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ConnectGREEN

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ConnectGREEN

Restoring and managing ecological corridors in mountains as the green infrastructure in the Danube basin

A LOOK BACK

Project co-funded by European Union Funds (ERDF, IPA)

Overall Budget: 2,603,415.83 Euro ERDF Contribution: 2,040,010.84 Euro IPA Contribution: 172,892.55 Euro

ConnectGREEN. Restoring and managing ecological corridors in mountains as the green infrastructure in the Danube basin

ConnectGREEN (June 2018 – October 2021) aims to contribute to maintaining and improving ecological connectivity between natural habitats, especially between Natura 2000 sites and other protected areas of transnational relevance in the Carpathian ecoregion, namely in the Czech Republic, Hungary, Romania, Slovakia and Serbia.

Partners from various fields of activity joined forces to increase the capacity for the identification and management of ecological corridors and to minimize conflicts between infrastructure development and wildlife conservation. ConnectGREEN will foster cooperation among nature conservationists, natural asset managers, spatial planners and decision makers at the local, national and regional level.

All outputs and deliverables featured in this document are available in the library on the project website after project end.

Project co-funded by the European Union Funds (European Rural Development Funds & Instrument for Pre-Accession Assistance).

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Date of publication: September 2021

Publication editors: Hildegard Meyer, Christophe Janz, WWF Central and Eastern Europe with contributions of the ConnectGREEN project partners

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Habitat loss and fragmentation represent one of the highest threats to biodiversity worldwide. Although this has been a well-documented fact for decades, little attention has been generally given to reverse or even stop this process.

One of the groups of species most affected by habitat fragmentation, loss and deterioration, are the large carnivores. They need extensive territories to satisfy all their basic needs for living and survival, like feeding, mating, dispersal for occupying new territories or denning. Besides, they often enter into conflict with humans, for which they are persecuted.

The Carpathians, due to their naturalness and healthy complex ecosystems, are home to almost half of the brown bears and one third of the grey wolves and Eurasian lynxes living in Europe. However, these favorable conditions that led to such a great biodiversity in this part of the world are at risk because of the continuous and increasing pressures on the natural resources and habitats. Linear transport and other types of infrastructures and developments are rapidly expanding especially in the Eastern Carpathians, where most of these magnificent animals are concentrated. Often these barriers in the movement of large carnivores are materialised without thorough planning and consultations that should also consider the habitat and movement needs of these as well as other species.

The ConnectGREEN project was born out of the need to address these challenges. The biodiversity conservation and spatial planning sectors united their know-how, expertise and experience and made some concrete steps towards maintaining and/ or improving ecological connectivity between natural habitats (especially between protected areas) in the Carpathians. The academia and other research institutions, protected area managers, public bodies and authorities including representative ministries, game managers, environmental NGOs and many more key actors jointly developed practical knowledge, as well as innovative tools and instruments relevant to fostering ecological connectivity in the region and beyond. Some concrete examples are represented by the Methodology for Identifying Ecological Corridors, the International Action Plan on Conservation of Large Carnivores and Ensuring Ecological Connectivity in the Carpathians, Training Packages for Identifying and Managing Ecological Corridors, a Decision Support Tool, etc. One of the most valuable results of the project, for both conservation and planning authorities is the Map of Ecological Corridors for Large Carnivores at the Carpathian Ecoregion Level, which has been validated through expert field studies and stakeholder consultations.

Although ConnectGREEN has delivered impressive results and represents an important milestone in the connectivity conservation work, there is a need for continuous and sustained efforts to maintain the ecological connectivity in the Carpathians in the long run, for the benefit of both people and wildlife.


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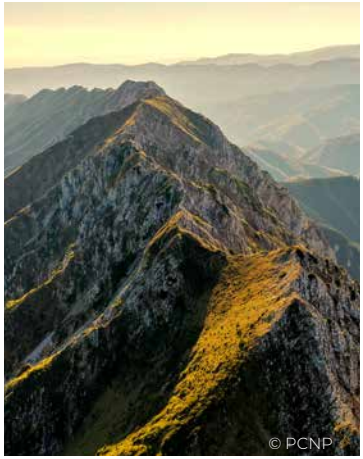
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A BRIEF INTRODUCTION TO CONNECTGREEN

Why connectivity?

The Carpathian ecoregion is a biodiversity hotspot that still provides a home for large carnivores that roam through large, intact landscapes. However, in recent years, economic development in this special region has increased. New roads, settlements, recreation centres, industrial sites and other construction projects have been built without prior consideration of the ecological corridors crisscrossing the landscape. This has led to a significant build-up of migration barriers which wildlife cannot overcome. As these barriers increase in number and size, the remaining natural habitats become more and more fragmented, which poses an existential threat to many animal species, especially large carnivores like the bear, wolf and lynx, who depend on larger intact and undisturbed areas for migration, mating, shelter, food and seasonal changes.

Placing a spotlight on the issue

To increase awareness about the destructive potential of badly planned construction projects and with the aim to develop the willingness and ability of the actors driving these projects to take ecological corridors into account, ConnectGREEN included numerous activities contributing to the maintenance and improvement of ecological connectivity between natural habitats, especially between Natura 2000 sites and other protected areas of transnational relevance in

the Carpathian ecoregion, namely in the Czech Republic, Hungary, Romania, Slovakia and Serbia. The focus was on large carnivores and the ecological network they rely on.

Building bridges and sharing know-how

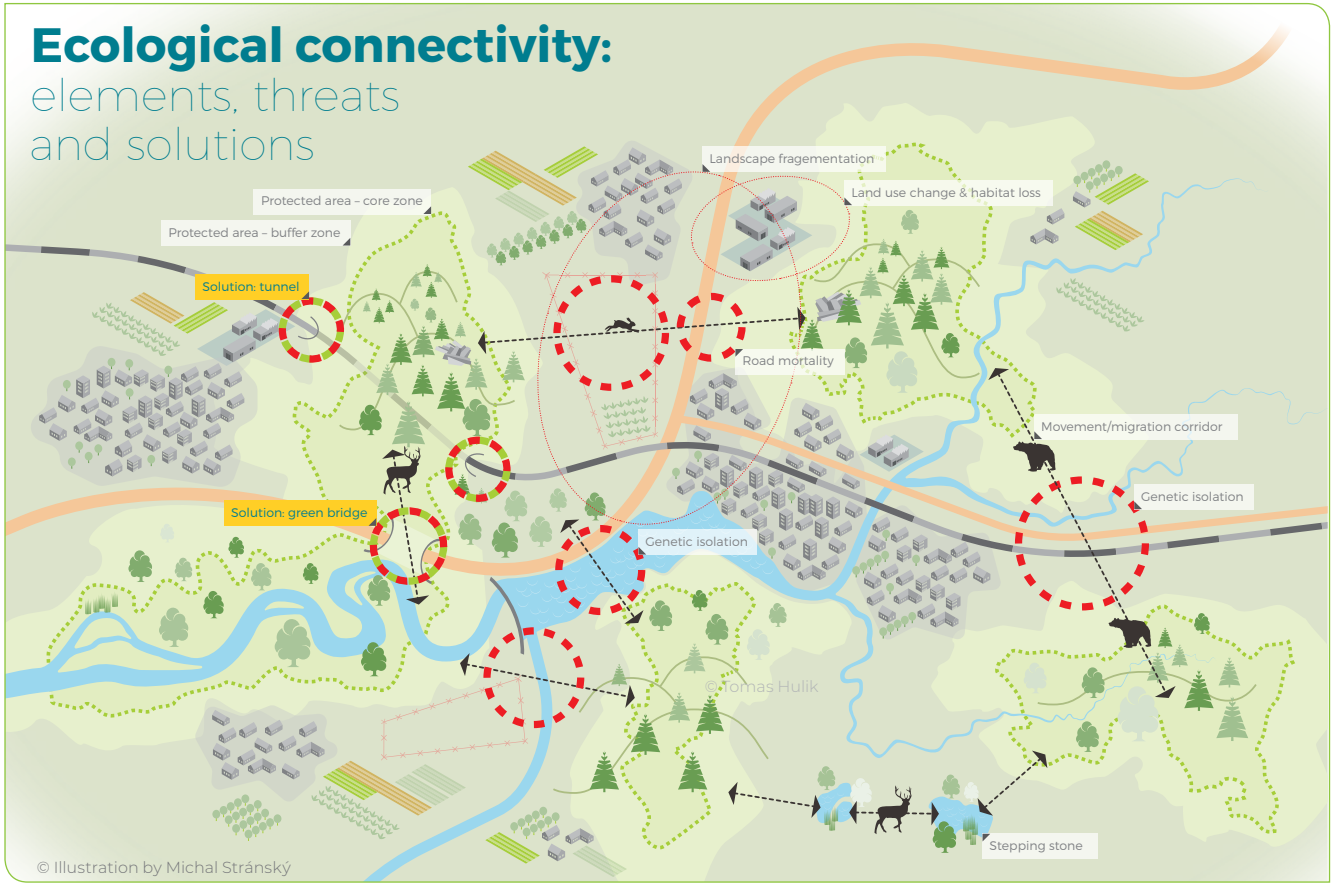
Partners from various fields of activity joined forces to increase the capacity of authorities and relevant stakeholders in the region to identify and effectively manage ecological corridors and to minimize conflicts between economic development and wildlife conservation. ConnectGREEN fostered cooperation among nature conservationists, natural asset managers, spatial planners and decision makers at the local, national and regional level. By involving relevant actors in the development of the project outputs and deliverables, the project raised awareness and built capacity on the integration of ecological connectivity into spatial planning.

Setting examples

At the Carpathian level, ecological corridors were modelled and ground proofed with national and international experts. In four pilot areas, project partners demonstrated ways to identify and secure ecological corridors with the involvement of local stakeholders. Their efforts were catalogued in Action Plans in which next steps were agreed with experts and local stakeholders to further mitigate threats to ecological corridors in the pilot areas.

Securing a coherent approach across the region

At the policy level, the project consortium worked closely together with national ministries of the environment and spatial planning, and the Parties to the Carpathian Convention, to produce the International Action Plan on the Conservation of Large Carnivores and Securing Ecological Corridors in the Carpathians.



Elements, threats and solutions to overcome fragmentation of habitats and barriers to ecological connectivity.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WHAT ARE ECOLOGICAL CORRIDORS?

A **landscape** is the setting in which all human and wildlife activities occur, providing the basis for human welfare and the resources necessary for the other life forms. In the same way that humans need to move freely to assure continuation of their activities, so does wildlife, which depends on connected landscape structures for a continuous exchange of genetic resources, for finding food, or for other specific seasonal needs in their yearly life cycle.

Ecological corridors are landscape structures of varying size, shape and with diverse forms of vegetation cover that connect core habitat areas, such as national parks, protected areas, and remote sections of wilderness, and allow migration of species between them. The number, permeability, interlinkages and functionality of these corridors define the **ecological connectivity** of an area. Ecological corridors need to be legally and geographically defined in order to protect, maintain, establish or enhance ecological connectivity in human-influenced landscapes.

One of the outputs of ConnectGREEN is the map/layer of ecological networks for large carnivores in the Carpathians, which consists of favourable and suitable habitats, movement/migration zones and critical zones. Furthermore, national working groups of experts agreed on a common definition of the term 'ecological network for large carnivores', setting the basis for further collaborative work in this field.

What are the barriers to ecological connectivity?

Linear infrastructure (roads, highways, railways): are not only barriers, but also a direct cause of mortality. Moreover, they are sources of noise and light pollution.

Built up areas (living areas, commercial and industrial zones, often fenced, recreational facilities, etc.): represent an impermeable barrier. The density of settlements is often so high that it is impossible for wildlife to move from one large natural habitat to another, so human-wildlife conflicts are unavoidable.

Fences: usually form impermeable barriers or carry a risk of injury for crossing wildlife. Furthermore, fences direct animals to other built areas, roads or railways, causing further conflicts.

"Empty" habitats (large treeless areas, intensively used agricultural lands, etc.): are significant barriers for large carnivores who instinctively tend to avoid open spaces, especially during the day.

THE SCIENTIFIC APPROACH

Ecological corridors and connectivity gaps in the Carpathians

The identification of the main ecological corridors between natural habitats and protected areas is crucial for the long-term conservation of large carnivores in the Carpathians. So far, ecological corridors have not been designated throughout the Carpathian mountain range.

To identify connectivity gaps in the Carpathians, ConnectGREEN partners sent out a questionnaire to national stakeholders. Based on the answers, 5 main problem areas were identified related to:

1. Methodology of ecological corridor identification and designation not officially approved,
2. Diverging definitions of ecological corridors,
3. Types of regulations and consistency for a national ecological network,
4. Social agreement and conflicting interests, and
5. Institutional framework for safeguarding and restoring ecological corridors.

In general, all of the analysed countries emphasize the importance of ecological networks and ecological corridors in their policy frameworks. In many cases, however, the implementation of this notion is unfortunately very weak. Out of the 5 issues listed above, 'Types of regulations and consistency' was identified as the most important obstacle hindering more effective ecological corridor planning. All 5 project countries have serious problems in this field due to regulations that lack teeth. In Slovakia, the Territorial System of Ecological Stability (TSES) covers the entire territory of the country, but it is not binding. Similarly, in Serbia, the lack of a mandatory obligation to define and protect ecological corridors leads to further deterioration of still existing parts of natural corridors and renders the creation of a coherent network at the national level very difficult. In Romania, there is no officially adopted methodology for the identification of ecological corridors. Similar problems were found in Hungary and the Czech Republic: In Hungary the National Ecological Network is defined and integrated into spatial plans, but the system is not updated and not specifically focused on ecological corridors. In the Czech Republic, the methodology of TSES definition is not focused on ecological connectivity for animal species and thus not usable for large carnivores. The biotope layer (core areas, corridors, critical barrier sites) of selected specially protected species of large mammals (lynx, wolf, bear, moose) is provided for spatial planning purposes since 2020. This layer, based on habitat suitability models and landscape connectivity assessments, provides an effective tool for both strategic and project-level planning.

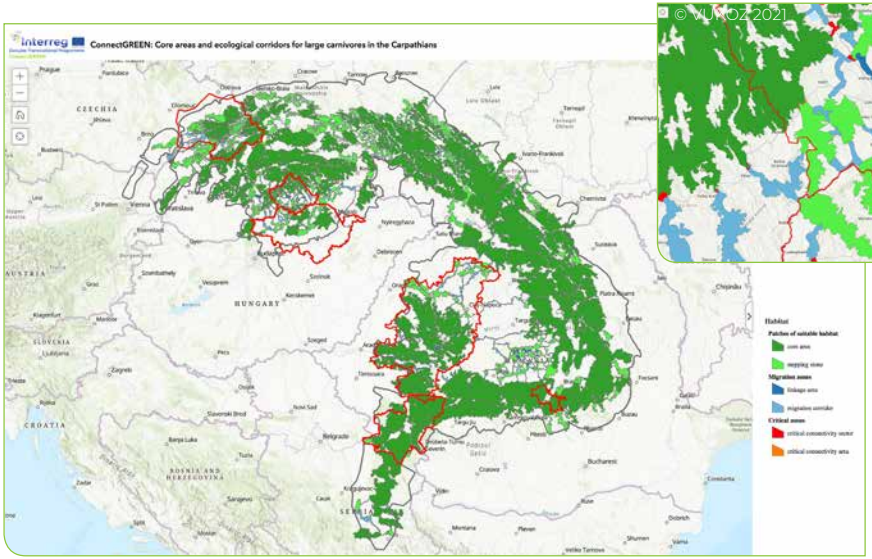
Gaps related to the 'Social agreement and conflicting interests' and 'Institutional framework' were also identified in more than one country. In Hungary, for instance, stakeholder groups with conflicting interests caused serious problems during the implementation of the regulations and programmes.

The contribution of ConnectGREEN

The ConnectGREEN consortium developed the Methodology for Identification of Ecological Corridors in the Carpathian Countries by Using Large

Carnivores as Umbrella Species together with scientists, experts and relevant national and international stakeholders. Large carnivores are well-suited as umbrella species due to their large home ranges.

Based on the Methodology, the ConnectGREEN partners modelled the Map Displaying the Ecological Network for Large Carnivores in the Carpathians including the critical areas where connectivity is jeopardized by certain barriers. The Methodology and the Map were acknowledged by the Parties to the Carpathian Convention, and discussed and agreed on with relevant stakeholders at the national level in the Czech Republic, Hungary, Romania, Serbia, and Slovakia.



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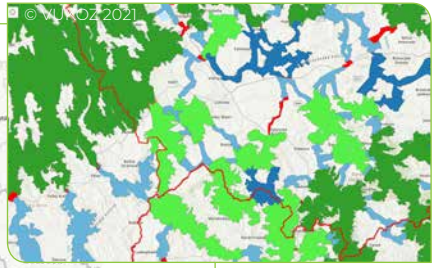
Carpathian ecological network for large carnivores.



Detail of the Map of the Ecological Network for Large Carnivores displaying core areas, stepping stones, linkage areas, migration corridors and critical zones.

The Map shows that, in general, the Carpathians are rich in large intact natural habitats, and have obvious bottlenecks mainly in river valleys that are, in part, densely populated. Project partners had a closer look at the critical zones in 4 pilot areas and elaborated Action plans for Mitigating Threats to Corridors that include recommended measures to improve the situation.

Relevant project resources

Output 3.1 **Methodology for Identification of Ecological Corridors in the Carpathian Countries by Using Large Carnivores as Umbrella Species**
Deliverable 3.3.1 **State of the Art Report on Existing Planning Systems and their Application in Ecological Corridor Identification and Management in the Carpathians**
Deliverable 3.3.2 **Gap Analysis Report on the Identification of the Needs for Improving the Planning Processes and Tools**
Deliverable 3.2.3 **Map of Ecological Corridors:** https://experience.arcgis.com/experience/03da1f6f67404518b3efe0d11f444e5a and www.ccibis.org

ECOLOGICAL CORRIDORS IN SPATIAL PLANNING

A cross-sectoral approach

Spatial planning is the most important tool for balancing the needs of society, the economy and the environment. It offers the institutional, technical and policy framework for managing the territorial dimension of sustainability and for safeguarding the wellbeing and integrity of habitats, ecosystems and landscapes. The key role of spatial planning is to promote a more integrated and coordinated approach to territorial decisions. Given that one of the most critical threats to sustainability and biological diversity is anthropogenic land use change, effective spatial planning could help secure a balance between nature conservation and the natural resource needs of human society. To allow this, spatial development plans must integrate estimates of the economic value of biodiversity and ecosystem services, both in areas of high biodiversity and in critical areas, such as ecological corridors. It is essential that these identified critical areas be secured and included in local / county / regional / national development plans to avoid fragmentation of the corridors due to potential economic investments with a major negative impact on biodiversity. Spatial planning can support nature conservation and secure critical areas where landscape fragmentation threatens ecological connectivity.

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Diverging interests between nature conservation, spatial planning and economic development are not harmonized across the Carpathian region. The Carpathian countries are building national frameworks for the development of ecological networks including legislation, spatial planning and policy targets. In the Czech Republic, the map with biotopes of selected specially protected species of large mammals has become a mandatory basis for spatial planning since February 2020. For Slovakia, the General Scheme of the Territorial Systems of Ecological Stability (GN-TSES) (adopted in 1992, updated in 2000), which identifies terrestrial ecological corridors, was incorporated into the Slovakian Spatial Development Perspective 2001. In Hungary, the National Ecological Network is integrated in spatial plans. Despite being clearly defined and their importance recognized, the legal and procedural framework in Romania lacks an official methodology for the identification of ecological corridors. In Serbia, spatial planning legislation does not include provisions officially designating an ecological network; attempts to improve the situation are there.

However, what is common to all Carpathian countries is:

- Lack of awareness on the importance of ecological corridors for the well-being of wildlife and humans alike,
- Lack of capacity and financial resources for the implementation of the laws related to ecological networks,
- Responsibilities are not clearly determined, and
- There is no tradition to work on integrated solutions beyond the own sector.

The contribution of ConnectGREEN

To support better integration of ecological networks in spatial planning, ConnectGREEN developed the Guidelines on How to Use Spatial Planning Tools in Integrative Management of Ecological Corridors. These Guidelines aim to strengthen the capacity of integrative and sectoral planning and designing to safeguard and support the biodiversity of ecosystems, especially ecological connectivity between natural habitats in the Carpathians. The Guidelines address authorities, experts and practitioners from the field of spatial planning and nature conservation.

The Guidelines aim to demonstrate (1) how to identify the existing or potential conflicts between the public interest to safeguard and strengthen biodiversity and growing demands on land use for social and economic development; and (2) how it is possible to use spatial planning tools to avoid, minimize or compensate those conflicts within the landscape.

To ease the decision-making process for authorities, the Decision Support Tool has been developed. It is a GIS-based tool that includes a layer of the identified ecological corridors that overlap with a project idea and gives recommendations for alternatives, e.g. an alternative route for a new road. The Decision Support Tool is embedded in the Carpathian Countries Integrated Biodiversity Information System (CCIBIS) which harbours data gathered during this and other projects under the umbrella of the Carpathian Convention. Data is publicly available for any registered user.

Furthermore, ConnectGREEN suggests solutions for concrete bottlenecks in the 4 selected pilot areas that are summarized in the Action Plans for Mitigating Threats to Ecological Corridors. In this document local stakeholders from different fields of experience and competence can find selected measures to safeguard or restore ecological corridors that are at risk.

Relevant project resources

Deliverable D.C.2.5 **Factsheets** "A 2020 Perspective on Ecological Connectivity in the Carpathians" for the Czech Republic, Hungary, Romania, Serbia and Slovakia

Output 3.2 **Guidelines on Reducing Conflicts in Corridor Areas** and **Innovative Decision Support Tool** embedded in the Carpathian Countries Integrated Biodiversity Information System – CCIBIS: www.ccibis.org

Output 4.1 **Action Plans for Mitigating Threats to Corridors**

Stakeholder workshop held in Hungary in October 2020.

Stakeholder workshop held in Romania in June 2021.

CAPACITY BUILDING FOR IDENTIFYING AND MANAGEMENT OF ECOLOGICAL CORRIDORS

For effective results and long-term conservation results of critical ecological corridors in the Carpathians both conservationists (protected area professionals, NGOs, authorities, etc.) and spatial planners should better understand and implement the state of the art and principles and practical tools and mechanisms concerning the identification and management of the corridors.

The ConnectGREEN contribution

To this purpose, ConnectGREEN project partners developed the E-learning Training Course and conducted several interactive events. Due to the Covid-19 pandemic, unfortunately, most of the events had to be moved online.

The E-learning Training Course consists of 2 parts, one of which is dedicated to protected area professionals and students, focussing on the methodologies for identifying, managing, and monitoring of ecological corridors alongside with stakeholder communication, and the other to spatial planners, looking at the methodology for integrating ecological corridors into spatial planning practices including ways of analysis or legislative provisions and practices in each target country. In addition to interactive sessions and video materials, an online community has been created on LinkedIn.

Furthermore, Transnational Train-the-Trainers Workshops with around 200 participants in total were organized to build the trainers' capacity and to guarantee the E-learning Training Course is being taken care of in each country.

Overall, 3 Study Tours for nature conservationists and spatial planners alike were arranged to discuss real bottleneck situations in the pilot areas and discuss solutions therefore. Altogether around 100 people participated in the Study Tours.

During the International Conference 'Protected Areas – Cornerstones of Ecological Connectivity in the Carpathians and Beyond' to be held in hybrid format in Visegrad, Hungary, 28-30 September 2021, ConnectGREEN partners will offer workshops on the tools that have been developed during the course of ConnectGREEN's implementation for protected area professionals and stakeholders from related sectors.

Relevant project resources

E-learning platform: http://elearning.patko.sk/ and www.ccibis.org

LinkedIn: European Green Infrastructure Practitioners' Network and Learning Alliance: https://www.linkedin.com/groups/8181719/
Conference outputs available on the ConnectGREEN project website.

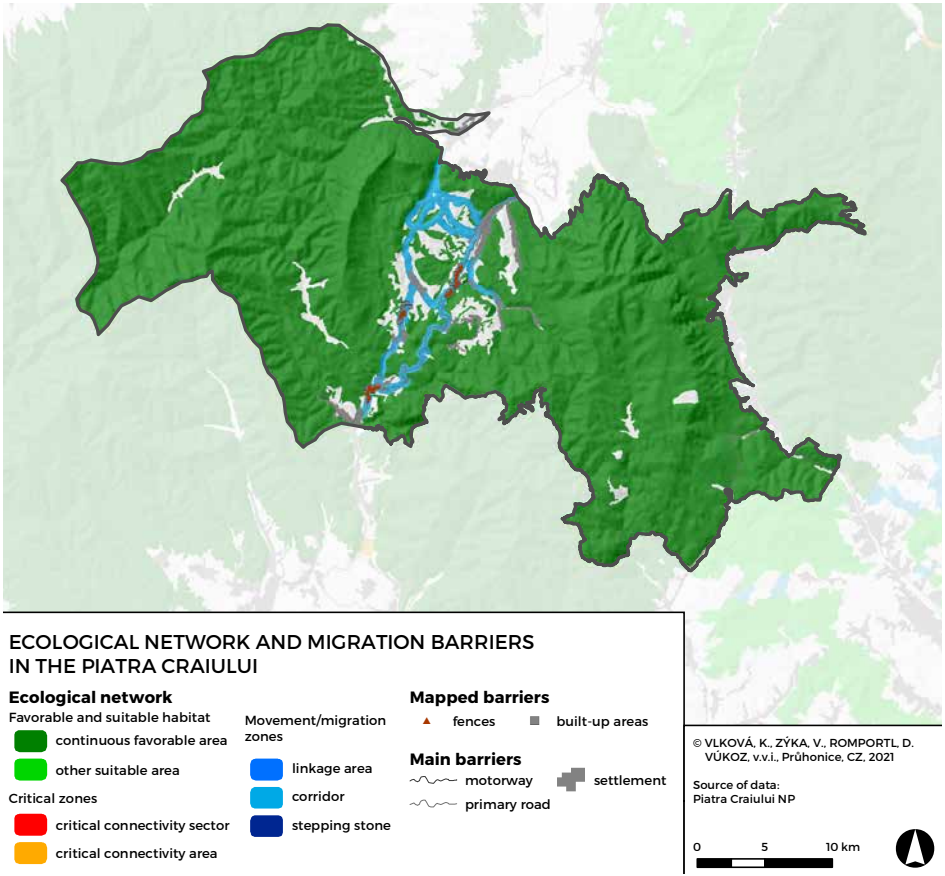
PILOT AREA 1:

PIATRA CRAIULUI NATIONAL PARK/BUCEGI NATURE PARK (ROMANIA)

Overview:

Piatra Craiului National Park (PCNP) and the Bucegi Nature Park (BNP) together form the first of ConnectGREEN's 4 pilot areas. The two parks, covering some 47,000 hectares of land between them, are situated along the Southern end of the Carpthian arc. The project activities focussed on the areas both west and east of PCNP. The eastern side represents the link to the Leaota Natura 2000 site and BNP, is home to several villages and a national road that is to be renovated and upgraded. To the west, PCNP links up with the Iezer-Papusa and Fagaras mountains.

The area is made of traditional natural landscapes with scattered houses and



settlements, and features only low volumes of traffic with the two main valleys, Barsa and Dambovita, being serviced by secondary or forest roads. Due to their vicinity to the national park, the easy access and the general beauty of the landscape, both areas carry a significant tourism development potential.

Fieldwork in PCNP & BNP:

During ConnectGREEN's 3,5-year runtime, the project partners responsible for the pilot area set up 25 camera traps at specifically identified locations in the studied area. Toward the end of the project, the team had registered 461 signs of large carnivore presence in the pilot area between January 2019 and March 2021. These included 132 signs of wolves, 217 of bears and 112 of lynx. The gathered data was used to delineate a network of ecological corridors along which large carnivores and other wildlife move throughout the territory of the two parks. The resulting map was further refined by integrating the field observations made of major migration barriers and areas whose permeability was impaired.

Lessons learnt:

The implementation of ConnectGREEN's activities in the PCNP/BNP pilot area clearly demonstrated that there can be no one-size-fits all solution to safeguarding ecological connectivity across the Carpathian region. In this pilot site, this was exemplified by the existence of two different types of villages in the studied area — one, mostly at higher altitudes, made up of scattered houses and surrounded by hay meadows and forests and thus very permeable for wildlife crossings; the other, predominantly in the valleys, featuring numerous houses, built side-by-side, and strongly fenced surrounding landscapes, making it very hard for wildlife to pass through. The two scenarios require completely different management approaches to preserve ecological

▲ Lynx enjoying the sunshine.

▲ Landscape in the Piatra Craiului National Park.

▲ A lynx caught by a camera trap.

connectivity and prevent human-wildlife conflict.

Collaborative conservation:

A defining landscape feature of this pilot area are its hay meadows, which have formed part of traditional farming practices here for generations. The practice has sculpted the scenery, the dense forests giving way to sprawling meadows, and also had an effect on local biodiversity, creating havens for meadow plant species, butterflies and smaller mammals. In recent years however, these hay meadows are disappearing, and as the forest gradually wins back land, so do the meadow plant and animal species.

Preserving the hay meadows as well as the ecological corridors requires active involvement of local communities and authorities. Using the map of ecological corridors to pinpoint critical spots with a heightened risk of human-wildlife conflict, the ConnectGREEN team held discussions with inhabitants living in and around the pilot area to identify appropriate mitigation measures. During these exchanges, the value of jointly defining and pursuing common goals was underlined: a top-down prohibition of certain activities serves only to alienate those concerned, while collectively defined measures based on a common recognition of the value of ecological connectivity for all stakeholders carry the potential for sustainable and long-term solutions.

Looking ahead:

Unlike many other regions of the world, the PCNP, BNP, and surrounding areas are still marked, at landscape level, by a good level of permeability, allowing migrating wildlife to move from one core habitat area to another. Preserving this equilibrium requires keeping certain key bottlenecks in the corridor network open, which is why the ConnectGREEN team urge spatial planning authorities to consider identified corridors in their work and to refrain from designating construction sites inside these crucial migration routes.

The most important hurdle to ensuring the consideration of migration corridors in spatial planning activities and long-term solutions to ensure the preservation of ecological connectivity in Romania is the lack of national legislation allowing the legal designation of ecological corridors in the country. Adopting such a law in the near future, laying the legal groundwork for further preservation measures, represents the most important next step to safeguard ecological connectivity in the country.

European brown bear.

Tracked movements of a brown bear in Piatra Craiului National Park in 2017.

SPOTLIGHT

Bears are a highly mobile species, sometimes travelling very long distances to satisfy their needs. During the daytime, they usually seek shelter in isolated places at higher altitudes or deep in the forest, so as not to be disturbed. As night falls however, they set out in search of food, often venturing down into the valleys and out into the open. On average, bears will cover some 1.6 km per day, but individuals have been known to wander for more than 10 km if they aren't immediately satisfied with what they find.

While the time of day is one factor governing a bear's movements, so are the seasons: when the snows begin to melt in early spring, bears awake from hibernation in the mountains and descend to lower altitudes where the vegetation has begun to grow, the flowers are in bloom, and food is easier to come by. The weeks from May to June typically signal the mating season of European brown bears. During this time, the male individuals will often cover large distances in search of a mate. With the arrival of the long and hot days in summer, bears seek out forest areas rich in berries or agricultural fields with tempting crops, such as oats, wheat or corn. In the autumn, they will retreat into old deciduous forests to feed on acorns and beechnuts, or steal into orchards for some fruit. As food becomes increasingly scarce, bears are also attracted to the feeding points at which game managers provide feed for deer and wild boar. With the onset of winter, the bears retreat to higher ground and seek out a secluded spot in which to dig a den where they will sleep through the frigid winter months and give birth to their offspring. A bear's instinct and needs therefore push it to be constantly on the move, which is why the home range of a single individual can encompass some 250 km^2 or more.

The large territorial requirements of the species mean that, in the absence of a viable network of ecological corridors and expansive and well protected core habitat areas, brown bears are often forced to search for food in and around human settlements, which significantly increases the risk for human-animal conflict. In the southern Carpathians, this issue is compounded by poor garbage management practices, as the chance for an easy meal represents a strong attraction for bears.

During the ConnectGREEN project, camera traps were installed at specifically identified locations in the study area by following the project's newly developed Methodology for the Identification of Ecological Corridors. The result of the monitoring served to delineate a network of ecological corridors along which large carnivores and other wildlife move in the Piatra Craiului National Park and Bucegi Mountains.

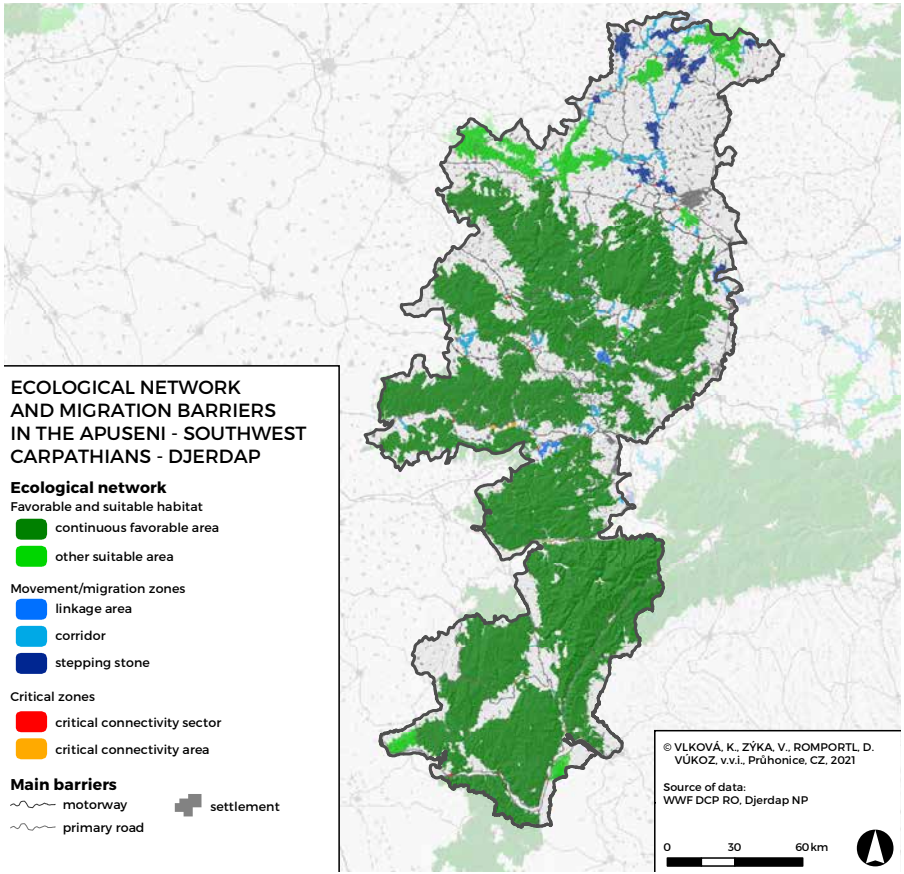
Data from previous research studies was also used by the ConnectGREEN team, including a recent large carnivore monitoring project implemented by the Foundation Conservation Carpathia. Using camera traps and genetic analysis methods, the project studied large carnivore populations in a large study area, including the Piatra Craiului National Park. An interesting output of the monitoring was the movement profile of one individual brown bear in the autumn of 2017, reconstituted with the help of genetic analysis, which confirmed existing scientific data and assumptions about the strong mobility of the species.

PILOT AREA 2:

APUSENI MOUNTAINS / SOUTH-WESTERN CARPATHIANS (ROMANIA) / NATIONAL PARK DJERDAP (SERBIA)

Overview:

ConnectGREEN's 2nd pilot area stretches across south-western Romania from the Apuseni Mountains in the north along the Carpathian arc across the border into Serbia. The area is a regional biodiversity stronghold and, consequently, boasts a large number of national parks, protected areas and Natura 2000 sites. The Romanian segment of the pilot area has the highest concentration of national parks in the entire country. Even non-designated areas that do not benefit from a specific protection regime display levels of biodiversity worthy of national park status in other regions of Serbia or Romania. Across the Danube in Serbia lies Djerdap National Park, covering some 63,786



hectares. It is the only area in Serbia covered by the Carpathian Convention. All three European large carnivores — bear, wolf and lynx, can be found in the project area.

The region is, however, also the focus of several large infrastructure projects which threaten to disrupt the animal migration routes between individual core habitat areas, thus endangering the ecological connectivity between the southern Carpathians and the remainder of the mountain ranges to the north.

Fieldwork in south-western Romania and Serbia:

In the course of ConnectGREEN, 180 monitoring sites were monitored in the Apuseni Mountains over a period of several months with the help of more than 20 wildlife cameras. In the south-western Carpathian section of the pilot area, the team also used a set of over 20 cameras to monitor specific points. The cameras were left at each site for a minimum of 2 weeks, during which time all passing animals were recorded. These monitoring sites cover all bottleneck areas that were previously identified by the team in a modelling of ecological connectivity in the Carpathians. In Djerdap National Park, 14 cameras were set up in 3 critical zones and left there for several months.

In the Apuseni section of the pilot area alone, the camera traps captured a passing bear on 58 occasions, while a wolf was seen 32 times. Further south along the Carphatians, the cameras caught wolves on film 12 times as well as 5 individual bears. These results confirm that many of the identified corridors are actively used by wildlife, even those which enter into close proximity to the highway. The field team was also heartened to discover that several of the ecoducts constructed in the area over the past years have been accepted by local wildlife. In Djerdap National Park, wildlife cameras captured a passing bear 1 time, lynx 2 times, and wolves 140 times.

All hands on deck:

In parallel to the fieldwork, efforts were also made to engage with local stakeholders in an ongoing dialogue to secure support for the preservation of these valuable habitats. While numerous significant gains were made (like modeling, mapping and verifying a large number of corridors), the project team also found that a general negative perception of NGOs continued to linger in the minds of local communities, with the professional expertise of staff at times being called into question. During the early phases of the project, a meeting was held in Belgrade on 1 February 2019 at which the main aims and challenges of ecological connectivity preservation were presented to 36 participants from various fields, while a second

▲ Field expert mounting a wildlife camera.

▲ Monitoring equipment used in Romania.

▲ A wolf caught by a wildlife camera.

▲ A brown bear caught by a wildlife camera.

▲ View of the frozen Danube River in winter.

▲ View of the high-speed rail line currently under construction.

meeting was held on 21 July 2021 in Colțești, Romania, that brought together 26 representatives of local authorities, environmental authorities, hunting associations, farmers, and members of parliament from 9 Romanian counties. After giving an overview of the project, the ConnectGREEN team presented the main threats to ecological connectivity in the area:

- Infrastructure development,
- Habitat fragmentation,
- Development of inhabited areas.

▲ A wolf caught by a wildlife camera.

The attendees then jointly sought to identify and debate measures to address these issues and refined approaches to suit the particular context of the critical sites identified in the team's mapping of ecological connectivity hotspots.

Looking ahead:

The pilot area is defined by astonishing levels of biodiversity and large swathes of wilderness that act as core habitat areas for the region's large carnivore populations. The monitoring under ConnectGREEN has confirmed that the animal migration routes between these patches remain largely intact, thus satisfying territorial needs and permitting a healthy genetic exchange between local populations. To sustain this in the long-term, the ConnectGREEN team calls for environmentally friendly spatial planning which recognises and preserves ecological connectivity: a corridor network needs to be designated by the state, according to an officially adopted methodology, and these areas be adequately managed and protected. This requires that the network be considered in forestry, hunting and protected area management plans and that these actors coordinate their efforts. Planned and existing infrastructure projects that pass through these areas must implement mitigation methods, and the functionality of this green infrastructure as well as of the corridors themselves needs to be continually monitored over time. Finally, measures supporting the peaceful coexistence with large carnivores should be promoted, ranging from awareness raising among locals and tourists to the use of specialised guard dogs and electric fencing in critical areas.

SPOTLIGHT

The preservation of ecological connectivity is a task that requires close cooperation and coordination across county and national borders, as well as between different sectors – forestry, hunting, spatial planning, protected area management, construction, transport infrastructure management, etc. The call for greater cooperation is one made and heard very often – this is justified, as it holds true for all aspects of work in nature conservation and beyond, however, it is important that this not become an empty phrase. Observations made by the ConnectGREEN team in the south-western Carpathians highlight the importance of on-going collaboration to avoid that well-intentioned efforts and costly investments be hampered by the uncoordinated actions of third parties.

To date, there are 3 operational ecoducts in Romania, and all of them are situated within the 2nd pilot area of ConnectGREEN, where they serve as crossing points across the A1 highway. One of the ecoducts is situated between the villages of Boz and Leşnic and lies some 2 km west of an important migration corridor. To the north, the bridge gives onto lightly hilly terrain covered in broadleaf forests and meadows with few fences, providing a good link to the land beyond. At certain times of the year, however, this space is occupied by a large sheep herd – while not a barrier by itself as the herd is not fenced in, the accompanying shepherd dogs, often a dozen or more strong, dissuade any wild animals seeking to access the green bridge.

To the south, the route from the ecoduct passes over a wooded mound and then collides with train tracks alongside which a new high-speed railway line is currently under construction. The project team is unaware of any plans to provide wildlife with a crossing point across this new railway line. After the train tracks, the route traverses the Mures river, leads through open agricultural landscape, across a national road and then through the outskirts of Leşnic, thus presenting numerous potential barriers to migrating wildlife.

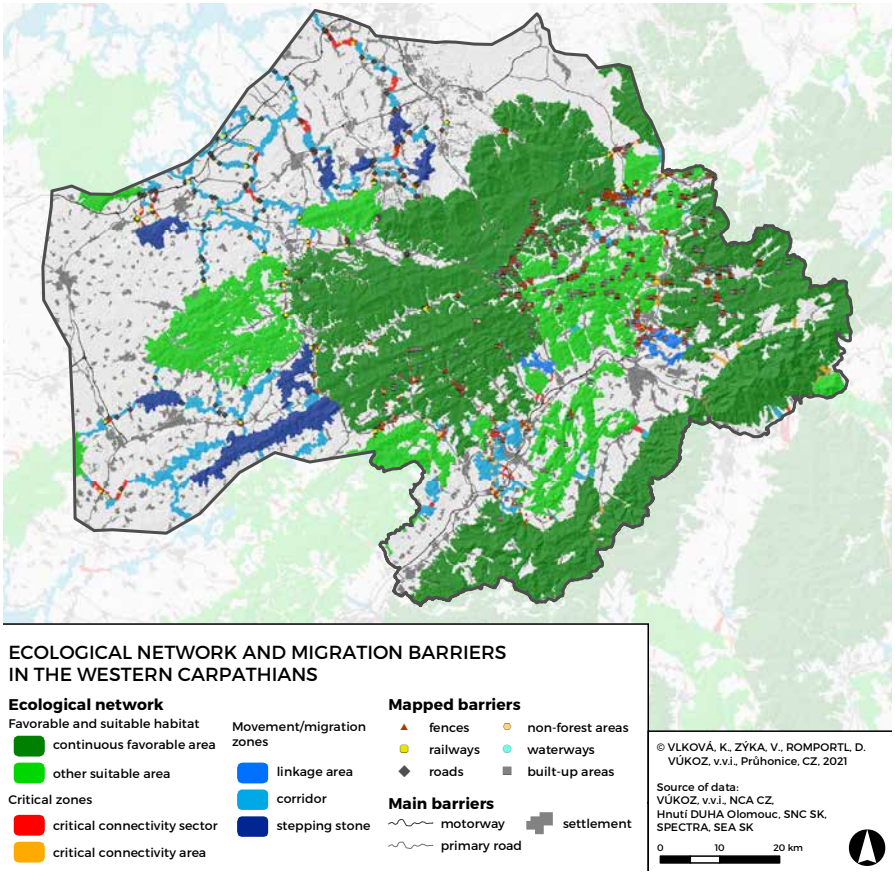
The case of the Boz-Leşnic ecoduct illustrates very clearly that no matter the quality of the green bridge itself as a crossing point across the significant migration barrier represented by the A3 highway and the good theoretical permeability of the immediate surroundings to the north, wildlife will not be able to pass through here, if their access to the bridge and the continuity of their migration route to the south isn't guaranteed as well. Close coordination between the highway and railway construction and management authorities is needed to ensure that the significant monetary costs of the ecoduct and above all its ecological value not be lost due to the erection of a new insurmountable barrier directly behind it. Measures must be put into place that allow year-round access to the bridge from the north, and hunters, farmers, landowners and the inhabitants of Leşnic need to coordinate their activities to ensure that wildlife continue to be able to use this migration route in the future.

PILOT AREA 3:

WESTERN CARPATHIANS (CZECH REPUBLIC – SLOVAKIA)

Overview:

ConnectGREEN's third pilot area encompasses the western part of the Carpathian arch and is located on the northern section of the Czech-Slovak state border, delimited to the north-east by the border to Poland. The pilot area is predominated by mountainous landscapes, the highest peak reaching 1709 metres of altitude, and includes several national parks and protected areas. The Slovak section of the pilot area, which includes the Kysuce Protected Landscape Area (PLA), the Strážovské vrchy PLA and the Malá Fatra National Park, is an important regional refuge for large carnivores, with a confirmed presence of all three main European species — wolf, bear and Eurasian Lynx, and acts as



a hub from which individual pioneers venture to the north into the Czech Republic to recolonise their ancestral hunting grounds on the other side of the border. The Czech section of the pilot area is dominated by the Beskydy PLA, the largest in the country, and the Poodří PLA in the lowlands. The area is unique due to its high levels of biodiversity, extensive forests, and is the only region in the country where all three large carnivores are known to occur.

The rich biodiversity and valuable habitats in the pilot area are, however, endangered by advancing urban sprawl, the construction of linear transport infrastructure, and the increasing use of fences along highways and pastures and in and around settlements. Only a few key bottleneck areas remain between the fragmented patches of suitable habitat that are suitable for large carnivore migration, and their continued permeability is threatened by further construction projects.

Fieldwork in the western Carpathians:

During ConnectGREEN, the project team gathered data on the critical barriers in the pilot area – highways, roads, settlements, fences, etc., using the mobile phone application "Survey123", and set up camera traps in the Beskydy mountains, which captured several instances of passing lynx.

In total, 40 critical sites were identified in the Czech portion of the pilot area at which the permeability for wildlife migration is low or impossible. Another 50 sites were identified on the Slovak side. The critical sites were overlaid with Czech spatial planning maps, which flagged the potential for human-wildlife conflict at a majority of the sites. This highlights the need for further adaptive measures in these locations.

Communication is key:

As was the case in the other pilot areas as well, the ConnectGREEN team held several stakeholder meetings in the western Carpathian pilot area (online due to the COVID-19 pandemic) at which the aims and work of the project were presented in order to engage the local communities and relevant authorities and garner their support for project activities. It quickly became apparent that there continues to be a lack of awareness

▼ A European brown bear in the autumn.

▲ A brown bear cub.

▲ A brown bear mother with her 2 cubs.

regarding the destructive potential of construction activities in certain areas of high ecological importance. Repeated personal exchanges and having the project maps and other outputs at hand help to convince some of the importance of the issue and to alter/adapt their plans.

Lessons learnt & recommendations:

The team also held bilateral discussions with spatial planning authorities, highlighting the threats posed by landscape fragmentation for biodiversity, and the solutions at hand to mitigate impacts. In a major conservation success, consideration of a map of biotopes of selected specially protected large mammal species (lynx, wolf, bear, moose) has become mandatory since February 2020 for spatial planning in the Czech Republic. It is now crucial for this measure to be actively promoted and implemented — where there are construction plans for buildings or linear infrastructure

▲ A brown bear cub.

that fall into critical migration corridors, the projects should undergo a strict appraisal that either prevents them from going ahead, or requires the implementation of effective mitigation measures.

At the same time, results from the fieldwork have also shown that some core areas lie outside of protected areas, demonstrating that not all forms of human activity represent a threat to wildlife. Where these non-invasive land use forms have been practiced within ecological corridors until now, they should be permitted to continue, so long as the landscape remains intact and no fences are erected.

▲ Landscape view in the Western Carpathians.

Looking ahead:

The ConnectGREEN team's fieldwork and observations of the on-going developments in the western Carpathian pilot area have once more confirmed the need to consider ecological connectivity requirements in spatial development plans. In light of the speed at which urbanisation and transport infrastructure expands, a failure to preserve the last uninterrupted migration corridors in the region represents an existential threat for the small Czech large carnivore populations. The work of the last three years has also demonstrated anew the importance of including habitat considerations in the early stages of a spatial planning process — having to return to the topic later on can prove very costly, cause long delays, and require substantially more work for all actors involved.

SPOTLIGHT

In the autumn of 2020, Slovak, Czech and Polish conservationists celebrated the arrival of cubs in two wolf packs in the Javornik and the Silesian Beskydy mountains.

'Wolves began to return to the Czech Republic in the 1990s, first to the Carpathian Mountains on the border with Poland and Slovakia. Initially, they were individuals, but now, after more than 20 years, there is a wolf family with cubs,' says Michal Bojda from Hnutí DUHA, which monitors large carnivores in the Czech Republic.

For the wolf pack in the Beskydy mountains, this is the first time they have cubs. For the pack in the Czech part of the Javorniks, this marks the second time. Why now? According to Bojda, this is due to the current situation wolves experience in Slovakia. Until 2009, wolves were hunted in the country without any quotas. When quotas were eventually introduced, they were very high. The reported number of hunted wolves was around 150 per year. In 2013, however, hunting along state borders and within Natura 2000 areas was banned and the obligation to have each hunted wolf examined by state conservationists was introduced. Despite a quota of 80 specimens, hunters reported only 27 wolves shot during that season.

'When hundreds of wolves were hunted in Slovakia, wolf families did not have a chance to migrate and spread to our territory,' says Bojda. Although the situation has significantly improved in recent years, the situation is still far from ideal. The designated areas in which wolves enjoy protection are too small when compared to the territory in which wolf packs normally move. The 'Bohemia-Slovak' cross-border pack, for example, is protected around its den on the ridge of the Javorniks, but when it ventures further down into the valleys, its members can be hunted. The pack in the Silesian Beskydy mountains, which migrates through three countries — Poland, Slovakia and the Czech Republic, faces a similar threat. *'We are afraid that one or both parents may be shot by hunters, because in that situation the remaining cubs may focus on easier prey, such as insufficiently protected sheep,'* says Bojda.

The return of wolves into the Czech Republic is only rendered possible by the remaining migration routes between the mountainous areas on both sides of the border. Their continued preservation is essential, especially in the Kysuce PLA, where the remaining migration routes are the only ones through which large carnivores, especially wolf and lynx, can still move between Slovakia, Poland, and the Czech Republic. *'The number of bears is growing in Slovakia, but we do not see them in the Czech Republic. We think that this is precisely the consequence of the deteriorating permeability of the country,'* says Bojda.

Peter Drengubiak from the Kysuce PLA Administration also draws attention to this problem. The natural land in the PLA Kysuce is divided by roads, railways and settlements into small fragments, of which only few still meet the territorial needs of large carnivores.

'It is almost impossible to prevent construction activities in eco-corridors situated outside the strictly protected areas. [...] not only the protected areas in which large carnivores occur are important for their protection, but also the 'connections' — eco-corridors between them, which ensure irreplaceable gene movement?', states Drengubiak.

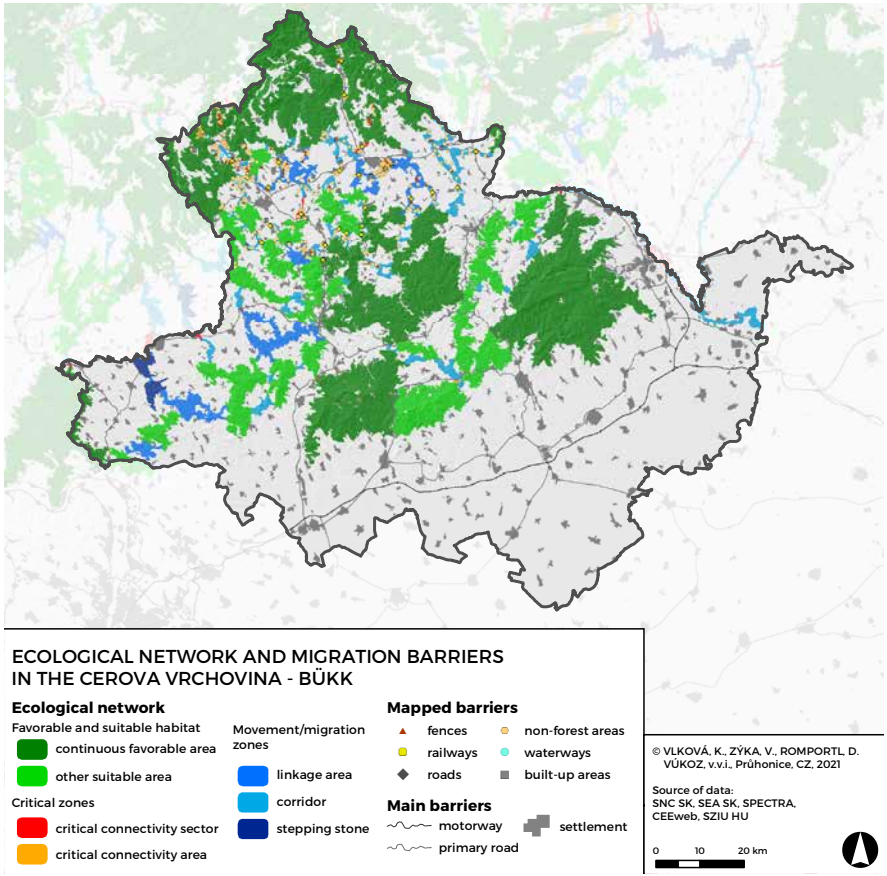
The long-term conservation of the ecological corridors identified during the ConnectGREEN and TRANSGREEN projects are key to securing the survival of large carnivores in the area. It will ensure that the new wolf cubs born in spring will be followed by many more in the years to come.

PILOT AREA 4:

BÜKK NATIONAL PARK (HUNGARY) / CEROVINÁ VRCHOVINA PROTECTED LANDSCAPE AREA (SLOVAKIA)

Overview:

ConnectGREEN's fourth pilot area is situated in the western Carpathians on the border between Hungary and Slovakia, which sustains an enormously rich plant and animal kingdom, thanks to the area's unique climate and its unusually varied terrain. The northern section of the pilot area consists of the Cerová vrchovina Protected Landscape Area (PLA) in Slovakia: spanning across 16,771 hectares, its territory is predominantly covered by Pannonian flora, which sets it apart from the rest of Slovakia. The northern, more alpine section of the PLA, hosts viable populations of all three European large carnivore



species, while the middle part, which is transected by the I/16 first class road and the future R2 expressway, acts only as a transitory area for large carnivores. In the south, experts have confirmed a permanent presence of wolves and recorded sightings of bears. Still functioning migration corridors across the border to the Bükk, Aggtelek and Duna-Ipoly National Parks in Hungary ensure that this is the area in the country where large carnivores are most likely to be encountered. The Bükk National Park Directorate manages 884,736 hectares, 43,169 ha of which form the national park, while the rest is divided among 9 landscape protection reserves, 14 nature conservation areas and 39 natural monuments.

Fieldwork in Bükk National Park and Cerová vrchovina:

On the Hungarian side of the pilot area, the team, supported by the ASP Bükk National Park Directorate and Bükk Mammal Research Group Association, used modelling performed with previously gathered data to designate monitoring sites that were best suited to provide crucial information on the routes of migratory wildlife. The methods deployed in the field encompassed linear transect methods, camera trapping, acoustic monitoring and the evaluation of data received from third parties, such as roadkill incidents. On the Slovak half of the pilot area, the mapping was realised by local experts, who sought to verify the permeability of migration corridors previously identified in digital modelling.

Challenges:

One of the most important source of human-wildlife conflict in the pilot area was found to be the highways, in particular the new road segment of the M30 highway connecting Miskolc with Košice, and the R2 expressway from Trenčín to Košice, which is currently under construction. The expressway, once completed, will be located on the border of the Pannonian and Alpine bioregions and is likely to significantly affect the spread of large carnivores from Slovakia to Hungary if no adequate mitigation measures are implemented. Aside from the intensively used roads, the increasing number of fences being erected throughout the landscape is becoming a growing threat to the ecological permeability of the area.

Creating partnerships:

The fieldwork on the ground was accompanied by efforts to engage with local stakeholders in the pilot area to convince the wider public of the importance of ecological connectivity for effective biodiversity conservation. The team also engaged in direct discussions with relevant local authorities and decision makers and involved them in the drafting

The mammals species recorded in the whole pilot area (SK-HU) included:	
Grey wolf	Mustelids (in Hungary): weasels, ferrets and minks
Brown bear	Mustelids (in Slovakia:): European pine marten, Beech marten
Red deer	European wildcat
Roe deer	Eurasian otter
European fallow deer	European hare
Red fox	European badger
Wild boar	

▲ Landscape in Eastern-Cserhát Protected Landscape Area.

▲ View into a valley in Cerova Vrchovina PLA.

ConnectGREEN at a public event in Hungary. ▶

▼ A fenced field in the Cerova Vrchovina PLA.

of an action plan of measures to be implemented in the pilot area as a follow-up to the work performed under ConnectGREEN. In the Hungarian section of the pilot area, the project partner MATE University sat down with numerous mayors to discuss the needs and challenges that they see in their communities in the future, and together sought to find joint solutions that took into account the demands of both the people and wildlife in the area.

On the Slovak side of the pilot area, the ConnectGREEN Methodology on the Identification of Ecological Corridors proved a very valuable resource welcomed by many actors met in the course of the project. It has allowed for the implementation of important measures that the authorities in question would not otherwise have had the time or resources to identify, explore and test.

Along with other project results, the Methodology provides valuable information and arguments to defend the interests of nature protection in spatial planning.

Looking ahead:

The monitoring under ConnectGREEN has confirmed that large carnivores are returning to Hungary through Slovakia – while a major conservation success, this also requires proper preparation of local citizens, foresters, hunters, farmers, as well as the managers of the area's national parks. Close collaboration is needed to ensure a harmonious coexistence in the future. ConnectGREEN has made an important step in this regard by identifying the ecological corridors running through the pilot area. These must be granted greater protection and be integrated into spatial planning to ensure their long-term preservation.

SPOTLIGHT

During the first half of 2020, a group of students from the MATE University in Hungary (a ConnectGREEN partner) developed a complex landscape protection and development plan, which focussed on the further development of 10 villages in the northern Bükk region in consideration of the migration and habitat needs of large carnivores living in the vicinity. Indeed, up until the 20th century, bears, wolves, lynx and golden jackals all naturally roamed the hills, valleys and mountain sides of the region. Their disappearance is a relatively recent development, the wolf and bear, for instance, only having been hunted to extinction in the course of the last century. Today, however, these large carnivores are making a gradual comeback, with wolf packs and the first few brown bears hunkering down in Bükk National Park for the winter of 2020/21, and confirmed sightings of lynx.

Part of the students' landscape protection and development plan consisted in raising ecological awareness among the people living in the studied area. In order to gauge the general attitude of locals towards large carnivores, the students developed a questionnaire, which sought to establish the extent and quality of their knowledge about large carnivores, whether they are afraid of them and whether they know what to do should they see or come across one accidentally.

The questionnaire consisted of 88 questions and was filled out by 37 respondents. The results revealed that more than 50% of the interviewees did not know that these animals are present in the region. A majority of the respondents would recognize the four large carnivores, but they wouldn't be able to differentiate the voice and the footprint of wolf, lynx or golden jackal.

A majority of the respondents indicated that they would not know what to do in an encounter with these animals in the wild despite the fact that most also considered that certain situations could be dangerous. Around 90% of the respondents indicated that they have never personally seen any of the four species in the vicinity of their homes, but 42% of the respondents had acquaintances or relatives that had seen large carnivores in their neighbourhood.

Approximately 50% of those interviewed considered the presence of wolves and bears a positive fact. Many, however, also indicated being afraid of bears. The majority of people considered the presence of golden jackals in the area a bad thing, but more than half of all respondents had a positive attitude towards the lynx. As to where they gathered their information, the largest part of people interviewed indicated the internet (30%), television (19%), or from other people (25%).

In analyzing the results of their questionnaire, the students concluded that it would be important to further raise awareness and inform people about the presence of large carnivores in the region, and to encourage residents to not to see them as a potential threat but rather as an organic part of their natural environment.

LIVELY CAPITALIZATION OF & COLLABORATION WITH OTHER PROJECTS AND ENTITIES

ConnectGREEN is not a stand-alone project, but built on the results of other projects and passes on its own findings and tools to ongoing initiatives and follow-up projects.

Results of the following projects were capitalized:

- The Crossborder Programme Austria – Slovakia funded the **Alpine-Carpathian Corridors Project** (2009 – 2012).
- The EU South East Europe Transnational Cooperation Programme Project **BioREGIO Carpathians** (2011 – 2013).
- The Danube Transnational Programme Project **TRANSGREEN** (2017 – 2019).

Extensive collaboration with projects and entities across Europe, among others:

- The **Carpathian Convention** is a very important partner of ConnectGREEN. ConnectGREEN partners took part in the Carpathian Convention Implementation Meetings to prepare for the 6th Conference of the Parties (COP6), in the Working Group on Biodiversity Meetings and the COP6 itself. The Parties to the Convention adopted the International Action Plan on Conservation of Large Carnivores and Ensuring Ecological Connectivity in the Carpathians whose development was strongly supported by ConnectGREEN, and welcomed the Methodology on Identification of Ecological Corridors in the Carpathian Countries by Using Large Carnivores as Umbrella Species.
- Through our work on protected area networks, close cooperation was established with the Interreg Central Europe Project **Centralparks**. The common goals of the two projects were to strengthen the Carpathian Network of Protected Areas (CNPA), to offer capacity building for protected area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professionals on the topic of ecological connectivity, and the 3rd CNPA Conference in September 2021. Furthermore, together with the Carpathian Convention, the two projects prepared two common sessions at the European Week of Cities and Regions, and the European Green Week.

» The Interreg Danube Transnational Programme Project **Dare to Connect** and ConnectGREEN shared a similar topic – ecological connectivity. The work of DaRe to Connect focussed on the Green Belt of Europe. Project partners from both projects shared knowledge and experience at several events.

» The Interreg Danube Transnational Project **SaveGREEN**: ConnectGREEN collaborated by passing on the Methodology to SaveGREEN project partners who in turn adapted and further refined it for the modelling of ecological corridors in their pilot areas in order to develop a monitoring system to capture structural and functional connectivity.

» ConnectGREEN partnered up with the team of the **EU Life EuroLarge Carnivores** Project and used synergies to provide recommendations in terms of large carnivore monitoring and reduction of human-wildlife conflict. Press field trips were also organised by the two projects in close consultation with one another for maximising the results and providing a complete picture of the needs of the species (including for long distance movements) as well as ways to improve coexistence with them. The International Action Plan on Conservation of Large Carnivores and Ensuring Ecological Connectivity in the Carpathians was collaboratively developed by the two projects, who joined forces to maximise the engagement of ministerial level policy makers.

» The Interreg Central Europe Project **BeechPOWER** focuses on the management of World Heritage beech forests in Europe, which are important core areas for large carnivores, and received support on stakeholder engagement methods, tested by the ConnectGREEN team.

» Last but not least, ConnectGREEN established cooperation with the **Alpine Network of Protected Areas** (ALPARC), **the Carpathian Network of Protected Areas, Danubeparks**, and **Parks Dinarides** for the improvement of the identification of ecological corridors and their management. In all regions, ecological connectivity is a hot topic; exchange of knowledge was of great importance. More of this kind of exchange is expected at the International Conference **'Protected Areas – Cornerstones of Ecological Connectivity in the Carpathians and Beyond'** to be held in September 2021.

BEYOND CONNECTGREEN

ConnectGREEN results offer valuable tools for improving ecological connectivity in mountainous regions. However, the current trend of continued increase of landscape fragmentation is clearly in contradiction to the principles of sustainability, and there is an urgent need for action on the European, regional (Carpathian) as well as on the national level.

The **general aim for Green Infrastructure** (GI) from a biodiversity conservation perspective should be to **contribute to the conservation of relevant species, habitats and ecosystems,** with an increased focus on those that are recognised as national and regional priorities in particular areas. Thus, the priorities would be:

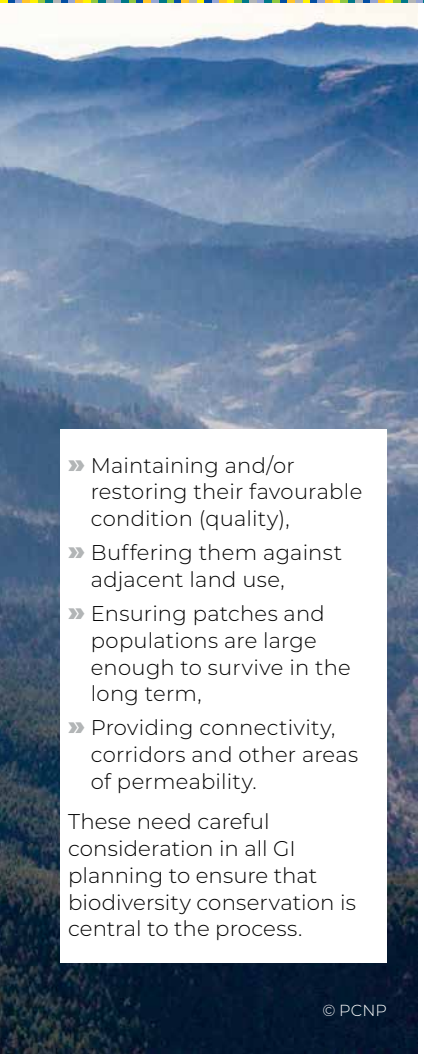
- To improve existing sites,
- To increase their size,
- To create more sites, then enhance connectivity,
- To create new corridors (Green Infrastructure Working Group 2011).

In short, **Better » Bigger » More » More joined**. Increasing connectivity helps, but there first need to be high quality sites to connect. Of course, this hierarchy must be adopted flexibly, to suit the particular circumstances in each case. Clearly, the most suitable approach in a highly fragmented lowland agricultural landscape will be very different from that in an upland landscape, with larger, more contiguous blocks of habitats.

Because GI deals with whole landscapes and multiple sites, and not just single locations, it draws heavily on ecological network theory and landscape ecology to consider how biodiversity conservation should be approached and designed.

The ecological network approach sets out a range of **potential measures**:

- Protecting existing habitats/populations of species,



- Maintaining and/or restoring their favourable condition (quality),
- Buffering them against adjacent land use,
- Ensuring patches and populations are large enough to survive in the long term,
- Providing connectivity, corridors and other areas of permeability.

These need careful consideration in all GI planning to ensure that biodiversity conservation is central to the process.

ConnectGREEN calls on policy-makers and implementers alike to:

- Provide and activate adequate financial resources for implementation of integrative spatial planning and green infrastructure development approaches. In public investment policies, including the EU structural funds, it is necessary to prioritise integrated approaches aiming at balanced development, harmonizing the interests of environmental protection and better spatial planning.
- Foster design and finance capacity building measures to empower stakeholders to participate effectively in spatial planning processes, including how to properly design the Terms of Reference (ToR) of the impact assessments, supervise the development and conclude on results such as adapting the siting and design of infrastructure.
- Underline that adjustments of national legislative tools may be necessary to avoid/minimise fragmentation of ecological corridors and Natura 2000 sites, in tune with recommendations developed within the ConnectGREEN project together with spatial planners.
- Encourage integration of ecological corridors into spatial planning in order to find best solutions for the harmonization of development needs with biodiversity on the level of planning, construction, operation and maintenance.
- Emphasize the need for enabling sustainable spatial planning by amending, where necessary, relevant policies and laws, in particular those related to nature conservation and spatial planning, e.g. on identifying and ensuring the functionality of ecological corridors.
- Support a cross-sectorally based and internationally harmonized framework on supranational level that can provide a solid basis for long-term efficient and functioning ecological networks in the Carpathian region.
- Draw attention to the need to invest in the maintenance of ecological corridors and mitigation measures to ensure their coherence and functionality endures long after the construction phase is completed.
- Acknowledge that a closer cooperation between the protected area networks shall facilitate joint activities for protection and restoration of biodiversity and ecological connectivity in the Carpathian region in the future.

THANK YOU FOR YOUR INTEREST AND CONTRIBUTIONS. STAY CONNECTED!

the ConnectGREEN team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Interreg
Danube Transnational Programme
ConnectGREEN

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ConnectGREEN DTP2-072-2.3

Restoring and managing ecological corridors in mountains as the green infrastructure in the Danube basin

Project Partners

Romania: WWF Romania (Lead Partner) · National Institute for Research and Development in Constructions, Urban Planning and Sustainable Spatial Development · Piatra Craiului National Park Administration
Austria: WWF Central and Eastern Europe
Czech Republic: Nature Conservation Agency of the Czech Republic · Silva Tarouca Research Institute for Landscape and Ornamental Gardening
Hungary: CEEweb for Biodiversity · Hungarian University for Agriculture and Life Sciences (formerly Szent Istvan University)
Slovakia: Slovak Environment Agency · The State Nature Conservancy of the Slovak Republic · Slovak University of Technology in Bratislava – SPECTRA Centre of Excellence of EU
Serbia: Institute of Architecture and Urban & Spatial Planning of Serbia · National Park Djerdap

Associated Strategic Partners

Czech Republic: Ministry of the Environment · Ministry of Regional Development of the Czech Republic
Hungary: Bükk National Park Directorate
Romania: Ministry of Environment of Romania
Serbia: Ministry of Environmental Protection of the Republic of Serbia
Slovakia: Ministry of Transport and Construction of the Slovak Republic
Ukraine: Ministry of Ecology and Natural Resource of Ukraine
Austria: Danubeparks – Danube River Network of Protected Areas
France: Alpine Network of Protected Areas – ALPARC
Montenegro: Parks Dinarides – Network of Protected Areas of Dinarides

Pilot Areas

1. Piatra Craiului National Park – Bucegi Nature Park (Romania)
2. Apuseni-SW Carpathians (Romania) / National Park Djerdap (Serbia)
3. Western Carpathians (Czech Republic – Slovakia)
4. Bükk National Park (Hungary) / Cerová vrchovina Protected Landscape Area (Slovakia)

Project co-funded by European Union Funds (ERDF, IPA)

Overall Budget: 2,603,415.83 Euro ERDF Contribution: 2,040,010.84 Euro IPA Contribution: 172,892.55 Euro