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COOP4SAFE

Living Side by Side: A Practical Guide to Coexistence with Large Carnivores

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I. Introduction: Welcome to the Carpathians

The Carpathians are one of Europe's most important natural areas, home to a diverse range of plants and animals, and serve as a vital wildlife corridor. However, the region faces significant challenges, including habitat destruction and human-wildlife conflict. The project "Cooperating for safeguarding biodiversity and ensuring viable human-wildlife coexistence in the SKROUA transboundary area" (COOP4SAFE) aims to address these issues by protecting natural habitats and creating solutions for a peaceful coexistence between humans and wildlife.

The COOP4SAFE project enables establishing cross-border cooperation among relevant stakeholder organizations in the transboundary area of Slovakia, Romania and Ukraine, aiming to ensure the protection of favorable habitats for wildlife – large carnivores – such as brown bear, wolf and lynx, including the maintenance of ecological connectivity. This fosters benefits for both wildlife and local communities.

Living in harmony with nature means recognizing that humans and wildlife share a common home and that our decisions influence the balance of ecosystems. Protecting habitats and acting responsibly, support the wellbeing of both people and nature, contributing to a healthy world we build together.

Project partners:

Meet the project partners:

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The Carpathians – The Wild Heart of Europe

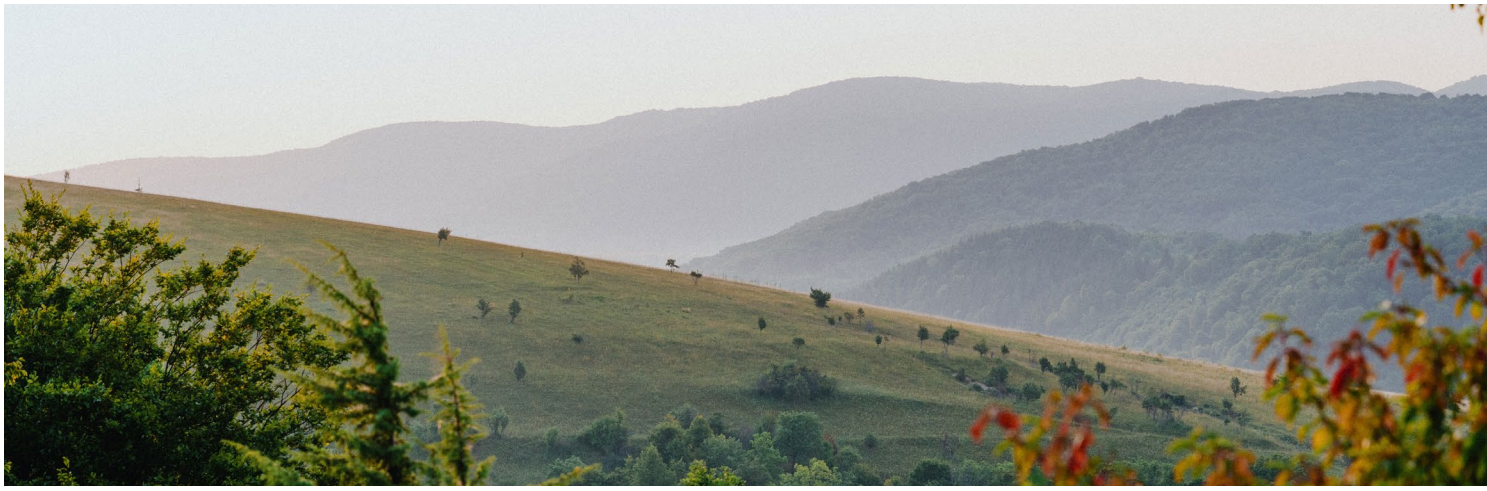
The Carpathians are not only a place of wild nature and ancient forests, but also a region where people have lived in close contact with nature for centuries. Traditional farmers and shepherds in Romania, Ukraine, and Slovakia grazed their flocks of sheep and cattle on mountain mea- dows, helping to keep the grasslands open. Thanks to grazing and traditional mosaic mowing, which creates a variety of habitats in a small area, allowing rare plants and invertebrates to thrive, many rare Carpathian plants and invertebrate species have survived to this day. Many beekeepers preserve old methods of beekeeping, contributing to the maintenance of biodiversity and healthy ecosystems.

In the past, shepherds did not have modern preventive measures such as electric fences or camera traps, and yet they were able to graze their flocks while respecting the presence of large carnivores – bears, wolves, and lynxes – in their territory. They traditionally relied on shepherd dogs, which are still used in the Carpathians today. This traditional way of managing the land shows that humans and wildlife can coexist in harmony and demonstrates how culture and nature can support each other. The Carpathians thus represent a rare example of how people can live alongside wild animals, maintain biodiversity, and preserve traditions.

Meet the countries of the project: Romania, Ukraine and Slovakia

- **Maramureș, Romania - A Land of Natural and Cultural Richness**

Maramureș County is one of Romania's most distinctive regions, known for its ancient forests, traditional villages, and a unique harmony between nature and culture. Its forests and open landscapes are crucial for large carnivores, serving as migration corridors and areas where human activities naturally intersect with wildlife habitats.



Maramureș is also famous for its rich cultural identity – its wooden architecture, including iconic wooden churches listed as UNESCO World Heritage sites, as well as its preserved traditions, crafts, and festivals that continue to bring local life to life. Protected areas help maintain ecological balance, support biodiversity, and offer great opportunities for nature-based tourism. However, the region faces challenges such as illegal logging, habitat degradation, pollution, and the impacts of climate change.

The future of Maramureș depends on stronger nature protection, responsible management, and active involvement of local communities. Projects that combine nature conservation with education and sustainable tourism – for example, promoting nature-based tourism and respecting natural resources – are key to ensuring that the region's natural and cultural heritage is preserved for future generations.

- **The Ukrainian Carpathians – Land of Forests, Springs and Traditions**

The Ukrainian Carpathians are known for their beech primeval forests, some of which are listed as UNESCO World Heritage Sites. These ancient forests are home to hundreds of plant and animal species, including many rare and endemic species found nowhere else in the world outside the Carpathians. The region is also a rich source of clean, life-giving water. High in the mountains, major rivers such as the Dniester, Tysa, and Prut originate here. There are also more than a thousand mineral springs in the region, many of which have unique healing properties.

But the Carpathians are not just about nature – they are also about culture. Ethnic groups such as the Hutsuls, Boykos, and Lemkos have lived in harmony with nature since ancient times, carefully preserving their unique traditions, music, crafts, and dialects.

- **Slovakia: Poloniny National Park – Wild Area with Ancient Fir and Beech Trees**

Poloniny National Park, located in eastern Slovakia, is home to ancient primeval forests, some of which are listed as UNESCO World Heritage Sites. It is one of Slovakia's smallest and least visited national parks, making it an ideal place for peace and immersion in nature. All large carnivores – bears, wolves, and lynxes – live in the park, and it is also the only place in Slovakia where the European bison was reintroduced in 2004.

The park is important for drinking water supply in eastern Slovakia, with the Starina Reservoir as a key water source. Its forests are rich in deadwood, providing shelter for many bird species, especially owls and woodpeckers. Poloniny borders Ukraine's Uzhanskyi National Park and Poland's Bieszczady National Park, together forming a trilateral UNESCO MAB Biosphere Reserve, highlighting its international importance for nature conservation. The area is also home to the Rusyns, an ethnic minority that continues to preserve its traditions, customs, and culture. This unique combination of wild nature, biodiversity, and authentic culture is promoted under the destination brand "Poloniny – Incredibly Real", making it a place that truly deserves our attention and protection.

Why Protected Areas Matter in Europe

Protected areas are essential for keeping nature healthy. They safeguard habitats, rare species, and the services ecosystems provide - like clean water, fresh air, and climate regulation. Across Europe, about 26% of land and 12% of marine areas are protected, and the goal is to reach 30% by 2030. Networks such as Natura 2000, the largest in the world, connect thousands of sites to preserve biodiversity. These areas also support sustainable tourism, education, and local economies, showing that conservation and development can go hand in hand.

Country / Region	Key Features	Wildlife Highlights	Culture Heritage
Romania – Maramureș	Ancient forests, UNESCO wooden churches, eco-tourism potential	Bears, wolves, lynxes	Wooden architecture, traditional,crafts, festivals
Ukraina – Wooded Carpathians	Primeval beech forests (UNESCO), mineral springs, river sources	Rare endemic species, large carnivores	Hutsuls, Boykos, Lemkos traditions
Slovakia – Poloniny National Park	UNESCO World Heritage forests, Starina reservoir	Bears, wolves, lynxes, European bison	Rusyn minority culture, traditional customs

Central and Eastern Europe: A Unique Responsibility

This region is home to Europe's last wild forests, mountain habitats, and traditional landscapes, rich in biodiversity but highly vulnerable. Deforestation, river damming, and habitat fragmentation put nature under pressure. Projects like the European Green Belt connect protected areas, create wildlife corridors, and promote cooperation. Protecting these areas helps save species, preserve cultural heritage, and support a sustainable future for local communities.

Did You Know?

- Verhovynskyi National Park (Ukraine) is home to pristine mountain landscapes and rare species like the Carpathian newt and lynx.

- The Maramureș Mountains (Romania) form one of the largest wilderness areas in Europe, providing crucial corridors for bears and wolves.

- Poloniny National Park (Slovakia) is the only place in Slovakia where European bison roams freely, thanks to a rewilding project.

- The Carpathians are the source of major rivers like the Tysa and Prut, which start in Ukraine and flow across Central Europe.

- Some Carpathian beech forests are over 500 years old and listed as UNESCO World Heritage Sites.

II. About Large Carnivores

Who Are the Large Carnivores?

Imagine nature as a pyramid, where every animal has its role. Predators are meat-eaters – they hunt other animals, called prey. At the top of this pyramid are apex predators, which have no natural enemies. In our region, these include the brown bear, grey wolf, and Eurasian lynx.

Predators vary, but they often share common traits: sharp teeth for catching prey, tearing flesh, and crushing bones. They have relatively large brains and, unlike herbivores, a simple stomach adapted for digesting meat. They play an extremely important role in maintaining the natural balance of ecosystems by keeping prey populations in check. At the same time, by removing the remains of dead animals, they help prevent the spread of disease.

Large Carnivores Play an Important Role in the Environment

You might be thinking: "If predators hunt other animals, why do we need them at all?" In reality, predators are the true "forest sanitarians" and even its "architects". The loss of even a single link in the food chain can trigger changes across the entire ecosystem. What makes this particularly dangerous is that such changes do not become visible immediately — they may only reveal themselves over a long period of time.

Large predators typically hunt sick, old, or weak animals. This is extremely important because, in doing so, they make herds of herbivores healthier and stronger. In addition, when a predator consumes something, leftovers always remain, which then become sustenance for other animals, birds, and insects that depend on them for survival.

Now, let's imagine that, for instance, wolves disappeared. In this case, the population of herbivores would grow excessively. Deer, moose, and roe deer not only feed on grass but also on young tree shoots; and if their numbers become too high, they can completely destroy a meadow or threaten the future of a forest by eating everything before it has a chance to grow. The presence of predators fundamentally changes the situation — they force herbivores to keep moving and to feed in smaller portions across different areas. As a result, young grass, saplings, and shrubs gain the time and space they need to recover and grow.

This process in nature is known as a trophic cascade, and it is essential for stable functioning of the entire ecosystem. This balance is necessary to ensure there is enough food and space for everyone — from small beetles to tall trees.

Large Carnivores at Risk: What Endangers Their Survival?

Unfortunately, today, wild nature and its inhabitants face numerous dangers. Who could possibly pose a threat to such mighty animals as a bear or a wolf? The main threat is us: humans. When we build new roads, cities, or massively log forests, predators literally lose their home. They no longer have places to live, hunt, or raise their young, and this becomes a critical problem. Even if a forest remains, but is split in half by a wide highway, it still creates difficulties for wildlife.

This phenomenon is called fragmentation - animals are afraid to cross dangerous roads and cannot move freely to find food or a mate to start a family.

In addition to the loss of territory, conflicts with humans arise. Many people fear large predators or consider them a threat to their livestock. Unfortunately, this often leads to illegal killing (poaching) of animals when they come too close to human settlements in search of food.

How Can You Help?

Each of us can help protect wildlife. The easiest way is to tell others why predators are important for keeping ecosystems in balance. You can also support organizations that protect the homes of wild animals. And most importantly – respect nature! When walking in the forest or by the water, take only happy memories and photos with you.

Eurasian Lynx *(Lynx lynx)*

The lynx is one of the most mysterious and majestic inhabitants of Europe's forests and the largest wild cat on our continent. It lives a solitary and secretive life deep within dense woodlands, which is why people rarely see it, and it is often called the "ghost of the Carpathians". It has a short, seemingly "cut-off" tail with a black tip and can weigh between 12 and 32 kilograms. Its spotted fur, which can be grey or reddish-brown, becomes lighter and thicker in winter. This seasonal change provides excellent camouflage throughout the year.

Perfect hunter:

Ear tufts. Its most recognizable feature is the black tufts (tassels) on its ears. They act like natural antennas and greatly enhance its hearing. Thanks to them, it can hear the rustle of a mouse from up to 50 meters away!

"Lynx eye." Its eyes are six times more sensitive than human eyes, allowing it to hunt effectively at dusk and during the night.

Snowshoe paws. Its wide, soft paws, densely covered with fur, act like natural snowshoes, enabling it to move silently and easily through deep snow without sinking.

Lightning-fast leap. Although it cannot run long distances, its powerful hind legs allow it to leap up to 3 meters — four times its body height

Grey Wolf *(Canis lupus)*

It belongs to the family of large canids, which also includes dogs, foxes, and jackals. It is a very powerful animal, about one and a half meters long (excluding the tail) and weighing between 25 and 50 kilograms, sometimes even more. The wolf's fur is usually brownish-grey, but its color changes with the seasons – darker in summer and lighter in winter – allowing it to blend perfectly into the forest and stay unnoticed by its prey. It walks on its toes, and its claws are not retractable, so its tracks are clearly visible on soft soil or snow. Wolves are mostly nocturnal. They use a variety of habitats – from dense forests to meadows and pastures – but the availability of food is the most important factor for them.

Wolves need a huge area to hunt and they can cover tens of kilometres a day in search of prey. They should be considered opportunistic carnivores that occasionally consume plant matter. Wolves play an irreplaceable role in maintaining the natural balance of ecosystems, acting both as active hunters and scavengers. They communicate mainly by howling, which has different tones, and they can also bark like a dog as a short alarm signal or during a quarrel.

In spring, when blind pups are born (usually 4–6, rarely up to 15), the pack stops roaming and stays near the den. The pups open their eyes after about two weeks, and they are cared for not only by their mother but also by other pack members – a true example of teamwork and social cohesion. A wolf pack functions like a perfect family.

Brown Bear *(Ursus arctos)*

The brown bear is a true indicator of a forest's health. When you see this mighty creature, as big as a "moving rock", you know the forest is in perfect order. Brown bears sit at the very top of the food pyramid, and their presence shows that the forest is rich, thri ving, and provides enough diverse food and space for wildlife to live and grow.

It is omnivorous, and its diet is very varied. In spring it feeds on grass and young shoots. In summer and autumn it adds mushrooms, berries (such as raspberries and blackberries), and forest fruits – apples, pears, and plums. In late autumn, it especially favors acorns and beech nuts, and insects are an important source of protein. Its favorite treat is honey. It's no wonder it's called the "sweet-toothed, clumsy-footed" bear - its powerful sense of smell can detect the scent of bee brood or fresh honey from 8–9 km away and hear the buzzing of bees from 5 km. According to scientists, a brown bear's sense of smell is at least 2,100 times stronger than human's and even surpasses that of a dog.

The bear's superpowers:

- The bear's most important "weapon" is its sense of smell, though its hearing is also incredibly sharp. It can hear human conversations from about 300 meters away and detect traces of human presence up to 40 hours after someone has passed! Through its sense of smell, the bear communicates with the world.

- The bear has plantigrade paws – it walks almost like a human, resting on the entire sole of its paw (five-toed tracks, similar to human footprints, but with large curved claws). The front paws are more oval, while the hind paws are wider and longer. The paws are used for walking, running, swimming, hunting, and digging.

- In winter, after building up enough fat reserves, the bear enters its den (which it digs or finds under tree roots or in rocky crevices) to start its winter sleep, which can last up to 3 months. This sleep is an adaptation to the lack of food in winter. It is a very light sleep, called torpor, not full hibernation, because the bear can wake up easily.

- The female has an incredible survival strategy - her tiny cubs are born safely and warmly in the den in January or February - right in the middle of her winter sleep. The mother gives birth to one to four tiny, helpless cubs, each weighing only about half a kilogram. This is an extraordinary adaptation that allows them to survive the harsh winter conditions when there is no food outside, with the little cubs receiving everything they need from their mother's nutrient-rich milk.

III. Human-Wildlife Coexistence

For thousands of years, people and large carnivores - bears, wolves and lynx - have shared the same forests and mountains across Europe. In many regions, including Romania, Slovakia and Ukraine, these animals played an important role in local traditions, stories and livelihoods.

In traditional rural areas, people understood the rhythms of nature and adapted their lives to the behaviour of wildlife. Shepherds used dogs and night enclosures to protect their flocks, communities avoided leaving waste in the forest, and forests were large and connected enough to provide animals with natural food and shelter. Because of this, conflicts existed, but they were predictable and relatively rare.

A Selection of Livestock Guardian Dog Breeds Bred in the Carpathians

Region	Breed	Traits & Role
Romania (Maramureș) & Ukraine	Carpathian Shepherd Dog	Large, wolf-gray livestock guardian god; guards against wolves, bears [en.wikipedia.org], [articles.hepper.com]
	Bucovina Shepherd Dog	Rustic, white with patches; strong and protective [articles.hepper.com]
	Romanian Mioritic Shepherd Dog	Massive, fluffy, historic; used in mountainous sheep herding [articles.hepper.com]
Slovakia (Poloniny)	Slovak Cuvac	Big, white guardian dog; visible at night, protects flocks [smartdogguide.com], [barkjunction.com]

Why Conflicts Increased in Some Places

Gradual changes in the landscape and in human lifestyles, which place increasing pressure on forests and natural habitats, are leading to changes in the behaviour of large carnivores and to more frequent encounters with people. The expansion of settlements, roads and infrastructure, the loss or fragmentation of habitats, and the decreasing availability of natural food sources push animals closer to human dwellings. Conflicts are further intensified by easy access to human food and waste, as well as by the decline of traditional practices such as livestock guarding and the maintenance of pastures. As a result, some communities may expe- rience more frequent encounters with wildlife than others, even within the same region of the Carpathians.

The Maramureș region in Romania is among the best-preserved areas of the Carpathians, where bears, wolves and lynx still move freely and use the landscape as a migration and feeding corridor. Extensive forests, meadows and quiet valleys provide high-quality habitats, while traditional land use and low levels of urban pressure allow for long-term coexistence between people and wildlife. Local knowledge and acceptance of large carnivores play an important role, along with the development of slow and sustainable tourism based on respect for nature. However, even in Maramureș, conflicts may occur, particularly when pastures become overgrown, natural food availability declines, livestock is left unguarded, or infrastructure disrupts migration corridors.

In Slovakia, conflicts with large carnivores in recent years may also result from legislative decisions that are not aligned with scientific knowledge. Allowing wolf culling without a clear scientific basis disrupts the social structure of packs, which can lead to an increase in attacks on livestock. At the same time, there is a lack of systematic support for preventive measures such as electric fencing and livestock guardian dogs, which would reduce damage more effectively than culling alone. Combined with changes in land use and the availability of food near human settlements, these factors contribute to more frequent conflicts between people and large carnivores in some areas of Slovakia. In contrast, within the Poloniny National Park, conflicts between people and large carnivores remain rare.

Animals Know No Borders

For a brown bear, a lynx, or a wolf pack, the Carpathian forests and mountains form one continuous landscape - regardless of which country the terrain belongs to. Moving over long distances, animals seek places where they are safe, where there is sufficient food, and where they

can find mates. Such movements are called animal migrations. When large carnivores move, they choose safe routes - paths that allow them to stay hidden, move easily, and access natural food sources. These comfortable sections of the migration route serve as so-called natural ecological corridors for animals - these are forests, rivers, valleys, and meadows.

However, rapid development in the Carpathians - tourism infrastructure, industrial facilities, agricultural expansion, and the growing network of roads - creates barriers that block ancient migration routes used by wildlife for generations. These obstacles force animals to detour or approach human settlements, which increases the risk of human-wildlife conflict.

Legends of the Carpathians – Myths and Traditions

Maramures: Large carnivores, especially bears and wolves, were regarded as sacred beings, seen as guardians of both the forest and the people. In the old times, when a child fell seriously ill, he or she was symbolically re-baptized with the name of an animal, in the hope that the animal's spirit would protect the child from the evil forces believed to have caused the illness. Because of these beliefs, many people came to bear animal-derived surnames, such as Ursulescu (from urs, meaning bear) or Lupescu (from lup, meaning wolf). The bear appears as a sacred figure across almost all regions of Romania. New Year rituals in which masked performers impersonate a bear - known as the Bear Dance - are believed to have roots in pre-Christian traditions, where the bear was associated with protective and regenerative powers.

Ukraine: In the Ukrainian Carpathians, the Hutsul people traditionally call the bear "vuyko" (meaning maternal uncle). In local folklore, the bear is often seen as a transformed human or a shapeshifter, possessing human traits like walking upright and a craving for honey. Using a family title like "vuyko" reflects a blend of kinship and reverence. To the highlanders, the bear is the "master of the forest", a mythical being rather than a mere animal. Due to a deep-seated belief that speaking the creature's true name would invoke its presence, various euphemisms were used to avoid danger. Interestingly, the Ukrainian word "vedmid" itself is a protective substitute. It comes from the Old Slavic words for "honey" (med) and "eat". Literally translating to "the one who eats honey".

Slovakia: In Slovakia, the well-known fairy tale Little Red Riding Hood tells the story of a girl who encounters a wolf that eats her grandmother. However, this is only a legend, yet it shapes people's perceptions from an early age by creating the image of the "evil wolf" for whom humans are seen as prey. The bear, by contrast, appears as a symbol in the coats of arms of many Slovak towns and villages, indicating that it has been part of local culture for centuries. The bear is also depicted in the coat of arms of the Rusyn community, further highlighting its long-standing cultural significance.

What We Do in COOP4SAFE?

Within the COOP4SAFE project, local communities of farmers and beekeepers receive direct support to reduce conflicts with large carnivores. On-site advice is provided on farms and apiaries, including guidance on legislation and effective protection measures such as electric fences,

shepherd dogs, and protective cages for beehives. Support also includes improvements to waste management, restoration of natural habitats, and contributions to wildlife monitoring and early-warning systems using camera traps and field observations. Training activities, awareness-raising initiatives, seminars, and visits to farms with successfully implemented measures help communities build the knowledge and tools needed for a long-term, viable coexistence with wildlife.

GIS, GPS, and Early-Warning Systems – Tracking Wildlife Movements
In Romania, Ukraine, and Slovakia, COOP4SAFE teams use modern technologies to monitor wildlife movements and ensure human safety. The principle is simple: **maps + locations + smart cameras = better coexistence.**

GIS Maps – Digital Maps That Tell a Story
GIS (Geographic Information System) maps are like an upgraded version of Google Maps. They don't just show roads and mountains — they also **show where wildlife lives, where forests are healthy, where conflicts happen, and where safe wildlife corridors exist**. Using these maps, teams can:

- spot places where bears, wolves, lynx and other species frequently move,
- see which forest edges or meadows need restoration,
- check how villages, forests, and protected areas connect across RO-UA-SK borders.

GIS is essential because wildlife doesn't stop at borders - **a bear may walk from Romania to Ukraine in a single night.**

GPS Information – Understanding Where Animals Go
GPS devices - similar to the GPS in your phone - help record the **exact location** of observations: footprints, droppings, photos from camera traps, or reports from local communities. This helps experts:

- understand movement patterns,
- learn when animals get close to villages,
- identify "hotspots" where conflicts might happen,
- track changes over seasons (for example, bears searching for fruit in autumn).

Early-Warning Systems – Detecting Wildlife Before Conflict Happens
The COOP4SAFE project uses an early-warning system powered by the Cluey app. Camera traps and field reports send information into a shared database. Then:

1. Camera traps or patrols detect wildlife activity (e.g. a bear walking toward a settlement).
2. AI analyses the data to identify the species, risks or repeating patterns.
3. The system warns field teams and authorities so they can act early - inform villagers, increase patrols, use deterrents, or support farmers.

These systems could help reduce dangerous encounters.

Camera Traps – Wildlife Detectives in the Forest
Camera traps are small, waterproof cameras fixed to trees. They switch on automatically when something moves. They take photos and videos - day or night - without disturbing animals. Camera traps help us:

- see which species use certain forests or meadows,
- observe natural behaviour (feeding, movement, interactions),
- confirm presence of bears, wolves, lynx, deer or other wildlife,
- understand if prevention measures are working.

In abandoned orchards or remote Carpathian valleys in Ukraine, camera traps provide an honest, silent look into wildlife life that humans rarely see.

Field Restoration: how replanting forest edges or restoring meadows helps coexistence
Healthy habitats keep wildlife where it belongs - **in the forest, not in people's backyards**. That's why the COOP4SAFE project restores natural meadows and forest edges in Romania and Ukraine, and shares solutions across Slovakia.

- **Restoring Meadows – Food for Herbivores and Carvnivores**

Many forest meadows have become overgrown with shrubs or invasive species, reducing food for deer and roe deer. When herbivores move toward villages, predators like wolves and bears may follow. Meadow restoration – mowing, overseeding with local plants, and keeping areas open – creates rich feeding grounds inside the forest and reduces wildlife visits to farms.

- **Planting Forest Edges – Natural Food for Bears**

Forest edges are ideal for planting fruit trees and shrubs like berries, apples, plums, or cherries. When food is available in the forest, bears are less likely to enter orchards, gardens, or waste areas. Tested in the Carpathians, this method successfully kept bears in the forest and away from villages.

- **Restoration in Ukraine – Meadows and Trout Drops**

In Ukraine, restoration includes creating rocky water drops in streams, enriching water with oxygen and attracting brown trout, a natural food source for bears. This supports more diverse ecosystems, healthier fish populations, and keeps bears feeding along rivers instead of near settlements.

Why Restoration Protects People and Wildlife?

By improving forest habitats, restoration:

- increases natural food availability,
- keeps large carnivores away from villages,
- reduces livestock losses,
- supports ecological corridors,
- strengthens long-term biodiversity.

Restoration is a Nature-based Solution (NbS) helping nature address coexistence challenges in a sustainable way.

Innovative Solutions

Thanks to the COOP4SAFE project, partners planted so-called "food oases" - special orchards with wild fruit

trees placed high in the mountains, far from villages. These sites act as natural feeding grounds, especially for bears. They encourage animals to remain within their natural territories, reducing the likelihood of encounters with people. Late-season apple varieties and other fruit species remain edible even after the first frosts, providing essential food during autumn when natural forage is scarce. Another highly effective measure to prevent conflicts with bears, wolves, and lynx is the installation of electric fences around beehives and sheepfolds.

The first such electric shepherd systems have already been installed in the Ukrainian and Slovakian Carpathians through our project, helping protect beehives and livestock from predator attacks. Importantly, these fences do not harm animals. Instead, they deliver a brief but strong deterrent impulse - enough to teach predators to avoid attractive human-related food sources. This creates a lasting negative association, encouraging wildlife to stay away from settlements and farms.

What Can Be Done to Prevent Human-Wildlife Conflicts?

Preventing conflicts between people and wildlife starts with understanding animal behaviour and respecting their natural needs. Many conflicts occur when wild animals are attracted to human food sources or when their habitats are disturbed. Simple and effective measures can make a big difference - securing livestock with electric fences and trained guarding dogs, properly managing waste so it does not attract animals, and avoiding leaving food or animal remains near settlements. Monitoring wildlife movements, using early-warning systems, and restoring natural habitats also help reduce risky encounters. Most importantly, cooperation between communities, authorities, scientists, and educators plays a key role in building knowledge and encouraging responsible behaviour. When people learn how to share space with wildlife, coexistence becomes safer and more sustainable for both humans and animals.

Find out more about large carnivores by scanning the QR Code:

IV. Debate as a Learning Tool

What is a Debate and Why Does It Matter?

Debates have a long educational tradition, dating back to Ancient Greece and Rome, where they played a central role in philosophy, rhetoric, and civic life. Today, debates remain a highly effective learning tool because they actively engage students in critical thinking, communication, collaboration, and evidence-based reasoning.

For secondary school students, debates help to develop:

– research and information analysis skills;
– logical reasoning and structured argumentation;
– public speaking confidence;
– the ability to listen, respond respectfully, and work in a team.

These competencies are essential not only for academic success, but also for active citizenship, future careers, and informed everyday decision-making. In environmental education, debates are especially relevant because ecological issues are complex, often controversial, and closely connected to social and economic interests.

Debates are an active learning method based on structured discussions of controversial topics, where participants present and defend different positions using reasoned arguments. Their goal in education is not to "win", but to develop critical thinking, argumentation, information analysis, and responsible decision-making. Since environmental problems rarely have simple solutions, debates help students understand the need to balance ecological, social, economic, and ethical considerations.

Through structured dialogue and engagement with real-world dilemmas, students strengthen environmental awareness, systems thinking, and the ability to analyze data and stakeholder perspectives. They learn to defend their views, listen to others, seek compromise, and recognize that sustainable solutions usually emerge through dialogue, trade-offs, and long-term thinking rather than single definitive answers.

How to Organize a Debate?

- Choose a relevant topic that allows for opposing viewpoints.
- Set rules and time limits: Opening statements (3–5 min), rebuttals (2–3 min), closing arguments (2 min).
- Assign roles: Moderator, speakers, researchers.
- Allow time for research and preparation of information for both perspectives, prepare materials and encourage fact-checking.
- Before debate, form two teams: Pro and Con (3–5 students each).
- Evaluate based on clarity, evidence, teamwork, and respect.

Suggested Debate Topics:

- Should humans intervene to control large carnivore populations in the Carpathians?

- Is nature-based tourism a solution for rural development in protected areas?
- Do traditional practices (e.g. shepherd dogs) offer better coexistence than modern technology?
- Should logging be completely banned in Carpathian protected areas?
- Are renewable energy projects compatible with biodiversity conservation?
- Is climate change the biggest threat to Carpathian wildlife?
- Can technology fully replace wildlife rangers?
- Is "complete harmony" between humans and wildlife even possible?
- What is more important – protecting endangered species or human comfort?
- Who is to blame if a bear destroys a beehive?
- Can bears (lynx, wolves) and humans coexist safely today?

Examples of Debate-Based Learning in Practice

Debates and role-play are widely used across Europe to teach coexistence with large carnivores and to promote dialogue between different stakeholder groups. Here are real-world examples of how debates and role-play have been used as educational tools to teach coexistence with large carnivores:

1. "Wolf in a Backpack" Toolkit (LIFE WolfAlps) – Slovenia

This initiative engaged students through a hands-on, debate-based learning kit. It included biological replicas (skulls, footprints, scat) and role-play activities in which students assumed stakeholder roles such as shepherds, conservationists, and policymakers. The program was used with over 1,000 schoolchildren and demonstrated improved knowledge and attitudes toward wolf coexistence.

2. International Junior Ranger Camp – Italy

As part of a multi-country ranger camp, teenagers aged 14–16 participated in structured role-play debates. Students acted as villagers, scientists, hunters, and local authorities to simulate discussions about the return of wolves. The exercise promoted dialogue, empathy, and collaborative problem-solving.

3. EU Large Carnivore Platform – Youth Dialogue Initiatives

The European Commission's platform provides debate tools, role-play games, and quizzes that help young people understand carnivore ecology, challenge common myths, and explore conflict mitigation strategies.

Sample Debate Topic: "Can humans and large carnivores truly coexist today?"
(The topic may be adapted to local environmental contexts)

Debate Planning Table

Objectives	Preparation Required	Subject / Context	Materials Needed
Develop critical thinking and teamwork skills	Research coexistence strategies and local wildlife facts	Biology, Environmental Science, Ethics	Printed handouts, flipchart, markers, optional outdoor gear

Instructions

Indoor activity: Arrange classroom seating for two teams (Pro and Con). Provide preparation time and ensure debate rules are clearly explained.

Outdoor activity (optional): Organize a short field trip to a natural area or museum to explore historical and modern coexistence practices. Use observations to support debate arguments.

Basic Facts on Coexistence and Large Carnivores:
- Large carnivores in the Carpathians include bears, wolves, and lynx.
- They play a crucial role in maintaining ecosystem balance.
- Human–wildlife conflicts often arise due to livestock depredation and habitat loss.
- Effective solutions include electric fencing, livestock guardian dogs, and community-based monitoring.

Optional Handouts:
How to Recognize Animal Tracks: Provide a simple guide showing footprints of bear, wolf, and lynx, including size, shape, and distinguishing features.
How to Behave Safely in the Forest: Provide factsheets on appropriate behavior while hiking, camping, or encountering wildlife in forested areas.

Teaching Module: Debate as a Learning Tool in Environmental Education
Target Group: Secondary school students (ages 14–18)
Duration: 90 minutes (can be adapted to 60 or 120 minutes)
Format: Classroom-based or blended (indoor + optional outdoor component)

Learning Objectives:
By the end of the session, students will be able to:
- analyze environmental issues from multiple perspectives;
- construct and present evidence-based arguments;

– demonstrate respectful dialogue and teamwork skills;
– understand the complexity of human-wildlife coexistence;
– reflect on environmental decision-making and responsibility.

Expected Learning Outcome:
Students gain a deeper understanding of environmental conflicts and learn how constructive debate can support sustainable decision-making and coexistence with nature.

Key Competencies Developed:
– Critical thinking
– Communication and public speaking
– Collaboration and teamwork
– Environmental literacy
– Civic and ethical awareness
– Debate Topic (Example)

Session Structure and Timing:

1. Introduction and Context Setting (10 minutes)
Teacher/Facilitator Role:
Introduce the topic of debates as a learning method.
Briefly explain why environmental issues often involve conflicting interests and perspectives.
Present the debate question and clarify that the goal is understanding, not winning.
Student Activity:
Short discussion: "What comes to mind when you hear 'human-wildlife conflict'?"

2. Team Formation and Role Assignment (10 minutes)
Actions:
- Divide students into two teams:
  – Pro (supports coexistence as feasible)
  – Con (argues that coexistence is unrealistic or limited)
- Assign roles within teams:
  – Speakers
  – Researchers
- Select a Moderator (teacher or student).

3. Research and Preparation Phase (20 minutes)
Student Activity:
Teams research arguments supporting their assigned position.
Encourage use of:
  – scientific facts;
  – real-life examples from the Carpathians or Europe;
  – social, economic, and ethical considerations.

Facilitator Role:
Support fact-checking.
Encourage students to anticipate counterarguments.

4. Debate Session (30 minutes)

Debate Structure:

– Opening statements (3–5 minutes per team)
– Rebuttals (2–3 minutes per team)
– Closing arguments (2 minutes per team)

Moderator Responsibilities:

– Keep time.
– Ensure respectful communication.
– Maintain focus on arguments and evidence.

5. Reflection and Group Discussion (15 minutes)

Guided Questions:

– Which arguments were the most convincing, and why?
– Did any team change their perspective during the debate?
– What solutions or compromises emerged?
– How does this debate relate to real-life environmental decision-making?

Optional Activity:

Students write a short reflection (5 sentences) on what they learned.

6. Conclusion and Key Takeaways (5 minutes)

Facilitator Summary:

– Highlight the value of dialogue in addressing environmental challenges.
– Emphasize that sustainable solutions often require balancing ecological, social, and economic interests.
– Reinforce the importance of informed, respectful discussion in democratic societies.

Assessment Criteria (Formative)

Students are evaluated based on: clarity and structure of arguments; use of evidence and facts; teamwork and cooperation; respectful engagement with opposing views.

Optional Extensions

– Outdoor component: Field visit to observe wildlife signs or coexistence measures.
– Creative task: Design a coexistence strategy poster.
– Follow-up debate: Switch team positions and repeat the debate.
– Materials Needed: Printed fact sheets or digital resources, flipchart or whiteboard, markers, optional wildlife track guides or photos.

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