

Case studies exhibition – E.C.O. Institute of Ecology



1 Why act here? — “Ecological connectivity in a border area”

Located at the Austria–Italy–Slovenia border, the 3,555 km² pilot area links key protected zones, including Triglav National Park (SI), Prealpi Giulie Nature Park (IT), Nature Park Dobratsch (AT), and several Natura 2000 sites. Ecological corridors—especially between the UNESCO Biosphere Reserve Julian Alps and Dobratsch forests—are vital for species migration. Yet, connectivity is threatened by highways, railways, urban sprawl, and intensive land use in the valley floors. Opportunities arise through cross-park cooperation, regional spatial planning in Gorenjska (SI), and local plan revisions in Arnoldstein (AT), enabling green infrastructure integration and stronger future connectivity.

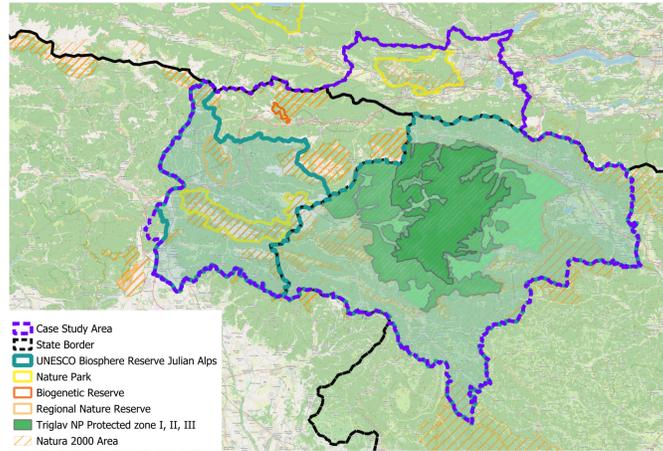


Figure 1: Pilot areas with the three parks

2 Case study objectives

The pilot aims to strengthen ecological connectivity between Triglav National Park, Prealpi Giulie Nature Park, and Dobratsch Nature Park through cross-border collaboration and to tackle species movement barriers. It focusses on building a shared understanding of the international corridor’s importance and on demonstrating how spatial planning can support connectivity. Key outputs include a mapped green infrastructure network, an action plan to reduce development pressures, and proposals to integrate connectivity measures into regional and municipal spatial plans and related planning documents.

PlanToConnect

3 Methodological approach

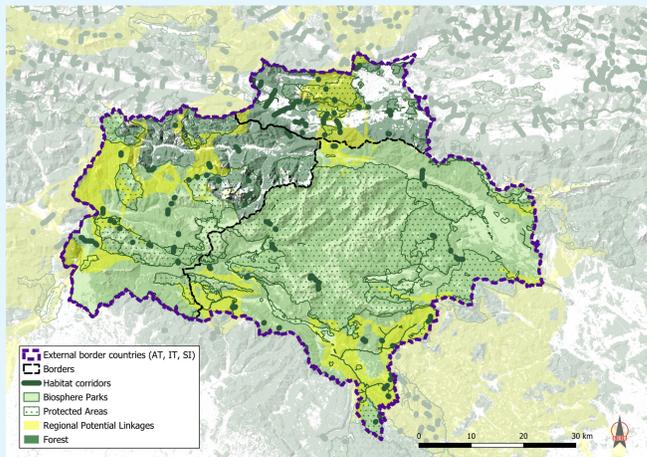


Figure 2: Green infrastructure in the pilot site (harmonized data)



Figure 3: Modelled Corridors, Protected Areas, Bottlenecks and Barriers (marked in red) in the Pilot Area

In the pilot area, key connectivity areas and corridors were identified using GIS-based modelling and least-cost path analysis, supported by the Alpine-wide Structural Connectivity Model, which was scaled down and compared with national ecological corridor data. The analysis integrated CORINE Land Cover (2018) and protected areas including Natura 2000 sites. One important international corridor was analysed in detail. Stakeholder consultations and intersectoral workshops were held in the pilot area to verify the permeability within the corridor and to elaborate ideas for international collaboration and local integration of GBI into spatial plans.

5 From concept to statutory plans

The cooperation between EUSALP and the Alpine Convention (Nature protection and landscape conservation protocol - Art 3) facilitates the conceptual alignment of approaches; however, challenges remain in harmonising implementation across the different Alpine countries. The development of a formal GBI concept in the respective national frameworks is one key step towards implementation at the territorial level.

Planning tier	GBI integration measures
International	With no international planning structures, a formal framework is needed. Options include: (1) an international Corridor Agreement signed by national, regional authorities, the three parks, and border municipalities; (2) a European Grouping of Territorial Cooperation (EGTC) focused on connectivity; or (3) creating a Biosphere Park Component in Austria via a Dobratsch feasibility study.
National/Federal	Establishing alpine-wide ecological corridors in the spatial development strategies of the three countries.
Regional	Establishing strategic protected areas within corridors, integrating GBI in Regional Spatial Plans (SI, IT) and establishing a Biosphere Reserve Dobratsch. Enlarging the Italian component with border communities and revising zoning.
Sub-regional and inter-municipal	The existing park (Nature Park Dobratsch) and the bilateral UNESCO Biosphere Reserve Julian Alp do not have a planning mandate but can take up a role in the coordination of their member municipalities and in the formulation of regional nature conservation goals.
Municipal	Municipal development and land-use plans exist in all three countries and embed GBI through zoning regulations and protective designations. Forest areas shall be kept and incentives for preserving natural features are provided as subsidies by the sector agriculture in open areas. Pilot actions can be addressed for improving connectivity of specific barriers.

6 Governance & stakeholder engagement

The coordination structure is led by three Parks—UNESCO Biosphere Reserve Julian Alps (including Triglav and Prealpi Giulie Nature Parks) and Nature Park Dobratsch—committed to collaboration and continuing the PlanToConnect regional connectivity working group (RCWG). While lacking spatial planning mandates, they pursue nature conservation and sustainable tourism goals and maintain strong ties with national institutions and local communities. They thus provide guidance for regional development aligned with ecological goals. Future transnational workshops with the RCWG will foster cross-sector dialogue, supporting integration of ecological connectivity into spatial plans and future Interreg or Life projects on corridor implementation and landscape restoration.

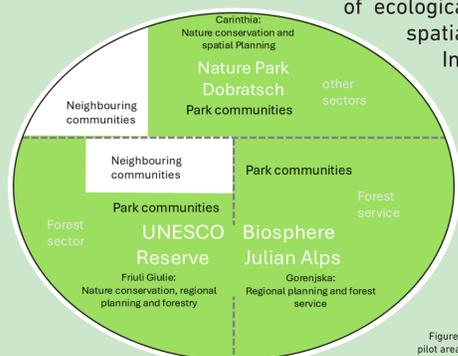


Figure 7: Simplified governance structure in the pilot area for the selected corridor

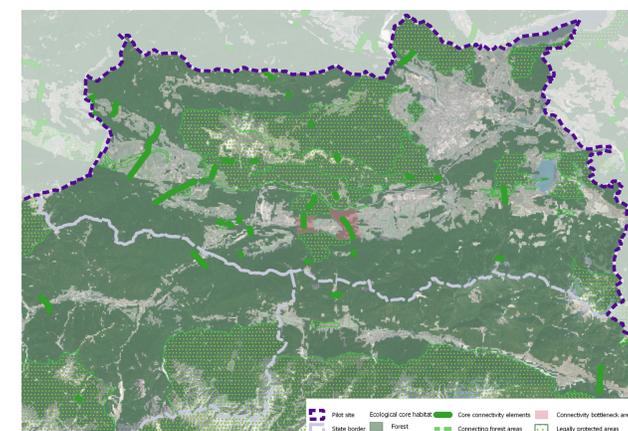


Figure 4: Detail of the corridor area in the border triangle with the bottleneck in the lower Gail valley (marked in red).

4 Pilot design

Spatial analysis in the pilot area was designed to support informed decision-making in spatial planning. After a systematic review of national and regional legislation relevant spatial data, land use, infrastructure, protected areas and ecological features were processed in QGIS to produce thematic maps. These maps visualized pressures and threats reported by members of the transnational regional connectivity working group. The results offer planners a structured overview of vulnerable areas that should be considered in spatial plans at different level.

The concept of ecological connectivity is not yet present in the planning documents of the three states and international harmonizing spatial planning goals have not yet been implemented. The pilot study addresses potential entry points at the international, regional, and local scale.

8 Key messages for planners

1. Harmonize relevant or conflicting development across the border by recognizing the international importance of mapped corridors.
2. Establish formal collaboration between the three parks as a coordinating entity in regional development planning.
3. Integrate mapped corridors and connectivity zones into the spatial plans of each country of the pilot region as part of formal planning layers.
4. Use of detailed municipal spatial plans to secure corridor quality and to implement pilot measures.
5. Align corridor planning with sectoral instruments (e.g. water, agriculture, energy) to ensure cross-sectoral coherence and funding eligibility.
6. Linking spatial analysis to statutory planning tools ensures long-term implementation of green infrastructure.

7 Funding toolbox

Key funding instruments for implementing ecological connectivity in the international context include EU-level programmes such as the Interreg Alpine Space Programme or Life Projects (with respective target species). National funds are available for specific measures: In the Slovenian Rural Development Plan are measures, specifically Measure M10 (agri-environmental and climate measures) and Measure M12 (Natura 2000 and Water Framework Directive payments), that exist for the support of habitat restoration and riparian ecosystem improvements, with prioritisation for farmers in connectivity corridors. In Austria, the Biodiversity Fund offer opportunities for restoring habitats. Agri-environmental schemes are also in place. The Carinthian Spatial Planning Institute offers funding for a landscape module in municipality planning.

