



**Towards a population level approach for the
management of large carnivores in Europe. Challenges
and opportunities**

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**PART 1. SUMMARY OF THE SITUATION IN EUROPE,
BEST PRACTICES, CHALLENGES AND PROPOSALS**

1.1. INTRODUCTION AND METHODS

The “*Guidelines for Population Level Management Plans for Large Carnivores*” were endorsed as best practice by the European Commission in 2008. This document states that large carnivores live in low densities and have very large home ranges. On such scales, there are few administrative units that are able to contain a viable population of any large carnivore species on their own. Therefore, it is vital that conservation planning for large carnivores occurs in a coordinated and cooperative manner between all the countries and the administrative units that share populations.

The aim of this report is to obtain information that can help to improve the transboundary cooperation in large carnivores in Europe. The objectives are to assess the technical and political transboundary cooperation in the European populations of bears (*Ursus arctos*), wolves (*Canis lupus*), Eurasian lynx (*Lynx lynx*) and wolverines (*Gulo gulo*). To know details on the level and characteristics of cooperation, who promoted the cooperation, the positive aspects of the cooperation and the ways to improve it. Finally, we formulate some proposals in order to improve the coordination among European countries in the management of their large carnivore populations.

In order to achieve these objectives we have prepared two questionnaires: the first on transboundary cooperation on research and management of large carnivore populations shared between two or more countries (Annex 1); and the second, on the coordination in countries clearly decentralized (Annex 2). The latter has been sent to four EU members (Germany, Spain, Austria and Italy) and two non-EU members (Norway and Switzerland).

The questionnaire on transboundary cooperation has been sent to 42 experts of 22 different European countries, including the 18 countries of the European Union which have populations of large carnivores. Thirty one people from 20 countries (17 of them from the EU) answered the questionnaire (Annex 3). In every large carnivore population, there is at least one correspondent. There are correspondents from all the European Union countries with large carnivores except Czech Republic and Hungary, which harbour just a few lynx and wolves.

Twelve of the 31 experts who answered the questionnaires work in national or regional agencies of nature conservation and 20 work at universities, research centres or consultancies, but all of them advise regularly the wildlife agencies of their countries.

Nine of the 10 persons who have not answered the questionnaires were working on government agencies and the other one was an NGO expert.

There is at least one correspondent in each of the two transboundary populations of wolverines, the 10 populations of lynx, the 8 populations of wolves and the 8 populations of bears.

A description of the coordination in the 28 transboundary European populations of large carnivores is shown in the Part 2 of this report.

1.2. TRANSBOUNDARY COOPERATION CATEGORIES.

We have defined 4 categories of transboundary cooperation:

- A.- No cooperation at all or very small cooperation.
- B.- Some occasional technical cooperation
- C.- Regular technical and/ or some management cooperation
- D.- Joint management plan for the transboundary population

The results showing the transboundary populations of each large carnivore species, the countries from where there are correspondents and the categories of cooperation are shown in the tables 3 to 6, in the Part 2 of this report.

A summary of the results is shown in the Table 1.

Table 1. *Cooperation in the 28 transboundary LC European populations.*

	Categories of cooperation				Transboundary populations
	A	B	C	D	
Wolverine	1	0	1	0	2
Lynx	2	5	3	0	10
Wolf	1	4	3	0	8
Bear	1	4	3	0	8
	5	13	10	0	28

Most of the populations are in category B, followed by C and A. There is no one population in the category D. Perhaps, a joint management plan for a transboundary population is politically difficult to achieve because of the different national agendas and political constraints. Anyway, the score of the categories with poor cooperation (A+B) prevails over the categories with good cooperation (C+D): 18/10.

1.2.1. Populations with hardly any transboundary cooperation

We have considered 5 populations with hardly any transboundary cooperation. Four of them are Karelian and Baltic populations. The main cause is that the large carnivores live between countries of the European Union with medium or high life standards and Eastern countries in the sphere of the former Soviet Union: Russia, Belarus and Ukraine, where science and concern about large carnivore conservation (in part because they are in general abundant) is still weak. The other population without transboundary cooperation is the lynx population Vosges-Palatinian, maybe because there is hardly any lynx left in the Palatinian.

1.2.2. Populations with occasional technical cooperation

There are 13 transboundary populations in this category, i.e., almost half of the 28 transboundary populations of large carnivores in Europe: five of the 10 transboundary lynx populations, four of the eight wolf populations and four of the eight of bears. Eleven of these populations (four of lynx, three of wolves and four of bears) are in

Eastern Europe and the former Yugoslavia countries, where many states are not members of the European Union, are maybe less developed than EU countries, and in some cases technical capacity and general public awareness are smaller than in Western countries. In general, the populations of bears and wolves of Eastern Europe are abundant (it is not always the case of lynx) and do not have many conservation problems, what seems to relax the urgency for cooperation.

But in this category there is as well one lynx population of Western Europe (the Jura population), where the level of coordination of the SCALP project in the Alps has not been achieved. In addition, in the Iberian wolf population the transboundary cooperation is also weak. The cooperation between Portugal and Spain may be more difficult because of two reasons. First, wolves are fully protected in Portugal (Annexes II and IV of the Habitat Directive) but are managed as a game species north of the river Duero in Spain (Annex V). In addition, the decentralized territorial system of Spain (where autonomous regions have all the competences) makes cooperation more difficult.

1.2.3. Populations with regular technical or management cooperation

There are 10 large carnivore populations with regular technical cooperation, and most of them are in Scandinavia (4 populations, one for each species of large carnivore) and in the Alps (populations of lynx, wolves and bears). The three other populations are between Poland and Germany for wolves, between France, Andorra and Spain for bears and between Germany, Czech Republic and Austria for lynx. All these populations, excepting those of Scandinavia, have been recently translocated or reintroduced (lynx in the Alps and Bavary-Bohemian region, bears in the Italian Alps and in the Pyrenees) or have naturally expanded into areas where they had been eradicated (wolves in the Alps coming from the Apenines and wolves in Germany coming from western Poland). Apparently, scientists and managers seem to make an effort to cooperate in order to recover these small and endangered transboundary populations.

BOX 1. Best practices in transboundary monitoring coordination. The case of wolves and lynx in the Alps.

For wolves in the Alps, there is a partnership in the framework of the Wolf Alpine Group (WAG) among Italian, French, Swiss, Slovenian and Austrian biologists, in order to monitor the wolf Alpine population. They work together since 2001, but it is an informal group that has been directly promoted by wolf biologists, with no connection to any government institution.

In the Alps there are other nice cases of cooperation in the monitoring of shared populations of large carnivores. One outstanding example is the SCALP project (www.kora.ch/en/proj/scalp/index.html), to coordinate the monitoring and the conservation activities in the Alps, involving a network of biologists from France, Switzerland, Italy, Liechtenstein, Germany, Austria and Slovenia. The SCALP (*Status and Conservation of the Alpine Lynx Population*) was established in the early 1990s in the recognition that no Alpine country alone can host a viable lynx population and that international co-operation is essential for the conservation of this species. Therefore, scientists from all Alpine countries formed an expert group to survey the status of the lynx in the Alps and to propose and co-ordinate further actions. The long-term goal of the SCALP is to help the now existing small, reintroduced populations to expand and to recover throughout the Alps in co-existence with people. But beyond the coordinated monitoring, there is not a coordinated management, i.e., a common definition of goals and a solidary implementation of conservation actions.

One of the best examples of informal cooperation for transboundary monitoring of large carnivores can be found in the Alps. For example, there is an informal research/monitoring partnership in the framework of the Wolf Alpine Group (WAG). In addition, the SCALP project for coordinating lynx monitoring in the Alps is as well a project managed by scientists (see Box 1), Since 2011, there is the WISO Platform who is developing a project to try to effectively set the stage for a common management of the transboundary wolf and lynx populations in the Alps. This project is managed by the governments in the framework of the Alpine Convention and is based on the Population Management Guidelines, but it is just starting and has not produced results yet.

The best transboundary cooperation examples for research are maybe in Scandinavia, in the projects of wolves and bears, and in a lesser extent, of lynx and wolverines (see Box 2). But even in Scandinavia, the coordination between the management of large carnivores in Sweden and Norway could be much improved. A communal management plan for the Scandinavian large carnivore populations has never been developed. One of the main obstacles is that Sweden is a member of the European Union, and Norway is not. The level D of transboundary cooperation (a joint management plan of a population shared between two or more countries) has never been achieved.

BOX 2. Best practices in transboundary research coordination. The case of Scandinavia.

There is a network of Scandinavian researchers (in Sweden and Norway, with Finland associated) working together. Research is closely coordinated for all four species between Norway and Sweden. The lynx research is coordinated by the Scandinavian lynx projects – Scandlynx (<http://scandlynx.nina.no/>), the wolf research is coordinated by the Scandinavian wolf project Skandulv (<http://skandulv.nina.no/>), and the bear research is coordinated by the Scandinavian bear project (<http://www.bearproject.info/>). Wolverine research does not have a formal umbrella, but has become very closely coordinated in recent years. Scandlynx and the wolverine cooperation is organised as separate projects in both countries but with a common logo, widespread sharing of data, and twice yearly meetings of its coordination group composed of the project leaders of the respective national species projects. Field work, data analysis and paper writing are coordinated. In the case of the wolf and the bear, the ecological and genetic research is totally integrated between Sweden and Norway, with communal planning of field activities, data collection and storage, data analysis and writing of reports. Skandulv involves a wider set of partners and institutions but has a full time coordinator. The wolf coordinator sends out regular information e-letters to a large number of concerned stakeholders and other interested receivers, organized in different mail lists (authorities, management, scientists, field workers, NGOs, etc.). The Scandinavian bear project has a single project leader responsible for all activity. So the operational coordination is provided by the researchers themselves. However, the initiation of the cooperation was mainly done by the national funding / wildlife management agencies on both sides of the border.

1.3. CHARACTERISTICS OF THE TRANSBOUNDARY COOPERATION

1.3.1. Promoting the transboundary cooperation

In general, the transboundary cooperation has been started by experts linked by personal connections established during meetings in scientific conferences and international expert workshops. As a consequence of these relationships there is some

coordination in research and sometimes in monitoring methods. For instance, in the Iberian Peninsula, the methods of wolf surveys have been agreed between Portuguese and Spanish biologists without any involvement of managers, conservation agencies and politicians. Most of the cooperation projects between neighbouring countries are in this first step of informal cooperation between scientists and experts.

The second step is in general when the scientists and experts manage to involve the wildlife and conservation agencies to cooperate with other countries at a technical level. These agencies give an official support to the activities of the scientists and provide economic and logistic help to the cooperation projects.

The last step is the political support to the cooperation, which is crucial for a joint management. The political support is difficult to obtain because of the different agendas of the countries, and frequently is ephemeral.

The transboundary cooperation is usually a process that takes many years. For example, in the Bavarian- Bohemian lynx population the cooperation began in the mid 1990s on expert level, continued by administration of the two national parks of Germany and Czech Republic, increased and enlarged by technical administration level and NGO projects. This evolution is typical of many other cases in Europe.

Sometimes the bilateral conflicts can trigger the cooperation mechanisms. In February 2012, a Polish NGO sent a complaint to the European Commission against Slovakia because the hunting of wolves there likely had a negative impact on Polish wolf population. In April 2012 the Polish Deputy Minister of Environment wrote to the Minister of Environment of the Slovak Republic a letter in which he requested to solve the problem. The Slovakian government re-acted sending representatives on the first meeting of the Large Carnivore group in June 2012. Since then, a proposal of transborder cooperation is being studied by both governments.

1.3.2. The positive aspects of the transboundary cooperation

All the respondents found positive aspects in the transboundary cooperation. Most of them emphasized that the coordination allows a regular communication among experts, the exchange of data, experiences and techniques for field-work, and a much more effective use of research and monitoring resources, avoiding double work. The coordination is inspiring and improves the quality of research, monitoring and management. Regarding monitoring, the cooperation avoids double counting and allows the use of the same markers in genetic analysis (which is particularly important in the case of bears). The improved information provides a better understanding of the country fragment on the whole population and of the population-level dynamics. Some correspondents stated that transboundary cooperation improves as well the feeling of a common heritage.

BOX 3. Benefits of the transboundary cooperation in monitoring and research.

- Increase the amount and quality of information
- More effective use of monitoring and research resources
- Improves the management of the population
- Improves the feeling of a common heritage

1.4. IMPROVING THE COOPERATION. CHALLENGES AND OPPORTUNITIES

The transboundary cooperation has three levels: the informal technical level, in which the experts from different countries work together in an unofficial way. The formal technical cooperation, in which the wildlife/ conservation agencies are formally involved in the cooperation. And the political level, in which there is a political mandate to cooperate and a common management.

Most of the cooperation carried out in European transboundary populations belongs to the first level; the second level is more unusual and the third level is very rare. Sometimes, the second and third categories of cooperation exist mostly on declarative level, but in practice it is effective just among researchers. Sometimes, the official transboundary groups resulting from formal agreements signed by the authorities of neighbouring countries are active for a period of time and then they are forgotten. This happens because the politicians and the civil servants of wildlife and conservation agencies change their position every few years, but the professional lifespan of the large carnivore scientists and experts is usually much longer.

In general, there are two areas where the transboundary cooperation is weaker: in Eastern Europe, where there are LC populations shared by UE countries (Finland, Baltic countries, Poland and Romania) and the countries of the former USSR (Russia, Belarus, Ukraine and Moldova). The second area is in the Dinaric- Balkan region, where there are several countries from the former Yugoslav, and some of them are less developed than many EU countries.

1.4.1. Improving the technical cooperation

To improve the technical cooperation, the first step is to exchange information on the population status (data on population size, conservation problems, etc.). For this, the transboundary meetings funded by government agencies are the best option.

The second step is to harmonize monitoring methods in order to obtain comparable information. When genetic methods are needed (they are used for all large carnivore species, but mainly for bear monitoring) the same markers should be used, and a technical contact among the different laboratories is needed. A good example of coordinated monitoring is the SCALP project for lynx in the Alps.

To coordinate research applied to conservation and management is the last step. In this way, the Scandinavian bear project or the Scandinavian wolf project (SCANDULV) are maybe the best examples. In these projects, the research in Norway and Sweden is fully integrated and coordinated just by one scientist.

1.4.2. Populations in countries with different levels of economic and scientific development

In some populations of large carnivores, an important portion of the population is in non-EU countries where the large carnivore conservation is not a priority and where there is a limited technical capacity (Dinaric- Balkan countries, Eastern European border). When we have to work at a population level, it is important to integrate these countries in the transboundary cooperation. A first step is to build capacity. This can be done through cooperative projects funded by financial instruments which allow cooperation between EU member countries and non-EU members. For example, the

Balkan lynx projects are being performed in Albania and in “the former Yugoslav Republic of Macedonia” with the support of international NGOs (KORA and Euronatur) and of the Council of Europe. These international NGOs, and organizations as the Large Carnivore Initiative for Europe (LCIE) and others have helped to establish connections helpful to launch international cooperation projects.

In some populations, a two-speed cooperation can be planned. For example, in the Dinaric lynx population, more than half of the individuals are in Bosnia-Herzegovina, and the rest in Croatia and Slovenia. In the two latter countries the research level and the tradition of cooperation are very good (a draft of transboundary management plan for lynx has already been prepared by scientist), while in the former is necessary to build the capacity first. In this case, a two-speed cooperation in one population can provide a solution to the dilemma between unity and diversity.

1.4.3. Management cooperation, dealing with different statuses of protection

The cooperation in management can be reached when the technical cooperation has being achieved. Management would be improved by regularly including representatives from neighbouring country in management and conservation decisions. When the species is fully protected in all the countries of its population range, the management coordination is not very difficult, just needs to coordinate the conservation actions in order to maximize their efficiency and the funds invested.

When the species is hunted in most of the countries of its population range, it is necessary to agree on the quota of legal removal. For some correspondents, the ultimate goal of a transboundary coordinated management is to establish a common quota for neighbouring countries. But a sustainable harvest of the population can be achieved with different quotas in each country, considering the differences in the status of the species, the damages to livestock and other interactions with people and the tradition of each country regarding large carnivore hunting.

In several large carnivore populations, there are different statuses of protection in different countries. This happens frequently, but not always, when the population is shared by EU member and non-EU member countries. In this way, the management in a particular country can be perceived as a threat for the conservation of the species by neighbouring countries. Although this can be an important obstacle for a joint management of the population, some countries have achieved good agreements in bordering areas.

Such problem happens in the NW Iberian wolf population, shared by Portugal and Spain. In Portugal wolves are fully protected but they are hunted or culled to prevent damages to livestock in most of Spain. In this case, an agreement to allow the rescue of the Portuguese population segment which is south of the river Duero by the wolves coming from the Spanish border has not yet been reached.

This conflict is particularly obvious in Scandinavia. Due to the large number of unprotected sheep in the field, Norwegian large carnivores cause more damages than the Swedish ones, and the tolerance is much lower in Norway. This disparity in management (which is in part possible because Norway is not an EU member) makes more difficult joint management plans of their LC. In spite of this, several agreements have been possible, for example Norwegian zoning policy for bears and wolves has zoned these species along the border with Sweden to maximise connectivity. In August 2011 the respective state secretaries from the Norwegian and Swedish Ministries of the

Environment signed a letter of intent to offer special protection for genetically valuable wolves that are important for the overall survival of the population.

In Baltic countries, this challenge affects wolves as well. Some experts have proposed to coordinate the wolf hunt at least in the three Baltic countries and to establish shorter wolf open seasons and division of bag limit by regions. Polish experts are concerned by the wolf management plan in Belarus, the wolf unlimited hunting in Ukraine and the wolf management plan in Lithuania. They think that these plans can threaten the Polish wolf population.

In the Carpathian population, wolves have different statuses of protection: in Poland they are fully protected. In Slovakia they can be hunted between 1 October and 31 January. In Ukraine, the wolf is treated like a vermin and can be hunted during the whole year. In Romania wolves are protected but 150-200 individuals are killed every year by hunters and farmers as part of a targeted damage limitation action. Nevertheless, even in these circumstances, agreements are possible. For example, the Slovakian government is studying a proposal from the Polish government in order to establish a 23 km buffer zone without hunting of wolves, another 10 km buffer zone without regulating culls of bears in Slovakia, and a 46 km zone of close cooperation and data exchange about large carnivores on both sides of the Polish-Slovakian borderline. In addition Romania (EU member) has signed a cooperation agreement with Moldova (non EU member) establishing the same status of conservation for wolves, same monitoring techniques and the integrated management of the wolf population.

In the Dinaric-Balkan wolf population, the management statuses reach the maximum diversity. In Slovenia, Croatia, Albania and Greece, wolves are legally protected or are protected *de facto*. In Serbia and Bulgaria they are hunted with hardly any restriction, and “the former Yugoslav Republic of Macedonia” still pays bounties to kill wolves.

Even if it is difficult to harmonize the management statuses of large carnivores in neighbouring countries, at least some consensus can be achieved in order to manage the populations in the borderlines.

1.4.4. Going beyond the technical cooperation

In order to have an effective transboundary coordination, the involvement of the official agencies and some political agreements are needed.

In most of the populations, and particularly in those which are threatened, the transboundary coordination could be carried out through bi- or multi lateral working groups. Some of these groups already exist, as the Balkanet, created several years ago in order to work with LC in the Balkans, or the groups created in the Alps for wolves and lynx. Other cooperation structures could be created in the frame of political transboundary official bodies and international conventions.

Many experts ask for some more permanent coordination mechanism or infrastructure of mid or long term duration should be created to fulfil the lack of funding. To get the support of regional or central authorities for transboundary cooperation is very important both from financial and from political reasons.

For instance, in the case of the Scandinavian populations of large carnivores, which are among the best cases of transboundary cooperation in Europe, some experts think that the coordination between the management in Sweden and Norway could be much

improved. They claim for more formal political cooperation to formalize the *ad hoc* arrangements concerning connectivity between the countries, and this could be done developing a communal management plan for the Scandinavian large carnivore populations. They think that the main obstacle against this is the fact that Sweden is a member of the European Union, and Norway is not.

In the case of the Alps, there is a formal agreement signed in 2006 by the Ministries of Environment of France, Swiss, and Italy to collaborate in the management of the wolf alpine transboundary population. This group has been very active in 2006-2009, but now it is more than 2 years that has been forgotten. Since about 2011, in the framework of the Alpine Convention, there is the WISO Platform who is developing a Project (called ROWALPS project) to try to effectively set the stage for a common management of the transboundary wolf and lynx populations in the Alps. This project is currently working and is directly managed by the governments in the framework of the Alpine Convention. This cooperation has just started and it has not produced tangible results yet, but will be based on the Population Management Guidelines.

Some experts think that this project can succeed if all bureaucracy is avoided and there is a common definition of goals and a solidary implementation of conservation actions. Anyway, they think that this is politically very difficult to achieve because of the different national agendas and political constraints. Furthermore, other wolf experts wonder if it will really benefit the conservation of the wolf population on the long term. They are afraid that some countries are just waiting to have an overall wolf alpine population status evaluation in order to have a greater population to be managed, which will allow a greater removal of individuals. If this is the only goal, they think that this will not particularly benefit the overall population. For this reason, they think that a set of important obligations to improve the overall conservation of the species are needed to be agreed upon before moving to the real cooperation on the management at the population level, i.e., which and where wolves can be occasionally removed to guarantee the full recolonization of the Alps and the long term conservation of the species.

Finally, in the Central European lowlands wolf population, a working group has been established by the governments of Germany and Poland. The Federal Agency for Nature Conservation initiated this transboundary group, which is working very well. Paradoxically, in Germany the competences are very fragmented and the frame for a national management does not exist. Hence, the international coordination should be accompanied by an intra-national cooperation among the Länder. This example is valid for other European countries. In some federal or very decentralized countries, the coordination among subnational units can be as difficult or even more difficult than the transboundary cooperation.

1.4.5. The intra-national coordination in decentralized countries

Some of the EU members are federal or very decentralized countries, where almost all decisions are taken at a regional level. The most obvious cases are Germany, Austria and Spain, where the Länder and the autonomous communities take all the decisions except those related with national laws and international competences. In addition, Italy is also very decentralized, although the role of the central government is a bit stronger than in the former countries. In these cases, the administrative fragmentation can produce an intra-national lack of cooperation which is particularly obvious for the monitoring, research and management of the large carnivores.

In most of these countries, the large carnivores are protected and hunting quotas is not an issue. But in Spain, wolves north of the river Duero (most of the Spanish wolves) are in the annex V of the Habitats Directive, so they can be managed as a game species, and all the decisions about quotas and other hunting aspects are decided by the autonomous communities (regions).

Nevertheless, all these countries have some mechanisms to coordinate the monitoring, research and management of the large carnivores.

In Germany, there is not a partnership in research, monitoring and management between Länder. There is just a meeting once a year of people responsible for wolf / lynx monitoring to share and evaluate monitoring data in order to come up with a yearly national status of wolf / lynx. The information exchange is promoted by experts, but there is not official cooperation between the Länder. As a consequence, the monitoring effort and the funds allocated for monitoring vary widely between the Länder. Synergies are not used in monitoring, damage prevention or compensation, and this causes lack of knowledge and inefficient procedures. The experts propose to establish a national monitoring coordination, an official national expert advisory board that all Länder agencies can use; to implement official government working groups regarding damage prevention and compensation to use synergies and learn from each other; and to ensure the information spreading *within* the structures of the regional hierarchies.

In Spain, there are National Working Groups for wolves and for bears. They consist of representatives from every autonomous region with wolves and bears and representatives of the Ministry of the Environment, which is the agency in charge of the coordination. Since its constitution, a board of independent experts was included in the National Wolf Working Group, but it was definitively excluded in 2010. The Working Groups usually meet once a year in order to exchange information on status and management, and try to reach agreements on monitoring techniques and other topics. Most of the autonomous regions attend the annual meeting of the working groups but this is not mandatory and a few autonomous regions have never attended these meetings. Both in the case of wolves and bears, the Working Groups have prepared a National Strategy, agreed by all the autonomous regions and the Ministry of the Environment. The National Strategies provide wide recommendations on conservation and management and are no binding.

BOX 4. Intra-national cooperation best practices.

- A coordination group for each large carnivore population in the country consisting of regions, an advisory board of experts and the national Ministry of Environment leading the process.
- A binding National Action Plan of each large carnivore population in the country

In Italy, the management is shared between the central government and the regions. The national government is responsible for national laws, the reporting to the EC and the issuing of authorization to capture, removal, etc. The regional governments are responsible for compensation/prevention programmes. There is no collaboration among regional governments. The only attempt to set up a partnership is on bears: the National Ministry has promoted two Memorandum of Understanding and protocols for the management of bears both in the Alps and in Central Italy. These documents have been signed by all the institutions that play a role in bear conservation in Italy, but the two MoU and protocols are little more than good intention statement without effective

actions. The experts consider that there must be a much stronger role for the national government.

Obviously the transboundary cooperation in the management of large carnivores at a population level must be accompanied by additional measures to improve the regional cooperation in decentralized countries.

1.5. MOVING FORWARD: PROPOSALS FOR FUTURE ACTIONS

In the future, the goal is to approve transboundary management plans, as was recommended by the “*Guidelines for Population Level Management Plans for Large Carnivores*“. Nevertheless, we are still in the beginning. Many states will decide by themselves to cooperate with neighbouring countries, but other countries will need some external support. In order to promote this cooperation at European level, we need to know what are the priority populations.

1.5.1. Setting priority populations

Regarding transboundary cooperation, the priorities should focus in the most threatened transboundary populations, i.e., the populations which are Critically Endangered (CR) or Endangered (EN), shown in the Table 2. But among these populations, there are three categories:

A) Populations which have increased in recent years because of a natural expansion process, i.e., wolves in Scandinavia, Central European lowlands and the Alps.

B) Populations which have increased because of reintroduction/reinforcement programs, i.e., Eurasian lynx populations of Jura, Vosges-Palatinian, the Alps, Bohemian-Bavarian and Dinaric regions; and bear populations in the Pyrenees and the Alps.

C) Transboundary autochthonous populations which have been decreasing in recent years, i.e., Balkan lynx population (CR), and Karelian wolf population (EN).

Table 2. *Transboundary populations of LC which are Critically Endangered (CR) or Endangered (EN). The category A includes the naturally expanding populations; B, reintroduced/reinforced populations; C: autochthonous decreasing populations.*

Population	IUCN assessment	Category
Bear Pyrenees	CR	B
Bear Alps	CR	B
Wolves Scandinavia	EN	A
Wolves Karelia	EN	C
Wolves Central European lowlands	EN	A
Wolves Alps	EN	A
Lynx Balkan	CR	C
Lynx Dinaric	EN	B
Lynx Bohemian-Bavarian	CR	B
Lynx Vosges-Palatinian	CR	B
Lynx Jura	EN	B
Lynx Alps	EN	B

The priorities should focus first in category C and then in categories B and A. In many of these populations, mainly in the categories A and B, an important work on transboundary cooperation has already been done. The future projects to reinforce cooperation must improve what has already been achieved. For example, the coordination in the transboundary populations of wolves, lynx and bears in the Alps and Scandinavia are already very good, but the cooperation between Finland and Russia in the Karelian wolf population is almost lacking. In the

In addition, the cooperation priorities should address some bilateral problems on the management of transboundary large carnivores, for example, the conflicts between Poland and Slovakia on wolf hunting in the borderline, the necessary cooperation between Portugal and Spain in order to allow the arrival of wolves from Spain to rescue the isolated segment of the Portuguese population which is south of the river Duero, etc.

1.5.2. Steps to improve the transboundary coordination

First step. Improving technical coordination.

- Exchange of information on status and conservation issues in neighbouring countries.
- Harmonizing monitoring methods (see Box 1).
- Coordination in applied research through cooperation between agencies (see Box 2).

Second step. Improving management coordination.

- Agreement in hunting quotas for game species
- Agreement in borderline areas management when the protection statuses in neighbouring countries are different.
- Coordinate management. Common definitions of goals, agreed management in controversial issues.
- A common management plan for the whole population.

1.5.3. Some notes to improve the coordination

- Through common projects between neighbouring countries which share large carnivore populations.
- Integrating both EU member and non-EU member countries.
- Supporting NGOs or teams of experts with experience promoting transboundary cooperation: LCIE, KORA, Balkanet, Callisto, etc.
- Looking for funds which can support projects from both EU and non-EU members.
- If necessary, through projects including two-speed cooperation programmes in order to integrate countries with different economic and technical level.

BOX 5. Funding the cooperation projects.

One major problem is how to obtain funds for this cooperation, considering that many of the populations which need to improve the coordination are also in non-EU states. The funding mechanisms of the European Union for non-member states must be explored. The European funds usually devoted for nature projects (mainly Life +, but also EFRD and EAGRD) can be used to cooperate with non-EU states just to a limited extent. But there are other EU funding programmes of interest. For example, The European Neighbourhood and Partnership Instrument – known as the ENPI- is the main financial mechanism through which assistance is given to the European Neighbourhood Policy Partner Countries. Some eastern states, such as Russia, Belarus, Ukraine and Moldova, are among the countries that can apply to this fund in cooperation projects with EU countries. One of the topics of this cooperation is the “sustainable management of natural resources”. These eastern countries are important for the Karelian, Baltic and Carpathian transboundary populations of large carnivores.

**PART 2. TRANSBOUNDARY COORDINATION. REPORTS ON
POPULATIONS**

Table 3. Transboundary bear populations in Europe. The third column shows the countries from where there are correspondents and the fourth, the category of coordination (see text).

BEAR			
POPULATION	COUNTRIES	RESPONDENTS FROM	CATEGORY OF COORDINATION
Scandinavia	Norway Sweden	All	C
Karelian	Norway Finland Russia	Norway Finland	B
Baltic	Estonia Latvia Belarus Russia	Estonia Latvia	A
Carpathian	Romania Poland: Serbia North ? Slovakia	Romania Poland Slovakia	B
Dinaric-Pindos	Slovenia Croatia Bosnia & Herzegovina Montenegro "the former Yugoslav Republic of Macedonia" Albania Serbia Greece	Slovenia Croatia Greece	B
Alpine	Italy Austrian Slovenia	Italy Austrian Slovenia	C
Eastern Balkans	Bulgaria Greece Serbia	Bulgaria Greece	B
Pyrenean	France Spain		C

Table 4. Transboundary wolf populations in Europe. The third column shows the countries from where there are correspondents and the fourth, the category of coordination (see text).

WOLF			
POPULATION	COUNTRIES	RESPONDENTS FROM	CATEGORY OF COORDINATION
Scandinavian	Sweden Norway	All	C
Karelian	Finland Russia	Finland	A
Baltic	Estonia Latvia Lithuania Poland Belarus Ukraine Russia	Estonia Latvia Lithuania Poland	B
Central European Lowlands	Germany Poland	All	C
Carpathian	Slovakia Romania Poland Czech Republic Hungary Ukraine	Poland Romania Slovakia	B
Dinaric-Balkan	Slovenia Croatia Bosnia Bulgaria "the former Yugoslav Republic of Macedonia" Serbia Greece Albania	Slovenia Croatia Bulgaria Greece	B
Alpine	France Italy Swiss	All	C
NW Iberian	Spain Portugal	All	B

Table 5. Transboundary Eurasian lynx populations in Europe.

LYNX			
POPULATION	COUNTRIES	RESPONDENTS FROM	CATEGORY OF COORDINATION
Alpine	Switzerland Slovenia Italy Austria France	All	C
Balkan	“the former Yugoslav Republic of Macedonia” Albania Kosovo* Serbia & Montenegro Bulgaria	Bulgaria	B
Baltic (this time not included: Belarus, the Russian oblasts of Leningrad, Novgorod, Pskov, Tver and Smolensk. Kaliningrad oblast and northern Ukraine)	Estonia Latvia Lithuania Poland Belarus Russia	Estonia Latvia Lithuania Poland	B
Bohemian-Bavarian	Czech Republic Germany Austria	Germany Austria	B
Carpathian (this time not included: Ukraine)	Romania Slovakia Poland Czech Republic Hungary Serbia & Montenegro Bulgaria	Romania Slovakia Poland Bulgaria	B
Dinaric	Slovenia Croatia Bosnia-Herzegovina	Slovenia Croatia	B
Jura	France Switzerland	France Switzerland	B
Karelian	Finland Russia	Finland	A
Scandinavian	Norway Sweden	All	C
Vosges-Palatinian	France Germany	All	A

*This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.”

Table 6. Transboundary wolverine populations in Europe. The third column shows the countries from where there are correspondents and the fourth, the category of coordination (see text).

WOLVERINE			
POPULATION	COUNTRIES	RESPONDENTS FROM	CATEGORY OF COORDINATION
Scandinavia	Norway Sweden	All	C
Karelian	Finland Russia	Finland	A

2.1. TRANSBOUNDARY BEAR POPULATIONS.

BEAR. SCANDINAVIAN POPULATION.

Bears are in Sweden (most of the population) and Norway, with some connection with Finland.

Technical and management cooperation. Research is fully integrated through the Scandinavian Bear Project (<http://www.bearproject.info/>), which has a single project leader responsible for all activity. Monitoring is carried out separately in each country, but the management agencies keep close contact with each other on questions about monitoring. Efforts are being made to standardize monitoring more than today and to use the same online data base for reporting observations, mortalities, bear-caused depredations, etc. Norwegian monitoring is centralised within Rovdata, a unit of the Norwegian Institute for Nature Research. This has led to standardized and coordinated methods across all of Norway. Until recently, Swedish monitoring has been decentralised to the various Swedish counties (Swe. Län) leading to a diversity of methodological and reporting processes. However, there is a move underway to harmonise the methodology within Sweden and make it comparable with Norwegian methods as well as move towards centralised coordination and reporting. Sweden has already begun to use the same database software as Norway to facilitate data sharing.

The management problems that bears cause are very different in Norway and Sweden, so it is difficult to integrate management. However, the managers have regular meetings at the national management agency level and occasional meetings between national politicians at the department level.

The operational coordination is provided by the researchers themselves. However, the initiation of the cooperation was mainly done by the national funding / wildlife management agencies on both sides of the border. The Scandinavian Bear project is funded by the national wildlife management agencies in both Sweden and Norway.

The positive aspects of research and monitoring cooperation are a much more effective use of research resources and the ability to monitor a biologically common population using standardized methods. The managers on both sides of the border know what to expect: population size, trends, coming changes in policy, etc.

Improving the coordination. Although the practical and technical cross border management is effective, some experts think that there is a need to formalise this cooperation to a much greater extent at a political level, in order to formalise the ad hoc arrangements concerning connectivity between the countries. In Norway the bears cause much more damages than in Sweden, so this is a problem to harmonise the management at population level.

BEAR. KARELIAN POPULATION.

The Karelian bear population is mainly shared by Finland and Russia, but there is still some communication of bears between Norway and Finland.

There is no cooperation between Finland and Russia. Between Finland and Norway there is a fluent exchange of information promoted by scientists and experts. The harmonization of population monitoring would be desirable.

BEAR. BALTIC POPULATION.

Most bears are in Estonia with small number in Latvia. Also in Russia and Belarus.

Technical and management cooperation. Very good partnership in research between Estonia and Latvia, but poor cooperation with Russia and Belarus.

Between Estonia and Latvia, there are common studies and published articles and regular sharing of information of the monitoring results. In management, they discuss about planning of annual bag limits, etc. Nevertheless, political cooperation between Estonia and Latvia can be much improved.

This coordination is performed by certain persons from Estonian Environment Information Centre, Latvian State Forest Service and Latvian Forest Research Institute "Silava", and it is promoted by some scientist/experts from national agencies. This cooperation is possible only because of personal connections established some decades ago during meetings in scientific conferences and international expert workshops.

The cooperation with Russia and Belarus is certainly very poor.

To improve the coordination with Latvia a cooperation in the political level to establish better monitoring is needed.

BEAR. CARPATHIAN POPULATION.

Most bears are in Romania and Slovakia, with small numbers in Poland and Serbia. Unknown numbers in Ukraine.

Technical and management cooperation. The main transboundary cooperation is between Poland and Slovakia. There is also cooperation between Romania and Slovakia, and little or none cooperation with Ukraine and Serbia.

Poland- Slovakia cooperation. During recent years there is a co-operation between Tatra Mountains national parks in Poland and Slovakia, which includes bears genetic monitoring, the conservation of prey and the wintering sites of bears and the issue of the habituation of bears in Tatra. The cooperation on monitoring and research on transboundary populations of bears is being recently established on the interministerial level. This cooperation is in the beginning, but seems to be good in future.

There are several initiatives to coordinate monitoring and research and to reach some management agreements. In spring 2011, a bilateral Polish-Slovakian seminar was organised in Krakow by the Polish General Directorate of Environment, where situation of wolves, bears and lynxes in both countries were presented. The recommendation to

establish the LC working group was agreed on this meeting. A preliminary agreement on creating buffer zones along Polish-Slovakian border to protect transborder populations of wolves and bears was achieved. The proposed buffer zones are: 23 km zone without hunting on wolves and 10 km zone without regulating culls of bears in Slovakia, and 46 km zone of close cooperation and data exchange about large carnivores on both sides of the borderline. A final decision of the Slovakian government on creating these zones is still pending.

At 6-7 November, 2012 the Polish General Directorate of Environment has organised an international conference "Conservation of large carnivores in transborder areas", where representatives (large carnivores experts, officials and NGOs) from all neighbouring countries were invited. Following these initiatives, a Polish-Slovakian Large Carnivores working group will be established in December 2012 in a frame of the Polish-Slovakian Commission of Transboundary Cooperation. It will include experts, governmental officers and directors of Carpathian National Parks. The goal of the group will be large carnivore information exchange and harmonisation of large carnivore management in transboundary population.

Romania- Slovakia cooperation. In addition, Romania cooperates with Slovakia in genetics of bear population (Faculties of Silviculture from Brasov and Zvolen).

In general, the co-operation has been promoted by NGOs and scientists since mid of the 1990s. In 2012, the cooperation between Poland and Slovakia has started at a political level.

The positive aspects are exchange of knowledge, common view on the management of the species, how other managers solve the problems and inspiration for other countries.

To improve the coordination is necessary to create the Carpathian Large Carnivores working group, including Ukraine and Serbia. To introduce common monitoring standards for LC within the subpopulations, or at least common yearly assessment of the population size and distribution, based on national surveys. To have more meetings, more discussion, better scientific approach and higher involvement of responsible authorities. To create an EU fund for common monitoring and conservation of transborder populations of rare species.

BEAR. DINARIC-PINDOS POPULATION.

The larger number of bears are in Croatia, Bosnia-Herzegovina and Slovenia, and also in Albania and Greece in the south.

Technical and management cooperation. In the northern part of the population, there is good technical cooperation between experts in Croatia and Slovenia. In the south, there is some sporadic cooperation between Greece and Albania through contacts between NGOs which become active only through specific international conservation projects.

Between Croatia and Slovenia, there is full cooperation regarding bear research, and the cooperation in monitoring is in development. Between Croatia and Bosnia-Herzegovina there are some contacts between experts at a regional level because in the latter there is not a proper capacity on national level.

In management, there is some cooperation between Croatia and Slovenia but there is mostly on declarative level only. There is no cooperation among the other Balkan countries.

The existing cooperation has been initiated and in practice is effective only among researchers.

Positive aspects of the cooperation. Between Slovenia and Croatia the great positive aspect is the full exchange of data, samples and common laboratory examination of samples for bears.

To improve the coordination, the countries which have more cooperation (Slovenia and Croatia) should launch a series of common facilitated workshops to build common strategies, something more general than management plans. This process is expected to start between Croatia and Slovenia in 2012. The ultimate goal is to establish a common quota for lethal removal of bears and wolves.

At a population level, in the future it would be desirable to create a Balkan large carnivores group or maybe to revitalize the BALKANET network. In some Balkan countries it is necessary to start the technical cooperation or even built the technical capacity first.

BEAR. ALPINE POPULATION.

Most bears of this population are in Italy (Trentino and Friuli Venetia Giulia), then in Slovenia, and a few individuals in Austria and Switzerland.

Technical and management cooperation. There is some technical cooperation between Italian experts and experts from other countries but it is not officially established. Even in this case the cooperation is performed by the persons responsible for wildlife management in regional and/or national governments. Since several years ago, the bear monitoring is coordinated among the Italian autonomous regions of Trentino, Friuli Venetia Giulia and Slovenia, Austria and Switzerland. For the genetic analysis, one laboratory of each country is involved, but most of the times they use the same markers. Currently, there is an initiative in order to create a common European genetic data base.

The cooperation is good at the technical level, much less at the political level, where the coordinated activity and a real common management are lacking.

The positive aspects of this cooperation are the feeling of a common heritage, the improved quality of monitoring and the mutual know-how growth. All of them contribute to increase the chance to preserve in the long term the large carnivores in the Alps.

To improve the coordination, first and most important is to improve the political awareness on the comeback of large carnivores in the Alps, and that the cooperation among neighbouring countries is a must, not just for ethical or biodiversity reasons, but because this is the proper way to manage agriculture, forestry, tourism, i.e., most of the human activities in the Alps.

In such frame the EU first and other political transboundary official bodies (Arge Alp, Alp Convention, Euregio, Alpe Adria, others) should have a major role, much more than what they had up to now.

BEAR. EASTERN BALKAN POPULATION.

Bulgaria (>80%) and Greece. A few bears in Serbia.

Technical and management cooperation. In the East Balkan population of bears, there is some intermittent transboundary technical cooperation based on international projects, but no political cooperation.

Between Greece and Bulgaria there is a form of loose partnership scheme which is maintained mainly through long standing contacts between NGOs and experts, and which becomes active only through specific conservation projects under different financial tools (LIFE, INTERREG, PHARE-CBC, etc.). For the two latter project categories trans-border cooperation is mandatory and therefore facilitates even more all related activities. Concerning the brown bear, trans-boundary cooperation started in 1994 under the first LIFE project (LIFE93NAT/GR/001080) on brown bear conservation in Greece. Followed the creation of the BALKANET under the homonymous project which was also supported by the LCIE during its second phase.

The most recent transboundary cooperation opportunity was between Greece and Bulgaria under two projects: The INTERREG program: "Awareness Raising and Information Campaign for the Mountain Ecosystems and Large Carnivores in the Transborder Area of Rhodope" (2005-2008). And the PHARE-CBC program "Development of Cross-Border Cooperation as a Basis for Effective Conservation of Brown Bear Population and Habitats in Western Rhodope Region", completed in November 2007. The main output of this project was the elaboration of a "Trans-border Action Plan for the Conservation of the brown bear".

The aforementioned Action Plan is the most concrete tool comprising and suggesting concrete trans-border actions between Greece and Bulgaria emphasizing on bear monitoring and management. The lack of funding follow-up has suspended the plan implementation.

This partnership has been promoted mainly by NGOs and expert scientists attached to NGOs. In Greece, the regional and central authorities have not developed the cooperation possibilities.

The positive aspects are the exchange of the state of the art methods and best practices, the necessary adjustments for comparable results and the large scale approach.

To improve the cooperation, some more permanent coordination mechanism or infrastructure of mid or long term duration should be created to fulfil the lack of funding. To get the support of regional or central authorities for transboundary cooperation. To train personnel when necessary in order to implement concrete management actions.

BEAR. PYRENEAN POPULATION.

Bears in the Pyrenees are between France, Spain and Andorra.

Technical and management cooperation. In the Pyrenees, there is a partnership for brown bear monitoring, research and management between Andorra, France and Spain. There are international and national political agreements between countries and Spanish regions, promoted by environment agencies, but the everyday work is performed by technicians of different agencies.

For monitoring, there is a common protocol and regular exchange of data. For research, subjects are decided altogether to lead to common publications.

In addition, there is a political agreement for the conservation, research and monitoring of brown bear between the 3 countries.

The scientific and technical partnership has been promoted by scientists and technicians. The political partnership, by the national governments of the three countries.

The positive aspects are that the technical cooperation allows a regular contact via e-mail, to use the same methods to estimate population size and to share the databases and all the information. The negative aspects are that the cooperation is uneven among the different administrations.

To improve the coordination, it would be necessary to fix common objectives (at technical, scientific, financial and administrative management levels) and to evaluate if they have been achieved. In order to improve the technical cooperation, more contact with some agencies, as Andorra and Navarra, is desirable, and more personal contact with the experts of neighbouring administrations.

In addition, the political cooperation is much weaker than the scientific one and should be improved.

2.2. TRANSBOUNDARY WOLF POPULATIONS.

WOLF. SCANDINAVIAN POPULATION.

Between Sweden (almost 90% of wolves) and Norway.

Research/ monitoring cooperation. There is a strong cooperation in scientific aspects but not in wolf management. Since 2000, there is SKANDULV (<http://skandulv.nina.no/>), a network for Scandinavian wolf research (Sweden and Norway, with Finland associated) presently coordinated by a Sweden coordinator. The ecological/genetic wolf research in Scandinavia is totally integrated between Sweden and Norway, with communal planning of all field activities, data collection and storage, data analysis and writing of reports. They have full exchange of data and common databases, and they discuss and agree on how to distribute responsibilities for publishing of papers. They produce a regular annual monitoring report for the Scandinavian wolf population, including also the Finnish population.

They hold regular bi-annual meetings, and almost daily contact within SKANDULV with phone and e-mail. One of the annual meetings is a week long conference with representatives from national and regional management and research financing agencies, people from the governments (Ministries of the Environment), and from some NGOs. The meeting is organized by SKANDULV. The other regular annual meeting is a 3-day scientific workshop with only scientists from SKANDULV.

The coordinator sends out regular information e-letters to a large number of concerned stakeholders and other interested receivers, organized in different mail lists (authorities, management, scientists, field workers, NGOs, etc.).

SKANDULV was initiated by the national agencies, and still is promoted by these, but run by the participating scientists, under the guidance of the coordinator (a scientist).

Management coordination. Management is coordinated mainly in an *ad hoc* manner. There is close contact and dialogue between the Norwegian Directorate for Nature Management and the Swedish Environmental Protection Agency. They share information and coordinate funding to research. Respective national policy documents make frequent reference to each others populations. Norwegian zoning policy for bears and wolves has zoned these species along the border with Sweden to maximise connectivity. In August 2011 the respective state secretaries from the Norwegian and Swedish Ministries of the Environment signed a letter of intent to coordinate their activities with respect to offering special protection for genetically valuable wolves that are valuable for the overall survival of the population.

The positive aspects are a very efficient and productive research, no double work, optimal use of research funds, extremely inspiring, the SKANDULV scientists speak with one (and very strong) voice in management issues and in contacts with media.

Improving the cooperation. Although the practical and technical cross border management is effective, there is a need to formalise this to a much greater extent at a political level.

The technical coordination is rather good, one the best of Europe regarding large carnivores. Maybe the social research regarding wolves and people should be integrated in SKANDULV.

But the coordination between the managements in Sweden and Norway could be much improved. There is a need for more formal political cooperation to formalise the ad hoc arrangements concerning connectivity between the countries. The first thing to do there would be to develop a communal management plan for the Scandinavian wolf population. The main obstacle against this is the fact that Sweden is a member of the European Union, and Norway is not. In addition, the damages caused by wolves to livestock are much higher in Norway than in Sweden, and in consequence Norwegian authorities are less tolerant to wolves than the Swedish ones.

WOLF. KARELIAN POPULATION.

The Karelian wolf population is between Finland and Russia. There is some sporadic connection between the Karelian and the Scandinavian population through the border Finland-Norway.

Technical and management cooperation. There is no transboundary cooperation between Finland and Russia. There is good technical cooperation between Finland and Scandinavia. This cooperation produces a joint annual wolf status reports. This partnership has been promoted by scientists and experts.

There is no management cooperation neither between Finland and Russia nor between Finland and Scandinavia.

The positive aspect of the technical cooperation with Scandinavia is the fluent exchange of information.

In terms of management, the negative aspect is that the wolf harvest in Finland to prevent a high volume of damages to reindeer husbandry causes the so called "reindeer herding filter", which hampers the connection between breeding populations in Finland and Scandinavia.

WOLF. BALTIC POPULATION.

This population is rather evenly distributed in the three Baltic countries and Poland. There are unknown numbers in Russia, Belarus and Ukrain.

Technical and management cooperation. There is good exchange of information at least among the EU countries, but there is not extensive research/monitoring cooperation and no management cooperation.

There is a partnership on basis of rather private contacts established decades ago due to the mutual meetings in scientific conferences and international expert workshops. Meetings had been organised by national mammal societies, conservation agencies as well as international scientific forums worldwide. Besides those meetings that happen 1-3 times a year, they exchange e-mails about population status, interesting observations, published results etc. Writing common scientific papers and/or mutual anonymous reviewing takes time to time place as well. The experts from Baltic countries and Poland are usually invited to comment the wolf management plans of other Baltic and neighbouring countries.

This relationship is very strong between Estonia and Latvia, but also with Lithuania and Poland. Between Estonia and Latvia, there is regular sharing of information and discussions about planning of annual bag limits, etc. This coordination is performed by experts from Estonian Environment Information Centre, Latvian State Forest Service and Latvian Forest Research Institute "Silava". Between Latvia and Lithuania, wolf monitoring was co-ordinated in 2008-2011, but currently this has stopped due to financial difficulties.

There are more difficulties of coordination between EU and non-EU countries, particularly with Russia and Ukraine. But in Poland, on scientific level, there is a long-lasting personal co-operation between scientists from the Mammal Research Institute Polish Academy of Science in Bialowieza and the Belarusian State University in Minsk and the Belarusian Bialowieza NP in wolf ecology.

In addition, in Poland, there are governmental working groups including experts and officials which have been already established or are decided to be established to deal with problems and issues relating to transboundary large carnivores conservation. Anyway, in this population the political cooperation for a coordinated wolf management is lacking.

In general, the partnership is promoted by certain scientist/experts from national agencies. This cooperation is possible because of the personal connections. In Lithuania, the cooperation is promoted by scientists and hunters. In Poland, apart from long-term cooperation promoted by scientists, since 2009 the Polish government has started several attempts to develop the transborder co-operation for large carnivores populations with neighbouring countries.

The positive aspects are the international legal liability forcing national governments to take into account similar requirements and conservation measures. Cooperation in scientific field yielded number of papers and the possibility to compare wolf monitoring results.

To improve the coordination, the partnership between EU countries with Russia, Belarus and Ukraine should be started or improved. To introduce common monitoring standards for wolves, or at least common yearly assessment of the population size and distribution, based on national surveys. To create bi- or multi-lateral Baltic Wolf working groups.

Regarding management, to coordinate the wolf hunt at least in the three Baltic countries is desirable. This could include to establish shorter wolf open seasons and division of bag limit by regions. Polish experts are concerned by some wolf management systems (approved or under preparation) which can have an impact on wolf population in Poland. The most significant is the Wolf Management Plan in Belarus, and the wolf unlimited hunting in Ukraine, but also the Wolf Management Plan in Lithuania is controversial and may threaten the Polish population.

WOLF. CENTRAL EUROPEAN LOWLANDS POPULATION.

This population is between Germany and Poland.

Technical and management cooperation. The Polish-German Wolf working group has been established within the Polish-German Council for Environmental Protection since 2009. Members are national and regional governments / agencies and wolf experts from both countries. The group holds meetings once or twice a year and focus

on German-Western Poland wolf population conservation and management. In 2012 members of the group prepared a report on the status, number, distribution, conservation problems and monitoring of wolves in both countries, as well as possibilities of introduction of common monitoring system. In December 2012, they will focus on technical aspects, such as preparing common standards and methods of the monitoring.

The working group was initiated by the German Federal Agency for Nature Conservation and is chaired by Poland and Germany alternately.

The positive aspects are that agencies exchange transboundary information. Thinking in frame of a population at least on a national level (while the intranational cooperation in German is extremely fragmented). The working group is a first step in direction of a common management. However, in Germany the national frame for a national management does not exist because of the federal laws.

To improve the coordination, to introduce common monitoring standards is suggested. In addition the international coordination should be accompanied by an intra-national cooperation among the Laender in Germany.

WOLF. CARPATHIAN POPULATION.

The Carpathian wolf population occupies much of Romania and some areas of Slovakia and Poland; there also wolves in Ukraine and Moldava (unknown range and numbers). In addition there are a few individuals in Czech Republic.

Technical and management cooperation. Slovakia-Poland cooperation. There is a cooperation in research and management on large carnivores (including wolves) between Slovakia and Poland along the Tatra Mountains. This cooperation has been described in the Carpathian Bear population.

Czech Republic-Slovakia cooperation is longer, bilateral cooperation between nature conservancy responsible organizations was signed in 2011, including also monitoring of large carnivores.

Hungary-Slovakia cooperation is long, but only few wolf individuals migrate, the strict protection zone for wolf exist in the border region.

Romania- Moldava cooperation. In October 2012 a cooperation between Romania and Republic of Moldavia regarding wolves monitoring and management was launched. The partnership was promoted by national forest agency "Moldsilva" in cooperation with Forest Research Institute – Wildlife Department from Moldova and Romania and University of Transilvania – Silviculture Faculty – Wildlife Department. This cooperation establish the same status of conservation for wolves, same monitoring techniques and the integrated management of the wolves' population.

There is no cooperation with Ukraine.

In general, the co-operation has been promoted by NGOs and scientists since mid of the 1990s. In February 2012 Polish NGO sent a complaint to European Commission against Slovakia about the hunting of wolves which had a negative impact on the Polish wolf population. In April 2012 the Polish Deputy Minister of Environment wrote to the Minister of Environment of the Slovak Republic a letter in which he requested to

halt the wolf culls at the Polish border and to express support for the establishment of the buffer zone along a border where hunting of big predators will be forbidden. The Slovakian government reacted sending representatives on the first meeting of the LC group in June 2012 (see Carpathian bear population).

The positive aspects of the cooperation have been shown in the section of the Carpathian bear population.

To improve the cooperation in the future, is necessary to establish a coordination working group to the Carpathian level (see Carpathian bear population). One of the problems is the different protection status of the wolf in different countries. In Poland wolves are protected. In Slovakia they can be hunted between 1 October and 31 January. In Ukraine, the wolf is treated like a vermin and can be hunted during the whole year. In Romania wolves are protected but 150-200 individuals are killed every year by hunters and farmers as part of a targeted damage limitation action.

WOLF. DINARIC BALKAN POPULATION.

Wolves live in nine countries, and just three of them are members of the EU (Slovenia, Bulgaria and Greece).

Technical and management cooperation. There is some informal cooperation among experts, and no official cooperation among governments.

Between Slovenia and Croatia, there is a non-formal partnership in research and monitoring. Researchers from both countries are in constant contact, exchange data and other information, perform common monitoring, research and conservation projects. There is somewhat less collaboration in management, although there are more or less regular meetings also at administration level regarding transboundary management of large carnivores.

In addition, in the Balkans there is the Balkan Large Carnivore Network, formed by NGOs and scientists from Bulgaria, Greece, “the former Yugoslav Republic of Macedonia”, Albania and Serbia. Their cooperation is sporadic and depends on funding from international projects, and is more devoted to transboundary studies and conservation measures than to population management.

The cooperation has been started by experts without support from governments.

Improving the coordination. In this population the wolves are in 9 countries (just three in the EU) which have different characteristics. In some countries the wolves are protected (Slovenia, Croatia, Albania, Greece), in other countries they are hunted with hardly any restriction (Serbia, Bulgaria) and some countries still pay bounties to kill wolves (“the former Yugoslav Republic of Macedonia”). In several countries is necessary to find or even build the capacity first.

Between Slovenia and Croatia, a series of common facilitated workshops to build common strategies (something more general than “management plans”) would be important.

WOLF. ALPINE POPULATION.

Most wolves in the Alpine population are in France and Italy, with a few individuals in Switzerland.

Technical and management cooperation. There is a research/monitoring partnership in the framework of the Wolf Alpine Group (WAG), among Italian, French, Swiss, Slovenian, Austrian biologists, in order to monitor the “Wolf Alpine Population”. They work together since 2001 and it is an informal group that has been directly promoted and wanted by the wolf biologists. It is not connected to any government institution.

In addition, there is a formal agreement signed in 2006 by the Ministries of Environment of France, Swiss, and Italy to collaborate in the management of the wolf alpine transboundary population. This group has been very active in 2006-2009, but has been forgotten since 2010.

Since 2011, in the framework of the Alpine Convention, there is a MoU between France, Italy and Switzerland at national level, but no binding management recommendations. This is the WISO (Wildlife and Society) Platform who is developing a Project (called ROWALPS project) to try to effectively set the stage for a common management of the transboundary wolf and lynx populations in the Alps. This project is currently working and is directly managed and wanted by the Governments in the framework of the Alpine Convention, and funded by an NGO and the Convention. This cooperation has just started, no tangible results yet, but will be based on the Population Management Guidelines.

The monitoring and the technical cooperation have been promoted by scientists. The management cooperation has been promoted by the national agencies in the frame of the Alpine Convention.

The positive aspects of this cooperation are obvious, since the overall goal is to monitor and manage a unique wolf population in the Alps, which we all hope it will benefit the conservation of the wolf population on the long term. The main positive aspect of technical cooperation is to avoid double counting of transboundary wolf packs. The population-based monitoring, conservation and management (following the ideas of the “Guidelines for population level management plans for large carnivores”) are the goals of the cooperation.

But some experts see a negative aspect as well. They do not know if the common management will really benefit the conservation of the wolf population on the long term, since some countries seem to be waiting to have an overall wolf alpine population status evaluation in order to have a greater population to be managed, which will allow a greater removal of individuals. For this reason they propose that a set of important obligations to improve the overall conservation of the species are agreed upon before moving to the real cooperation on the management at the population level (e.g. which and where wolves can be occasionally removed to guarantee the full recolonization of the Alps and the long term conservation of the species).

To improve the coordination, at the technical level is necessary to complete the genetic standardized protocols to compare results from non invasive monitoring more quickly.

The coordination between Governments is harder because it is not continuative since the actors in every country are changing every 3-4 years. So, every time the researchers have to start everything from the beginning with a new group, but actually doing the same things. The WAG is the only continuative structure because is informal and the wolf biologists are pretty much the same people over the years. Nevertheless, the Governments groups are not continuative and the persons who are involved make the difference, these groups start and die very quickly. Maybe, agreed and signed documents which will help to move on the process also if people change, instead of starting from the beginning every time, will move on the process.

Management cooperation is not yet existing and is politically difficult. At the level of management within the Alpine Convention an improvement would be to avoid all bureaucracy. Improved cooperation would require a common definition of goals and a solidary implementation of conservation actions, but this is politically very difficult to achieve because of the different national agendas and political constraints.

WOLF. NW IBERIAN POPULATION.

The NW Iberian wolf population covers areas of Spain and Portugal.

Technical and management cooperation. There is some informal cooperation among researches at technical level. For example, the wolf population surveys in Spain and Portugal area carried out in general using the same method. There is some exchange of information on populations, survey methods, some joint research in some topics (genetics and hybrids), preparation of one joint Iberian wolf Congress every 7 years, cooperation in Life projects, etc., but it is rather an informal and sporadic cooperation among researchers.

At management level there is no cooperation. In recent years some efforts were developed in order to cooperate/ articulate the management of transboundary wolf populations between Portugal and Spain (e.g. Portuguese participation in public discussion of Galicia and Castilla and Leon wolf management plans and meetings with personnel from both countries to discuss the document "Guidelines for Population Level Management Plans for Large Carnivores"). The government of Portugal was invited to some annual meetings of the Spanish Wolf Group, but in recent years this has been forgotten. Currently, there is no formal cooperation between Spanish and Portuguese authorities/experts in monitoring/management of transboundary wolf populations.

The informal technical cooperation has been promoted by experts from both countries. The sporadic official cooperation events have been promoted by regional and national government agencies.

Improving the cooperation. The Spanish Wolf Working Group, coordinated by the Spanish Ministry of Environment, should recover the structure it had until 2010, i.e., to include the participation of experts and of representatives from Portugal.

There are two main problems for a transboundary cooperation between Spain and Portugal in wolf management. First, Spain is a very decentralized country, and all the jurisdiction in nature management is in the autonomous regions. This makes difficult to approve even a Spanish wolf management plan. The cooperation between Portugal and Spain should focus in the autonomous regions bordering Portugal, i.e., Galicia, and Castilla y León. The second problem is the different status of protection in both countries. The wolf in Portugal is in the Annexes II and IV of the Habitat Directive (fully

protected), while in Galicia and Castilla and León north of the river Duero, wolves are in the Annex V and can be hunted. Furthermore, in the province of Salamanca (Castilla y León south of the river Duero, where wolves are in the Annexes II and IV of the Habitats Directive) every wolf is legally removed under the Art. 16 of the Habitats Directive. Salamanca is bordering the population segment of Portugal which is south of the river Duero, which is isolated and endangered. The rescue of this segment through the immigration of wolves by Salamanca is very difficult because this province is considered *de facto* a wolf exclusion area.

2.3. TRANSBOUNDARY EURASIAN LYNX POPULATIONS

LYNX. ALPINE POPULATION.

Most of lynx of this population are in Switzerland, with a few individuals in Slovenia, Italy, Austria and France.

Technical and management cooperation. The technical cooperation of lynx monitoring and research in the Alps is performed through the SCALP (Status and conservation of Alpine Lynx Population: <http://www.kora.ch/en/proj/scalp/index.html>). It is an ongoing programme aimed to co-ordinate the lynx monitoring and the conservation activities in the Alps. The long-term goal is to help the now existing small, reintroduced populations to expand and to recover throughout the Alps in co-existence with people. The process is advanced and supervised by the SCALP Expert Group, which unites lynx experts from all Alpine countries. The SCALP does mainly monitoring, in certain cases also research.

It was initiated by scientists and wildlife biologists with different background and affiliation from each Alpine country.

The main positive aspects are the population-based monitoring, conservation and management (following the ideas of the Guidelines for population level management plans for large carnivores).

Improving the coordination: Monitoring lynx is satisfying in most Alpine countries, but not in all.

Regarding the management within the Alpine Convention an improvement would be to avoid all bureaucracy. Improved cooperation would require a common definition of goals and a solidary implementation of conservation actions, but this is politically very difficult to achieve because of the different national agendas and political constraints.

LYNX. BALKAN POPULATION.

The lynx are mainly in “the former Yugoslav Republic of Macedonia” and in Albania.

Technical and management cooperation. In recent years, the technical cooperation among experts and researchers has been developed in the framework of the Balkan lynx recovery programme, which has had two phases, in 2006-2009 and 2010-2012. There is a close cooperation among scientists and experts from Albania and “the former Yugoslav Republic of Macedonia”, supported by foreign NGOs (KORA and Euronatur). In 2011, the document “Conservation Strategy and National Action Plans for the conservation of the Critically Endangered Balkan Lynx” was prepared by experts and authorities of both countries, with the support of the Council of Europe.

The partnership was started by experts and then extended to the conservation agencies.

To improve the cooperation, one of the objects of Balkan Lynx Recovery Programme 2010-2012 is the enlargement of the activities to Kosovo* and Montenegro.

*This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.”

LYNX. BALTIC POPULATION.

Most lynx are in Estonia and Latvia; smaller numbers in Lithuania and N-E Poland. The population also extends to Russia, Belarus and Ukraine.

Technical and management cooperation. There is good exchange of information at least among the EU countries, but no extensive research/monitoring cooperation and no management cooperation.

There is a partnership on basis of rather private contacts established between experts. This relationship is very strong between Estonia and Latvia, but also with Lithuania and Poland (see details in Baltic wolf population). There are more difficulties of coordination between EU and non-EU countries, particularly with Russia and Ukraine.

There is an common project with NGOs from Estonia (Estonian Fund for Nature) and Poland (WWF Poland) to re-establish local lynx population in North-Western Poland with translocations of individuals from Estonian wild population. In winter 2012, three individuals were translocated and at least two more are planned in winter 2013.

There is a good scientific cooperation between Lithuania and Poland on lynx research. This co-ordination is done at a personal level. In addition, there is a long-lasting personal co-operation in lynx ecology between Polish and Belarusian scientists from the Mammal Research Institute Polish Academy of Science in Bialowieza and the Belarusian State University in Minsk, or from the Belarusian Bialowieza NP.

Anyway, in this population the political cooperation for a coordinated lynx management is lacking.

The cooperation has been promoted by scientists but some government agencies are cooperating more and more in recent years (see details in the Baltic wolf population).

Apart from other **positive aspects** (see Baltic wolf population), for a period of time, it was possible to compare lynx monitoring results.

To improve the coordination is necessary to start a partnership of the EU countries with Russia, Belarus and Ukraine, to introduce common monitoring standards, the coordinate the lynx hunt between Latvia and Lithuania and to create bi- or multi-lateral Baltic lynx working groups (see Baltic wolf population).

LYNX. BOHEMIAN- BAVARIAN POPULATION.

Most lynx are in the Czech Republic and a few individuals in Bavaria (Germany) and Austria.

Technical and management cooperation. There is a partnership between Bavaria Czech Republic and Austria in lynx research/monitoring done by different players: existing nature parks, NGOs (including the Bavarian hunting association), two national parks (Bavarian Forest/ Sumava) and the Bavarian Nature Conservation Agency.

The cooperation began in the mid 1990s on expert level, continued by administration of the two national parks, increased and enlarged by technical administration level and NGO project. Future closer cooperation across countries and administrations is planned in an INTERREG/Ziel3 project probably beginning in December 2012 including

all relevant interest groups. This cooperation concerns monitoring (camera trapping and sign collections).

The positive aspect is having at least a clue what is going on on the other side of the border. The negative aspect is that the lynx population has not spread in the last 15 years.

To improve the coordination is necessary to standardize data gathering (using SCALP methods) across the population, to have regular transboundary meetings of administration and experts, and forging all lynx players into one common approach (transboundary 30 months INTERREG/Ziel3 project should start on laying the base for transboundary management in December 2012).

LYNX. CARPATHIAN POPULATION.

Mainly in Romania, Slovakia and Poland, with small numbers in Czech Republic, Serbia, Hungary, Bulgaria and Ukraine.

Technical and management cooperation. There is some technical cooperation between Slovakia and Poland but no cooperation in the management. In the other countries, there is not a specific cooperation regarding lynx research, monitoring nor management.

Since 2009 the Polish government has started several attempts to develop the transborder co-operation for Large Carnivore populations in Poland and neighbouring countries. In spring 2011, a bilateral Polish-Slovakian seminar was organised in Krakow by the Polish General Directorate of Environment, where situation of wolves, bears and lynxes in both countries were presented. The recommendation to establish the Large Carnivore working group was agreed on this meeting.

Poland has organized the international conference “Conservation of large carnivores in a transboundary approach” in Warsaw, 6th and 7th November 2012. The main objective of the conference was to exchange experiences on protection and management of large carnivores in the neighboring countries and to bring focus to the fact that the species that can move long distances require a coherent policy of management.

In addition Poland develops co-operation with Slovakia and Ukraine within the framework of International Biosphere Reserve “Eastern Carpathians” founded in 1992 concerning the improvement of nature conservation methods in this part of Carpathians.

In spite of these initiatives there are not common monitoring methods, common research projects nor common management projects between countries.

To improve cooperation, is necessary to create bi- or multi lateral a lynx working group, to introduce common monitoring standards for Large Carnivore within the subpopulations, or at least common yearly assessment of the population size and distribution, based on national surveys.

LYNX. DINARIC POPULATION.

The reintroduced population is in Bosnia-Herzegovina, Croatia and Slovenia.

Technical and management cooperation. Intensive scientific cooperation exists between Slovenian and Croatian scientists but no with Bosnia-Herzegovina. There is a weak official cooperation of the authorities.

There is an informal partnership between Slovenia and Croatia in research and monitoring. Researchers from both countries are in constant contact, they exchange data and other information, perform common monitoring and common research and conservation projects.

There is somewhat less collaboration in management, although there are more or less regular meetings also at administration level regarding transboundary management of Large Carnivores. The researchers also prepared a transboundary management plan for lynx, but it was never accepted by the governments.

Between Slovenia and Croatia, the partnership is mainly promoted by researchers at universities, although there is also communication on administrative and management level.

The positive aspects are the much better understanding of the lynx status on the population. Exchange of experiences and techniques for field-work, greatly increased effectiveness of the research. By joining data from both countries allows better supported conclusions and bring studies to higher level. The management also improves by a better understanding of population-level dynamics.

To improve the coordination in research and monitoring is necessary to integrate Bosnia-Herzegovina. For this is necessary to build the capacity first. Monitoring would be greatly improved if more regularly done simultaneously with same methods in the three countries. Common database would be very helpful.

In terms of management, the governments should organize meetings, study the strategic documents already prepared by scientists, etc. Management would be improved by regularly including representatives from neighbouring country in management and conservation decisions.

LYNX. JURA POPULATION.

Shared by France and Switzerland.

There is little cooperation in terms of monitoring, research and management. For monitoring, the experts of both countries follow the methods established by the SCALP project. Recently, the French experts cooperate with the Swiss NGO KORA for a better interpretation of camera trap data.

LYNX. KARELIAN POPULATION.

This population is between Finland and Russia.

There is neither technical nor management coordination between Finland and Russia.

LYNX. SCANDINAVIAN POPULATION.

Lynx are in Sweden (>80%) and in Norway.

Technical cooperation. There is a close collaboration in research (called “Scandlynx”; see Linnell et al. 2005, Scandlynx: a vision for coordinated lynx research in Scandinavia. - NINA report 86, 30 pages: <http://scandlynx.nina.no/>). Scientists of both countries share data, plan research activities together, and write scientific papers, reports, etc., together.

There is also cooperation in monitoring, and it is improving. Both countries use similar monitoring methods, but also there are some small differences. At the moment there is a group working to harmonize the methods and the aim is to have exactly the same descriptions of monitoring methods in Sweden and Norway.

The Swedish EPA and the Norwegian Directorate for Nature Management coordinate the management, monitoring methods, etc. But the governments (state secretary of ministry of environment) have also meetings to coordinate the management. Finland is also included in these meetings at government level.

Both scientists and managers have seen the benefit of collaboration, but it has been harder at the political level. However, in the latest Swedish carnivore policy document (SOU 2012:22) is stated that the collaboration, especially between Sweden and Norway but also with Finland, should be improved and there should be regular meetings at the state secretary of the ministry of environment level.

The coordination between Sweden, Norway (and partly Finland) started as a coordination of research funding to large carnivore research in the 1980s and has developed from mainly scientific collaboration into management coordination.

The positive aspect is that Sweden and Norway share the same lynx population and a common description of it is a much better foundation for management decisions. The joint research program has also led to larger data set and possibilities to compare data from different ecological contexts.

To improve the coordination, from a technical point of view, a common yearly status report is needed. This report should also forecast the effects of different harvest levels at different management scales (region, national and Sweden/Norway together). In addition, cooperation requires more meetings.

The effects of some management actions, e.g. harvest quotas, are not coordinated. The consequences of the management goals for each country and for all countries together could be elaborated more in relation to international agreements (e.g. the Bern Convention and the Habitat Directive).

LYNX. VOSGES- PALATINIAN POPULATION.

Most lynx are in France; the presence of lynx in the Palatian is uncertain.

There is no cooperation between France and Germany on this population. The lack of data of lynx in the German side makes difficult the cooperation.

2.4. TRANSBOUNDARY WOLVERINE POPULATIONS

WOLVERINE. SCANDINAVIAN POPULATION.

Sweden and in Norway; small numbers in northern Finland and Russia.

Technical and management cooperation. They is a close cooperation between Sweden and Norway but little coordination between either Norway and Sweden with Finland and Russia on wolverine issues.

Research is closely coordinated for wolverines between Norway and Sweden. Unlike the other three Scandinavian LC species, wolverine research does not have a formal umbrella, but has become very closely coordinated in recent years. Wolverine cooperation is organised as separate projects in both countries but with a common logo, widespread sharing of data, and twice yearly meetings of its coordination group composed of the project leaders of the respective national species projects. Field work, data analysis and paper writing are coordinated. There is a long-term research project on wolverines in northern Sweden and new wolverine projects in central and northern Norway. These research projects have a tight cooperation and focus on collecting basic ecological data on wolverines, studying the impact of wolverines on semi-domestic reindeer, and exploring the potential interactions between wolverines and Eurasian lynx. Working groups in 2012 have harmonised approaches for wolverine monitoring. Norway and Sweden have just completed a process to standardise their field data collection and interpretation protocols which will facilitate the publication of population wide status reports.

The operational coordination is provided by the researchers themselves. However, the initiation of the cooperation was mainly done by the national funding / wildlife management agencies on both sides of the border. Monitoring cooperation has been pushed by national wildlife management agencies.

There is no formal common population level management plan for Sweden and Norway. But the national agencies (the Swedish EPA and the Directorate for Nature Management) have regular meetings. The new Swedish carnivore policy has acknowledged the idea of population management and civil servants at the national political level meet on a regular basis to discuss large carnivore management questions.

The positive aspects of research and monitoring cooperation are a much more effective use of research resources and the ability to monitor a biologically common population using standardised methods.

Improving the coordination. Although the practical and technical cross border management is effective, there is a need to formalise this to a much greater extent at a political level.

A joint management plan of the Scandinavian wolverine population is difficult because of its different protection statuses. The part of the wolverine population that falls within the two EU countries, Sweden and Finland, are strictly protected under the Habitats Directive. Sweden uses derogations to allow a limited cull of wolverines by game wardens. Finland presently does not remove wolverines at all. But Norway manages wolverine as a *de facto* game species with annual quotas because the management objective set by parliament is to maintain the population at a stable level lower than which it has at present.

WOLVERINE. KAREALIAN POPULATION.

The population is between Finland and Russia.

There is not coordination between both countries.

ANNEX 1

TRANSBOUNDARY COOPERATION QUESTIONNAIRE

Information on the expert.

Name

Affiliation

Address

Species that you work with (wolf, lynx, bear).

You work at a technical level, for a national government, regional or both.

Transboundary cooperation for large carnivore management.

1) Does a partnership exist a) in research/monitoring and b) in management between neighbouring/bordering countries in your area? Who performs such coordination? Please, elaborate.

2) Has this partnership been promoted mainly by national or regional agencies, scientists, experts, NGO...?

3) Are you satisfied with the technical and political transboundary cooperation? Rate (quite satisfied; it can be improved; unsatisfied)

4) What are the main positive and negative aspects of this cooperation?

5) What measures would you take to improve the coordination?

ANNEX 2

NATIONAL SUBUNITS QUESTIONNAIRE

Information on the expert.

Name

Affiliation

Species that you work with (wolf, lynx, bear, wolverine).

You work at a technical/scientific level, for a national or regional government, regional or both.

Cooperation between national subunits

1) Up to what point is the management decentralized?.

a) All or most parts of the management is done by the central government.

b) The management is shared between the central government and the regions

c) All or most parts of the management is in the hands of the regions, autonomous states or provinces.

2) Please, elaborate how the management is shared between the national and regional/ provincial agencies.

3) Does a partnership exist a) in research/monitoring and b) in management between regions/ provinces/ lander? Who performs such coordination?

4) Has this partnership been promoted mainly by national or regional agencies, scientists, experts, NGO...?

5) Are you satisfied with the technical and political coordination between subnational units? Rate (quite satisfied; it can be improved; unsatisfied) and comment if necessary

6) What are the main positive and negative aspects of this cooperation?

7) What measures would you take to improve the coordination?

ANNEX 3

LIST AND AFFILIATION OF THE EXPERTS WHO ANSWERED THE QUESTIONAIRES

Michal Adamec, State Nature Conservancy of the Slovak Republic

Henrik Andrén, University of Agricultural Sciences, Sweden

Linus Balčiauskas, Nature Research Centre, Lithuania

Inês Barroso, Inst. Conservação Natureza e Florestas (ICNF), Portugal

Juan Carlos Blanco, Wolf project CBC, Spain

Luigi Boitani, University of Roma La Sapienza, Italy

Urs Breitenmoser, University of Bern & KORA, Switzerland

Yolanda Cortés, Wolf project CBC, Spain

Piero Genovesi, ISPRA (Inst. Envir. Protection and Research), Roma, Italy

Claudio Groff, Servizio Foreste e Fauna, Provincia Autonoma di Trento, Italy

Djuro Huber, University of Zagreb, Croatia

Ovidiu Ionescu, University of Transilvania, Brasov, Romania

Petra Kaczensky, University of Veterinary Medicine, Vienna, Austria

Ilpo Kojola, University of Oulu, Finland

Miha Krofel, University of Ljubljana, Slovenia

Olof Liberg, Swedish University of Agricultural Sciences, Sweden

John Linnell, Norwegian Institute for Nature Research, Norway

Peep Männil, Estonian Environment Information Centre, Estonia

Eric Marboutin, ONCFS (central gov. agency), France

Francesca Marucco, Centro Conservazione e Gestione Grandi Carnivori, Italy

Yorgos Mertzanis, NGO "Callisto", Greece

Sabina Nowak, Association for Nature "Wolf", Poland

Jānis Ozoliņš, Game Management Department of the State Forest Service, Latvia

Santiago Palazón, Biodiversity and Animal Protection Service, Catalonia Gov., Spain

Guillermo Palomero, Fundación Oso Pardo, Spain

Pierre-Yves Quenette, ONCFS (central gov. agency), France

Jörg Rauer, University of Veterinary Medicine, Vienna, Austria

Ilka Reinhardt, LUPUS Wildlife Consulting, Germany

Lidia Sternik-Stempkowska, Gen. Direct. for Environmental Protection, Poland

Jon Swenson, Norwegian University of Life Sciences, Norway

Manfred Wölfel, Bavarian Nature Conservation Agency, Germany

Diana Zlatanova, Faculty of Biology, Sofia University, Bulgaria