



**Interreg**  
**ADRION**  **ADRIATIC-IONIAN**  
European Regional Development Fund - Instrument for Pre-Accession II Fund

**DINALPCONNECT**  


# Spatial analysis of EC between the Alps and Dinaric mountains

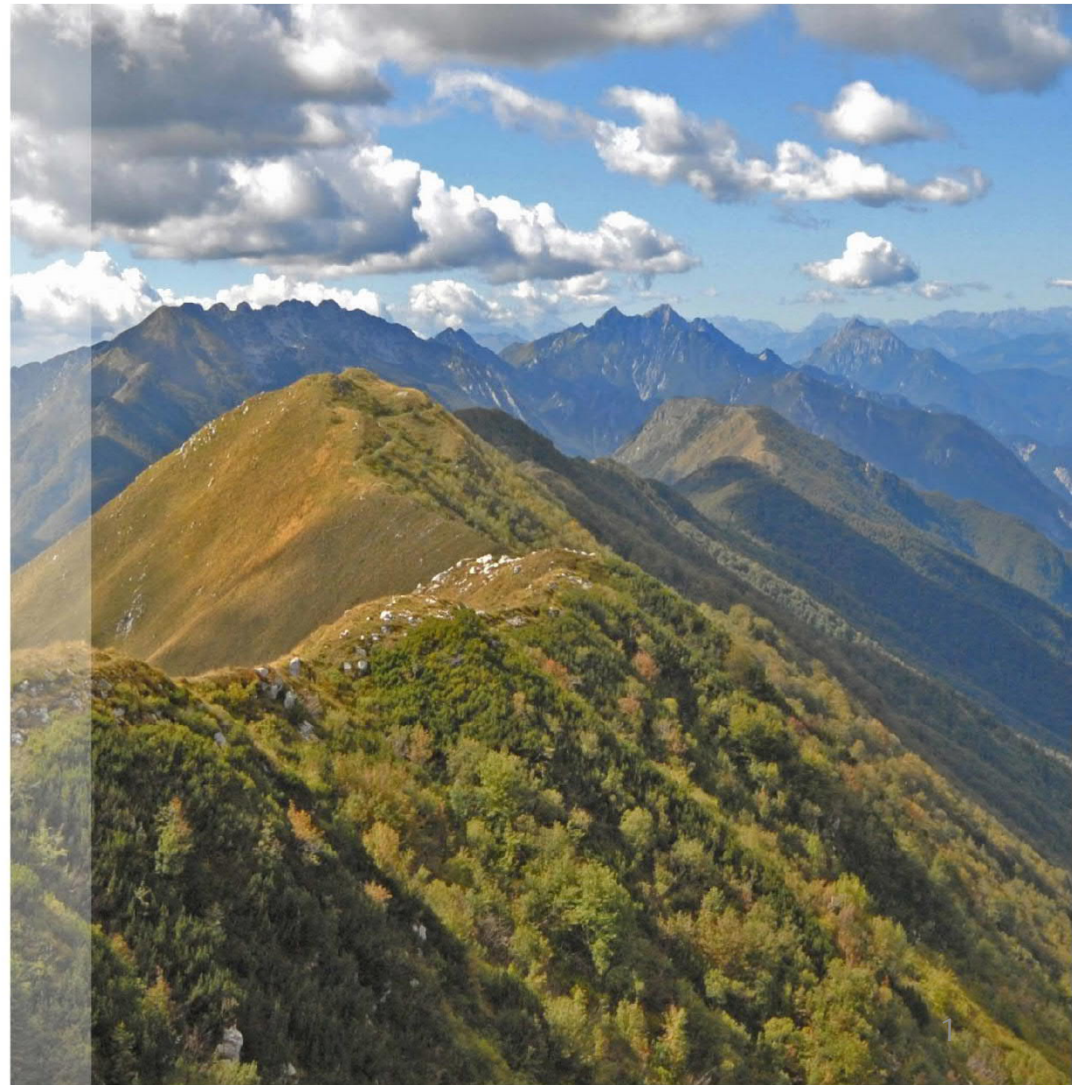
SAVE GREEN final conference,  
07<sup>th</sup> of December 2022

Filippo Favilli, Peter Laner,  
Institute for Regional Development

**eurac**  
**research**

Bolzano, Italy

Interreg V-B Adriatic-Ionian Cooperation Programme



# Ecological Connectivity between the Alps and Dinaric mountains



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## Problems:

- Boundary barriers because of political circumstances, Climate change

## Objectives:

- Strengthen transnational cooperation
- Assessment of ecological connectivity

## Research questions:

- Which are the priority areas and main barriers for ecological connectivity?
- Which are the most important linkages?
- How to protect the macro-regional south - north connection?
- Method: Building on AlpBioNet2030 & BioRegio

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# Macro-regional model The Continuum Suitability Indicator (CSI)

## Land use/ Land cover

Landscape type  
(e.g., urban area, forest)

## Population

Population pressure (density)

## Environment

Protected areas, (legal status)

## Fragmentation

Roads & railways,  
(effective mesh size)

## Topography

Altitude and slope (masl,°)

Raster 100 x 100 m



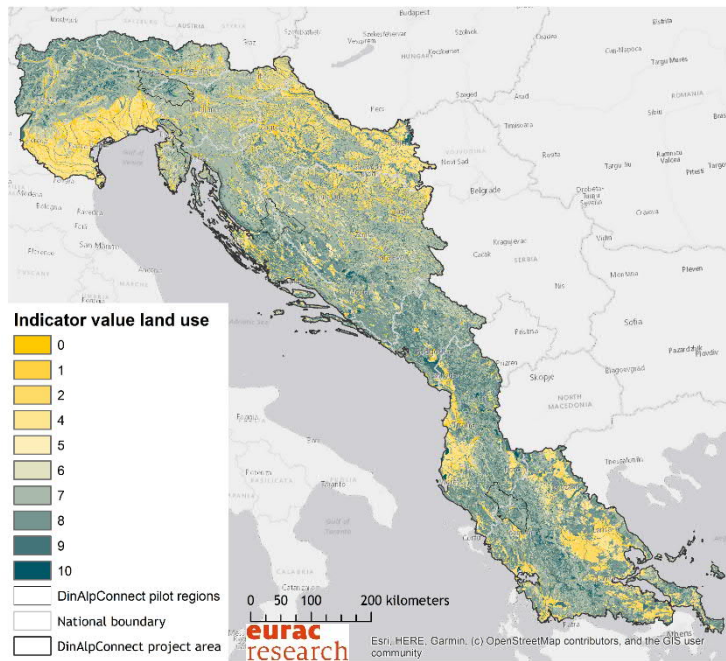
## Evaluation 0 - 10

0 = Low permeability  
10= High permeability

$$CSI = \frac{2*LAN + 2*POP + ENV + FRA + TOP}{7}$$

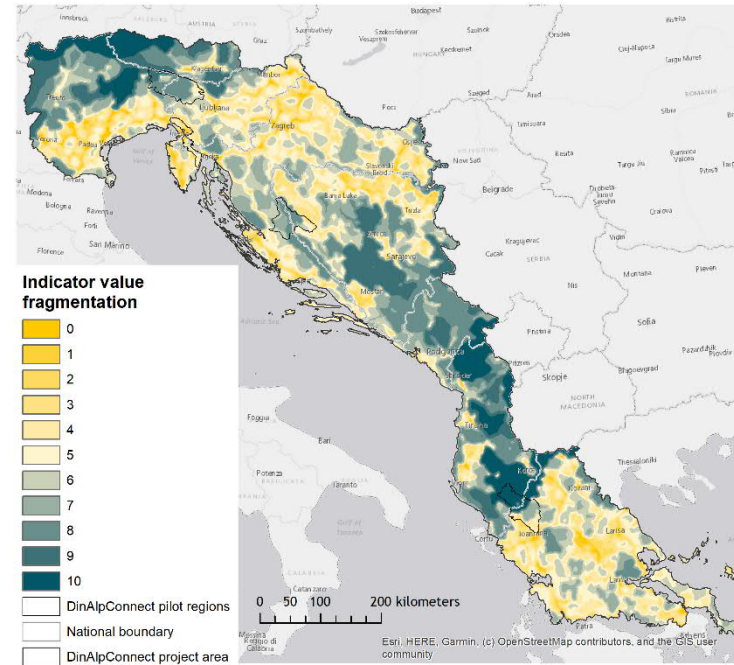


# Macro-regional model Land use & Fragmentation



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 Cartography: Peter Laner  
 Date: 04.11.2021

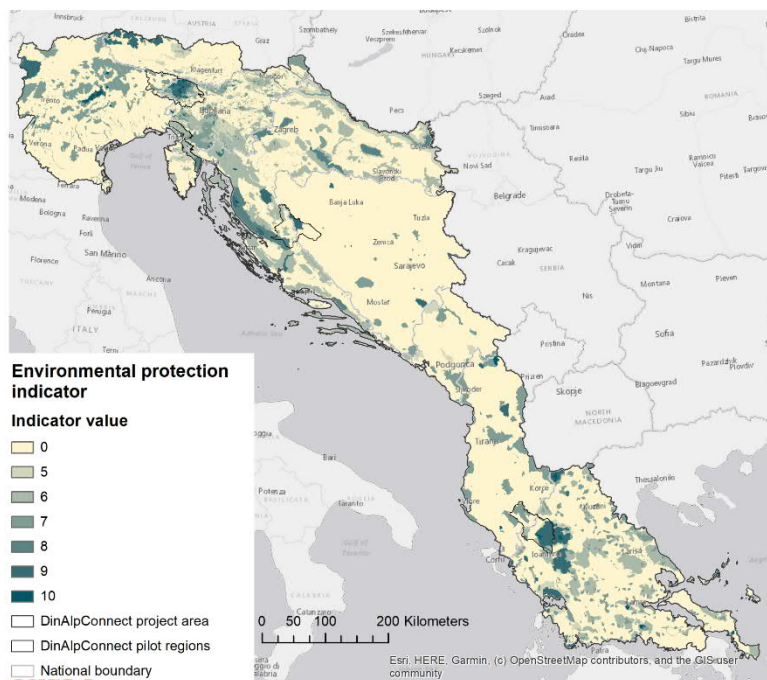
Sources: Landcover indicator based on Corine Land Cover 2018; Eurogeographics 2019, OpenStreetMap Contributors, Faculty of Natural Science, department of Geography Sarajevo; Administrative boundaries: Eurostat/GISCO 2016; Basemap: ESRI ArcGIS.



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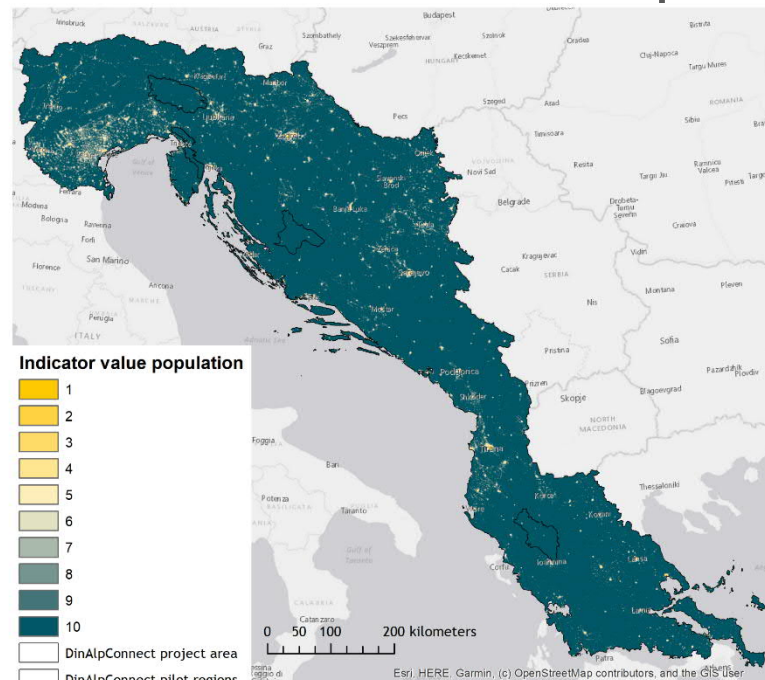
Sources: Fragmentation indicator based on European Global Map of Eurogeographics 2019, OpenStreetMap.org & geofabric.de 2020, Repository of CenerZ1, Corine Land Cover 2018; Administrative boundaries: Eurostat/GISCO 2016; Basemap: ESRI ArcGIS.

# Macro-regional model Env. Protection, Population



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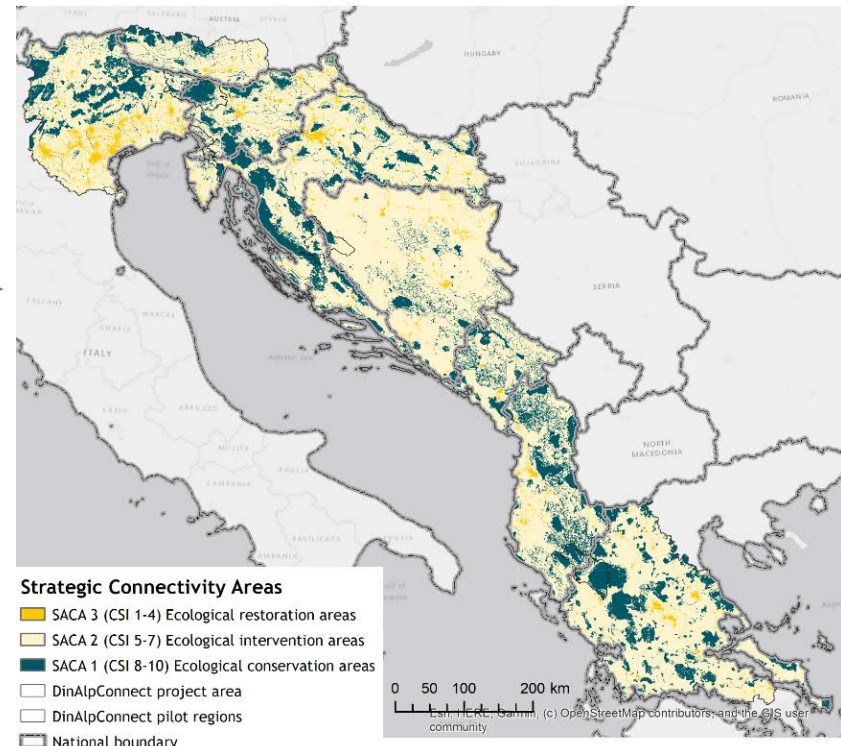
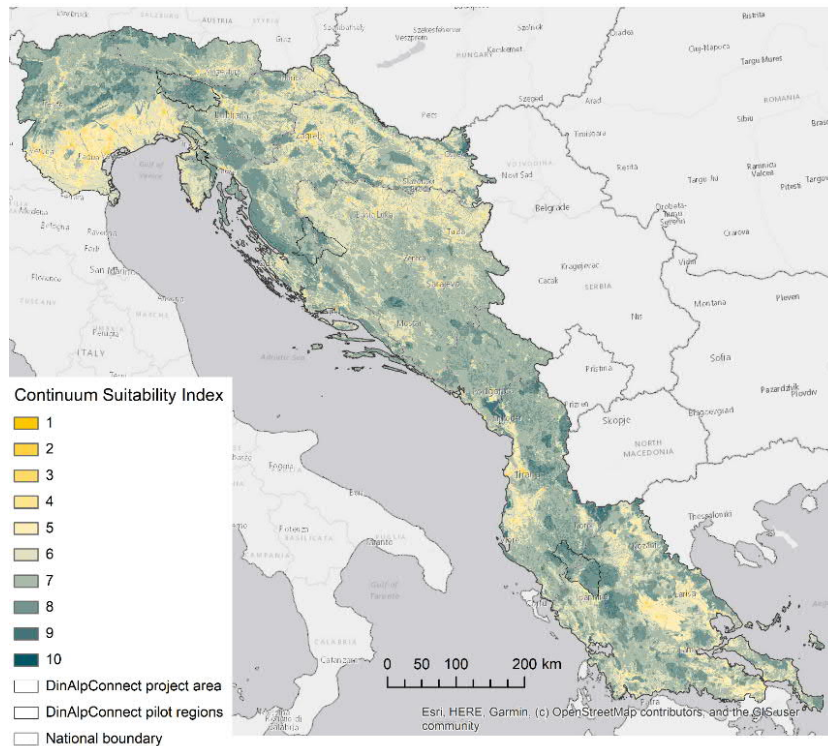
Sources: Environmental protection indicator based on World database of protected areas, CDDA and national data repositories; Administrative boundaries: Eurostat/GISCO 2016; Basemap: ESRI ArcGIS.



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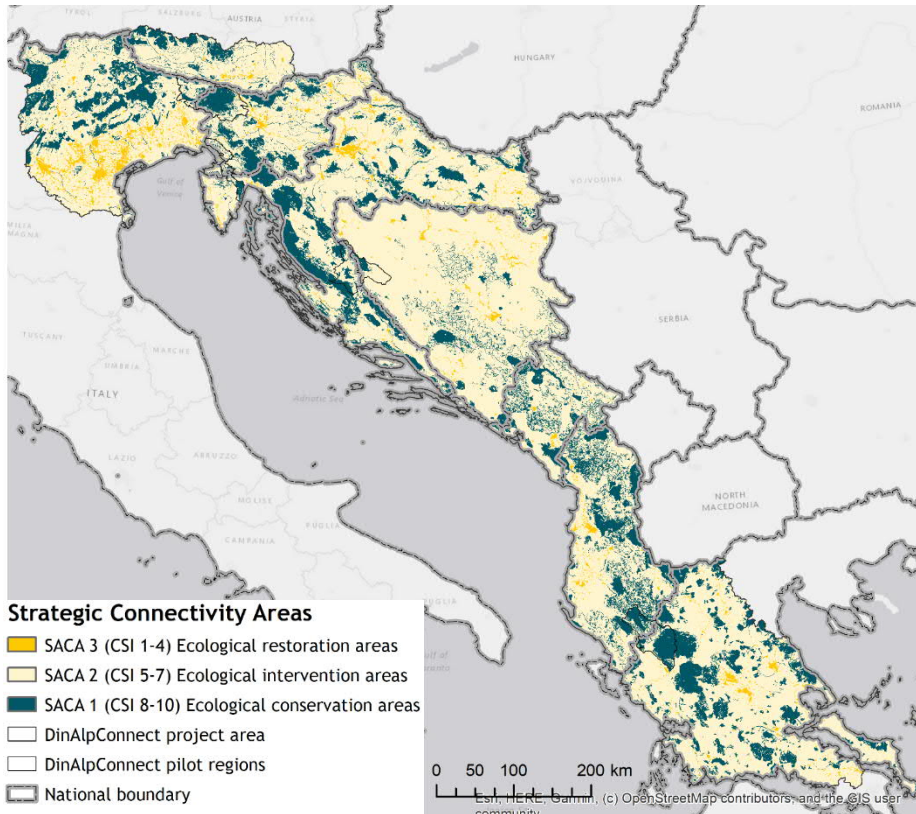
Sources: Population pressure based on GESOSTAT Population Grid 2011, DEGURBA dataset 2018 and national statistical offices; Administrative boundaries: Eurostat/GISCO 2016; Basemap: ESRI ArcGIS.

# Macro-regional model CSI and SACA





# Strategic Connectivity Areas (SACAs)







Ecological Restoration Areas (barriers)

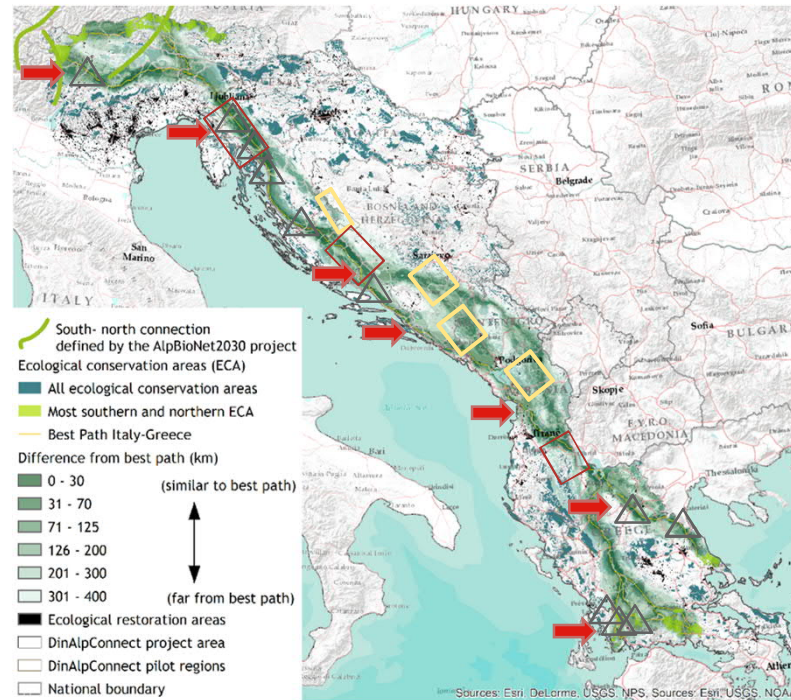
Ecological Conservation Areas (high permeability)

- 82% are protected
- Half of them have a transnational characteristic
- Clear difference between EU and Non- EU countries in protection and fragmentation/ intensive land use
- Border- problems

Ecological Intervention Areas (corridors)

# EC - Assessment Macro-regional connection

- Least Cost path between Slovenia and Albania remains stable
- 3 bottlenecks (small width) 
- Missing protected areas on the corridor in Non-EU countries 
- Most motorway-barriers found in Croatia (4) and Greece (5) 
- Linkage passing through intensive agricultural areas 





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# EC - Assessment Regional linkages

416 linkages of regional importance

Threats:

- 22 linkages at risk by new motorway construction (SI, BHI, ME)
- 73 linkages (23%) at risk by urbanization

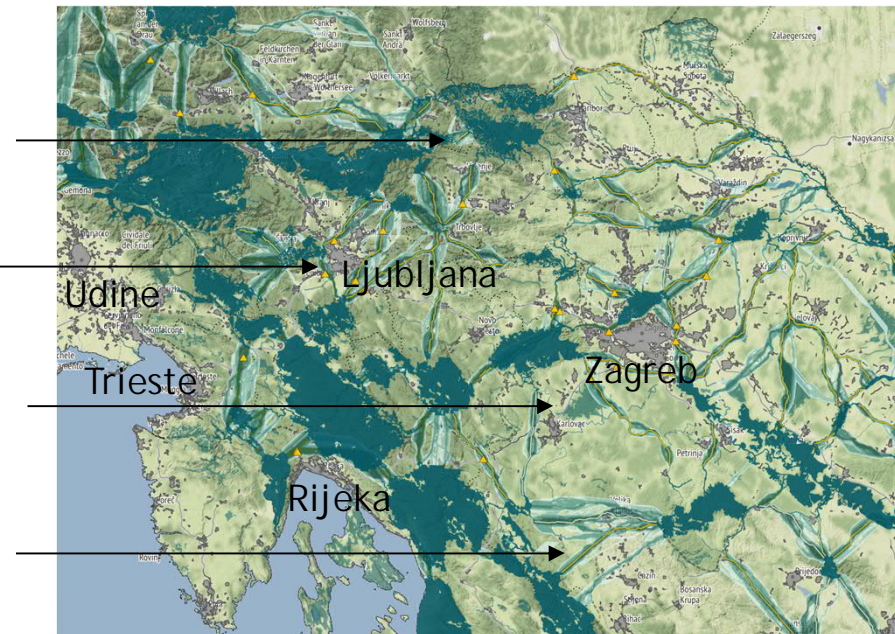
Opportunities:

- Half of linkages are passing through protected areas,
- 65 are transnational

Barriers:

- 198 linkages passing through intensive agricultural areas
- 60 physical motorway intersections

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Motorway barriers



Ecological Restoration Areas



Ecological Conservation Areas



Stepping stones

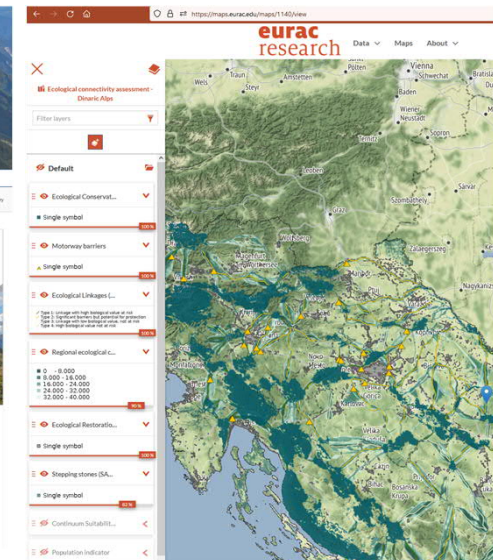
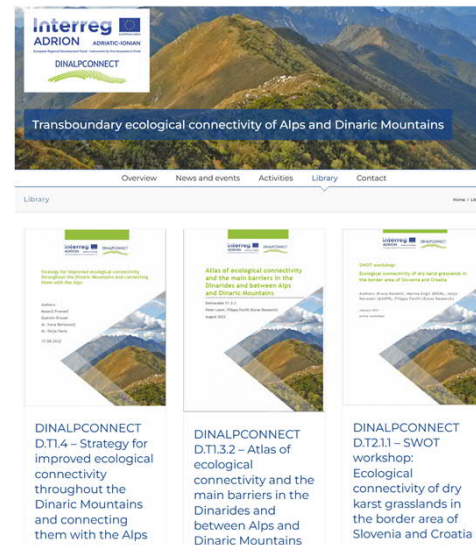
# Conclusions & recommendations

Priority for macro-regional connection:

- Protect corridors on bottlenecks
- Tunnels to dismantle motorway barriers
- Install protected areas in Bosnia, Montenegro & Albania
- Check highlighted agricultural landscapes in detail and install linear green infrastructure

Regional linkages:

- Transnational protected areas/linkages
- Installation of corridors by spatial planning
- Agriculture: Mixed cropping, low intensity of livestock on grassland on corridors



Website: <https://dinalpconnect.adrioninterreg.eu/library>

Web GIS: <https://maps.eurac.edu/maps/1140/view>

Final Conference 20./21. Dec. 2022 @ Eurac Research, Bolzano/ Bozen (IT)



# Thank you for your attention

<https://dinalpconnect.adrioninterreg.eu/>



**Peter Laner**

GIS data and analyses  
Final strategy

[peter.laner@eurac.edu](mailto:peter.laner@eurac.edu)  
+390471055438



**Filippo Favilli**

WP management  
All activities / final output  
[filippo.favilli@eurac.edu](mailto:filippo.favilli@eurac.edu)  
+390471055327