

# **LANDSCAPE DIVERSITY IN EUROPE AND IN SLOVENIA**

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**COMLAND**  
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# ALPINE SLOVENIA

The hayrack (kozolec) is a simple but effective wooden structure for drying hay. Several different types can be distinguished across Slovenia.



Among Slovenia's most outstanding sites is Bled, with its glacial lake, island, and castle on the high rock.



Lake Bohinj in the Julian Alps.





# ALPINE SLOVENIA

Alpine landscapes: in the background, the Karavanke Mountains with Mount Stol (2,236 m) and the Kamnik-Savinja Alps converge; in the foreground is the Sava Plain (Savska ravan) with forest-covered conglomerate and cleared gravel river terraces near the small town of Radovljica in the northwestern part of the Ljubljana Basin.



The Kamnik--Savinja Alps (Kamniško-Savinjske Alpe) in the background, Limbarska gora in the Sava Hills (Posavsko hribovje) in the foreground.



Mount Triglav (2,864 m) above the winter fog .



# PANONNIAN SLOVENIA

Pannonian landscapes: in the foreground, the cultivated Drava Plain (Dravska ravan); in the background, the vineyard-covered low Dravinja Hills (Dravinjske gorice), behind these the steeper Haloze region, known for its frequent landslides, and above this table-shaped Mount Donačka gora (882 m).



Ptuj, the oldest town in Slovenia, along the Drava River.

A traditional wooden wind-rattle (klopotec) turns in the wind, driving birds away.





# DINARIC SLOVENIA

Cave salamander (*Proteus anguinus*)



Predjama Castle  
is the only preserved cave castle in Europe.

Postojna Cave (Postojnska jama)  
is the best-known Slovenia's cave.





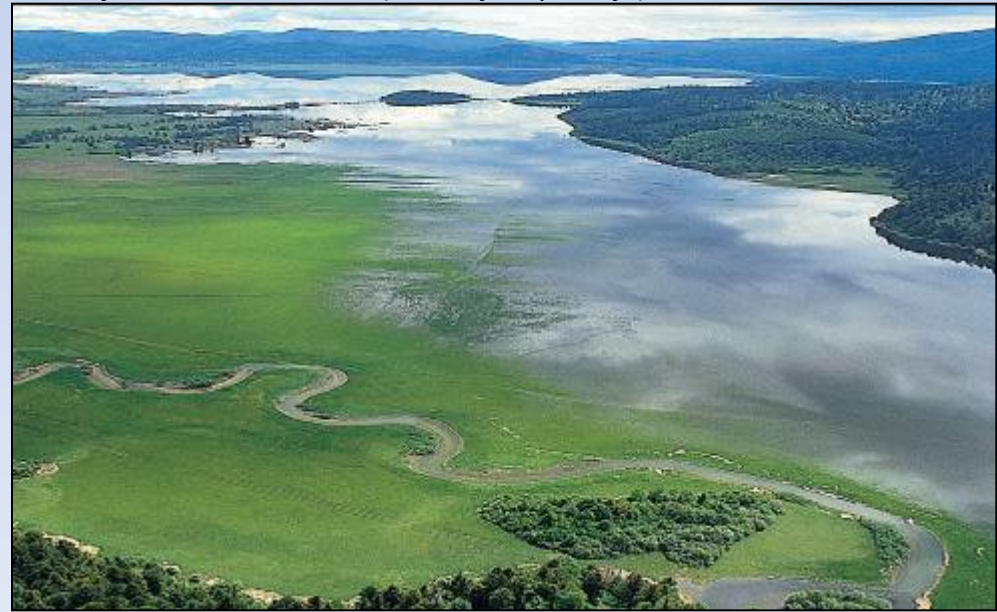
# DINARIC SLOVENIA

White Carniola (Bela krajina) is a low corrosion plain.



The Mount Snežnik region is the most forested part of Slovenia.

The intermittent Lake Cerknica (Cerkniško jezero) is located in the Notranjska Dinaric lowlands (Notranjsko podolje).





# MEDITERRANEAN SLOVENIA



The Lipizzaner horses



Part of the village of Štanjel is a protected monument.

Due to their exceptional natural and cultural heritage, the Sečovlje Salt pans were declared a nature park in 1989, and in 1993 this site was included on the Ramsar List of Wetlands of International Importance.





# MEDITERRANEAN SLOVENIA

Portorož



Piran



Koper, Roman Capris, lies on the northwest coast of Istria. The town's old medieval core stands on a former island and the newer parts of the city extend along the nearby hills. The growth of the port strengthened Koper's role as Slovenia's third regional center alongside Liubljana and Maribor.



# Is it possible to calculate landscape diversity?

**IF**

**experts made official landscape classifications**

(e.g. published papers),

**THEN**

**we can find places [*landscape hotspots*] that are close to different landscape categories**

(regions, types, etc.)!



# *Landscape* Hotspots?

Localities on the Earth's surface where greater than average *landscape diversity* takes place, often leading to *explosion of different experiences...*



# The main motive

- To analyse different landscape classifications of Europe and **determine where the most diverse areas are.**
- To analyse diversity for the area of Slovenia.





# How did we do it?

**1) Building database**

**2) Calculation of diversity** for each landscape classification

**3) Calculation of average diversity**

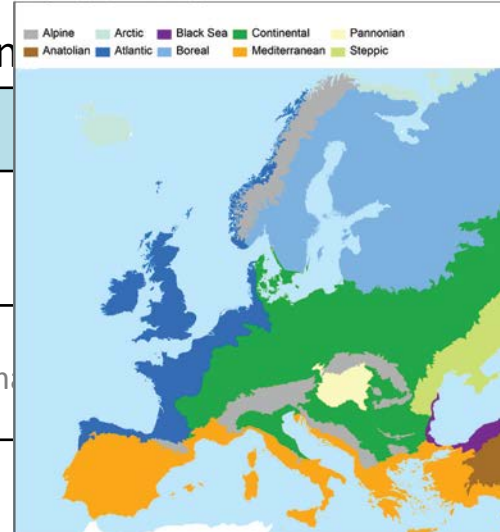


# Landscape classifications

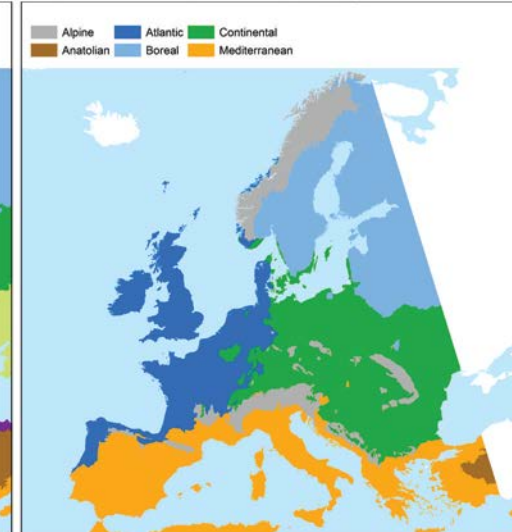
Digital landscape classification (main)

Name (source)
<b>Biogeographical regions (v2011)</b> (EEA, 2011)
<b>Environmental stratification of Europe</b> (Mücher et al., 2003; Metzger et al., 2005; Jongm)
<b>European landscape classification</b> (Mücher et al., 2003; 2006; 2009)
<b>Terrestrial ecoregions of the World</b> (Olson et al., 2001)

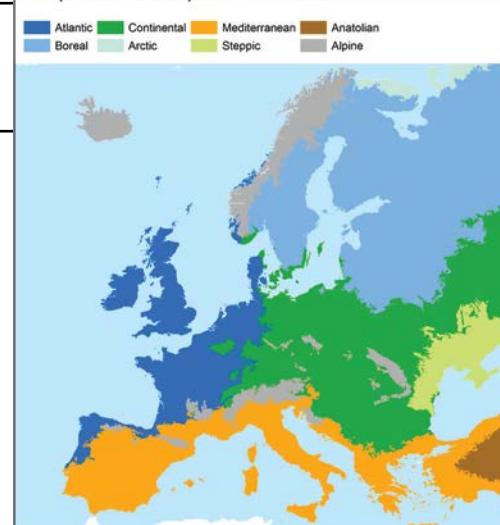
Biogeographical regions



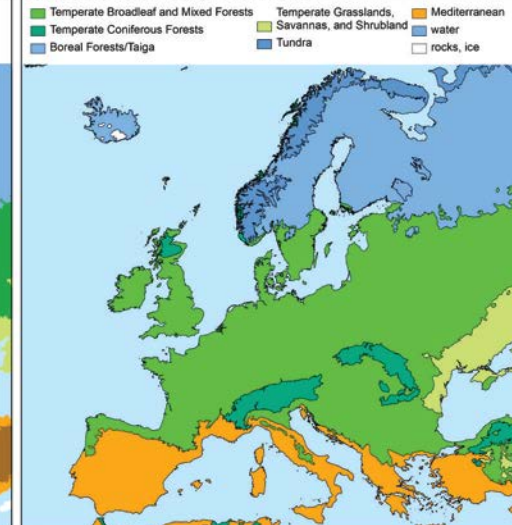
Environmental stratification of Europe



European landscape classification



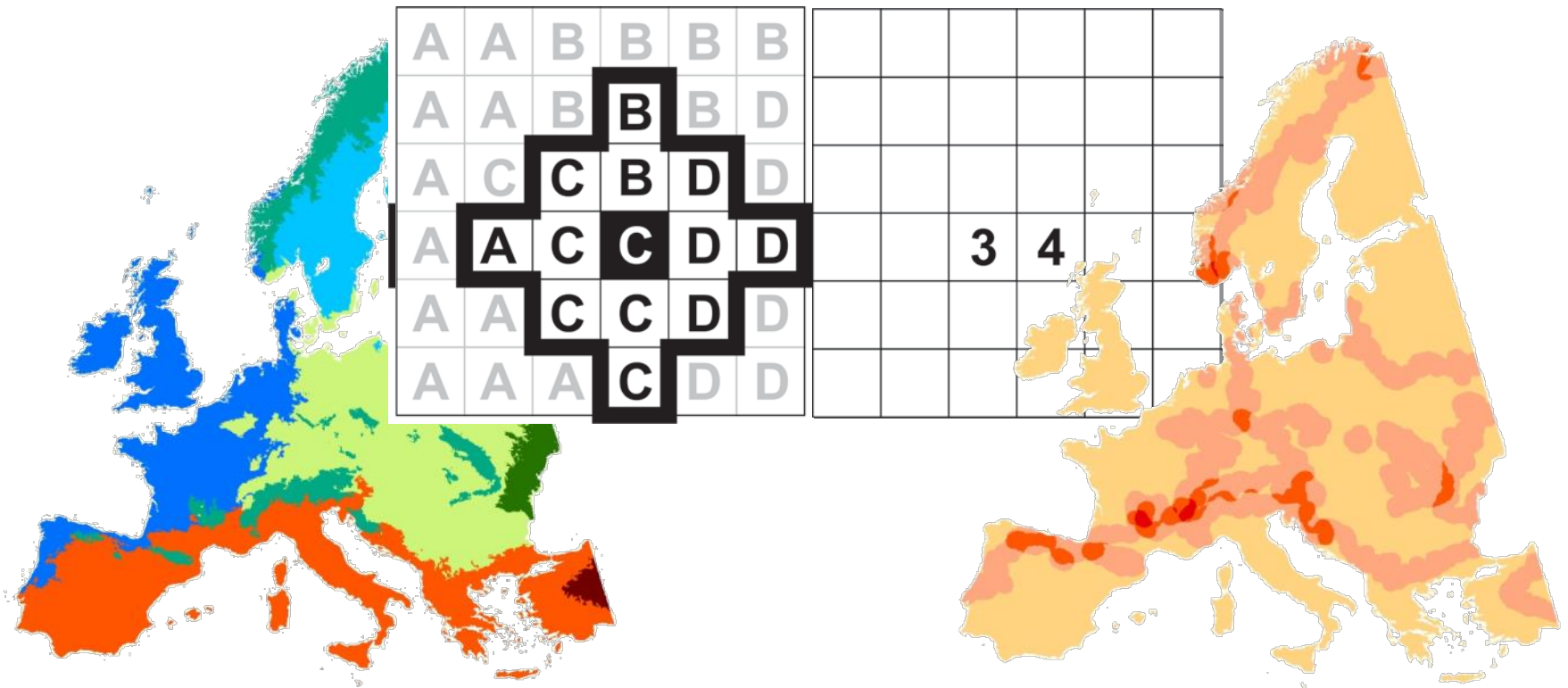
Terrestrial biomes of the World





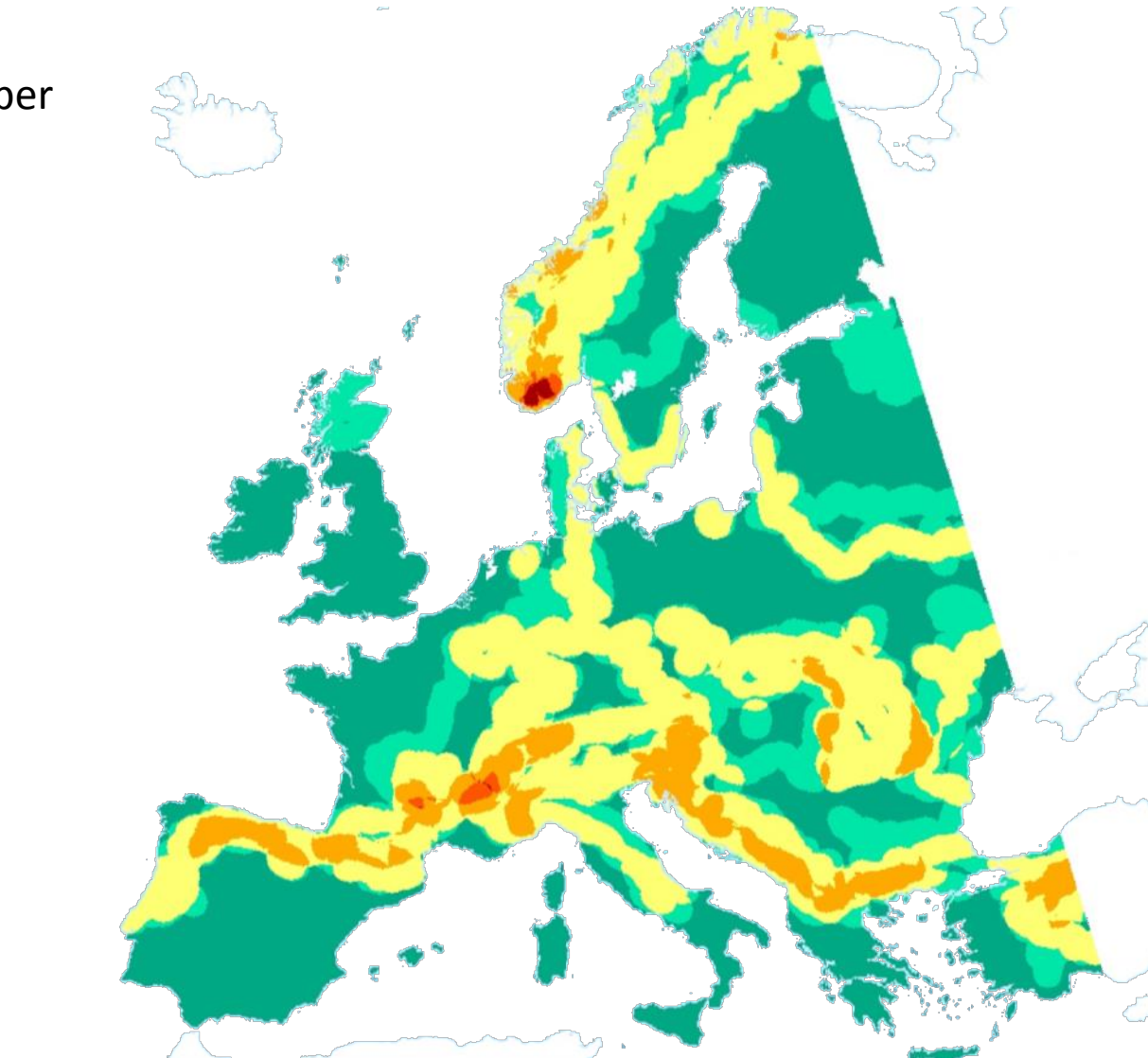
# Calculation of diversity for each landscape classification

We calculated the number of unique landscape categories in 50 km radius for each cell (FOCAL STATISTICS in ArcGIS).

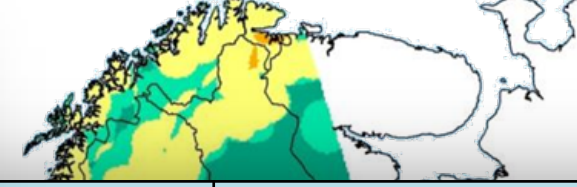


# Calculation of average diversity

1. We divided each map of landscape diversity with number of all unique landscape categories (regions, types) in corresponding classification,
2. we calculated average of all 4 classifications.



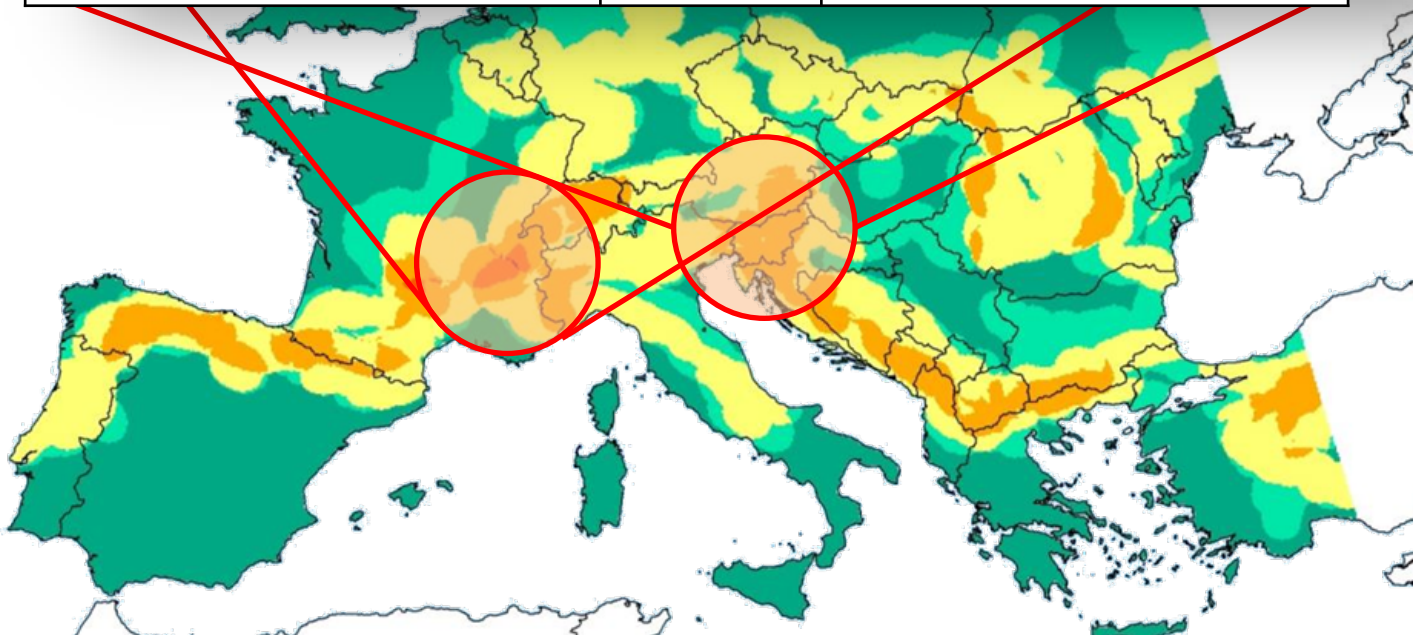




Classification	Number of categories	Landscape categories near the hotspot
Biogeographical regions	3/10	<i>Alpine, Atlantic, Boreal</i>
Environmental stratification of Europe	4/6	<i>Alpine, Atlantic, Boreal, Continental</i>
European landscape classification	4/8	<i>Alpine, Atlantic, Boreal, Continental</i>
Terrestrial biomes of the World	4/7	<i>Temperate Coniferous Forests, Boreal Forests/Taiga, Tundra, Temperate Broadleaf and Mixed Forests</i>

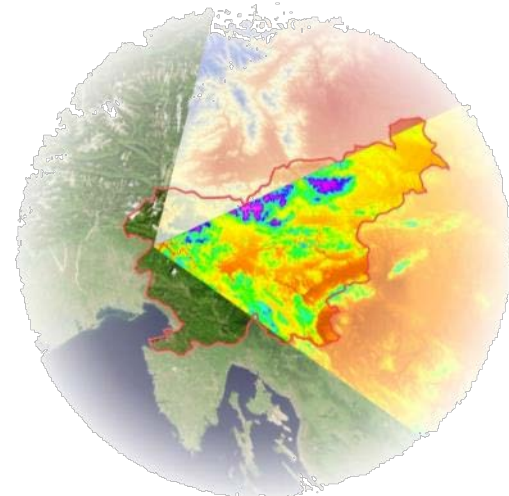
	Number of categories	Landscape categories near the hotspot
	3/10	<i>Alpine, Continental, Mediterranean</i>
Europe	4/6	<i>Alpine, Atlantic, Continental, Mediterranean</i>
on	4/8	<i>Alpine, Atlantic, Continental, Mediterranean</i>
	3/7	<i>Temperate Coniferous Forests, Temperate Broadleaf and Mixed Forests, Mediterranean</i>

Terrestrial biomes of the World	3/7	<i>Temperate Coniferous Forests, Temperate Broadleaf and Mixed Forests, Mediterranean</i>
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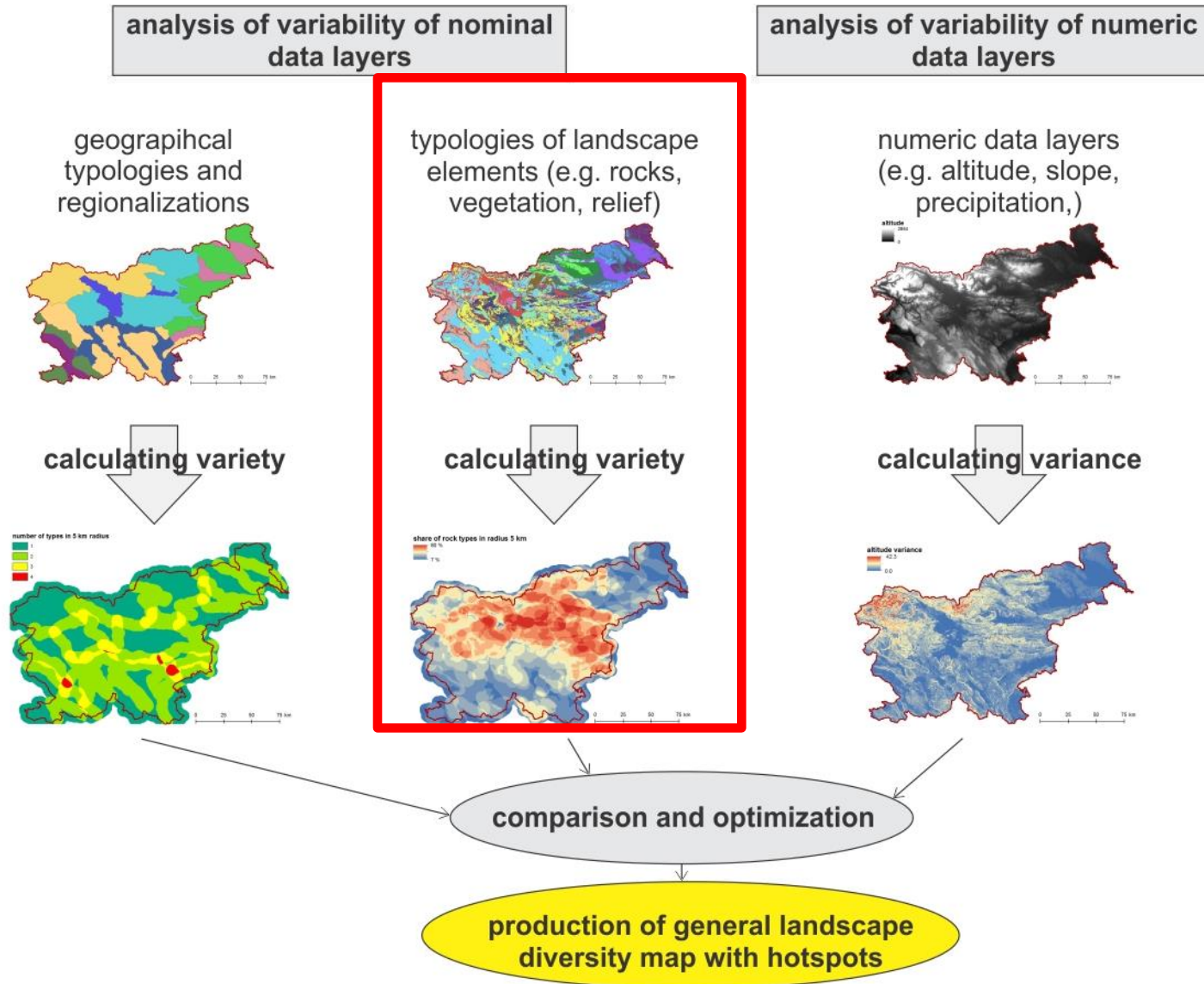
# Motivation for further analysis (landscape diversity in Slovenia)

- Because of Slovenia's location at the intersection of the Mediterranean, Alps, Dinaric Alps, and Pannonian Basin, landscape diversity can be regarded as one of the country's natural resources.
- Diversity can be viewed as a development opportunity on the one hand, but on the other it may create specific challenges for spatial planning.

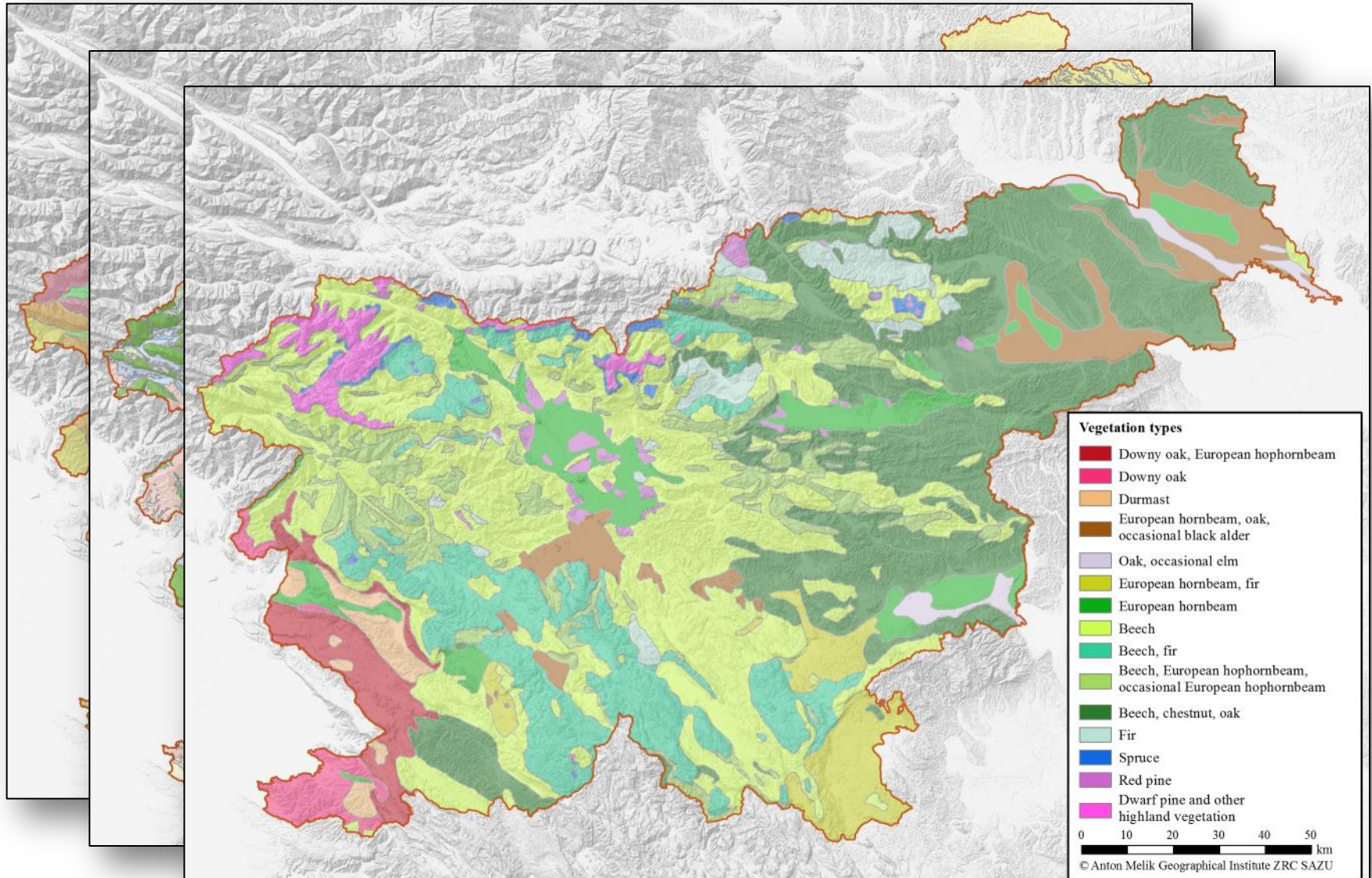




# The whole project workflow

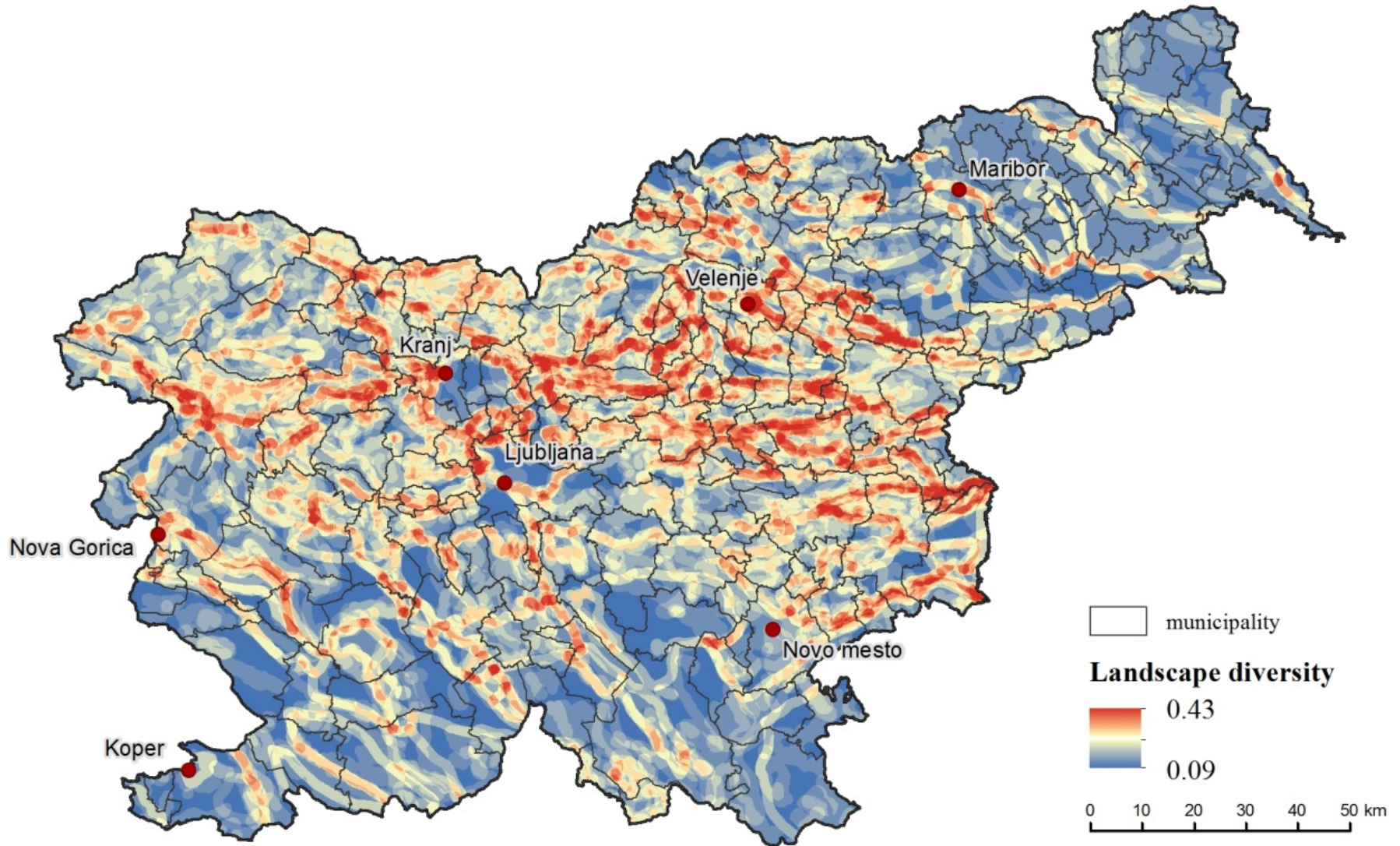


# Data: relief types (7), rock types (15), vegetation types (15)





# Result



# New challenges



## FIELD WORK

### ADVANTAGE or THREAT?

- high biodiversity, high development potential (tourism, diverse natural resources) ...
- difficult transfer of good practices from one place to another

### ATTRACTIVENESS = DIVERSITY?

...



# Thank you for your attention!



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