introduction programme with captive-bred animals has been carried out.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.

4.2.2. Identify the status of the populations and establish a monitoring programme.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.5. The viability of small and isolated populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).
4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

Romania RO

Romania has a large and stable part of the Carpathian lynx population.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Slovakia SK

Slovakia hosts an important, but decreasing part of the Carpathian population. The maintenance of a strong lynx population in Slovakia is substantial for the conservation of the species in all neighbouring countries.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.2.2. Identify the status of the population and establish a monitoring programme.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

Slovenia SLO

The Slovenian re-introduced lynx population showed an outstanding dynamic at the beginning, but has not further expanded in recent years. The vitality of the Slovenian population could be crucial to save the lynx occurrence in neighbouring Italy and Austria.

Actions recommended:
4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.
4.2.2. Identify the status of the population and establish a monitoring programme.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.
4.2.5. The viability of the population should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).
The genetic status of the population (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.
4.3.1. The forest and landscape in lynx areas or potential lynx areas should be managed according to the requirement of the species. Deforestation is halted wherever it is a problem for the survival of the lynx, and forests are managed in a way to provide good habitat for the lynx and for its most important local prey species.
4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.
4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.
4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.
4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Sweden S

The Swedish part of the Nordic lynx population is large and increasing, and tolerates the careful harvesting.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.
4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.
4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.
4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.
4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.
4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.
4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.
4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.
4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.
4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.
4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.
4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.
4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.
4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Switzerland CH

Lynx was re-introduced to the Swiss Alps and to the Jura Mountains. Both populations are still small and not yet to be considered viable. The lynx in the Swiss Alps are important for the recovery of the entire Alps population.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.
4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.
4.1.3. The lynx is protected by law. Hunting is only allowed if it does not threaten the long-term survival of the population, and if the harvest is in accordance with the goals formulated in the action plan.
4.1.4. Law enforcement is intensified in areas where poaching is an important threat for the population.
4.2.1. The lynx should be given strict legal protection and the law should be enforced.
4.2.2. Identify the status of the populations and establish a monitoring programme.
4.2.4. Public information campaigns to secure the support of the people for the conservation of the lynx should be launched.

4.2.5. The viability of the populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.2.6. The genetic status of the populations (degree of inbreeding, heterozygositie, relationship to other European populations) should be analysed in order to determine the necessity and strategy of re-stockings.

4.2.7. Carefully designed re-introduction programmes should be carried out in areas that can potentially host viable populations.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.1. Livestock husbandry procedures and protective devices apt to prevent depredation of lynx on sheep, goats, or semi-domestic reindeer in the lynx area should be tested and implemented.

4.4.2. The economic loss of livestock owners due to lynx depredation should be compensated for. Compensation systems should aim to promote the co-existence of livestock breeders with lynx rather than to let the owners simply profit from losses.

4.4.3. Rules should be fixed saying under what conditions and how lynx causing intolerable losses in livestock herds can be removed.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.4.5. Harvest of viable lynx populations through hunting should be allowed when the population can tolerate it.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.

4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

4.6.3. Human dimension research projects should be launched in order to understand the conflicts between humans and lynx.

4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.

4.6.5. Long-term research projects should investigate the impact of lynx on its prey population in relation to human influences of the same populations.

4.6.6. Applied and co-ordinated projects should test methods to protect livestock from lynx depredation.

Ukraine UA

The Urkraine hosts in the north some lynx from the Baltic population. The status of the potentially large population in the Ukrainean Carpahtians is not known. This part would be important for the connection of the west and south Carpathian lynx populations.

Actions recommended:

4.1.1. The Bern Convention adopts this Action Plan.

4.1.2. Establishment of a national lynx management group that produces a national lynx action plans according to this Action Plan. Cross-border management is secured.

4.2.2. Identify the status of the populations and establish a monitoring programme.

4.2.5. The viability of the populations should be increased through measures that allow the establishment of a viable meta-population (reducing threatening and limiting factors, expand the area or the density of the population, re-introductions, etc.).

4.3.1. The forest and landscape in lynx areas or potential lynx areas should be managed according to the requirement of the species. Deforestation is halted wherever it is a problem for the survival of the lynx, and forests are managed in a way to provide good habitat for the lynx and for its most important local prey species.

4.3.2. Sub-populations forming a potentially viable lynx meta-population should be connected by habitat corridors. These corridors are maintained or restored wherever they are important for the survival of a sub-population and the genetic exchange between sub-populations.

4.3.3. The food supply for the lynx should be guaranteed through proper management and conservation of its most important local prey species. The lynx' needs and the impact of the lynx predation are incorporated in the hunting management of the native ungulate populations.

4.4.4. The impact of lynx on its wild prey populations should be recognised and taken into consideration when defining the hunting management of the local (ungulate) populations.

4.5.1. Information campaigns should be launched in order to teach the broad public about all aspects of lynx conservation and management.

4.5.2. Detailed educational programmes should be initiated for specific interest groups such as hunters or livestock owners.

4.5.3. Local people should be integrated into the planning and implementation of lynx action plans. Establishing boards incorporating all local interest groups could do this.

4.5.4. Local people (e.g. represented through management boards) should permanently be involved into decisions concerning lynx management and conservation.

4.6.1. Applied research on Eurasian lynx should be co-ordinated, and exchange of methods, ideas, and results must be certain.

4.6.2. National or local monitoring systems for the lynx should be designed, tested, implemented and co-ordinated among countries sharing the same lynx population.

4.6.4. Research on minimum viable population size, genetic status, (meta-) population dynamics, habitat requirements must be advanced in regard to the restoration of viable lynx populations.

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8. Tables

Table 1. Identification of the European populations and occurrences of *Lynx lynx* and short names used in the map and in the text. The definition of populations, sub-populations, and occurrences is arbitrary and does not necessarily express the significance of a group. Status: aut = autochthonous population, spo = spontaneous recolonisation, rei = re-introduced population, uo = unknown origin, ext = extinct.

Population Sub-population	Abbre-viation	Region	Countries	Status
Nordic population[a]	Nord	Fenno-Scandia and Karelia	Norway, Sweden, Finnland, Russia	aut, spo
Baltic population[a]	Balt	Baltic States, Białowieża	Poland, Belarus, Lithuania, Latvia, Estonia, Russia, Ukraine	aut
Kampinoski occurrence	Ko	Kampinoski National Park	Poland	rei
Carpathian population	Ca	Carpathian Mts. and adjacent ranges	Czech Republic, Slovakia, Poland, Hungary, Ukraine, Romania,	aut
Jeseniky Mts. occurrence	JMo	Jeseniky Mts.	Czech Republic, (Poland)	(spo)
Laberiver Sandstone Mts. occurrence	LSo	Laberiver Sandstone Mts.	Czech Republic, (Germany)	uo
Bohemian-Bavarian popu-lation	BB	Bohemian Forest (Šumava region), Bavarian Forest, Mühlviertel (A)	Czech Republic, Germany, Austria	rei
Black Forest occurrence	BFo	Black Forrest Mts.	Germany	uo
Eastern Serbia occurrence	ESo	Eastern Serbia (south of Danube	FR Yugoslavia	spo
Balkan population	Balk	Balkan Mt. ranges and FYR Macedonia	FR Yugoslavia, Albania, FYR Macedonia, Greece	aut
Dinaric population[b]	Din	Dinaric Alps	Slovenia, Croatia, Bosnia-Herzegovina	rei
Alps population	Alp	Alps	France, Switzerland, Italy,	Rei
Western Alps sub-p.	AlpW	F, CH, I, LI, D	Liechtenstein, Germany,	rei
Trentino occurrence	Tro	I	Austria, Slovenia	uo
Eastern Alps sub-p.[b]	AlpE	I, AT, D, SLO		rei
Abruzze Mts. occurrence	Ao	Central Abruzze Mts.	Italy	uo
Jura population	Ju	Jura Mts.	France, Switzerland	rei
Vosges Mts. population	Vos	Southern Vosges Mts.	France	rei
Palatinian Forest occurr.	PFo	Palatinian Forrest and northern Vosges Mts.	Germany, France	uo
Metz occurrence	Mo	Western Lorraine	France	uo
Pyrenean population	Pyr	Pyrenees	France	ext

[a]Nord and Balt are connected around the Baltic Sea through Russian territory. Distribution in Russia according to the literature only. [b]Din and AlpE are probably connected through migrating animals from Din.

Table 2. Number and distribution of *Lynx lynx* in Europe by countries in 1995. Definition of the populations are given in Tab. 1. Estimation methods: st = snow tracking, ss = sightings and signs, rt = radio-telemetry, in = inquiry by means of interviews or questionnaires, hb = analysis of hunting bag; Trend: → = stable, ↗ = increasing, exp = expanding, ↘ = decreasing, ? = unknown, ( ) = uncertain data, - = no information.

Country	Population	No. of lynx	Total area (km^2)	Density (# ind/100km^2)	Estimation method	Trend 90-95
Norway	Nord	600[a], >600[b]	200000		st, ss families, hb, rt	↗, exp
Sweden	Nord	1000[a]	312800	0.36 - 0.82	st, rt	↗,exp
Finland	Nord	850-1000[a], 790[b]	330000	0.2-0.8	ss, st transects	↗, exp
Estonia	Balt	1200[c], 500-800[b]	20166		st, ss by hunters	↗or →
Latvia	Balt	703[a]	-		st, ss forest guards	?
Lithuania	Balt	100[a], 120-150[b]	-		st, in of local experts	↘
Ukraine	Balt	3[b]	200	-	ss	?
	Ca	~320[a]	~16000	-	ss by hunters and rangers	?, ↘
Poland	Balt	all together:	-		ss by hunters	→
	Ko	185	500		rt	?
	Ca		-			→
Czech	Ca	10-15[a,b]	1600		st, ss	→
Republic	JMo	5-10[a,b]	4000		ss, in hunters and foresters	↘
	LSo	6[a,b]	320		ss	(↗)
	BB	70-100[a, b]	5000		st, rt	exp
Germany	BB	10-15 [b]	-		st,ss	↗, exp
	PFo	8-11[a], fewer[b]	-		ss	?
	BFo	? (few)	-		ss	?
Slovakia	Ca	400-500[b], 800-1000[c]	13700		hb	↘
Hungary	Ca[d]	10-20[a]	2500		-	?
Romania	Ca	1620[a], 1500[b]	70000		ann. reports by game wardens	→
FR	ESo	40[b]	-		ss, in local population	↗ or →
Yugoslavia	Balk	30[b]	-		ss, in local population	↘
Albania	Balk[e]	15 [b], 37 [b]	255		-	(↘)
Greece	Balk [f]	?[b]	?		-	-
FYR Macedonia	Balk	?	-	-	-	?
Croatia	Din	60[a], 150-200[c]	6000		st, ss families	→
Slovenia	Din AlpE	together 75[b]	together 3900	1.0[b]-2.0[a]	ss, hb	→
Austria	Alp E	? (few)	-		ss	↘
	BB	3-5	300		ss	↗
Italy	AlpE	10[b]	10000		ss, in	?
	Tro	2[b]	5000		ss, st, in	↘
	AlpW	?	15000		ss, st	↗
	Ao	?			-	?
Switzerland	AlpW	100[b]	5000	1.0-1.6	in game wardens, rt	↗or →
	Ju	30[b]	3500	1.0	in game wardens, rt	→
France	AlpW	?	3700		ss	?
	Ju	50-150	7700		ss, rt	→
	Vos	10-50	2800		ss, rt	↗
	PFo[g]	? (few)	-		ss	?
	Mo	? (few)	?		ss	?

[a]official numbers; [b]expert estimate; [c]estimation by hunters or hunters' associations. [d]split in 5 occurrences, of which only 1 is permanently occupied; [e]split in 5 occurrences; [f]split in two possible occurences.[g]Including the occurrence in the northern Vosges Mountains.

Table 3. Legal status and management of *Lynx lynx* in Europe. Numbers of legal killings, illegal killings, traffic accidents and other losses refer to a mean annual value for the time period 1990-95

Country	Legal status	Enforcement	Institution in charge	Action plan	Management level	Legal killings	Illegal killings	Traffic accidents	Other losses
Norway	quota hunt 01.02.-31.03.	yes	Dir. for Nature Management	yes	national	37[h]	-	-	-
Sweden	quota hunt[a]	yes	Swedish Enviro. Protect.Agency	planned	national	15[i]	some	48	39
Finland	quota hunt 01.12.-28.02.	yes	Min. of Agricult. and Forestry	yes	nat./reg.	50-70	?	-	-
Estonia	hunted 01.11.-28.02.	-	Hunting Associations	-	nat./loc.	54	?	-	-
Latvia	hunted 01.10.-15.03.	-	State Forest Service	none	nat./loc.	53	?	?	?
Lithuania	year round protection	-	Min. of Environ. Protection	none	nat./loc.	-	-	-	-
Ukraine	year round protection	yes	Min. of Environ. Protection	none	nat./loc.	0	?	-	?
Poland	year round protection	limited	MNPNRF[b]	-	nat./prov./loc.	8		-	-
Czech Republic	year round protection	yes	?	-	national	0	10-20	0.3	0.7
Germany	year round protection	yes	Min. Agricult.and Min. Environ.	planned	regional	0	0.5	0.7	-
Slovakia		weak			national				
Hungary	year round protection	yes	Ministry of Environment	implemented	nat./loc.	-	1-2	0.3	-
Romania	hunted 01.10.-01.03.	weak	MWFE[c]	-	local	10-50	>8	?	?
Bulgaria	year round protection	-	Ministry of Environment	-	-	-	-	-	-
FR Yugoslavia	year round protection	limited	Ministries of Environ. Protection	-	-	-	-	0.3	0.2
Albania	year round protection	-	Gen. Directorate of Forestry	none	national	-	-	-	-
Greece	year round protection	-	Ministry of Agriculture	none	national	-	-	-	-
FYR Macedonia	year round protection	no	Min. of Agricult. and Forestry	-	local	-	-	-	-
Croatia	quota hunt 15.11.-28.02.	no	DUZPO (SDPNE)[d]	-	national	8	-	0.7	1
Slovenia	quota hunt 01.11.-15.02.	weak	Min. of Forestry and Agriculture	none	national	5	0.5	0.2	0.7
Austria	year round protection		District authorities	none	provincial	0	0	0.2	0
Italy	year round protection	no	Nat. Inst. of Wildlife[e]	none	provincial	0	0.3	0	0.2
Switzerland	year round protection	limited	FOEFL[f]	drafted	national	0	2	2	3.5
France	year round protection	yes	ONC[g], Min. of Environment	none	national	1.2	0.6	1.2	0.8

[a]The quota has increased from 6 in 1995 to 168 in 1998. [b]Ministry of Nature Protection, Natural Resources, and Forestry. [c]Ministry of Waters, Forest and Environment. [d]State Directorate for Protection of

Nature and Environment. [e]*Istituto nazionale per la fauna selvatica*. [f]Federal Office of Environment, Forest, and Landscape. [g]*Office National de la Chasse*. [h]Norway has resumed lynx hunting in 1994. Since then, harvest has increased: 1994, 41; 1995, 50; 1996, 85; 1997, 95; 1998, 117. [i]The harvest has heavily increased in Sweden since 1995. In 1998, 97 lynx were legally killed in Sweden.

Table 4. Prevention and compensation of damage to livestock by *Lynx lynx* in Europe.

Country	Period (years)	**No. of animals killed by lynx 1990-95**				Compensation paid	Total paid 1995 Euro	Total est. yearly damage	Prevention
		Sheep	Goats	Reindeer	Others				
Norway	92-95	18924		1768[a]	?	yes, by government	3‘112‘500	4731	neck collars[b], eliminate lynx
Sweden	90-94	234		10435		yes, by government	819‘188 [c]	2134	
Finland	1995	?	-	87	-	yes, by government	58‘028	-	-
Estonia	90-95	-	-	-	-	no	0	0	-
Latvia	90-95	-	-	-	-	no	0	-	-
Lithuania	90-95	-	-	-	-	no	0	?	-
Ukraine	90-95	-	-	-	-	no	-	-	-
Poland	90-95	-	-	-	-	no	0	-	-
Czech Rep.	90-95	44			63	no	0	-	-
Germany	90-95	1			1	no[d]	0	1	-
Slovakia							-		
Hungary	90-95	-	-	-	-	no	0	-	-
Romania	90-95		-	-	-	no	0	-	gardian dogs, sheperds, eliminate lynx
Bulgaria	90-95					-	-	-	-
FR Yugosl	90-95	-	-	-	-	no	0	-	-
Albania	1991	17	-	-	-	no	0	-	-
Greece	90-95	-	-	-	-	yes, by government	0	-	-
FYR Macedonia	90-95	-	-	-	-	-	-	-	-
Croatia	1996	22	2		poultry	yes,by government	0	?	?
Slovenia	90-95[e]	75				yes, by government	8‘625	75	no
Austria	90-95	36			cattle	yes, by insurance[f]	586	6	no
Italy	1991	2	-	-	-	yes, by government	117	<1	no
Switzerland	90-95	196	30	-	5	yes, by government	14‘631	39	neck collars, eliminate lynx
France	90-95	852	11	-	-	yes, by NGO	43‘437	142	guardian dogs, (neck collars), eliminate lynx

[a]Numbers for the April 1995 – March 1996 period only. Some additional 4229 reindeer were killed by unspecific predators in this same period. [b]very limited use only. [c]This figure refers to the year 1994. [d]In the Bavarian Forest, a private compensation fund has been implemented in 1997/98. [e]Lynx moved only recently into areas in the Alps where sheep are available, all 75 sheep were killed in 1995. [f]regulated separately in each district. In Carinthia and Styria - an insurance sponsored by the hunters‘ associations indemnifies killed livestock.

Table 5. Monitoring, information and research on *Lynx lynx* in Europe

Country	Monitoring, Method	Research programmes	Information campaign and education	Conservation programmes
Norway	yes, winter censusing	yes[a]	no	-
Sweden	yes, winter censusing	yes[b]	no	-
Finland	yes, winter censusing	yes[c]	no	yes
Estonia	planned	no	no	no
Latvia	no	no	no	no
Lithuania	no	no	no	-
Ukraine	yes, winter censusing	no	no	no
Poland	no	yes[d]	no	-
Czech Republic	yes, winter censusing	yes[e]	-	-
Germany	yes, snow tracking, sightings and signs	no	yes	-
Slovakia		yes		-
Hungary	yes, ?	yes[f]	yes	yes
Romania	yes, reports	no	no	-
Bulgaria	-	-	-	yes
FR Yugoslavia	yes, interview locals, sightings and signs	no	yes	no
Albania	no	no	no	no
Greece	no	no	no	no
FYR Macedonia	no	no	no	no
Croatia	yes, hunting bag, sightings and signs	yes[g]	yes	no
Slovenia	yes, hunting bag	yes[h]	no	no
Austria	yes, sightings and signs	no	yes	yes
Italy	yes, snow tracking, sightings and signs	yes[i]	yes	no
Switzerland	yes, interview game wardens	yes[j]	yes	yes
France	yes, sightings and signs	yes[k]	yes (Vosges Mts.)	yes (Vosges Mts.)

[a]Investigation of hunted lynx; telemetry projects on lynx, reindeer, and roe deer in central and southeastern Norway. [b]Ecology of the lynx in the Sarek National Park and in south-cnetral Sweden (Grimsö) by means of radio telemetry. [c]Autopsy of carcasses, triangle scheme, and GIS analyses. [d]Ecology of the lynx in Białowieża Premival Forest by means of radio telemetry. [e]Ecology of the lynx in the Šumava Mts by means of radio telemetry. [f]WWF lynx conservation in Hungary. [g]Study of large carnivores in Croatia. [h]A radio telemetry study in southern SLO ended in 1996. [i]Lynx in the Alps (Univ. of Padua / *Progetto Lince Italia*), the lynx in the Trentino (Univ. of Perugia). [j]Population ecology of lynx in the Alps and in the Jura Mts. by means of radio telemetry by KORA. [k]Radio-telemetric study of lynx in the Jura Mts., censuses in the Jura Mts., the Vosges, and the Alps by the ONC.

Table 6. Identified threats to the populations of *Lynx lynx* in Europe and significant conflicts with lifestock husbandry (depredation). x = threat, (x) = potential threat, (-) = critical for this country, but not for the whole population, ? = possible threat, but information lacking

Country	Population	Habitat fragmentation	Prey base	Hunting	Illegal killings	Traffic accidents	MVP (Pop. size, genetics)	Depredation
Norway	Nord			(x)				x
Sweden	Nord			(x)				(x)
Finland	Nord			(x)				(x)
Estonia	Balt			(x)				
Latvia	Balt	(x)		(x)				
Lithuania	Balt	x						
Ukraine	Balt	?	?					
	Ca	x	x					
Poland	Balt						?	
	Ca							
Czech	Ca						(-)	
Republic	BB				(x)		x	
Germany	BB	(x)			(x)		x	
Slovakia	Ca							
Hungary	Ca						x	
Romania	Ca							
FR Yugo slavia	Balk	?	?		?		x	?
Albania	Balk	x	x		x		x	?
Greece	Balk						?	
FYR Macedonia	Balk	?	?		?		x	?
Croatia	Din			(x)	?		(x)	
Slovenia	Din AlpE			(x)	(x)	(x)	(x)	
Austria	Alp E				?	(x)	x	(x)
Italy	AlpE	(x)			?	(x)	x	
	AlpW	?			?	(x)	x	(x)
Switzer land	AlpW	?			x	x	x	(x)
	Ju				x	x	x	
France	AlpW	?			(x)	(x)	x	
	Ju				(x)	(x)	(x)	x
	Vos				x		x	

Table 7. Actions recommended for each European country. x = important, (x) = less urgent or only true for part of the country, ? = information missing to judge the importance. National abbreviations see chapter 5.

Action	N	S	FIN	EST	LV	LT	UA	PL	CZ	D	SK	H	RO	BG	YU	AL	GR
4.1.1.	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x
4.1.2.	x	x	x	x		x	x	x	x		x	x	x	x	x	x	(x)
4.1.3.	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x
4.1.4.																x	
4.2.1.						x	?	(x)	x			x			x	x	x
4.2.2.						x	x	(x)	x	x	x	x			x	x	x
4.2.3.										x		x		x	x	x	x
4.2.4.						x	?	(x)	x	x		x		x	x	x	
4.2.5.						x	x	(x)	x			x			x	x	?
4.2.6.									(x)						x	x	?
4.2.7.							?		x	x		x		x			?
4.3.1.						x	x								x	x	?
4.3.2.					(x)	x	x	(x)	x			(x)		(x)	(x)	(x)	
4.3.3.	x	x	x	x		x	x	x	x		x	x	x	(x)	x	x	?
4.4.1.	x	x	x						x			?	?		x	x	?
4.4.2.	x	x	x						x						x	x	?
4.4.3.	x	x	x						x				x		(x)	(x)	
4.4.4.	x	x	x	x		x	x	x	x		x	x	x		x	x	
4.4.5.	x	x	x	x	x	(x)		(x)	(x)		x		x				
4.5.1.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
4.5.2.	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	
4.5.3.	x	x	x	x		x	x	x	x		x	x	x	(x)	x	x	?
4.5.4.	x	x	x	x		x	x	x	x		x	x	x	(x)	x	x	
4.6.1.	x	x	x	x	x	x	x	x	x		x	x	x	(x)	x	x	x
4.6.2.	x	x	x	x	x	x	x	x	x		x	x	x	(x)	x	x	x
4.6.3.	x	x	x												x	x	?
4.6.4.						x	(x)	(x)	x						x	x	?
4.6.5.	x	x	x	x	(x)			(x)	(x)		x		x				
4.6.6.	x	(x)	(x)										(x)		(x)	(x)	?

Action	MK	BIH	HR	SLO	A	I	FL	CH	F
4.1.1.	x	x	x	x	x	x	x	x	x
4.1.2.	x	x	x	x	x	x	x	x	x
4.1.3.	x	x	x	x	x	x	x	x	x
4.1.4.					(x)	(x)		x	x
4.2.1.	x	x	x	x	x	x		x	x
4.2.2.	x	x	x	x	x	x		x	x
4.2.3.	x								(x)
4.2.4.	x	x	x	x	x	x	x	x	x
4.2.5.	x	x	x	x	x	x		x	x
4.2.6.	x	x	x	x	x	x		x	x
4.2.7.					(x)	(x)	(x)	(x)	x
4.3.1.	x			(x)					
4.3.2.	(x)	x	x	x	x	x	x	x	x
4.3.3.	x	x	x	x	x	x	x	x	x
4.4.1.	x	x	x	x	x	x	(x)	x	X
4.4.2.	x	x	x	x	x	x		x	x
4.4.3.	(x)	x	x	x	x	x		x	x
4.4.4.	x	x	x	x	x	x		x	x
4.4.5.		x	x	x				(x)	(x)
4.5.1.	x	x	x	x	x	x	x	x	x

4.5.2.	x	x	x	x	x	x	x	x	x
4.5.3.	x	x	x	x	x	x	(x)	x	x
4.5.4.	x	x	x	x	x	x	(x)	x	x
4.6.1.	x	x	x	x	x	x		x	x
4.6.2.	x	x	x	x	x	x		x	x
4.6.3.	x	x	x	x	x	x		x	x
4.6.4.	x	x	(x)	(x)	x	x		x	x
4.6.5.		(x)	(x)	(x)				(x)	(x)
4.6.6.	(x)	(x)	(x)	(x)	(x)	(x)		x	x

Figure 1. Historical distribution of *Lynx lynx* in Europe according to Kratochvil *et al.* (1968). The distribution given is hypothetical, based on the fossil record (which we have not re-examined) and on the assumption that forests were the ultimate lynx habitat. The Iberian Peninsula was excluded as the Pyrenees are believed to be the border line between the distribution of *L. lynx* and *L. pardinus*, though the simpatric occurrence of the two species never has been clarified.

Figure 2. Recent distribution of *Lynx lynx* in Europe. Short names are explained in Table 1. The distribution is based on the information from local experts and on the literature.