

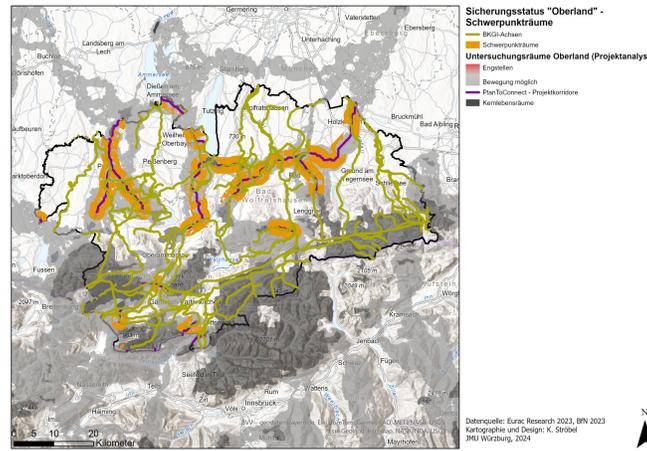
Strengthening the Ecological Network in the Oberland Planning Region

Integrating Green Infrastructure into Regional Planning



1 Why act here? — “Ecological connectivity in Oberland”

The Oberland region of Upper Bavaria stretches between alpine peaks and peri-alpine farmland, linking natural habitats under strong development pressure. The landscape ranges from peri-alpine lowland in the north to valley floors around Garmisch-Partenkirchen to the Zugspitze massif. It is crossed by alpine-wide ecological corridors identified by PlanToConnect, with 62.2 % of priority areas outside any statutory protection. These consist mainly of open spaces (58.46 %) and forests (41.92 %). Pressures derive mostly from settlement growth and transport infrastructure, leisure and tourism but also from renewable energy installations and changes in water regimes. The ongoing revision of the regional plan provides the opportunity to safeguard open spaces and reconnect habitats through the design of a coherent network of green and blue infrastructure.



2 Project goals

The pilot seeks to establish a regional open-space network that restores ecological permeability, integrates alpine-wide corridors into statutory planning, and reduces fragmentation from settlement and energy infrastructure. It aims to deliver practical proposals for embedding connectivity into the Oberland regional plan and to prepare operational guidelines for planners and authorities.

PlanToConnect

3 Methodological approach

Connectivity areas were delineated through a geoanalytical study that overlaid PlanToConnect Alpine-wide corridors with existing national green infrastructure concepts. Priority zones were identified as buffer areas around threatened corridors, focusing on open spaces, forests and agricultural land that safeguard ecosystem functions such as soil retention, water storage, and climate regulation. Indicators concerned permeability, land-take and harmonisation of open space and renewable energy. The analysis classified protection levels of corridors areas into strong, medium, and absent, resulting in a map of binding status by spatial and sectoral plans revealing that a majority of priority areas remain unprotected. This evidence shaped operational proposals tailored to regional planning instruments

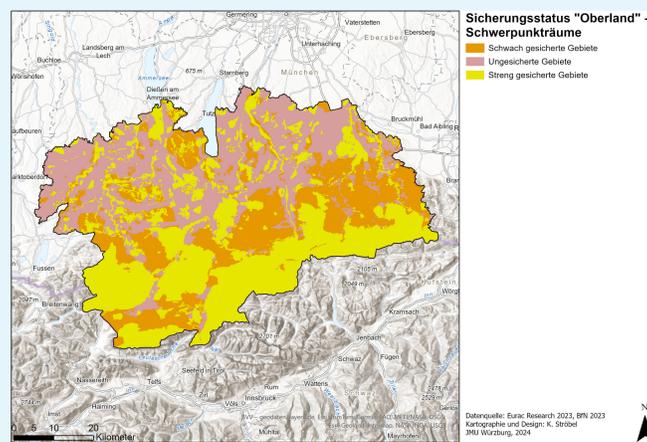


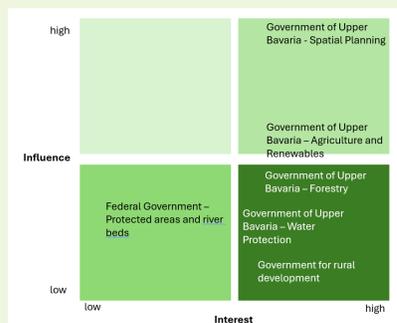
Figure 3: Map of protection status by spatial and sectoral planning

Table 1: Categorization of protection status by spatial and sectoral plans

State of binding protection	Spatial instruments
Strong protection	"Alpenplan Zone C": Nature protection/conservation areas, Natura2000-areas, Priority areas for Water supply, priority areas for flooding areas, priority areas for drinking water
Medium protection	Landscape protection areas, "Alpenplan Zone B": Priority areas for landscape protection
No protection	Remaining areas (incl. "Alpenplan Zone A" and Nature Park Ammergauer Alpen)

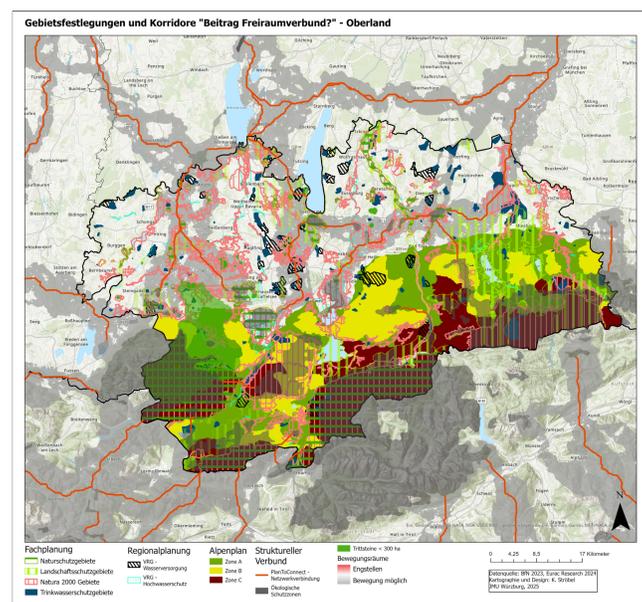
6 Governance & stakeholder engagement

The Government of Upper Bavaria leads the regional plan revision process, supported by sectoral authorities in agriculture, forestry, water management and nature protection. Stakeholders were involved through workshops, surveys and expert interviews. Institutions included regional planning, agriculture and energy departments, forestry authorities, water protection agencies, rural development services, and environmental bodies. Their role was to validate the analysis and co-develop proposals, ensuring integration of open spaces into statutory planning. Ecological data and perspectives should be integrated into planning processes in a more prominent way to ensure long-term connectivity.



STAKEHOLDER DIAGRAM

Stakeholder's institutions	Area's of responsibility and Affectedness
Government of Upper Bavaria, Regional planning	Focus point and Regional public planning authority in charge of elaborating chapters for the regional plan
Government of Upper Bavaria, Agriculture and environmental aspects in agriculture, renewable energy transformation in agriculture	Public authority for environmental discussion in agricultural fields, especially photovoltaic installations in Greenland areas
Government of Upper Bavaria, Forestry and renewable energy transformation in forestry	Public authority involved in forestry, forest functional plans, wind power installations in forest areas
Government of Upper Bavaria, Water protection	Public authority overseeing the implementation and management of water protection areas
Government for rural development Upper Bavaria ("ALE")	Protection of the cultural landscape, mediating and facilitation of local projects
Federal Government for the Environment, Protected Areas and river beds (meadows)	General perspectives on the protection of nature and the importance of ecological connectivity



4 Pilot design

The Oberland pilot concentrates on alpine-wide priority areas and corridors crossing the northern valleys lacking effective protection, where open spaces and forests face conversion into settlement or intensive agriculture. The design prioritizes safeguarding these ecological cores by aligning with existing Natura 2000 sites and protected landscapes while proposing new reserved areas for agriculture, climate adaptation, and landscape protection. Measures include the preservation of riparian zones, reducing settlement pressure, restoring wetlands and bogs, regulation of photovoltaic expansion, and securing multifunctional open spaces that simultaneously serve biodiversity, flood retention, and cultural landscape values. The pilot connects with the Bavarian Nature Protection Law, the Bavarian Landscape Development Programme and the Federal Green Infrastructure Concept, complementing sectoral instruments such as Natura 2000 and water protection areas

5 From vision to statutory plans

At regional level, the analysis suggests an updated Oberland Regional Plan that will introduce a new chapter on open-space networks (GBI network) or elaborate further on the existing chapter for nature and landscape, drawing on the Bavarian Federal Development Program and state-level biotope strategies. At sub-regional scale, our analysis highlights the importance of landscape framework planning that can foster integration of connectivity maps and further sectoral instruments (e.g. flood protection zones) with a specific focus on open space connectivity. New fragmentation should be avoided at all costs, ensuring that connectivity principles cascade through every tier of planning.

Planning tiers	GBI integration measures
Provincial / regional	Inclusion of a dedicated chapter on open-space networks in the Oberland Regional Plan; reserved areas for agriculture, climate adaptation and climate protection; adaptation to the Bavarian federal development programme.
Sub-regional (basin, landscape plan)	Landscape framework planning integrating climate adaptation, nature conservation and open spaces; flood protection priority areas; retention zones for water management.
Municipal (land-use plan, building code)	Zoning for dividing green ("Trenngrün") and settlement management; ecological design standards for renewable energy and agricultural uses.

7 Funding toolbox

Implementation can be achieved through EU programmes such as LIFE or Interreg projects, supported and in coordination with the Bavarian or regional planning authorities. Linking spatial instruments with existing targeted funding will enable the permanent safeguarding of priority open spaces. Examples include compensation measures within open-space networks, local and municipal funding instruments, and distribution mechanisms based on specific areas of need for action ("Räumlich basierter Handlungsbedarf"). Regional and federal schemes can support climate adaptation, flood protection and biodiversity measures. EU funding schemas under the CAP can support agri-environmental and biodiversity measures in agricultural areas.

8 Key messages for planners

The Oberland case demonstrates that safeguarding open spaces is the most effective entry point for securing ecological connectivity. Connectivity is not yet safeguarded in the Oberland regional plan and relies only on coincidental overlaps with sectoral instruments. Reserved landscape areas are too broad and ineffective without clearer criteria. New categories for agriculture, climate adaptation and climate protection offer an entry point to secure multifunctional open spaces. Integration of federal instruments and scientific mapping (e.g. "Schutzgutkarten") can support a coherent framework. Sectoral and regional planning must cooperate more closely, especially in agriculture, renewable energy and water management

9 Next steps / expected impact

The next step is to feed the proposals into the ongoing update of the Oberland Regional Plan. The objective is to adopt a new chapter on GBI networks (or upgrading existing chapters) and to integrate new spatial categories, including agriculture, climate adaptation and protection. Implementation will have to focus on safeguarding corridors and multifunctional open spaces, while monitoring will have to address fragmentation risks, renewable energy conflicts and water management functions.

