

Strasbourg, 7 November 2005
[Inf16e_2005.doc]

T-PVS/Inf (2005) 16

CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

Standing Committee

25th meeting

Strasbourg, 28 November-1 December 2005

Report on the conservation status and threats for wolf (*Canis lupus*) in Europe



Document prepared by
Valeria Salvatori¹ and John Linnell²

¹ Istituto di Ecologia Applicata Via Cremona 71, Rome – IT 00161. (y.salvatori@ieaitaly.org)

² Norwegian Institute for Nature Research, Tungasletta 2, N-7485 Trondheim – Norway

(john.linnell@nina.no)

Cover Photo by Aykut Ince (Turkish wolves)

CONTENTS

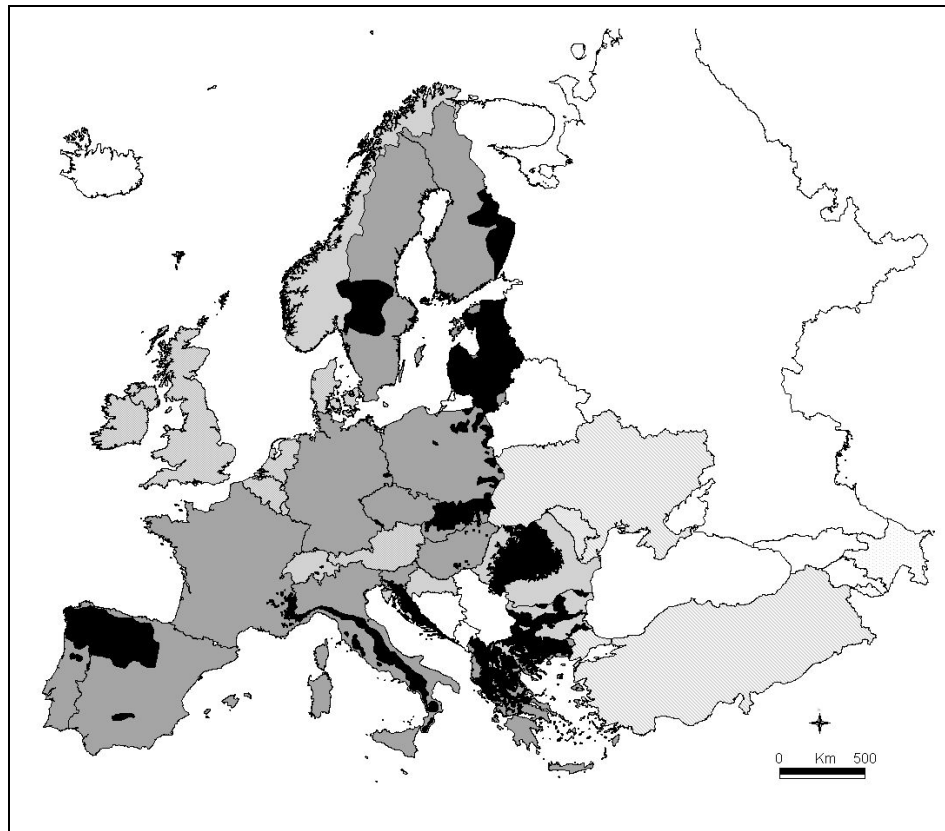
Acknowledgements	3
Introduction	3
International legislation for conservation of wolves in Europe	5
The Bern Convention and wolf in Europe	5
Current status of wolf in European Bern Convention Countries	6
Albania	7
Bulgaria	7
Croatia	8
Czech Republic	8
Estonia	9
Finland	9
France	10
Germany	10
Greece	11
Hungary	11
Italy	12
Latvia	12
Lithuania	13
Former Yugoslav Republic of Macedonia	13
Norway	13
Poland	14
Portugal	15
Romania	15
Slovakia	16
Slovenia	16
Spain	17
Sweden	17
Switzerland	18
Turkey	18
Ukraine	19
Conclusions	19
Consulted literature	20
Contributors per country	23

ACKNOWLEDGEMENTS

This report was prepared for the Council of Europe and with the contribution of the members of the Large Carnivore Initiative for Europe (LCIE) Core Group. The information compiled was made available by experts on wolf conservation directly contacted in each country. Without their input and their willingness to contribute to wolf conservation, the work would have not been possible. All of them belong to the extended network of the Large Carnivore Initiative for Europe.







INTRODUCTION

The wolf is the most controversial predator in Europe, as it occupies conflicting places in people's imaginations, being simultaneously loved and hated. On one hand it is held up as symbol of wilderness and the return of nature, while for others wolves symbolise waste, destruction and negative changes. As a result wolf conservation is almost always controversial. Historically wolves have been heavily persecuted in Europe for millennia, and were exterminated from most of northern and western Europe in the last two centuries, probably reaching their minimum in the 1940's to 1960's. Since then, many populations have begun to recover and expand their range, for example in Spain and Italy. Furthermore, in the last twenty years, the species has been recovering naturally and reappearing in areas from which they had become extinct, for example in France, northern Italy, Sweden, Norway, Finland, Germany and Switzerland. In 2005 a wolf was even sighted in Austria (Styria region). However, the present distribution of wolves in Europe is extremely uneven and densities vary greatly from country to country. This recovery has revealed their extreme ecological adaptability, enabling them to survive in extremely diverse environments. Wolves can basically survive anywhere they can find a source of food, and this can be of various forms, from wild animals, to livestock, to garbage. The only limiting factor seems to be human persecution. As a result the conservation of wolves is less of an ecological issue and more a social issue, strictly linked to the diverse cultural and socio-economic conditions of the areas they inhabit. This makes international legislation extremely hard to be enforced in highly diverse European countries. This is a particularly sensitive issue when it comes to the conservation and management of wolf populations that are transboundary in nature, occupying territories belonging to different countries, and thus requiring international collaboration. The situation is made even more difficult by the lack of scientifically sound population status data standardised across different countries. This report is an attempt to provide an updated snapshot of the current conservation status of the wolf in the European countries where (1) its presence has been recorded and (2) that have ratified the Bern Convention.



Current wolf distribution in Europe, indicated by the black areas.

Legend

-  Countries with recorded wolf presence, not included in the EU, that have ratified the Bern Convention.
-  Countries with recorded wolf presence, included in the EU, that have ratified the Bern Convention.
-  Countries with recorded wolf presence, not included in the EU, that have ratified the Bern Convention, for which a map was not available.
-  Countries not included in the EU, that have ratified the Bern Convention, not included in the present report.
-  EU countries where wolf is absent.
-  Countries not included in the EU, and that have not ratified the Bern Convention.

INTERNATIONAL LEGISLATION FOR CONSERVATION OF WOLVES IN EUROPE

At the international level wolves are included in several conservation agreements. The 1996 Red List of the IUCN – World Conservation Union classifies the wolf as vulnerable. The IUCN has also approved a Manifesto of Wolf Conservation, initially drafted in 1973 and later revised to incorporate the changes in wolf status, public attitudes and management techniques.

CITES (Convention on International Trade in Endangered Species of the Wild Fauna and Flora (3.3.1973)) lists the wolf as Lower Risk / least concern, with the exception of the Mexican population (Extinct in the Wild), the Iberian population (Lower risk: conservation dependent) and the Italian one (Vulnerable), as well as populations in Bhutan, Pakistan, India and Nepal where it is listed in Appendix I (species in danger of extinction).

The EC Habitats Directive (92/43 of 21.5.1992) (European Union members only) also lists the wolf in Appendix II (needs habitat conservation) with the exception of the populations in Spain north of the river Duero, the populations in Greece north of 39° longitude and the populations in Finland. The wolf is also listed in Appendix IV (fully protected) with the exception of the populations in Spain north of the river Duero, the populations in Greece north of 39° longitude and the populations in Finland in the semi-domestic reindeer husbandry areas where wolves are listed in Annex V.

The European Parliament has approved (24.1.1989) a resolution (Doc. A2-0377/88, Ser.A) which calls for immediate steps in favour of wolf conservation in all European States, adopts the IUCN Wolf Manifesto and invites the European Commission to expand and provide financial means to support wolf conservation.

THE BERN CONVENTION AND WOLF IN EUROPE

Wolves are also included in Appendix II (strictly protected species) of the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 19.9.1979). The wolf and its habitat receive full protection from the convention, although enforcement relies on the Contracting Parties which may not fully apply their obligations. Moreover, individual parties may make reservations and wolves will not be protected by them: of the countries that have signed the Convention, Bulgaria, Czech Republic, Finland, Latvia, Lithuania, Poland, Slovenia, Slovakia, Spain and Turkey have made an exception for wolf protection (see table below). The Standing Committee of the Bern Convention adopted an article of recommendation on the protection of the wolf in Europe (Rec. No. 17/1989).

country	List of declarations and exceptions made with respect to the Convention on the Conservation of European Wildlife and Natural Habitats
Bulgaria	“In pursuance of paragraph 1 of Article 22 of the Convention on the Conservation of European Wildlife and Natural Habitats of 1979, the Republic of Bulgaria reserves the right not to apply the provisions of the Convention in respect of the following species included in Annex II of the said Convention: mammals <i>Canis lupus</i> , <i>Ursus arctos</i> (...). Because of their large population in the Republic of Bulgaria, the protection of these species in its territory does not prove to be necessary.”
Czech Republic	“The Czech Republic makes the following reservations, pursuant to Article 22, paragraph 1, of the Convention: Reservation to the inclusion of the following species in Appendix II of the Convention: <i>Canis lupus</i> , <i>Ursus arctos</i> , with respect to the current proliferation of these species in the territory of the Czech Republic (...). In the event of an emergency the regime corresponding to the species specified in Appendix II shall be applied to all the above mentioned wild fauna species.”
Finland	“In conformity with paragraph 1 of Article 22, Finland enters a reservation regarding the following species specified in Appendices II and III: <i>Canis lupus</i> , <i>Ursus arctos</i> .”
Latvia	“In pursuance of paragraph 1 of Article 22 of the Convention, the Republic of Latvia reserves the right not to apply the provisions of the Convention in respect of the following accordingly Appendix II: <i>Canis lupus</i> , (...).”
Lithuania	“In accordance with Article 22 of the said Convention, the Republic of Lithuania declares the following reservations. A reservation is made concerning the fauna species <i>Canis lupus</i> , included in

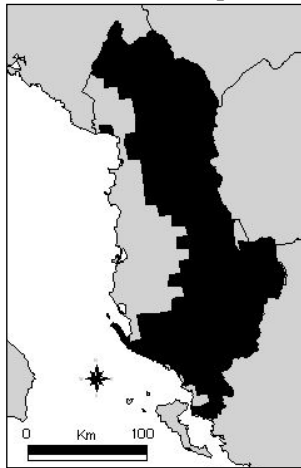
	Appendix II as a "strictly protected fauna species", which will be considered by the Republic of Lithuania as a "protected fauna species" enjoying the regime of protection provided by the Convention for the species included in Appendix III."
Poland	"Pursuant to Article 22, paragraph 1, the Republic of Poland makes the following reservations regarding Appendices I, II and III. From among fauna species listed in Appendix II as "strictly protected", <i>Canis lupus</i> will enjoy in Poland another regime of protection than provided for by the Convention."
Slovakia	"In accordance with Article 22, paragraph 1, of the Convention, the Slovak Republic makes a reservation in respect of two species specified in Appendix II. These species are the wolf (<i>Canis lupus</i>) and the brown bear (<i>Ursus arctos</i>). The reason for making this reservation with regard to conditions for the protection of these species, according to Article 6 of the Convention, is that the present level of their population in the Slovak Republic permits the regulation of their numbers without detriment to their survival and to the functions of these species in the natural ecosystems."
Slovenia	"Pursuant to the provisions of paragraph 1 of Article 22 and in connection with Article 6 of the Convention, the Republic of Slovenia makes reservations to the Appendix II for the species of wolf (<i>Canis lupus</i>) and brown bear (<i>Ursus arctos</i>)."
Spain	"Reservations concerning the list of species set out in Appendix II. The under mentioned species are excluded from this list as far as Spain is concerned: <i>Canis lupus</i> (...). A reservation is made concerning the fauna species <i>Canis lupus</i> (...), included in Appendix II as "Strictly protected fauna species", which will be considered by Spain as "Protected fauna species" enjoying the régime of protection provided for by the Convention for the species included in Appendix III."
Former Yugoslav Republic of Macedonia	"The Republic of Macedonia shall be considered bound by all the paragraphs of the Convention, with the following exceptions: 1. Appendix II - Strictly protected fauna species does not apply to <i>Canis lupus</i> (...)."
Turkey	"Reservations contained in the instrument of ratification, deposited on 2 May 1984 <i>CARNIVORA Canidae - Canis lupus, ...</i> "
Ukraine	"The Verkhovna Rada of Ukraine declares that Ukraine has become a party of the Convention, with reservations as follows: 1. It is allowed in Ukraine, in restricted number and under conditions of relevant control, towards such species mentioned in Appendix II to the Convention: - spot regulation of number of <i>Canis lupus</i> and <i>Ursus arctos</i> with a view to prevent their negative influence on other species, serious harm to livestock and other objects of property; 2. It is allowed to use the following means and methods of killing, capture and other forms of exploitation, mentioned in Appendix IV to the Convention: (i) snares and nets; (ii) for catching mammals and birds, mentioned in Appendix III, with scientific purpose and migration; (iii) traps; (iv) for exploitation of <i>Canis lupus</i> , mentioned in Appendix II"

CURRENT STATUS OF WOLF IN EUROPEAN BERN CONVENTION COUNTRIES

Given the diversity of situations highlighted in the previous sections, together with the uneven distribution of wolf throughout Europe, an assessment of its conservation status was performed in those European countries where it is currently present. The current status of wolf was assessed in those countries that are both geographically included in Europe (W of 35°E) and are contracting parties of the Bern Convention. A questionnaire was sent to experts in each of the country with a request for information and a map of the current distribution of wolf in their home country. The information collected include: the estimated population size and trend, the geographical distribution, the legal status and potential threats. The information is presented below on a country by country basis. The quality of data varies dramatically between countries. In some areas such as Norway, Sweden, Finland, and the alpine populations of France and Italy data is based on standardised snow-tracking / radio-tracking and the use of DNA-based methods. In others, such as Estonia, Latvia, Poland, Spain and Portugal there are organised surveys of pack distribution and presence. However, in many other countries, numbers are based on "official" estimates from the forestry or hunting districts (these methods are widely believed to overestimate population size due to double counting) or on expert assessment.

ALBANIA

Population Status: The current wolf population in Albania is estimated to number between 900-1200 individuals. Data provided by the GDFP (state authority on forestry and pasture) show an overestimation ranging from 30% to 50%. Historical data collected and reported by the GDFP, show that the wolf population went through fluctuations from year 1950 to 1970, while nowadays it seems to be stabilized or slightly increasing during the last 10 years.



The distribution range of wolf in Albania.

Distribution: The distribution range of the wolf in Albania covers most of the territory, including the hilly, pre-mountainous, mountainous, and alpine areas. The wolf is absent along the western lowland coastal zone of Albania, from Shkodra to Vlora.

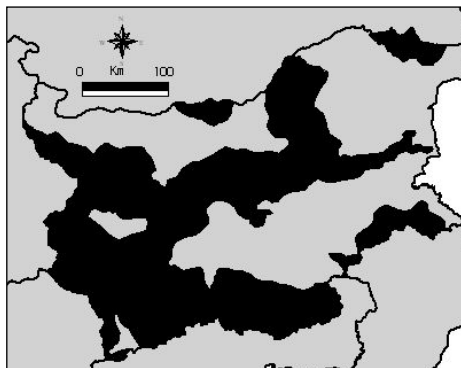
Legal and Conservation Status: The wolf in Albania is currently protected by National law (the Law on Hunting and Wildlife Protection, 1994), and its killing is allowed only in special cases, by issuing special authorization. Nevertheless, due to lack of legal enforcement, the wolf is believed to be hunted and killed all year round. The wolf has traditionally been considered a pest predator, causing damages to livestock. As a consequence, the animal has been persecuted and killed systematically up to the point that regular extermination campaigns have been organised through direct hunting and killing, and even using poisons, like strychnine.

Potential Threats: Population size of the wolf’s natural prey, such as large ungulates (i.e., roe deer, wild boar and wild goat) have undergone a remarkable reduction over the last decades due to over-hunting, habitat loss (deforestation) and fragmentation, and grazing competition between domestic and wild herbivores. In a few cases, like those registered in Librazhdi area, there are records or crossbreeding between wolves and domestic dogs.

BULGARIA

Population Status: The wolf population in Bulgaria is officially estimated to be around 2,300 individuals, although field studies carried out recently suggest the population is probably around 1,000 individuals. The population has been stable in the period 1997 – 2005.

Distribution: The presence of wolves in Bulgaria is linked to mountainous areas of the Balkans in the central part of the country and the Rila-Rhodopes mountains bordering with Greece. Small remnants populations bordering with Romania and with Turkey appear to be separated from the overall central distribution area.



The distribution range of wolf in Bulgaria.

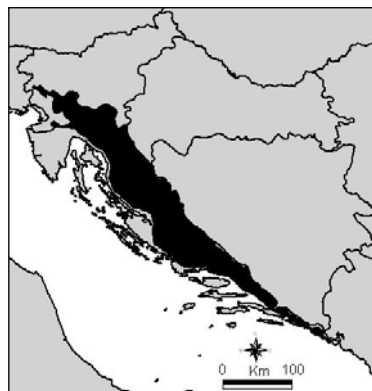
Legal and Conservation Status: the wolf is a game species in Bulgaria, according to the National Law for Hunting and Conservation of Game. Hunting is allowed all year round. The wolf is included in the Biodiversity Protection Act of Bulgaria as a species under regulated use. This means that if in the whole country, or in some part of it, the species status is reported to be under threat, for the specific region or for a certain period the hunting on the species might be forbidden. The institution responsible for wolf management is the National Forestry Administration, which is a body under the Ministry of the Agriculture and Forests. The number of the wolves which can be killed annually is unlimited (no quotas) and the bounty given to a hunter for a killed wolf was raised in 2003 from 25 leva (around 13 Euros) to 100 leva (50 Euros).

Potential Threats: In some regions the occurrence of wolf - dog hybrids has been reported. The increase in bounties for a killed wolf (from 25 to 100 leva), and this has represented an incentive for hunters. Given the number of hunters in the country (currently over 120 000 and increasing) the presence of bounties and resulting over-harvest represents a serious threat.

CROATIA

Population Status: Approximately 130-170 wolves are estimated to be currently present in Croatia. This population is the result of a recovery of ca. 50 individuals left in the 1980s, due to over hunting and persecution. The trend is now stable, with some possible local variation

Distribution: Wolves in Croatia are present in the areas of Gorski Kotar, Lika and Dalmatia, the distribution range covering 32% of the total country area. The territory of Istria (except Cicarija and Ucka) and the continental lowlands areas of Croatia are not inhabited by wolves.



The distribution range of wolf in Croatia.

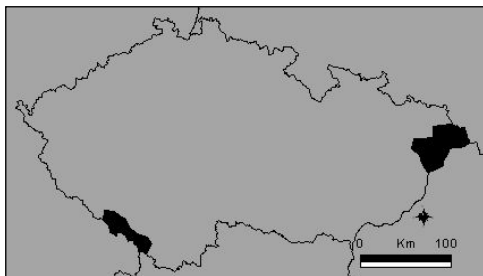
Legal and Conservation Status: According to the Nature Protection Law of 1994 the wolf is a protected species in Croatia since 1995. A management plan was produced in 2005, whereby quotas (of up to 10% of the estimated population) for wolf harvest are foreseen - first to be implemented in fall 2005. The penalty for illegally killing a wolf can be up to 40,000 HRK (over 5,000 Euros). Only one case of such a fine has been taken to the court. Croatia ratified the Bern Convention in 2000. In 2003 a new Nature Protection Law was adopted, which integrated the Bern Convention's categories for protection (strictly protected and protected species). The law also foresees the establishment of protected areas for the conservation of targeted species. Damage caused by wolves to domestic livestock are compensated by the State and inspection of damage on site is to be verified by State's inspectors. Illegally killed wolves in 2003: 10; 2004: 10. For 2005 a quota of 15 wolves to be killed following damage caused to livestock was set.

Potential Threats: There is a danger of poisons being used if negative attitudes increase after wolf strict protection. It may be alleviated by the introduction of hunting quotas through the new management plan. The low population density of natural prey can play a negative role, stimulating wolves to prey on livestock, thus increasing the level of conflicts with humans.

CZECH REPUBLIC

Population Status: The total size of the wolf population in the Czech Republic is estimated at 5 to 17 individuals. The population in the Czech Republic is totally dependent on the situation in the Western Carpathian Mts.(mainly Slovakia).

Distribution: The area of permanent occurrence of wolves in the Czech Republic is presently confined to the NE of the country, along the border with Slovakia and Poland. Some registrations of occurrence in the Sumava Mts (SW of the Czech rep. at the Bavarian-Austrian border) are probably result from natural migration from the Carpathians.



The distribution range of wolf in the Czech Republic.

Legal and Conservation Status: The wolf is a species totally protected under National legislation for nature conservation. At the same time, it is listed as a game species by hunting law, but protected throughout the whole year. It is also listed in Red Book of the Czech Republic as critically endangered.

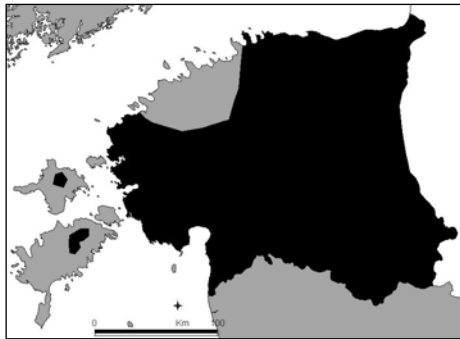
Damages to the domestic animals are compensated by the Government since 2000.

Potential Threats: Little acceptance of wolf presence in newly re-colonised areas and increasing conflicts with humans.

ESTONIA

Population Status: An estimated wolf population of about 100 – 150 individuals lives in Estonia, with highest densities in the Parnu and Jogeva counties. After a peak in the mid- 1990s the population declined due to heavy hunter harvest reaching a stable trend in 2003 and in the years 2004-05 a slight increase was detected.

Distribution: The presence of wolf at coarse scale includes the whole Estonian territory. Stable presence was confirmed in the winter 2004/05 many parts of the country. The population is shared with Latvia and Russia.



The distribution range of wolf in Estonia.

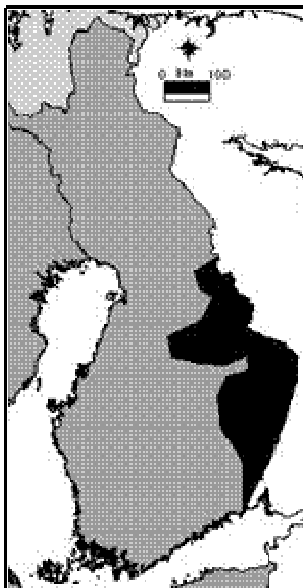
Legal and Conservation Status: the wolf is a game species in Estonia. Since 2003 wolves have been classified as "big game". Up to 2002 the hunting season was opened all year round. Since 2003 hunting on wolves was allowed only in the period 01.08 - 31.03, but it has been reduced in 2004 to the period 01.01 - 31.03. In 2005 the hunting season will be changed again, following a proposal sent for the period November - February with the objective of avoiding killing of adult couples. A wolf management plan is in place. According to it, the total number of wolves should be kept between 100 and 200 individuals. Using

the monitoring data (Centre of Forest Protection and Silviculture, Game Monitoring Department), the Ministry of the Environment sets annual hunting quota divided by regions (counties), guided by an advisory group (representatives of officials, scientists, hunters, conservationists). At local level usually the quota is distributed among areas of wolf presence (responsible body County Environmental Department under Ministry of the Environment) taking into account factors such as amount of damage, pack size and structure. Damages are currently not compensated, but a new act is being drafted (in 2005).

Potential Threats: No information is available on the extent of illegal killings (following the introduction of stricter regulations they very likely to occur). In the period 2002 - 2005 a total of 13 wolves were killed in car accidents. The long term future of the Estonian wolf population will depend on the population viability in neighbouring countries Russia and Latvia.

FINLAND

Population Status: The Finnish wolf population has been increasing throughout the 1990's and 2000's. Monitoring is based on snow-tracking and radio-tracking. During the winter 2004 - 2005, 16 packs that were entirely within Finland, and 5 packs straddling the Finnish-Russia border, with reproduction from summer 2004 were detected on snow. In addition, there were scent-marking pairs and solitary wolves, for an estimated minimum total of 185.



The distribution range of wolf in Finland.

Distribution: Wolves are currently mainly found in eastern, and south-eastern Finland close to the border with Russia. A number of packs have established in western and central Finland since 2001 – 2002. Reproduction has been detected here in 3 of the last 4 years, but their distribution is very dynamic in this area. Most of Finland offers suitable wolf habitat, but the conflict potential with semi-domestic reindeer in the north will prevent their colonisation in this area. Management objectives call for an increase in wolf numbers in central and western Finland.

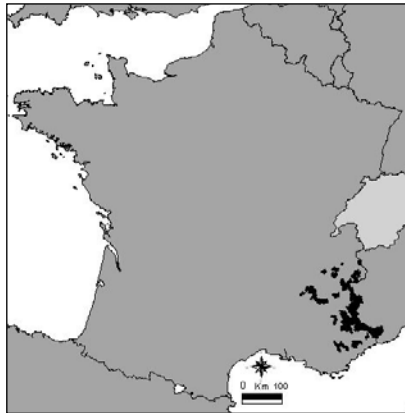
Legal and Conservation Status: In accordance with the Habitats Directive wolves are protected in Finland, although within the reindeer husbandry area in Lapland county Finland have an exception. In this region, licensed lethal control is intended to prevent wolf colonisation. Elsewhere in Finland lethal control is more restricted. All damage to livestock, semi-domestic reindeer

and domestic dogs are compensated by the State. A new wolf management plan is currently being formalised.

Potential Threats: Apart from the conflict potential with semi-domestic reindeer in the north, conflicts with livestock are relatively minor. Wolf predation on dogs, both hunting dogs and farm dogs, attracts a lot of controversy, and hunters fear competition with wolves for harvestable moose. Otherwise, acceptance seems to be relatively good. The long border with the large Russian populations implies that Finnish wolves are not exposed to any of the potential genetic problems which threaten the long term future of Scandinavian wolves. In addition, the potential for immigration from Russia will buffer the Finnish population against any declines. Habitat conditions are excellent.

FRANCE

Population Status: Using DNA analysis the French population of wolf is estimated to number 80 - 100 individuals, and is expanding. During winter 2004/2005, the snow tracking data refer to a minimum number of 43 wolves from areas with stable presence, so a large part of this expanding population is made of dispersing wolves. The French population is the result of the natural expansion process of the Italian population, as the wolves are genetically of Apennine origin.



The distribution range of wolf in France.

Distribution: Wolf occurrence is detected over 187 administrative districts, but stable presence over only 16 large areas (out of which 11 are occupied by packs, including 5 transbordering ones shared with Italy). Stable wolf range is currently restricted to the Alps in SE France, with a tendency to increase westwards. As a result a few wolves have been recorded in the eastern Pyrenees.

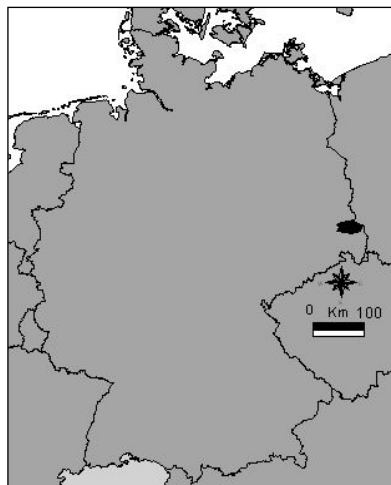
Legal and Conservation Status: in France the wolf is a protected species. The Ministry of Environment together with the Ministry of Agriculture are in charge of wolf management. This includes assessing the conservation status with reference to the Habitats Directive requirements, defining the quotas when removal of individuals is needed in the case of “problem” animals involved in

livestock depredation. In 2004 permission for legally killing 4 wolves was issued (2 were actually shot), while in 2005 six permits were issued.

Potential Threats: The expanding population (growth rate is so far about 20% per year as estimated by data from areas where wolves are directly sighted) may face problems of low acceptance by hunters and shepherds suffering damages.

GERMANY

Population Status: Two packs of wolves are present in Germany, which are the result of the colonisation of wolves coming from Poland. The trend is stable, with increasing potential, as the present pack is actively breeding.



The distribution range of wolf in Germany.

Distribution: The distribution range of the German wolf pack includes only a restricted area in the very east of Germany, in the NE of the state of Saxony, near the border with Poland.

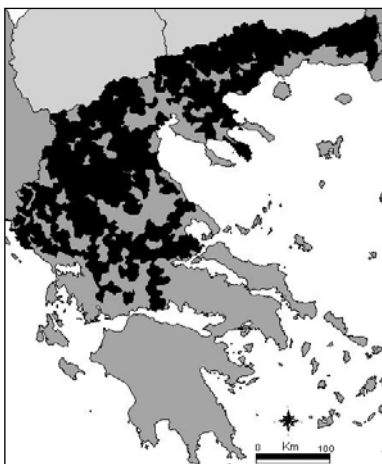
Legal and Conservation Status: The wolf in Germany is a strictly protected species. The authority in charge of its management is the State Ministry of Environment. Since wolves are resident only in Saxony, the Saxony Ministry of Environment is the only state government currently dealing with wolves. In Saxony damage caused by wolves is compensated up to 80% by the Government. In the only case which has occurred since the beginning of wolf protection, the State compensated 100% of the loss value. In cases where no

professional livestock owners are involved the regulation does not apply. Since almost all sheep in the wolf area are protected with electric fences, damage caused by wolves is currently very low.

Potential Threats: Many factors could affect the long term conservation of wolf in Germany. Among them: fragmentation and isolation (the source population in Poland is about 500 km away); illegal killing; negative attitudes of hunters in Germany and neighbouring western Poland; inbreeding due to small numbers and hybridization with dogs (a case of hybridization was recorded in 2003); lack of knowledge on dispersal movements; traffic accidents (3 traffic accidents were recorded in the 1990s).

GREECE

Population Status: the Greek wolf population was estimated in 1998 - 1999 to approximately 500 individuals during early spring and about 700 individuals after the reproduction period during early autumn. The number of wolf packs is estimated to be 100 - 130 in the whole wolf range. The population is shared with Bulgaria, the Former Yugoslav Republic of Macedonia, and Albania.



The distribution range of wolf in Greece.

Distribution: The wolf range in Greece is widespread and continuous, covering large parts of continental Greece with an area of about 36.000 sq.km. The wolf distribution has expanded during the last 15 years to the Sterea Hellas area (southern most part) where wolf presence was formerly occasional. Population trends in the rest of wolf distribution vary locally.

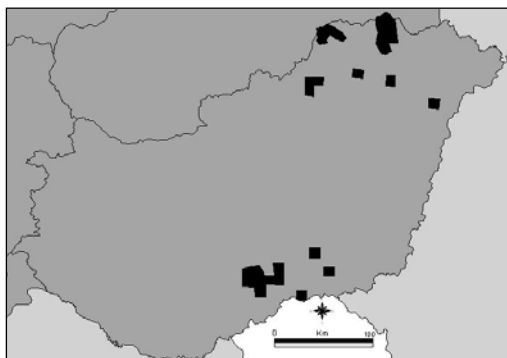
Legal and Conservation Status: The species is no longer listed in the Greek Game Species List since 1991. The wolf is considered a fully protected species only south of the 39° parallel according to the E.C. Directive 92/43. Ministry of Agriculture and the local forest services are the authorities in charge of wolf management . The legislation is poorly enforced as there is not an organized national policy targeted especially to wolf conservation/management. No action plan exist and conflicts with free ranging livestock are widespread and numerous. National organization for Agricultural Insurance (ELGA)

compensates livestock raisers for losses due to wolf at 80% of the estimated market value of the animals killed but large percentage of the damages are kept unreported and thus not examined.

Potential Threats: Rapid habitat fragmentation is ongoing due to the construction of major highways and other infrastructure throughout wolf range. In the long term, a shortage of food resources may become a threat (free ranging livestock is decreasing, garbage dumps and carrion offal sites (which represent an important food resource) are being closed, densities of wild ungulates -roe deer/ wild boar- are very low due to poaching, uncontrolled hunting and complete lack of appropriate game habitat and hunting management. Human caused mortality remains high. Illegal use of poison baits is uncontrolled and extremely widespread.

HUNGARY

Population Status: The whole Hungarian wolf population is estimated to be not more than 3-6 individuals.



The distribution range of wolf in Hungary.

Distribution: The area of recorded presence of wolves in Hungary includes regions close to the Slovak and Serbian borders, reflecting the origins of the detected individuals.

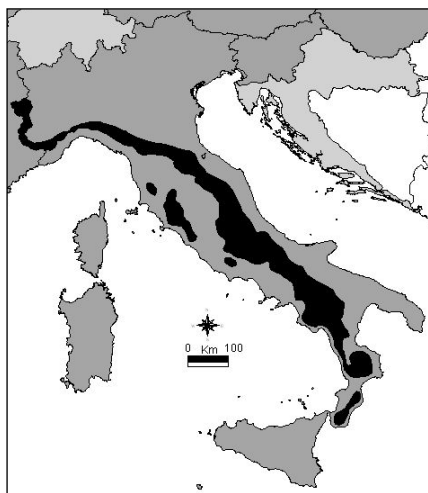
Legal and Conservation Status: The wolf is a strictly protected species in Hungary. According to the Act No. LIII. of 1996 on Nature Conservation in Hungary Article 43. In 2004 the action plan for wolf management was accepted by the Ministry of Environment and Water.

Damage regulation according to the above mentioned plan includes the allocation of financial incentives for implementation of damage prevention measure.

Potential Threats: The main current threat is represented by illegal killing. Furthermore, the population depends strictly on immigration from Slovakia and Serbia and the dispersal corridor to Slovakia is disturbed and might be interrupted in the future (e.g., the planned motorway Kosice-Roznava).

ITALY

Population Status: The Italian wolf population is estimated to be of at least 500 individuals. This is the result of a recovery process started in the 1970s, when it reached its minimum at ca. 70 - 100 individuals. The trend is increasing.



The distribution range of wolf in Italy.

Distribution: Wolves in Italy are distributed in mountainous areas of the Apennines and the western Alps. An expansion process towards the north and east in the Alpine arc is ongoing. The current distribution is in expansion, with gradual re-colonisation of previously inhabited areas.

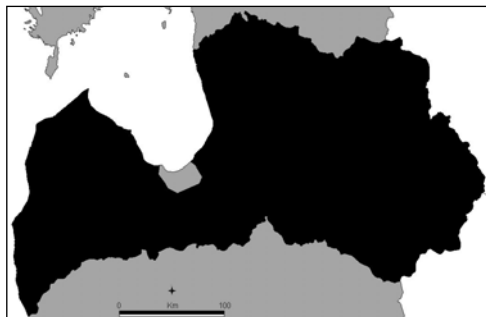
Legal and Conservation Status: The wolf is a strictly protected species in Italy, with law implementation fully delegated from the Ministry of Environment and the Ministry of Agriculture to the Regional Authorities. The latter are also responsible for compensation of damage caused by wolf on livestock, thus procedures and amount of compensation varies across regions.

Potential Threats: Illegal hunting and human persecution are the main threats for the Italian wolf population. These are mainly due to conflicts with human activities and difficulty in law implementation.

LATVIA

Population Status: The wolf population in Latvia is estimated to number about 300-500 individuals. This is the result of a recovery process started after WWII that was influenced by the neighbouring large Russian population. Although there has been a decrease since a peak in the 1990's the current trend is stable/increasing.

Distribution: At coarse scale, the wolf distribution range covers the whole of Latvia. Within the country, two separated ranges can be identified, in eastern and western Latvia.



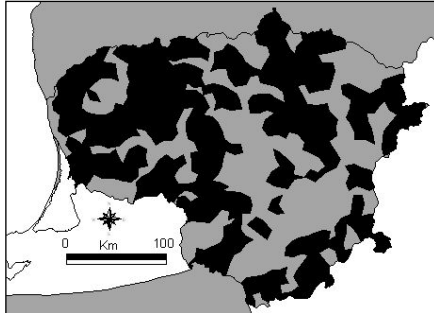
The distribution range of wolf in Latvia.

Legal and Conservation Status: The wolf in Latvia is a game species with annual quotas and a closed season from 1st April till 14th July. The institution in charge of wolf management is the State Forest Service under the Ministry of Agriculture. Damage caused by wolf is registered on voluntary request by trained experts filling in uniformed forms, although no compensations is currently paid or foreseen for the future.

Potential Threats: Currently no serious threats for wolves in Latvia can be identified as long as hunting quotas follow the development in the wolf population. Legally killed wolves were reported to be 113 for 2004, 146 for 2003 and 140 for 2002. A single episode of wolf – dog hybridisation has been detected, but this is not likely to be a common problem. Conflicts with livestock are minor.

LITHUANIA

Population Status: A population of around 400-500 wolves is estimated to be currently present in Lithuania. This is the result of an ongoing increasing trend from the late 1970s, when the population reached its minimum.



The distribution range of wolf in Lithuania.

Distribution: Wolves are present throughout the country and the distribution range is continuous with Estonia, Latvia, Russia (Kaliningrad), Poland and Belarus.

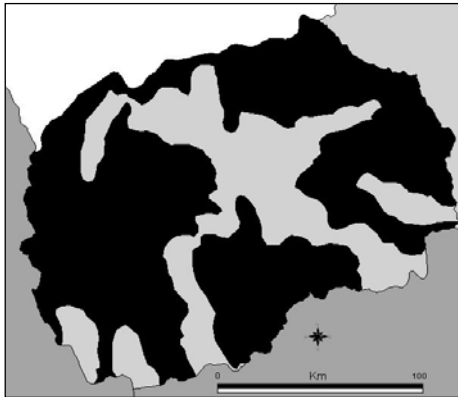
Legal and Conservation Status: Wolf is a game species in Lithuania, with a hunting season between 1st of December to 1st of April. Hunting is regulated by the Ministry of Environment; harvest is not currently limited by quota, but the potential for their establishment is currently under consideration by the Ministry of Environment. Damage is not compensated.

Potential Threats: A management plan has not been developed yet. The yearly population surveys are not based on solid scientific methodology, thus official numbers are potentially misleading, hence the effect of the number of legally killed wolves is unknown. Conflicts with livestock are extensive.

FORMER YUGOSLAV REPUBLIC OF MACEDONIA

Population Status: The current status of the Macedonian wolf population is stable and it ranges between 800 and 1000 individuals.

Distribution: The distribution range of wolf in Macedonia includes most of the country's mountainous areas, thus excluding the central plain. The population is shared with neighbouring countries (Albania, Bulgaria, Greece and Serbia).



The distribution range of wolf in the Republic of Macedonia.

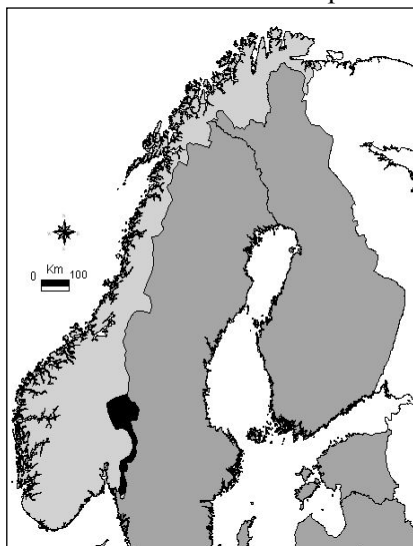
Legal and Conservation Status: The wolf within the Republic of Macedonia is a game species without any protection during the whole year. The institution in charge for wolf management is the Ministry of Agriculture, Forestry and Water Management as well as the Ministry of Environment and Physical Planning. Each year established hunting quotas are between 200 and 400 individuals. Furthermore, the Ministry of Agriculture, Forestry and Water Management has special funds for rewarding a bounty for each killed wolf (= 55 Euros per carcass), within the ascertained quota for the current year. There is no compensation system for damage to livestock caused by wolves.

Potential Threats: No particular threats identified at the current status of the population.

NORWAY

Population Status: The most recent published data refer to the winter 2003 - 2004 when 23 - 26 wolves were detected in Norway using a combination of snow-tracking, DNA analysis and radio-telemetry. Of these wolves, 14 were members of 2 reproducing packs, 4 were members of 2 scent-marking resident pairs, 1-2 more were stationary but solitary, and 4 - 6 were non-stationary. In addition, 20 - 22 wolves were members of packs or pairs situated along the border with Sweden and use the area of both countries. Preliminary data available for 2004 - 2005 indicated 2 packs and 2 stationary pairs in Norway, although one of these packs was dissolved and both pairs were removed following sanctioned lethal control in early 2005.

Distribution: Stable wolf packs are confined to south-eastern Norway, in the counties of Hedmark, Akershus and Østfold. This area adjoins the Swedish border. Dispersing wolves from this area have been detected in many parts of southern, central and northern Norway.



The distribution range of wolf in Norway.

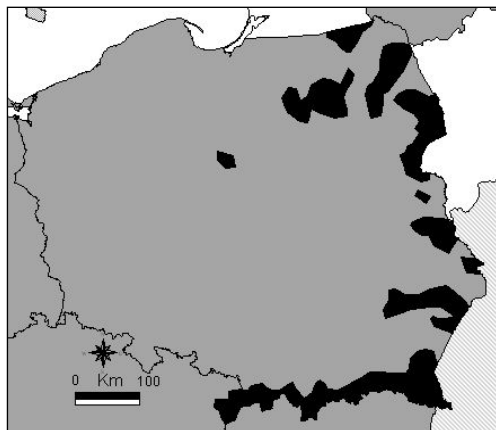
Legal and Conservation Status: In accordance with Bern Convention requirements wolves are protected, although permits for lethal control are occasionally issued in response to livestock depredation or to enforce Norway's zoning policy. During recent years this control has involved both local hunters and state game wardens. In May 2003 parliament approved a new large carnivore management policy which set a target of 3 reproducing packs within Norway, in addition to an unspecified number of packs along the border. It also designated a wolf zone along the border with Sweden with the intention of not permitting wolf packs to establish outside this zone. All damage to livestock, semi-domestic reindeer and domestic dogs are compensated by the State.

Potential Threats: Public tolerance to wolves is low in Norway – hence the low number of wolves in the management goals. This is partly due to the large potential conflicts with free-ranging and unprotected livestock (both domestic sheep and semi-domestic reindeer), wolf predation on hunting dogs, and potential competition with hunters for wild ungulates, but also due to wider conflicts where wolves are symbolic of many changes affecting rural communities, and fear. The present goals call for a population size that will never be stable, let alone viable, without contact with Sweden, but at present there is no formal agreement between the two countries on wolf management. In addition to lethal control, poaching is a widespread issue, with documented cases of wolf shooting, and the use of poison baits. Wolves have also been killed in collisions with both cars and trains. On a longer time scale, inbreeding is an issue as the entire Scandinavian population is descended from 3 individuals. Habitat conditions are excellent.

POLAND

Population Status: The Polish wolf population is estimated to number about 600-700 individuals. The population trend is stable despite the strict protection enforced in the late 1990s.

Distribution: The distribution range includes two main areas: the North-eastern region, including Bialowieza Primeval Forest, in continuity with Belarus, and the Southern region covering the Polish Carpathians, where the wolf population is shared with Slovakia and Ukraine.



The distribution range of wolf in Poland.

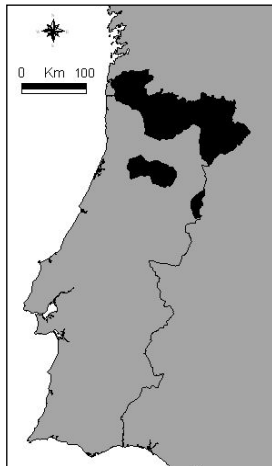
Legal and Conservation Status: The wolf is strictly protected in Poland since April 1998. Although Poland has made a reservation to the Bern Convention, this is not applied. Nevertheless, given that no expansion in distribution (except a small area in North-eastern Poland) nor increase in numbers since the protection started have been recorded, the law enforcement seems inadequate. The Ministry of Environment is the National authority responsible for wolf management. There is no official legal hunting, but the Ministry can issue permits for the lethal control of some wolves in areas where they cause excessive damages to livestock. Recently, a few such permits have been issued each year, but no wolves were

killed. Livestock damage caused by wolves is compensated by the State.

Potential Threats: Uncontrolled illegal killing (both deliberate and in illegal snares set for ungulates), decreasing number of natural prey (mainly red deer), and unfavourable habitat changes (fragmentation of forests and highway construction) may pose serious threat to the Polish wolf population in the near future.

PORTUGAL

Population Status: The Portuguese wolf population holds approx. 300 individuals. The population consists of two nuclei: one South of the Douro river, isolated from the other Iberian wolf population and made of 6 packs with approx. 30 individuals (10% of the total Portuguese wolf population). The other one is in the Northern region and includes 12 packs with a total of approx. 60 wolves (20% of the total Portuguese wolf population).



The distribution range of wolf in Portugal.

Distribution: Portuguese wolves have a distribution range that includes two areas: one in the northern region, in continuity with the Spanish portion of the Iberian wolf population, and the other South of the Douro river, isolated from both the northern Portuguese and the Spanish populations.

Legal and Conservation Status: In Portugal the wolf has been fully protected since 1988 (Dec.-Lei 88/90). The Instituto da Conservação da Natureza (Nature Conservation Institute) is the Portuguese government agency responsible for law enforcement. Given that the records report information of 33 killed wolves (mainly young ones, less than 2 years of age) during the period between 2002 and 2004, the known causes being car accident, snares, poison, dog attack, and shoot, the law enforcement is most probably not

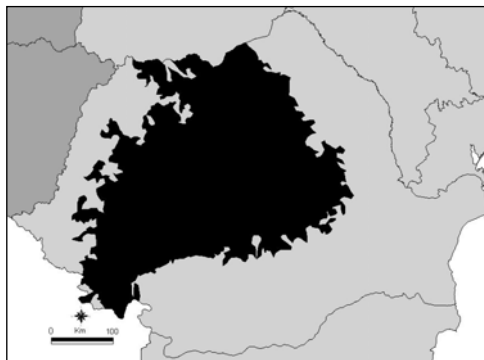
adequate.

Potential Threats: The threats to the Portuguese wolf survival are: habitat destruction; lack of natural prey; and persecution motivated at least in part by depredation on livestock.

ROMANIA

Population Status: In 2004 a population of 4,000 wolves ca. was estimated by National foresters in Romania. The population trend is stable.

Distribution: The distribution range of wolf in Romania is large and follows the geographical distribution of the Carpathians and the Apuseni Mountains.



The distribution range of wolf in Romania.

Legal and Conservation Status: The wolf is a protected game species in Romania (Hunting Law 103/1996 modified by Law 654/2001) and hunting quotas are established yearly. From 2005, the central authority responsible for wolf management in Romania is the MAPM – Ministry of Environment and Water Management, Directorate for Biodiversity and Biosecurity. Damage regulations in the Hunting Law related to wolf predation exist, although they are scarcely implemented. They include a compensation system that should be enforced by special regulations, and the involvement of the insurance companies together with a detailed damage evaluation methodology, as well as the establishment of an efficient

institutional framework. None of the latter are in place.

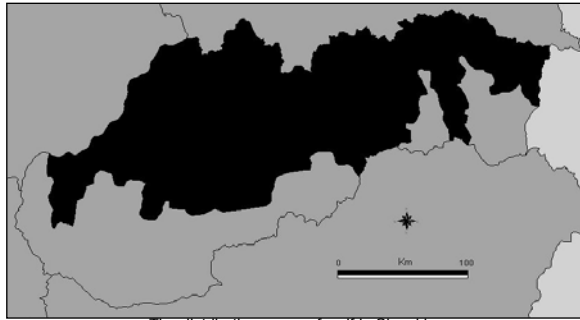
Potential Threats: There are several factors that represent potential threats to the conservation of Romanian wolves in the future. Among them are: lack of law enforcement; hunters’ and shepherds’ negative attitude towards wolves; habitat fragmentation caused by the foreseen construction of two

motorways (Bucharest – Brasov – Oradea and Bucharest – Sibiu – Arad); habitat degradation due to land privatisation.

SLOVAKIA

Population Status: Official data report a Slovak wolf population of over 900 individuals, while the estimates of experts working on restricted areas suggest a maximum of 500 wolves. No up-to-date estimates were available at the time of this report preparation. The trend appears to be stable.

Distribution: The distribution range of wolf in Slovakia includes most of the North-eastern part of the country, where the population is shared with Poland and Ukraine. A possible role as a source may be played by the Slovak wolf population with respect to the Czech Republic and Hungary.



The distribution range of wolf in Slovakia.

Legal and Conservation Status: According to the Red List of Mammals in Slovakia the wolf is listed in category LR: nt (Low risk : Near Threatened). According to National legislation, the wolf in Slovakia is a partly protected species of European importance (with hunting banned in the period 16.1 - 31.10).

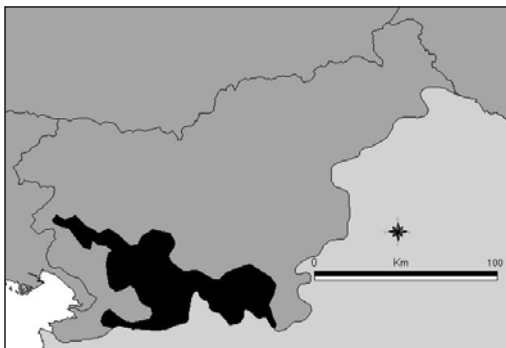
Furthermore, it is a species whose conservation requires the designation of protected areas, and two areas of year-round conservation have been established for the purpose. The damages caused by wolves are compensated by the State through Regional Environment offices.

Potential Threats: The Slovak wolf population is subject to a number of factors that may threaten its long term conservation. Among them: the absence of hunting quotas, the conflicts with human activities that may lead to negative attitudes from key interest groups, the presence of unestimated and uncontrolled illegal killing.

SLOVENIA

Population Status: The size of wolf population in Slovenia (which is partly shared with Croatia) is estimated to be between 60 and 100 individuals. After accelerated expansion in the post-1993 period, when wolves got year round protection in Slovenia, the dynamics became stable with a slight decrease after 2000.

Distribution: The Slovenian wolf population range includes areas in the Southern part of the country, continuous with the Croatian population.



The distribution range of wolf in Slovenia.

Legal and Conservation Status: The wolf is a strictly protected species in Slovenia according to the National Act on the conservation of threatened animal species (2004). In July 2005 the act was amended to include the possibility of issuing permits for hunting wolf under particular conditions (e.g., excessive livestock depredation). Compensation for wolf damage to livestock is paid by the National Government under the responsibility of the Slovenian Ministry of Agriculture and Forestry, which also provides financial incentives for the installation of electric fences on predator-exposed pastures.

Potential Threats: Illegal killing represents the most serious threat for the future and long term conservation of the wolf in Slovenia, as well as negative attitudes of hunters (who see the wolf as competitor for game animals) and farmers suffering damages.

SPAIN

Population Status: The Spanish wolf population counts more than 2,000 animals, concentrated mainly in the North-western part of the country. The population is shared with Portugal, thus it is called the Iberian wolf population. The population trend is increasing.



The distribution range of wolf in Spain.

Distribution: The distribution range of the Spanish part of the Iberian wolf population includes different portions of the following regions: Castilla y León, Asturias, Galicia, Cantabria, Basq Countries, La Rioja and Castilla La Mancha. The region South of the river Duero was recently re-colonised by the species. A small isolated population is found in Andalucía (Sierra Morena).

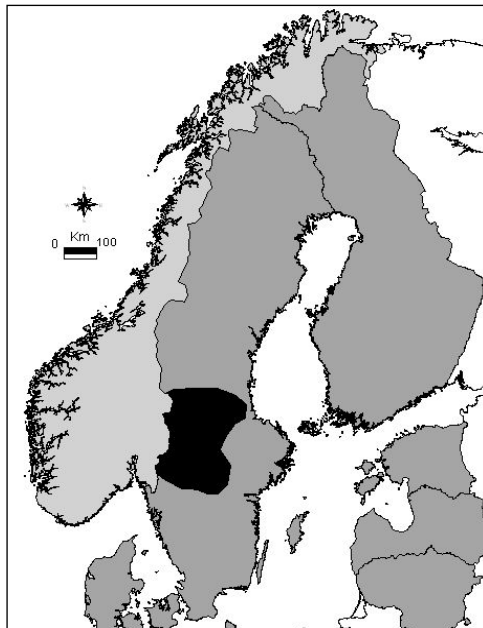
Legal and Conservation Status: In the regions North of Duero river the wolf is a game species except in Asturias, where it is partially protected. Hunting quotas are established yearly, under the responsibility of the Autonomous Region’s Governments. South of the Duero

river, the species is protected under the requirements of E.C. Habitat Directive 92/43, although permits for controlling “problem” animals that prey on livestock are issued regularly every year. In Andalucía no hunting or control is permitted in Castilla y León only. A system for compensating damage caused by wolf is present in most of the regions where the wolf is present.

Potential Threats: The Northern portion of Spanish wolf population may be threatened by negative attitudes of local farmers suffering damage, by habitat fragmentation (by newly projected transport infrastructures) and the decrease of artificial food resources represented by garbage and carrion now being destroyed due to mad cow disease. The Southern population is certainly threatened by isolation and illegal killing to protect large game species.

SWEDEN

Population Status: The most recent published data based on snow tracking, radio-telemetry and DNA analysis refer to the winter 2003-2004 when 48 - 49 wolves were found entirely within Sweden – with 36-37 wolves distributed among 6 packs and 12 wolves in 6 stationary scent-marking pairs. In addition to



The distribution range of wolf in Sweden.

these 20 - 22 wolves were members of 3 packs and 3 pairs straddling the border with Norway and using both countries. Preliminary data from winter 2004 - 2005 indicates an increase in the Swedish population with 9 packs and 6 pairs entirely within Sweden and 3 packs and 3 pairs straddling the border.

Distribution: Resident wolves are confined to a broad strip across south-central Sweden, stretching from the Norwegian border in the west, almost to the Baltic coast, and lying between 59 and 61 degrees north. The presence of the reindeer-herding districts in northern Sweden implies that wolves are unlikely to be allowed to establish a significant presence in the north.

Legal and Conservation Status: In accordance with both the Bern Convention and the Habitats Directive wolves are protected in Sweden. Lethal control is applied only in very occasional circumstances. The Swedish parliament passed a carnivore policy in 2000 which calls for a short term goal of 20 wolf packs (approximately 200 wolves), after which a new

analysis of the costs and benefits associated with further increases should be conducted. An action plan has existed since 2000, updated in 2003. All damage to livestock, semi-domestic reindeer and domestic dogs are compensated by the State, but the system for semi-domestic reindeer is mainly based on paying for the presence of carnivores rather than the damage suffered.

Potential Threats: Public acceptance for wolves in Sweden appears to be relatively high, although significant conflicts exist with hunters because of wolf predation on hunting dogs and potential competition for wild ungulates. Most sheep in Sweden are fenced such that wolf depredation is relatively low. Poaching has been documented in Sweden, and is believed to be a serious threat. In addition a few animals are killed each year in collisions with vehicles. On a longer time scale, inbreeding is an issue as the entire Scandinavian population is descended from 3 individuals. Habitat conditions are excellent.

SWITZERLAND

Population Status: The current estimates of wolf in Switzerland are of at least three individuals (1 male in the canton of Graubunden, 1 male in Tessin and 1 female in Valais). They most probably originated from the expansion of the Italian wolf population.

Distribution: The three Swiss wolves have been recorded in cantons Graubunden, Tessin and Valais. Some recent but still unconfirmed observations suggest that the species could be present in the Jura mountains.

Legal and Conservation Status: According to the Federal Law on Hunting and Protection of Mammals and Birds, the wolf is considered a strictly protected species in Switzerland. The Federal Ordinance on Hunting and Protection of Mammals and Birds (article 10) promotes on the one hand the implementation of a specific management plan and gives on the other hand the local authorities the possibility to eliminate any “problem” individuals. A Swiss Wolf Management Plan (SWMP) is present. The canton is the competent authority for the implementation of the SWMP and official game keepers are in charge of shooting the “problem” wolves. Since 1998, three wolves (all males) have been legally shot for having caused repeated damage to livestock (two ind. in 2000 and 1 ind. in 2001). Damage to livestock are fully compensated by the Federal Government (80 %) and the canton (20 %). Financial support and infrastructures to implement damage prevention measures are also provided by the Federal Government.



The distribution range of wolf in Switzerland.

Potential Threats: Illegal killing is potentially a serious threat to the conservation of the wolf in Switzerland, although the level of tolerance to wolves among livestock herders is low and the liberal use of legal lethal control permits appears to be slowing population recovery.

TURKEY

Population Status: The Turkish wolf population size is estimated to be of about 5,000 - 7,000 individuals and is currently going through a declining phase.

Distribution: The wolf prefers forests, steppes and other areas that have adequate prey in Turkey. In 2005, the distribution of the species was mainly confined to the natural habitats in Afyon, Ağrı, Aksaray, Amasya, Ankara, Balıkesir, Bayburt, Bilecik, Bitlis, Bolu, Çankırı, Çankırı, Çorum, Denizli, Erzincan, Erzurum, Eskişehir, Gümüşhane, Karaman, Kars, Kastamonu, Kayseri, Kırıkkale, Kırşehir, Konya, Nevşehir, Niğde, Ordu, Siirt, Sivas, Tokat, Van, Yozgat and Zonguldak regions. In the other regions, which are not listed, the wolf population, if present, is very low. The wolf has been totally exterminated from many areas of the Aegean part. In Thrace (the European part of Turkey), wolf presence has been very low for at least the last 50 years. No distribution map is available.

Legal and Conservation Status: The wolf is considered a pest species and it is not protected in Turkey. There are no established quotas for wolf hunting, and the species can be hunted throughout the year. The wolf is included in Appendix II of the Bern Convention, but Turkey has made an exception for wolf protection. At the time of preparation of the present report (2005) there was neither an action plan nor conservation plan for wolves in Turkey.

Potential Threats: Direct persecution of the species by all possible means and a declining prey base due to human-related causes are the two major threats for wolf in Turkey. The wolf range has been reduced over the last 50 years due to extermination efforts and indirect effects of forest fragmentation.

UKRAINE

Population Status: The population of Ukrainian wolf is estimated to be about 2,000 individuals.

Distribution: The distribution range of wolves in Ukraine includes a large part of the country's area, with higher densities in correspondence to border areas with Russia, and the Ukrainian Carpathians. Wolves are present in forested areas where natural prey are available. A distribution map is not available.

Legal and Conservation Status: The wolf in Ukraine is neither protected nor managed as a game species. It is rather considered a pest species and its control is encouraged by the issue of bounties for kills (100 Grivnas per individual = 20 Euros). In spite of having ratified the Bern Convention in 1996 with exceptions, a National Law (623/2427 of 1997), considers the wolf a harmful predatory animal for which eradication is supported.

Potential Threats: Lack of consistency in legal framework, no restrictions on killing together with existence of incentives for extirpation, habitat fragmentation and uncontrolled disturbance.

CONCLUSIONS

A number of conclusions can be drawn from this report.

- (1) The quality of data available on wolf numbers and distributions varies widely throughout Europe, from those where virtually each individual is identified to others where expert assessment is the only available way to approximate wolf status. Reducing this gap in data quality should be addressed. This is especially important because it is often the countries with most wolves that have the worst data.
- (2) Wolf populations seem to be generally stable or increasing throughout most, but not all the Bern Convention countries.
- (3) Human acceptance of wolves appears to be a major problem in many areas, especially in areas where wolves have returned after an absence. This lack of acceptance is linked to many different conflicts, including livestock depredation, competition with hunters, predation on domestic dogs, fear and wider social conflicts for which wolves become symbols. It is important to not underestimate these conflicts, or to believe that they are only linked to livestock. Understanding the reasons why acceptance varies so much between countries could be important for finding solutions.
- (4) Human caused mortality, either through hunter harvest, official lethal control, or poaching seems to be the main limiting factor for wolf populations. There are several countries where wolf management is clearly unsustainable due to over-harvest, and even state sanctioned bounty programs. On the other hand, properly regulated wolf harvest and control appears to be compatible with wolf conservation in many countries. In many cases it may be a prerequisite for public acceptance by allowing countries to keep wolf populations at a level which is socially acceptable. Countries have used many different legal mechanisms to maintain management flexibility with respect to being able to kill wolves, either using exceptions, derogations or various interpretations of convention definitions.
- (5) Poaching is a widespread problem in many countries with very diverse socio-economic backgrounds. There is a clear need for effective education and law enforcement throughout wolf range. The sometimes chronic lack of control over poaching greatly reduces management flexibility through legal means because of the need to account for this uncertainty.

(6) Wolf data and management are strictly under the responsibility of individual countries, notwithstanding of the obvious transboundary status of most European wolf populations. Full implementation of the spirit and the letter of the Bern Convention, as well as of other major international conservation legislation and treaties, require shifting the emphasis to the biological population as the basic unit to apply sound management plans.

CONSULTED LITERATURE

- Andersen, R., Linnell, J.D.C., Hustad, H. & Brainerd, S. 2004: Large carnivores and human communities: a guide to coexistence in the 21st century. - Norwegian Institute for Nature Research Temahefte 25: 1-48.
- Andersone Z. 2002. The wolf (*Canis lupus* L.) in Latvia: status, demography, morphometry, trophic ecology, and genetics in relation to current management practices. Summary of thesis for doctoral degree in Biology, University of Riga. 28 pp.
- Andersone, Z. & Ozolins, J. 2002: Investigations of the public opinion about three large carnivore species in Latvia - brown bear (*Ursus arctos*), wolf (*Canis lupus*) and lynx (*Lynx lynx*). - Report from WWF Latvia.
- Andira M., Èervený J., Bufka L., Bartošová D. and Koubek P. 2004. Recent distribution of the wolf (*Canis lupus*) in the Czech Republic. *Lynx* (Praha), 35: 5–12.
- Anonymous. 1996: Management of bear, wolf, wolverine and lynx in Finland. - Ministry of Agriculture and Forestry 6a/1996, Helsinki.
- Anonymous. 2001: Wolf management in Norway. - Council of Europe Bern\T-PVS 2001\tpvs56e_2001.doc: 1-24.
- Anonymous. 2003: Action plan for wolf conservation [Åtgärdsprogram för beavande av varg (*Canis lupus*)]. - Swedish Environmental Protection Agency, Action Plan nr 23., pp.
- Avanzinelli, E., Bertotto, P., Gazzola, A., Scandura, M. & Apollonio, M. 2003: The wolf in the province of Turin, Italy (December 2001-February 2003). - In: Weber, J.M. (Ed.); Wolf monitoring in the Alps: 2nd Alpine Wolf Workshop, Boudevilliers (CH), 17 – 18 March 2003. KORA Bericht Nr. 18 e, Switzerland, pp. 20-22.
- Balčiauskas, L., Balčiauskiene, L. & Volodka, H. 2002: Preliminary assessment of damage caused by the wolf in Lithuania. - *Acta Zoologica Lithuanica* 12: 419-427.
- Bath, A.J. & Majic, A. 2001: Human dimensions in wolf management in Croatia: understanding attitudes and beliefs of residents in Gorski kotar, Lika and Dalmatia towards wolves and wolf management. - Large Carnivore Initiative for Europe www.lcie.org.
- Bath, A.J. 2001: Human dimensions in wolf management in Savoie and Des Alpes Maritimes, France: Results targeted toward designing a more effective communication campaign and building better public awareness materials. - Large Carnivore Initiative for Europe www.large-carnivores-lcie.org, pp.
- Bego F. 2004. On the status and distribution of the large carnivores (Mammalia: Carnivora. Brown Bear, Wolf and Lynx) in Albania, Abstracts of The National Conference on Mountainous Ecosystems, 4-6 November 2004
- Bessa-Gomes, C. & Petrucci-Fonseca, F. 2003: Using artificial neural networks to assess wolf distribution patterns in Portugal. - *Animal Conservation* 6: (3) 221-230.
- Blanco, J.C. & Cortés, Y. 2002: Ecology, census, perception and development of wolves in Spain: an analysis of a conflict [Ecología, censos, percepción y evolución del lobos en España: análisis de un conflicto]. - Sociedad Española para la Conservación y Estudio de los Mamíferos (SECEM), Málaga, Spain, 176 pp.
- Bluzma P. and Baleišis R. 2001. Monitoring of Large Carnivores in Lithuania: Experiences and First Results. Human dimensions of large carnivores in the Baltic States. Baltic Large Carnivore Initiative, Vilnius 55-63
- Boitani L. 2000. Action Plan for the Conservation of wolves in Europe (*Canis lupus*). Council of Europe Nature and Environment Series Nr. 13.

- Boitani, L. 2003: Wolf conservation and recovery. - In: Mech, L.D. & Boitani, L. (Ed.); *Wolves: behavior, ecology, and conservation*. University of Chicago Press, Chicago, pp. 317-340.
- Budrys R. R. 2001. Status of lynx and wolf in Lithuania. Human dimensions of large carnivores in the Baltic States. Baltic Large Carnivore Initiative, Vilnius
- Bufka L., Heurich M., Engleder T., Wölfel M., Ěervený J. and Scherzinger W. 2005. Wolf occurrence in the Czech-Bavarian-Austrian border region – review of the history and current status. *Silva Gabreta* 11(1): 27-42.
- Can, O, E. 2004. Status, Conservation and Management of Large Carnivores in Turkey. Council of Europe. 29 pp.
- Ciucci P. and Boitani L. 1998. Il Lupo, elementi di biologia, gestione, ricerca. Serie Documenti tecnici nr. 23. Istituto Nazionale per la Fauna Selvatica. 111 pp.
- Duchamp, C., Dahier, T., Lequette, B., Taberlet, P., Léonard, Y., Rouland, P. & Marboutin, E. 2003: News about the wolf status in France: 2002-2003 update. - In: Weber, J.M. (Ed.); *Wolf monitoring in the Alps: 2nd Alpine Wolf Workshop*, Boudevilliers (CH), 17 – 18 March 2003. KORA Bericht Nr. 18 e, Switzerland, pp. 14-15.
- Ermala, A. 2003: A survey of large predators in Finland during the 19th and 20th centuries. - *Acta Zoologica Lituanica* 13: (1) 15-20.
- Flagstad, Ø., Walker, C.W., Vilà, C., Sundqvist, A.K., Fernholm, B., Hufthammer, A.K., Wiig, Ø., Koyola, I. & Ellegren, H. 2003: Two centuries of the Scandinavian wolf population: patterns of genetic variability and migration during an era of dramatic decline. - *Molecular Ecology* 12: 869-880.
- Fumagalli, L. 2003: The wolf in the Swiss Alps: non-invasive genetic analyses over a 7 year-period. - In: Weber, J.M. (Ed.); *Wolf monitoring in the Alps: 2nd Alpine Wolf Workshop*, Boudevilliers (CH), 17 – 18 March 2003. KORA Bericht Nr. 18 e, Switzerland, pp. 11-13.
- Genovesi, P. 2002: National action plan for wolf conservation in Italy [Piano d'azione nazionale per la conservazione del Lupo (*Canis lupus*)]. - Nature Conservation Service of the Italian Ministry of Environment and Territorial Protection and the National Wildlife Institute "A. Ghigi", 100 pp.
- Grilo, C., Moco, G., Cândido, A.T., Alexandre, A.S. & Petrucci-Fonseca, F. 2002: Challenges for the recovery of the Iberian wolf in the Douro river south region. - *Revista de Biol* 20: 121-133.
- Hell, P. 2001: [Wolf in the Slovak Carpathians]. - Parpress, Bratislava, 182 pp.
- Huber, D., Kusak, J., Frkovic, A., Gužvica, G. & Gomercic, T. 2002: Causes of wolf mortality in Croatia in the period 1986-2001. - *Veterinarski Arhiv* 72: (3) 131-139.
- Jedrzejewski, W., Niedzialkowska, M., Mysiajek, R.W., Nowak, S. & Jedrzejewska, B. 2005: Habitat selection by wolves *Canis lupus* in the uplands and mountains of southern Poland. - *Acta Theriologica* 50: (3) 417-428.
- Jedrzejewski, W., Niedzialkowska, M., Nowak, S. & Jedrzejewska, B. 2004: Habitat variables associated with wolf (*Canis lupus*) distribution and abundance in northern Poland. - *Diversity and Distributions* 10: 225-233.
- Kojola, I. 2003. Status and management of wolf in Finland. Abstract - International Meeting on Management and Conservation of the Wolf - Living with the Wolf, Segovia, Spain, 5th-9th November 2003.
- Kojola, I. & Kuittinen, J. 2002: Wolf attacks on dogs in Finland. - *Wildlife Society Bulletin* 30: (2) 498-501.
- Kojola, I., Ronkainen, S., Hakala, A., Heikkinen, S. & Kokko, S. 2004: Interactions between wolves *Canis lupus* and dogs *C. familiaris* in Finland. - *Wildlife Biology* 10: (2) 101-106.
- Liberg, O., Andrén, H., Pedersen, H.-C., Sand, H., Sejberg, D., Wabakken, P., Åkesson, M., and Bensch, S. 2005. Severe inbreeding depression in a wild wolf *Canis lupus* population. – *Biology Letters* 1: 17-20.
- Lõhmus, A. 2001: Status of Large Carnivore Conservation in the Baltic States Large Carnivore Control and Management Plan for Estonia, 2002-2011. - Council of Europe T-PVS (2001) 73 addendum 3: 1-53.

- Lucchini, V., Fabbri, E., Santini, A. & Randi, E. 2003: The Italian wolf genetic monitoring project. - In: Weber, J.M. (Ed.); Wolf monitoring in the Alps: 2nd Alpine Wolf Workshop, Boudevilliers (CH), 17 – 18 March 2003. KORA Bericht Nr. 18 e, Switzerland, pp. 23-27.
- Miljøverndepartementet. 2003: Carnivores in Norwegian nature [Rovvilt i norsk natur]. - Stortingsmelding 15 - 2003 - 2004, 134 pp.
- Oetjen, R. (2001). "Status of large carnivore conservation in the Baltic States and action plan for the Baltic Large Carnivore Initiative, 2001-2005." Council of Europe Report T-PVS (2001) 73: 1-25.
- Ozolins, J. (2001). "Status of Large Carnivore Conservation in the Baltic States: Action plan for the conservation of Eurasian lynx (*Lynx lynx*) in Latvia." Council of Europe T-PVS (2001) 73 addendum 1: 1-18.
- Ozolins, J. and Z. Andersone (2001). "Status of Large Carnivore Conservation in the Baltic States: Action Plan for the Conservation of Wolf (*Canis lupus*) in Latvia." Council of Europe T-PVS (2001) 73 addendum 2: 1-34.
- Ozolins, J., Z. Andersone, et al. (2001). "Status and management prospects of the wolf *Canis lupus* L. in Latvia." *Baltic Forestry* 7(2): 63-69.
- Pouille, M.L., Lequette, B. & Dahier, T. 1999: The recolonisation of the Alps by wolves 1992-1998 [La recolonisation des Alpes françaises par le loup de 1992 à 1998]. - *Bulletin mensuel de l'office national de la chasse* 242: 4-13.
- Ricci, S. 2003: The wolf monitoring program in the province of Cuneo. - In: Weber, J.M. (Ed.); Wolf monitoring in the Alps: 2nd Alpine Wolf Workshop, Boudevilliers (CH), 17 – 18 March 2003. KORA Bericht Nr. 18 e, Switzerland, pp. 16-19.
- Salvatori, V. 2004: Mapping conservation areas for large carnivores in the Carpathian Mountains. - PhD Thesis, Faculty of Engineering, Sciences and Mathematics, Univ. of Southampton, UK. 231pp.
- Salvatori, V., Okarma, H., Ionescu, O., Dovhanych, Y., Findo, S. & Boitani, L. 2002: Hunting legislation in the Carpathian Mountains: implications for the conservation and management of large carnivores. - *Wildlife Biology* 8: (1) 3-10.
- Skogen, K., Haaland, H., Brainerd, S. & Hustad, H. 2003: Local views on large carnivores and their management: a study in four municipalities [Lokale syn på rovvilt og rovviltforvaltning. En undersøkelse i fire kommuner: Aurskog-Høland, Lesja, Lierne og Porsanger]. - Norwegian Institute for Nature Research Fagrapport 070: 1-30.
- Strbenac et al. 2005. Wolf Management Plan for Croatia: towards understanding and addressing key issues in wolf management planning in Croatia. State Institute for Nature Protection, Zagreb. 108 pp.
- Valdmann H. 2001. Current situation of Large Carnivores in Estonia. Human dimensions of large carnivores in the Baltic States. Baltic Large Carnivore Initiative, Vilnius
- Valdmann, H. 2000: The status of large predators in Estonia. - *Folia Theriologica Estonica* 5: 158-164
- Valière, N., Fumagalli, L., Gielly, L., Miquel, C., Lequette, B., Pouille, M.L., Weber, J.M., Arlettaz, R. & Taberlet, P. 2003: Long-distance wolf recolonization of France and Switzerland inferred from non-invasive genetic sampling of a period of 10 years. - *Animal Conservation* 6: (1) 83-92.
- Wabakken, P., Aronsson, Å., Sand, H., Rønning, H. & Kojola, I. 2004: Wolves in Scandinavia: status report for winter 2002-2003 [Ulv i skandinavia: statusrapport for vinteren 2002-2003]. - Høgskolen i Hedmark Oppdragsrapport nr. 2-2004.
- Wabakken, P., Aronsson, Å., Sand, H., Strømseth, T.H. & Kojola, I. 2004: Wolves in Scandinavia: status report for winter 2003-2004 [Ulv i skandinavia: statusrapport for vinteren 2003-2004]. - Høgskolen i Hedmark Oppdragsrapport nr. 5-2004.
- Wabakken, P., Sand, H., Liberg, O. & Bjärvall, A. 2001: The recovery, distribution, and population dynamics of wolves on the Scandinavian peninsula, 1978-1998. - *Canadian Journal of Zoology* 79: 710-725.
- Weber, J.M. 2003: Wolf monitoring in Switzerland. - In: Weber, J.M. (Ed.); Wolf monitoring in the Alps: 2nd Alpine Wolf Workshop, Boudevilliers (CH), 17 – 18 March 2003. KORA Bericht Nr. 18 e, Switzerland, pp. 7-8.

Contributors per country

Albania

Zamir Dedej
Director of Nature Protection
Ministry of Environment
Rr. Durrresi, Nr. 27
Tirana - ALBANIA
Tel/Fax: + 355 4 270624
Mobil: + 355 68 21 80733
E-mail: zamir@cep.tirana.al

Bulgaria

Elena Tsingarska-Sedefcheva
BALKANI Wildlife Society
Dragan Tzankov Blvd. 8
Sofia 1164 – Bulgaria
Tel: +359 2 9631470
Fax: +31 317 613 727
E-mail: elena_ts@mail.bg

Croatia

Djuro Huber
University of Zagreb, Veterinary Faculty
Heinzlova 55
Zagreb – Croatia
Tel: +385 1 23 90 141
Fax: +385 1 244 13 90
E-mail: huber@vef.hr

Czech Republic

Ludek Bufka
Šumava National Park Administration
Sušická 399, CZ-34192
Kašperské Hory, Czech Republic
E-mail: ludek.bufka@npsumava.cz

Estonia

Peep Männil
Centre of Forest Protection and Silviculture
Rõõmu tee 2
51013 Tartu – Estonia
E-mail: peep.mannil@metsad.ee

France

Eric Marboutin
Office National de la Chasse et de la Faune
Sauvage, ONCFS
Z.I. de Mayencin, 5 allée de Béthléem
Gieres 38610 – France
Tel: +33 476892994
Fax: +33 625 070 880
E-mail: e.marboutin@oncfs.gouv.fr

Germany

Ilka Reinhardt
LUPUS Wildlife Consulting

Dorfstrasse 16

Spreetal / OT Spreewitz D-02979 – Germany
Tel: +493 572 757 762
Fax: +4935 727 579 094
E-mail: ilkareinhardt@online.de

Greece

Yorgos Iliopoulos
CALLISTO NGO
5, Nik. Foka, st.
Thessaloniki 54621 – Greece
Tel: +30 310 252 530
Fax: +30 2310 272190
E-mail: yiliop@otenet.gr

Hungary

HAAZ, Éva Anita
Counsellor
Ministry of Environment and Water
Department of International Treaties on Nature
Conservation
CITES Management Authority
1121 Budapest, Költö u. 21 - HUNGARY
E-mail: haaz@mail.kvvm.hu

Marta Markus

Department of Wildlife Biology and Game
Management
H-2100 Gödöllő, Páter Károly str. 1.
Tel: +36-28/522-086
Fax: +36-28/420-189
E-mail: mmarti@ns.vvt.gau.hu

Italy

Luigi Boitani
University of Rome "La Sapienza"
Dept. of Human and Animal Biology
Viale dell'Università 32
00185 Rome – Italy
Tel. + 39 06 4991 4776
Fax: + 39 06 491135
E-mail: luigi.boitani@uniroma1.it

Latvia

Janis Ozolins
State Forest Service Latvia
13 Janvara iela 15
Riga LV-1932 – Latvia
Tel: +3717 212 776
Fax: +3 717 212 776
E-mail: janiso@vmd.gov.lv

Lithuania

Linas Balciuskas
Institute of Ecology
2 Akademijos str.

Vilnius 2600 – Lithuania
 Tel: +370 2 72925-78
 Fax: +370 2 729257
 E-mail: linasbal@ekoi.lt

Former Yugoslav Republic of Macedonia
 Svetozar Petkovski
 Macedonian Museum of Natural History
 Ilindenska 8
 Skopje – Macedonia
 Tel: +389 2 3073588
 E-mail: svetozar@unet.com.mk

Norway
 John Linnell
 Norwegian Institute for Nature Research
 Tungasletta 2
 Trondheim 7485 – Norway
 Tel.: +47 73 801 422
 Fax: +47 73 801 401
 E-mail: john.linnell@nina.no

Poland
 Henryk Okarma
 Institute of Nature Conservation PAS
 al. Mickiewicza 33
 Krakow 31-120 – Poland
 Tel: +48 12 6321101 ext. 131
 Fax: +48 12 6322432
 E-mail: okarma@iop.krakow.pl

Portugal
 Francisco Petrucci-Fonseca
 Grupo Lobo - University of Lisbon - Portugal
 E-mail: fpfonseca@fc.ul.pt

Romania
 Gorge Predoiu
 ICAS Wildlife Unit
 Str. Closca, nr. 13,
 Brasov 2200 – Romania
 Tel: +40 744 362 458
 E-mail: george@icaswildlife.ro

Slovakia
 Martin Kassa
 State Nature Conservancy of the Slovak Republic
 Lazovna Street 10, PO Box 5
 Banska Bystrica 97401 – Slovakia
 Tel: +421 88 4155027
 E-mail: kassa@soprs.sk

Slovenia
 Miha Adamic
 University of Ljubljana, Dept. of Forestry and
 Renewable Forest Resources
 Vecna pot 83

Ljubljana 1000 – Slovenia
 E-mail: miha.adamic@bf.uni-lj.si

Spain
 Juan Carlos Blanco
 Spanish Wolf project
 C/Manuela Malasana 24
 Madrid 28004 – Spain
 Tel.: +34 91 593 04 56
 Fax: +34 91 593 86 70
 E-mail: jc.blanco@ya.com

Sweden
 Olof Liberg
 Grimsö Wildlife Research Station
 Department of Conservation Biology
 Swedish University of Agricultural Sciences
 SE-730 91 Riddarhyttan – Sweden
 Tel: +46 - 581 69 73 31
 Mobil: +46 - 70 39 49 519
 E-mail: olof.liberg@nvb.slu.se

Switzerland
 Jean-Marc Weber
 KORA
 Thunstrasse 31
 Muri 3074 – Switzerland
 Tel: +41 31 951 70 40
 Fax: +359 2 683 202
 E-mail: jmweber@bluewin.ch

Turkey
 Emre Ozgun Can
 Wildlife Biologist for WWF Turkey
 Büyük Postane Cad. 43-45 Kat 5-6,
 Bahçekapi/Sirkeci
 Istanbul 34420 – Turkey
 Tel: +90 212 528 20 30
 Fax: +90 212 528 20 40
 E-mail: carnivoremrecan@yahoo.com

Ukraine
 Yaroslav Dovhanich
 Carpathian Biosphere Reserve
 77, Krasne Pleso Street, Rakhiv 90600 –
 UKraine
 Tel.: +380 3132 22193
 Fax: +380 3132 22632
 E-mail: ecoclub@rakhiv.ukrtel.net