

SEE BioREGIO CARPATHIANS



Integrated management of biological and landscape diversity for sustainable regional development and ecological connectivity in the Carpathians

WP7

Synthesis report on transferability of the project results in the Balkans (Dinaric Arc)



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1. Introduction

Context of the BioREGIO Carpathians project

BioREGIO Carpathians is a transnational cooperation project, co-financed under the 2nd call of the EU SEE Transnational Cooperation Programme, priority area “Protection and Improvement of the Environment”. It involves 16 partners from 9 different South European, Central and Eastern European countries. The seven Carpathian Ministries of the Environment are observers to the project. BioREGIO Carpathians run for three years (2011 – 2013) and is a flagship project in the EU Strategy for the Danube Region (EUSDR). A close interrelation between the project's and the Carpathian Convention's aims shall ensure an adequate follow-up of the project outcomes at the political level.

The main objectives of the project were:

- the development of the first **Carpathian Red List of Habitats and Species** as well as a **List of Invasive species**
- the development of a **geo web based Carpathian Joint Biodiversity Information System**
- the development of a **Common Integrated Management Measures (CIMM)** for natural assets and protected areas (see chapter ...) as well as its implementation in three transboundary pilot areas
- the identification of physical, legal and socio-economic barriers and possibilities concerning **ecological connectivity** in the Carpathians
- the identification of **regional development opportunities** for protected areas and natural assets
- the identification of **financial mechanisms and innovative economic tools** for protected areas and natural assets
- the **experience sharing** with the Alps as well as the **transfer of project results** to the Dinaric Arc and the Balkans.

Overview of the Dinaric Arc Region

The Dinaric Arc region of south-eastern Europe covers an area of around 100,000 km² with over 6000 km of coastline and is one of most significant regions in Europe in terms of its conservation value. Its Dinaric Alpine mountain chain stretches from the eastern Adriatic coast from Trieste in Italy to Tirana, Albania covering following countries: Slovenia, Croatia, Bosnia and Herzegovina, Serbia, FYR Macedonia, Montenegro and Albania. It is one of the world's biodiversity hotspots with high floral species diversity and a high rate of endemism, with 10-20% of plants being endemic. The Dinaric karst system is the largest in Europe and includes extensive cave systems, subterranean networks of lakes and rivers with a diversity of invertebrates, fish, amphibians and reptiles.



Figure 1: Map of the Dinaric Arc (source: UNEP GRID)

Some of the most relevant conservation values and favorable conditions for conservation along the Dinaric Arc include:

- Large and well-preserved forests with high flora diversity of species and a high rate of endemism (10-20% of all the plants are endemic to the region, strictly tied to their specific habitat). Faunal diversity is also high, with several Important Bird Areas (IBDs) and Species of European Concern (SPECs). The region hosts one of Europe's largest unfragmented forests.
- Unique karst ecosystems and cave habitats with a diversity of invertebrates, fish, amphibians, and reptiles (Livanjsko Polje in western Bosnia is the largest karstic field in

the world). A single cave can host different types of habitats, generally terrestrial, freshwater and transitional habitats (between the previous two).

- The Dinaric mountains harbor important populations of large carnivores — lynx, brown bear, wolf, jackal — that use them as a crucial ecological corridor between the Alps and the mountains of south-eastern Europe
- In the Dinaric Arc the most extended network of subterranean rivers and lakes in Europe can be found.
- The numerous wetlands and freshwater habitats host important nesting populations of endangered bird species, and are an important stop over and wintering site for migrating birds. Sub-Mediterranean marsh provide a home for endemic species, such as the soft mouth trout.
- The variety of coastal and marine habitats — which include shallow reefs, Posidonia meadows, small rocks and archipelagos, high coasts, and caves — are feeding and breeding grounds for cetaceans, sea birds, and marine turtles
- The eastern Adriatic, with more than 1000 islands along the coast, is one of the richest fishing grounds of the Mediterranean. It also hosts the most diverse commercial marine species in the Basin, such as blue-fin tuna. Its submerged reefs and sea grass host whales and dolphins.
- The presence of many nature-friendly, traditional economic activities, traditional forestry, and small scale fisheries form a valuable basis for the sustainable development of the rural and natural regions of the Dinaric Arc
- A high diversity of crop varieties and local livestock breeds still exist, and are maintained thanks to typical and traditional farming and production systems. Agricultural activities maintain habitats and ensure the transfer of seed and vegetative plant material.

As a crossroads between Western Europe and the Middle East, Southeast Europe has historically been a rich ensemble of cultures and religions, and this unique background is reflected in a wide and varied cultural heritage. However, over the last twenty years the countries of the Dinaric Arc have experienced periods of high instability, conflicts, economic crises and transition towards a market economy and European integration. Environmental policies and institutions have suffered a long period of eclipse and are now being rebuilt, although with varying results. The whole region is currently undergoing rapid economic development, and the need to generate income and improve living standards, especially in rural areas, is leading to the growing exploitation of natural resources. Among the major current and future threats are: illegal logging, illegal hunting, deforestation, poaching, river damming and diversion, unregulated coastal development, unregulated exploitation of marine resources, marine pollution, coastal mass tourism, unsustainable use of agricultural land and pastures, uncontrolled land use changes, rapid economic growth with poor planning, the process of depopulation and population ageing in rural areas (the population density being around 100 people per sq km). A complex governance system, the unsatisfactory level of enforcement of existing laws, and a widespread lack of capacity are limiting factors and additional challenges to the sound development of the region. This complex heritage and the new challenges faced by the region could be managed by a cross-sectoral cooperation framework.

In spite of all these challenges, and in order to maintain diversity, values and resources of the Dinaric Arc, several initiatives have taken place in the region. One such is the Dinaric Arc Initiative, a collaboration framework which embraces several international organizations and aims at preserving the integrity of the region while also promoting the cultural heritage of its peoples. It also seeks the harmonization of environmental policies and transboundary collaboration.

Aims of the study

The Dinaric Arc and the Carpathians have a lot in common: from high biodiversity values to severe threats to and pressures to their nature, these two European regions face similar challenges in the XXI century. Since the preservation of the wealth and integrity of the Dinaric Arc relies on support to initiatives for the conservation of its biological diversity and the sustainable management of its resources, the region could benefit highly from the BioREGIO project results. This study is therefore aimed at indicating which results of the BioREGIO project could be transferred to the region of the Dinaric Arc and to which extent, taking into consideration national priorities and donor programmes.

In case of the similar project initiative for the Dinaric Arc, necessary good cooperation among the countries in the field of implementing natural resource management would contribute to stability and prosperity of the region. Geographic and social circumstances of the Carpathians and the Dinaric Arc do not differ in such way to prevent transferability of the project results. Nevertheless, political flux in some of the region's countries and general lack of environmental financing could hinder such efforts if the risks are not properly and timely assessed.

2. Transferability options for the Dinaric Arc

Result 1: Database of a Carpathian Red List of Species and Habitats

Result overview

Carpathians are well-known as the eco-region with very rich and unique biodiversity. Some Carpathian countries have developed their national lists of threatened species of plants and animals and most of them are included in the lists of protected species in their national legislation. The elaboration of the proposal of the Carpathian Red List of Species and of Habitats, including endemic flora and fauna species and endangered natural and semi-natural habitat types native to the Carpathians, following internationally recognized principles and criteria (e. g. IUCN Red List Criteria), is the task agreed by the Carpathian countries in the Strategic Action Plan for the Implementation of the Protocol on Conservation and Sustainable Use of Biological and Landscape Biodiversity to the Carpathian Convention. The objective of the project was to produce a draft Carpathian Red List of threatened habitats and species, to give a clearer picture on the status of alien species in the Carpathian region. The outputs are a set of factsheets available online about basic data, important for assessing threat status of forest habitats, non-forest habitats, vascular plants, vertebrates and selected groups of invertebrates, and the draft regional Carpathian Red List on the status of these groups. Similar fact sheets for the Carpathian List of invasive alien species enable us to prepare the starting point for future studies on the trends of invasive species, and can influence measures taken on regional and national policy level for a better management and impact mitigation measures. In this project, limited time and resources were available and only a certain number of selected groups of “flagship” animal groups of invertebrates could be assessed which created gaps in the databases and monitoring process. The studied species were recognized as suitable for the assignment of the IUCN Red List Categories and at the same time included in the annexes of the EU directives and the Bern Convention. For the purpose of compiling the Carpathian List of Invasive Alien Species (IAS), already existing flora and fauna were compiled to establish the Carpathian List of IAS. This list was based on available data and within limited time and resources available in the project there was no ambition to provide a complete list of alien species in the Carpathians with the information on their status. Species identified as invasive in one of the Carpathian countries were assessed as candidates for the Carpathian List only. The List covers vascular plants, vertebrates and selected groups of invertebrates.

Brief situation analysis in the Dinaric Arc region

The countries of the Dinaric Arc generally lack proper biodiversity monitoring capacities. Data are often fragmented, unverified or outdated. Apart from the two EU member states of the region (Slovenia and Croatia) and Serbia as the one who inherited the Yugoslavian biodiversity

monitoring system, none of the other Dinaric Arc countries have National Red Lists of threatened species done in accordance with internationally recognized principles and criteria. Also, only the EU member states countries have databases on alien and invasive species, while threat of AIS is clearly identified in all countries' NBSAPs .

Recommendations for priorities and measures for the result transferability

The Dinaric Arc Red List of threatened habitats and species, including at least basic data on flagship species and most important habitats as was the case in the BioREGIO project, would serve as an important step forward in assessing the state of the rich biodiversity of the Dinaric Arc and its conservation. Top-down regional approach in assessing threat status of flagship species of the Dinaric Arc has potential to serve as a kick-start for a more serious national action and protection of threatened species. Also, using the methodology developed for the BioREGIO project, the countries of the Dinaric Arc could join forces in compiling the regional Red List of Threatened Habitats, while the lack of national lists of invasive and alien species may pose a problem in establishing the Dinaric List of Invasive Species on the ground similar to that of the Carpathians.

This kind of a joint exercise in biodiversity information is transferrable to the Dinaric Arc to the extent allowed by the general lack of data and political buy-in. The ideal case would be to build a joint Dinaric Biodiversity Information System as in the case of the Carpathians, but any intervention towards empowering national biodiversity monitoring and information system and networking them into a regional platform would immensely contribute to the conservation efforts in the Dinaric Arc.

Result 2: Regional development opportunities for protected areas and natural assets

Result Overview

To strengthen prosperity of communities in the Carpathians economic development should be based on sustainable use of natural resources and should go hand in hand with nature conservation. Good conditions are given by the fact that the European Union policies are shifting from strict species and habitats conservation towards participatory nature conservation. The study "Regional Development Opportunities for Protected Areas and Natural Assets in the Carpathians" developed during the BioREGIO project helps future entrepreneurs, responsible authorities for regional development and NGOs how to start up such businesses. It is a useful compilation of opportunities, challenges and examples of solutions using the potential of nature and its services for the good of human society and economy. The study on 'Regional development opportunities of protected areas and natural assets in the Carpathians' covers six

sectors, namely tourism, agriculture, forestry, non-timber forest products, fisheries and energy. Good practice examples for each sector were chosen to be included in this study.

Brief situation analysis in the Dinaric Arc region

Challenging past, transitional difficulties and constant political turmoil caused the countries of the Dinaric Arc to be among Europe's poorest. Namely, Bosnia and Herzegovina, Serbia, FYR Macedonia, Montenegro and Albania are the countries with lowest GDP per capita in Europe according to the International Monetary Fund. The region has traditionally relied on abundance of natural resources for its economic prosperity but mismanagement and lack of sustainability measures often led to both economic failures and biodiversity degradation. The developmental potential of nature conservation has never been appropriately examined in the non-EU countries of the region; nature is rather perceived as a provider of goods for industry, energy or agriculture. Nevertheless, this perception is starting to slowly change in the 21. century due to emerging environmental awareness and increased opportunities for tourism development. Protected areas, however poorly managed by the national authorities, do find ways to promote their natural values and benefit from their ecosystem services in a more or less sustainable way. Stronger support for applying participative nature conservation in the Dinaric Arc is needed by both international actors and national authorities.

Within the framework of ENVSEC, UNEP has implemented a number of activities concerning opportunities for protected areas and natural assets in the Dinaric Arc region. UNEP initially has developed a study "Towards Network of Mountain Protected Areas in the Balkans and the Dinaric Arc", which researched the potential of establishing of a mountain protected area network in SEE, identifying key areas. Based on the first study, UNEP further developed three feasibility studies on establishing a transboundary protected Area: "Durmitor-Tara Canyon-Sutjeska", "Sharr/Sar Planina – Korab – Desat/Deshat" and "Prokletije/Bjeskhet E Nemuna Mountains". Furthermore, UNEP has developed a Green Economy Study for three countries in the region: Serbia, Bosnia and Herzegovina and Montenegro, researching the possibilities for development of green economy.

Recommendations for priorities and measures for the result transferability

This result is fully transferrable from the Carpathians to the Dinaric Arc context. All six sectors covered in the BioREGIO study (tourism, agriculture, forestry, non-timber forest products, fisheries and energy) play an important role in the development prospects of the Dinaric Arc, both as current drivers of environmental degradation and potential opportunities for a sustainable growth, if the principles of green economy are applied. Moreover, UNEP already has built a foundation of work on the nature protection and establishment of the protected areas in Dinaric

Arc region as well as green economy studies, which would make a strong basis for further activities.

The methodology used for the Carpathian study is applicable to the Dinaric Arc: in the case of a regional study for South-Eastern Europe, same elements are needed (policy review, stakeholder analysis, gap analysis) as well as application of similar sustainability criteria. Since innovativeness is not common in current nature conservation management in the Dinaric Arc, using good case studies and examples from the EU would surely be beneficial to practitioners in the Dinaric Arc. Through introduction of participatory nature conservation that benefits local livelihoods, the region could profit from more than just developmental opportunities – it would change perceptions about nature and the ways of dealing with it.

Result 3: Sustainable financial mechanisms and innovative economic tools for protected areas and natural assets

Result Overview

This BioREGIO study analysed the financial mechanism and innovative economic tools for protected areas and natural assets. This study aimed at providing an overview on the financial situation of protected areas in the Carpathian region, on the basis of available data and information. Furthermore, it reflected on further financial possibilities, taking other regions into consideration. The revealing conclusion of the study is that several parks in the Carpathians cannot deliver their expected outcomes even under a basic management scenario. A more diverse portfolio of financial source could help ensure the sustainability of PAs in the long term perspective. Achieving a diversification would require changes in the legal and administrative system.

Brief situation analysis in the Dinaric Arc region

The non-EU countries of the Dinaric Arc generally face severe lack of resources and know-how in managing their protected areas. Many protected areas suffer a major lack of government support in both direct financing and developing opportunities for sustainability. Values of the ecosystem services have not been assessed properly in any of the Dinaric Arc protected areas yet, and financial planning is usually done in a non-participative manner. That leaves the protected areas often vulnerable to external pressures and forces them to find alternative sources of income which in some cases are not in line with the PA's conservation role. Ecosystem services valuation of protected areas in the region has never been done. All PAs are dependent on public funds apart from the few examples in the EU member states and private funding sources are rare and mostly concentrate on profitable touristic activities.

Recommendations for priorities and measures for the result transferability

The most important needs of the PAs in the Dinaric Arc correspond to those in the Carpathians: more funding sources for infrastructure and facilities, more freedom to contract external providers, also using open bids and auctions, more freedom and clearer rules on how to manage partnerships with other organisations and more flexibility in managing staff contracts. New financial mechanisms and tools for managing protected areas in a self-sustainable way are needed, as well as policy and regulatory framework adaptation to the realities of a new era in nature conservation practice. The proposed financial mechanisms elaborated in the BioREGIO study like water user fees and CO₂ capture and storage could easily find their place also in the Dinaric Arc given a proper analysis of costs and benefits and central levels' shift in the PA management style.

Result 4: Common Integrated Management Measures

Result Overview

The study “Common Integrated Management Measures for Natural Assets and Protected Areas in the Carpathians” promotes the harmonized management of natural assets and protected areas including Natura 2000 sites in the Carpathians by involving all relevant stakeholders and by building on the existing framework of cooperation of the Carpathian Convention, its Biodiversity Protocol and other related transnational networks and initiatives. The study includes four main sections related to each of the focal areas (biodiversity assets): forests, high nature value grasslands, wetlands and large mammals. Each of these sections has a similar structure; first, it provides an overview of the current status of the asset in the Carpathians, its various subunits, its values and the threats it faces. It then specifies the basic strategic framework for future management of the asset based on the assessment and on the current policy framework. Finally, each section specifies a number of common integrated management measures (CIMMs) for the asset. The study also includes a large number of case studies from the region highlighting examples of good practice, major issues faced in the management of species and ecosystems and outcomes of major projects.

Brief situation analysis in the Dinaric Arc region

Apart from individual PA efforts to improve the knowledge base on managing their biodiversity assets, both region as a whole and majority of the countries themselves lack a systematic set of management measures for nature conservation. Some sectoral policies, such as forestry, tend to overtake the mandate of environmental authorities in managing natural assets of high biodiversity value thus holding back integrated conservation efforts. Especially the wetlands in

the region face numerous pressures and their state is in rapid degradation, therefore mainstreaming conservation measures for these ecosystems is a high priority. Because of this, there has been a number of international initiatives to protect the karst and wetland ecosystems, such as Livanjsko Polje, Hutovo Plato, Skadar lake being proclaimed a RAMSAR site, however a lot of work still needs to be done in management of protected areas.

Recommendations for priorities and measures for the result transferability

Common integrated management measures study for natural assets and protected areas in the Dinaric Arc could prove to be a useful tool for strengthening conservation management in the region. There have been several attempts from international organizations to kick-start this process previously on the regional level. However, the first step before integrating conservation management is actually building it from scratch – many of the countries lack basic infrastructure in their PAs, suffer from political pressures and overlooked illegal activities and do not have sufficient expert staff to implement conservation measures in a proper manner. Strengthening long-term sustainability and all capacities of conservation authorities would be the first step towards implementing CIMMs in the region. No study on values and threats to biodiversity asset can be made without sufficient data and monitoring tools and these often lack in the countries of the Dinaric Arc.

Result 5: Continuity and Connectivity in the Carpathians

Result Overview

Ecological connectivity is 'the degree to which the landscape facilitates or impedes daily wildlife's movements among resource patches'. In BioREGIO the analysis of connectivity is based on a GIS model completed by site visits in pilot areas. The visits aimed to validate the identified corridors and barriers blocking movements crucial for ecological and evolutionary processes. The species requiring large habitats are more affected from barriers concerning transportation infrastructures (current or foreseen), illegal urban sprawl, road kills due to the absence of fences or lacking mitigation structures on motorways and from low ecological awareness among authorities and local people. Additional barriers, with different effects in different countries have been identified in habitat transformations, the shifting from extensive to intensive agriculture, poaching and hunting and in intensive forestry practices. Detecting barriers to movement complements traditional connectivity analyses and could bring to the identification of removable barriers and to detect those corridors that are not good enough to realistically support movements. A cost-benefit analysis would be necessary to integrate connectivity restoration into systematic conservation planning analyses aimed at optimizing conservation investments. Knowing where barriers have the greatest impact would help practitioners decide where and how to invest scarce conservation resources to conserve and

enhance connectivity. The study provided a description of the state of several mammal species in the Carpathians and produces the Carpathians Habitat Suitability Model for each of them (grey wolf, brown bear, Eurasian lynx, European otter, Western Capercaillie, chamois and European hare).

Brief situation analysis in the Dinaric Arc region

The region of the Dinaric Arc harbors complex and dynamic ecosystems of high biological diversity as well as numerous endemic, relic, rare and threatened flora and fauna species, including species of the common European importance. One of the major threats to habitats and species and main causes of the decline in biological diversity in the region of the Dinaric Arc is the fragmentation and isolation of habitats. The continuity and connectivity of habitats and protected areas require transboundary linkages, ecological corridors which link protected area networks of neighboring countries. In a post-conflict region such as this one, linking natural values has benefits beyond conservation, improving cooperation between neighboring communities and intergovernmental agreements.

Socio-economic barriers to conservation are also significant in the Dinaric Arc. The transition towards market economy and post-conflict issues regularly challenge nature protection and negatively influence connectivity.

Recommendations for priorities and measures for the result transferability

Continuity and Connectivity study of the BioREGIO project offers a fine example of how the current obstacles in the Dinaric Arc could be addressed and properly diminished for both physical and legal barriers in nature conservation. The analysis of connectivity of habitats based on a GIS model done in the BioREGIO project could easily be implemented in selected pilot areas in the Dinaric Arc as well, for several flagship species. Detecting all physical barriers for free movement of carnivores, for example, has never been done in this region. As suggested by the findings of the BioREGIO project, promotion of ecological connectivity and, on the other, the prevention and avoiding of human – wildlife conflicts are the only ways in which both physical and socio-economic barriers can be minimized.

A number of potential transboundary protected areas in the Dinaric Arc has already been identified and initiated through the Environment and Security Initiative (ENVSEC-SEE). Therefore, Transboundary management plan and pilot actions would be more than welcome in the region, having in mind that several protected areas along borders expressed interest in cooperating in this sense (namely in the Prokletije mountain range).

A Geographic Information System (GIS) that has been set up to support the Carpathian Countries Protected Area Clearing House Mechanism by the BioREGIO project for the **Carpathian Integrated Biodiversity Information System (CIBIS)** might seem as a long

stretch for the Dinaric Arc, considering a general lack of biodiversity data in the region and lack of capacities of conservation authorities, but describing and connecting existing databases and improving current national CHMs to get a better perspective of a regional context might prove a good way forward.