

Human and Wildlife Conflicts in the Alpine Region - a scientific perspective -

eurac
research



Filippo Favilli, PhD
Eurac Research, Bolzano, Italy

Landcare Europe Workshop

Human & wildlife co-existence – traditional & modern farming approaches in the mountains

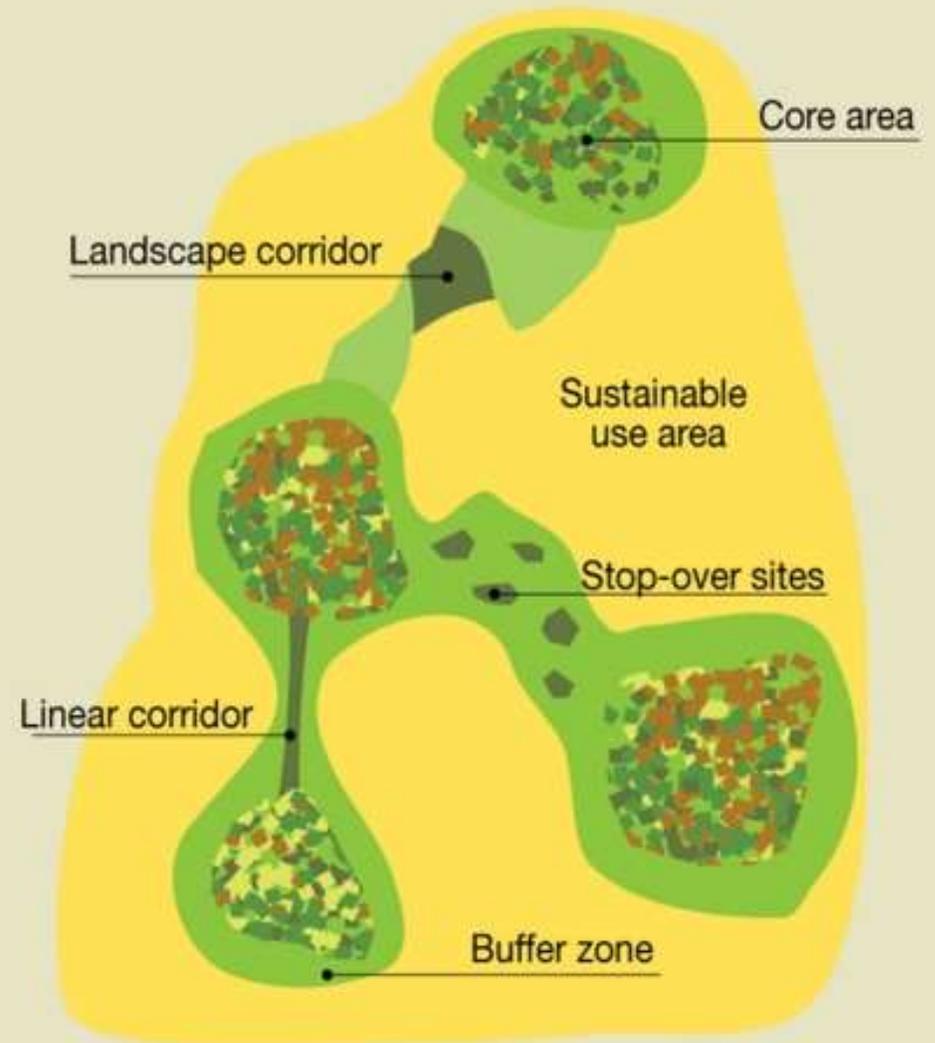
11 – 13 July 2022 Sighisoara - Transylvania (Romania)

Ecological Connectivity

“Ecological Connectivity is the unimpeded movement of species and the flow of natural processes that sustain life on Earth.” (CMS, 2019)

- Essential part of nature
- Functionality of ecosystems
- Survival of wild animals and plant species
- Ensuring genetic diversity
- Adapting to climate change

Spatial configuration of an ecological network

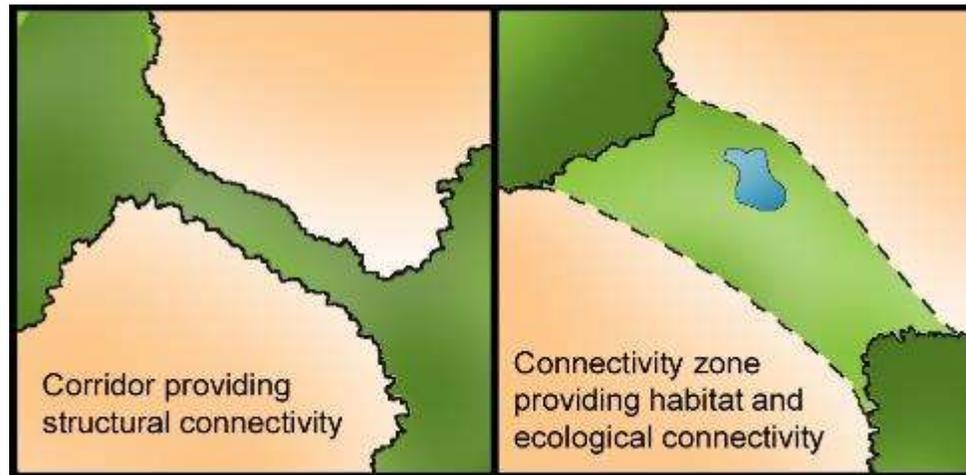


Spatial Models - approaches

Structural & functional

Structural Connectivity

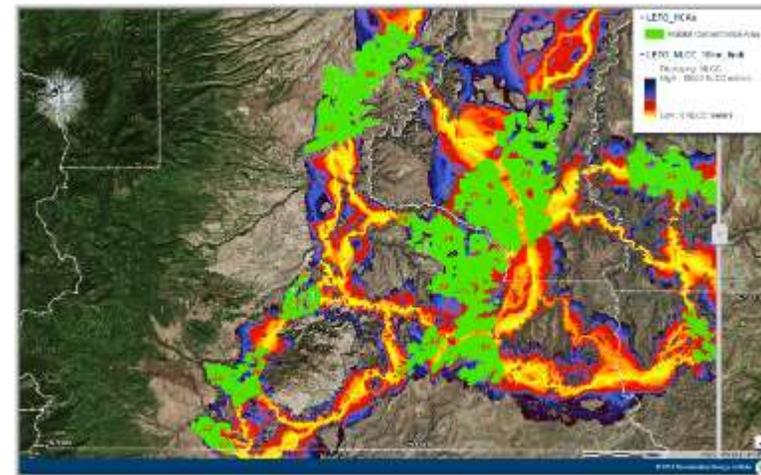
Physical characteristics that support or impede a connected natural landscape



Source: <https://hudson.dnr.cals.cornell.edu>

Functional Connectivity

How well a landscape allows for movement of organisms and processes such as seed dispersal, breeding migrations, and genetic exchange.



Source: Linkage Mapper

Spatial Models

Structural & functional

Involvement of Eurac Research in model developed in EU projects



ECONNECT - ALPS 2008-2011

Functional connectivity at macro-regional level for umbrella species.
JECAMI platform.
Structural connectivity in pilot sites: Continuum Suitability Index (CSI)



BioREGIO - Carpathians 2011-2013

Functional connectivity (species) on macro-regional level + social impact



AlpBioNet2030 - ALPS 2016 - 2019

Structural approach on macro-regional level for strategy
Continuum Suitability Index (CSI) + social barriers to EC



DinAlpConnect – Alps & Dinaric mountains 2020-2023

Structural approach on macro-regional level (CSI)
Functional in pilot sites





Spatial Models

**Project area
and pilot sites
(WP1 – Eurac)**

Spatial Models Selection

Objective:	Connect Alps with Dinaric Alps, Assess the current state of EC,
Timeframe:	long time - persistence (not seasonal)
Type of habitat:	Terrestrial model
Scale:	Macroregional & Pilot site
Approach:	Holistic/structural
Elements:	Landscape permeability: Low degree of human disturbance Core areas, stepping stones, corridors, main barriers

Macro-regional model

The Continuum suitability index (CSI)

Land use/ Land cover

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

Population

Population pressure
(density)

Environment

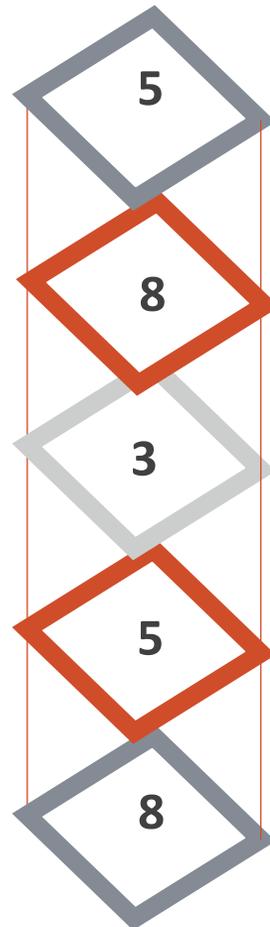
Protected areas, based on
legal status, IUCN categories

Fragmentation

Fragmentation by human
infrastructure

Topography

Absolute altitude and slope



Evaluation 0 - 10

0 = Low permeability
10 = High permeability

Methods:

- Thresholds from Econnect, AlpBioNet
- Expert evaluation

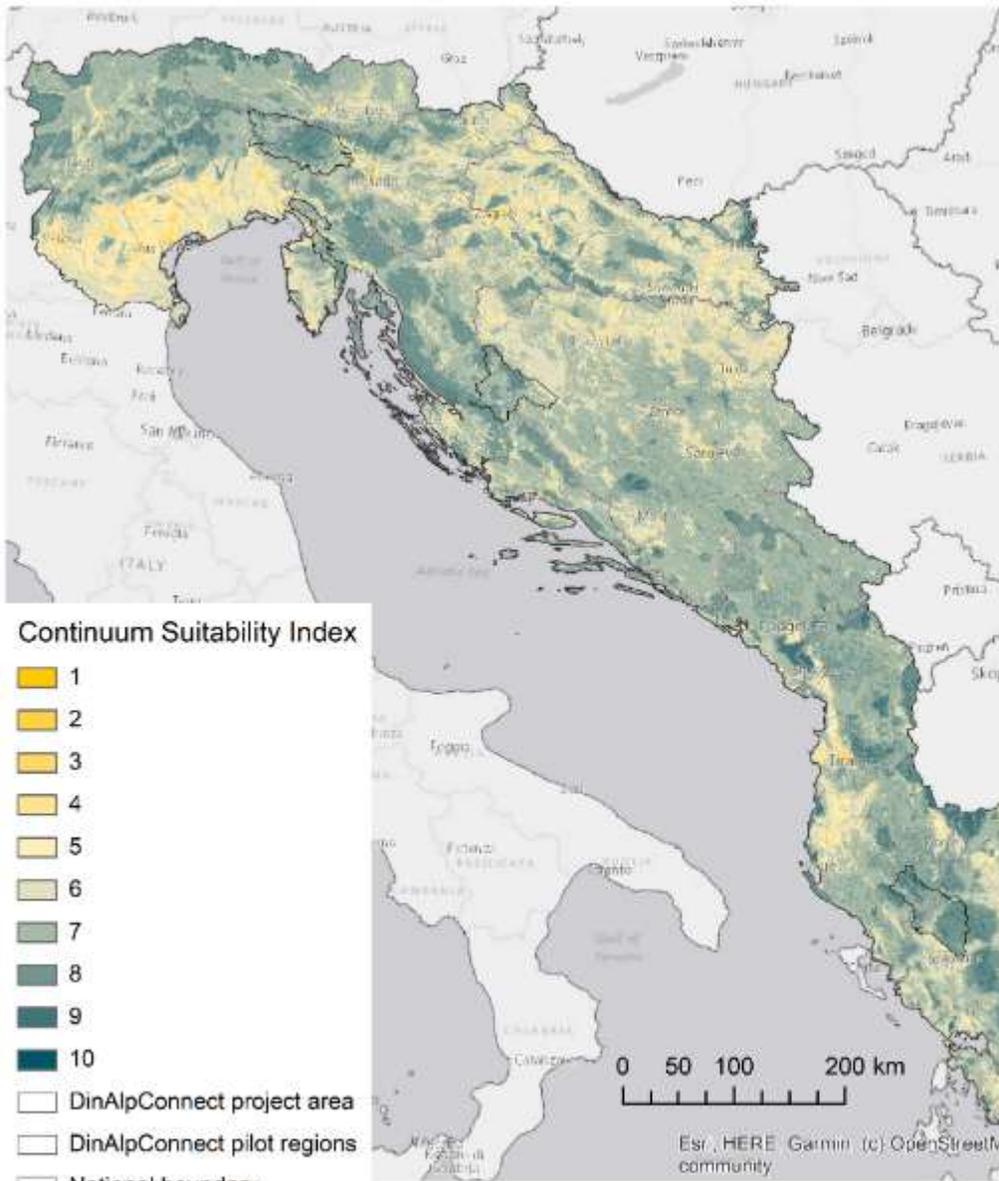
Macro-regional model

The Continuum suitability index (CSI)

$$\text{CSI} = \frac{2*LAN + 2*POP + ENV + FRA + TOP}{7} = \frac{2*5 + 2*8 + 3 + 5 + 8}{7} = 6$$

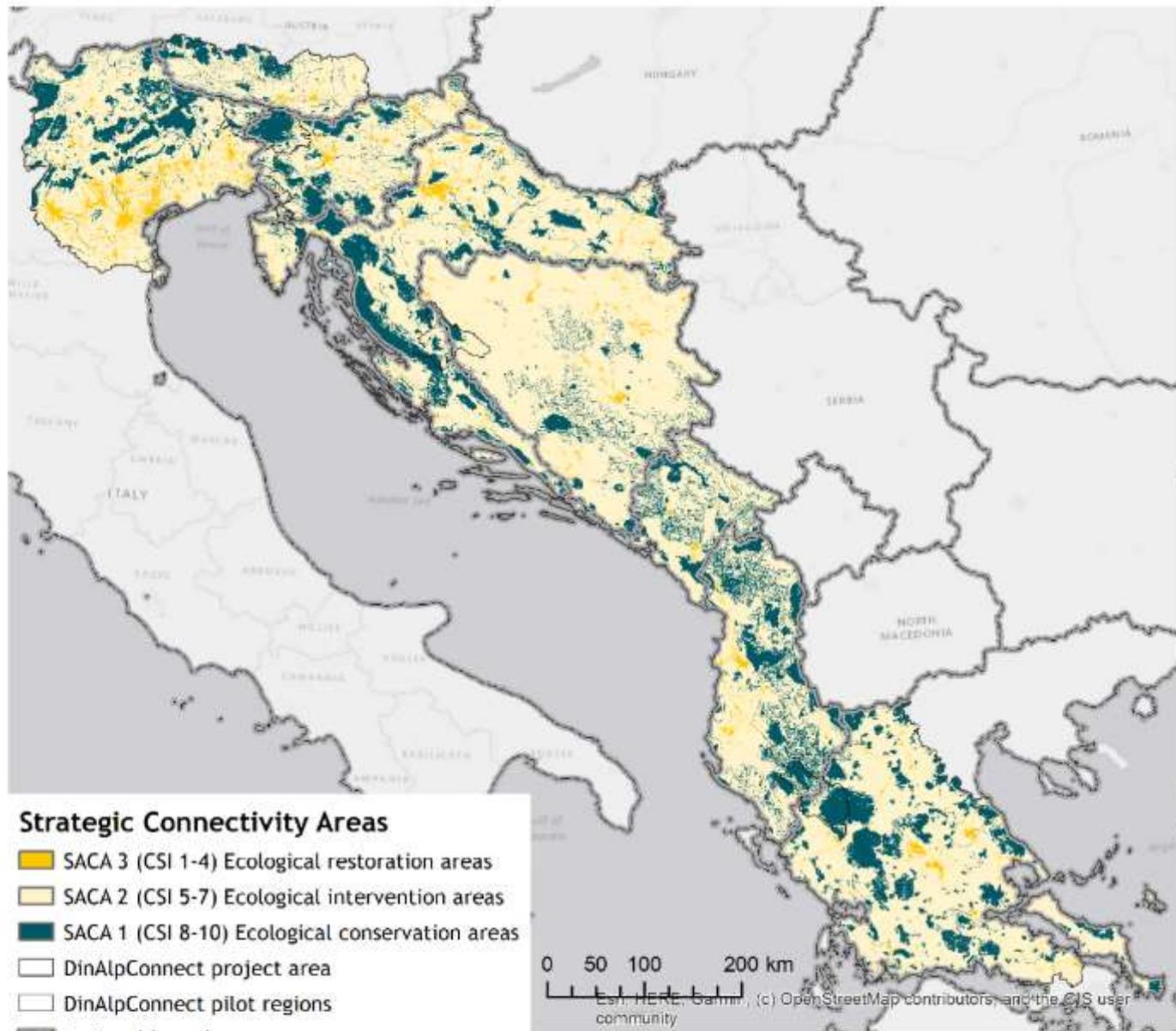
Strategic Connectivity Areas (SACAs)

CSI \geq 8 AND \geq 100 ha	Ecological conservation areas	(SACA 1)
5 \leq CSI < 8	Development areas	(SACA 2)
CSI < 5	Connectivity restoration areas/ Barriers	(SACA 3)



Sources: Administrative boundaries: Eurostat/GISCO 2016

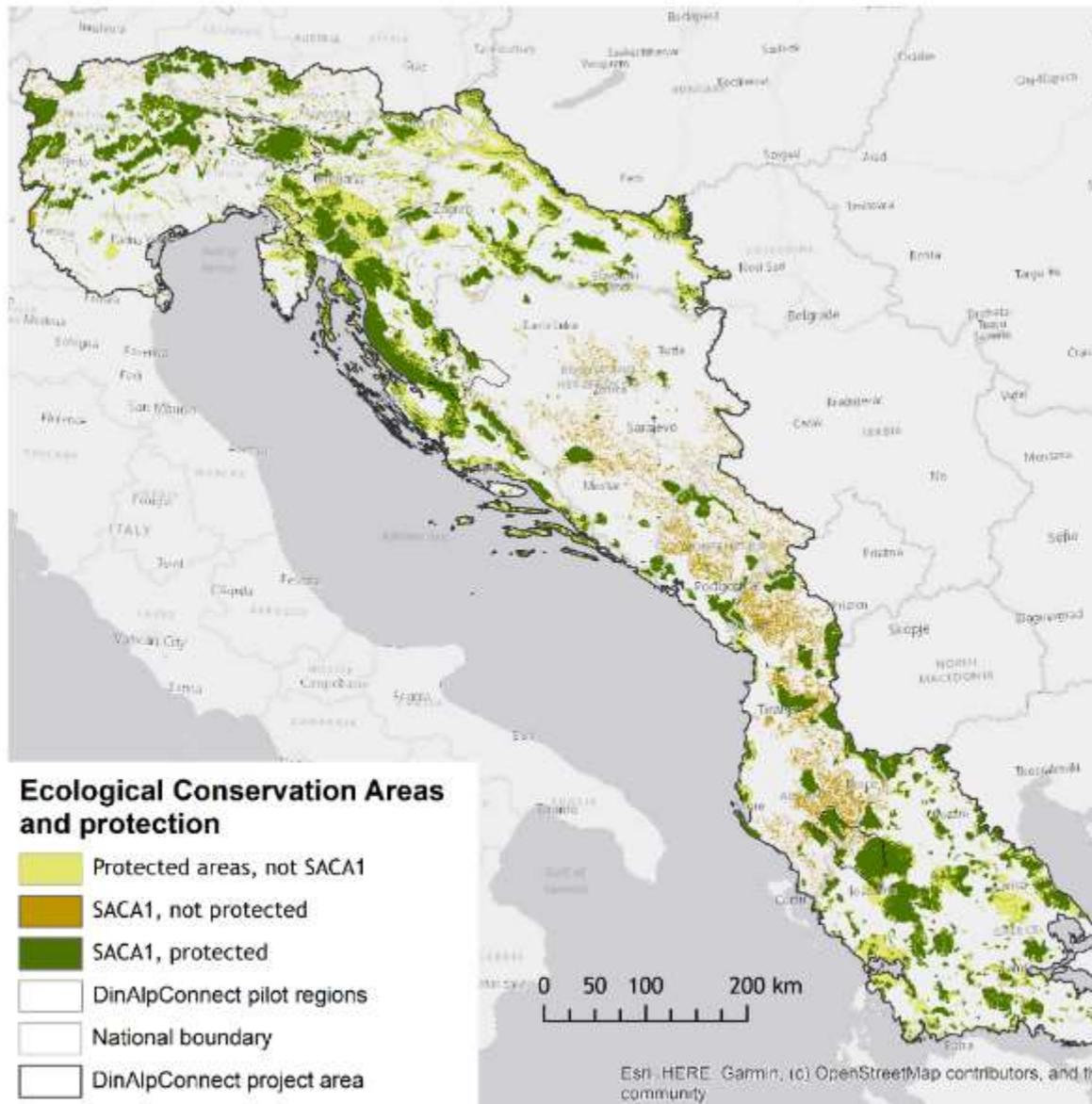
Eurac Research
Institute for Regional Development
Cartography: Peter Laner
Date: 04.11.2021



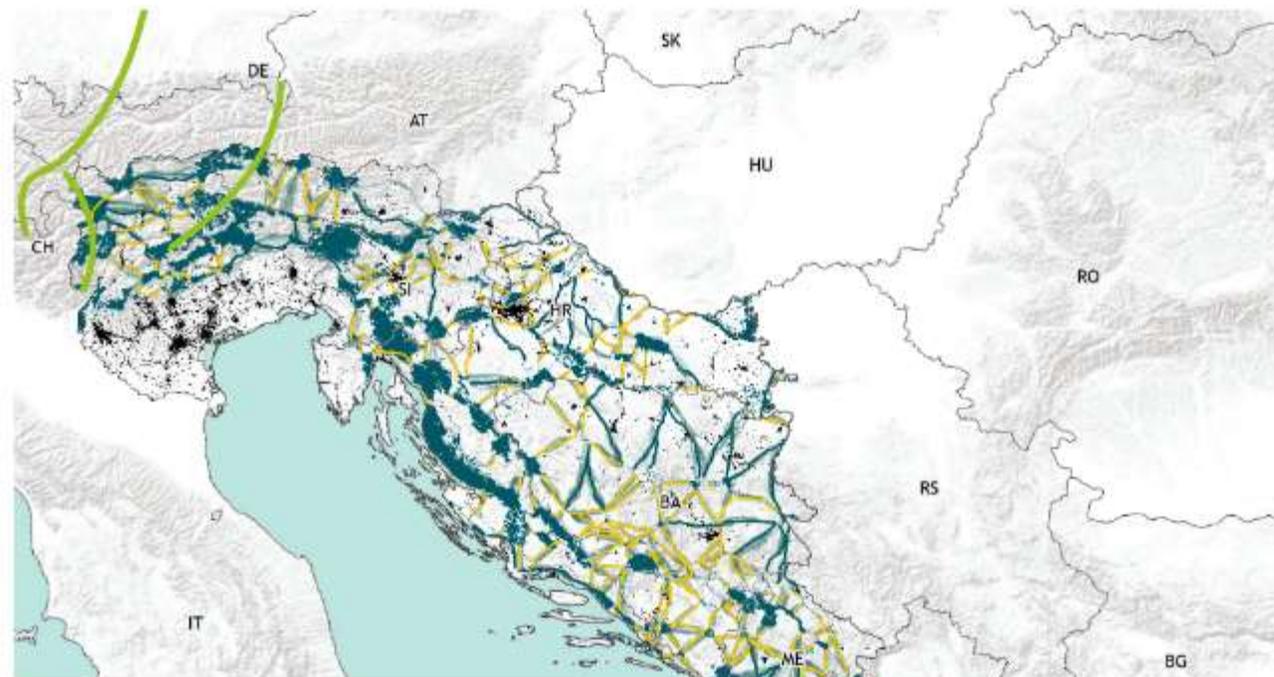
Sources: Administrative boundaries: Eurostat/GISCO 2016; Basemap: ESRI ArcGIS.

Eurac Research
Institute for Regional Development
Cartography: Peter Laner
Date: 04.11.2021

Overlay of Ecological Conservation Areas (SACA1) and protected areas



Sources: Administrative boundaries: Eurostat/GISCO 2016; Basemap: ESRI ArcGIS



Ecological Conservation Areas (SACA1)

Most important ones for connectivity

Intervention Areas/ Ecological corridors (SACA2)

- corridors <50km
- Long-distance corridors 50-160 km

Difference from best path (km) (far from best path)

- High : 40000
 - Low : 0
- (similar to best path)

South-north connection defined by the AlpBioNet2030 project

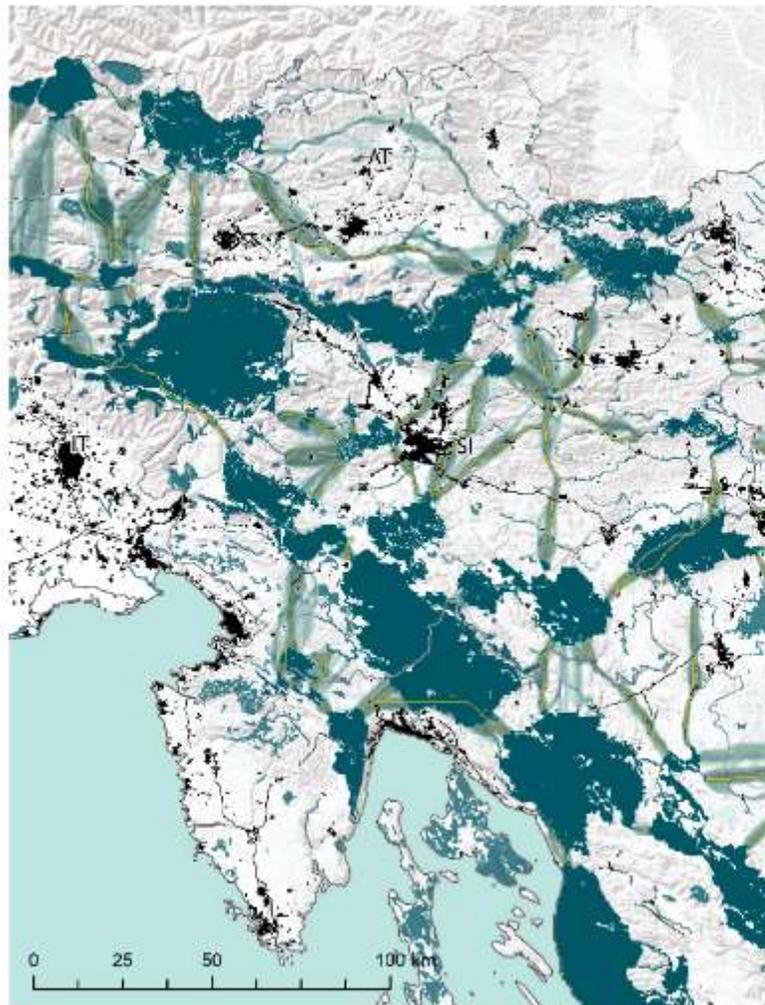
Ecological restoration areas/ Barriers (SACA 3)

- DinAlpConnect project area
- National boundary



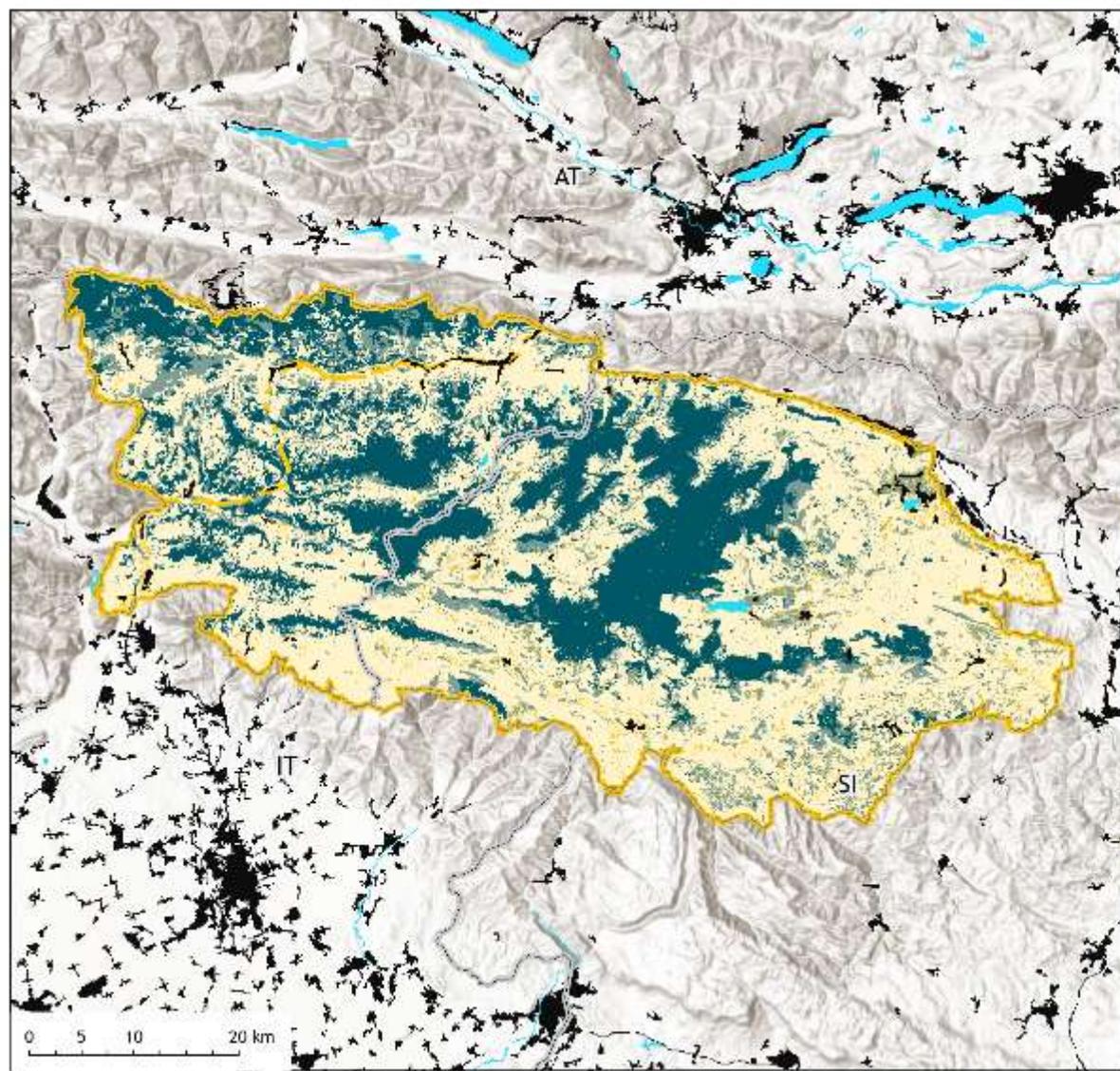
0 125 250 500 km

Sources: Esri, USGS, NOAA



Regional corridors connecting most important Ecological Conservation Areas

Ecological Conservation Areas (SACA1)
 ■ Most important ones for connectivity



Pilot region Italy - Slovenia Ibex

Ibex - Habitat suitability model

[0-100]

- 0 - 1 Major barrier
- 1.1 - 24 Minor barrier
- 24.1 - 49 Occasional habitat
- 49.1 - 60 Sub-optimal habitat, corridors
- 60.1 - 100 Optimal Habitat

□ Boundary pilot region IT-SLO

□ Country boundary

▨ Protected areas

— Motorway

— Primary route

■ Urban fabrics and other artificial surfaces

■ Waterbodies and Wetlands

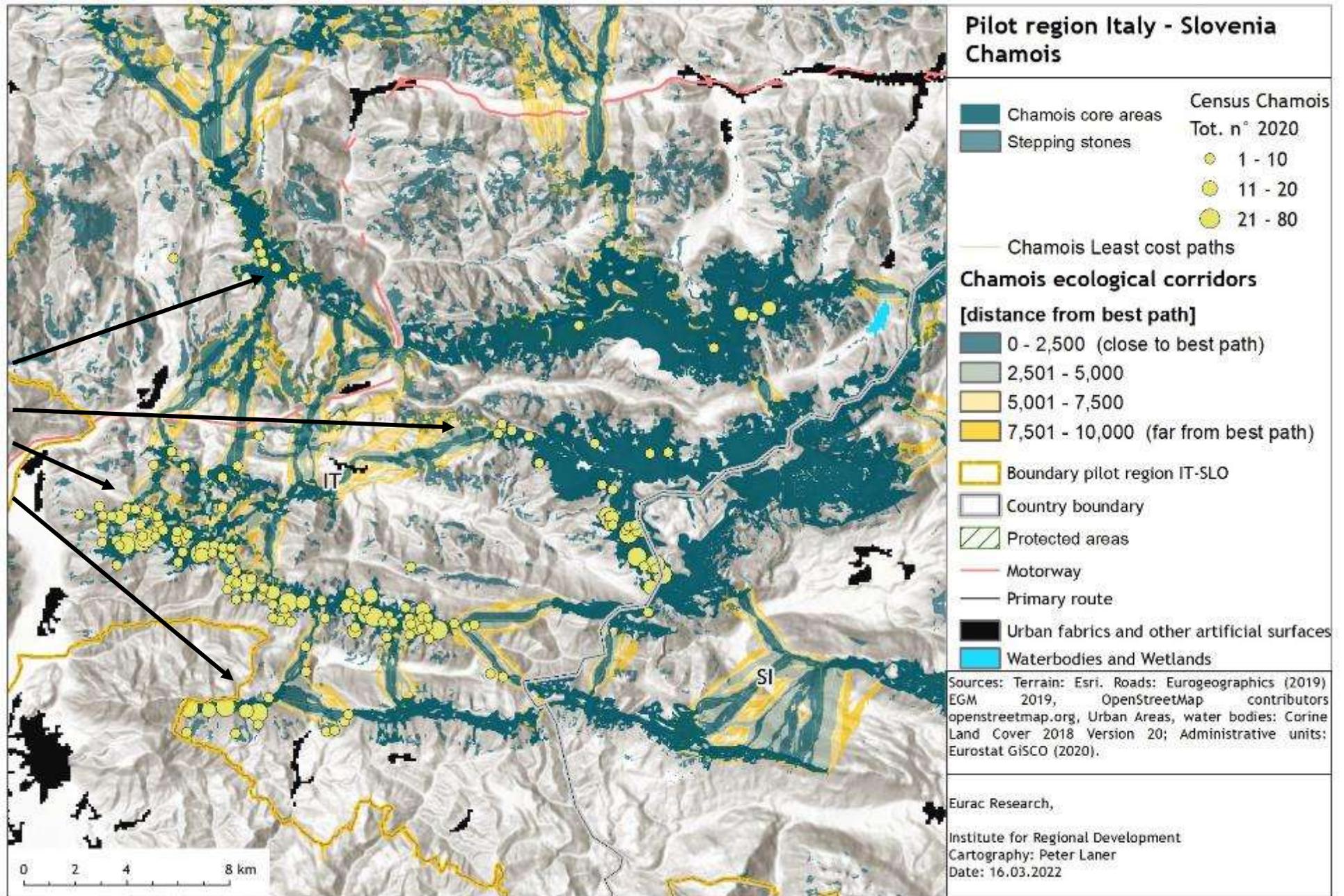
Sources:

Terrain: Esri. Roads: Eurogeographics (2019) EGM 2019, OpenStreetMap contributors openstreetmap.org, Urban Areas, water bodies: Corine Land Cover 2018 Version 20; Administrative units: Eurostat GISCO (2020).

Eurac Research,

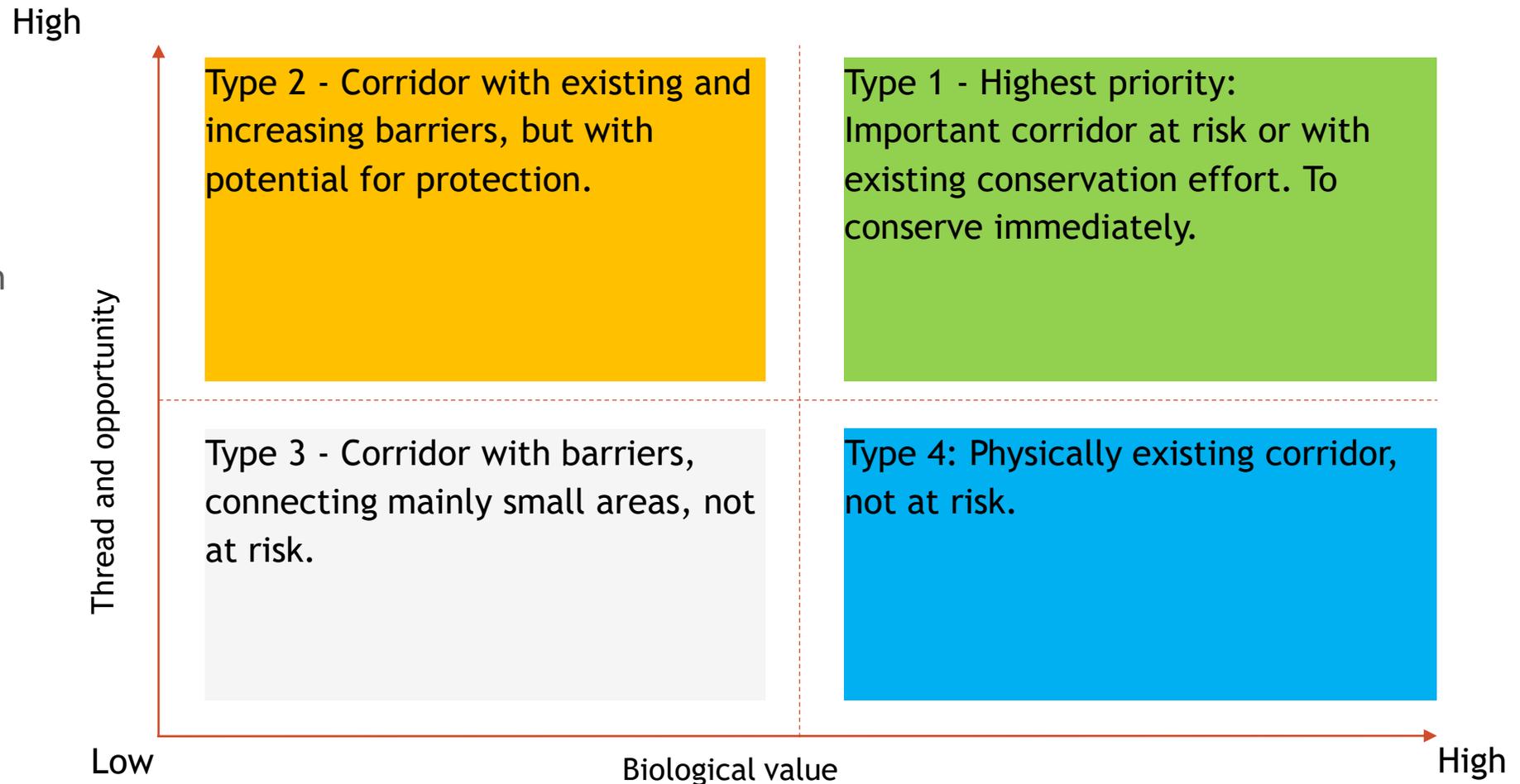
Institute for Regional Development
 Cartography: Peter Laner
 Date: 14.03.2022

Chamois found on corridors or stepping stones



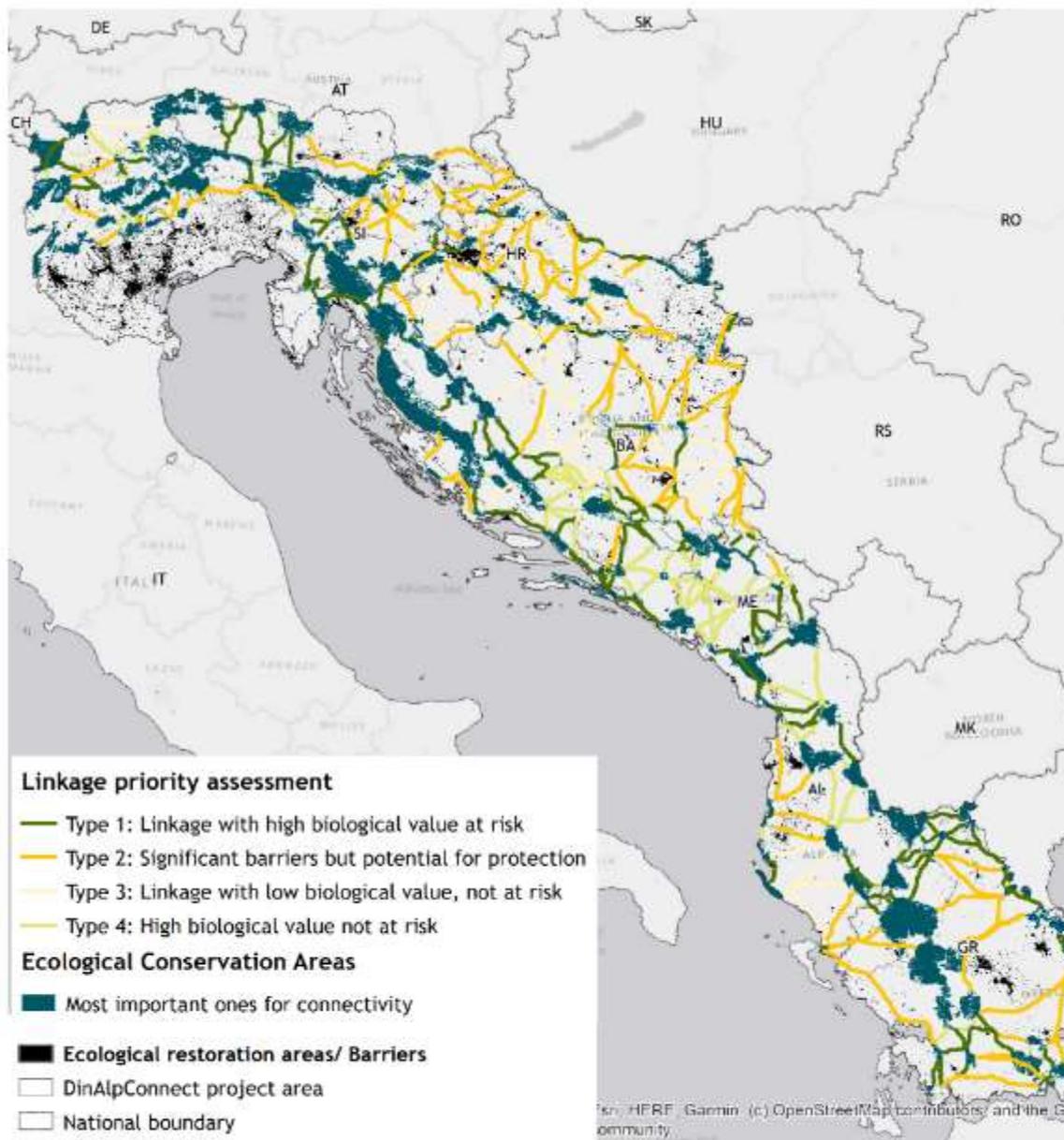
EC – Assessment of Regional corridors

- **Opp.1:** Macro-Regional connection
- **Opp.2:** Existing conservation effort
- **Threats:** Urbanization, motorway



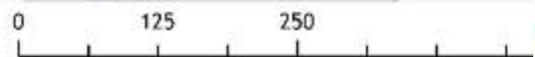
Source: Beier et al. (2013), modified by Laner P. 2022

- Interaction intensity (size & distance),
- Centrality,
- South–north connection

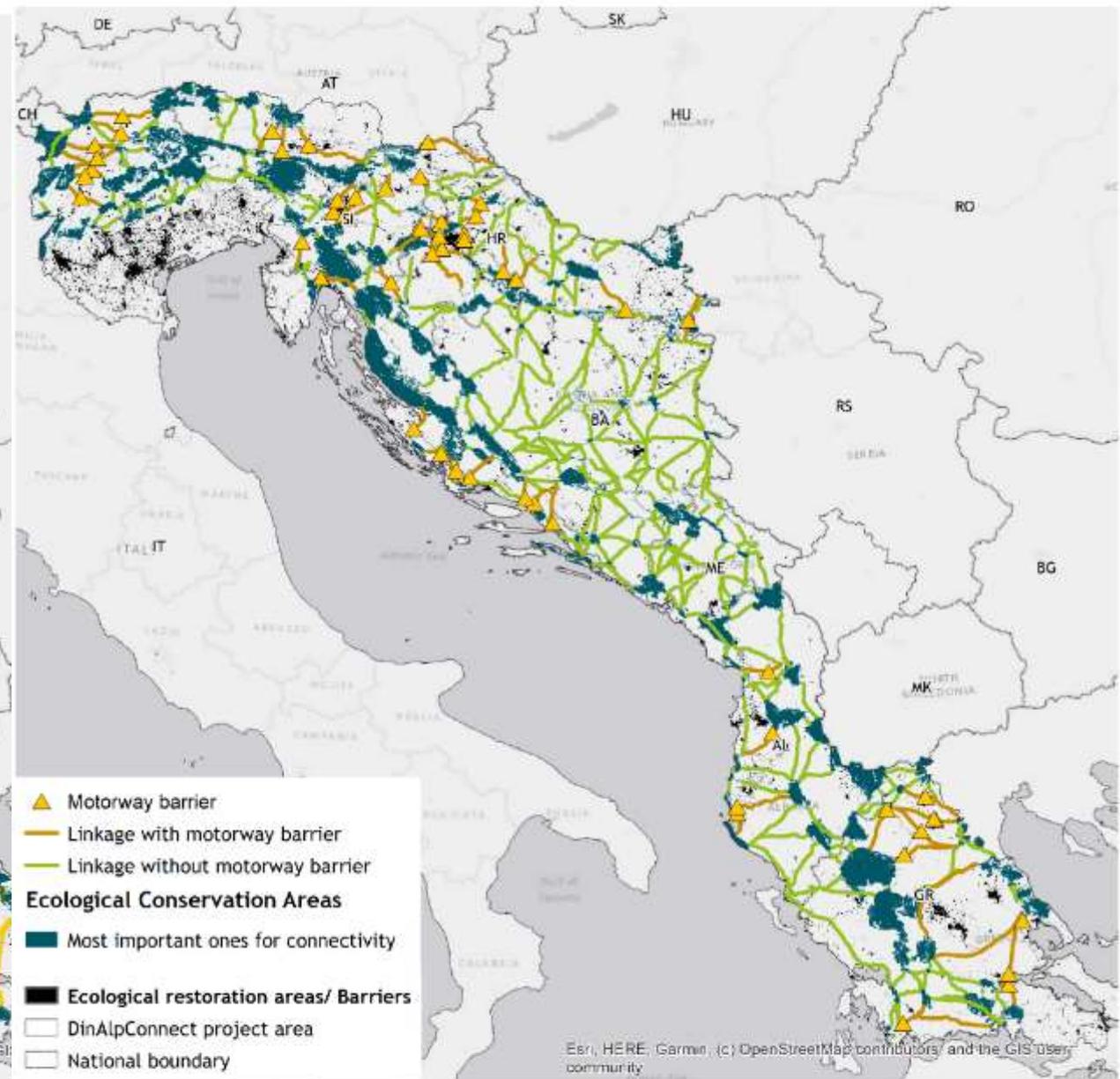


eurac
research

Institute for Regional Development
Cartography: Peter Laner
Date: 12.05.2022

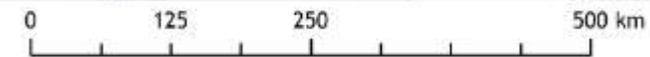


Sources: Corridors calculated by Linkage Mapper. Adm boundaries: Eurostat/GISCO 2016; Basemap: ESRI ArcGIS



eurac
research

Institute for Regional Development
Cartography: Peter Laner
Date: 19.04.2022



Sources: Corridors calculated by Linkage Mapper. Administrative boundaries: Eurostat/GISCO 2016; Basemap: ESRI ArcGIS.

Socio-ecological Connectivity



@StauderJulia



@123RF



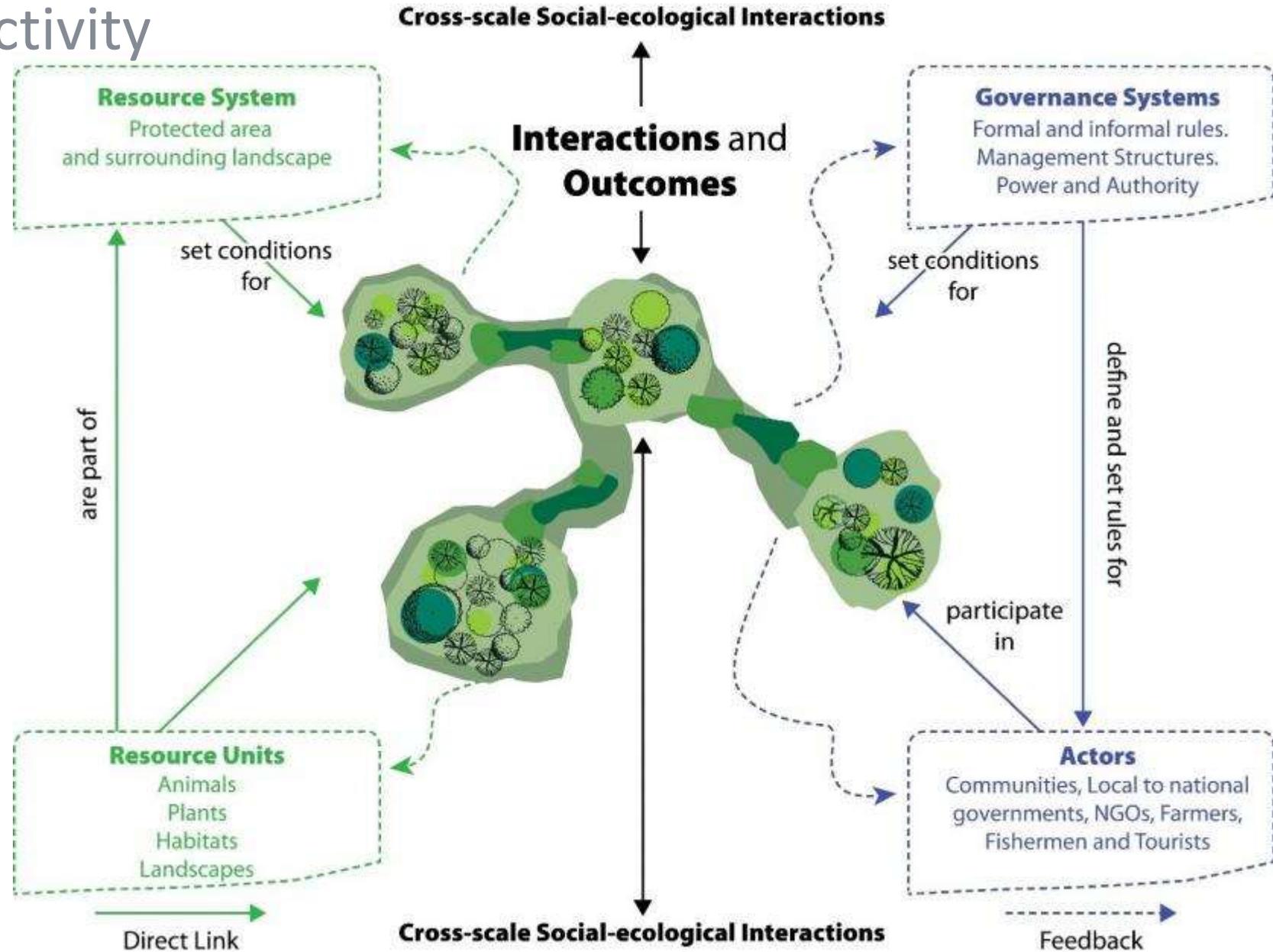
Socio-ecological Connectivity

Understand interdependencies and interactions

- between people and their environments
- between stakeholders from different backgrounds

Interpretation of biophysical environment

- Integration of disciplines
- Focus on sustainable development and protection of un-human world
- Communication



Human-Nature Conflicts have an impact on Ecological Connectivity?

WP5 –Eurac

Interaction between humans' society and (current or planned) wildlife corridors which causes (or may cause) harm, whether it's to the human, the wild animal, or property.

- “Bold” wildlife frequenting residential areas
- Large Carnivores' depredation on livestock or domestic animals
- Ungulate damage to crops and fences
- Wildlife-Vehicle collisions

2016 - 2019



@Eurowildlife.org



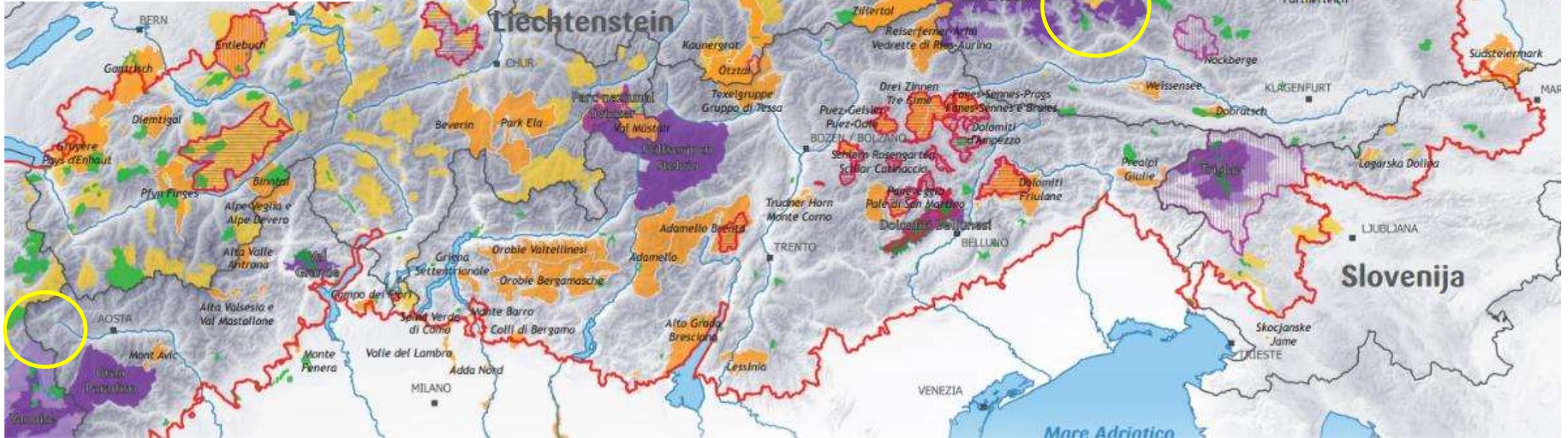
@Summitpost



@Focusbikes



2016 - 2019



FRANCE / ITALY

Espaces Mont Blanc

GERMANY

Nationalpark
Berchtesgaden

ITALY / SLOVENIA

Parco naturale
delle Prealpi
Giulie / Triglav NP

AUSTRIA

Nationalpark
Hohe Tauern

Approach to conflicts



„ Bitte nicht stören!
Ich wohne hier.



TRAVERSÉE
D'ANIMAUX
SAUVAGES



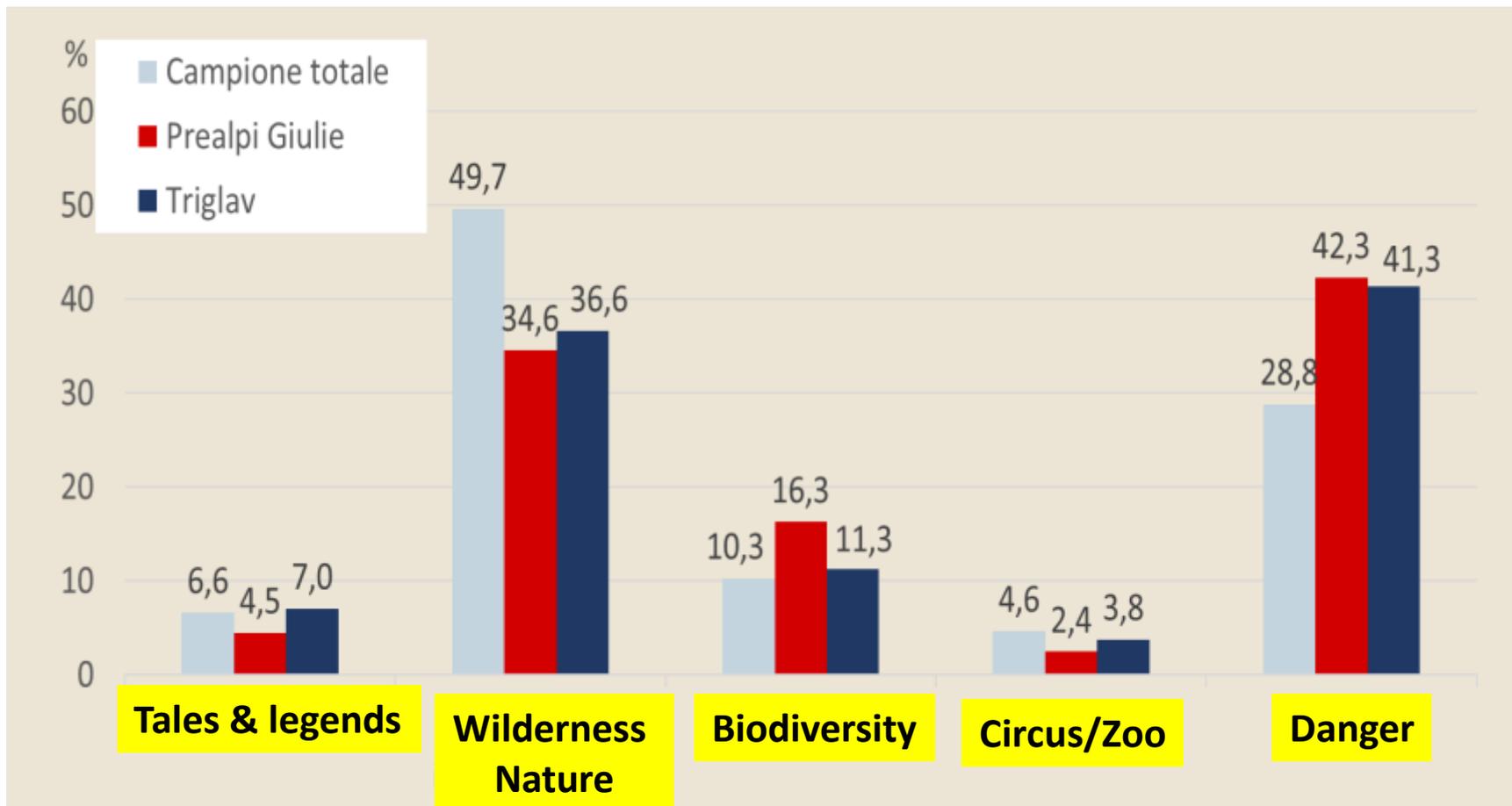


Interreg
Alpine Space
ALPBIONET²⁰³⁰
MONTAN REGIONAL DEVELOPMENT EUROPE

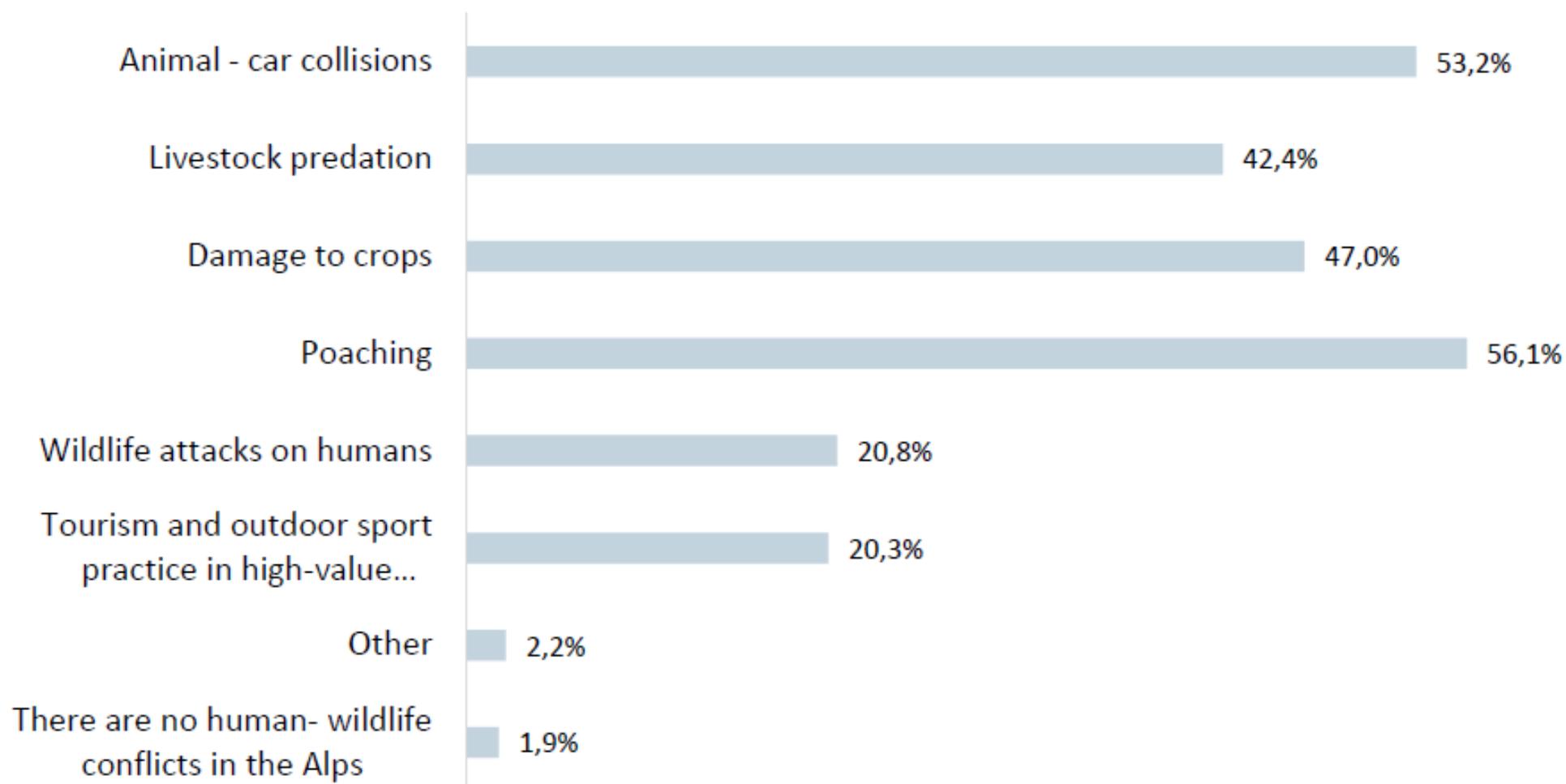


Students' survey

**When you think about a bear,
what is the first thing that comes into your mind?**

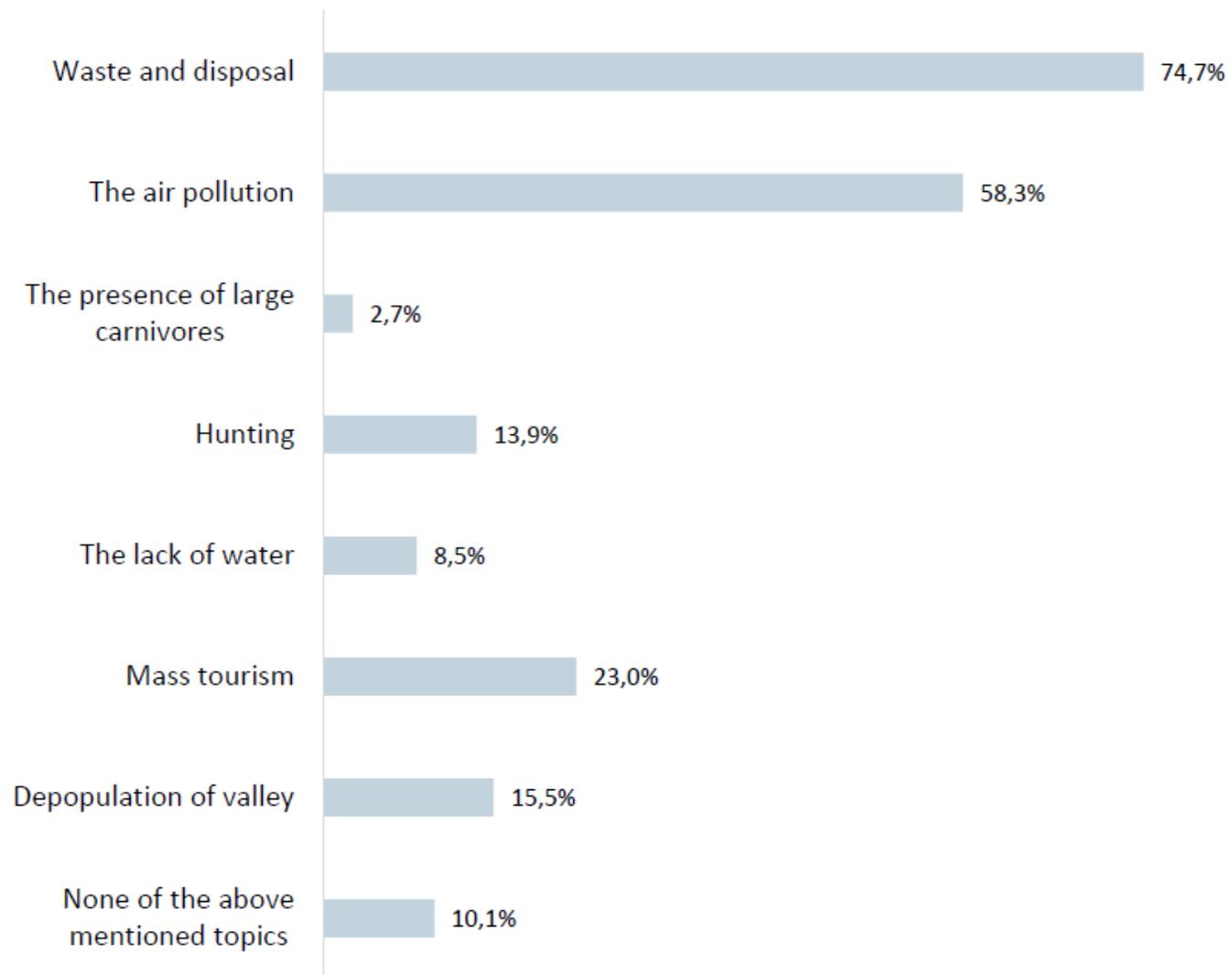


19. In your opinion, which are the main human-wildlife conflicts in the Alps?

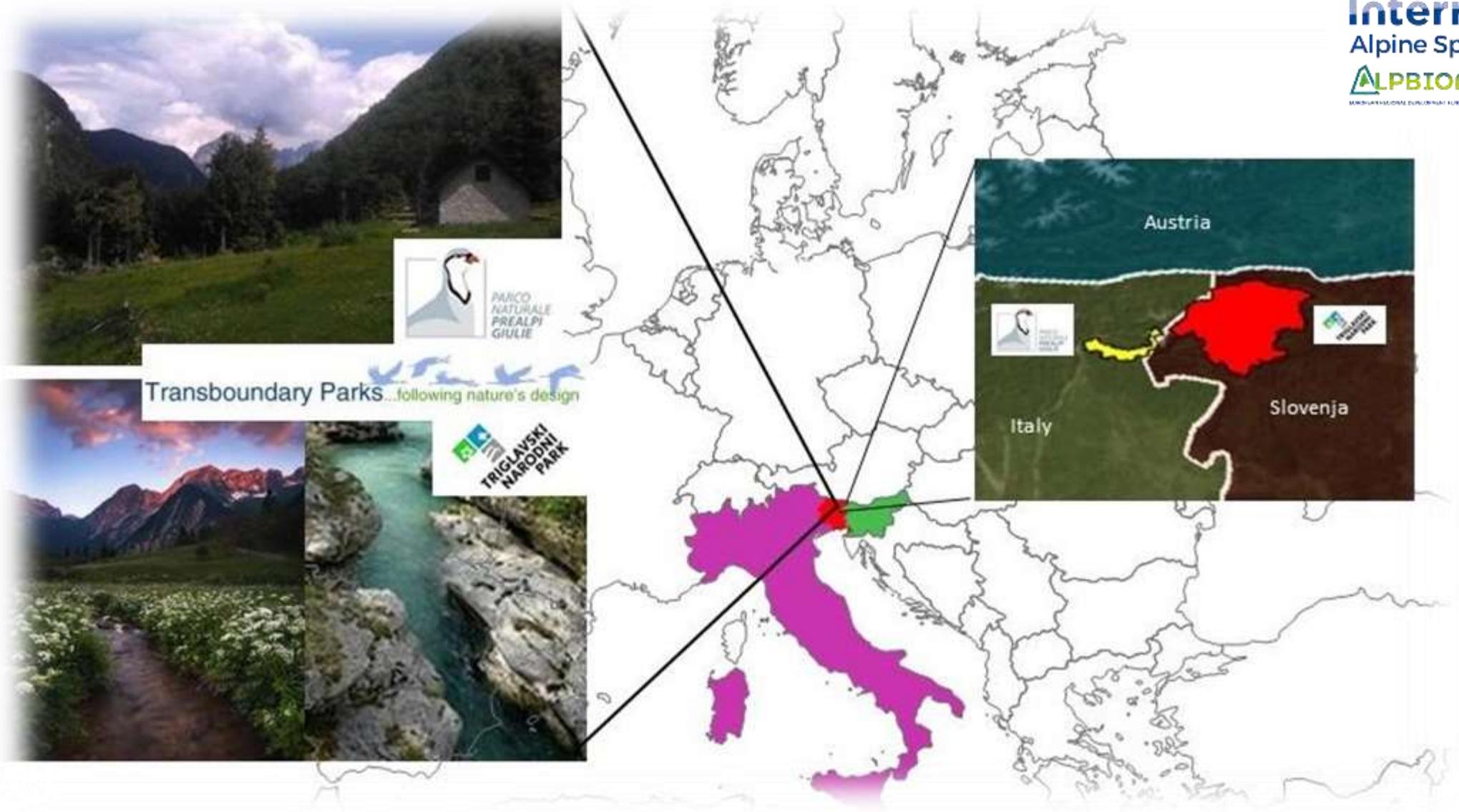


Multiple-choice question

22. What, in your opinion, poses a real threat to the environment protection and to the safety of the place where you live?



Multiple-choice question



Relationship between human and nature, especially zotechnical activities and large carnivores, in the Park and surroundings.

INVOLVING STAKEHOLDERS : The path towards the solution

WORKSHOPS

- Ideal place to debate and elaborate proposals and strategies in participative way
- Possibility to bring together different stakeholders

3 MEETINGS



- 1) Grazing and management of large carnivores in the cross-border pilot area Julian Pre-Alps Nature Park and Triglav National Park
- 2) Pastures, breeding and interactions with the local community
- 3) Breeding, guard dogs and possible interactions



STAKEHOLDERS INTERVIEWS

LOCAL PEOPLE AND TOURISTS' QUESTIONNAIRES



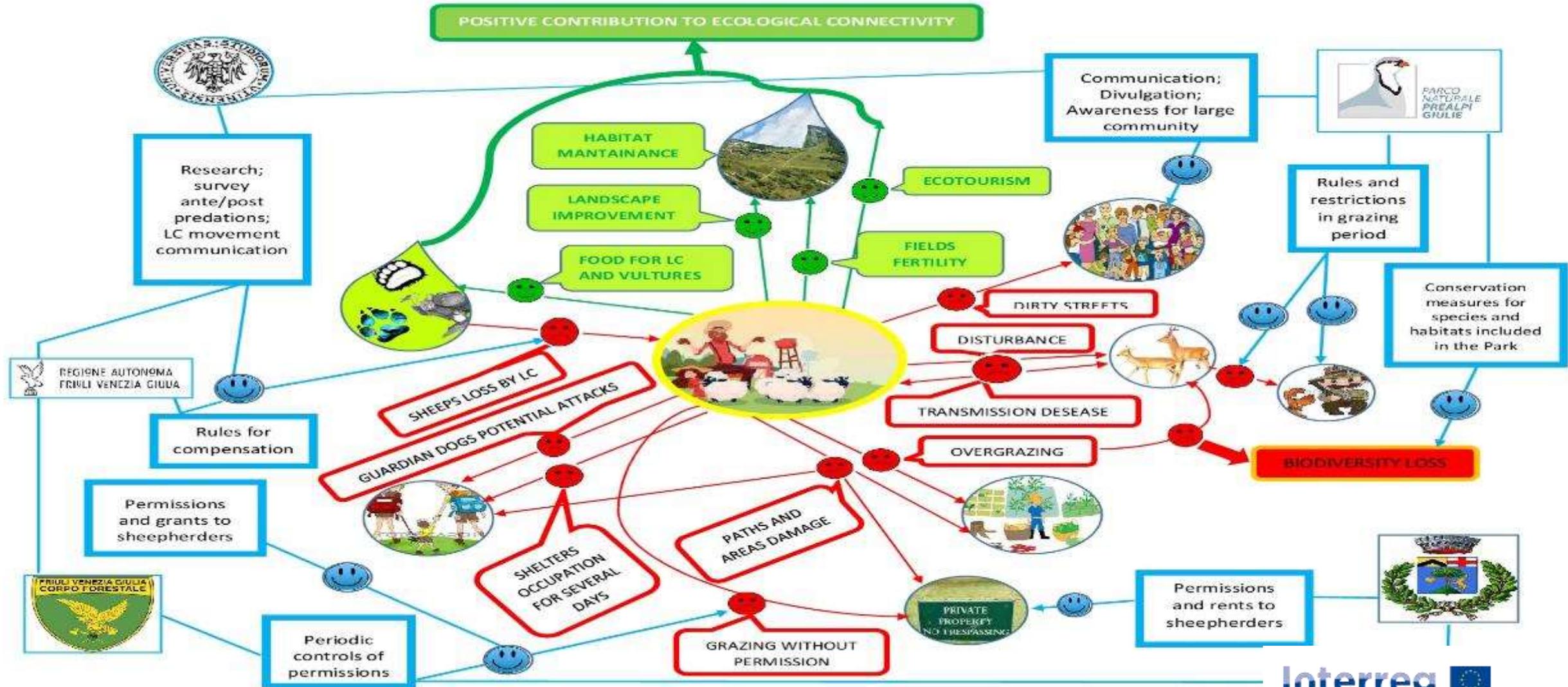
PROPOSALS FOR MANAGEMENT WITH THE GOAL OF COEXISTENCE

TRANSHUMANCE AND CONFLICTS MAPS

RAISING AWARENESS

CONFLICTS MAP

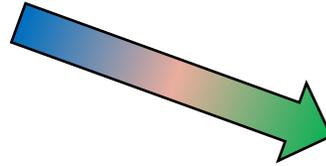
The existing relationship among stakeholders, problems, procedures, effects



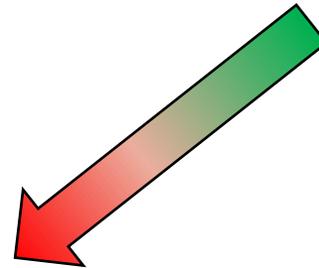
TRANSHUMANCE MAP

a concrete tool to increase knowledge, to improve coexistence, to raise awareness

✓ From field....

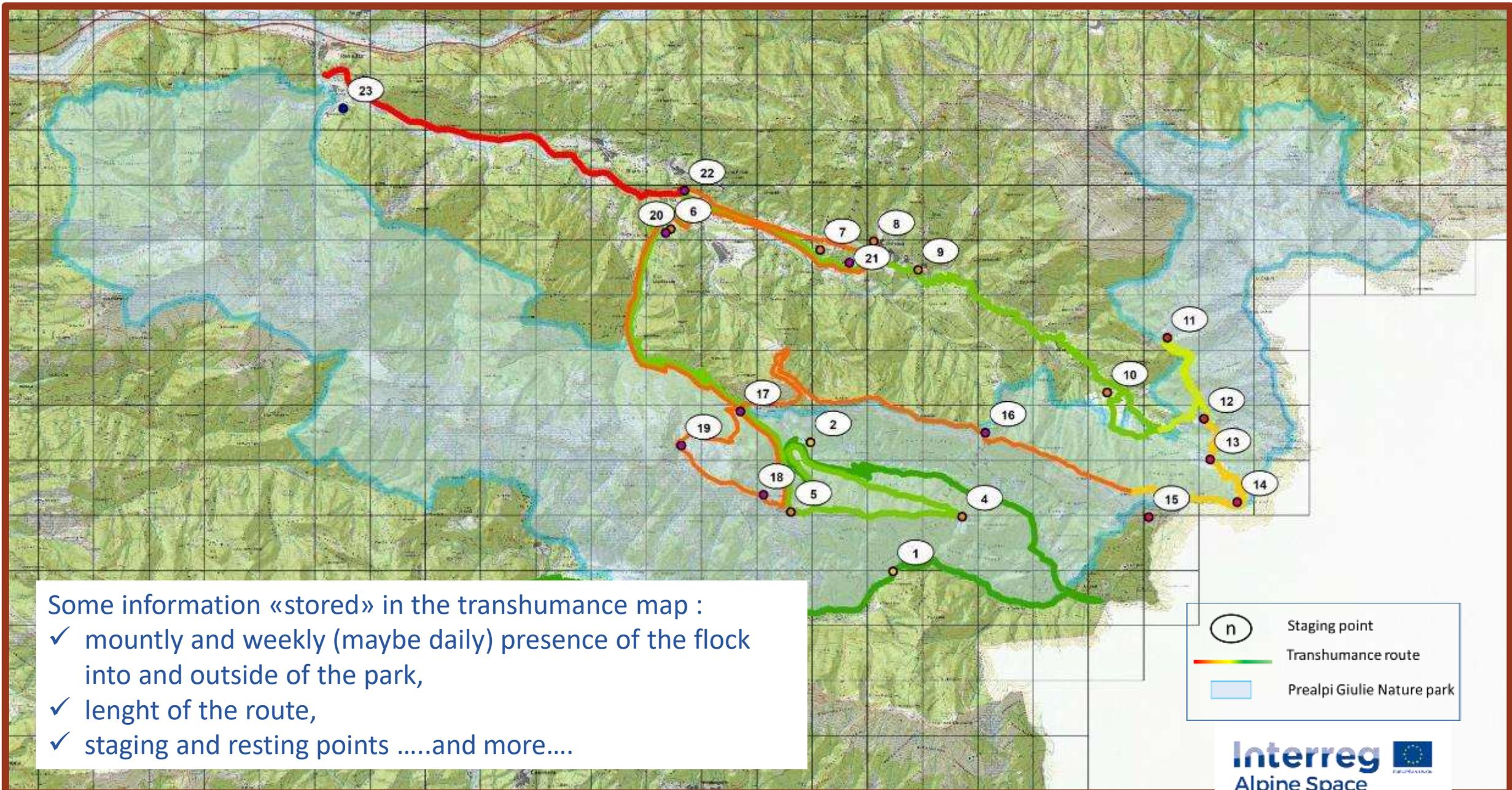


✓ ...To chart....



✓ ...To GIS:



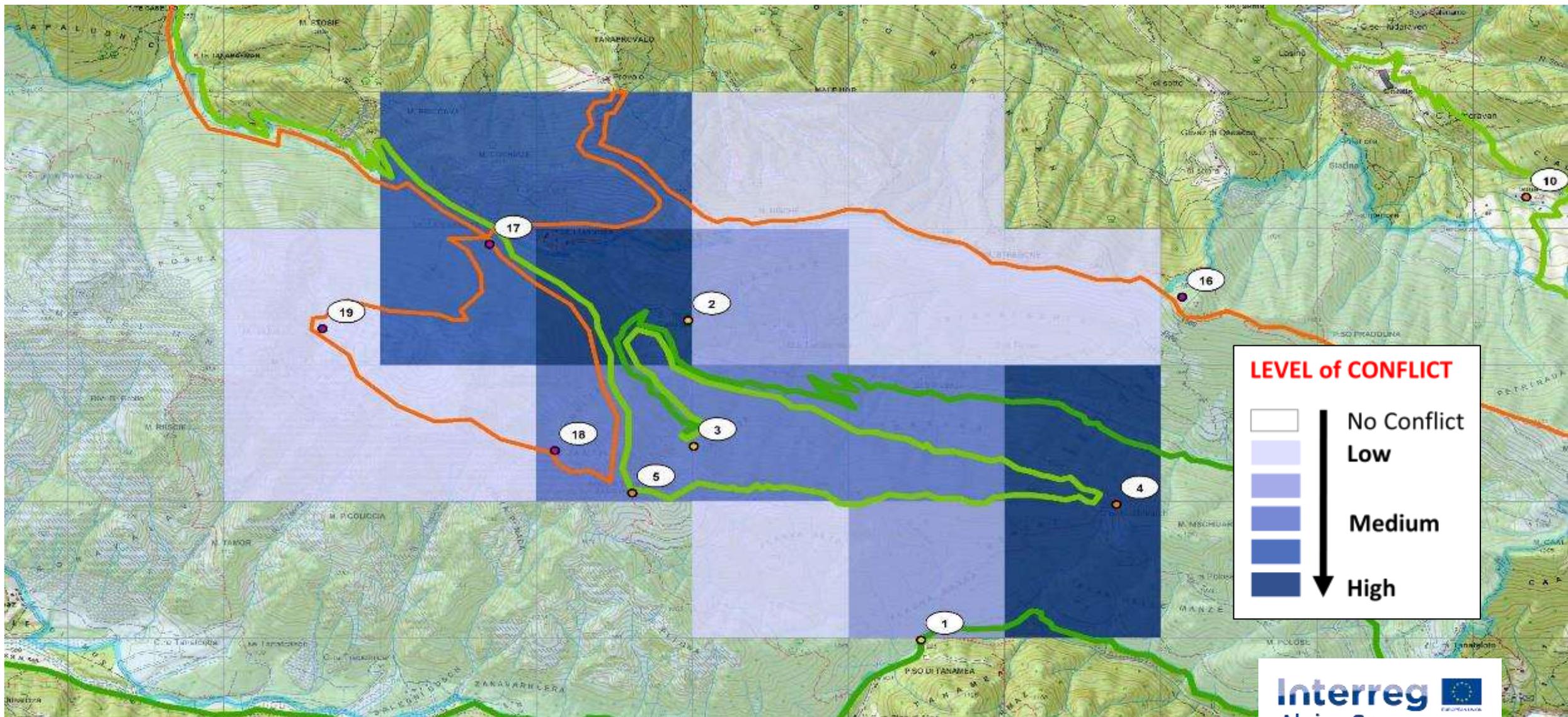


Some information «stored» in the transhumance map :

- ✓ monthly and weekly (maybe daily) presence of the flock into and outside of the park,
- ✓ length of the route,
- ✓ staging and resting pointsand more....

	Staging point
	Transhumance route
	Prealpi Giulie Nature park

Transhumance & conflicts COMBO map



- Small/big and different breeders and shepherds use the same pastures at the same time

Specific Area «Sella Carnizza-S.Anna»



- Presence of Brown bear (= potential depredation)



- Presence of Crex crex

- Herb - picker

- Tourism : hikers, bikers, agritourism



The «power» of transhumance and «conflicts» map?

Guidelines and success factors to improve the humans-humans coexistence and humans-wildlife coexistence

- Placement of “field” mitigation measures
- Concentrate the monitoring efforts about particular species
- Provide useful data to specific research project
- Develop field activities for the large public to improve awareness about “the life in the mountain”!
E.g: ECOTOURISM
- Promote dialogue and mutual understanding
- Highlight socioeconomic benefits of wildlife and EC

ALPBIONET2030: Integrative Alpine wildlife and habitat management for the next generation

<https://www.alpine-space.eu/projects/alpbionet2030/en/home>

YOUTHS' ATTITUDE AND AWARENESS TOWARDS HUMAN-WILDLIFE INTERACTIONS

PROMOTING KNOWLEDGE AND AWARENESS TO TURN CONFLICTS INTO OPPORTUNITIES

De Bortoli, F. Maino, A. Giovannini, F. Favari
Eurac Research | INSTITUTE FOR REGIONAL DEVELOPMENT

The Alps area is the scene of continuous interactions between human activities and wildlife, which may have both positive and negative effects on the environment. Administrative structures, SPECIAL INTEREST GROUPS, the economic sector and the local communities are directly involved in these interactions. SPECIAL INTEREST GROUPS, the economic sector and the local communities are directly involved in these interactions. Administrative structures, SPECIAL INTEREST GROUPS, the economic sector and the local communities are directly involved in these interactions.

OUTDOOR SPORT ACTIVITIES PARAGLIDING

Antagonistic disturbance of wildlife is of growing concern. A comprehensive approach of its multiple negative effects. We found that the use of outdoor sports activities as free-ranging wildlife management tools is not only a way to increase awareness but also to reduce the impact of these activities on wildlife and its behavior and at the same time affecting land use planning, knowledge of people living in mountain areas. Given the effort provided by Alpine Carnivores to inform people about these issues, we show a clear consensus of the problem among visitors. 91.2% of them agree on fundamental to sustain biodiversity and 70.5% of them agree on the importance to live in an intact nature. However only the 48.2% of them are involved in the topic through, alpine guides, in schools and in general areas. These informative campaigns should also show when the wildlife should be protected from human disturbances. Many of them can be reduced by ensuring that trails/routes avoid the areas including those having rare and protected species.

LARGE CARNIVORES

Large carnivores are a key element of the Alpine ecosystem. Their presence is essential for the maintenance of the ecological balance. However, their presence is often perceived as a threat to human safety and property. This perception is often based on a lack of knowledge and understanding of their role in the ecosystem. This brochure aims to provide information on the behavior and habits of large carnivores, as well as on the measures that can be taken to reduce the risk of human-carnivore conflicts.

PASTURES

Pastures are a key element of the Alpine ecosystem. They provide a habitat for a wide range of wildlife species, including large herbivores and birds of prey. However, the increasing pressure of human activities on pastures is leading to a decline in their biodiversity. This brochure aims to provide information on the importance of pastures for wildlife and on the measures that can be taken to maintain their biodiversity.

ANIMAL WELFARE

Animal welfare is a key element of the Alpine ecosystem. It is essential to ensure that the animals are treated with respect and care. This brochure aims to provide information on the importance of animal welfare and on the measures that can be taken to ensure that the animals are treated with respect and care.

CONFLICT MANAGEMENT TOOLKIT FOR THE ECOLOGICAL CONNECTIVITY IN THE ALPS

FEDERICA MAINO, FILIPPO FAVILLI, ISIDORO DE BORTOLI
Institute for Regional Development - Eurac Research
Viale Druso 1, 39100 Bolzano (IT)



eurac research
Interreg Alpine Space
patore

UNA CANZONA di tutto "ISPETTO"



eurac research

...di una ricerca per dati, e da qualche mese attivo anche a Bolzano. Il movimento internazionale non-profit

si dispongono a quadrato e mostrano con degli schermi le immagini incassate in prese all'interno degli alleva-

...gruppo Anonymous for the wolves.

Emma è assistente di ricerca presso l'Università di Bolzano e Veronica lavora come beyer

te l'identità del territorio **Daria Sini**

Ricerca

di Silvia M. C. Senette

Selvaggina sulle strade: mille incidenti l'anno

Lo studio Eurac. Favilli lancia la app: gli automobilisti possono caricare dati e f

BOLZANO Sono oltre mille gli incidenti stradali che, ogni anno, vedono coinvolti animali selvatici nel solo Alto Adige. Un dato che emerge dallo studio presentato venerdì nel corso dell'evento informativo organizzato a Casa Kolping, a Bolzano, da Eurac Research nell'ambito del progetto «Erasmus - ENVEROS» (Educazione ambientale attraverso il sistema di osservazione delle vittime della strada).



In pericolo. Due cervi attraversano la strada poco prima dell'arrivo di un'auto

animali e com'è il loro rapporto con le auto per fare in modo, in strategia condivisa tra chi gestisce la fauna e le strade, di trovare le soluzioni migliori.

L'idea
● Lo studio fa parte di un progetto di educazione ambientale

● Lo scopo è quello di monitorare la situazione e di aumentare la consapevolezza a sui fenomeni

● Tramite app, gli automobilisti possono geolocalizzarsi e caricare dati e foto legati al fenomeno

per caso si possono creare sottopassi per i versare gli animali sotto le o ponti verdi di so se per animali più a chiarse il ricercato — Ma sono sistemi r stosi e occorre indi punti giusti in cui i re».

Intanto sul sito è possibile scaricare Roadkill che offrono on-line gratuito con lo vademecum. I c no semplici scaric guardarsi intorno, i che le assicurazioni mente non risarcisc ni da investimento. I — conclude l'espert cidente avvenuto, im fobbigo di legge di e avvertire le autorità spostare l'animale ch

A illustrare le finalità del progetto è stato il ricercatore Filippo Favilli, che ha moderato gli interventi di esperti e tecnici. Tra l'uditorio, come spettatore partecipante, l'ex sindaco del capoluogo Luigi Spagnoli, direttore dell'Ufficio caccia e pesca della Provincia.

«Questo progetto di informazione e consapevolezza, che ha un partner della Repubblica Ceca e uno di Oltreoceano, vuole mostrare quanto è ampio il fenomeno degli incidenti con la fauna selvatica — spiega il coordinatore —. Abbiamo creato un sito web e una applicazione per smartphone per far sì che i cittadini possano contribuire alla raccolta dei dati: l'utente della strada potrà fare una foto all'animale e geolocalizzarsi fornendo dati preziosi per circoscrivere un fenomeno

che coinvolge caprioli e cervi ma anche cinghiali. Dalla Strada del Brennero alla MeBo, dalle strade provinciali all'Asa». Strade in cui molto spesso mancano reti che possono impedire l'accesso di animali. «La fauna si sposta — prosegue il ricercatore —. Bisogna sapere dove sono



Il lupo in Alto Adige

eurac research

Daniza superstar: un caso internazionale

Dell'orso parlano The Guardian e Licia Colò. Vanoni: «Mai più in Trentino»

Il Guardian l'ha fatto nel titolo, il postgrado ancora libero, Kusan si rivela un caso internazionale...



Daniza, l'orso che ha fatto il giro del mondo, è stato avvistato in Trentino

Il Guardian l'ha fatto nel titolo, il postgrado ancora libero, Kusan si rivela un caso internazionale... «L'orso è stato avvistato in Trentino...»

«L'orso è stato avvistato in Trentino...»

«L'esperto Favilli (Eurac): «A Probo nessun attacco, reazione normale per un mammifero. L'appello più cartelli in montagna

«Provincia colpevole, scarsa informazione»



How do you benefit from the Environment around you?



The concept of Ecosystem Services (ESS)

definition	Ecosystem services are the benefits people can derive from ecosystems		
why ESS?	Ecosystem services are not unlimited but increasingly threatened by human activities. Linkage between ecosystems and human wellbeing?		
categories (CICES)	Provisioning Services	Regulation & Maintenance Services	Cultural Services
	Materials and energy outputs obtained from ecosystems	All ways in which ecosystems control or modify biotic or abiotic parameters	Ecosystem outputs that have symbolic, cultural or intellectual significance
	links to decision making?	To help inform decision-makers, ecosystem services are being mapped for highlighting their spatial occurrence and/or are being assigned economic values (e.g. replacement cost of anthropogenic alternatives)	

Renewable Energy & Ecosystem Services conflicts

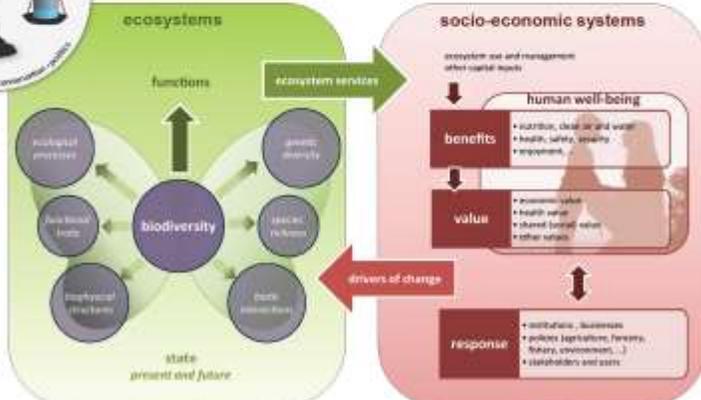
conflict context	Alps: high biodiversity	local environm. prot.	limited space available
	RE: high renewable energy potential	global CO2 targets	space required for renewable energies

conflicting priorities: Various renewable energy sources versus various ecosystem services

- potential for solutions:**
- Ecosystem services provide a conceptual basis for handling the multiple dimensions of environmental conflicts in face of expanding renewable energy production
 - Decision Support tool to illustrate changing ecosystem services benefits/values in face of expanding renewable energy production
 - Incorporation of ecosystem services in Strategic Environmental Assessments
 - Ecosystem services as „soft“ framework for dealing with conflicts arising from expanding renewable energy production: that fall neither in „priority“ nor „no-go-area“ category



Ecosystem Services examples at Hoher Freschen (Vorarlberg/AT). Photo: Richard Hastik
 1 = Provisioning service, 2 = regulation & maintenance service, 3 = cultural service



Conceptual framework for EU wide ecosystem assessments. Source: MAES (2013)

Your steps towards Ecological Connectivity

1 There is a new opportunity to connect with the world. Open your mind and search for a new contact with nature. Try to imagine...

2 What happens if something out of your control connects your brain? Something like a bridge or a specific human behavior that improves but does not completely block movements. How would you react?

3 The heart shows and the heart remembers the most important details and the natural order of things change, your benchmarks disappear because you cannot stay on your own path.

4 Our lungs need pure air for a healthy functioning brain. As the air is for man, ecological connectivity is important for many ecological processes, including wildlife dispersal and gene flow, breeding, migration, and responses to climate change. Two primary strategies are usually followed to enhance ecological connectivity. The first focuses on maintaining suitable connection areas. The second one focuses on increasing connectivity across fragmented and high-impact areas that impede movements.

5 Detecting barriers and their impact would be important for connectivity analysis. Some barriers may be surmountable, others not. Barriers and wildlife needs can be integrated to avoid the oversteering of objectives. Humans and wildlife need free legs.

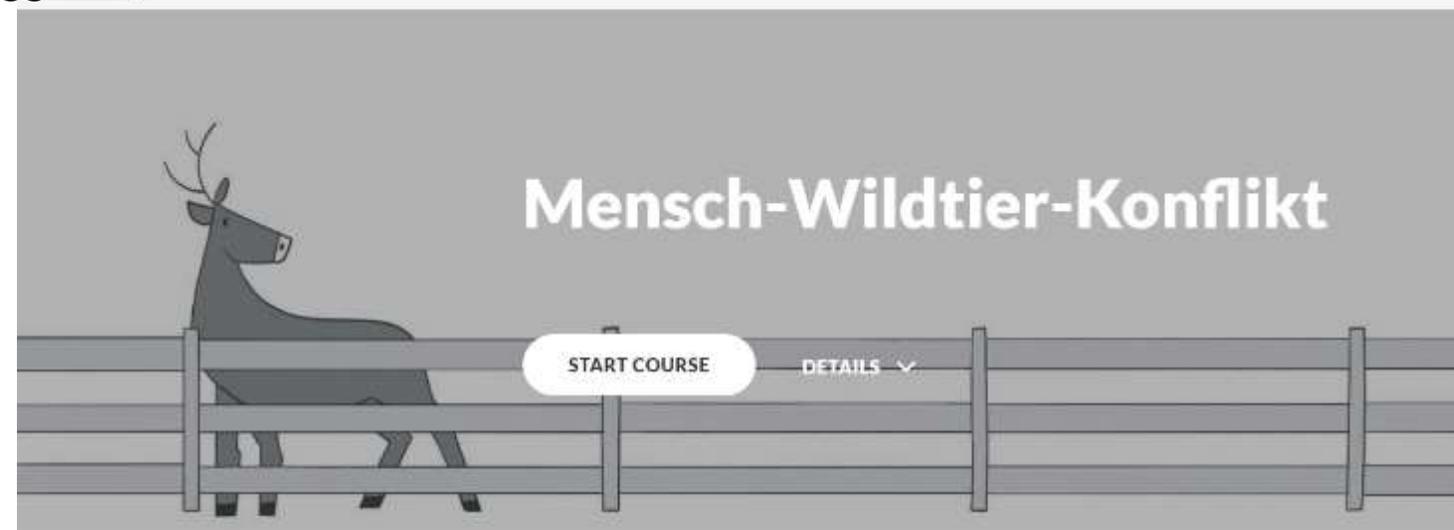
6 It is fundamental to identify and conserve important areas for animal connectivity. Several important issues have to be considered:

EUROPEAN GREEN DEAL
 The European Green Deal has a fundamental objective: to reach net-zero by 2050 by using the Paris Agreement as a guide. The European Green Deal is a comprehensive policy package that is designed to address the climate crisis and to ensure a just transition to a sustainable economy and society. It includes a wide range of measures to reduce greenhouse gas emissions and to increase the resilience of the EU economy and society to the impacts of climate change.

GREEN INFRASTRUCTURE
 The Green Infrastructure Strategy is a key element of the European Green Deal. It aims to enhance the resilience of the EU economy and society to the impacts of climate change and to improve the quality of life of citizens. It includes a wide range of measures to protect and restore natural ecosystems and to create a network of green infrastructure that connects cities and regions.

Human society and wildlife share the same need: free movement for a healthy working brain. Take initiative! Get informed! What can YOU do for ecological connectivity?

eurac research



eurac
research

<https://www.eurac.edu/en/magazine>



<https://e-learning.eurac.edu/>

Lesson 6 of 8

Il ritorno del lupo nelle Alpi

La situazione

I lupi vivono da sempre in diverse regioni europee, Appennini e Alpi compresi. Nel XIX e XX secolo hanno tuttavia rischiato l'estinzione per i seguenti motivi:

- Campagne per la protezione del bestiame attraverso lo sterminio dei lupi.
- Crescita della popolazione umana e invasione dell'habitat dei lupi.
- Caccia con armi sempre più precise e specializzata nei confronti del lupo.



Negli anni settanta si contavano meno di 100 esemplari in Italia e tutti concentrati negli Appennini. Oggi, la popolazione dei lupi è in aumento in tutta Europa e tende a colonizzare nuove aree.

Original Article | Published: 16 April 2020

The attitude of society to the return of the wolf in South Tyrol (Italy)

[Julia Stauder](#) , [Filippo Favilli](#), [Agnieszka Elzbieta Stawinoga](#), [Andrea Omizzolo](#) & [Thomas Philipp Streifeneder](#)

European Journal of Wildlife Research **66**, Article number: 40 (2020) | [Cite this article](#)

174 Accesses | [Metrics](#)

Abstract

This article provides a first investigation on the attitude of South Tyrolean residents (northern Italy) toward the return of the wolf in their province. Data were collected through an online questionnaire, which was available for 54,527 residents (≥ 18 years old) of South Tyrol with internet access and a Facebook® account and was shared on the institute's homepage. In total, 1818 valid responses were collected in 2 months in 2018. Cluster analysis evidenced four homogenous groups of respondents characterized by the components of attitude, their district community, the wolf distribution in their area, belief factors, and the personal fear of wolves. The data analysis revealed differences and relations between the four clusters in the level of knowledge, experience with wolves, education level, and the expected impact on the tourist sector. The obtained results (1) evidence some key factors influencing the attitude of residents, (2) underline the importance of considering small spatial scale attitudinal differences, and (3) urge for an extended human dimension of wolf coexistence research to support local management strategies.

Lupo, tutte le sorprese dello studio Eurac «In molti a favore»

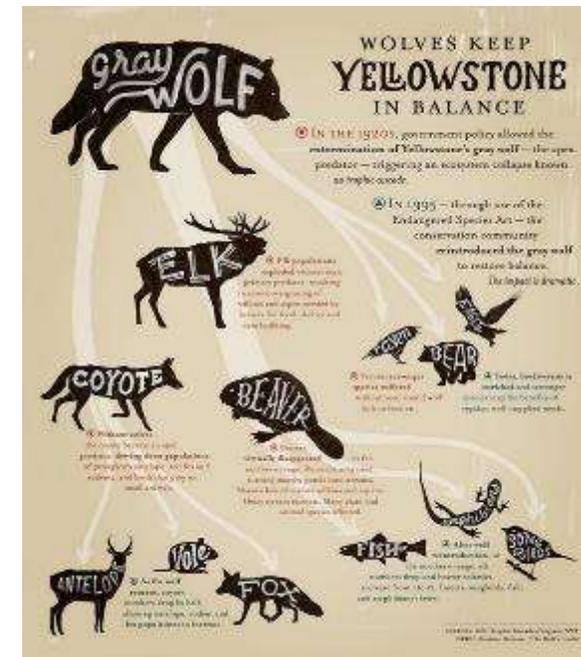
I dati della ricerca. Il 65% degli altoatesini ha un'opinione tendenzialmente positiva o neutra L'83% del campione intervistato non ritiene che il lupo sia pericoloso per l'uomo Stauder: «Gli allevatori si sentono però penalizzati e incompresi da parte di chi vive nelle città»

10 aprile 2019 | [A-](#) | [A+](#) |  |  | 



How can EU projects help?

- Provide rural populations the knowledge about socioeconomic potentials of wildlife
- Sustain wildlife-based tourism with scientific data
- Increase awareness on wildlife ecological functions and ecosystem services
- Spread the concept of intrinsic value of Nature



Cooperation needed

- Human-wildlife conflicts → **Human-human conflicts**
- Ecology is part of the solution – **human dimension** is as much as important
- Consider personal **perception** of conflict
- **Balance** global view with local needs
- Utilize multiple instruments and tools – **holistic** approach



Wildlife management – it's about balance.



Cooperation needed

- **GIS** Analysis of EC / **Social** impact of EC / **Economic** potentials of EC
- Collect and discuss the **causes** of current conflicts
- Create **scenarios**
- Discuss appropriate **methods**
- Capacity building of **actors**
- Communication and information to the **public**





THANK YOU

A species survives when, and only when, humans decide to value it, have positive attitudes toward it, and actively engage in doing something to conserve it (Bath, 2009)

eurac
research

Filippo Favilli, PhD

Eurac Research

Viale Druso 1, 39100 Bolzano

T +39 0471 055 327

filippo.favilli@eurac.edu

www.eurac.edu

The future of wild species depends as much on human attitudes, emotional responses and behaviours as it does on wildlife ecology (Enck et al., 2006)