



Hungary-Slovakia-Romania-Ukraine

ENI Cross-border Cooperation Programme
2014-2020

PARTNERSHIP
WITHOUT BORDERS

OPEN BORDERS FOR WILDLIFE IN THE CARPATHIANS

The lynx

A guide for...



www.openbordersforbears.com



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FOREWORD

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Earth's ecosystems have evolved over millions of years, leading to diverse and complex biological communities living in balance with their environment. In forest ecosystems, we can imagine the delicate balance even more clearly. At the top of the food chain are carnivores taking control of the harmony in the forest. The Carpathians are home to three species of large carnivores. These include the brown bear, the wolf, and the smallest of the large carnivores is the Euroasian lynx - this mysterious feline.

As the name of the animal suggests, the lynx is native to Europe and Asia. Its scientific name *Lynx lynx* comes from the Greek word *λύγξ*, which means light or brightness in connection with the luminescence of its reflective eyes. In the Slovak language, it is called "rys ostrovid", which means "lynx with bright sight" and that points out its very important characteristic - great eyesight. The lynx is also known for its tufts of black hair on the tips of their ears, which help him hear prey or danger from a great distance. Incredible sight and amazing hearing make him the perfect hunter. But the lynx's excellent hunting skills are what sometimes get them in trouble with humans. For decades it was persecuted as a competitor to hunters. Worldwide, the Eurasian lynx is not a threatened species, with a stable presence in Russia, Scandinavia, and some parts of Europe. However, its existence in the forests of Carpathians is fragile. Now, more than ever, the ecosystems are marked by the consequences of long-term human influence. Besides hunting, the main threats for lynx are habitat loss and fragmentation. Fortunately, there are still privileged places where nature continues on its way, changes and evolves, and these ecosystems we are responsible to protect.

Zuzana Lackovičová, communication specialist, SOS Birdlife



ABOUT THE PROJECT

The Carpathian region is home to more than a third of the approximately 12,000 wolves, 17,000 bears and 9,500 lynxes that live in Europe, excluding Russia. It is estimated that around 8,000 brown bears live in Central and South-Eastern Europe. These ecologically critical, strictly protected and culturally significant mammals are threatened, not only by poaching, but also by habitat fragmentation and shrinkage caused by chaotic infrastructure planning and development. As large carnivores frequently move across national borders in search of food and mates, it is essential to conserve these large and complex ecosystems in the region across administrative boundaries.†

Protecting nature is essential, not only for wildlife but also for local communities, who much depend on the many resources it provides: from clean air and water to fertile soil and stable climate. These environmental services depend on a well-connected ecological web of high biodiversity. Maintaining and improving ecological connectivity protects not only wildlife but also the entire ecosystem humans depend upon.

Project partners from four countries (WWF România – Maramureș Branch, România, Slovak Ornithological Society/BirdLife Slovakia, NGO RachivEcoTur Ukraine, Aggtelek National Park Directorate Hungary) embarked in a dynamic journey called “Open borders for wildlife in the Carpathians” www.openbordersforbears.com to design and secure transboundary ecological connectivity between habitats. The project, funded under Hungary-Slovakia-România-Ukraine, ENI Cross border Cooperation Programme 2014-2020 (<https://huskroua-cbc.eu/>) aims to improve connectivity in four countries and support integrated habitat management for wolves, brown bears and the Eurasian lynx.

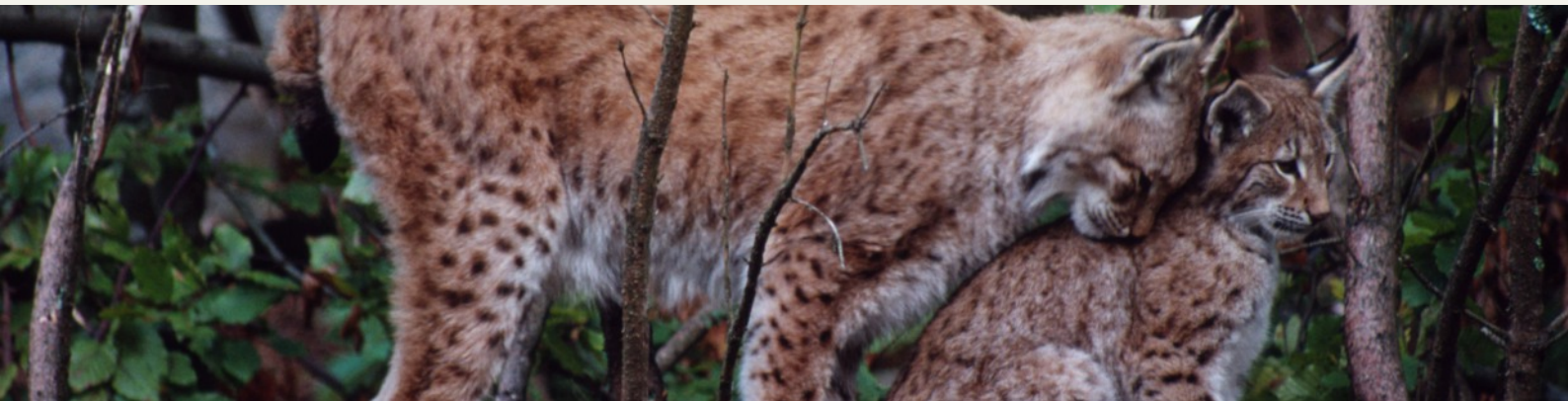
This project is a continuation of the previous project implemented by WWF-Romania in 2012-2014, “Open borders for bears in the Carpathians of România and Ukraine”, which has mapped the first network of ecological corridors in Maramureș, in the România-Ukraine border area. Unlike the first project, where the umbrella species was the brown bear, now systematic monitoring (using photo-video cameras, drone and genetic tests) will be carried out for three large carnivore species - bear, wolf, lynx, and work will continue on identifying ecological corridors in Slovakia and Hungary. Large carnivores are at the top of the trophic pyramid, and if their populations are maintained at optimal numbers, it means that other animal species are also in good conservation status in their habitats.



THE IMPORTANCE OF ECOLOGICAL CORRIDORS IN A HEALTHY ECOSYSTEM

The network of ecological corridors in the Carpathian Mountains is meant to be a coherent system of natural or semi-natural elements of the landscape, designated for administration in order to maintain or restore ecological functions as a means of conservation of wildlife species, offering in the same time adequate opportunities for the sustainable use of natural resources.

The design process of the network of ecological corridors in the Carpathian Mountains area was based on the ecological requirements of large carnivores and the favorable habitats in the area. Large carnivores, as an umbrella species, due to its position at the top of the trophic pyramid and the vast habitats they need, are a target species in the design of regional ecological networks, because protecting viable large carnivore populations will ensure the conservation of other species as well.



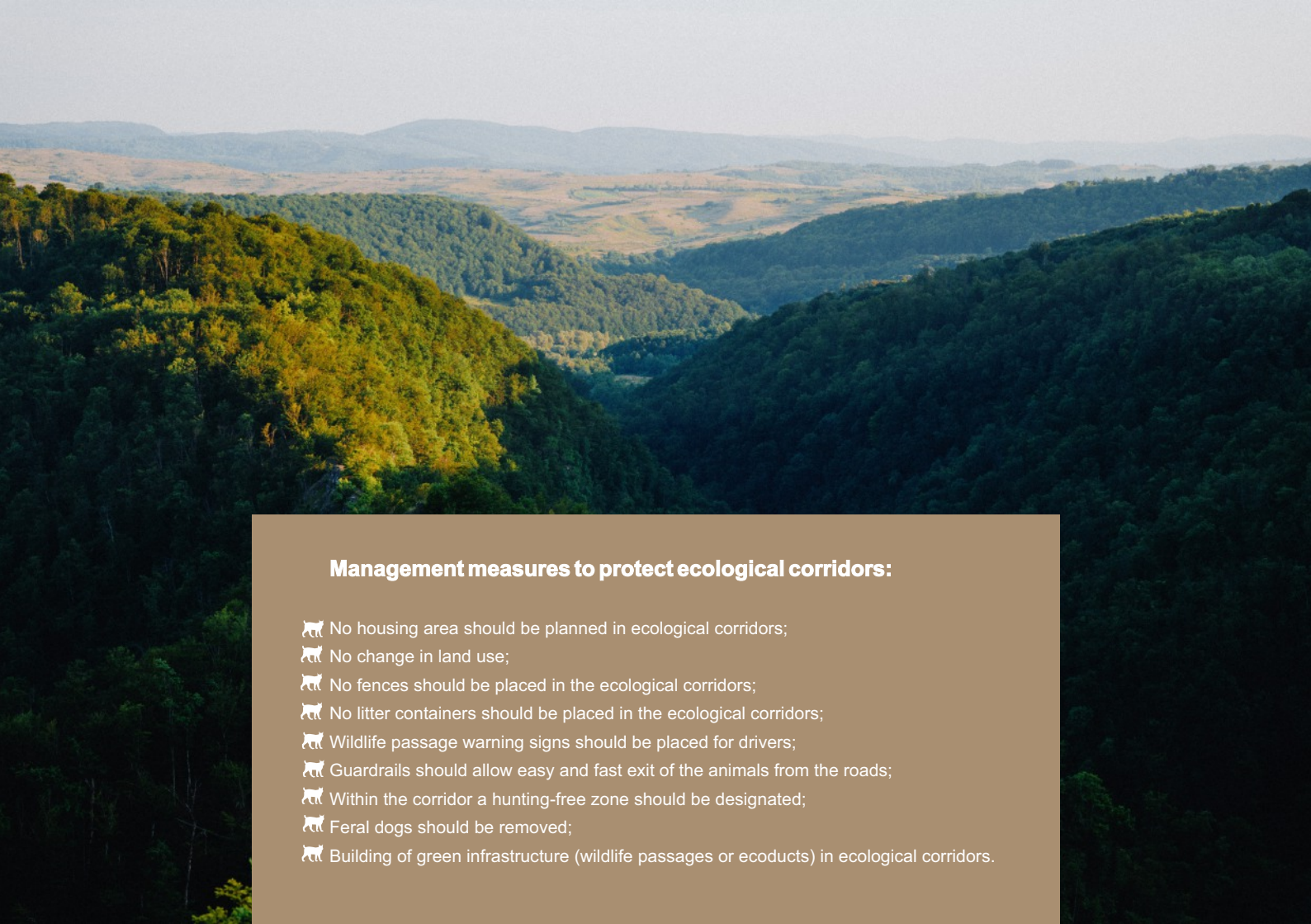


Categories of ecological corridors:

-  Core area of distribution: large areas of natural or semi-natural habitat that fulfill requirements for permanent residence of umbrella species. For large carnivores it consists mainly of forests. The size of a core area should not be less than 300 km².
-  Stepping stone: an array of small patches of favorable habitat that individuals use during movement for shelter, feeding and resting.
-  Wildlife corridor: landscape structures of various sizes, shapes and vegetation that mutually interconnect core areas and allow movement and migration of species between them. The width of the corridor should not be less than 500 m.
-  Critical zones (bottle-necks): fragments of corridors with significant limitations of the land permeability for the target species due to the concentration of different types of barriers (e.g. fences, arable land, motorway etc.).

Types of barriers that disrupt ecological corridors:

-  terrestrial (e.g. road and railway infrastructure, tourist complex, ski resort, etc.)
-  aquatic (e.g. micro hydropower plants, sills, dams, catchments, etc.)
-  aerial: some of the most common barriers for bird species are wind farms, overhead power lines and tall buildings.



Management measures to protect ecological corridors:

- 🐾 No housing area should be planned in ecological corridors;
- 🐾 No change in land use;
- 🐾 No fences should be placed in the ecological corridors;
- 🐾 No litter containers should be placed in the ecological corridors;
- 🐾 Wildlife passage warning signs should be placed for drivers;
- 🐾 Guardrails should allow easy and fast exit of the animals from the roads;
- 🐾 Within the corridor a hunting-free zone should be designated;
- 🐾 Feral dogs should be removed;
- 🐾 Building of green infrastructure (wildlife passages or ecoducts) in ecological corridors.

ABOUT LARGE CARNIVORES

A carnivore is an organism, in most cases an animal, that eats meat. A carnivorous animal that hunts other animals is called a predator; an animal that is hunted is called prey.

An animal's diet determines where it falls on the food chain. Each food chain consists of several trophic levels, which describe an organism's role in an ecosystem. Carnivores and omnivores occupy the third trophic level. An omnivore, such as a human, is an organism that eats plants and animals.

Many carnivores get their energy and nutrients by eating herbivores, omnivores, and other carnivores. Carnivores that have no natural predators are known as apex predators; they occupy the top of the food chain. Here are large carnivores, the bear, the wolf and the lynx. But not all carnivores are predators. Some carnivores, known as scavengers, feed on the carcasses of already-dead animals.

Carnivores vary in shape and size, but they often share similar traits. For example, most carnivores have sharp teeth adapted for capturing prey and tearing flesh. Additionally, many carnivores have relatively large brains. Carnivores also have a single stomach chamber and a simple digestive system, unlike herbivores, who often have a stomach with multiple chambers and a specialized digestive system.





Carnivores play an important role in keeping ecosystems balanced. They keep populations of prey species from becoming too large. Scavengers like vultures help prevent diseases from spreading by eating the remains of dead animals.

Large carnivores play an important role in the environment. We are just beginning to learn how they positively impact the environment. For example, bears play a role in fertilizing forests by dragging carcasses throughout forests and depositing scat on the forest floor. In eating fruit and nuts, they disperse seeds. Each seed is deposited on the forest floor with a little 'fertilizer' to get it started. Bears also help to clean up carcasses and, as predators, they help keep populations such as deer in balance.

Large carnivores are also a good indicator species. Bears, wolves and lynxes need a variety of habitats to survive and thus managing habitat for these species benefits many others including humans. If the land is healthy enough to support a population of fit, large carnivores then it is also healthy enough to support people.

People have been fascinated with bears and wolves throughout time and around the world. They have captivated the human imagination and have become woven into the fabric of myths, legends and anecdotes. Large carnivores are a part of human culture in countless ways — from ancient ceremonies to myths to teddy bears and plush toys. In the next chapters you can read more about the lynx.

THE LYNX

(LYNX LYNX)

IMPORTANCE

Losing one single ring from the food chain can generate changes at all levels within an ecosystem. It is more dangerous that these changes are not visible in short period of time. Lynx are on the top of the food chain, regulating, thus, the structure and dynamics of herbivorous species, but, in the same time, being dependent on them. Furthermore, optimal and viable populations of red deer, roe deer or wild boar are closely dependent by other environmental factors including anthropogenic ones. Zooming out, the biological systems appear to be very connected and every component is dependent in many ways to the other ones. Well known situations in which lynx disappeared from some areas became detrimental to plant communities. Herbivorous populations boosted in numbers and in the same time degenerated in genetic variability. Active management measures were thus required, with high monetary costs for those countries. After all, reintroduction of lynx was the natural solution to balance the unbalanced nature.

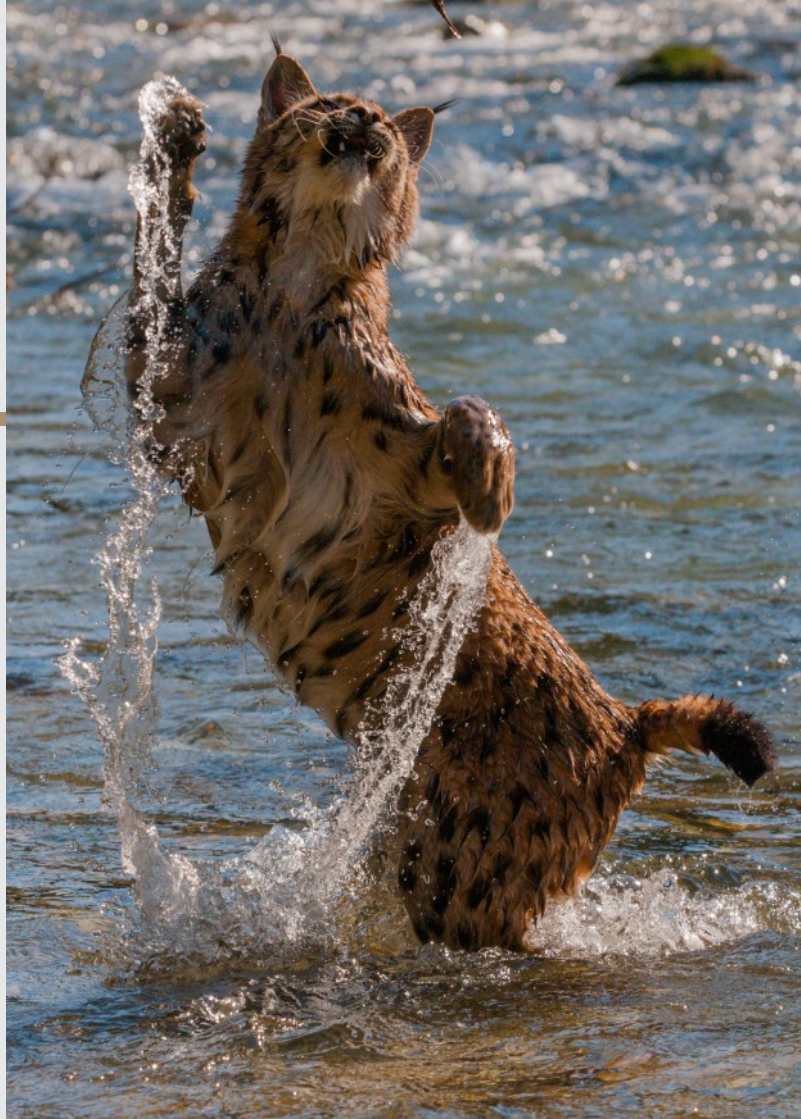


DESCRIPTION

Lynx are a group of four species of medium-sized wild cats. Of all four lynx species, only the Iberian lynx (*L. pardinus*) was assessed on the IUCN red list as a critically endangered species. The others, despite being hunted uncontrollably in the 19th and 20th centuries, remain beyond any danger of extinction worldwide, but are still threatened in some countries.

The lynx is currently living in 23 European countries. The total estimated number of Eurasian lynx is about 9000 individuals. In Europe there are regions where the lynx has never disappeared and where there are constant populations (e.g. Scandinavian peninsula, the Carpathians and the Balkans). Some countries where the lynx has disappeared, e.g. Germany, Austria, France, Italy and Switzerland have gone through projects to reintroduce this species.

Meanwhile, as a result of conservation measures, the lynx has returned from neighboring countries and other countries, such as Latvia, Bulgaria and Hungary.





Physical traits/appearance:

Solitary animal, a lynx is about the size of a dog. They have a body length of 80-100 cm (rarely reaching 130 cm). The height is 60 cm and the weight is about 25 kg. The maximum reported weights are between 50 kg and 58 kg, but normally the representatives of the species do not exceed 30 kg. The tail is only 11-26 cm long. The largest are the Carpathian/ Eurasian lynx, 80–150 cm long and weighing 18–30 kg. Next are the Iberian ones, with 85–120 cm and 13–25 kg and both American species that have the same values of length (70–120 cm) and weight (9–15 kg). The tip of the tail in all species is usually black, and at the tip of the ears are tufts of black hair, which distinguishes lynx from other felines. Its fur is thick and soft, and the color varies according to the age, season and individual. Usually, it is reddish-brown with many dots. However, the fur can be dark gray in the area of the head, and black, while the belly can be whitish. Like all other cats, lynx have sharp, retractable claws that reach a length of 4–6 cm. Lynx live about 20 years.

Lynx is an active animal at night, its vision is very good even in the dark. When running, the lynx retracts their claws so that the footprints do not have claw marks. Their normal gait is the step. Like wolves, they place their hind paws in the trace of their previous paws. Lynx is an animal that hunts while waiting. He specializes in chasing and using short sprints to catch prey. The movements of the lynx are fast and quiet, which helps him to attack the prey unexpectedly. From the feet, the lynx can jump up to 4-6 m in any direction. In Europe, the lynx is especially nourished by medium-sized wild animals such as roe deer, black goat or wild boar. However, small mammals and birds can fall prey to it. The lynx can hear a mouse from 60 meters away.

HOME RANGE

In Poland, population densities for adults reaches 1.9 to 3.2 individuals per 100 square kilometers. In Switzerland the density of lynx population is a little bit lower ranging between 0.94 and 2.1 individuals per 100 square kilometers. Where food availability is poor, southern part of Norway for example, the densities of lynx is 0.25 individuals per square kilometers. In Romania, lynx is present in dense forested areas at high altitude covering large territories as home range which count 124 to 486 square kilometers.

The lynx lives alone, the areas of the males and females overlapping. The area where they live is marked with fresh traces of urine, the effect on other specimens of the same species being rejected and only during the mating period.

It prefers large and quiet forests located at high altitudes. But it also descends in areas of high hills. It is generally attached to its place of residence, but in the absence of food it makes relatively long journeys of up to 40-50 km.



TRACES

The trace of a lynx resembles the shape of a cat, but it is much larger. The trace pattern cannot be confused with any other trace when it is clearly printed, because the cushions characteristic of cats is elliptical, without the printing of claws. On fresh snow it could be confused with a wolf or dog track, but the lynx obliquely imprints the "heel", in fact the underside of the foot and even the elbow of the back foot. In addition, the shaving track is arranged in a slight zigzag.





MATING AND REPRODUCTION

Females raise offspring alone. The offspring leave the area at the age of 10-12 months.

All species of lynx mate during early spring, in March and April. Because they are solitary animals, mating does not take place every year. The estrous cycle in females lasts 10-15 days, and the pregnancy 65-90 days, depending on the species, after which 2-4 cubs are born, blind for two weeks. Breastfeeding lasts relatively long, up to six months. The cubs separate from their mother when they are two years old, in order to prepare for the first mating. It is very difficult to observe the mating habits of lynxes for various reasons, especially the rarity of animals, the effect of intensive hunting, or the size of the areas in which they live

THREATS

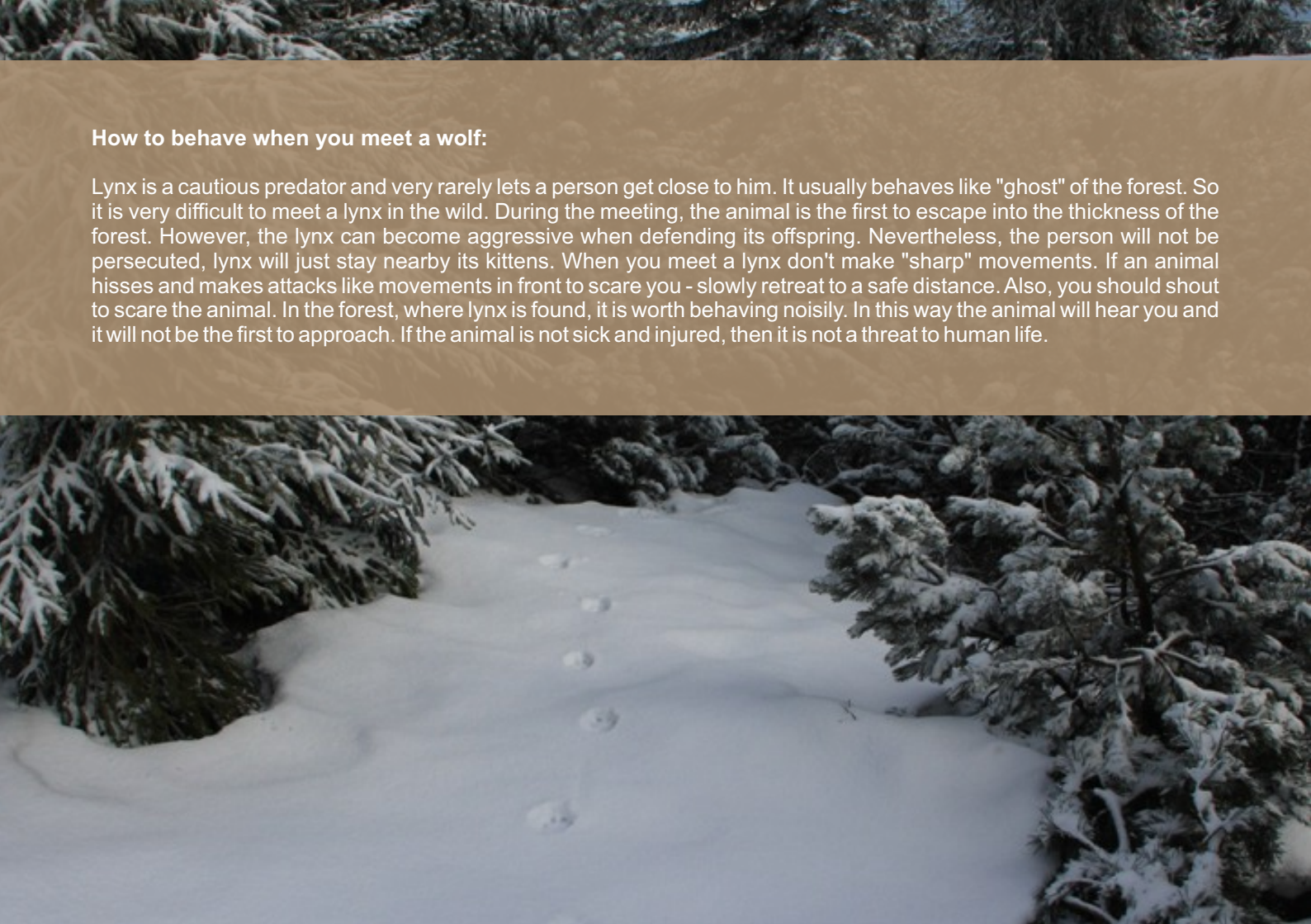
In Europe, main threats for species is habitat loss caused by human infrastructure development and housing. Accordingly, habitat fragmentation produces in time geographic isolation of individuals, hindering lynx to use its natural habits of foraging, matting and dispersal. That is why, ensuring the ecological connectivity for mammals that utilize wide spaces as home is crucially for healthy and resilient populations.



A photograph of a lynx cub standing on a rocky, moss-covered mountain slope. The cub is looking upwards and to the right. The background shows more rocks and some snow patches.

MEETING THE LYNX

Mykola Svystun, a ranger of the Skole Beskydy National Park, in Ukraine, has met lynx in the wild several times. One particular occasion was in spring on a forest road. It happened suddenly, so when the animal saw him - it ran away and hid in the woods. The second meeting took place when he spotted a lynx through binoculars at a distance of 200 meters. The animal was walking on a fallen tree and soon hid in the woods. Another encounter took place on the Menchul mountain meadow near the Kvasy village, Zakarpattia region. The caretaker of the high-mountain biological station walked up in the snow up to the base. There was a lot of snow, reaching above the knees. On the rise of the road, he stopped to rest and looked around. 50 meters away, he saw an adult lynx following in his footsteps, on a path he had taken. He was frightened and began to climb quickly. Lynx slowly continued to follow him step by step, keeping a distance. And only in a flatter place the lynx got off from the caretaker's route and disappeared into the woods. That means that in the deep snow, the animal decided to use a human paved route.

The image is a composite. The top half features a solid brown background with white text. The bottom half is a photograph of a snowy forest path. The path is covered in a thick layer of white snow, and a series of small, dark footprints leads from the bottom center towards the middle ground. The path is flanked by evergreen trees whose branches are heavily laden with snow. The lighting is soft, suggesting an overcast day in winter.

How to behave when you meet a wolf:

Lynx is a cautious predator and very rarely lets a person get close to him. It usually behaves like "ghost" of the forest. So it is very difficult to meet a lynx in the wild. During the meeting, the animal is the first to escape into the thickness of the forest. However, the lynx can become aggressive when defending its offspring. Nevertheless, the person will not be persecuted, lynx will just stay nearby its kittens. When you meet a lynx don't make "sharp" movements. If an animal hisses and makes attacks like movements in front to scare you - slowly retreat to a safe distance. Also, you should shout to scare the animal. In the forest, where lynx is found, it is worth behaving noisily. In this way the animal will hear you and it will not be the first to approach. If the animal is not sick and injured, then it is not a threat to human life.



HUNTING AND POACHING

As in the case of the bear, the lynx is protected by international conventions, it is a priority conservation species in the European Union. So, hunting of lynx in EU is not allowed.

Lynx rarely interact with humans and that is why no human-wildlife conflicts with lynx exist. Also, because the lynx avoids humans and any inhabited areas it does not produce damages to livestock or even if it happens these are insignificant.



CONCLUSIONS

It is clear now that ensuring the connectivity for wildlife is a must. It seems that only establishing natural protected areas is not enough for wild animals in order to thrive since human-made infrastructures like roads, highways or settlements break the habitats in smaller isolated pieces hampering animal movements between their places for feeding, mating or dispersion. Large carnivores are using huge area of habitat ranging for hundreds to thousands square kilometers. Thus, a methodology to identify the ecological corridors with some clear functional parameters that describe such corridors have to be put in place at regional scale. That was the main objective of the project "Open borders for wildlife in the Carpathians".

Connectivity has at least two directions: restoring and preserving it. It is obvious that the second is more desirable in terms of costs and effectiveness. So, for healthy and resilient animal populations we have to think every time one step ahead - to prevent instead of repair.



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