

Bartol, Blanka et al.

Research Report

Safeguarding open spaces in the Alpine region

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Positionspapier aus der ARL 133

SAFEGUARDING OPEN SPACES IN THE ALPINE REGION

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SAFEGUARDING OPEN SPACES IN THE ALPINE REGION

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A group of members of the *AlpPlan* Alpine spatial planning network elaborated this position paper. It contains assessments and recommendations related to key spatial challenges of transnational relevance in the Alpine region. It generally refers to the entire Alpine macroregion (EUSALP perimeter). However, some issues are particularly relevant to the core Alpine area, defined by the Alpine Convention perimeter. The paper is addressed to spatial planners, decision makers and all stakeholders involved in sustainable territorial development of the Alpine region. The specific circumstances, spatial planning systems and instruments in the various Alpine states and regions differ to some extent. Therefore, the recommendations should always be interpreted in the respective national, regional or local context.

1 The role of open spaces for spatial planning

Definition and problem statement

The open space concept¹ refers to areas which are kept free permanently from buildings, technical infrastructures and soil sealing. This approach focuses on open spaces outside continuous settlements (excluding inner-urban green spaces from the scope of this paper) in order to highlight the importance of open spaces on a landscape level (Job/Mayer/Haßlacher et al. 2021). According to the respective scale of analysis, different types of open spaces can be classified. For this position paper, we focus on two types (cf. Fig. 1):

- > **A: Large-scale continuous open spaces** in areas which feature a low share of technical infrastructure and built-up areas (usually in higher altitudes, as core areas of a green infrastructure network).
- > **B: Small- or mid-scale open spaces** in proximity to settlements and other forms of intensive anthropogenic land use (usually on valley floors, serving as corridors of a green infrastructure network).

Open space planning is not an isolated subject but is rather considered an integrated part of comprehensive spatial planning. Open spaces and their services are threatened by continuous land take and landscape fragmentation in many parts of the Alps. The open space concept focuses on investigating the extent and structure of unbuilt spaces and safeguarding them from (further) urbanisation and fragmentation. It is closely related to the concept of green/blue infrastructure (European Commission 2021), which defines the qualities and functions of open spaces. The special importance of open spaces in disaster prevention should be emphasised, especially in view of climate change and the increasing number of heavy rainfall events and resulting floods, avalanches and mudslides. Space for permanent settlements and economic activity is scarce due to the Alpine topography, leading to considerable land use competition. Thus, there is the need for tailored planning strategies for open spaces, which differ to some extent from spatial planning for non-mountain areas.

¹ With the broad concept of open space, we aim to address similarities between a variety of different (normative) planning concepts in Alpine space, which cannot be addressed individually in a transnational position paper. These include similar concepts such as e.g. “sistema rurale-paesistico-ambientale”/ rural-landscape-environmental system (Regione Lombardia, IT) or “espaces naturels, agricoles et forestiers”/ natural, agricultural and forest spaces (France). In some Alpine countries, open space has no equivalent legal meaning.

Open space functions and services

Although from an analytical perspective they can be defined by the absence of buildings, technical infrastructure and soil sealing, open spaces are much more than just “residual spaces” (compared to intensive human land use, e.g. for settlement, industry and transportation). They comprise a wide range of ecosystem services, therefore providing substantial benefits for ecology, economy and society. Besides offering habitats for animals and plants, open space functions such as ecological connectivity (linking core habitats by e.g. preserving stepping stone biotopes and migration corridors), natural hazard prevention (e.g. for flood retention) and climate regulation (e.g. cold air production), as well as local/regional identity need to be taken into consideration by spatial planning. Other open space functions, which are not considered sufficiently in planning decisions, comprise e.g. agricultural production (scarcity of high-value farmland in the Alps), nature-based recreation (not only for touristic purposes, but also for local outdoor recreation) and the intrinsic value of near-natural areas. Moreover, spatial planning should not focus on individual services, but rather aim to integrate multifunctional potentials (Selman 2009).

Relation to international treaties and European spatial strategies

For 30 years, the Alpine Convention has represented the international legal framework for the territorial development of the Alps, and its implementation protocols have been ratified by most Alpine states. Several protocols (e.g. Spatial Planning and Sustainable Development, Tourism, Nature Protection and Landscape Conservation, Soil Conservation) have a direct impact on the issue at hand and need to be implemented more stringently. In addition to direct requirements, such as the establishment of quiet areas² and natural limitations to development³, there are also process-related requirements, such as cross-border cooperation in the preparation of spatial plans and programmes⁴. Also, the EU-SALP macroregional strategy plays an important role in the field of spatial planning. In the *AlpGov2* project, different action groups are jointly developing the cross-sectoral implementation initiative on spatial planning for a common territorial perspective.

The topics of spatial planning, open spaces and their various functions relate to several EU policy fields and documents. A very direct connection can be seen with the Territorial Agenda 2030, which explicitly mentions the loss of open spaces, biodiversity and fertile soil as well as negative impacts on the functioning of ecosystems because of increasing land take, soil sealing and urban sprawl. The importance of strategic spatial planning is highlighted and strengthening the territorial dimension of sectoral policies at all governance levels is called for. In the EU Biodiversity Strategy for 2030, changes in land use are named as one of the five main direct drivers of biodiversity loss. The EU will work on improving and widening the network of protected areas to cover at least 30 % of the territory, and on developing an ambitious Nature Restoration Plan. Building a coherent Trans-European Nature Network is envisaged, with functioning ecological corridors. There are further EU and

² e.g. Art. 10 Tourism Protocol; Art. 9 (4) lit. b Spatial Planning and Sustainable Development Protocol.

³ Art. 9 Tourism Protocol.

⁴ Art. 4 (2) and Art. 8 (3) Spatial Planning and Sustainable Development Protocol.

other⁵ related policy frameworks, which are potentially of relevance for the topics of this position paper, concerning e.g. green infrastructure, soil, agriculture, forestry, rural development and the built environment.

At the global level, the United Nations' New Urban Agenda (2017) advocates, inter alia, sustainable management of resources, including land, proactive approaches, and integrated urban and territorial policies.

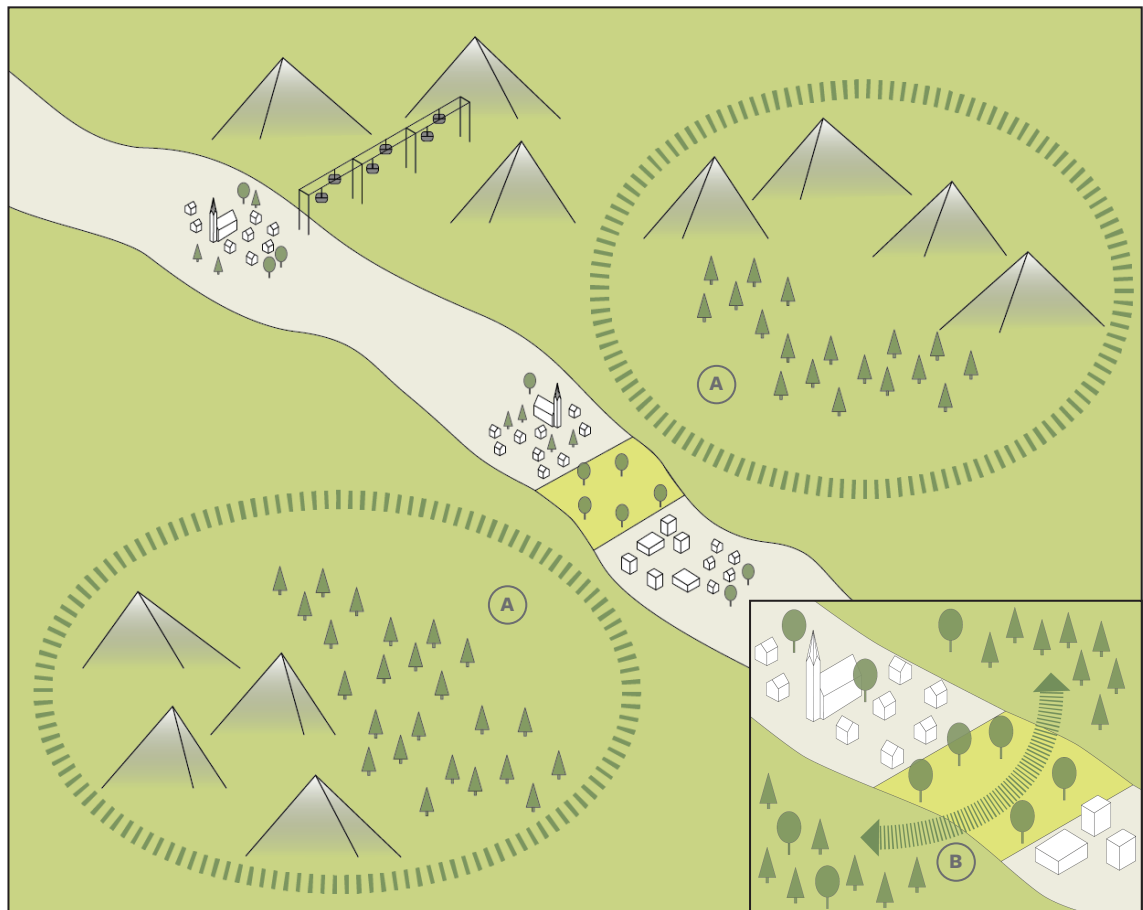


Fig. 1: Schematic visualisation of large-scale continuous open spaces (A) and small-/mid-scale open spaces (B) / Design: Ertl/Schindelegger (TU Wien)

2 Common challenges in the Alpine region

Continuous land take and landscape fragmentation

Although the pace of land use change has slowed down in some Alpine countries, there is ongoing land take for settlement areas and technical infrastructure and the resulting soil sealing. In the first place, this causes the loss of agricultural areas. Depending on the extent of development, it also intensifies landscape fragmentation, which leads to the isolation of natural habitats and the limitation of ecological connectivity. More-

⁵ Another relevant initiative at European level is the European Landscape Convention (ELC), which was initiated by the Council of Europe and aims to emphasise the protection, management and planning of European landscapes from an international perspective. However, not all Alpine countries, including Germany and Austria, have signed the ELC.

over, sprawling settlements require considerable public expenditure, e.g. for maintaining extensive infrastructure. Alpine countries and regions have developed different strategies for limiting land take, through both formal (regulative) and informal (sensitisation, communication, strategies) approaches. We advocate that spatial planning should be more strongly oriented towards the specific qualities and functions of open spaces. Despite ongoing encroachments, the Alps remain the last larger Middle European area where anthropogenic infrastructural impacts have not overwhelmed the natural landscape. Besides ecological arguments, this constitutes a cultural value of its own.

For this purpose, regional databases on open space functions are necessary to raise awareness of the importance of open spaces among politicians and the population. More participation of the local population in the development of new strategies for spatial planning is needed. In doing so, the existing quantitative land-saving targets should not be weakened, but rather complemented by qualitative assessments.

**Characteristics of
Alpine territorial
development, climate
change and tourism**

The Alps feature disparate spatial and demographic developments in different regions. The land use pressure on open spaces is particularly high in growing regions, but open space planning has to be an integrative and holistic effort that also considers shrinking regions with e.g. the phenomenon of fallow land and the abandonment of agriculture and forestry in remote mountain areas.

In general, the scarcity of space for permanent settlement reinforces land use pressure. The role of the Alps as a European biodiversity hotspot requires special safeguarding mechanisms on the interface between nature conservation and spatial planning, particularly regarding the above-average temperature increases and shifts in habitats that climate change is causing in the Alps.

In this respect, the role of tourism as a considerable driver in many regions of the Alps must be emphasized. This is not to criticize soft tourism, in harmony with the needs of nature and the people living there, where start-up financing for new innovative ways to foster local livelihood strategies is a must. It's about mass tourism's function as a significant economic factor in numerous regions with considerable pressure on land for accommodation as well as high end tourist infrastructure, especially in ski tourism (Nischik et al. 2019). Moreover, due to the characteristic Alpine landscape aesthetics covering a huge scenic attractiveness and proximity to peri-Alpine agglomerations, there are steadily growing clusters of second homes in many places in the Alps. This requires concentrated management in order to save land resources as well as to meet the housing needs of the local population.

**“Best practice” and
“awareness raising”
are not sufficient**

In many existing political strategies for the reduction of land take, “soft” instruments such as the dissemination of “best practices” and initiatives for “awareness raising” are put forward as the central strategical elements, targeting mostly municipal land use planning. Even though awareness and knowledge dissemination are important, future strategies need to focus more strongly on scaling up these approaches and establishing binding regulations, thus providing a much stronger framework for regional and local planning procedures.

3 Central messages

Inverting the perspective of spatial planning

In most cases, spatial planning is very much concerned with the needs of the built environment, resulting from requirements for living, working and transport. Without diminishing the significance of this aspect, it is increasingly important to invert the perspective and to pursue spatial planning by considering open space proactively in an integrative and interconnected way.

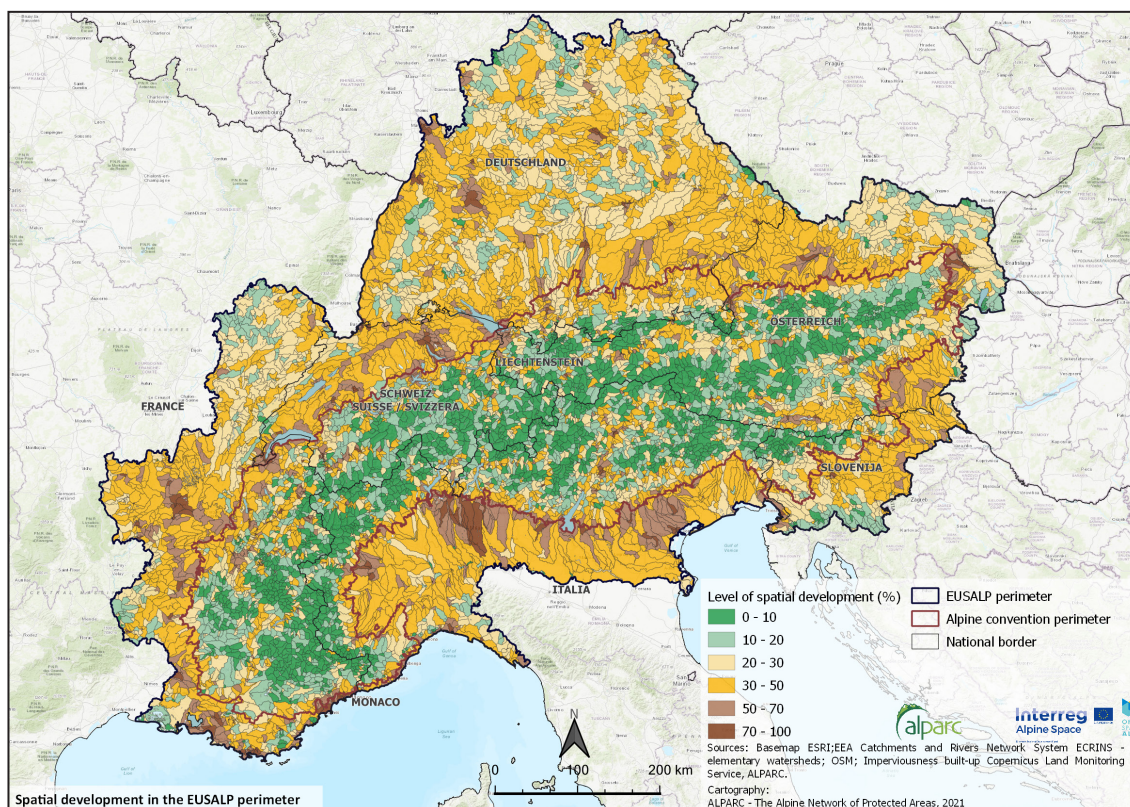


Fig. 2: Comparative analysis of the level of infrastructure development in spatial landscape units (hydrological catchment areas) / Source: Interreg Alpine Space project “OpenSpaceAlps”, Deliverable D.T3.2.1

Safeguarding large-scale continuous Alpine open spaces

The cartographic analysis of the Interreg Alpine Space project “OpenSpaceAlps”, identifying open spaces on the scale of the entire Alps, can be seen as an inventory of large-scale near-natural areas. The method⁶ identifies the degree of infrastructural development of spatial landscape units (hydrological catchment areas) (cf. Fig. 2). Within the EUSALP perimeter (Alpine macroregion), 29 % of the area has been identified as near-natural in the sense that the respective spatial units feature a degree of infrastructural development of less than 20 % (green areas on the map) and therefore a high share (more than 80 %) of (large-scale continuous) open spaces. Most of these areas are located within the Alpine Convention perimeter. We advocate that these remaining near-natural areas must be maintained and therefore deliberately safeguarded by enhanced spatial planning instruments.

⁶ https://www.alpine-space.org/projects/openspacealps/en/project-products/deliverables/wp_t3 (22.02.2022).

Safeguarding corridors in Alpine valleys: Nature-based solutions

In general, agricultural land in the valleys is the type of open space most affected by land take, but not all Alpine regions have developed instruments for its protection. Therefore, particular attention must be paid to the preservation of productive agricultural soils.

In addition, ecological connectivity requires the safeguarding of green corridors on valley floors by spatial planning (to connect the core areas of green infrastructure networks) as a nature-based solution. Ecological corridors for species migration must be identified through data-based analysis and defined in spatial planning documents on the regional and local levels. Corridors and core areas identified in former Interreg projects (e.g. ALPBIONET2030) must be considered as starting points for regionally specified corridors. It is especially important to identify the main green and blue infrastructure hubs and nodes.

Safeguarding corridors in Alpine valleys: Technical solutions

Furthermore, in the valleys that feature major connectivity barriers, such as highways and rail corridors, technical solutions such as green bridges (wildlife crossings) need to be installed to restore ecological connectivity⁷.

4 Planning strategies from a regional/national perspective

Fostering inter-municipal planning

Inter-municipal land use planning should be fostered for a better coordination of land use requirements and open spaces of supra-local significance. Therefore, problem-oriented legal frameworks need to be elaborated to ensure planning coordination at the appropriate administrative level. If there are no legal possibilities for binding inter-municipal land use plans, municipalities should interact in an informal way, e.g. by developing common strategies.

Coordination of protected areas and open spaces

To ensure ecological connectivity between protected areas and nearby open spaces, the surrounding municipalities should elaborate inter-municipal land use plans and landscape programmes. These programmes should define precisely how migration corridors connect open spaces with existing protected areas. Since many scenic protected areas in the Alps are frequented by considerable numbers of tourists, this procedure should also incorporate coordinated visitor management between the affected municipalities. For this task, the relevant municipalities should receive financial and professional support from the superior authorities (e.g. ministries).

Coordination with renewable energy construction

Spatial planning must act in anticipation. It therefore must react in advance to newly arising pressure on open spaces caused by land use conflicts and the new requirements emerging from the green energy transition. Most prominently there is currently growing land use pressure from e.g. solar and wind power plants, which will be built increasingly in open areas of landscape to achieve sufficient renewable energy production. Spatial planning must therefore develop criteria and delimit specific exclusionary areas for the purpose of coordinating such construction and diminishing the impact on land take.

⁷ <https://www.alpine-space.org/projects/alpbionet2030/en/infoservice/alptlas-final-publication-/alpatlas-final-publication> (22.02.2022).

Prioritising redevelopment of land resources

Preserving a considerable amount of open space can only be achieved if housing development is concentrated in proximity to or within existing settlement areas (inner development and densification). When a previous urban land use becomes obsolete, reusing these land resources needs to become a priority (Avoid, Reuse, Minimise, Compensate)⁸. This can include internal conversions between residential and non-residential land use as well as the development of green areas using previously built-up areas, by reversing soil sealing⁹.

The same procedure applies to the issue of obsolete infrastructure, e.g. the reconversion of abandoned ski areas at lower altitudes (under 1500 m with regional differences). Small and low-lying ski resorts in particular will have problems competing in the tourism sector in the course of climate change, despite the economic potential of artificial snowmaking (including negative ecological consequences, e.g. for the Alpine water balance). In addition to planning regulations, land conversion measures should be facilitated by financial support programmes. To make such initiatives more effective, connections between different territorial scales and planning competences must be improved.

Settlement priority areas and fixed delimitation of building zones

A well-balanced development of infrastructure and open spaces with equal consideration of “green/blue” and “grey” infrastructure, requires the definition of priorities for future settlement development. Regional spatial planning documents should define priority areas for settlement development, thus providing binding guidance for local land use planning and therefore helping to reduce sprawl. In addition, planning legislation can also prescribe the delimitation of fixed building zones in which settlement development must be realised, with only a few possible exceptions for building permits outside these zones. A similar procedure was e.g. realised in the revised spatial planning laws of Switzerland and South Tyrol.

Strengthening capacities for municipalities

Conceptual long-term planning is a difficult task in terms of time and knowledge resources. Often municipal administrations have very limited staff capacity in the field of land use planning. Therefore, national, federal state or regional administrations need to make sure that there are sufficient opportunities for the consultation of municipalities. This is essential for creating capacities to ensure knowledge-based land use planning. This might be complemented by compulsory training courses for municipal planning staff and local decision makers. Spatial planning at inter-municipal level should have a positive impact on staff capacities (mutualisation).

8 EU Soil Strategy for 2030
(<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0699>) (22.02.2022).

9 <https://www.eea.europa.eu/data-and-maps/indicators/land-recycling-and-densification/assessment-1> (22.02.2022).

5 Planning strategies from a cross-border/transnational perspective

| | |
|---|--|
| Cooperation for data exchange | The acquisition and management of relevant data should be coordinated across borders in the Alpine region. This refers not only to geospatial data (e.g. on the detection of land use changes), but also to administrative spatial plans and programmes. Especially in bordering regions, spatial planning documents should be exchanged on a regular basis, so that planners and decision makers are aware of the planning specifications of neighbouring regions/states/municipalities. This could be achieved through existing funding and cooperation schemes (such as the European ESPON Programme) as well as existing databases for the collection and sharing of relevant data (e.g. the Alpine Convention Atlas ¹⁰). |
| Institutionalised cross-border consultation and strategic planning | There is a lack of cross-border planning coordination between Alpine countries and regions, e.g. for protected areas and spatial planning for open spaces (Job/Willi/Mayer et al. 2020). Neighbouring border regions should commit to consult each other in (regional) planning procedures. For strongly interdependent bordering areas such as cross-border agglomerations, joint strategic planning documents should be elaborated (e.g. “Masterplan Kernregion Salzburg” in Austria or the cross-border agglomeration programmes in Switzerland), which provide bilateral strategic guidelines for spatial planning. This shall aim to reduce cross-border competition for residents, businesses and retail locations as a driving force for urban sprawl. Rather, such planning decisions should be coordinated across borders in order to determine the most suitable locations in a way that minimises land take. |
| Financial supporting mechanisms | In the context of the existing European Union programmes, there is the need to identify and enhance financial support measures for the sustainable development of open spaces and for the restoration of ecological connectivity (e.g. for implementing green bridges). This issue should be linked closely to the EU’s financial ambitions regarding the Green Deal as well as the Biodiversity, Green and Blue Infrastructure and Soil strategies. It not only affects the field of spatial planning, but is also relevant to other policy fields, e.g. to financial policies through the role of the European Investment Bank. The addressed funding mechanisms should also strive for a balanced development of urban and rural areas. The newly introduced instrument of reciprocity agreements (“contrats de réciprocité”) ¹¹ in France could become a model for strengthening urban-rural partnerships also in other Alpine countries. |
| Enhancement of SEA and EIA | The EU does not wield competences in spatial planning, but its legislation has direct and indirect impacts on spatial planning. Especially certain European directives exert a major influence on the practice of spatial and environmental planning, mainly those on Strategic Environmental Assessment (SEA) and on Environmental Impact Assessment (EIA). “Land” was added as a factor for environmental impact assessments in 2014 (directive 2014/52/EU), but this legislative change did not lead to the more effective tackling of land take due to a lack of appropriate operationalisation with regard to land take targets (Schatz/Bovet/Lieder et al. 2021). A more successful path of implementation could draw on contributions to quantitative targets as well as on consideration of landscape fragmentation and ecological connectivity in environmental assessments. |

¹⁰ <https://www.atlas.alpconv.org/> (22.02.2022).

¹¹ <https://www.cohesion-territoires.gouv.fr/contrats-de-reciprocite> (22.02.2022).

6 Conclusion

It is essential that the remaining near-natural areas, which today cover 29 % of the Alpine macroregion (EUSALP), are maintained and therefore deliberately safeguarded by enhanced spatial planning instruments for biodiversity (ecological connectivity), the reduction of natural hazards (flooding events) and climate change mitigation (CO₂ sequestration), thus considering generations to come. To date, spatial planning has mostly been concerned with the needs and requirements of the built environment, focusing on requirements for living, working and transport. It is increasingly important to invert the perspective and to pursue spatial planning by considering open space in an integrative and interconnected way.

In general, agricultural land in the Alpine valleys is most affected by land take. Therefore, particular attention must be paid to the preservation of productive agricultural soils. In addition, ecological connectivity requires the safeguarding of green corridors on valley floors to connect the core areas. Ecological corridors must be identified through data-based analysis and defined in spatial planning documents at regional and local levels. Furthermore, in valleys that feature major connectivity barriers, technical solutions such as proper green bridges (wildlife crossings) need to be installed, to restore ecological connectivity.

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Glossary

Alpine Convention:

“In the 1990s, the Alpine Convention was a pioneer of its kind by being the world’s first international treaty considering a transnational mountain area in its geographical entirety. The Convention was signed by the eight Alpine countries: Austria, France, Germany, Italy, Switzerland, Liechtenstein, Slovenia and Monaco and the European Union and came into effect in 1995.” (<https://www.alpconv.org/en/home/>)

Ecological connectivity:

“Ecological Connectivity is the unimpeded movement of species and the flow of natural processes that sustain life on Earth.” (<https://www.cms.int/en/topics/ecological-connectivity>)

Ecosystem services:

“Throughout the past decade, the topic of ecosystem services (ES) has become extremely popular in research, resulting in a huge variety of definitions and terms. For example, ES are defined as benefits people obtain from ecosystems (MEA, 2005); or the direct and indirect contributions of ecosystems to human well-being (TEEB 2010), among others.” (<https://www.alpine-space.org/projects/alpes/en/about/about/ecosystem-services>)

EIA:

Environmental Impact Assessment (more information: https://ec.europa.eu/environment/eia/index_en.htm)

ESPON:

European Territorial Observation Network (more information: <https://www.espon.eu/>)

EUSALP:

EU Strategy for the Alpine Region (more information: <https://www.alpine-region.eu>)

Green Infrastructure:

“Green infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation.” (https://ec.europa.eu/environment/nature/ecosystems/index_en.htm)

Land take:

“The land take indicator addresses the change in the area of agricultural, forest and other semi-natural land taken for urban and other artificial land development. Land take includes areas sealed by construction and urban infrastructure, as well as urban green areas, and sport and leisure facilities.” (<https://www.eea.europa.eu/data-and-maps/indicators/land-take-3>)

Landscape fragmentation (seff):

“The Effective Mesh Density (seff) is a measure of the degree to which movement between different parts of the landscape is interrupted by a Fragmentation Geometry (FG). FGs are defined as the presence of impervious surfaces and traffic infrastructure, including medium sized roads. The more FGs fragment the landscape, the higher the effective mesh density hence the higher the fragmentation.” (<https://www.eea.europa.eu/data-and-maps/indicators/mobility-and-urbanisation-pressure-on-ecosystems-2/assessment>)

SEA:

Strategic Environmental Assessment (more information: <https://ec.europa.eu/environment/eia/sea-legalcontext.htm>)

Spatial planning:

“Spatial planning is the public task of coordinating the demands for the use of spaces in an interdisciplinary, integrated way. It is formalised through the multi-level system of comprehensive spatial planning and has always been closely interrelated with spatially relevant sectoral planning. In addition, the dovetailing with spatial development based on soft steering approaches is gaining importance”. (https://www.arl-international.com/sites/default/files/dictionary/2021-09/spatial_planning_raumplanung.pdf)

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- 130 **Ländliche Räume in NRW – Räume mit Zukunftsperspektiven – Schwerpunktthema „Wohn- und Siedlungsentwicklung“ – Teil-Positionspapier 2.**
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- 129 **Ländliche Räume in NRW – Räume mit Zukunftsperspektiven – Schwerpunktthema „Wirtschaft und Arbeit“ – Teil-Positionspapier 1.**
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- 127 **Onlinehandel und Raumentwicklung – Neue Urbanität für alte Zentren!**
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- 126 **Kommunal Finanzen in und nach der Covid-19-Pandemie.**
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- 125 **Rethinking the provision of public services and equivalent living conditions – Perspectives and fields of action.**
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