

BioREGIO Continuity & Connectivity

BioREGIO Carpathians aims to enhance integrated management of protected areas and natural assets of the Carpathian Mountains. Thereby it builds on the framework of the Carpathian Convention, its Biodiversity Protocol and other related transnational networks and initiatives.

In the Work-Package (WP) on Continuity & Connectivity, national and local partners and scientific institutions have joined forces to maintain and restore the ecological network across the Carpathians. Due to the extension of roads and human facilities, fragmentation of the ecological continuity is gaining notice in terms of biodiversity loss. Only to modernize infrastructures in the Carpathians, about 1700 km of new motorways are planned. This creates isolated natural areas, limiting dispersal and genetic exchange of some wildlife species. Particularly large carnivores and herbivores react sensitively to landscape fragmentation. To raise awareness for and to bridge gaps along ecological network, the WP on Continuity & Connectivity follows a three-fold approach:

Regarding the physical part the distribution of suitable habitats and the permeability of land-cover for the European Lynx, Chamois, European Otter, Western Capercaillie, European Hare, Brown Bear and Grey Wolf are explored in GIS. Weighting the indicators according to the ecological needs of these umbrella species enables to derive the suitability of land-cover patches (0-100%) for each of them. Based on the proximity to or the presence of an essential ecological factor not integrated yet for the species requested, the first suitability approach can be revised. Finally, to calculate the permeability across complex distributed land-cover patches, a moving window approach in GIS considers the dynamic of neighborhood effects. This model-procedure enables the detection of primary ecological corridors, core areas and stepping-stones in pilot areas and across the Carpathians. To validate the model and the dispersal paths derived for each umbrella species, wildlife observation and presence data are applied.

Besides, socio-economic issues that hinder or foster connectivity are followed here, too. Therefore attitudes and behaviors of particular economic and social fields affecting protected areas, natural assets and landscape fragmentation are analyzed. From the findings, recommendations targeted at stakeholders are established, to promote ecological connectivity at Carpathian and local level.

Additionally legal and policy instruments, which directly or indirectly affect ecological continuity and biodiversity at international, EU, regional, national and sub-national levels are also considered. In particular, legal and strategic acts supporting ecological connectivity are identified here. In parallel legal acts and institutions are focused at that may hinder the protection of habitats and species along the ecological network, if they deal on the same case for different purposes.

Jointly for our common future