REGIONE PIEMONTE

Lupi, genti e territori

La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Wolves, people, and territories

Wolf management in Europe:
conservation, monitoring, damage prevention, and conflict mitigation

May 24_{th}-26_{th}, 2010

Osservatorio Regionale sulla fauna selvatica

MUSEO REGIONALE DI SCIENZE NATURALI

Parco Naturale Alpi Marittime

REGIONE PIEMONTE

Monday, May 24th TORINO - Centro Incontri Regione Piemonte

LA PREVENZIONE DEI DANNI DA LUPO SUL BESTIAME: obiettivi e strategie

WOLF LIVESTOCK DEPREDATIONS: Goals and Preventive Strategies

Moderatore: Prof. Luigi Boitani, Università di Roma

SESSIONE I: LA PREVENZIONE IN EUROPA

SESSION I: WOLF DAMAGE PREVENTION IN EUROPE

- ***Metodi preventivi in Europa: Esperienze dai progetti LIFE Natura***
  Preventive methods across Europe: LIFE Natura projects experiences
  Valeria Salvatori, Istituto di Ecologia Applicata, Italy
- **Effectiveness of damage prevention methods used in Europe**
  Ilka Reinhardt, LUPUS Wildlife Consulting ,Germany
- **The prevention of predation by wolves on domestic livestock in the Balkans**
  Elena Tzingarska, Balkani Wildlife Society, Bulgaria

SESSIONE II: LA PREVENZIONE NEL CONTESTO ALPINO

SESSION II: WOLF DAMAGE PREVENTION IN THE ALPINE CONTEXT

- ***Un programma integrato per prevenire, mitigare e indennizzare i danni da lupo in Piemonte***
  An integrated program to prevent, mitigate, and compensate wolf damage in Piedmont
  Silvia Dalmasso, Centro Conservazione e Gestione Grandi Carnivori, Italy
- **Measures to prevent and compensate damages to livestock caused by wolves in France**
  Patrick Degeorges, MEEDDM, France
- **Livestock damage prevention in Switzerland : The challenge to manage the « human dimension » of large carnivores**
  Daniel Mettler, AGRIDEA, Switzerland
- ***La comparazione dei metodi preventino nel contesto alpino - lavoro nell'ambito del Protocollo dei Ministeri***
  Comparing preventive methods in the alpine context - working under the Ministry Protocol
  Vittorio Bosser Peverelli, Regione Piemonte, Italy

Osservatorio Regionale sulla fauna selvatica

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REGIONE PIEMONTE

Tuesday, May 25th, 2010 TORINO - Museo Regionale di Scienze Naturali

IL MONITORAGGIO DELLE POPOLAZIONI DI LUPO IN EUROPA: strategie ed obiettivi del monitoraggio

MONITORING WOLF POPULATIONS IN EUROPE: what do we need to monitor and how?

Moderatore: Prof. Luigi Boitani, Università di Roma

SESSIONE I: IL MONITORAGGIO IN EUROPA

SESSION I: MONITORING WOLF POPULATIONS IN EUROPE

- **"The population level management plan": monitoring implications**
  John Linnell, Norwegian Institute for Nature Research, Norway
- **Monitoring wolf populations without snow - The case of Spain**
  Juan Carlos Blanco, Wolf Project CBC, Spain
- **Intensive monitoring in Scandinavia**
  Olof Liberg, SKANDULV, Sweden
- **Monitoring of wolf population and recovery in Poland**
  Sabina Nowak, Association for Nature "Wolf", Poland

SESSIONE II: IL MONITORAGGIO NEL CONTESTO ALPINO

SESSION II: MONITORING THE WOLF ALPINE POPULATION

- **Genetic monitoring of a recovering wolf population in the Alps**
  Michael Schwartz, RMRS, USFS, Montana, USA
- ***Il ritorno del lupo sulle Alpi piemontesi: 10 anni di monitoraggio del lupo sul territorio regionale***
  The return of the wolf on the Italian Alps: 10 years of wolf monitoring
  Francesca Marucco, Centro Conservazione e Gestione Grandi Carnivori, Italy
- **Wolf monitoring and population dynamics in France : a dual frame survey**
  Christophe Duchamp, ONCFS, France
- **SCALP: the lynx monitoring system over the Alps**
  Anja Molinari, KORA, Switzerland

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

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Luigi Boitani: Curriculum Vitae

Incarichi attuali (2009)
Professore Ordinario di Biologia della Conservazione e Ecologia Animale,
Professore Aggiunto, University of Idaho, USA
Direttore del Dipartimento di Biologia Animale e dell'Uomo, Università di Roma "La Sapienza"
Direttore del Master "Conservazione della biodiversità animale: aree protette e reti ecologiche"
Presidente dell'Istituto di Ecologia Applicata, Roma
Presidente della Society for Conservation Biology, Washington DC, USA
Chair del Large Carnivore Iniziative for Europe, IUCN, Switzerland
Membro del Comitato Direttivo della Species Survival Commission, IUCN.

Ricerca universitaria e applicata
Ha svolto ricerca soprattutto sulla ecologia e conservazione dei grandi mammiferi e sulla teoria e pratica della identificazione e gestione delle aree protette. In particolare, dal 1973 ad oggi ha lavorato, senza interruzioni, in una serie di progetti di ricerca e di conservazione sul lupo (Canis lupus) in Italia, in collaborazione con colleghi ed istituzioni tedesche, inglesi, americane, ed è oggi impegnato anche nel grande progetto di ricerca e conservazione per l'Orso in Abruzzo.
Ha recentemente completato due progetti sui mammiferi dell'Africa e del Sud Est Asia con finanziamenti della Commissione Europea, e la realizzazione della Rete Ecologia Nazionale per i Vertebrati.
Ho svolto attività di ricerca in molte aree protette italiane su incarico degli enti di gestione, delle Regioni e del Ministero Ambiente.
In collaborazione con colleghi australiani ed americani, svolge un vasto programma di ricerca nel campo della Sistematic Conservation Planning.
Ha realizzato, da coordinatore o esperto zoologo, i Piani di gestione di oltre 30 Parchi nazionali in Italia e in Africa.

Didattica
Oltre ai corsi presso la Università di Roma, ha tenuto seminari presso molte università in Europa e Nord America. Ha seguito oltre 220 tesi di Laurea e 35 di dottorato in Ecologia presso università italiane e americane.

Divulgazione
Ha esercitato una intensa attività divulgativa con libri, collaborazioni continuative con le maggiori testate giornalistiche specializzate sull'ambiente, televisione e radio. Ha curato 4 mostre sulla conservazione del lupo.

Pubblicazioni
Ha pubblicato 9 libri e oltre 250 contributi scientifici e altrettante comunicazioni a congressi, e circa 80 rapporti tecnici

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REGIONE PIEMONTE

Luigi Boitani: Curriculum Vitae

Full Professor of Conservation Biology and Animal Ecology,
Adjunct Professor, University of Idaho, USA
Head of the Department of Animal and Human Biology, University of Rome "La Sapienza"
Director of the Master "Conservation of animal biodiversity: protected areas and ecological networks"
President of the Institute of Applied Ecology, Rome
President of the Society for Conservation Biology, Washington DC, USA
Chair of the Large Carnivore Initiative for Europe and of the Wolf Specialist Group, SSC/IUCN
Member of the Steering Committee of the Species Survival Commission, IUCN.

Research
Main focus has been on the use of scientific data and methods in the practice of conservation with particular emphasis on reducing the science-policy gap that frustrate the effectiveness of large areas of conservation activities.
Research interests on the ecology and conservation of large mammals, and on the theory and practice of identifying and managing protected areas. Since 1973 to today worked on a series of projects on the ecology and conservation biology of the wolf (Canis lupus) in Italy several other European countries. Currently working on brown bears and wolves in central Italy.
Recently completed two large projects on the distribution and status of mammals of Africa and South East Asia with funding from the European Commission, and the project for a national Ecological Network in Italy.
Wrote, as coordinator or expert in zoology, the Management Plans of more than 30 National Parks in Italy and Africa. Currently working on establishing a large national park in south-western Libya.

Teaching
Teaches classes at the university of Rome and gave seminars at several universities in Europe, North America, Australia, India. Tutor of more than 220 master-level thesis and more than 35 doctoral thesis at Italian and North-American universities.

Popular writing
Intense activity of popular writing (books, television programmes, articles in the most important magazines on conservation and nature). Curator of 4 major exhibitions on wolves and carnivores' conservation.

Scientific publications
Published 9 books, more than 250 papers and book chapters, about 80 technical reports

REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Autori: Valeria Salvatori, Annette Mertens - Istituto di Ecologia Applicata, Italia

Metodi preventivi in Europa: esperienze dai progetti LIFE Natura

Una delle misure gestionali di cruciale importanza per la conservazione del lupo in territori altamente antropizzati, è certamente la gestione del danno arrecato dal predatore al bestiame domestico.
Nonostante le autorità competenti siano completamente responsabili per l'attuazione di tali misure gestionali, spesso le risorse a disposizione sono limitate, risultando in una scarsa efficacia di esercizio. I progetti LIFE Natura rappresentano uno strumento valido per l'attuazione di misure gestionali tese alla conservazione del lupo, essendo quest'ultimo una specie inclusa nelle appendici della Direttiva Comunitaria Habitat. Negli ultimi 10 anni almeno 35 progetti LIFE natura per la conservazione del lupo sono stati finanziati dalla EU. Le misure adottate nei diversi progetti sono tutte più o meno consistenti con il piano d'azione per la conservazione del lupo in Europa pubblicato dal Consiglio d'Europa, ed includono una componente importante sulla prevenzione al danno.
Il progetto LIFE COEX si è svolto dal 2004 al 2008 in Portogallo, Spagna, Francia, Italia, Croazia ed ha costituito un ottimo esempio di collaborazione internazionale tra pesi in cui le misure gestionali adottate sono a diversi livelli. Adattate alle condizioni locali, le misure adottate dai diversi partner di progetto hanno avuto esito estremamente positivo, soprattutto in quelle aree in cui la presenza del lupo è in espansione. In particolare in seguito all'installazione di recinzioni di varia natura, il danno causato dal lupo è diminuito del 100% in Portogallo e del 99% in Spagna ed in Italia. In Francia e in Croazia sono state adottate misure di coinvolgimento intersettoriale (turismo e produttività agricola) che hanno contribuito ad instaurare un clima di tipo partecipativo nella gestione del predatore.
Le esperienze acquisite durante il progetto COEX sono in fase di trasferimento ad altri paesi Europei, tramite il progetto LIFE EXTRA, che coinvolge Italia, Grecia, Bulgaria e Romania.
I risultati ottenuti sono incoraggianti ed i futuri progetti LIFE Natura dovrebbero capitalizzare sulle esperienze vissute, basandosi anche su studi e ricerche che permettano la focalizzazione e massima efficacia delle azioni sviluppate.

REGIONE PIEMONTE

Gli autori

Valeria Salvatori
Biologa con specializzazione in biogeografia e gestione della fauna selvatica, ha conseguito la tesi di laurea con uno studio sulla biologia della volpe cilena Culpeo, successivamente ha conseguito il dottorato di ricerca presso l'Università di Southampton, UK, con una ricerca sulle aree idonee per la conservazione dei grandi carnivori nei Carpazi. Collabora da 10 anni con l'Istituto di Ecologia Applicata nello svolgimento di progetti di conservazione della fauna selvatica e delle aree protette, in particolare in sud America e nord Africa. E' attualmente consulente per le Nazione Unite in temi di biodiversità, gestione della fauna selvatica e aree protette, e consulente per la società belga AGRECO come esperta di grandi carnivori.

Annette Mertens
Biologa con specializzazione in gestione di grandi carnivori e risoluzione del conflitto con le attività agricole. Ha conseguito la tesi di laurea con un progetto di ricerca sul lupo in Romania, dove è rimasta per 4 anni collaborando ad un progetto di ricerca e gestione dei grandi carnivori. Ha collaborato con l'Istituto di Ecologia Applicata come responsabile del progetto COEX ed è coordinatrice per conto del Parco Nazionale del Gran Sasso del progetto EXTRA. E' consulente per la società belga AGRECO come esperta di grandi carnivori.

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Osservatorio Regionale sulla fauna selvatica

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REGIONE PIEMONTE

English version

Preventive methods in Europe: LIFE Nature project's experiences

The management of damage caused by the predator to domestic livestock is certainly one of the most important management measures for wolves conservation, in areas highly affected by human activities.
Despite the competent authorities are fully responsible for the implementation of these management measures, often have limited resources available, resulting in low efficiency. LIFE Nature projects are a valuable tool for the implementation of management measures for the conservation of the wolf, a species listed in the Appendices of the EU Habitats Directive. Over the past 10 years at least 35 LIFE nature projects for the conservation of the wolf were funded by EU. The management measures taken in the different projects are somewhere about consistent with the Council of Europe action plan for the conservation of wolves in Europe, and include an important component to injury prevention.
The LIFE COEX project took place from 2004 to 2008 in Portugal, Spain, France, Italy, Croatia and has been an excellent example of international cooperation between countries in which management measures are adopted at different levels. Adapted to local conditions, measures taken by the different project partners have been extremely successful, especially in the areas where the wolf presence is expanding. In particular, as a consequence of the installation of different kinds of fences, the damage caused by wolves decreased by 100% in Portugal and 99% in Spain and Italy. In France and Croatia actions were taken to involve cross-sectoral (tourism and agricultural productivity) that have helped to create a climate of participatory management of the predator.
The experience gained during the COEX project are being transferred to other European countries, through the LIFE EXTRA involving Italy, Greece, Bulgaria and Romania.
The results are encouraging and future LIFE Nature projects should capitalize on experiences, also based on studies and research that enable maximum focus and effectiveness of taken actions.

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Author: Ilka Reinhardt - LUPUS Wildlife Consulting, Germany

Synopsis and evaluation of preventive methods in Europe

The true comeback of the wolf into Germany began 10 years ago when the first reproduction was recorded after more than 150 years of absence. For 2009 seven reproducing packs plus two scent marking pairs have been confirmed. When looking at other 'wolf areas' in Europe a rapid spread of wolves to Germany is to be expected. However, Germany is a country with no tradition on LC damage prevention. Against this background the Federal Agency for Nature Conservation (BfN) commissioned a synopsis and evaluation of LC damage prevention methods in Europe. The goal was to give clear recommendations on preventive methods (as well as for prevention and compensation systems) for Germany, based on experience in other European countries. In order to do so, we reviewed the existing literature and conducted a questionnaire survey in selected countries with focus on methods practicable under German conditions.
Overall the results showed that there is no single preventive method providing 100 % safety. However, a couple of methods can reduce damages considerably. Most effective is a combination of electric fences and life stock guarding dogs (LGD). LGDs may not prevent every single attack, but can reduce the number of livestock killed by wolves. However, when flocks are free ranging the effectiveness of LGDs is reduced compared to flocks on fenced pastured or in night time enclosures. At least two mature LGDs are needed for effective protection even when flocks are fenced. Some countries recommend the use of one dog per 80- 100 sheep. In areas with no or forgotten tradition of working with LGDs it is imperative to provide shepherds not only with dogs but also with expert advice on the raising and training of these dogs. Most problems with LGDs are human made and can be avoided if dogs are closely monitored and keepers supported.
If used correctly electric fences are an effective measure for reducing predation on sheep. Recommended is the use of e-fences with five wires or cords 20, 40, 60, 90 and 120cm above the ground and 4000 – 5000V. In Germany electric sheep nets are the most popular method for keeping sheep and goats. Although these fences are easy and fast to set up, they are only appropriate for smaller meadows since net fences cannot maintain high voltage over long distances as compared to wire fences. Thus we wanted to learn what experience exists on the use of sheep nets in wolf areas. The survey results and our own experience coincide with the results of the LIFE COEX project: electric sheep nets are regarded as useful or even very useful to

prevent wolf attacks. Some countries recommend sheep nets of at least 110cm in height. These should have stiff vertical plastic mesh to make the nets more visible and to avoid wildlife running into them, getting tangled and damaging the nets.
We also wanted to know how often wolves jump over fences. The results of the survey showed that they rarely do so. Moreover, no country in the survey had special recommendations for these cases, except for Sweden where jumping wolves are removed. In Germany experience showed that in most cases the use of fladry around the paddock or an additional white cord stretched 20 – 30cm over the net fence kept jumping wolves out. In cases were wolves dig under mesh wire fences at game farms the animals can be deterred by using either 1m of mesh wire on the ground surrounding the fence or an electric wire in 20cm height in front of the fence.
When compensation is not coupled with prevention the incentive to use prevention measures accurately may be week. We highly recommend interlinking compensation payment with damage prevention as some countries (SE, PL, DE) already do.

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Abstract

Author: Elena Tzingarska - Balkani Wildlife Society, Bulgary

The prevention of predation by wolves on domestic livestock in the Balkans

The Balkan Peninsula is a land, where large carnivores have always existed and have never been extinct in. The Balkan is also traditionally a livestock breeding region. For instance at the beginning of XX century Bulgaria has been on second place in the world of sheep number per capita, after Australia. Most of the livestock has been grazed extensively, in the mountain areas, which are the main part of the landscape of this Peninsula.
Because of the presence of large carnivores (wolf, brown bear and lynx) in good densities, a number of traditional measures are taken by livestock breeders, in order to protect their animals from predator attacks. Some modern preventive methods are put into practice nowadays and are used more intensively in some of the countries in the region than in others.
Livestock guarding dogs, are traditionally used on the Balkans and are found nowadays in almost every country of the region. Almost every Balkan country has saved own breed of a LGDog, but they are all descendants of a same type of dogs.
The status of the LGDogs populations is different in each Balkan country, but generally in most of the place activities are needed to save them in their original, working type.
In Bulgaria activities to save the autochthonic breed of Karakachan dog have started in the beginning of 1990s. In 1997, a project was initiated by two NGOs, BALKANI Wildlife Society and SEMPRVIVA Society, to provide farmers with LGDogs for minimizing the damages caused by predators and returning the Karakachan dog to its natural environment, among flocks of livestock saving the breed in this way.
Results of a survey, done in the frames of this activity, show high level of efficiency of this breed of dogs, used as a preventive measure against predators.

About the author

Education:
In 1995 Graduated MSc in Common Biology, department of Zoology of Vertebrates

Work:
1996: Zoo of Sofia
1997: Carpathian Large Carnivore Project, Romania

1997 - ongoing: in BALKANI Wildlife Society, a nature conservation NGO, coordinating and leading projects for study and conservation of large carnivores. Main focus on wolves. Studying the species status in Bulgaria since 1997.
2005: Initiated a building up a Large Carnivore Education Centre in Pirin Mts. Bulgaria, as a long-term facility for increasing the knowledge and awareness of public towards large carnivores

Since 1992, actively volunteering on number of conservation projects and campaigns.

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
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24-26 MAGGIO 2010

Abstract

Authors: **Silvia Dalmasso** e Luca Orlando - Centro Conservazione e Gestione Grandi Carnivori Regione Piemonte, Parco Naturale Alpi Marittime, Italia

An integrated program to prevent, mitigate and compensate wolf damage in Piedmont

The natural recolonization of the Western Alps by wolves started at the beginning of 1990's, through dispersal from the survival Northern Apennines wolf sub-population.
With the return of wolves in Piedmont also began the livestock depredations in the alpine pastures.
Piedmont Regional Administration started in 1999 a program called "Progetto Lupo Piemonte" to monitor the wolf recolonization process and to manage the human-wolf conflict. The program has been developed to prevent, mitigate and compensate wolf damage according to the farmers needs; with this aim 3 key actions were implemented: a- compensation for livestock losses due to canids (wolf and dog) predation; b- a subsidy system to promote the good livestock husbandry practices (Premio di Pascolo Gestito); c- promotion of preventive measures. All the animals killed by predators (either by wolves or dogs without known owner) are paid to the farmer according to an annually stated price list, after that the death for predation has been certified by the veterinarians of the program; an amount on a lump-sum basis, depending on the herd size, is also paid for each attack, in order to compensate indirect losses, as abortions and lose of productions due to the stress.
Livestock depredations are localized mainly in the Cuneo and Torino Provinces, according to the wolf packs distribution.
During 2009 a total of 142 attacks occurred (117 carried out by wolves) causing 376 victims among livestock (293 killed by wolves) and 69.145,19 € were paid for damage compensation. Wolf depredations are mainly on sheep and goats, but in some localized cases repeated depredations on calves also occurred. Depredations of shepherd dogs and equines are rare.
Since 2007, a subsidy system rewards the shepherds who, although pasture within the home range of wolf packs, have minimized predator losses by implementing good management practices (as human presence in the pasture, season and location of lambing ans corralling livestock at night) and by using preventive measures (as guarding dogs and electric fencing). In 2009, 78 shepherds received the subsidy (total 81.645,30 € paid).
The key aspect of an effective predation control plan is to integrate various techniques. All management techniques have pros and contras and the one that do the job for one farmer, not necessarily is effective for the others. For this reason the

damage prevention plan is build by the technicians according to the specific needs and concerns of each shepherd. The following control methods has been considered and developed: changes in animal husbandry (human presence in the pasture, season and location of lambing...), electric fences and livestock guarding dogs.
Proper livestock management can help to minimize the risk of predation. Human presence in the pasture is the key point to enable good animal husbandry and rational use of the pasture; it can discourage predation. In case of little flocks, where was anti-economic the human presence, the association between different owners has been encourage to divide the cost of management practices and of preventive measures.
Electric fencing was proven to be effective for preventing predation; it is quite easy to maintain and cheaper than conventional fencing. In the Alps it is mainly used for the confinement of the flock during the night. A 180 cm tall, stronger electric fence was developed according to farmers needs to prevent wolf predation; a total of 57 shepherds were provided with it or with a conventional one.
Livestock guarding dogs (LGDs) are very effective to protect livestock from predators. In Piedmont the use of LGDs is not traditional, so the shepherds didn't know the behaviour and how to train these dogs. In 2004 Orsiera Rocciavrè Natural Park began a LGD program. It provided some selected shepherds with puppies and a specialist taught them how to raise, train and socialize the dogs with the flock; behavioural studies were started in order to evaluate dog's temperament by the means of a specific ethogram developed ad hoc: the first adult dogs introduced worked successfully, showing all the three basic traits (trustworthy, attentive and protective) of LGDs. Since 2006 such program was extended to the whole Piedmont. To date, 40 LGDs (almost Maremmano-Abruzzese breed) have been introduced into 21 different flocks and in many cases they have resolved or reduced the wolf damage with the satisfaction of the shepherds.

About the author

Silvia Dalmasso
Doctor in Veterinary Medicine (DVM and PhD); master of free-wild animals' ecopathology.
From 2002 she works at Piedmont Wolf Project; in particular she works on monitoring and prevention of livestock depredation and on human dimension program with farmers.
Her activities include researches on echinococcosis among flocks (sheep, goats and shepherd dogs) and wildlife (ungulates and wolves).
She is carrying out researches on livestock protection dogs ethology, breeding and selection.

Contact:
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LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
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Abstract

Autori: Patrick Degeorges - Ministère de l'Ecologie, de l'Energie, du Développement durbale et de la Mer, France
Pascal Gosjean - Ministère de l'Alimentation, de l'Agriculture et de la Pêche, France

Measures to prevent and compensate damages to livestock caused by wolves in France

This presentation describes the actions taken in France within the framework of a national plan in order to prevent damages from wolves on livestock. This plan elaborated in 2008 for a period of 5 years is the result of a national as well as local concertation process and of close collaboration between the ministeries in charge of Ecology and of Agriculture.

About the authors

Patrick Degeorges
Patrick Degeorges is policy advisor for the Ministery of Ecology, in charge of large carnivores.

Pascal Gosjean
Pascal Gosjean is in charge of pastoralim and wolf issues for the Ministery of Agriculture.

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Abstract

Author: Daniel Mettler – AGRIDEA, Switzerland

Livestock Prevention in Switzerland: The challenge to manage the human dimension of large carnivores

Since the beginning of the prevention programme in Switzerland, the experience with different prevention methods increased with the wolves expansion. When the wolf begin to return in Switzerland there was especially one region concerned about the new situation on summer farming in the Alpine zone. Today the situation has changed and about 15-20 wolves are spread over the whole arch of the higher Alpine pastures and the « pre-alpine » regions.
Most of the flocks in Switzerland are too small to keep them with a shepherd, and the rural tradition of keeping sheep and goats is not at all prepared to the return of the wolves. Nevertheless in most of the regions we can observe a certain open minded change towards the new situation.
Especially two regions demonstrate a strong resistance to the new practice of prevention methods that needs some changes in the livestock and pasture management. This differences between some regions in the same country with one national environment policy and quite similar agricultural structures could not be explained until now in a convincing way. The answer can not be found in a technical approach. We have to look for alternative explanations in the social, cultural and political spheres of these particular al-pine regions.

About the author

Daniel Mettler studied philosophy and political economy at the university of Fribourg (Switzerland). During his studies he was working in the Swiss Alps on different summer pastures as a shepherd and farmer. He worked also for several years in the management of environment policy and was responsible for several projects to evaluate environment policy on the local level. Since 2003 he is responsible for the coordination of the national life stock prevention programme that was started by the Federal Office of Environment (FOEN).

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LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
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24-26 MAGGIO 2010

Abstract

Autore: Vittorio Bosser-Peverelli - Osservatorio sulla fauna selvatica della Regione Piemonte, Italia

La comparazione dei metodi preventivi nel contesto alpino – lavoro nell'ambito del Protocollo di Ministeri

A seguito di alcuni incontri che si sono svolti nel 2005 i rappresentanti dei Ministeri dell'Ambiente di Italia, Francia e Svizzera hanno prodotto e firmato il 13 luglio 2006 un accordo internazionale per la gestione congiunta della popolazione di lupi sulle Alpi. L'accordo si pone i seguenti obiettivi fondamentali:
- riconoscere, ai fini della gestione, la popolazione del lupo alpino come una entità geograficamente distinta;
- collaborare per una gestione congiunta della popolazione di lupo alpino, attraverso lo stabilirsi di adeguate strutture e contatti tecnici e politici;
- favorire il mantenimento della popolazione di lupo alpino in un buono stato di conservazione nel quadro di uno sviluppo sostenibile delle aree rurali.

Per la realizzazione delle attività e degli impegni internazionali previsti dal protocollo di accordo, Italia, Francia e Svizzera si impegnano ad istituire un Comitato Permanente per la gestione del lupo nelle Alpi formato dai rappresentanti delle autorità nazionali.
Citazione dall'accordo:
- ai fini della gestione il comitato si avvale di un gruppo Tecnico per la ricerca e il monitoraggio del lupo nelle Alpi, formato da ricercatori ed esperti che si occupano degli aspetti scientifici e tecnici che riguardano la gestione del lupo nelle Alpi anche in relazione agli aspetti agropastorali.

Il Comitato, riunitosi a Torino nel dicembre 2007, ha deciso di istituire due tavoli tecnici di lavoro, uno sugli aspetti del monitoraggio e uno sugli aspetti agropastorali e sulle tematiche della prevenzione.
Il lavoro del secondo tavolo tecnico ha quindi prodotto (2009) un documento di sintesi (in lingua italiana e francese) sull'argomento "Prevenzione contro gli attacchi da lupo nelle Alpi occidentali", concernente 4 argomenti principali:
1. Le fasi di colonizzazione e l'evoluzione della prevenzione;
2. La situazione attuale delle misure di prevenzione nei tre Stati;
3. Lo sviluppo di piani di lavoro per il futuro;
4. Lo sviluppo del coordinamento;

L'analisi comparata di come sono avvenute le fasi di colonizzazione, rapportate agli impatti che tali fasi hanno avuto sul bestiame domestico, anche in funzione delle diverse forme di conduzione delle greggi e delle differenze logistiche e strutturali degli alpeggi ha comunque evidenziato che la fase più critica è legata ai territori di nuova colonizzazione nei primi anni di presenza permanente. In tale fase il numero assoluto dei danni in ambito agricolo aumenta nonostante gli sforzi spesi in tema di prevenzione, anche se il numero relativo (numero di danni per lupo) non è elevato.
Delle misure di prevenzione attuali in ciascun Stato parlano già gli interventi di ciascun relatore, anche se è opportuno sottolineare che i cani da protezione sono considerati in tutti e tre i Paesi il sistema di prevenzione più efficace nella riduzione degli attacchi da lupo.
Lo sviluppo di piani di lavoro comuni e le necessità di approfondimento rilevate prevedono:
- programmi di selezione, allevamento, condizionamento e distribuzione dei cani da guardiana;
- l'introduzione di sperimentazioni comuni o la realizzazione di studi legati alle misure e metodologie di intimidazione e di dissuasione;
- lo spostamento graduale di risorse dagli indennizzi alla prevenzione.
Lo sviluppo del coordinamento prevede sostanzialmente la costituzione di un gruppo di lavoro permanente sui temi della prevenzione nell'ambito del Wolf Alpine Group già esistente.

L'autore

Laurea in agraria nel 1992.
Dal 1994 lavora in Regione Piemonte presso la Direzione Agricoltura, occupandosi di territorio rurale.
Nel 2002 viene incaricato di costituire e coordinare l'Osservatorio regionale sulla fauna selvatica, l'organo tecnico della Giunta regionale che si occupa di gestione della fauna selvatica e dell' interazioni di questa con l'agricoltura, il territorio e le altre attività antropiche.
Dal 2009 è dirigente responsabile del Settore Vigilanza e Controlli in agricoltura della Regione Piemonte

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REGIONE PIEMONTE

English version

Comparing preventive methods in the alpine context – a work in progress in the frame work of the Ministry protocol

On the 13th July 2006 Environment Ministry of Italy, France and Switzerland developed and subscribed an international protocol for the management of the alpine wolf population.
The aims of the guidelines are:
- to considerate wolf Alpine population as a geographically distinct unit, in terms of management;
- to collaborate for an European management of wolf Alpine population, using an adequate protocol and political and technical programs;
- to guarantee a good status of conservation of wolf population in the framework of a sustainable development of rural zones.

For the purpose of the guidelines Italy, France and Switzerland plan to create a "Permanent Committee" for the alpine wolf management with authority members of the three countries.
For the management purpose the committee uses a technical group, composed by researchers and experts that care about technical and scientific aspects concerning wolf management and agro-pastoral issues.
In Turin, on December 2007 the Committee decided to create two thematic working groups, one dedicated to wolf monitoring and one regarding damage prevention.
The results of the second working group were summarized in a synthesis paper (2009, redacted in Italian and French) named "Wolf attacks damage prevention on the Western Alps" concerning four topics:
- Wolf colonization steps and evolution of prevention;
- Status of prevention measures in the three countries;
- Planning of future programs;
- Implementation of the coordination between Italy, France and Switzerland.

Comparing the colonization steps to impacts on livestock in relation to different grazing systems, the results show that the critical points are linked to the formation of new territories. In this cases, despite of the strong effort for damage prevention, the numbers of damage increased also if the number of attacks per wolf is not so high.
Specific talks describe damage prevention in each country, but there are some common remarks: the use of shepherd dogs seems to be the most effective damage prevention method in each case.
The development of common programs requires:
- Plans of selection, growing and distribution of guard dogs;
- The introduction of common methodologies of dissuasion;
- The gradual shift of resources from compensation to prevention.

The development of the coordination system leads to the creation of a Permanent prevention group in the existing Wolf Alpine Group.

REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Author: John Linnell – Norwegian Institute for Nature Research, Norway

The population approach to large carnivore conservation in Europe: integrating ideas of viability into a flexible and coordinated policy

Large carnivores are an especially challenging group of species to conserve in the human dominated landscapes of Europe. Firstly, their large area requirements, the tendency for long distant dispersal movements and low population densities implies that from a biological perspective their populations operate over vast areas that span many administrative borders, both within countries and between countries. Secondly, they are associated with a wide range of conflicts with human interests, including fear for personal safety, depredation on livestock and competition with hunters for shared prey. The result of these two challenges is that we need to find a way to balance large scale coordination of their management with adaptation to local ecological, cultural, social and economic factors. Since 2006, the Large Carnivore Initiative for Europe has worked with the European Commission and European countries to develop a set of guidelines that balance this need for biological robustness and viability with the need for flexibility in management. These were adopted as best-practice guidelines by the EC in 2008. The current challenge is to operationalise them, both in terms of biological concepts and practical international administration.

About the author

Senior researcher at the Norwegian Institute for Nature Research, Trondheim, Norway
Member of the Large Carnivore Initiative for Europe since 1998. Research area: An ecologist by training, but recent work has focused on interdisciplinary approaches to large carnivore conservation, and the integration of relevant ecology and social science into policy.
Experience: Scandinavia, the Baltic States, the western Balkans, India.

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Author: Juan Carlos Blanco - Wolf Project CBC, Spain

Monitoring wolf populations without snow - The case of Spain

The methods to monitor wolves in Spain are adapted to the biological, geographic and socio-political characteristics of the wolf population and of the country. Spain has a large population of wolves (more than 250 packs), the snow is absent in winter from most of the country, there area limited ecological information obtained by radio tracking and there is an increasing administrative fragmentation, with autonomous regions in charge of the management and a limited national coordination.
Since the late 80s, the methods used to monitor wolves try to recognize the different packs by the presence of pups in summer and early autumn, when they just move short distances. In recent years, the method is more or less standardized and follows three steps. 1) To conduct personal interviews in the field to shepherds, hunters, etc. trying to detect dens and *rendez-vous* sites and collecting other data (wolves killed, damages to livestock, etc.); 2) to scout the best breeding areas in summer for intense wolf activity; 3) to confirm the presence of pups conducting sit-and-wait and simulated howling sessions. This procedure provides the figure of confirmed and probable packs, but research effort, previous knowledge of the area, skills of the field workers, weather conditions, etc., can influence these results. The final number of wolves is obtained by multiplying the number of packs by the pack size. Nevertheless, the pack size is variable and very difficult to obtain, so the final wolf numbers are always uncertain. This method is not able to detect small or even moderate population changes.
The effect of the administrative fragmentation and the social and political issues related to wolf monitoring and to acceptance of the results are also discussed.

About the author

Juan Carlos Blanco is a Spanish biologist with a Ph. D. in Animal Ecology, working as a consultant on large carnivores and other mammals. He has been studying wolves since 1987 and he is particularly interested in wolf ecology and wolf-human conflicts, including wolf adaptation to modified habitats, prevention of damage to livestock and wolf perception by different social groups. He has directed several wolf projects related with the impact of 4-lane highways on wolves, the expansion of a wolf populations in agricultural areas, the relationship of wolves and humans in agricultural

areas, etc. He has directed the first national wolf survey in Spain (!987-1988) and other regional surveys, mainly in the Castilla-Leon region, and has participated in the bear monitoring in the Cantabrian Mountains. He has prepared the first technical draft of the Spanish Action Plan for Wolves and he works as a consultant for the Spanish Ministry to coordinate this Plan. Member of the Wolf Specialist Groups and the Large Carnivore Initiative for Europe. (LCIE), (IUCN Species Survival Commission).

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
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tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Author: Olof Liberg - Grimsö Wildlife Research Station and Swedish University of Agricultural Sciences, Sweden

Intensive monitoring of the Scandinavian wolf population

The Scandinavian wolf population is monitored each year. In winter 2008-09 it consisted of 213-252 wolves, of which 85 % occurred in Sweden and 15 % in Norway. The present wolf range covers approximately 120 000 km^2. At present both countries have national minimum goals for their wolf populations. In Sweden it is 20 annual reproductions, in Norway it is 3 reproductions. Recently Sweden also have implemented a temporary maximum goal of 210 wolf individuals, that will be re-evaluated after three years. In both countries the regional county authorities have been delegated the responsibility to perform the monitoring of large carnivores, including wolves, in their respective territories and provide appropriate personnel for the field work necessary, but central government agencies have the coordination responsibility . The basic method for wolf monitoring is snow tracking. Each county has a team of employed, specifically trained, trackers, that search actively for wolf tracks all through the winter season, November – March. In total more than 100 field workers are involved in this work. Wolves are categorized according to social status into packs (3 + wolves), pairs, stationary loners and vagrants. Number of wolves and behavioral details, especially marking behavior, is recorded for each tracking session according to a standardized protocol. Important is to verify for each pack whether reproduction has occurred or not in the preceding summer. There are very specific criteria set up for accepting each occurrence of wolves, including minimum number of tracking occasions and minimum tracking distances. In recent years more that 5000 km of wolf tracking is performed annually in this work. All tracking data are recorded in a national database. Both countries have their own database, but preparations are made for coordination of the two data bases. The tracking data set is complemented with DNA-analysis of scats found during the tracking work, to identify the tracked wolves. This helps in the differentiation between neighboring packs and territories, and also in the determination whether reproduction has occurred or not. In recent years between 300 and 400 wolf scats are DNA-typed annually, and the number is increasing. By 1 May 2010 a total of 537 different wolf individuals have been DNA-typed, which is approximately 80 % of all wolves that have existed in this population since it was re-established in the 1980´s through natural colonization. Based on this DNA-database we have constructed a near complete pedigree of the whole wolf population, going all the way back to its founders. All new pairs that establish are

promptly DNA-typed. This genetic monitoring has a great value in itself, as it allows us to measure inbreeding levels for each wolf and to identify immigrants, badly needed in this strongly inbred population. The population is based on only three founders, but in 2008 we could identify two new immigrants from the large Finnish-Russian wolf population that had joined our breeding population, and produced litters both in 2008 and 2009.

About the author

Present positions:
Research Leader, Dept. of Ecology, Swedish University of Agricultural Sciences
Coordinator of the Scandinavian Wolf Research Project SKANDULV (since Jan 2000).
Member of the IUCN Wolf Specialist Group

Research direction and production:
Project leader of Roe Deer Ecology Research since 1986, Project co-leader of Lynx and Wolf Research Projects at Grimsö since 1996. Coordinator of the wolf research network SKANDULV involving 12 different academic institutions in three countries, since 2000. Research including population ecology of ungulates and large carnivores with special emphasis on demography, predator-prey dynamics, eco-pathology and behavioral ecology of roe deer, lynx and wolf, and conservation biology and population genetics of wolf. Author and co-author of 60 scientific papers in international journals or book chapters and 58 technical reports and popular articles and 2 books. Contributor at 26 international conferences.

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Author: Sabina Nowak - Association for Nature "Wolf", Poland

Monitoring of wolf population and recovery in Poland

The wolf population in Poland is monitored since 2000. The monitoring includes the large scale census of the population range and number, monitoring of areas re-colonising by wolves, analyses of wolf DNA and registering of depredation cases. The National census of wolves is conducted every year and co-ordinated by the Mammal Research Institute Polish Academy of Science in Bialowieża (MRI) and the Association for Nature "Wolf" (AfN). Data on wolves is collected by scientists as well as forestry and national park services. The main goal of the census is assessing the number of wolf packs living in Poland. Two main methods are used: simultaneous winter tracking (1) and year-round observations (2). (1) At the beginning of the Census large forests tracts have been divided into 70 census divisions using the criterion of well defined complex limited with visible barriers, such as large build-up areas, farm lands, rivers, large roads, etc. In these divisions about 12-24 hours after snowfall the winter tracking is conducted simultaneously. Experienced trackers (scientists, forest and park service, hunters) follow fixed transects along forest roads and tourist routs in order to record on maps all tracks of wolves, their directions, dimensions and number of individuals in a group. After tracking these maps with short reports are sent to MRI. (2) The year round forest and park service collect on special forms information on every kind of wolf evidences found in the field, e.g. direct observations of adults and pups, scats and scent marking, foot prints, wolf howling, wolf dens, remains of prey, depredation cases, etc. Forms are sent to MRI quarterly. Moreover information on wolf depredation in provinces are provided by regional directorates of environmental protection. Information from maps, reports and forms are computed to a data base (Excel file), until now more than 28 000 records have been collected. Due to lower experience of the forests and parks staff in recognition of wolf presence in Western Poland (the part of the country where wolves were absent for the last twenty years), the Association for Nature "Wolf" has monitored the wolf recovery in that region since 2001. All larger forest tracts west to Vistula river are regularly, the year round checked for evidences of the wolf presence. Field workers (scientists and trained volunteers) look for tracks, scats, prey remains, evidences of mating in wolves and pups. Howling stimulation is also used. The aim is to discover all new packs and lone individuals which have re-colonised Western Poland. Data gathered by the AfN team is directly enclosed to the Wolf Census data base. At the end of a year whole data from a census period (1st April – 31st March) is analysed with GIS tools (MapInfo software) by scientists from MRI and AfN, based at knowledge on wolf ecology and behaviour in Poland. The analyses focus on distinguishing between wolf packs, estimation of number of packs and loners, numbers of wolves in family groups, reproduction status

of packs, and detection of resident packs and lone wolves out of the range. As a result a yearly report with maps is compiled and distributed. Furthermore the web site of the Wolf Census is updated (http//bison.zbs.bialowieza.pl/wilkrys/news.shtml.). At the end of March 2009 the number of wolves in Poland was estimated at 543-687 (on average 615) individuals, living in 117-129 packs. Moreover, in 2004-2009 over 1100 samples from wolf faeces and tissue have been collected for DNA analyses, in order to assess a genetic diversity, differences and connectivity between wolf subpopulations, as well as long distance migrations in Poland. Studies showed a distinct isolation of the Carpathian wolf population from the lowland population, and suggested that wolves colonizing western part of the country come mostly from the north-eastern part of wolf range.

About the author

Biologist, large carnivores specialist. Since 1996 she has conducted study on the wolf and lynx ecology, and other smaller predators in Poland. During her PhD project she studied population dynamic, ecology and problems of wolves conservation in the Silesian Beskid and the Zywiecki Beskid Mountains. Since 2001 as a co-ordinator of a large scale Wolf and Lynx Census in Poland, she has monitored the wolf recovery in west Poland, and conducted ecological studies on these carnivores, mostly on their diet composition and population dynamic. She takes part in a joint project with the Mammal Research Institute PAS in Bialowieza, focused on a genetic variability of Polish wolves. Last several years is involved in the project of implementing and conservation of ecological corridors for large terrestrial mammals in Poland. Prepares analyses of environmental effects of transport infrastructure and efficacy of mitigation measures. Recommends and negotiate locations and dimensions of wildlife passages for new motorways and railways in Poland. Co-author of the first Polish manual for road planners and investors: Animals and roads. Methods of mitigation of the negative impact of roads on wildlife, and the project for the Ministry of Environment: Ecological corridors linking Natura 2000 sites in Poland. Author of projects of Natura 2000 sites protecting large carnivores habitats in Poland. She introduces to farms various methods of preventing damage to livestock caused by wolves, and test them. These experiences have been described in the "Handbook of livestock protection against wolf attacks". She gives talks and lectures on universities and conferences, carries on seminars focused on large carnivores. Results of her studies are published in scientific journals, but she is also an author of books, articles in popular magazines and educational materials, promoting the recent knowledge on big predators amongst Polish society.

Current Position:
- Association for Nature "Wolf" (president)
- Wolf Specialists Group IUCN/SSC - member
- Large Carnivore Initiative for Europe Species Survival Commission IUCN – member
- National Council for Nature Conservation (Poland) – member
- Infra Eco Network Europe - member
- Advisory Council of the General Directorate of the State Forest Service (Poland) - member

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Authors: **Michael K. Schwartz** - USDA Forest Service, Rocky Mountain Research Station, Missoula MT, USA
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Luigi Boitani - Dipartimento Biologia Animale e dell'Uomo dell'Università "La Sapienza" di Roma, Italia

Genetic monitoring of a recovering wolf population in the Italian Alps

The field of genetic monitoring offers two distinct classes of tools for wildlife managers and biologists. First, DNA can be obtained from non-invasively collected genetic samples. Using this DNA scientists can evaluate diagnostic molecular markers to identify the species that deposited the non-invasive sample, the gender and individual identity of the animal, and sometimes information on population membership (i.e., what subspecies, population, deme, or area an individual originated). One common use of this type of genetic monitoring is to identify individuals from hair or feces found in remote areas and then employ traditional capture-mark-recapture (CMR) approaches to evaluate abundance or survival rates of a population. Marucco et al (2009) developed a new CMR method to estimate the abundance and demography of the wolf population in the Alps between 1999 and 2006 using this approach. A second class of genetic monitoring is using the population genetic information gained from these same samples to estimate genetic diversity, genetic substructure and effective population size. Recent studies have suggested that monitoring the population genetic information may be as powerful a method, and in some cases more powerful of a method, to detect changes in abundance or shifts in population growth rates, as using traditional CMR approaches. In this study we examine how changes in the population genetic metrics of effective population size, genetic diversity, and genetic substructure have changed between 2003 and 2007 in a recovering wolf population in the Alps. Specifically we measure changes in these metrics in Torino, Cuneo, and Alessandria, Italy. In general the results suggest very small but consistent effective population sizes for each year and area studied. However, despite these small effective sizes per area there has been only little evidence of genetic drift over the generation of wolves studied. Part of the reason that genetic drift has not been so severe is the strong tendency for wolves to disperse to possibly avoid inbreeding or to take advantage of resources in empty habitats. Furthermore, the population genetic information allows us to detect dispersal among packs and regions. We discuss the potential of population genetic monitoring for long term, cost-effective monitoring of wolves in the

Alps. We also discuss the limitation of this approach as compared to more traditional CMR methods and the benefits of combining methods.

About the author
Michael Schwartz is currently a Research Ecologist and Conservation Genetics Team Leader for the Rocky Mountain Research Station in Missoula Montana, a position he has held for 8 years. He is also an Adjunct Research Assistant Professor of Wildlife Biology with the College of Forestry and Conservation at the University of Montana. He received his Ph.D. in Wildlife Biology in 2001 from the University of Montana, and his Master's in 1996 from American University, where he worked with the Smithsonian Institution studying marine biology in South America. Despite being a geneticist he has recently lead several ecological studies on wolverine and fishers in the Northern Rocky Mountains of the United States.

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REGIONE PIEMONTE

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24-26 MAGGIO 2010

Abstract

Authors: **Francesca Marucco** - Centro Gestione e Conservazione Grandi Carnivori, Regione Piemonte, Parco Naturale Alpi Marittime, Italia
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The return of the wolf on the Piedmont Alps: 10 years of wolf monitoring in the region

Wolves began naturally recolonizing the south-western Alps of Italy and France in the early 1990s through dispersal from source populations in central Italy, after being exterminated in the area during the 1920-30s. We documented this recolonization process and proved, using genetic analysis conducted on wolf scat and tissue samples, that wolves arrived through natural dispersal from populations in central Italy. When these semi-isolated packs appeared progressively further from source wolf populations, questions arose regarding wolf origin, numbers, distribution, and the impact that these wolves could have on the domestic and wild animals in the Alps. Because of this, the Regione Piemonte founded the "Progetto Lupo Piemonte" from 1999 to now, to organize a large scale and long term monitoring system to follow the wolf recolonization process in the Alps and activate preventive measures to decrease livestock depredations in the area. The large-scale wolf monitoring is based on a combination of non-invasive methods, using both the more conventional non-invasive techniques such as snow-tracking and wolf-howling surveys, and the data from DNA-based techniques. This combination of non-invasive techniques provided detailed information on 4 main aspects of the wolf population, which are important to monitor over time for management and conservation purposes. They are:
1) wolf distribution,
2) population size and population parameters (e.g. survival, reproduction, etc.),
3) number of wolf packs and distribution of their territories,
4) genetic status of the population (e.g. effective population size, etc.).
The monitoring of the entire region has been organized using a specific protocol that defined sampling periods, transect which covered the entire area, and sampling effort, in order to collect robust data to use sophisticated models to estimate the parameters (e.g. Occupancy models, Capture-Recapture (CR) models). We used open CR model with non-invasive individual identifications derived from faecal genotyping to estimate survival and trend in abundance. Young wolves had lower apparent annual survival rates (0,24 ± 0,06) than adult wolves (0,82 ± 0,04); survival rates were lower in the

summer than in the winter for both young and adults. Wolf packs increased from 1 to 14 in the period between 1996 and 2009, as well as population size and distribution. We also built a predictive, spatially explicit, individual-based model to examine wolf population expansion in the Italian Alpine landscape, and livestock depredation risk.
At the same time, the transboundary collaboration between the Italian, French, and Swiss research groups, to follow the entire wolf alpine population, grew through the years from a sporadic and formal series of meetings to an actual and practical co-ordinated program of monitoring and exchange of data, which started in the informal Wolf Alpine Group (WAG), and today is a formal technical group that works under "the Protocol of collaborative management of the wolf alpine population" signed by the Ministries of environment of the 3 countries. The natural expansion of wolves in the Alps is a great challenge for wildlife managers of each country because we try to achieve the goal of having a viable population, while minimizing the conflict that the species might generate. Therefore these monitoring programs should be integrated over the different countries to building an effective management strategy that will consider the Alps wolf population as a unique population.

L'autore
Francesca Marucco
Laureata in scienze naturali all'Università di Torino, ha studiato per 8 anni in USA dove ha conseguito Master e PhD (dottorato) in Wildlife Biology, è da 10 anni Coordinatore tecnico-scientifico del Progetto Lupo della Regione Piemonte. Lavora per il Centro Grandi Carnivori e, dopo aver fatto varie esperienze sul lupo in Appennino, Canada e Stati Uniti, collabora spesso con università statunitensi e italiane. Ci illustrerà la situazione aggiornata sulla presenza del lupo in Regione Piemonte e le tecniche di monitoraggio adottate su larga scala per quantificare la presenza della specie.

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Authors: Christophe Duchamp, Eric Marboutin *et al* - Office national de la chasse et de la faune sauvage, France

Wolf monitoring and population dynamics in France: a dual frame survey

The wolf recovery in France followed the Italian range expansion since the late 60's. The first confirmed reports stated the wolf presence in 1992 on the alpine south-eastern part of France. The wolf presence in the Alps occurred in the context of high level of agricultural activities mainly based on sheepherding. Very quickly managers and jurisdictions faced with conflicts between livestock depredations and conservation of this protected species. Then, the main requirements for the authorities was to robustly document the geographical distribution and numerical population trends.
We choose a monitoring design based on a dual frame survey, trying to conceal both our need for reliable population dynamics data and management issues in order to state on the conservation status of the population. Using a coordinated network of Wolf and Lynx experts dispatched over 80000 km², we crossed two sources of data type collections (transversal and longitudinal data) with two spatial scale (landscape scale and biological scale) in order to answer 4 categories of population biology results:

1. Transversal dataset (recorded at landscape scale) using sign survey allows i) to have proxies of geographical trend – that show 3 colonisation phases- and ii) to detect new pack formations on a yearly base
2. Transversal dataset (recorded at biological scale) using snow tracking and wolf howling sampling designs within each detected wolf pack, provides estimates of demographic trends – that shows a minimum rate of increase $\lambda=1.18$
3. Longitudinal dataset (recorded at landscape scale) using molecular tracking allows studying dispersal patterns, combined with Mark Recapture population size estimates N= 126 [85-280] in 2003 and annual survival rates estimated between s=0.75 [0.54-0.94] and s=0.90 [0.71-0.98])
4. Longitudinal data set (recorded within packs) document changes in pack social structures and aims at looking for genetic kinship.

A set of biological indicators can be constructed to monitor the conservation status (trends of geographical distribution and demographic population) updated on a yearly basis as required by the decision making process (prevention measures implementation, conservation status evaluation, lethal control). Long term population dynamic results are used as reference cases to calibrate the indicators as proxies and

provide new insights in Mark-recapture modelling accounting for detection heterogeneity.
This dual frame survey to collect data is useful also for several by-products such as diet analysis, scale area effects when mapping distribution ranges, and are combined to other population dynamics approaches in a pilot study of predator-prey interactions in a multi-prey system.

About the author

Christofe Duchamp
Starting with ungulate population dynamic issues, Christophe Duchamp got his Ms thesis on analysis and modelisation of biological systems at the university of Lyon (CNRS-France). His PhD focused his interests on predator-prey ecology involving wolves and deer in Poland and France. Now in charge of wolf research studies in France at the Predator research department of the *Office National de la Chasse et de la Faune Sauvage* (Game and Wildlife services), he is focusing on wolf population monitoring and ecology, including predator-prey interactions, in connection with conservation biology issues and wolf-human interactions.

Eric Marboutin
Eric Marboutin got his Ms thesis at the University of Montpellier (CEFE – France) on population dynamic modelling and capture recapture data. After several years studying lagomorph ecology, he is now the head of the Wolf-Lynx Team within the department of Predator research at the *Office National de la Chasse et de la Faune Sauvage* (Game and Wildlife services). His main interests are about how to implement biological components into the decision making process for management and conservation biology issues as well as lynx population dynamics. Eric also belongs as a representative to the core group of the Large Carnivore Initiative for Europe (IUCN).

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REGIONE PIEMONTE

LUPI, GENTI E TERRITORI
La gestione del lupo in Europa:
tutela, monitoraggio, prevenzione e riduzione dei conflitti

24-26 MAGGIO 2010

Abstract

Authors: **Anja Molinari-Jobin**, Sybille Wölfl, Eric Marboutin, Paolo Molinari, Manfred Wölfl, Ivan Kos, Michael Fasel, Iztok Koren, Christian Fuxjäger, Christine Breitenmoser, Thomas Huber, Mateja Blažič, Urs Breitenmoser

Monitoring the Lynx in the Alps

The project Status and Conservation of the Alpine Lynx Population (SCALP) is an ongoing programme aiming to co-ordinate the lynx monitoring and conservation activities in the Alps. The SCALP project was initiated from several active lynx researchers as an informal group in the early 1990s – twenty years after the reintroductions in Switzerland, Italy, Slovenia, and Austria. To propose adequate management measures, a sound monitoring of the Alpine lynx population needs to be in place. In the early 1990s the first efforts were made to put all available data on lynx presence together. The least common denominator of data collection in the Alps was – and still is – the compilation of direct and indirect signs of lynx presence. To standardise the interpretation of the data collected, SCALP experts agreed on a categorisation of occurrence records, where each record is evaluated retrospectively whether it can be verified for correct species identification and whether it has been verified for correct species identification. Therefore, for the monitoring of the lynx throughout the Alps in the frame of the SCALP surveys, the collected data are classified in three categories according to the following SCALP criteria: Category 1 (C1): "Hard facts", verified and unchallenged observations; Category 2 (C2): Observations controlled and confirmed by a lynx expert (e.g. trained member of the network); Category 3 (C3): Unconfirmed category 2 observations and all observations such as sightings and calls which by their nature cannot be verified. The SCALP criteria allow to both combine and distinguish hard and soft data for a better interpretation of the actual distribution.

About the author

Anja Molinari-Jobin studied zoology at the University of Berne in Switzerland. Since 1991 she has been working in the Swiss Lynx Project, later named KORA (Coordinated research projects for the conservation and management of carnivores in Switzerland), first as a field assistant, later in the frame of her PhD thesis with the topic "Predation patterns of Eurasian Lynx in the Swiss Jura Mountains". Since 1999 she coordinates

the SCALP (Status and Conservation of the Alpine Lynx Population), a programme aimed to synchronize the monitoring and conservation activities of lynx in the Alps.

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