



Coexisting with large carnivores

THE CHALLENGE AND THE OPPORTUNITY

Persecuted for centuries –
bears, wolves, lynx and wolverines
are now returning to
the European landscape.

Can they live with us?

Can we live with them?

Why are they so controversial?

What solutions are there?

Coexisting with large carnivores – the challenge and the opportunity

Dear Reader,

This catalogue accompanies an exhibition of the same name that has been developed by the Large Carnivore Initiative for Europe (LCIE) which is a working group of the IUCN's Species Survival Commission. The exhibition was funded by the European Commission's DG Environment as part of a project entitled "Natura 2000 preparatory actions. Awareness raising campaign on large carnivores".

The objective of the exhibition is to provide some thought provoking perspectives on large carnivore conservation in Europe. These perspectives stem from our combined experience as researchers, conservationists and wildlife managers. The views are therefore those of the LCIE. The basic message that we are trying to communicate is that large carnivores represent a uniquely challenging group of species to conserve in a crowded continent like Europe. However, if people are willing to make the effort to slightly adjust their life styles and mindsets it is possible to achieve a form of coexistence.

The catalogue opens with a short illustrated summary of the main messages followed by copies of the images and the main texts from the posters that were displayed. The posters present the species and some of the main regions where carnivores occur before exploring a wide set of issues relevant to their conservation. The content has been reformatted, and in some cases expanded, but remains true to the exhibition.

We hope that you enjoy this exhibition and its catalogue, and that it makes you think about a potential future for our continent that leaves enough space for these wild creatures to be our neighbours.

Yours sincerely,

John Linnell, NINA, for the Large Carnivore Initiative for Europe
Mats Ericson, Taiga Nature & Photo



The exhibition was developed under the banner of the Large Carnivore Initiative for Europe, with the especial assistance of the Instituto Ecologia Applicata (IEA), Italy, Coordinated Research Projects for the Conservation and Management of Carnivores in Switzerland (KORA), Switzerland and the Norwegian Institute for Nature Research (NINA), Norway.

The text was written by John Linnell – NINA and Mats Ericson – Taiga Nature & Photo (www.taiga.z.se). The picture selection and picture editing was performed by Karin Ericson – Taiga Nature & Photo and the layout by Erika Sandström – ESS Design (www.essdesign.se).

The exhibition is available for use by any organisations that are interested. Interested parties should check out the LCIE home page (www.lcie.org) for details.

More information about large carnivores and their conservation in Europe can also be found at the following websites.

The Large Carnivore Initiative for Europe www.lcie.org

IUCN European Mammal Assessment <http://ec.europa.eu/environment/nature/conservation/species/ema/index.htm>

Online Information System for Large Carnivores in Europe <http://www.kora.ch/sp-ois/>

ISBN 978-82-426-1941-9.

Coexisting with large carnivores – the challenge and the opportunity



The opportunity

The image of large carnivores in modern Europe often appears incongruous to many people. However, the requirements are in place. Europe's forest cover has increased dramatically. Populations of prey animals - red deer, roe deer, moose, chamois, wild boar - are at record sizes. Legislation offers either total protection of large carnivores or at least regulation on the extent and means of legal killing.

Large carnivores have shown they can live beside us in our modified cultural landscapes.

We have the potential to foster a unique experiment where we reintegrate these wild creatures into the fabric of the landscapes where we live, work and play.

DARE WE TAKE THIS OPPORTUNITY? Can we rise to the challenges of having wild neighbours?

The edge of extinction

Fifty years ago the situation for large carnivores in Europe looked bleak. As a result of human persecution and transformation of the European landscape, populations had declined to the extent that they were absent from vast parts of the continent. Only some small relicts remained, in the mountains and around the edges of Europe.

The spectre of regional extinction was hanging in the air!

Reclaiming a continent

Now the situation is transformed beyond recognition.

Wolves have recolonized Scandinavia, Germany and the Alps. Relict populations in Iberia, Italy, the Balkans and the Baltics have dramatically expanded.

Eurasian lynx populations have reoccupied most of their former distributions in Scandinavia, the Baltics and the Carpathians, and reintroductions have returned them to many parts of the Alps and central Europe.

Bear populations in Scandinavia, the Balkans and the Carpathians have reached record sizes.

Wolverines have returned to southern Scandinavia, and even recolonized some low-lying forest areas.

There probably have not been more large carnivores in Europe for more than a century.



1. Wolves have returned to share our landscape. *Photo: Taiga nature & photo*
2. Lynx habitat in Balkans. *Photo: Balkan Lynx Recovery Programme* | 3. Wolverine habitat in the Swedish mountains. *Photo: Taiga nature & photo* | 4. Traditional shepherding is the most effective way to mitigate large carnivore depredation. *Photo: Taiga nature & photo*

Coexisting with large carnivores – the challenge and the opportunity



Challenge 1 – Depredation on livestock

The risk of conflict is present wherever large carnivores encounter unprotected livestock. The result is often dead or injured livestock. Fortunately this conflict can be mitigated through a range of technical measures. Most practical is the use of electric fences to protect livestock grazing on pastures, and the maintenance of traditional shepherding practices with livestock guarding dogs.

Challenge 2 – Competition with hunters

Large carnivores and hunters both pursue the same quarry – red deer, roe deer, moose and wild boar. Wolves can also occasionally kill hunting dogs. The competition between hunters and carnivores is virtually impossible to mitigate. Large carnivores need their prey for survival and the return of large carnivores has to be taken into account when setting quotas. The equation is often balanced in areas where hunters can hunt large carnivores in a sustainable harvest.

Challenge 3 – Thinking big

Large carnivores need lots of space. Single individuals roam over areas of hundreds or thousands of square kilometres. They also show a total lack of respect for the borders that humans have drawn across the map of Europe.

Effective conservation of large carnivores requires cooperation between all administrations that share a population. The many Natura 2000 sites across Europe can supply an important refuge and some core habitat. However, for large carnivores it is also important to consider the total landscape within which these sites are embedded.

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1. Roe deer are important prey for European lynx. *Photo: J Linnell* | 2. Hunters and large carnivores both pursue the same quarry. *Photo: J Linnell* | 3. Iberian landscape – habitat for humans and large carnivores. *Photo: J Linnell* | 4. Livestock guarding dog – the ultimate protector. *Photo: J Linnell* | 5. Scandinavian forests hold a lot of space for large carnivores. *Photo: Taiga nature & photo* | 6. Large carnivores need their prey for survival. *Photo: J Linnell* | 7. Electric fences are effective against a carnivore's attack. *Photo: C Angst*

Coexisting with large carnivores – the challenge and the opportunity



Challenge 4 – Infrastructure

Europe is a crowded continent. Remaining natural habitats are still being fragmented through the construction of roads and houses. Large carnivores are moderately tolerant of many developments, but modern highways can prevent movements or even kill animals.

If European habitats become fragmented into small isolated pieces, species that need lots of space, such as large carnivores, will not survive.

The solution lies in the use of crossing structures such as green bridges, tunnels and elevated sections of roads. These allow the safe passage of large carnivores and many other species of wildlife.

Challenge 5 – Small populations

Not all large carnivore populations are large and expanding.

Across Europe there are some small isolated populations that are still not secure. Examples include bears in northern Spain, the Pyrenees, the Alps and central Italy, and lynx in the southern Balkans. These populations are in need of crisis help to reduce mortality from poaching and to secure access to sufficient habitat for expansion.

Challenge 6 – Prejudice

Large carnivores carry with them a cultural history of fear and hate. The ideals of conservation that we have today are relatively new.

As a result there is still prejudice against the carnivores which is often expressed through illegal killings. This is a problem throughout Europe and in some areas it is endangering the conservation of small populations.

There is a need to constantly invest in education, information and law enforcement. Furthermore there is a need to develop fair and democratic institutions that take the concerns of rural people into accounts when management decisions about large carnivores are being made.

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1. Maybe a future recolonizer in a new wolf habitat. *Photo: S Kunovac* | 2. Roads kill many wolves that try and disperse. *Photo: LUPUS* | 3. Snares are a common tool for poachers in Europe. *Photo: FOP* | 4. Bears are illegally killed, also in areas where they can be hunted legally. *Photo: FOP* | 5. Large carnivore habitats are constantly being fragmented by new roads. *Photo: GLOBIO Map*

Coexisting with large carnivores – the challenge and the opportunity



The bottom line

We have the possibility to create a new vision for the European landscape – where wildlife which is truly wild lives close to us.

The greatest challenge rests within the human mind.

Can we learn to tolerate these species? Can we learn to share our living space and some of our resources with them? Can we overcome centuries of prejudice? Can we turn fear into respect? Most importantly, can we adjust our image of the European countryside to one where there is room for the wild?

The large carnivores have demonstrated that they can live with us, the question remains if we can live with them. Their future is entirely at the mercy of our tolerance.

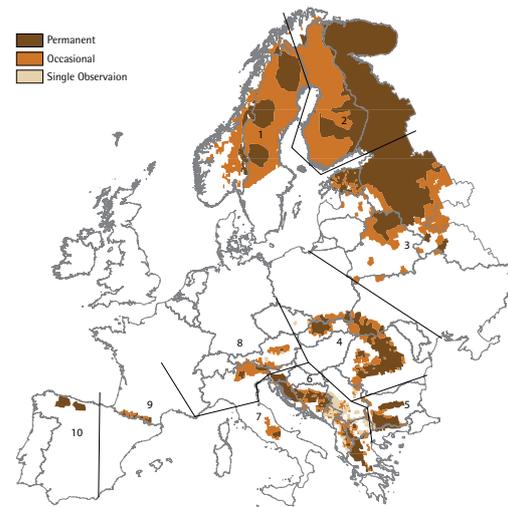
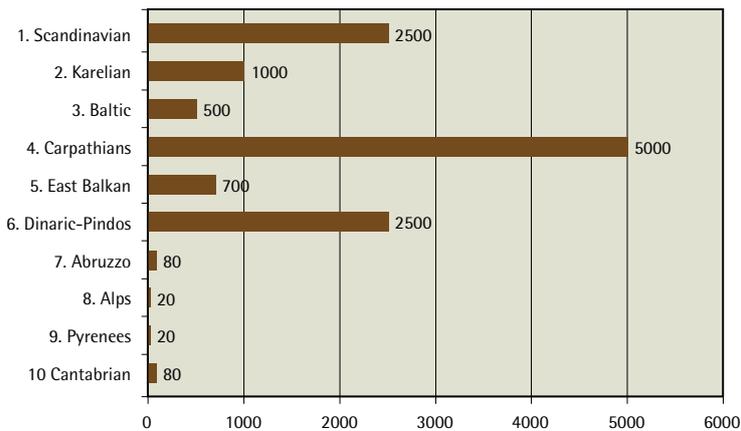
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1. Enjoy the sight of tracks in the sand. They are proofs of a richer Europe. *Photo: V Bolagov*
2. Bear populations in Scandinavia, the Balkans and the Carpathians have reached record sizes. *Photo: C Senior* | 3. Scandinavian winter give lots of opportunities for tracking large carnivores. *Photo: T Strømseth* | 4. Iberian wolf. *Photo: J M Reyero* | 5. Livestock are important for maintaining the European landscape, but must be protected from depredation. *Photo: Taiga nature & photo*

Brown Bear – *Ursus arctos*

The King of the European large carnivores

Brown Bear different regions



Home ranges

Vary from 120 to 1 600 km² for males.

When there are few females around, males' home ranges can be 6 000–8 000 km².

Females normally use smaller home ranges, often 60–300 km² but sometimes 400–500 km².

Threats

Some populations are very small and isolated. Their long term viability is uncertain. These populations may need human assistance, for example by moving bears artificially, to survive.

Bears also kill livestock or raid beehives which reduces human tolerance.

Some large populations are hunted. It is crucial that these populations are closely monitored to ensure the harvest is sustainable.

Poaching is a problem in many areas.

The situation of bears varies widely across Europe. While some populations consist of thousands of individuals, others consist of tens of individuals.

Photo from left/top: B Kristiansson, Taiga nature & photo, Taiga nature & photo, LIFE-Nature, Taiga nature & photo, Taiga nature & photo.



Size

WEIGHT Males 140–320 kg, females 100–200 kg

HEIGHT Big males up till 1.5 m, females smaller.

Reproduction

MATING May – July

BIRTH January – February

LITTER SIZE 1–4, normally 2–3

When the cubs are born, usually in the den in mid winter, they weigh no more than 0.5 kg – approx the size of a squirrel.

Diet

Bears are true omnivores. Their diet includes berries, nuts, ants, grass and other green vegetation. They also feed on carcasses and can occasionally kill wild ungulates, even moose, as well as domestic livestock.

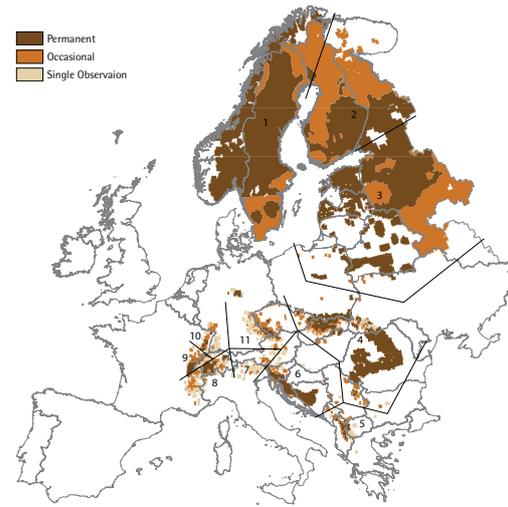
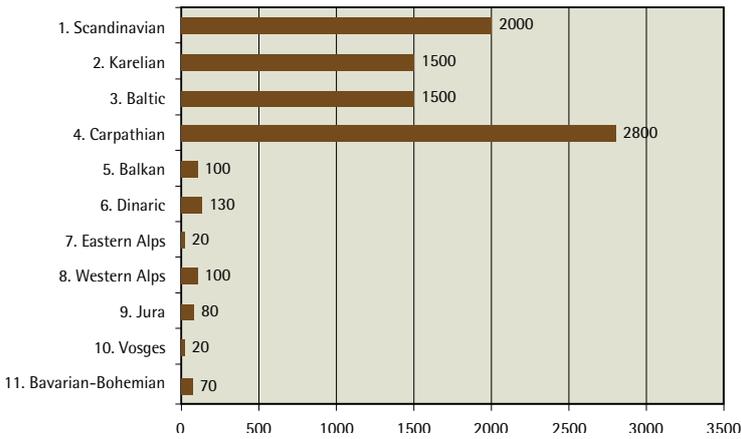
Social organisation

Bears live solitary lives apart from females with cubs. Cubs normally stay with their mother for two years. Female cubs often settle close to their mother while male cubs can disperse over huge distances. Males can kill cubs so females try to avoid contact.

Eurasian Lynx – *Lynx lynx*

The biggest cat in Europe

Eurasian Lynx different regions



Social organisation

Lynx are solitary and males and females meet only during mating. Males and females occupy territories that exclude members of the same sex. The kittens follow their mother for almost one year, till next year's mating period. Both sexes can disperse long distances, although young males tend to travel further.

Home ranges

Lynx home ranges vary from 120 to 1 800 km² for males and from 80 to 1 000 km² for females.

Threats

In areas where lynx are hunted it is important to ensure that quotas are set at sustainable levels.

Depredation on livestock can result in low tolerance.

Hunters perceive lynx as a major competitor for game species.

Throughout Europe poaching is one of the major threats to lynx survival.

The Nordic, Baltic, Carpathian and Balkan populations are indigenous.

The others are the result of reintroductions.



Photo from left/top: L Krempig, J Linnell, Taiga nature & photo, BCP Wildlife Consulting, J I Larsen, BCP Wildlife Consulting, Scandlynx, BCP Wildlife Consulting.



Size

WEIGHT Males 18–25 kg, females 12–16 kg

HEIGHT 60–75 cm

Reproduction

MATING March

BIRTH May – June

LITTER SIZE 1–4, normally 2–3

Diet

Lynx are excellent hunters and strictly carnivorous and almost only feed on prey they have killed themselves. They feed on roe deer, chamois, red deer, hares and different forest birds.

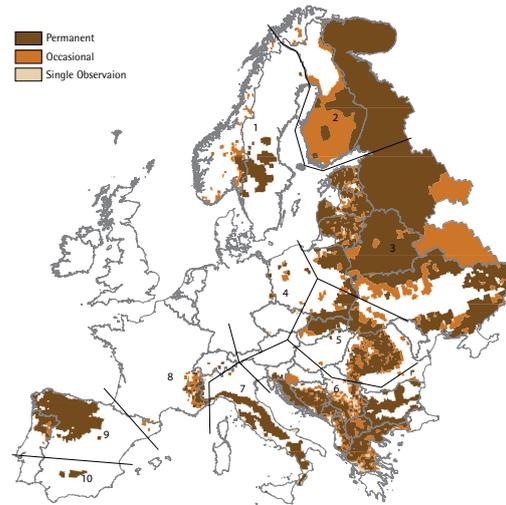
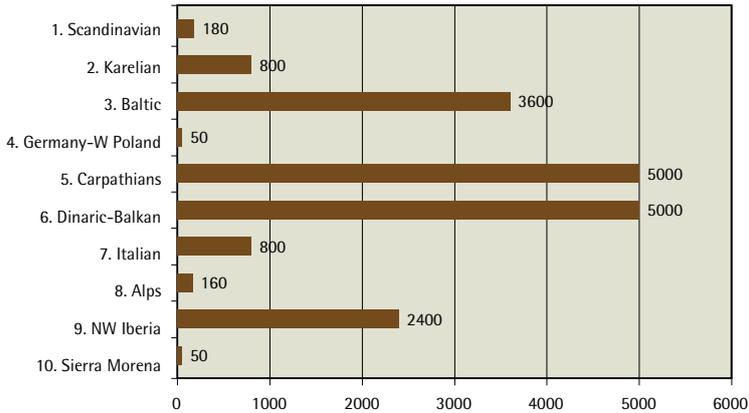
In Scandinavia and in Finland the lynx is also a major predator on semi-domestic reindeer.

Domestic sheep are also killed.

Wolf – *Canis lupus*

Mythical, loved, hated and adaptable

Wolf different regions



Home ranges

Wolves' home ranges vary very much depending on food availability and the size of the flock.

Sometimes they may use no more than 100 km², but often they need 600–1 000 km² to feed their family members.

Threats

No other large carnivore seems to generate so strong feelings, both pro and anti, as wolves do – wherever they establish their territories.

Human tolerance is often low because of fear, depredation on livestock and dogs, or competition with hunters for the prey.

Some small populations may be at risk of inbreeding.

Peoples attitudes are often negative and as a result poaching is a major threat to wolf survival in many areas.

The most mythical, the most hated and the most beloved of all large carnivores. Also one of the most adaptive carnivores which has proved that it can survive in very different habitats.



Photo from left/top: BCP Wildlife Consulting, Taiga nature Et photo, V Bologov, CoEx, V Bologov, T Strømseth, Taiga nature Et photo.



Size

WEIGHT Males 20–60 kg, females 20–55 kg

HEIGHT Big males up to 90 cm, females smaller

Reproduction

MATING January–March

BIRTH March–May

LITTER SIZE 1–11, usually 3–8

Diet

Wolves are mainly carnivorous, specialising on wild herbivores. But they can also feed on hares and beavers as well as other small and medium sized vertebrates, insects, berries, fruits, carrion and human garbage, as well as livestock.

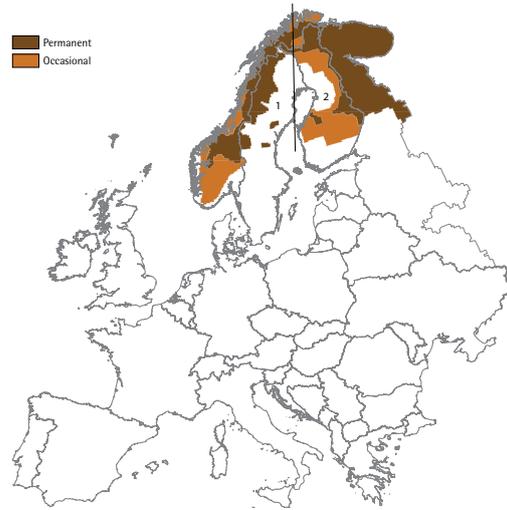
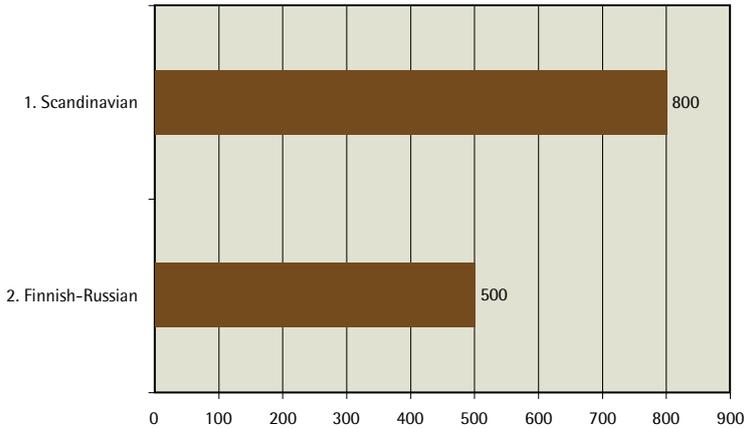
Social organisation

Wolves live in family groups called packs which occupy exclusive territories. A pack normally consists of a reproductive pair, the alpha pair, and their offspring. Young wolves can disperse at one or two years of age and can travel many hundreds of kilometres.

Wolverine – *Gulo gulo*

The hyena of the arctic

Wolverine different regions



Predation on cubs within the species, by other females or by males, is one of the most important causes of mortality among cubs younger than one year.

Home ranges

Males may defend territories up to 600 km² or more. Females normally have smaller territories, usually smaller than 200 km².

Threats

Most European wolverines live in areas that hold prey species like semi-domestic reindeer or free grazing domestic sheep. Depredation on domestic sheep in Norway and on semi-domestic reindeer in Norway, Sweden and Finland leads to low tolerance for wolverines.

Illegal killing is widespread.

In Norway harvest quotas are very high.

Size

WEIGHT Males 12–18 kg, females 8–13 kg

HEIGHT 35–43 cm

Reproduction

MATING April–August

BIRTH February–March

LITTER SIZE 1–4, normally 2

Diet

Wolverines can kill large prey such as semi-domestic reindeer and sheep, but they also kill hares and small rodents. Wolverines also scavenge on animals that die from natural causes or that are killed by more effective predators such as wolves and lynx.

Social organisation

Wolverines are solitary animals. But, since the mating period is long, adult males and females can be seen together during most of the summer. The cubs follow their mother all summer, until August – September when many cubs disperse. At the age of one year most of the cubs have left their mothers. Especially young males can wander long distances.

Wolverines are territorial towards members of the same sex.

Being 70–80 cm long and weighing 15 kg, approximately the size of a badger, the wolverine is a small large carnivore. Small in terms of size but large when it comes to its ability to kill even big animals like adult reindeer.



Photo from left/top: L Gangås, A Landa, A Landa, Taiga nature & photo, Taiga nature & photo, L Gangås, Taiga nature & photo.

Carnivores need food – and Europe's forests are full of it



LARGE CARNIVORES NEED FOOD, space and tolerance to survive in the long term.

The dramatic recovery of Europe's large carnivores during the last fifty years has been fuelled by the parallel recovery of Europe's wild herbivores and their forest habitats. One hundred years ago these species were just as rare as the carnivores that fed on them.

Thanks to a century of efforts on the parts of hunters and game managers these species are now firmly integrated into the modern European landscape. The increasing ungulate populations are a conservation success also important for the carnivores. Europe's forest area has also dramatically increased in the 20th century.

Today, if hunting quotas on ungulates also take large carnivore predation into account, large carnivores and hunters can both harvest their part of the ungulates available.



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1. The Moose - King of the Scandinavian forest. *Photo: Taiga nature & photo*
2. Ibex. *Photo: R Valarcher* | 3. Wild boar. *Photo: J Linnell* | 4. Red deer. *Photo: C Robion* | 5. Roe deer. *Photo: J Linnell* | 6. Chamois. *Photo: R Valarcher*

The Nordic countries – endless expanses of bog, boreal forest and alpine tundra



SPANNING NORWAY, SWEDEN, FINLAND AND THE RUSSIAN PROVINCES OF KARELIA AND MURMANSK is one more or less continuous patch of habitat. Wild, but not a wilderness, as the forest is subject to intensive forestry and vast areas are used for grazing semi-domestic reindeer and sheep.

This is Europe's single largest patch of continuous large carnivore habitat, however the low productivity of the region results in large home ranges and low density populations.

Home to 1 200 wolverines, 4 000 bears, 900 wolves and 3 500 Eurasian lynx.



1. Full moon over boreal forest. *Photo: Taiga nature & photo* | 2. Boreal forest and lakes, Sweden. *Photo: Taiga nature & photo* | 3. Free ranging sheep in Norway. *Photo: G Austrheim* | 4. Boreal forests are intensively exploited. *Photo: J Linnell*
5. Agricultural landscapes, Østfold, Norway. *Photo: J Linnell* | 6. Wolf tracks close to Russian village. *Photo: V Bologov*

The Carpathians – the Kingdom of the Carnivores



A LONG, FOREST CLAD, MOUNTAIN CHAIN running across eastern Europe, from the eastern corner of the Czech Republic, through Slovakia, Poland, Ukraine, Romania and into eastern Serbia.

Traditional life styles and ecological sensitive forestry and game management practices have persisted throughout much of the ecoregion.

A period of rapid socio-economic change is threatening many of the ecological values and the co-existence between humans and carnivores. But it is not too late to ensure that the best of the past is integrated with the best of the future.

Home to 8 000 bears, 5 000 wolves and 2 500 Eurasian lynx.



1. Central Carpathian Mts, Romania. *Photo: Taiga nature & photo* | 2. Shepherds milking their sheep. *Photo: Taiga nature & photo* | 3. Wolf close to human settlement, Romania. *Photo: BCP Wildlife Consulting* | 4. Traditional livestock husbandry methods have persisted in Romania. *Photo: Taiga nature & photo*
5. Carpathian wolves roam the mountains. *Photo: BCP Wildlife Consulting*
6. Time to go home for the night. *Photo: Taiga nature & photo*

The Balkans – Europe's last frontier

Iberia – verdant mountains and sun-baked planes



A WILD AND RUGGED LANDSCAPE of high mountains, deep gorges and dense forests running down the western edge of the Balkans. The Dinaric-Pindos mountain range stretches from southern Slovenia, through Croatia, Bosnia & Herzegovina, Montenegro, western Serbia, Kosovo, Albania, FYR Macedonia and Greece.

The ecoregion is seeing many dramatic social changes after a century of turmoil, but the large carnivores symbolise that borders are a human construction.

Home to 2 800 bears, 4 000 wolves and 200 Eurasian lynx.

THE FORESTED MOUNTAINS OF the Cordillera Cantabrica in northern Spain are home to just 120 brown bears. This is a small and isolated population, threatened by poaching and development, struggling to persist in a crowded world.

Between them, Portugal and Spain are also home to 2 400 wolves, the 4th largest wolf population in Europe. The wolf range covers mountains, forests, scrub lands and vast agricultural planes – truly demonstrating the adaptability of the species.



1. Tara NP, western Serbia. *Photo: J Linnell* | 2. Bear mother and cubs, Gorski Kotar, Croatia. *Photo: J Linnell* | 3. Snowy mountains, Bosnia & Herzegovina. *Photo: S Kunovac* | 4. Albanian Alps, northern Albania. *Photo: Balkan Lynx Recovery Programme* | 5. Hunting in rugged terrain, Bosnia & Herzegovina. *Photo: S Kunovac*



1 & 2. Bear habitat, Cordillera Cantabrica, Spain. *Photo: J Linnell* | 3 & 4. Wolves moving across fields, Valladolid, Spain. *Photo: J Linnell*

Large carnivores – part of our cultural heritage



LARGE CARNIVORES ARE VERY VISIBLE in human cultural history – we have portrayed them in statues and carvings, named our children after them and created proverbs that invoke their qualities. They have shaped human development throughout history.

For a long time humans lived with large carnivores close to their settlements and their livestock. Even though large carnivores were not loved, people had to live with them – like bad weather. Carnivores of course were killed but the old time hunting methods did not make it possible to exterminate them.

Later in history, with the introduction of modern weapons and the frequent use of poison, the war against large carnivores became more successful and in many areas large carnivores were totally exterminated or reduced to very low numbers. Often this happened with the support of governments.

Sayings about large carnivores, especially bears and wolves, are numerous and exist in all European countries, clearly showing the influence which large carnivores have always had on human culture.

Origin myths like Romulus and Remus and the founding of Rome, tales like Little Red Riding Hood, large carnivores on stamps and on coins, large carnivores used as logos for numerous sports clubs, municipalities and cities, large carnivores on heraldic coats of arms. These all bear witness to our long history together.

Even in our modern life we still create myths about large carnivores. On one side we have the myth of the harmless wolf that is no danger to people, or the wolves that only eat the sick and the old prey animals. On the other hand we have the conspiracy theories about illegal reintroductions conducted by “environmentalists” and the myth of the extreme danger posed to human life by every single wolf.

The diversity of ways that large carnivores are shaping human culture and fantasy should be celebrated. However it is crucial that we also focus on what is real in debates about their management.

Photo: J Linnell

Don't sell the skin of a bear before having shot it | A “bear hug” | The jealous man makes the flea into a bear | To see the wolf's ears
Doing a “bear favour” to somebody | Ask the wolf to watch the sheep | Escaping from a wolf one may run into a bear | Strong as a bear
Lynx vision | To be a lonesome wolf | A wolf in sheep's clothes | To come noiselessly as a lynx | Do not call wolves out of the woods
You should defecate quickly, the bear is coming | It's a “wolf time” | Stupid like a bear | Jumping like a lynx | Hungry as a wolf

Neither demons nor gods – the dynamics of human attitudes towards carnivores



MANAGING CARNIVORES IS TO MANAGE PEOPLE and changing people's attitudes is therefore a high priority mission.

Few species invoke stronger emotions than wolves and bears. To some people they are symbols of beauty and wilderness. To others they are something to fear and symbols of a dark past. For centuries we have persecuted them with extreme prejudice, yet in the last 30 years European society has made a U-turn and now seeks to conserve them.

In the modern world there is still much prejudice against them. Some of this is based on real conflicts and experience, although much is based on mythology, lack of knowledge, or simply fear of the unknown. Carnivores have become symbols of wider conflicts between rural and urban, or traditional and change.

Carnivores have also become idolised and placed on a pedestal. They are often portrayed as kind, gentle, harmless cuddly beasts that never harm humans or human interests.

But the carnivores themselves are just carnivores, trying to go about their business in the way that evolution has formed them. We need to turn fear into respect, worship into reality.

It might be hard to change attitudes among the extremes, on either side. Both extremes, and the actions which their attitudes bring about, are truly threats to long term survival of large carnivores.

But for the vast majority of people, young and old, information about large carnivores based on facts is of major importance. If we base our opinions on facts, and not on myths and sayings, the first steps are taken on the road which leads us to understanding large carnivores and accept their right to exist.

Then, just a few steps further remains the vision of a Europe where people share the landscape with large carnivores, even when it involves some small sacrifices. A Europe where large carnivores are symbols of a new relationship between man and nature, based on respect, tolerance and coexistence.



1. 19th century wolf trap, Picos de Europe, Spain. *Photo: J Linnell* | 2. A close encounter of the cuddly kind. *Photo: Taiga nature & photo* | 3. It may be cute, but feeding bears is dangerous, for the bear and the person, Brasov, Romania. *Photo: Taiga nature & photo* | 4. The "little red riding hood" myth is still alive. *Photo: Traditional*

With a view to a kill – hunters and carnivores must share their prey



BOTH LARGE CARNIVORES AND HUMAN HUNTERS PURSUE THE SAME QUARRY – the wild ungulates. Fear of competition drives one of the biggest conflicts between carnivores and humans in Europe.

Hunting wild ungulates has sustained humans since they first colonised Europe at the end of the ice-age. Even today there are several million hunters who maintain this ancient tradition across Europe. Motivations are varied. Hunters hunt for meat, for trophies, for recreation and for sport. When large carnivores return, hunters often fear that competition will effect their activities.

The impact of carnivore predation on wild ungulates vary. In some areas, competition can be severe, in other areas hardly noticeable. However, unlike conflicts with livestock, predation on wild ungulates cannot be mitigated. Predation is a part of the natural processes that biodiversity conservation aims to restore.

This represents a great challenge for European hunters. The return of large carnivores has to be taken into account when setting quotas. To hunt wild game means to be aware that it is the constant presence of predators that has driven the evolution of the prey species which are valued. The presence of truly wild animals is what makes their pursuit so exciting.

Allowing hunters to hunt large carnivores may balance the equation. For many they represent the ultimate hunting challenge and the ultimate hunting trophy.

European experience has shown that for many populations large carnivores can be hunted sustainably given adequate control and effective monitoring. Permitting their harvest is just one of the many compromises that may often be necessary to achieve coexistence between carnivores and man, and hunters and non-hunters in shared ecosystems.

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1. Latvian hunters at start of the season. *Photo: A Lilley* | 2. A Swedish moose hunter with enough meat to fill the freezer. *Photo: B Kristiansson* | 3. Can hunting carnivores help hunters accept their presence? Legally harvested lynx, Norway. *Photo: I Gangås* | 4. A moose killed by a wolf – one less for the hunting quota? *Photo: T Strømseth* | 5. Red deer – prozed by hunters and wolves alike. *Photo: C Robion* | 6. The trophy hunter's dream. *Photo: J Linnell*

Ecological terrorism – the insidious threat of poaching



POACHING OF LARGE CARNIVORES IS WIDESPREAD across Europe. Methods vary from poison to shooting, trapping, snaring, or simply driving over animals with cars or snowmobiles. In some cases it is the result of the spontaneous action of an individual. In other cases well organised gangs plan their actions carefully.

The motivation is mainly a question of hatred or simply tradition, as there is little economic benefit for the poacher. Likewise, the risks of being caught are small. Poaching is a shadowy underworld activity which takes place in deep forests or in distant mountains, far away from human settlements. The crime often tends to happen at night, when nobody is watching.

Proof of poaching exists en masse, like cut off radio-collars, poison baits, illegal traps and animals found with earlier gun-shot wounds. But it is usually a long way from these findings to the poacher.

Poaching must be taken seriously. It threatens the reputation of all hunters, shepherds and rural people, the respect that people have for the law and in extreme cases the future of some of the smaller carnivore populations. Most of it all it shows a total lack of respect for the result of democratic decisions.

Combating poaching requires both an increased effort from law enforcement agencies and the enforcement of internal justice within the rural communities.



1. Poaching is a threat to the tiny German wolf population. *Photo: K Bullerjahn*
2. Evidence of poaching. A crushed radio-collar from a lynx, Hedmark, Norway. *Photo: J Linnell* |
3. A poacher with a lynx, Albania. *Photo: Balkan Lynx Recovery Programme* |
4. A wolf that fell victim to a poacher's snare, Croatia. *Photo: J Kusak*
5. An illegally killed wolf displayed as provocation, Croatia. *Photo: D Huber*
6. A wolf in a poacher's snare, Bialowieza, Poland. *Photo: K Schmidt* |
7. Snowmobiles are often used for illegally killing carnivores in northern Fennoscandia. *Photo: Taiga nature & photo*

Wolves and dogs – a complicated relationship



DOGS ARE WOLVES. Traditionally people have regarded a dog as man's best friend and a wolf as man's worst enemy. This merely hints at the complexity of the millennia old relationship.

The dog story began at least 14 000 years ago and recent genetic studies have estimated that it could have started even earlier.

Nobody knows for sure how things happened, when early humans domesticated wolves and started the long and winding road leading to numerous different dog breeds that nowadays serve mankind in countless ways.

Ironically, one of the first uses that dogs were put to was to protect our livestock from wolves. Across Eurasia humans have bred many types of livestock guarding dogs. These large breeds bond on livestock and guard them as if they were kin. Even today they represent one of the most effective ways of preventing livestock depredation. Perhaps the ultimate example of the poacher turned game-keeper?

Wolves also kill dogs. One of the most emotional conflicts in northern Europe is the tendency of wolves to kill hunter's dogs that enter and act as intruders in wolf territories. Furthermore, wolves occasionally kill dogs chained in farmyards.

Wolves attack and kill livestock – and so do dogs. Throughout southern Europe there are countless thousands of feral and free-ranging dogs. These dogs cause much damage on livestock. This is a problem in itself and furthermore it creates conflicts when dogs hurt or kill livestock for which wolves often get blamed.

Feral and free ranging dogs also compete with wolves for wild prey. In areas where there are many stray dogs, hybridization between wolves and dogs is also a problem.

Although dogs were first domesticated many thousands of years ago they can still breed with wolves. Such hybrids have been found across Europe and they represent an insidious threat to both the genetics of wolves and to public opinion.

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1. A wolf – the ancestor of all our hundreds of breeds of domestic dog. *Photo: Taiga nature & photo* |
2. A wolf-dog hybrid, Saxony, Germany. *Photo: LUPUS*
3. Believe it or not, his ancestors were once wolves. *Photo: Taiga nature & photo*
4. Macedonian guarding dog with wolf protection collar. *Photo: N Lescureux*
5. Estonian dog killed by wolf. *Photo: P Mannil*

Livestock, bees and large carnivores



THE CONFLICT WITH AGRICULTURE was one of the driving forces that led our ancestors to use great effort to combat large carnivores. As the carnivores return, so do the conflicts.

When lynx or wolves encounter unguarded free-ranging sheep or when bears feel the irresistible smell of honey from beehives, the result is often dead or injured livestock and destroyed beehives

The degree of conflict vary greatly, but wherever it occurs it reduces local tolerance.

Luckily humans have developed a wide range of solutions during our thousands of years of experience with large carnivores.

Most effective is the use of the traditional combination of shepherds, livestock guarding dogs and night-time enclosures for free-ranging systems.

When sheep or cattle are pastured, electric fences are effective. Electric fences are also useful to protect beehives from intruding bears.

The challenge is to integrate these solutions, both ancient and modern, into existing agricultural practices and policies.



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	3	7	8				

1. Is the sheep killed by a dog or a wolf? Sweden. *Photo: Taiga natur & photo*
2. Estonian beehives destroyed by a bear. *Photo: P Mannil* | 3. A lucky survivor. Sheep injured by wolf, Segovia, Spain. *Photo: J Linnell* | 4. Shepherd watching his flock. Carpathian Mts Poland. *Photo: J Linnell* | 5. Electric fences are effective at protecting sheep from wolves, Spain. *Photo: CoEx* | 6. The lonely life of a shepherd, FYR Macedonia. *Photo: J Linnell* | 7. A livestock guarding dog in sheep's clothing, Valladolid, Spain. *Photo: J Linnell* | 8. Goats protected by electric fence, Sweden. *Photo: Taiga nature & photo* | 9. Croatian wolf with lamb. *Photo: J Kusak*
10. Free-ranging sheep are easy prey, Norway. *Photo: J O Gjershaug* | 11. Traditional shepherds see the benefits of using electric fences, Romania. *Photo: A Mertens*

Rare livestock breeds and rare wildlife species can coexist



AN INNOVATIVE PROJECT IN BULGARIA is finding ways to conserve both large carnivores and important parts of the cultural heritage of the Pirin Mountains.

Humans have bred many special breeds of livestock with very special characteristics. In the face of the industrialisation and homogenisation of agriculture, the conservation of these breeds has become as important as the conservation of wild species like large carnivores.

In western Bulgaria an NGO called SEMPERVIVA is working to conserve local breeds, including the Karakachan sheep, the Karakachan horse and the Kalofer long hair goat.

Another local breed, the Karakachan dog, is used to protect these flocks from predation from the wolves and bears that live in the same area. In fact, if it wasn't for the large carnivores this breed of dog could

well face extinction. And if it wasn't for the dog, these livestock would suffer depredation from wolves and bears.

The project provides a vivid example of how the conservation of Europe's natural and cultural heritage are firmly inter-connected and in fact complement each other. The recent development of a large carnivore information centre is an innovative attempt to foster rural development through ecotourism.



1. Karakachan livestock guarding dog watching his flock, Prin Mts, Bulgaria. *Photo: S Sedefchev*
2. Kalofer long hair goat, Prin Mts, Bulgaria. *Photo: S Sedefchev*
3. Karakachan livestock guarding dog at work. *Photo: S Sedefchev*
4. Karakachan horses, Prin Mts, Bulgaria. *Photo: S Sedefchev*
5. Karakachan sheep are just one of many indigenous livestock breeds, Prin Mts, Bulgaria. *Photo: S Sedefchev*

Reindeer, lynx and wolverines – a collision between conservation of biological and cultural diversity



ACROSS THE EUROPEAN ARCTIC AN AGE OLD CONFLICT is played out – between the traditional lifestyle of one of Europe’s indigenous peoples, the Sami, and large carnivores such as wolverines and lynx.

Ever since the end of the ice age carnivores like wolverines, lynx and wolves have been following in the footprints of the reindeer – and they kept on tracking their prey even after the Samis domesticated the reindeer.

The Sami people in Fennoscandia have traditionally lived from reindeer husbandry, depending on semi-domestic reindeer for food, transport and skins. Even today the reindeer are powerful cultural symbols for these people amidst all the changes that modern living has brought. About 40% of Fennoscandia’s area is used to graze reindeer herds.

Wolverines and lynx are heavy predators on reindeer and in these areas reindeer are the major prey for wolverines and for some of Europe’s largest populations of lynx. In some areas the combined effect of predation leaves little surplus to harvest.

There are no easy solutions to the conflict. Changing reindeer herding practices is very difficult. Present solutions involve massive compensation payments and the use of lethal control to limit the size of wolverine and lynx populations.

There is a great challenge to find new non-lethal methods for reducing the effects of large carnivores living in the reindeer herding districts.



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1. Wolverines are major predators of reindeer. *Photo: Taiga nature & photo*
2. Semi-domestic reindeer in enclosure for calf marking. *Photo: Taiga nature & photo*
3. Reindeer hooves are made for running in snow. *Photo: Taiga nature & photo*
4. Sami father and son. *Photo: Taiga nature & photo* | 5. A reindeer killed by a carnivore. *Photo: Taiga nature & photo* | 6. Casting a lasso to capture a reindeer for marking. *Photo: Taiga nature & photo*

Scandinavian wolves – a fragile recovery



PROTECTION CAME TOO LATE IN SCANDINAVIA. When the wolves were protected, in Sweden 1966 and a few years later in Norway, the wolf was functionally extinct. Very few wolves, if any, remained by then and few people believed that wolves would ever come back to Scandinavia.

Beginning with one breeding pair in northern Sweden 1978 and then one more further south in 1983 the wolves have slowly regained part of their former hunting grounds in Scandinavia. Today more than 150 wolves inhabit the Scandinavian forests – most of them in Sweden.

Using genetical methods it has been possible to reconstruct the recolonization. The whole population is descended from 3 individuals who made the more than 1 000 km journey from eastern Finland. Two wolves founded the original population and one additional male immigrated from Finland in 1991, mated a female wolf, and brought new genes to the population.

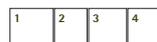
Today the population is doing well and the habitat is very suitable. But on top of human attitudes, some people's unwillingness to share harvestable game species and poaching, the wolves have to struggle with serious inbreeding.

Scientists have demonstrated the signs of inbreeding depression in the population. The wolves give birth to smaller litters and there is a worryingly high frequency of animals with deformed testes.

The challenge, to secure the long term survival of Scandinavian wolves, is to make it possible for new individuals to migrate from Russia and Finland, then pass through the Scandinavian reindeer districts and continue down to the main wolf population further south in Sweden and Norway.

There are also discussions on the possibilities of supporting the wolf population with new blood by exchanging some Scandinavian wolves with unrelated individuals from Finland.

Besides the short term risks of high rates of illegal killing and negative local attitudes, the long term future of this population totally depends on the arrival of more immigrants bringing fresh genes.



1. Wolves recolonised Scandinavia on their own – a distance of 1000 km. *Photo: Taiga nature & photo* | 2. Analysis of DNA from scats has allowed scientists to closely monitor the recovering population. *Photo: Taiga nature & photo*
3. Despite protection many wolves are killed by poachers, and also by the authorities in response to problematic behaviour. *Photo: J Linnell* | 4. A radio-collared wolf at home in the boreal forest. *Photo: Å Aronson*

Wolves can survive in the most unexpected places



WOLVES WERE FUNCTIONALLY EXTERMINATED FROM GERMANY in the 19th century. Throughout the 20th century individual wolves have crossed the border from Poland, but none have ever settled and bred. This changed in 2000 when a reproducing pack was registered in Saxony.

Since 2000 the tiny population has increased. In 2007 there were 3 reproducing packs. Conflicts with livestock have been low and local residents seem quite proud of their new neighbours. Ecotourists have been flocking to the region. However, some local hunters are concerned about game species.

The wolves occupy an area dominated by an open-cast coal mine and a military training area. Proof that wolves do not need wilderness, as they can survive wherever we give them a chance.



1. Tourists are eager to see signs of the wolves that have returned to Germany. *Photo: I Reinhardt* |
2. A brief glimpse of a wolf on a road is a memory for life. *Photo: LUPUS* |
3. Providing information to the public is a constant need in a wolf recovery area. *Photo: I Reinhardt* |
4. Wolves are the ultimate survivors. *Photo: Taiga nature & photo* |
5. Wolf habitat in Saxony, Germany - a coal fired power station is an unlikely backdrop. *Photo: J Linnell* |
6. Wolf habitat in Saxony, Germany - a military training area provides a quiet refuge. *Photo: J Linnell* |
7. Wolf habitat in Saxony, Germany - sand provides a perfect medium for tracking wolves. *Photo: J Linnell*

Bringing back the wild – reintroduction of large carnivores



RESTORING LARGE CARNIVORES TO AN AREA from which they were exterminated is possible – but it is an expensive and difficult process, as the experience from the Alps and the Pyrenees shows.

Lynx were exterminated from the Alps in the 19th century. Between 1970 and 1990 a total of 30 lynx, mainly from the Carpathian Mountains, were reintroduced into Switzerland, Italy and Austria. Today, there are approximately 120 lynx in the Alps.

Bears were almost exterminated from the Alps, with just a few males remaining in the Trentino area of northern Italy in the late 20th century. From 1999 to 2002, 10 bears were captured in Slovenia and released in the area around the Parco Naturale Adamello Brenta in the Italian Alps. These bears have now become established and are breeding, with the present population around 20 bears. Three bears were also released into the Austrian Alps in 1989-1993.



Bears have also been released in the French Pyrenees. A total of 8 bears have been translocated from Slovenia in 1996 - 1997 and in 2006.

At present it is too early to say if these reintroductions will succeed. The habitat seems to be suitable, but during their absence local people have forgotten how it is to live with large carnivores. Tolerance is low in many areas and some conflicts with livestock exist.



1 & 2. The release of a translocated lynx in the eastern Swiss Alps. *Photo: F Zimmerman*
3. The return of bears in the French Pyrenees as has been heavily protested by a vocal minority. *Photo: CoEx* | **4.** A Slovenian bear that is taking its first steps in the Italian Alps. *Photo: Adamello Brenta Natural Park* | **5 & 6.** The return of bears in the French Pyrenees as has been heavily protested by a vocal minority. *Photo: ONCFS*

The Balkan lynx – can we save this last remnant?



DURING THE LAST 50 YEARS most European populations of Eurasian lynx have recovered much of their former ranges. The exception is the tiny lynx population that persisted in the southern Balkans on the borders between Albania, FYR Macedonia, Kosovo and Montenegro.

Until recently there was little hard evidence about its status. Recent camera trapping surveys and interviews with local people in Albania and FYR Macedonia have produced hard proof that lynx still exist in the region. However, the total range is small and the surveys have uncovered evidence that poaching is widespread.

The population is genetically distinct and represents one of the four surviving remnants of Europe's lynx populations, together with Scandinavia, the Baltics and the Carpathians.

Its conservation will require international cooperation, the conservation and restoration of habitat and the enforcement of nature protection and hunting legislation.



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1. Interviewing local people has been an important source of information about the status of lynx in FYR Macedonia. *Photo: Balkan Lynx Recovery Programme*
2. A lynx researcher with the skin of a lynx that was shot by poachers, Albania. *Photo: Balkan Lynx Recovery Programme*
3. Casts of tracks and scats - more proof of lynx existence. *Photo: Balkan Lynx Recovery Programme*
4. Interviewing local people in Albania. The lynx is poorly known. *Photo: Balkan Lynx Recovery Programme*
- 5, 6 & 8. The first pictures ever taken of wild Balkan lynx using camera traps confirm its existence, Mavrovo NP, FYR Macedonia. *Photo: Balkan Lynx Recovery Programme*

Large carnivores know no boundaries



TRANSBOUNDARY COOPERATION IN MANAGEMENT, conservation and research of the Dinaric lynx population.

The Northern Dinaric Mountains represent large, unfragmented areas of preserved nature of exceptional conservation value, covering parts of Slovenia and Croatia. Extensive forests offer shelter to numerous rare and threatened animal species, like the Eurasian lynx.

The lynx is a vulnerable species and an important component of the Dinaric fauna. Its conservation and management requires a complex approach on the population level, regardless of state boundaries running through its habitat.

The activity is considered an important first step towards a joint Slovenian-Croatian management of the shared natural heritage. Slovenia and Croatia share the lynx population, meaning that any management action taken in one country affects the population status in the other. The only solution is a complex, coordinated management

on the population level. The vulnerability and charisma of the lynx makes it an appropriate challenge for establishment of transboundary cooperation in nature conservation – and this cooperation has been established.

The project has acquired important biological and sociological knowledge, developed tools for cooperative population monitoring and established partnerships at top management and research levels. All this leads to implementation of one of the most important project goals, preparation of the Joint Management Strategy for the Dinaric lynx population, the first document of its kind between Slovenia and Croatia.



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1. Information is an important tool for increasing awareness about large carnivores and their conservation. *Photo: DinaRis* | 2. Will they survive in the Dinaric Mountains? *Photo: BCP Wildlife Consulting* | 3. The lynx is an important component of the Dinaric fauna. *Photo: Taiga nature & photo* | 4. Lynx home ranges along the Slovenian-Croatian border in the Dinaric Mountains. *Photo: DinaRis*

Green bridges – passages to survival



LARGE CARNIVORES NEED TOLERANCE, prey to hunt and somewhere to live.

Europe is a crowded continent, covered by millions of kilometers of roads and railways. True wilderness is a distant memory. Remaining natural habitats are also being fragmented by the construction of roads, railways and buildings.

Even though large carnivores are moderately tolerant of many developments, modern highways can prevent movements within their natural habitats. Highways also become immediate threats to animals trying to cross these constructions cutting through their former habitats.

The future of large carnivores depends on their being able to move through this landscape.

Fragmentation of European natural habitats into small isolated pieces

may therefore be a threat to long term survival of species that need lots of space, like large carnivores.

Solutions exist in the form of green bridges that allow animals to pass over the road, or tunnels and raised road sections that allow the animals to pass under. These structures help many species of wildlife.

Some of the best examples of integrating these structures into new roads exist from Croatia and from Via Egnatia in Greece.

It is crucial that all future infrastructure projects consider the needs of wildlife and integrate these structures into planning from the outset.

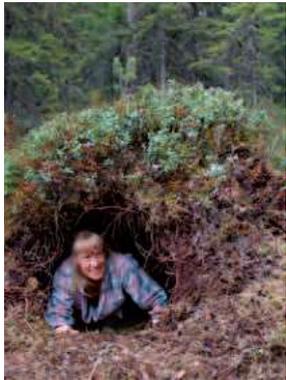
In a world of shrinking wilderness areas, green bridges are important to make it possible for large carnivores to maintain and move within their natural home ranges.



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1. Lynx killed by car, Norway. *Photo: L Gangås* |
2. Bear killed by train, Croatia. *Photo: J Kusak* |
3. Bear killed by train, Croatia. *Photo: D Huber* |
4. One of the few wolves in Switzerland, killed by train. *Photo: KORA* |
5. Swedish wolf killed by car. *Photo: Å Granqvist* |
6. Green bridge in Croatia – a new way of thinking. *Photo: J Linnell* |
7. Elevating roads provides safe passages for wildlife, Via Egnatia, Greece. *Photo: Callisto* |
8. Watch out! Bears crossing – hopefully on the green bridge. *Photo: D Huber* |
9. Green bridge under construction in Croatia. *Photo: D Huber* |
10. Culvert for carnivores and other wildlife, Via Egnatia, Greece. *Photo: Callisto*

Worth more alive than dead



FOR CENTURIES LARGE CARNIVORES WERE PERSECUTED and heavily hunted. Big money was paid for their skins or simply for their dead bodies – as state bounties. The goal at the time was often to get rid of the large carnivores.

The situation has changed and today wildlife in general, and especially large carnivores, are used to market and sell wildlife experiences for tourists around the world.

Ecotourism is one of the world's fastest growing industries. Can it be used to help large carnivores pay their way? Can it turn a source of costly conflict into a lucrative money-earner?

Large carnivores are charismatic and popular with the public. But, they live at very low densities and are very shy and are therefore very hard to see. There are very few situations where it is possible to guarantee visitors a sighting.

However, there are many places that are now marketing their region as an area rich in wildlife and wild landscapes. Just being in the same landscape, and perhaps being lucky enough to see proof of a carnivore's presence such as a track or a scat, is proving to be quite a draw for visitors.

Wildlife based tourism is in its infancy in Europe. There is enormous potential to market a broad nature based product. We just have to show that these animals are worth money – and that they are worth more alive than dead.

The challenge is to have the presence of large carnivores recognised as a stamp of quality for the wildness of a region.



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1. An old bear den in Sweden has become a tourist attraction. *Photo: J Linnell*
2. Just knowing large carnivores are around is a great thrill. Romania. *Photo: Taiga nature & photo*
3. Snowtracking wolverines in the Swedish mountains. *Photo: Taiga nature & photo*
4. Wolf watching in Castilla y Leon, Spain. *Photo: J Linnell*
5. Ecotourists in Cantabrian bear habitat. *Photo: Fundación Oso Pardo*
6. Tracks of German wolves attracts many people. *Photo: I Reinhardt*
7. Bear friendly cheese, French Pyrenees. *Photo: CoEx*

From myth to science – a new way of knowing



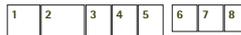
FOR CENTURIES OUR KNOWLEDGE OF LARGE CARNIVORE has been a product of anecdotes and myths. The last 40 years has given us a new lens through which we can view these species – the lens of science. By collecting objective data we hope to be able to better understand the species.

Carnivores are difficult species to study because of their elusive habits – although we have an ever expanding range of methods in our tool-kit. The most useful for the last 30 years has been the radio-collar which allows us to follow an individual's movements and life history. This has been recently upgraded to avail of advances in GPS and cell-phone technology – but still involves capturing and marking animals.

Another powerful set of tools has been provided through the study of DNA. It is now possible to take a scat or a single hair and identify the individual that it belongs to.

Finally, we have a whole range of interview and questionnaire techniques to study people, their attitudes, views, values, desires and motivations. Focusing on humans is crucial when our carnivores live their lives in human-dominated landscapes.

These new tools have totally changed the way we view large carnivores and our own societies. We can now view them as they really are! And as always, reality is even more fascinating than the fiction of our old myths.



1. Attaching a radio-collar to a tranquilised wolf, Romania. No other method has had a greater impact on biologists ability to study these species. *Photo: BCP Wildlife Consulting*
2. Radio-tracking a wolf during winter, Romania. *Photo: BCP Wildlife Consulting*
3. Many samples to take while the lynx is sleeping, Norway. *Photo: J Linnell*
4. A big European brown bear may weigh 300 kg, Sweden. *Photo: S Brunberg*
5. A bear's scat provides DNA for genetic studies, Sweden. *Photo: Taiga nature Et photo*
6. A young bear has just been tranquilised by a researcher. *Photo: WWF-Austria*
7. Gathering traditional knowledge from rural people, Albania. *Photo: Balkan Lynx Recovery Programme* |
8. Camera trap image of a bear, Greece. *Photo: Callisto*

Legislation for conservation – implementing the vision



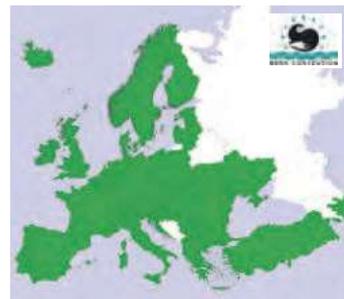
A SOCIETY'S LEGISLATION REFLECTS ITS VALUES. There are two major bodies of pan-European legislation that reflect the desire of the European public to conserve its wildlife.

The Council of Europe's Bern Convention from 1979 covers 39 countries while the EU's Habitats Directive from 1992 now embraces 27 countries. Through the Emerald and Natura 2000 networks, the conventions have protected vital habitats, and have contributed to improving the conservation status of rare species.

Both have focused on wide ranging species, like large carnivores, whose conservation requires cooperation between neighbours. But, until now they have depended on the individual nations for implementation.

A new initiative being fostered by the EU encourages the development of population plans based on a biological basis, independent of how many borders the populations cross.

European countries connected to the Council of Europe's Bern Convention and the EU's Habitats Directive



Natura 2000 sites for large carnivores in the EU



1. A forest with a lynx becomes an enchanted place. *Photo: C Joulot* | 2. A Russian wolf looking into the future. *Photo: V Bologov* | 3. Brown bears in Finland. *Photo: B Kristiansson* | 4. Scandinavian wolverine. *Photo: A Landa*



The carnivores have shown
they can live with us.

We have yet to show
that we are willing to share
our landscapes with them.

It is true that large carnivores can be
difficult neighbours, but by adapting our
lifestyle and our mindset it is possible to
live together.

Are we willing to make the changes?

Are we willing to explain to our children
why we didn't?

Photo front cover: Taiga nature & photo, A Landa, B Kristiansson, H Andrén.

Photo back cover: A Kjellström, BCP Wildlife Consulting, Taiga nature & photo, BCP Wildlife Consulting

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