



**Lawrence J-W**



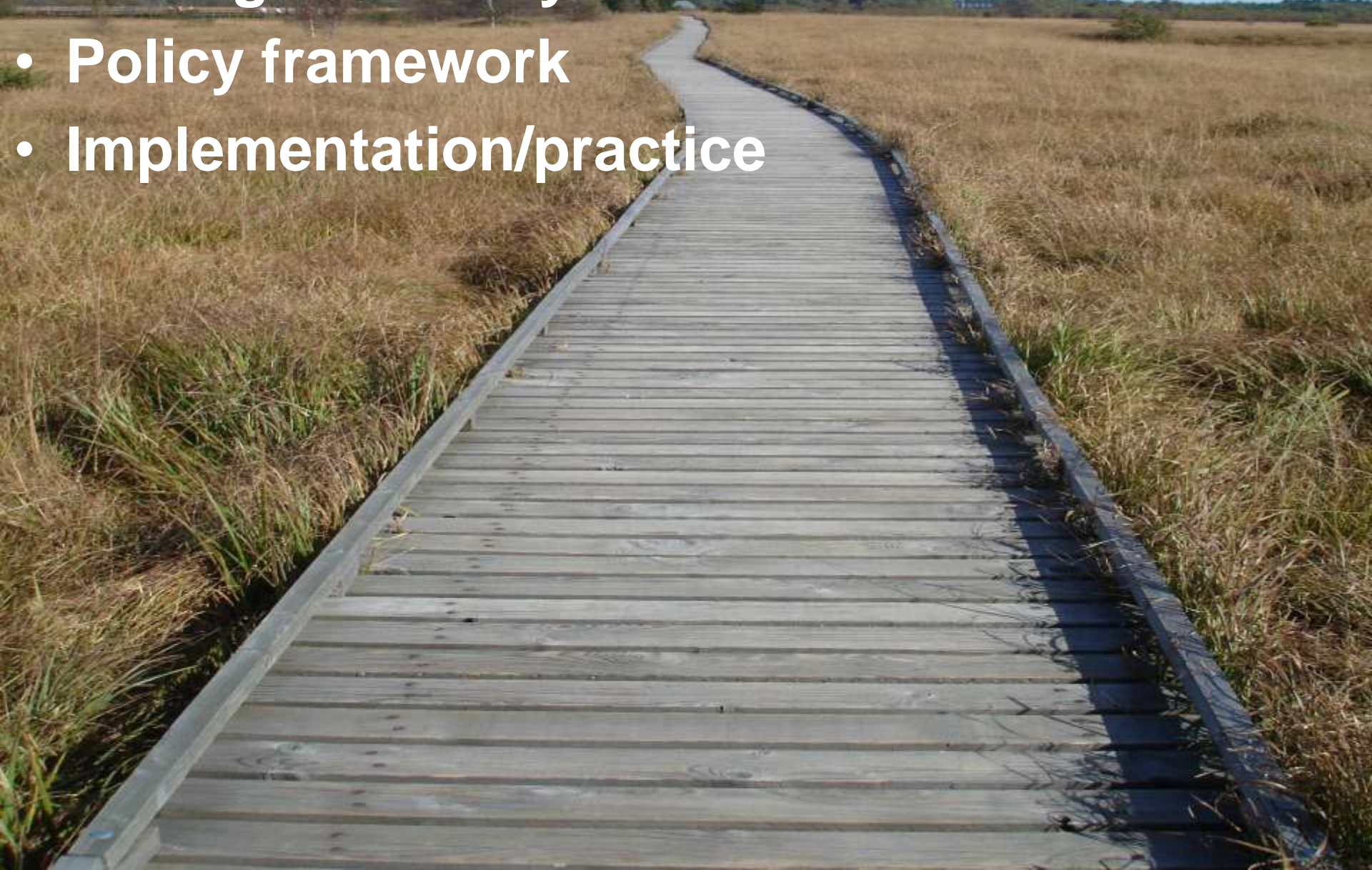
**ECNC**

european centre for nature conservation



# Ecological Networks

- Ecological theory
- Policy framework
- Implementation/practice





- 
- An aerial photograph of a large, winding lake surrounded by lush green hills and a small village. The lake is the central focus, with its blue water contrasting against the vibrant green of the surrounding forest. In the foreground, there are large, light-colored rocks. The overall scene is a beautiful natural landscape.
- **Expertise centre working for the conservation and sustainable use of Europe's nature, biodiversity and landscapes**
  - **Not-for-profit foundation established in 1993, Pan-European scope**
  - **Facilitates and drives the interface between science, society and policy**
  - **Network institution that organises and mobilises expertise between universities, research institutes, conservation agencies and reference centres**



# ECNC and ecological networks



- Independent organisation working for the conservation and sustainable use of Europe's nature, biodiversity and landscapes
- Pan-European scope
- Not-for-profit foundation
- ECNC coordinated the establishment of the PEEN together with the Council of Europe

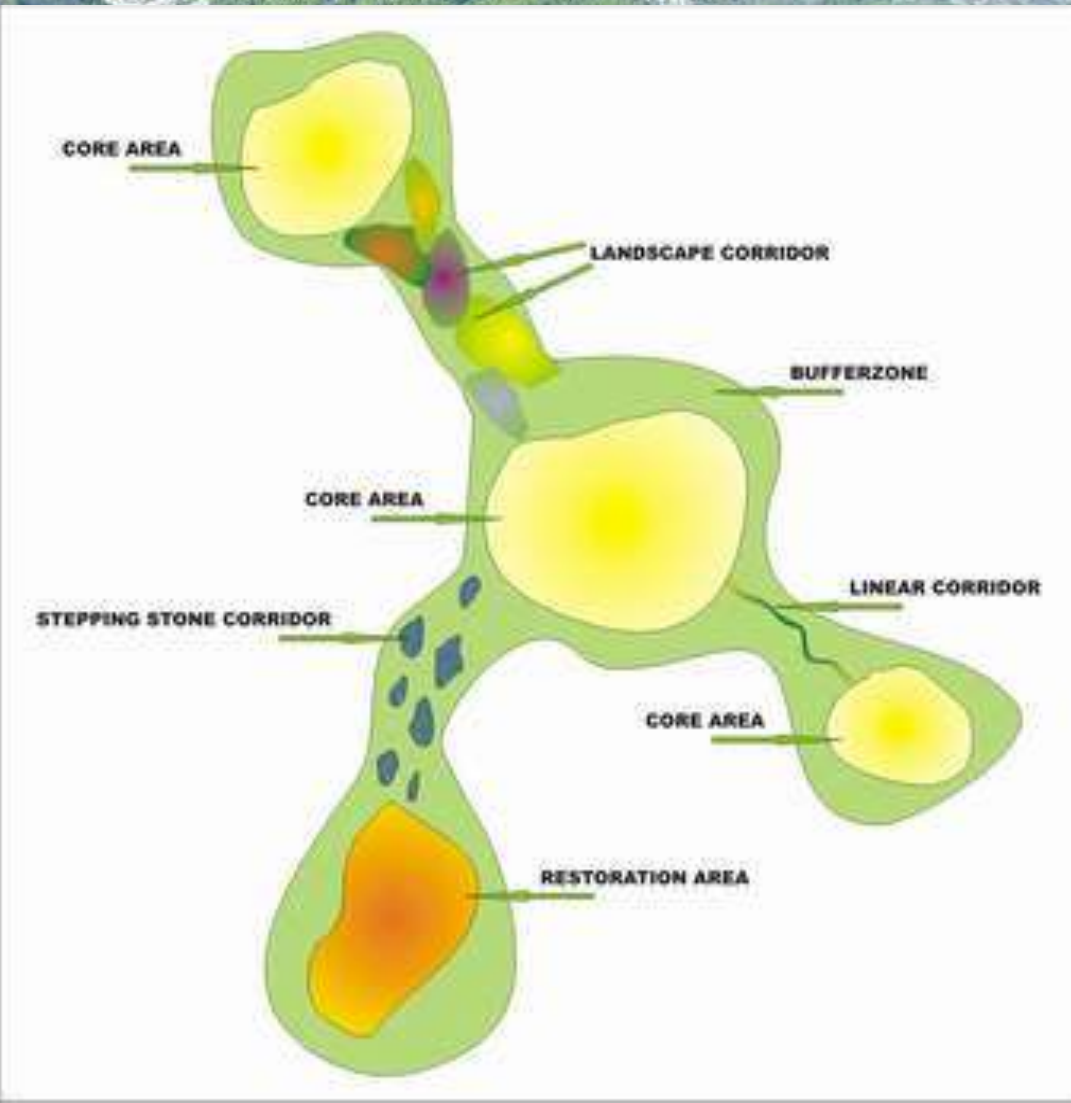


# The ecological network concept

- Counteract fragmentation
- Conservation of core areas
- Buffering
- Maintaining/establishing connectivity
- Climate change
- Tool for ecological design and planning
- Tool for interaction with other land uses
- **Political instrument**



# Elements of ecological networks





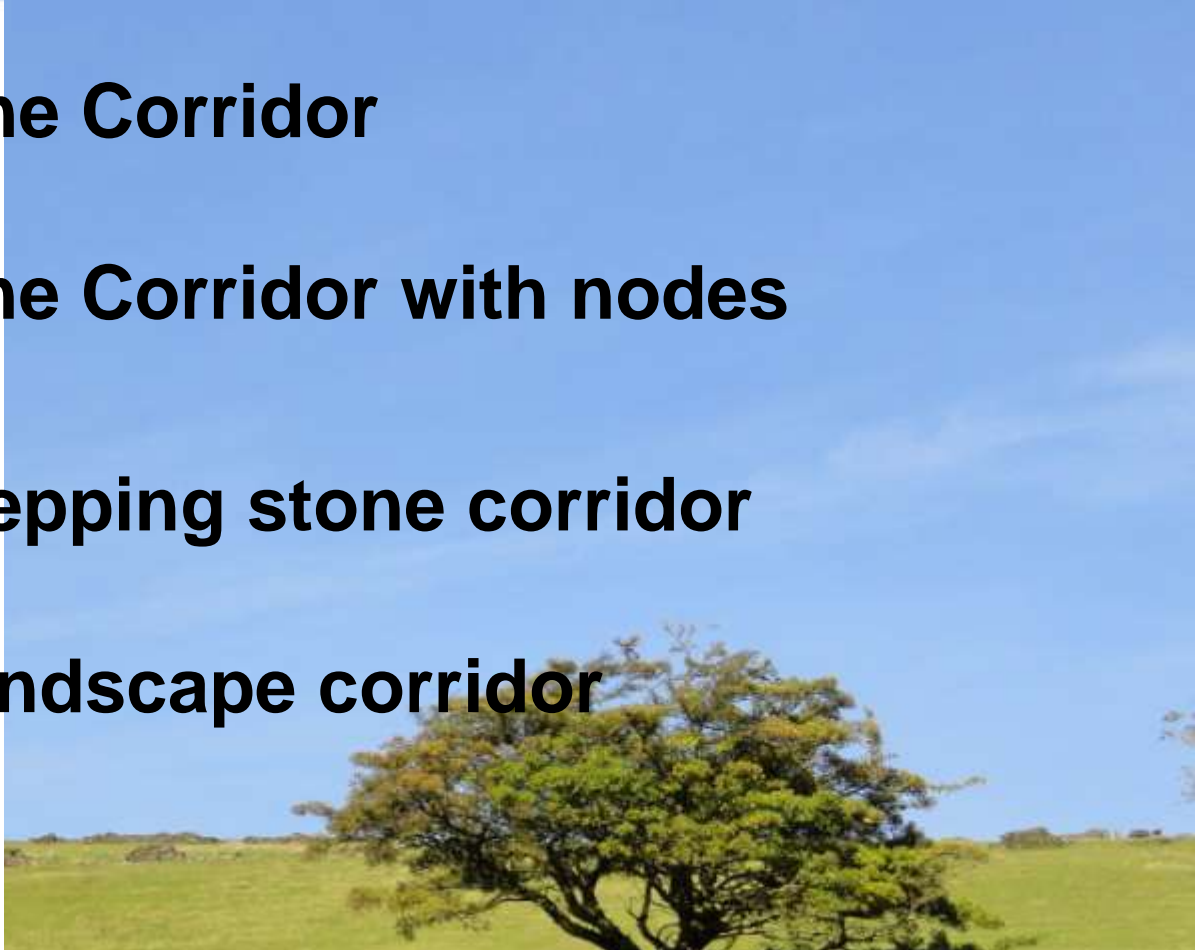


**Line Corridor**

**Line Corridor with nodes**

**Stepping stone corridor**

**Landscape corridor**



**A typology of corridors**

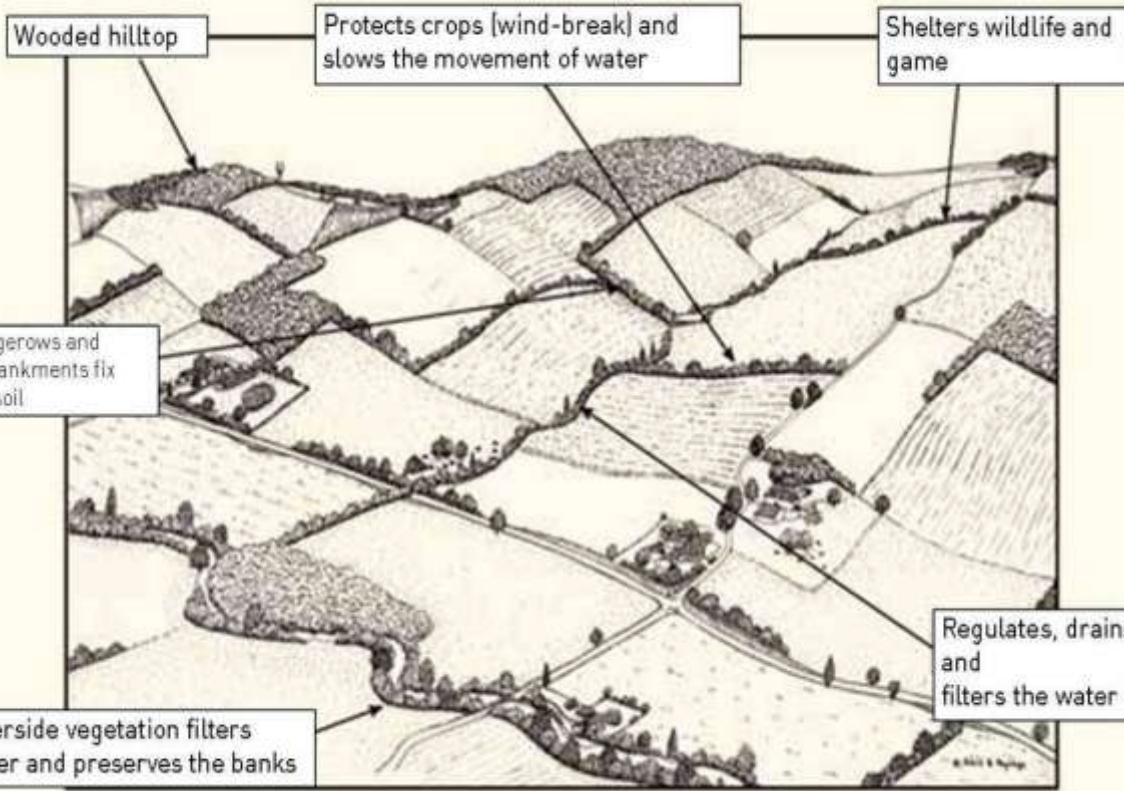


Used by.....





# LANDSCAPE SCALE



## Multifunctional landscapes



Micro/transient level  
– beetle banks



And others



Nina Fatouros



# International policy framework

- CBD
- Ramsar Convention
- CMS or Bonn Convention
- Bern Convention
- Landscape Convention
- Carpathian Convention





# Pan European Ecological Network (PEEN)

- 
- Ecological network, 53 countries, legally non-binding
  - Promotes synergy between different networks
  - Internationally accepted:
    - Endorsed in 1995 as part of the PEBLDS
    - Reinforced in 2003: Kyiv Resolution on Biodiversity
  - PEEN Experts Committee (CoE, ECNC)




# EU & Pan European Policies



- **Emerald Network**
- **Birds and Habitats Directives & Natura 2000 Network**
- **EIA and SEA Directives**
- **Water Framework Directives**
- **Marine Strategy Framework Directive**



# Current programmes

- 
- A photograph taken from inside a dark tunnel, looking out through a circular opening. The view is bright and shows a body of water in the foreground, reflecting light. In the background, there is a grassy area with some taller, dry-looking grasses. The overall scene is a natural landscape seen through a man-made structure.
- Applied at all scales from local to supracontinental
  - Over 150 ecological network programmes worldwide
  - Over 50 ecological network programmes in Europe
    - Many in planning stage



# Progress

- 
- **PEEN for Central and Eastern Europe (2002):** Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Romania, Moldova, Ukraine, Belarus, and the European part of Russia.
  - **PEEN for South-Eastern Europe (2006):** Slovenia, Croatia, Bosnia- Herzegovina, Serbia- Montenegro, Republic of Macedonia, Albania, Bulgaria, Greece and Turkey.
  - **PEEN map for Western Europe (2006).**



**INDICATIVE MAP OF THE PAN-EUROPEAN ECOLOGICAL NETWORK  
FOR CENTRAL AND EASTERN EUROPE**

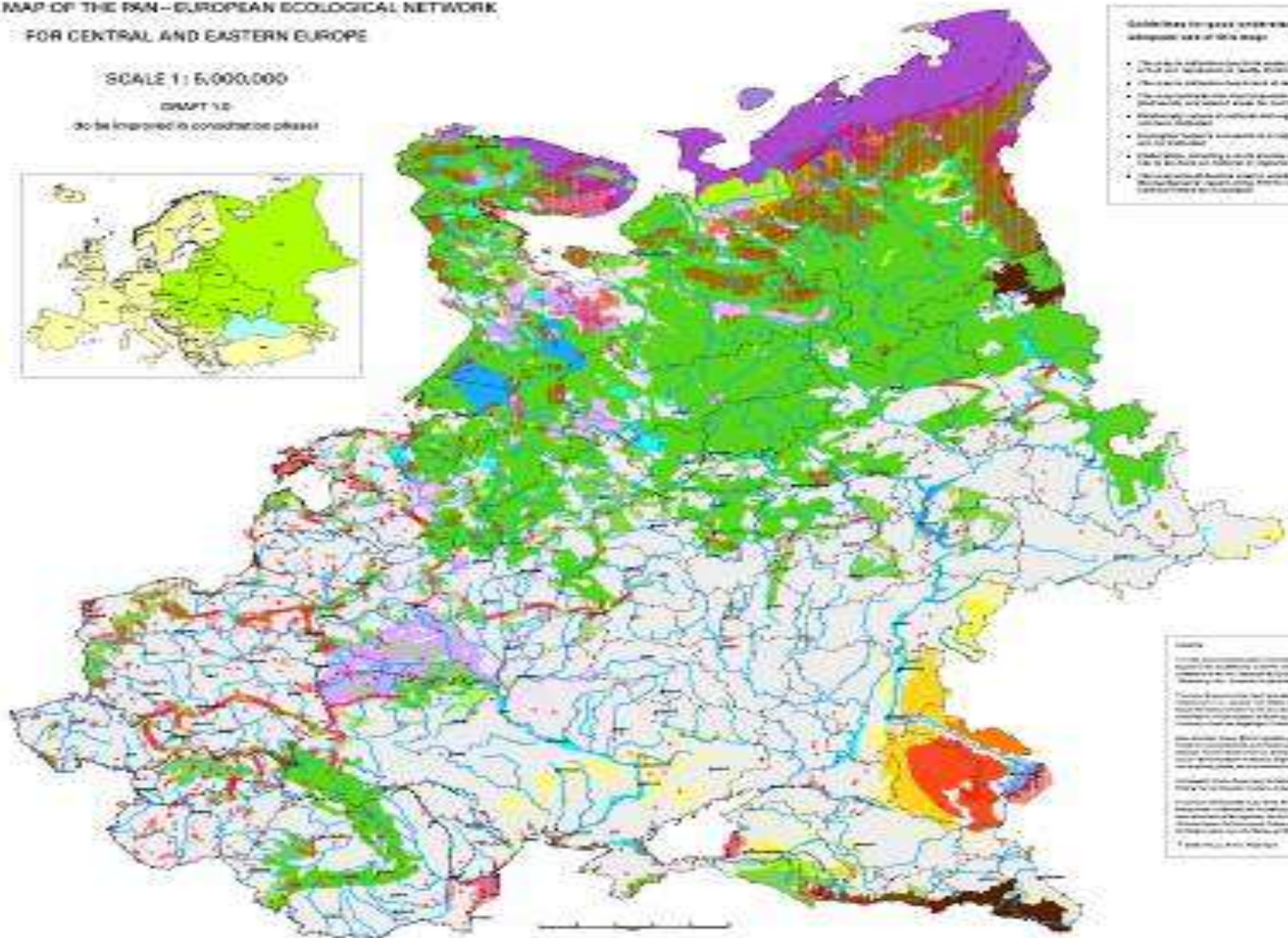
SCALE 1 : 5,000,000

DRAFT 1.0

to be improved in consultation phase!



- Guidelines for good understanding and subsequent use of this map:**
- This is an indicative map. It is not a final map and should not be used for legal purposes.
  - The map is intended to provide a general overview of the network and is not a detailed map.
  - The map is based on the best available data and is subject to change.
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**Legend**

**Core Areas**

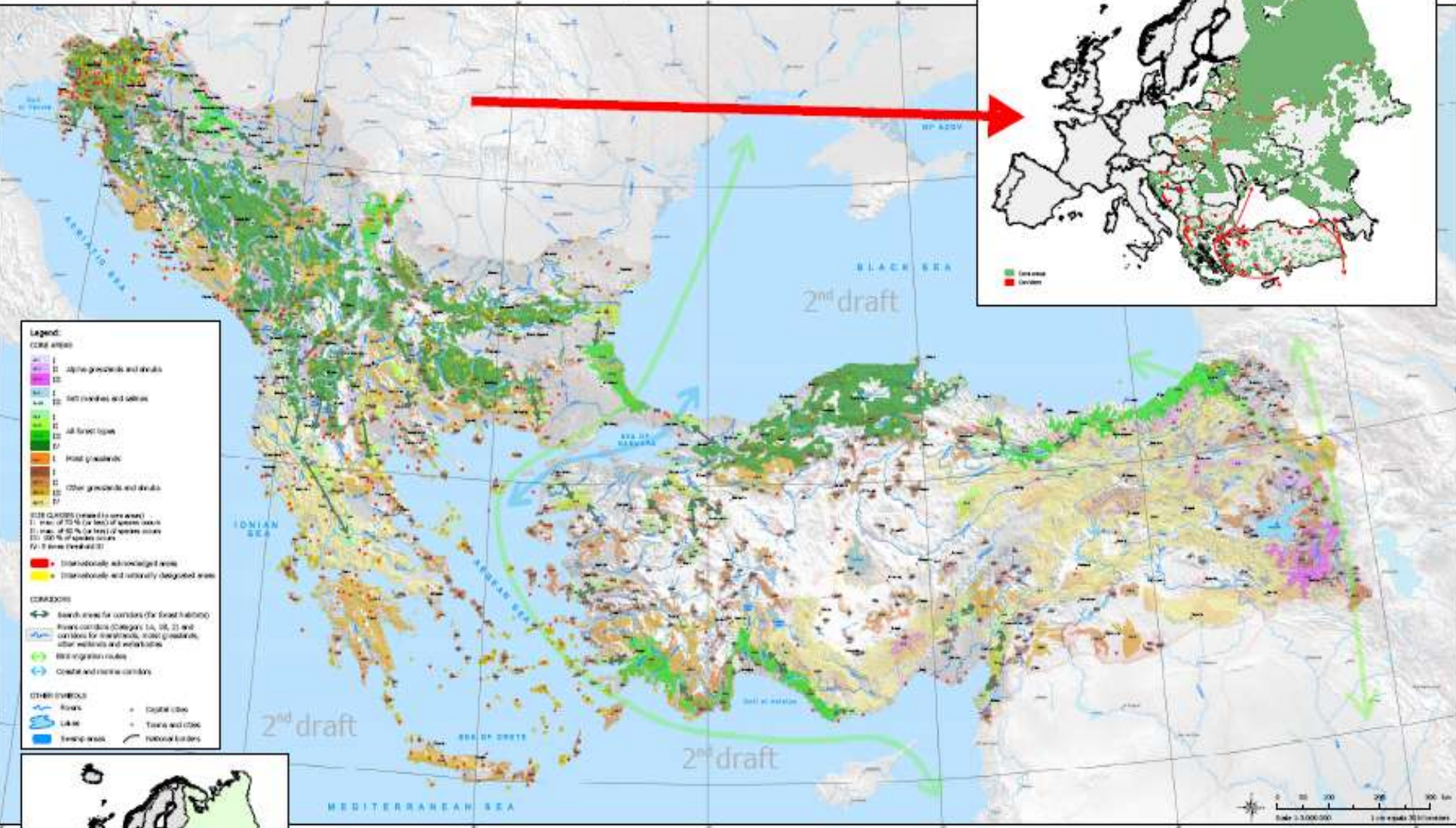
**Search Areas for Natura 2000 Sites**

**Topography**

**Scale**

- Legend**
- CORE AREAS**
- Core Areas (Natura 2000 sites)
  - Search Areas for Natura 2000 Sites
  - Core Areas (Natura 2000 sites)
  - Search Areas for Natura 2000 Sites
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- TOPOGRAPHY**
- Topography
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  - Topography





- Legend:**
- CORE AREAS**
- 1 Alpine grasslands and shrubs
  - 2 Soft meadows and wetlands
  - 3 All forest types
  - 4 Hard grasslands
  - 5 Other grasslands and shrubs
- ECN CLUSTERS (based on core areas)**
- 1: area of 75% (at least) of species score
  - 2: area of 50% (at least) of species score
  - 3: 25% (at least) of species score
  - 4: 10% (at least) of species score
- CORRIDORS**
- Search areas for corridors (for forest habitats)
  - Rivers corridors (Categories 1a, 1b, 2) and other wetlands and waterbodies
  - Other wetlands and waterbodies
  - Wild vegetation routes
  - Coastal and marine corridors
- OTHER SYMBOLS**
- Rivers
  - Lakes
  - Coastal waters
  - Capital cities
  - Towns and cities
  - national borders



**Guidelines for understanding and correct use of this map:**

This map is indicative and not final. An example of a map with 10% representation of the 100% of the area of the region is shown. The map is not intended to be used as a basis for legal decisions. It is intended to be used as a basis for the development of the Pan-European Ecological Network.

The map includes the core areas of the network as well as the corridors. The map is intended to be used as a basis for the development of the Pan-European Ecological Network.

The map should be used in conjunction with the technical background documents of the project.

Geographical names mentioned in the text of the ECN project documents and hereafter are not intended to be used as a basis for legal decisions.

Information of the project including a more detailed description of the project areas, can be obtained in a national or regional level.

**COGNITION**

The map and accompanying data were prepared under the auspices of the Committee of Experts for the development of the Pan-European Ecological Network. The map and accompanying data were prepared by the European Centre for Nature Conservation (ECNC) in cooperation with the Centre for Geographic Information Systems (CGIS) and others.

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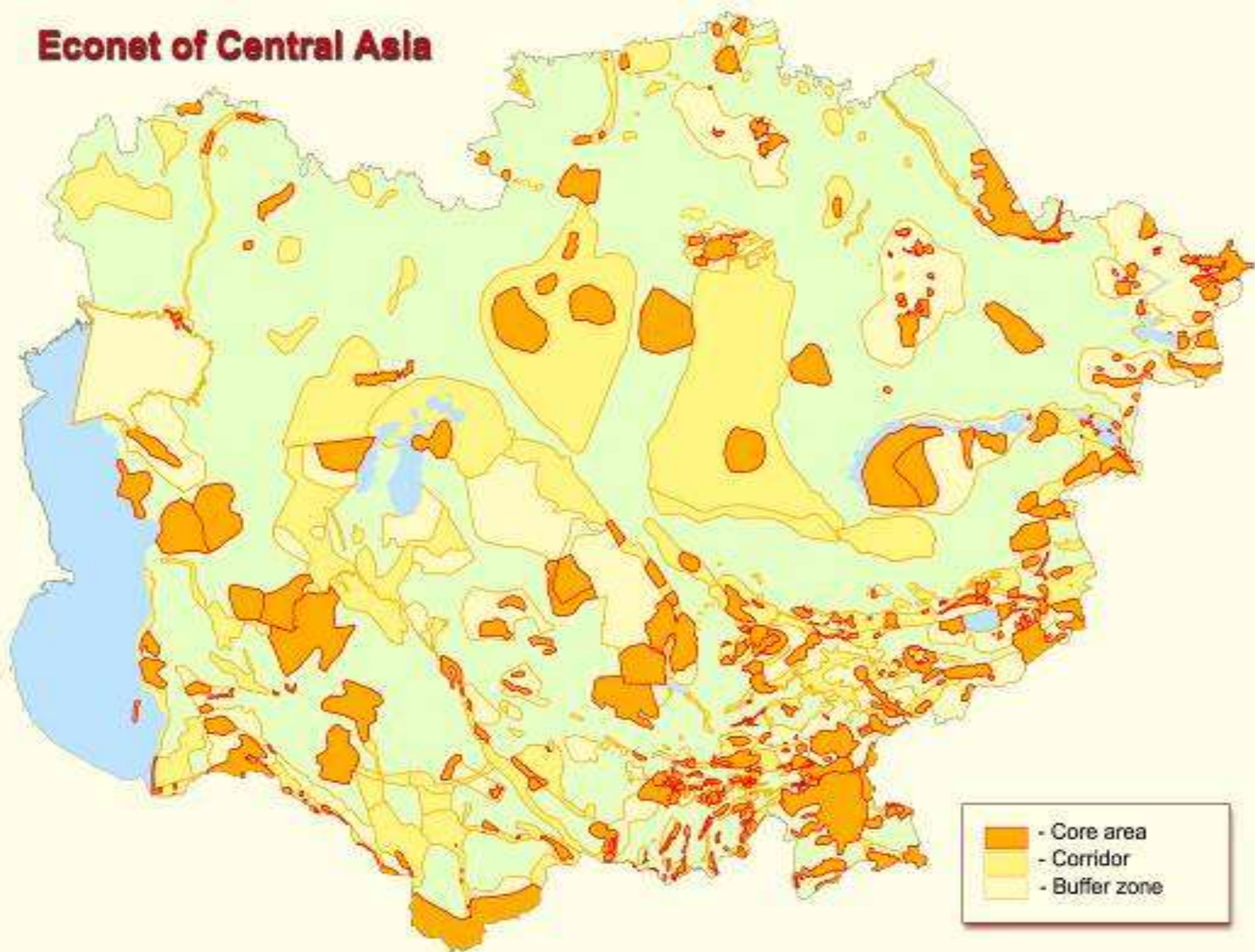
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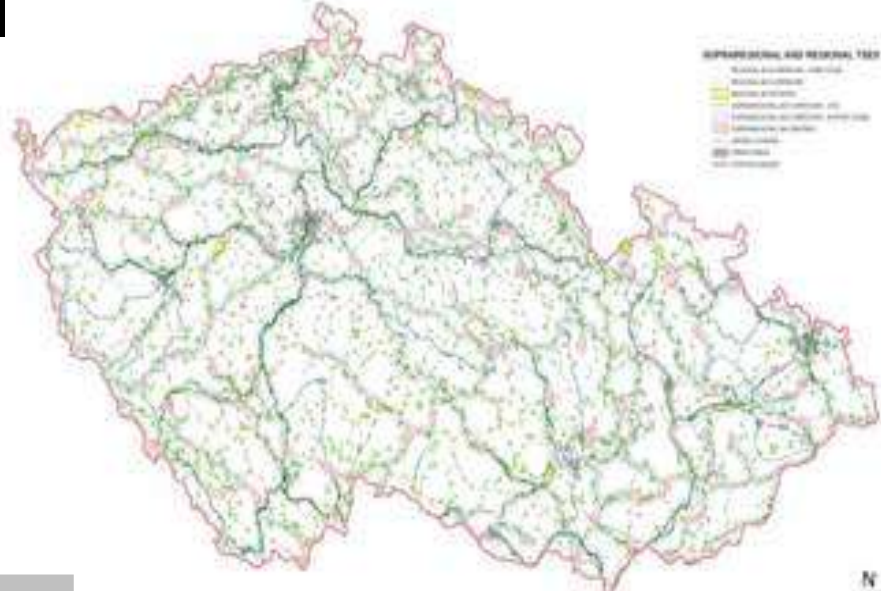
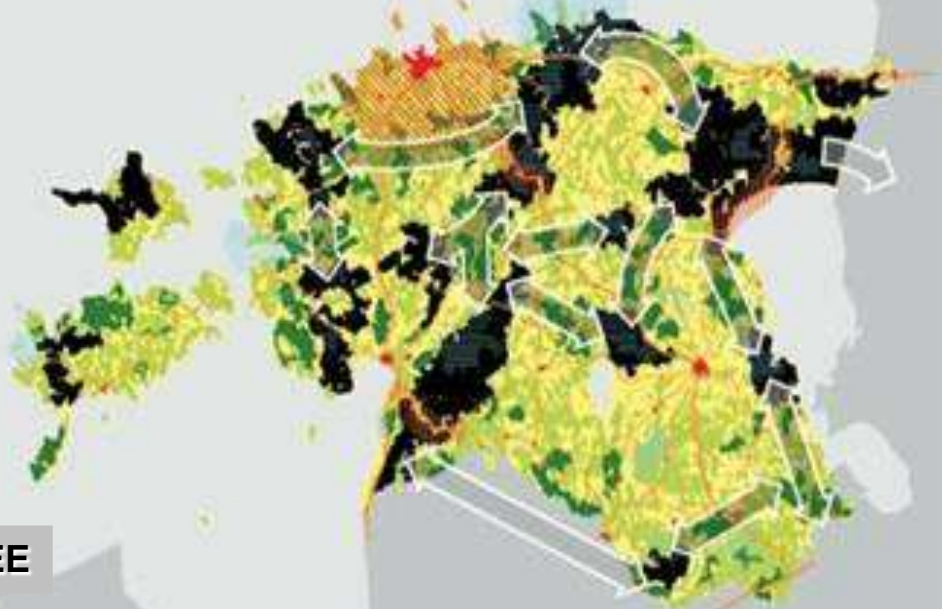


## Econet of Central Asia





# National level

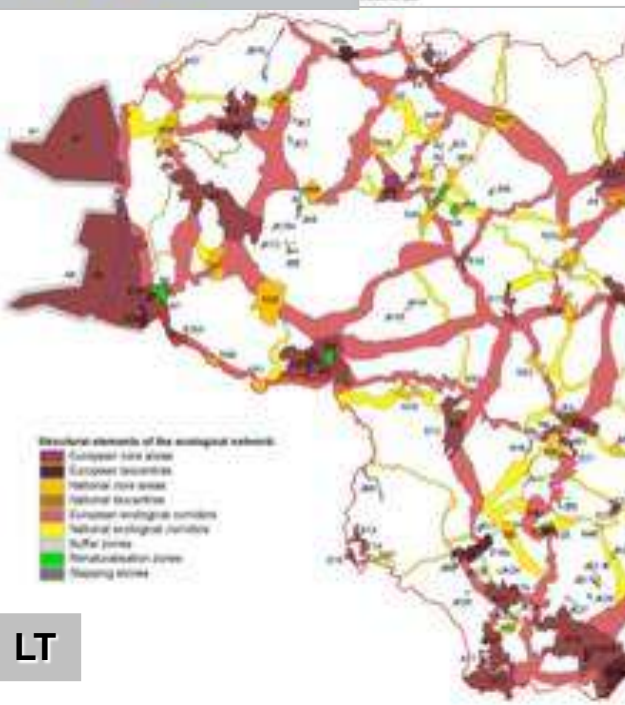


**SUPRAREGIONAL AND REGIONAL TSES**

- Suprarregional TSES
- Regional TSES
- Local TSES
- Other TSES

EE

CZ



LT

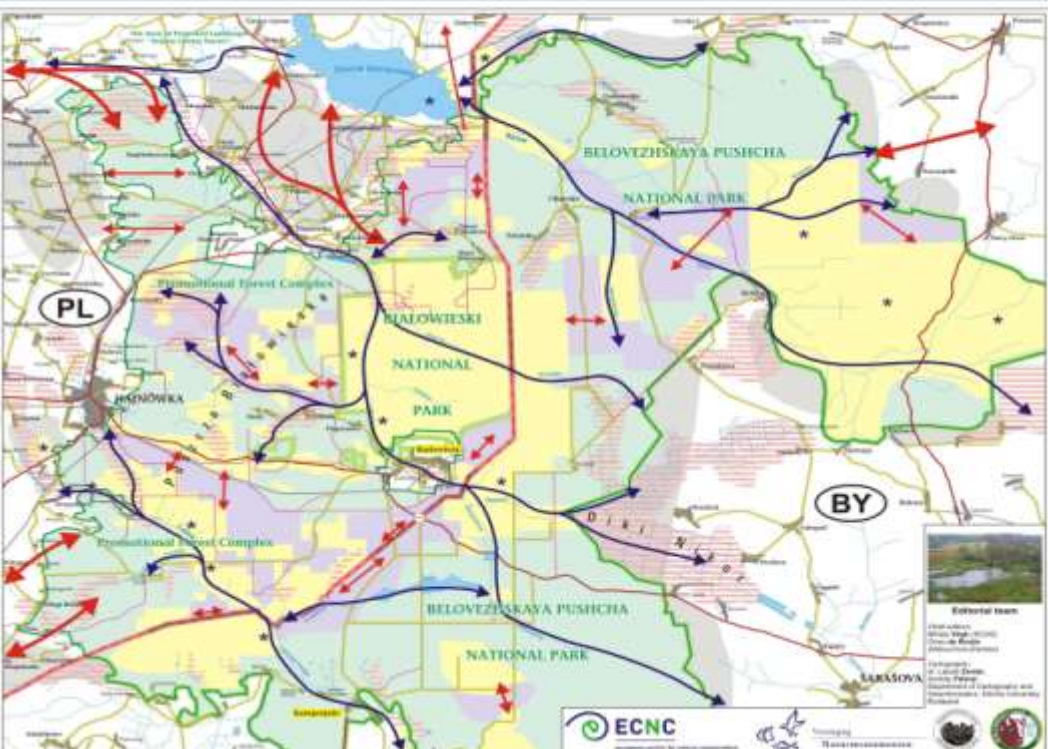
NL



# Regional level Trans- boundary projects



## CROSS-BORDER ECOLOGICAL NETWORK OF THE BIALOWIEZA FOREST REGION



**Legend**

- State boundary
- Borders of Białowieża Forest
- National Park boundaries
- Railways
- Main roads with border crossing
- Secondary roads
- Local and country roads
- Tourist trails

**Ecological network elements**

- Care areas and stepping stones (natural and old natural forests, higher landscape)
- Potential ecological corridors
- Buffer zones
- Migration corridors between the forest and the wider surroundings
- Internal migration corridors
- Aquatic migration corridors
- Search areas for potential pathways (100-200 meters wide existing vegetation of high importance across the border between Poland and Belarus)
- Pending areas on agricultural land
- Restoration areas

**Scale:** 1 : 1:13 000

**ECNC** European Centre for Nature Conservation

**PARK PRIBOIE HOPACHNE RIT DUMA-DRAVA HELMETI PARK**

1 000 000



# Implementation

A landscape photograph showing a grassy field in the foreground. A tall, rectangular stone marker stands on the right side of the field. In the background, a stream flows through a valley, and rolling hills are visible under a clear sky.

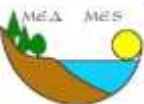
## National level ecological networks

- Spatial planning
- Sectoral engagement
- Stakeholder involvement



mak  
nen

PROJECT FOR DEVELOPMENT OF A NATIONAL ECOLOGICAL NETWORK IN MACEDONIA



Ministry of Economic Affairs,  
Agriculture and Innovation



ECNC

european centre for nature conservation





**Project partners:**  
ECNC - European Centre for Nature Conservation  
[www.ecnc.org](http://www.ecnc.org)  
The Macedonian Ecological Society (MES), Macedonia  
[www.mes.org.mk](http://www.mes.org.mk)  
Macedonian Ministry of Environment and Physical Planning  
[www.moep.p.gov.mk](http://www.moep.p.gov.mk)



The project has duration of three years (July 2008 - July 2011)  
Ministry of Agriculture, Nature and Food Quality



Development of a National Ecological Network in Macedonia MAK-NEN



- **Element 1: Mapping and promoting the elements of the Macedonian National Ecological Network (MAK-NEN)**
- **Element 2: Promotion and stakeholder involvement through development of a Management Plan for ecological corridors - special focus on the Brown bear**
- **Element 3: National campaign and public awareness about MAK-NEN and the 'Bear corridor'**





# Criteria for the core areas

A long, narrow wooden boardwalk bridge made of weathered planks, stretching across a wetland area. The bridge is flanked by rustic railings made of thick, dark logs. The surrounding landscape is filled with tall, golden-brown reeds and green grasses, with a narrow channel of water visible beneath the bridge. The perspective is from the start of the bridge, looking down its length towards the horizon.

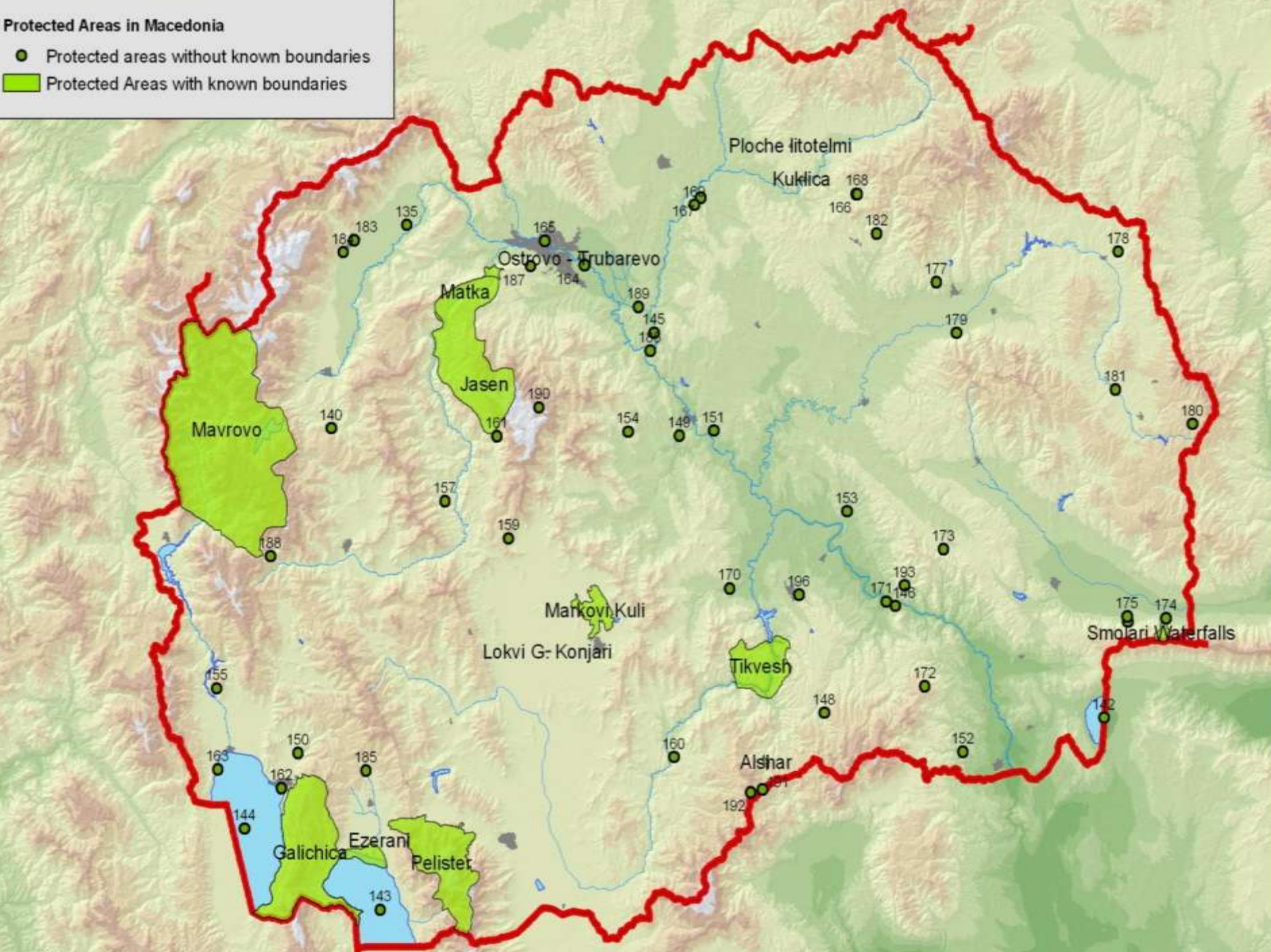
## Initial list of the core areas

- National designation (protected areas)
- International designation (Emerald sites)
- Areas recognised as important under different international programmes (IBA, IPA, PBA)



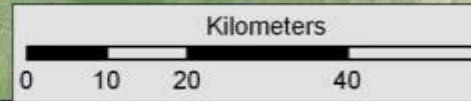
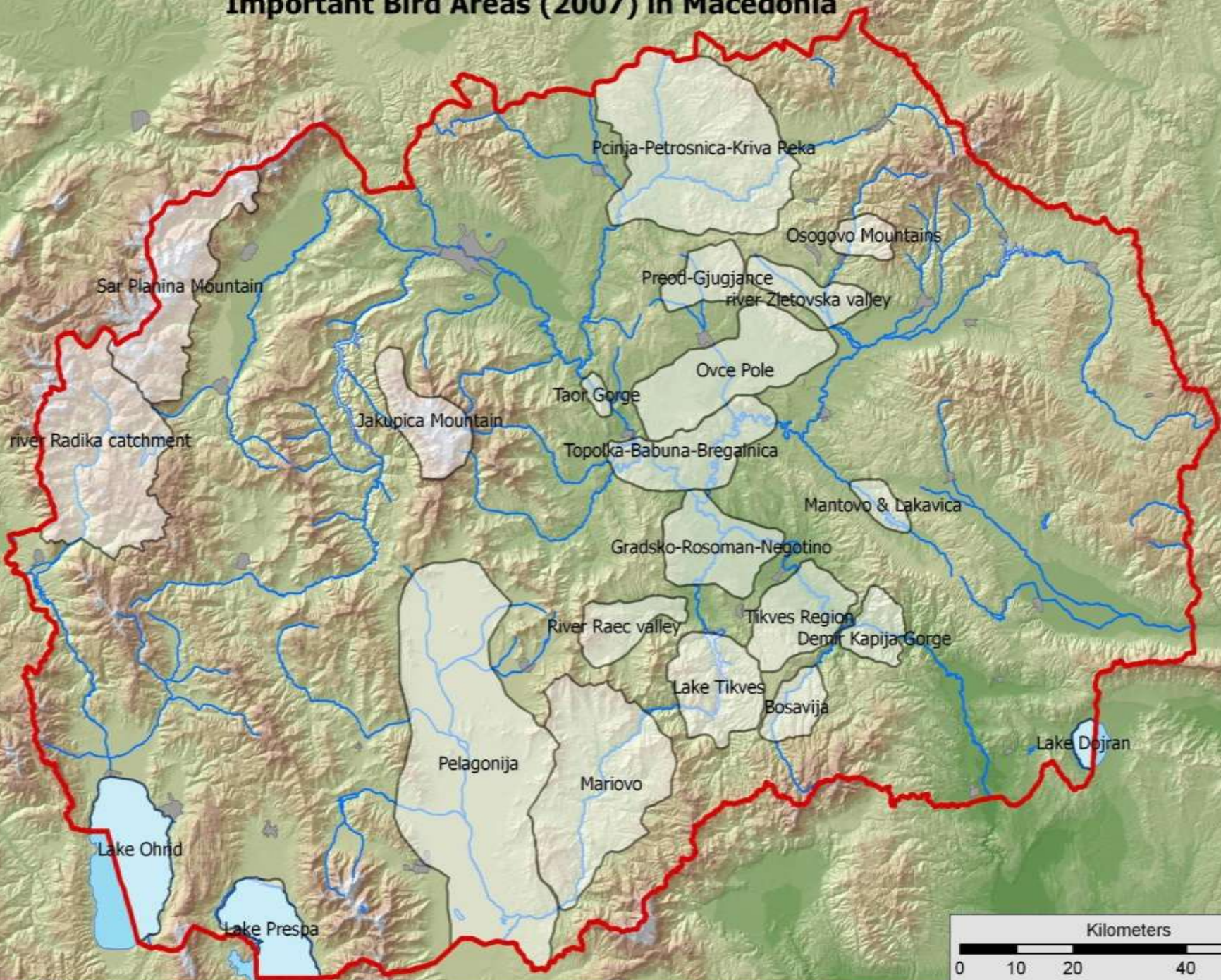
**Protected Areas in Macedonia**

- Protected areas without known boundaries
- Protected Areas with known boundaries



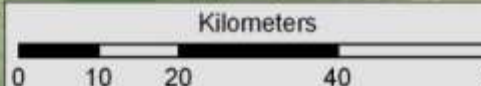
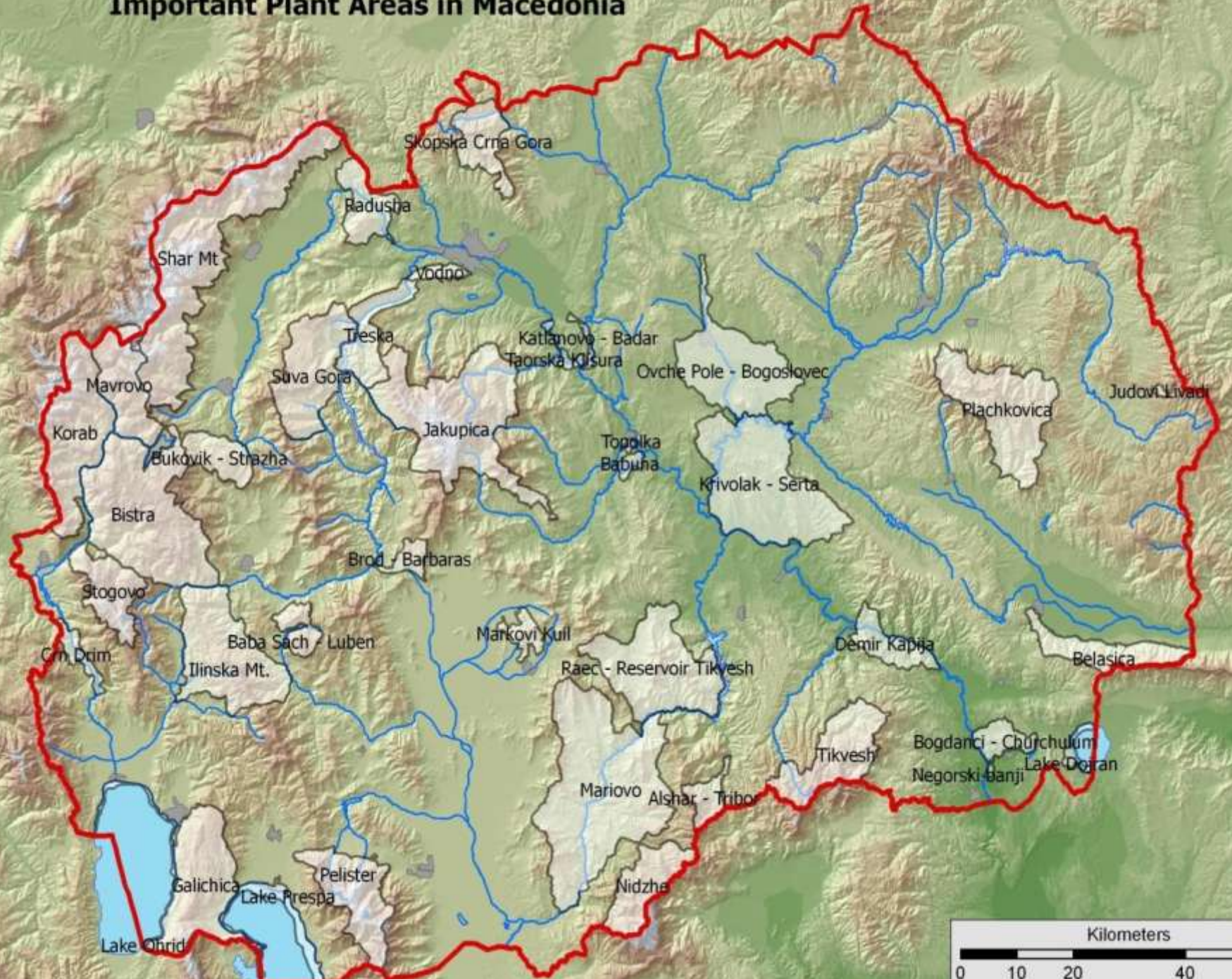


# Important Bird Areas (2007) in Macedonia



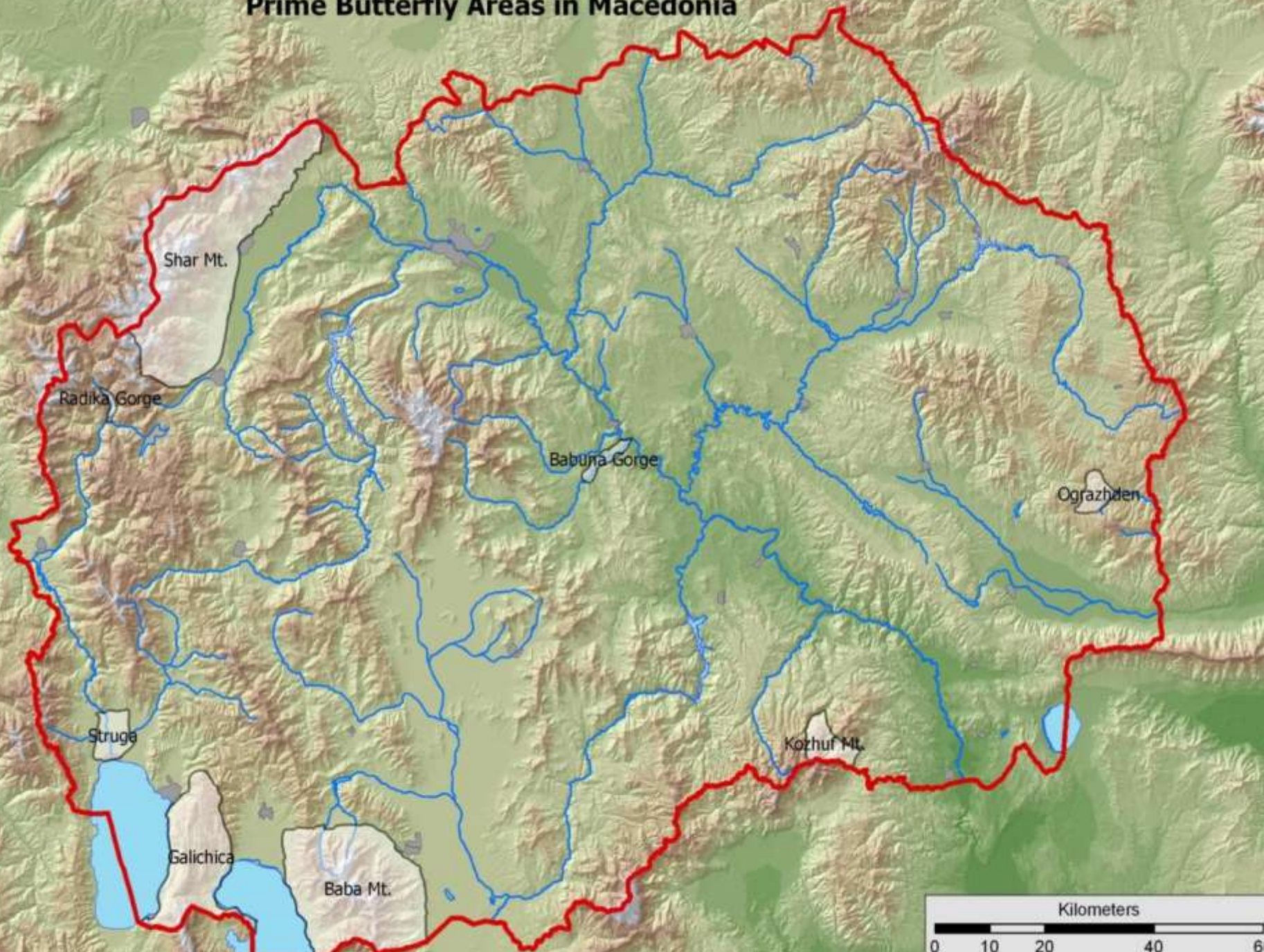


# Important Plant Areas in Macedonia





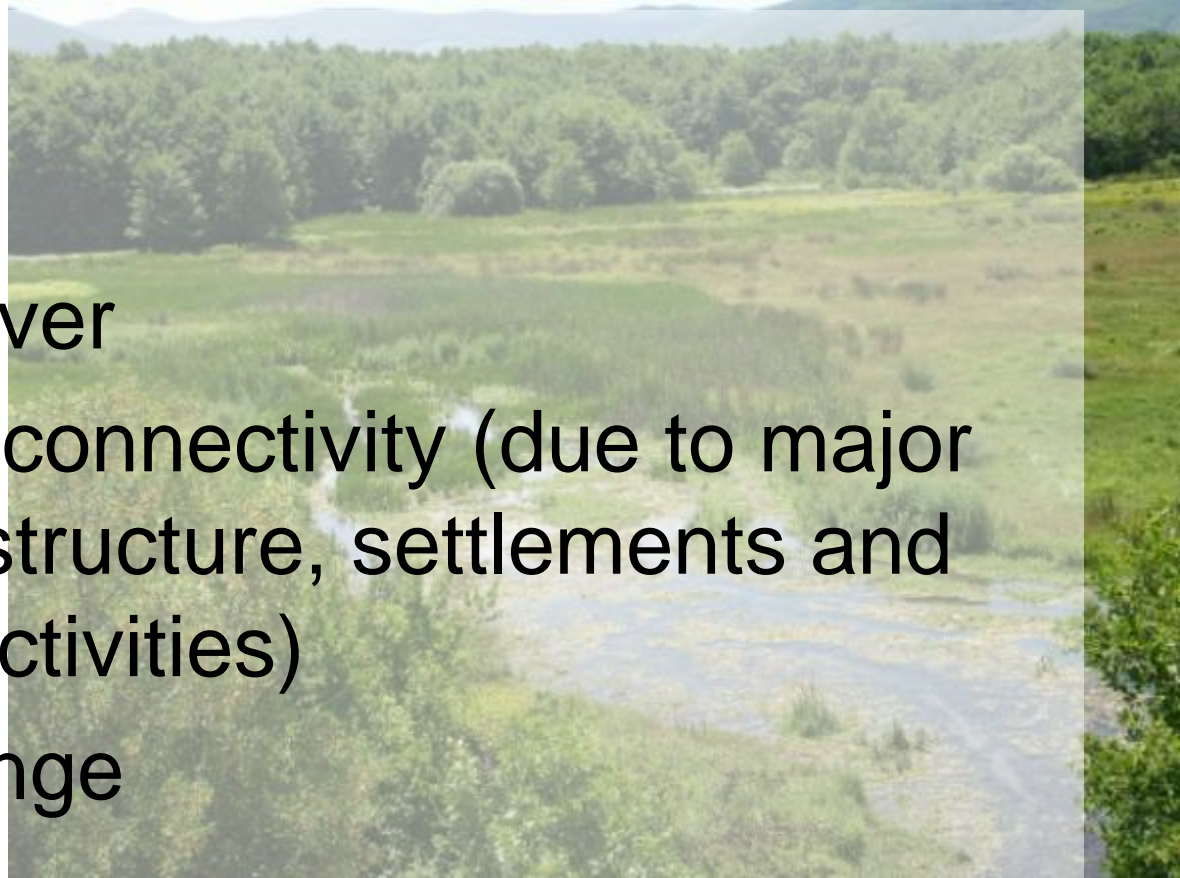
# Prime Butterfly Areas in Macedonia





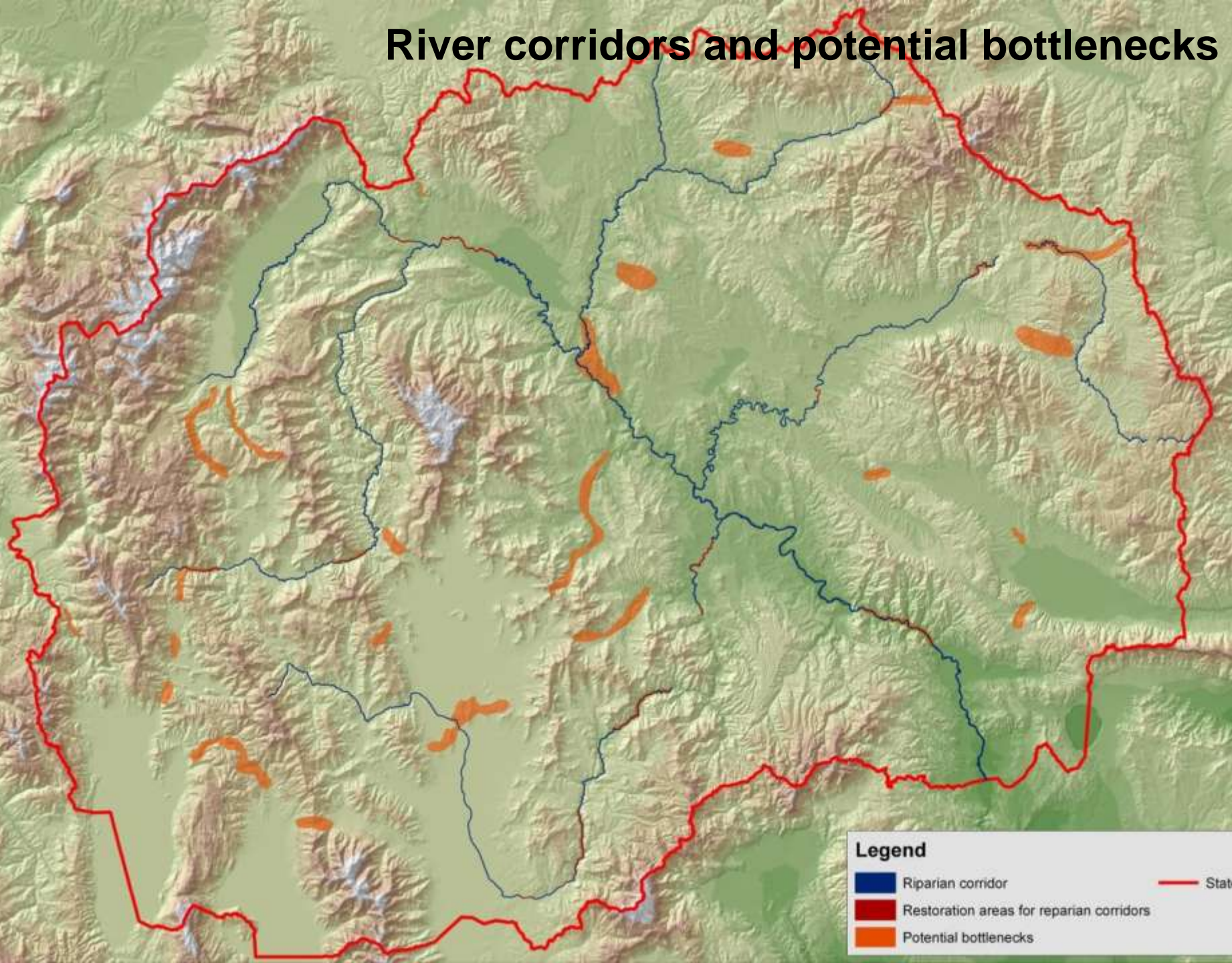
# Identification of corridors

- River corridors
- Corine land cover
- Bottlenecks in connectivity (due to major transport infrastructure, settlements and other human activities)
- Brown bear range



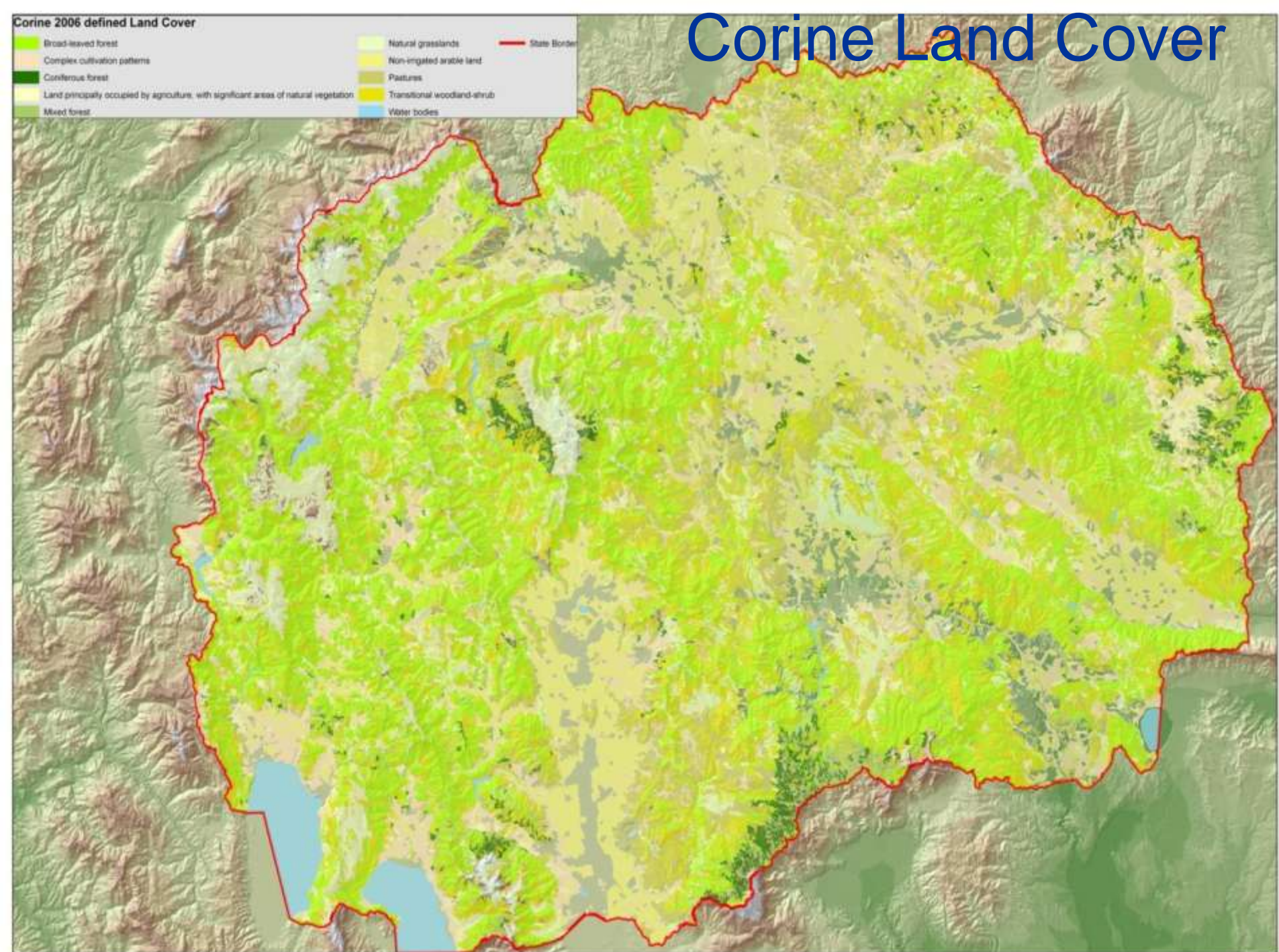


# River corridors and potential bottlenecks



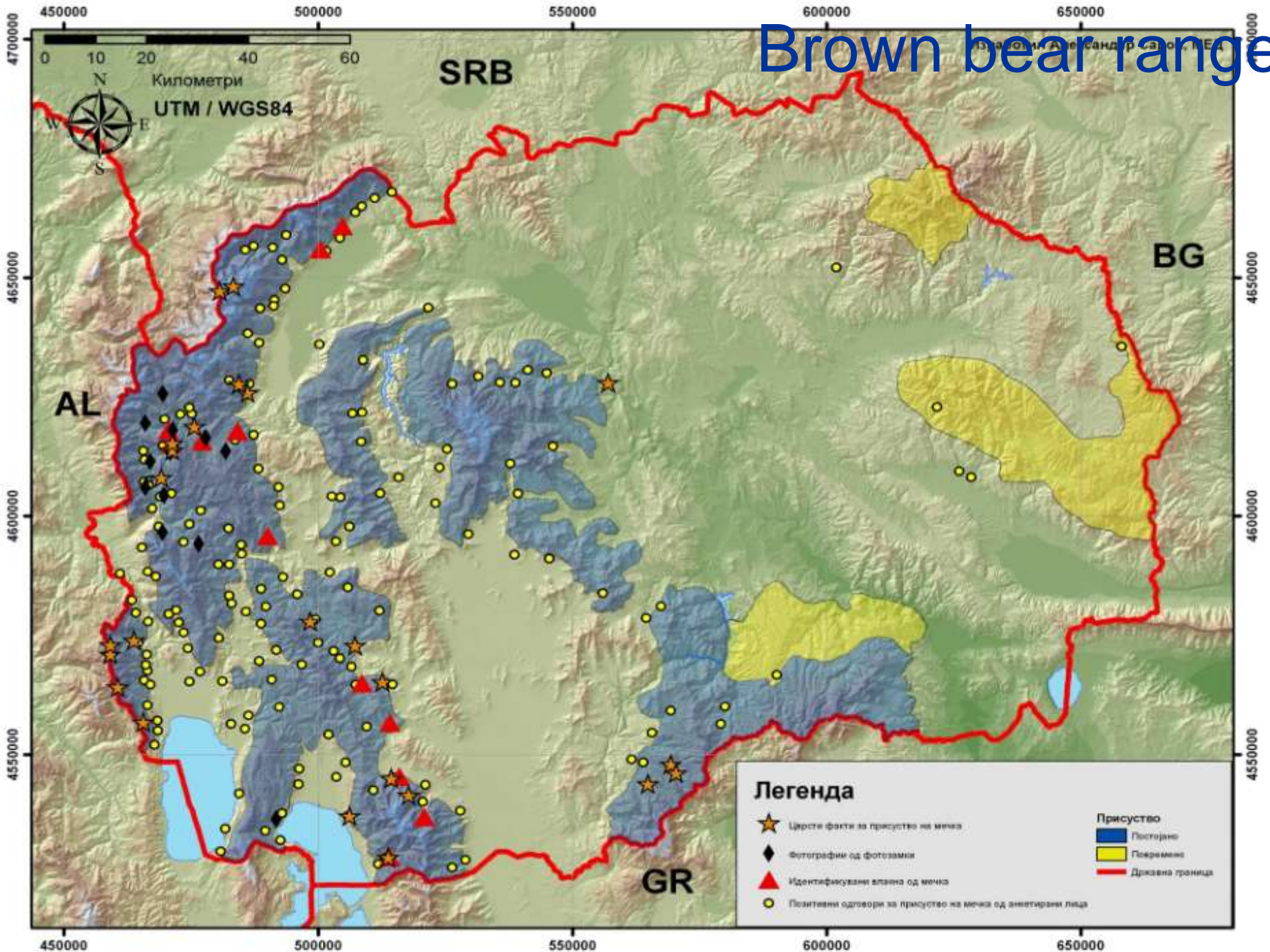


# Corine Land Cover



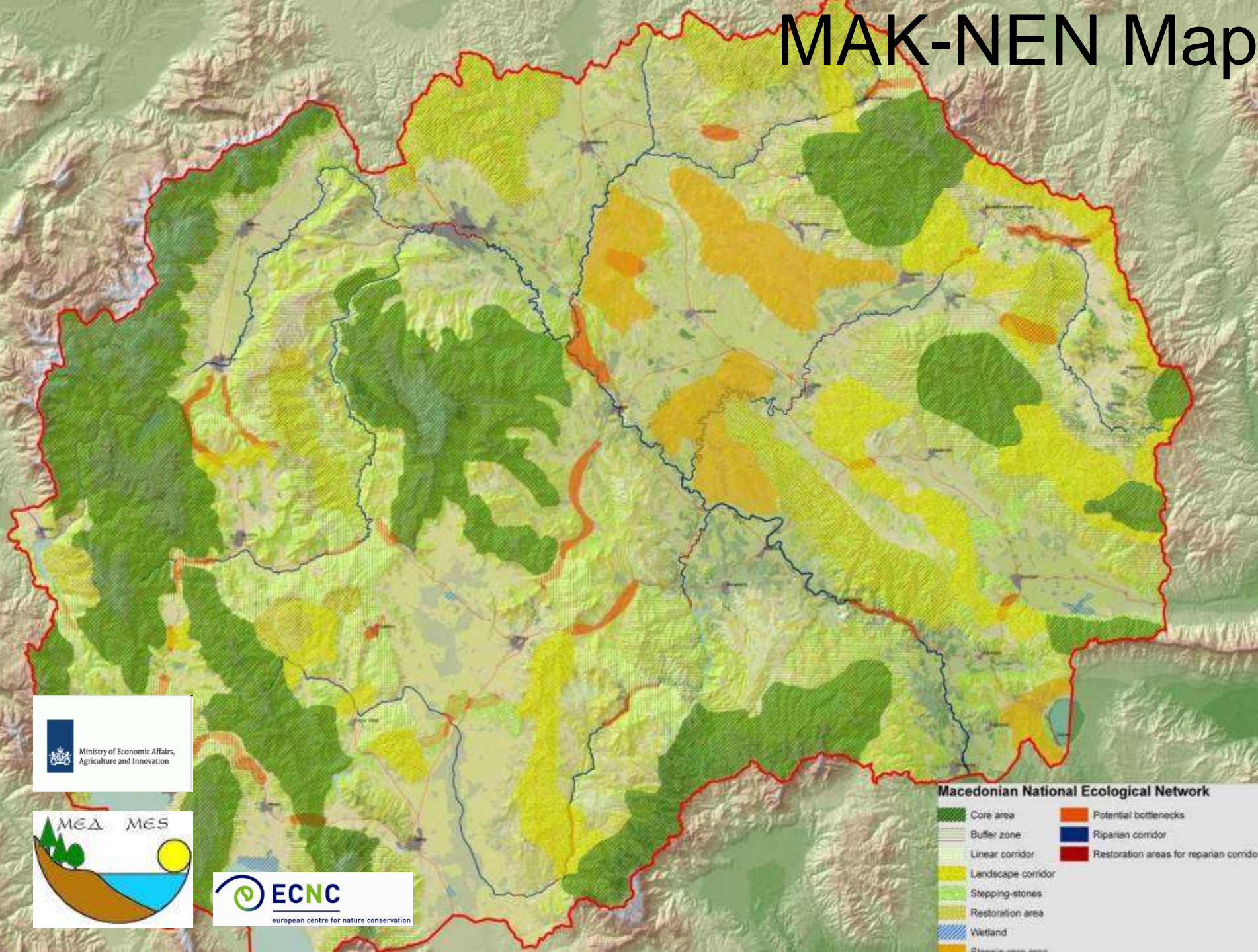


# Brown bear range





# MAK-NEN Map



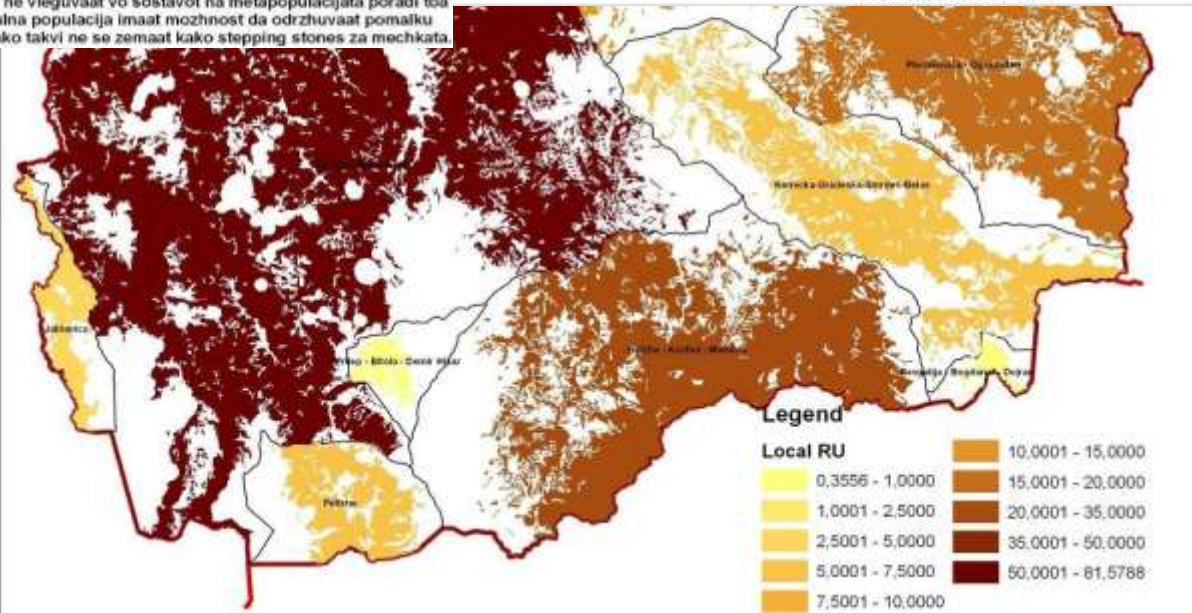
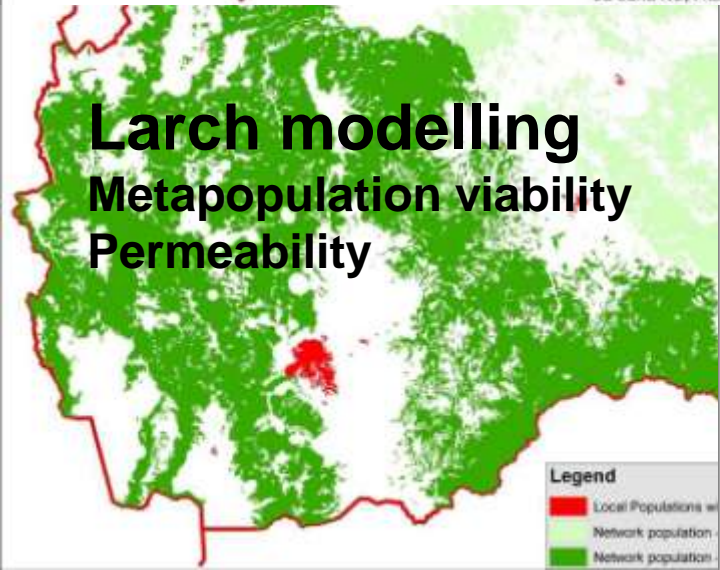
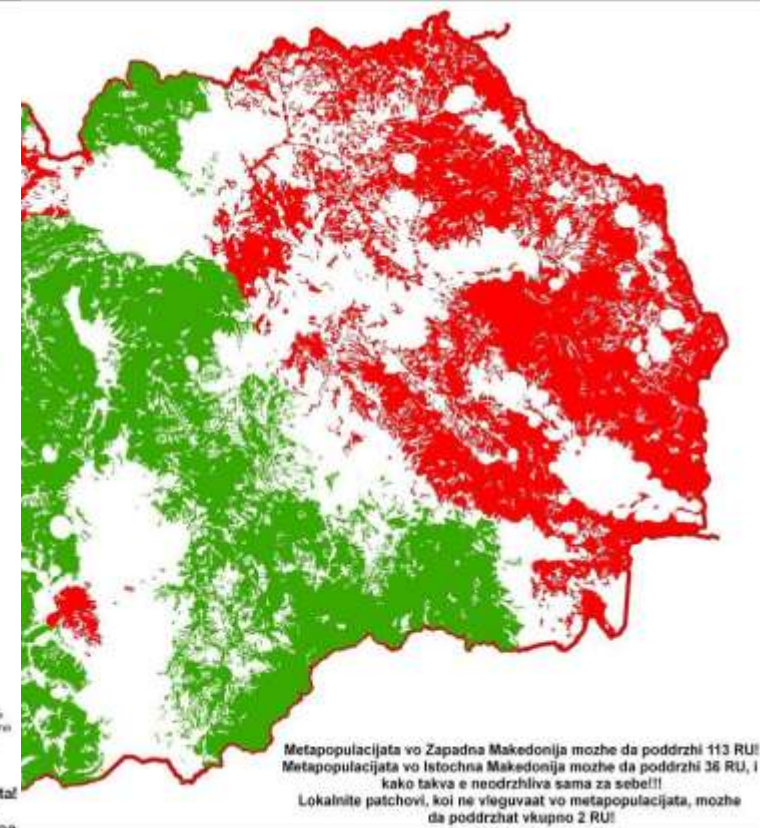
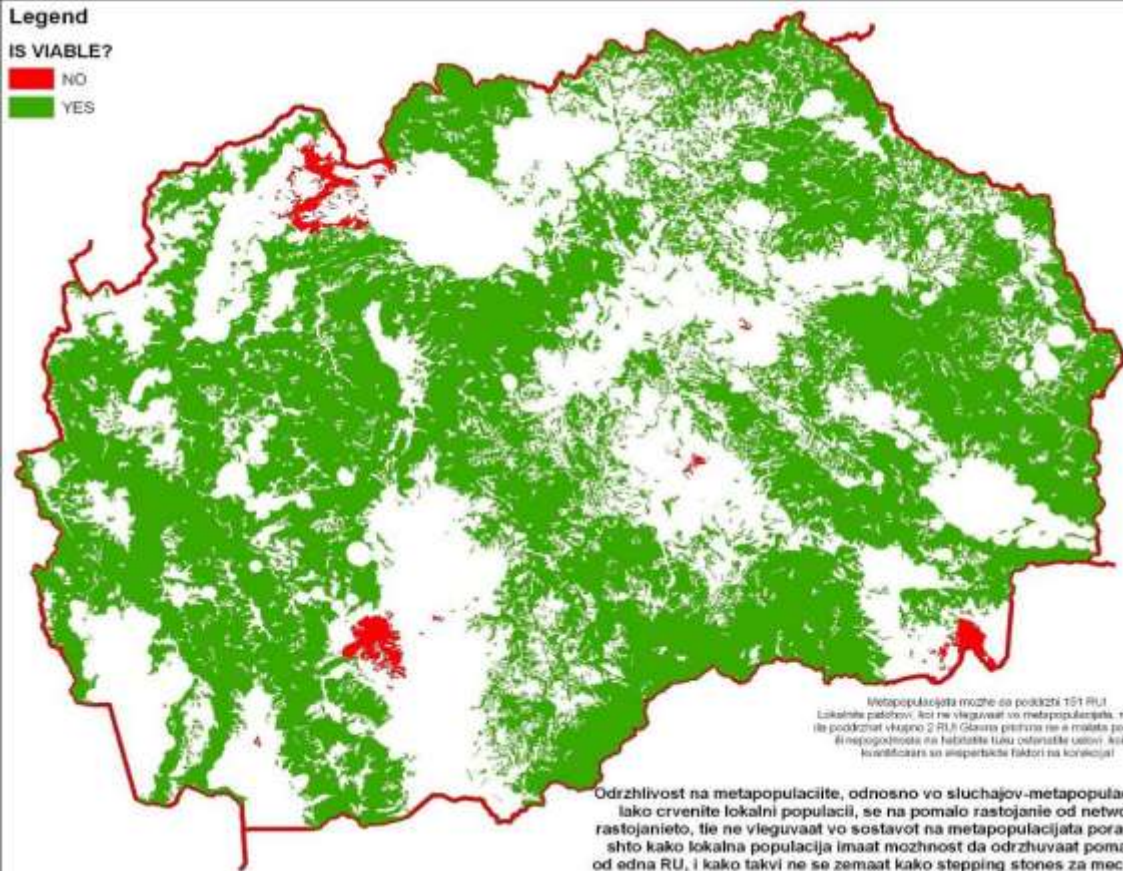
Ministry of Economic Affairs,  
Agriculture and Innovation



## Macedonian National Ecological Network

- |                    |   |
|--------------------|---|
| Core area          | Potential bottlenecks                   |
| Buffer zone        | Riparian corridor                       |
| Linear corridor    | Restoration areas for riparian corridor |
| Landscape corridor |   |
| Stepping-stones    |   |
| Restoration area   |   |
| Wetland            |   |
| Restoration area   |   |







Development of a  
National Ecological Network in  
the Republic of Macedonia MAK-NEN

# DON'T BE a BARRIER the PATH IS FOR the BEAR!



mak  
nen

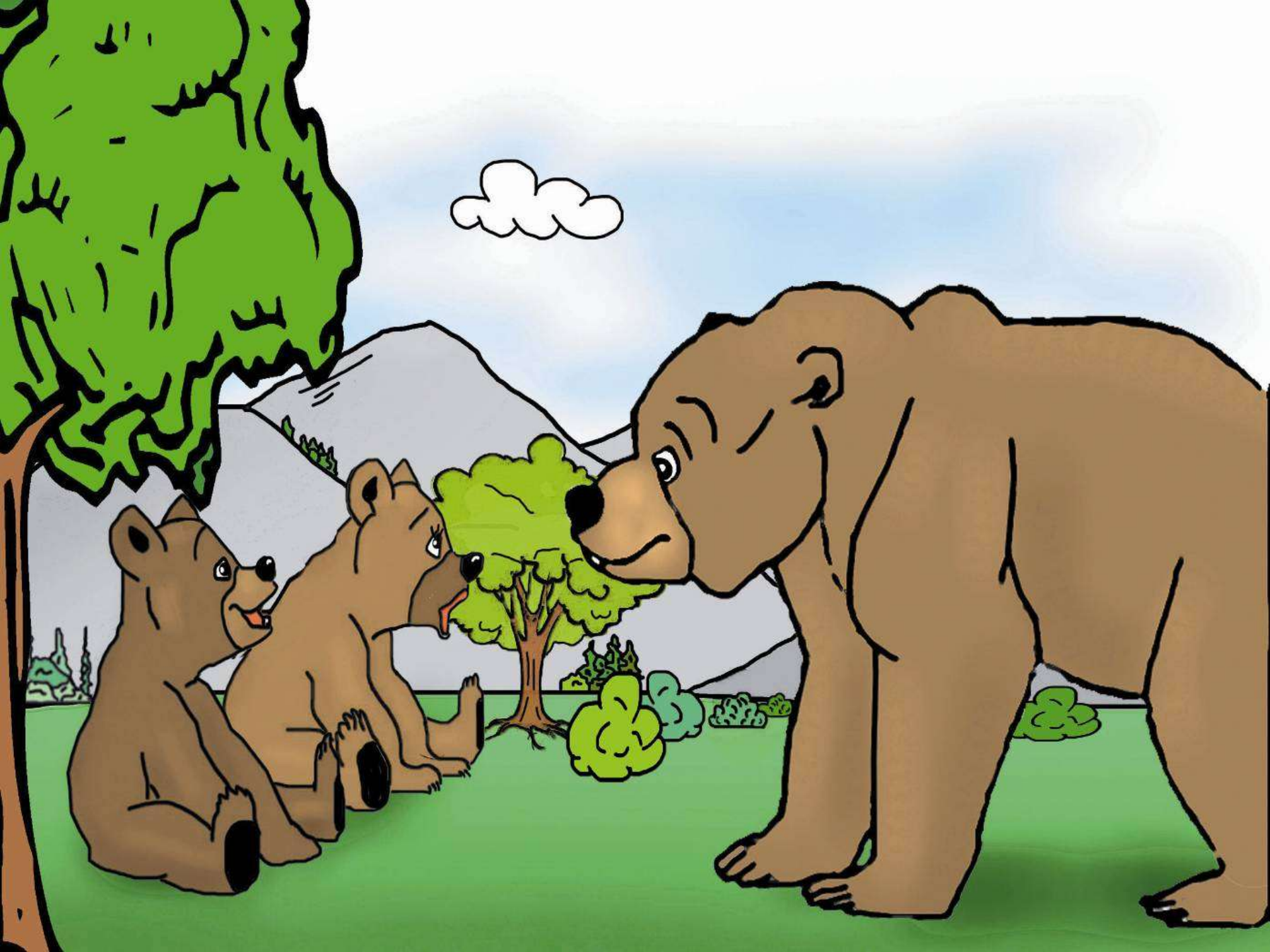
The project for development of a National Ecological Network in Macedonia (MAK-NEN) is part of the Pan-European Ecological Network, to be implemented by the Mountain Ecological Society (MES) and European Centre for Nature Conservation (ECNC) in cooperation with the Macedonian Ministry of Environment and Physical Planning.

The project is financed by the EU Mak-Nen Fund from the Ministry of Agriculture, Forestry and Rural Quality.

Information and more on  
[www.mak-nen.org.mk](http://www.mak-nen.org.mk)







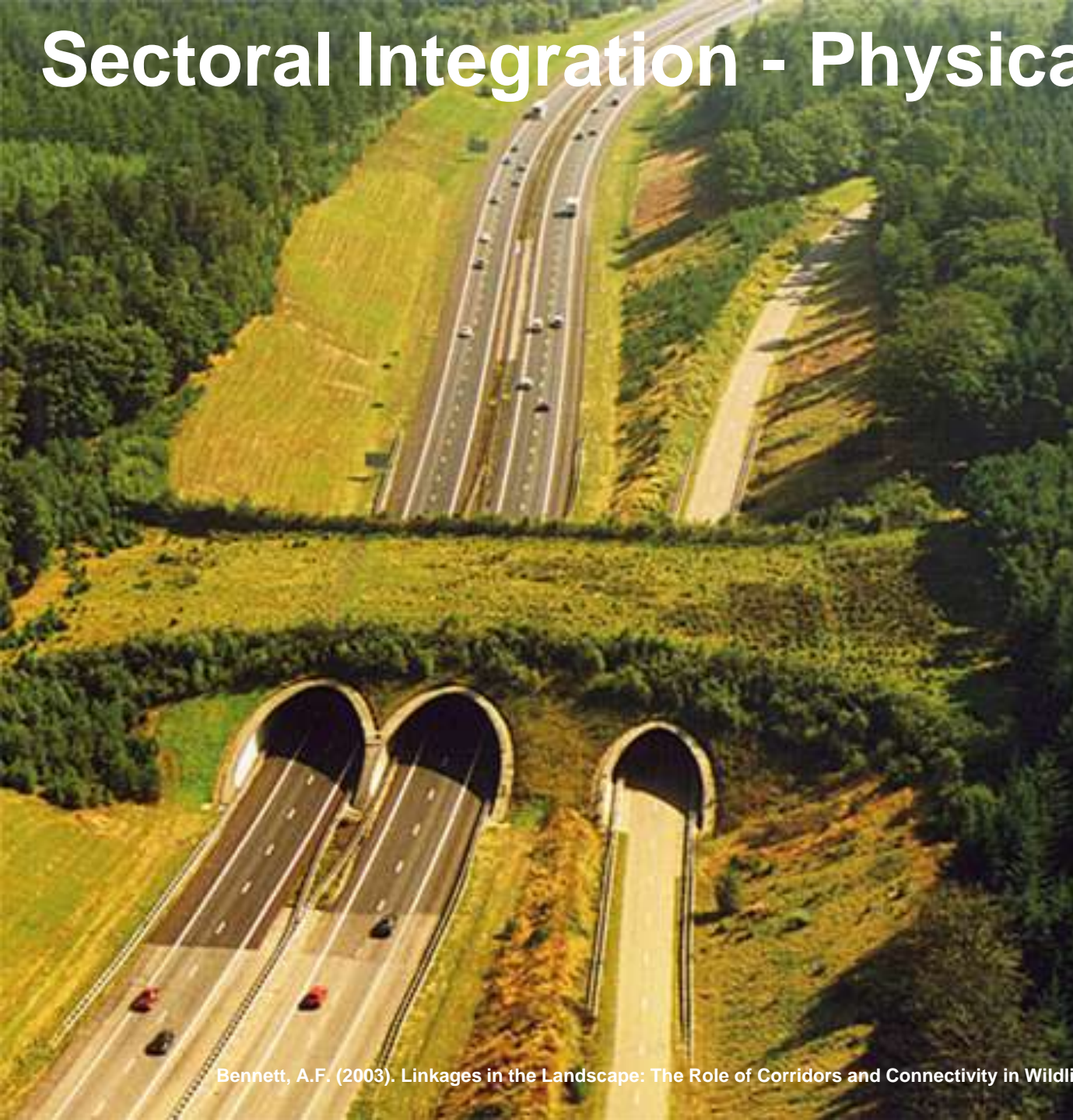


# Specific delivery issues



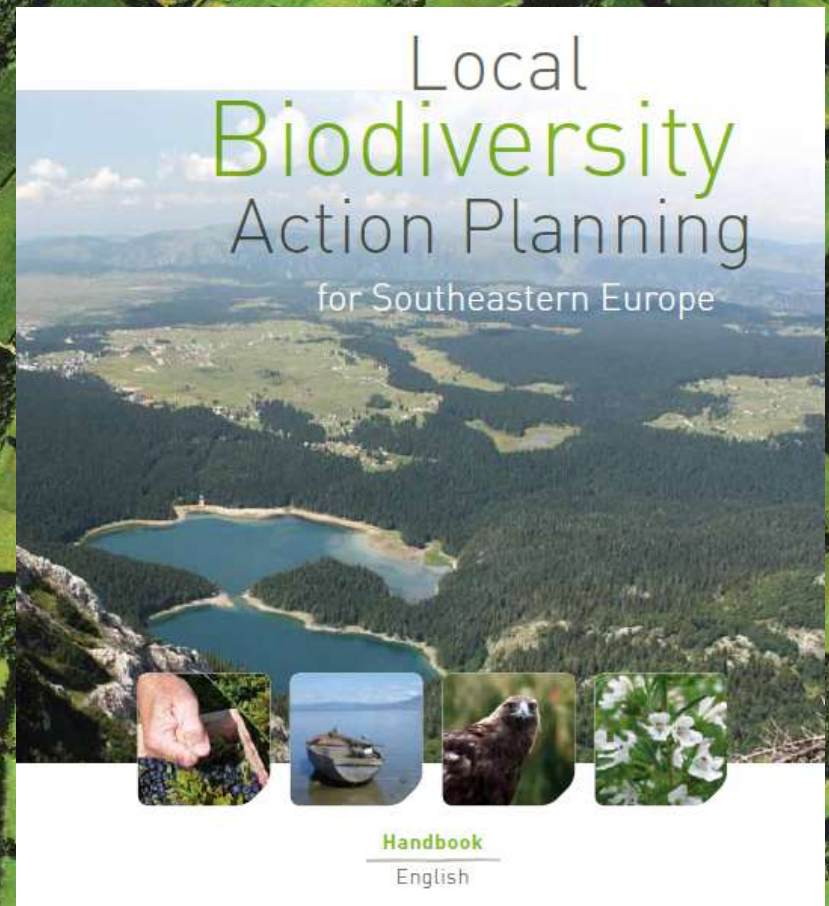


# Sectoral Integration - Physical Linkages





- Civil society
- Stakeholder involvement
- [www.ecnc.org](http://www.ecnc.org)  
(publications)















**Thank you for your  
attention**