

# Making the Indicative map of the PEEN in South-eastern Europe

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EEA: Expert meeting on landscape analysis and ecosystem  
accounting

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## Summary

- PEEN CEE available from 2002 + PEEN SEE under development, available in 2006;
- Aims to outline the contours of the PEEN;
- It will identify (a) core nature areas of European importance, (b) existing corridors between these areas; (c) where new corridors could and should be established to meet the connectivity requirements of key species, d) location of buffer zones and stepping stones;
- Available data is used, new is not generated;
- Methodology chosen to meet connectivity requirements of key species.

# Project area and participating countries



## DATA on the map/ Layers on the map

- Topographical layer
  - Protected or acknowledged areas (international and national)
  - Habitat layer → large unfragmented areas
  - Species distribution information
- Core areas
- Location and natural state of rivers
  - Others sectors (roads, agriculture)
  - Need for connectivity between areas based on their size
- Corridors

# Methodology

## Steps:

- Development of a combined land cover map for the entire region
- Development of a habitat classification based on land cover data
- Linking indicator species to the identified habitats for each ecological region.
- Estimation of the required area size for sustainable populations of the indicator species, assessing standards for different species for the minimum population size considered large enough to be sustainable in the long term.
- Assessing the spatial pattern of habitat types that exceed each of the three thresholds in a GIS analysis.
- Data on existing corridors and migration routes with emphasis on rivers and Define critical distances to bridge gaps for the selected key species;
- Control by countries

# Habitat map PEEN SEE

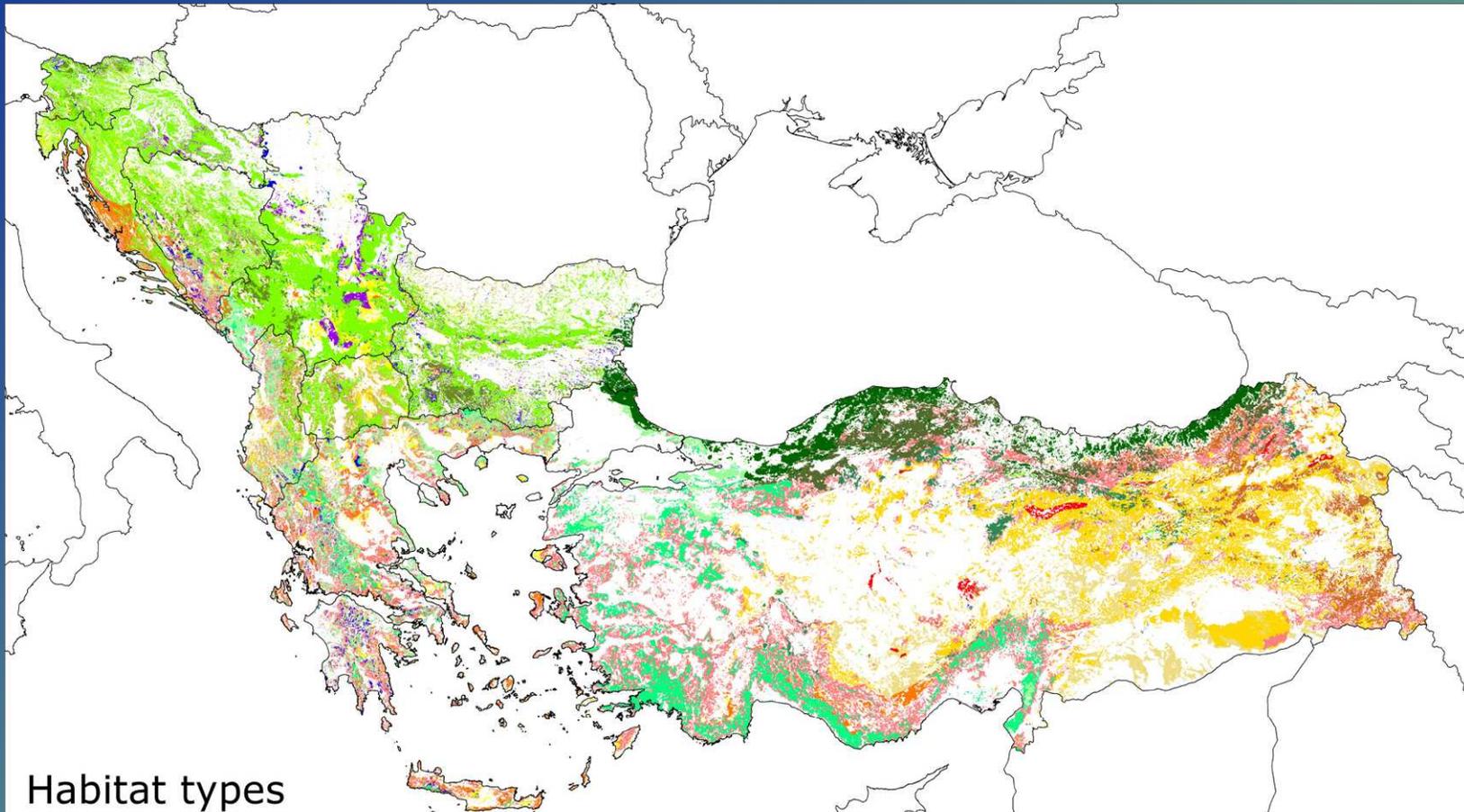
## Datasources used for the classification:

- Landcover map: CLC & PELCOM (SM,T);
- DMEER- regions;
- Potential Natural Vegetation of Europe;
- Croatian habitatclassification;
- Soil types.

24 habitat types grouped in 7 major classes:

<b>1. Alpine/Mountainous grasslands and shrubs</b>	<b>1</b>	<b>Alpine shrubs</b>
	<b>2</b>	<b>Sparsely vegetated areas in alpine region</b>
	<b>3</b>	<b>Bare rock in alpine region</b>
	<b>4</b>	<b>Alpine grasslands</b>
	<b>5</b>	<b>Alpine pastures</b>
	<b>6</b>	<b>Glaciers</b>
	<b>7</b>	<b>Rocks and cliffs in lowland</b>
<b>2. Salt marshes and salines</b>	<b>8</b>	<b>Salt marshes and salines</b>
<b>3. Wetlands</b>	<b>9</b>	<b>Inland wetlands</b>
	<b>10</b>	<b>Coastal wetlands</b>
<b>4. Forest types</b>	<b>11</b>	<b>Mountain conif. forest</b>
	<b>12</b>	<b>Mediterranean conif. forest</b>
	<b>13</b>	<b>Mixed (dinaric) forest</b>
	<b>14</b>	<b>Med. broad-leaved forests+macquis</b>
	<b>15</b>	<b>Other coniferous forest</b>
	<b>16</b>	<b>Other broad-leaved and mixed forest</b>
	<b>17</b>	<b>Black see coastal conif. forest + pseudomaquis</b>
<b>18</b>	<b>Black see mountain conif. forest</b>	
<b>19</b>	<b>Black see broad-leaved forests</b>	
<b>5. Inland waterbodies</b>	<b>20</b>	<b>Inland waterbodies</b>
<b>6. Moist grasslands</b>	<b>21</b>	<b>Moist grasslands</b>
<b>7. Other grasslands and shrubs</b>	<b>22</b>	<b>Calcareous grasslands</b>
	<b>23</b>	<b>Steppic grassland</b>
	<b>24</b>	<b>Steppic shrubs</b>

# Habitat map PEEN SEE – draft



## Habitat types

data gathered till february 2005

- |   |   |  |
|---|---|--|
|  Alpine shrubs                             |  Inland wetlands                       |  Black see coniferous forest    |
|  Sparsely vegetated areas in alpine region |  Coastal wetlands                      |  Black see broad-leaved forests |
|  Bare rock in alpine region                |  Mountain coniferous forest            |  Moist grasslands               |
|  Alpine grasslands                         |  Mediterranean coniferous forest       |  Calcareous grasslands          |
|  Alpine pastures                           |  Mixed (dinaric) forest                |  Steppic grassland              |
|  Glaciers                                  |  Med. broad-leaved forests and macquis |  Steppic shrubs                 |
|  Rocks and cliffs in lowland               |  Other coniferous forest               |  Other grasslands               |
|  Salt marshes and salines                  |  Other broad-leaved and mixed forest   |  Other shrubs                   |

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# Species

## 1. Long list of species with no distribution data:

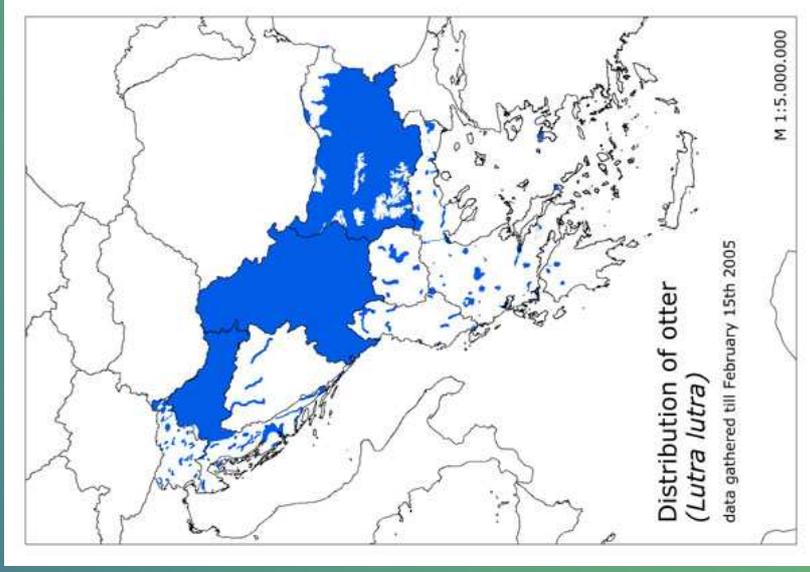
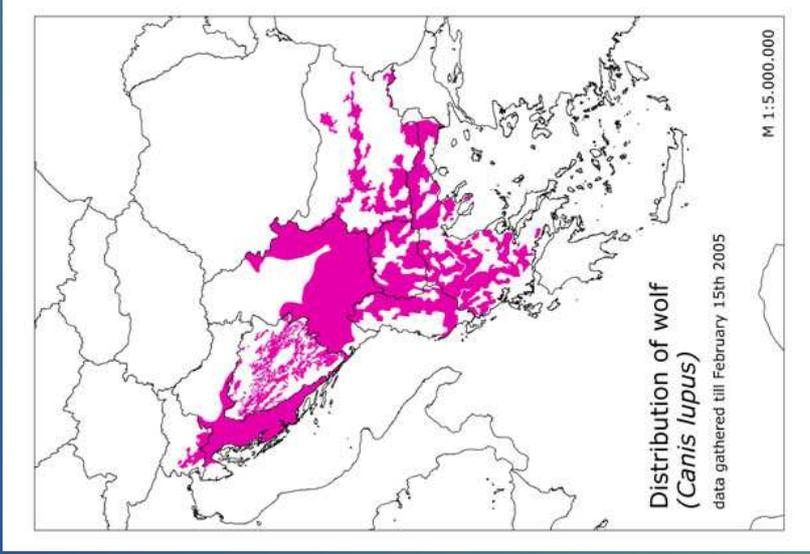
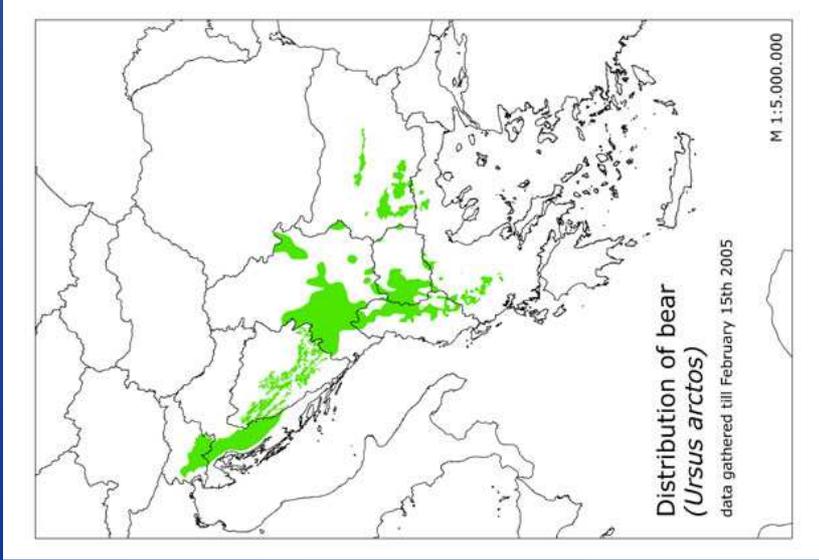
- Various sources, Directives' Annexes, Bern Convention etc.
- Step 1: Habitat classification
- Step 2: Define thresholds based on area requirements of specific species (key area patches)
- Data used at fragmentation analysis, to find the large unfragmented areas

## 2. Species with distribution data: 5 mammals, 1 reptile, 3 birds

# THresholds

Determining the different thresholds in area size per habitat type. The following thresholds were set:

- Very large areas (>5 times the minimum area size): long-term survival of all populations of the indicator species is quite probable (size class I)
- Large areas (1-5 times the minimum area size): if isolated, these areas may suffer some loss of species; connection or area enlargement is recommended (size class II)
- Areas with a sub-optimal size: between 70%-100% of indicator species can maintain viable populations; the most demanding species can only be maintained or restored by enlarging habitat size and/or making connections with comparable habitats by corridors (size class III)



# Corridors

In CEE project the followings were used for identifying corridors:

- Rivers - no division in naturalness;
- Connections between areas (if close enough < 50 km-100 km);
- Added based on expert judgement, national networks and consultation round.

What are additional in SEE project:

- To see the connections between core areas of wolf, bear, otter, European souslik (based on distribution-info);
- River naturalness;
- Gap analysis of PAs representativity.

# Rivers as corridors – naturalness

Indicate the rivers' disturbance that affects quality; level of naturalness should show if the rivers are regulated, polluted, ecologically sound to be used as a corridor etc. Three different colours mean three categories: disaster, excellent, and in between.

## Cat 1: Natural

- 1A. Natural vegetation along the banks, large floodplain, no regulation (no dikes, no dams). No restriction for aquatic species (fish migration);
- 1B. Natural vegetation along the banks, large floodplain, limited regulation. Restrictions for aquatic species (dams);

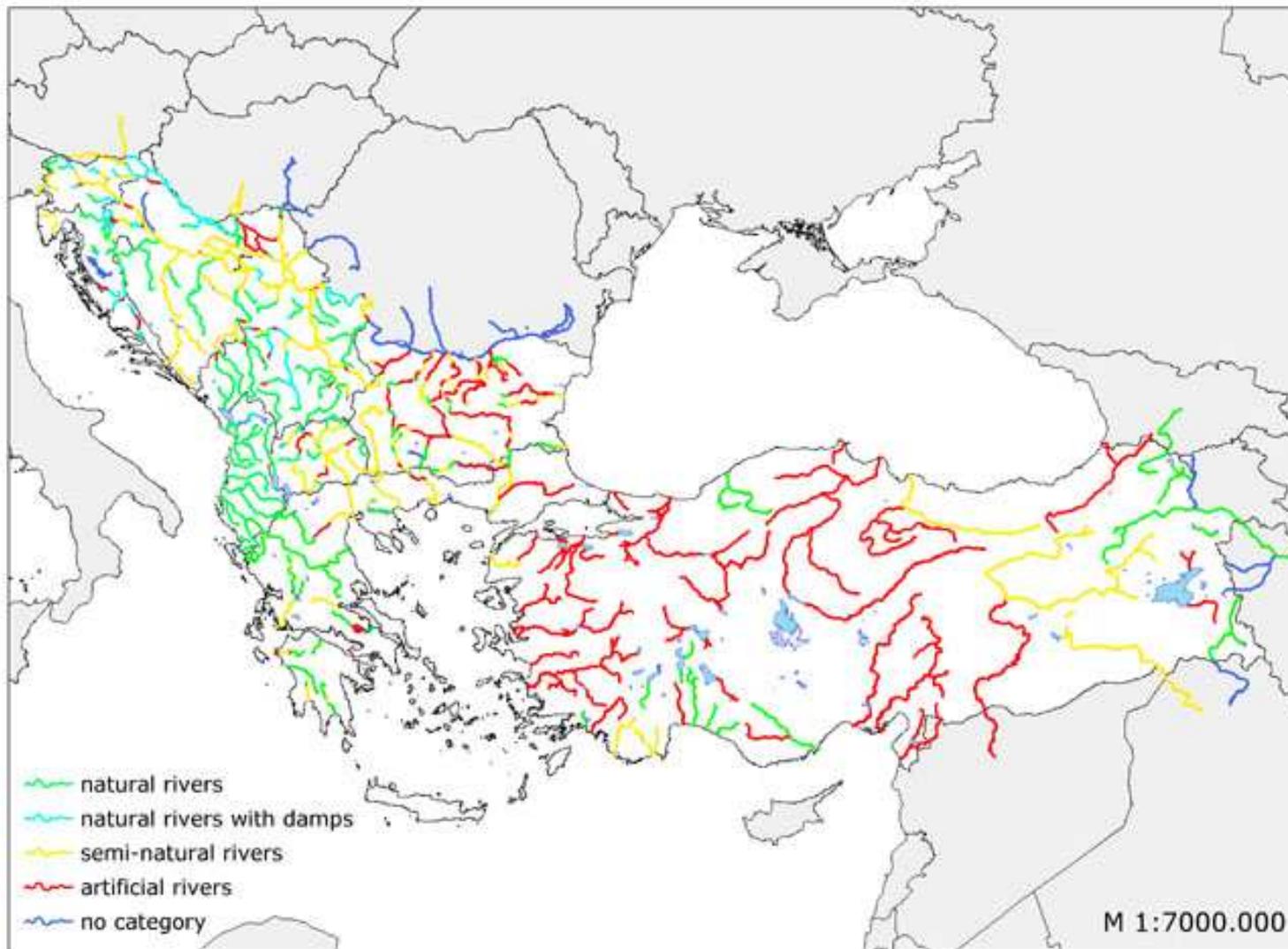
## Cat 2: Semi-natural

- Vegetation along the banks , limited floodplain, medium regulation (low dikes, weirs, dams);

## Cat 3: Artificial

- Artificial/Highly regulated: no natural vegetation along the banks, (agricultural areas/cities) , no or small floodplain, highly regulated with dikes, dams, canals.

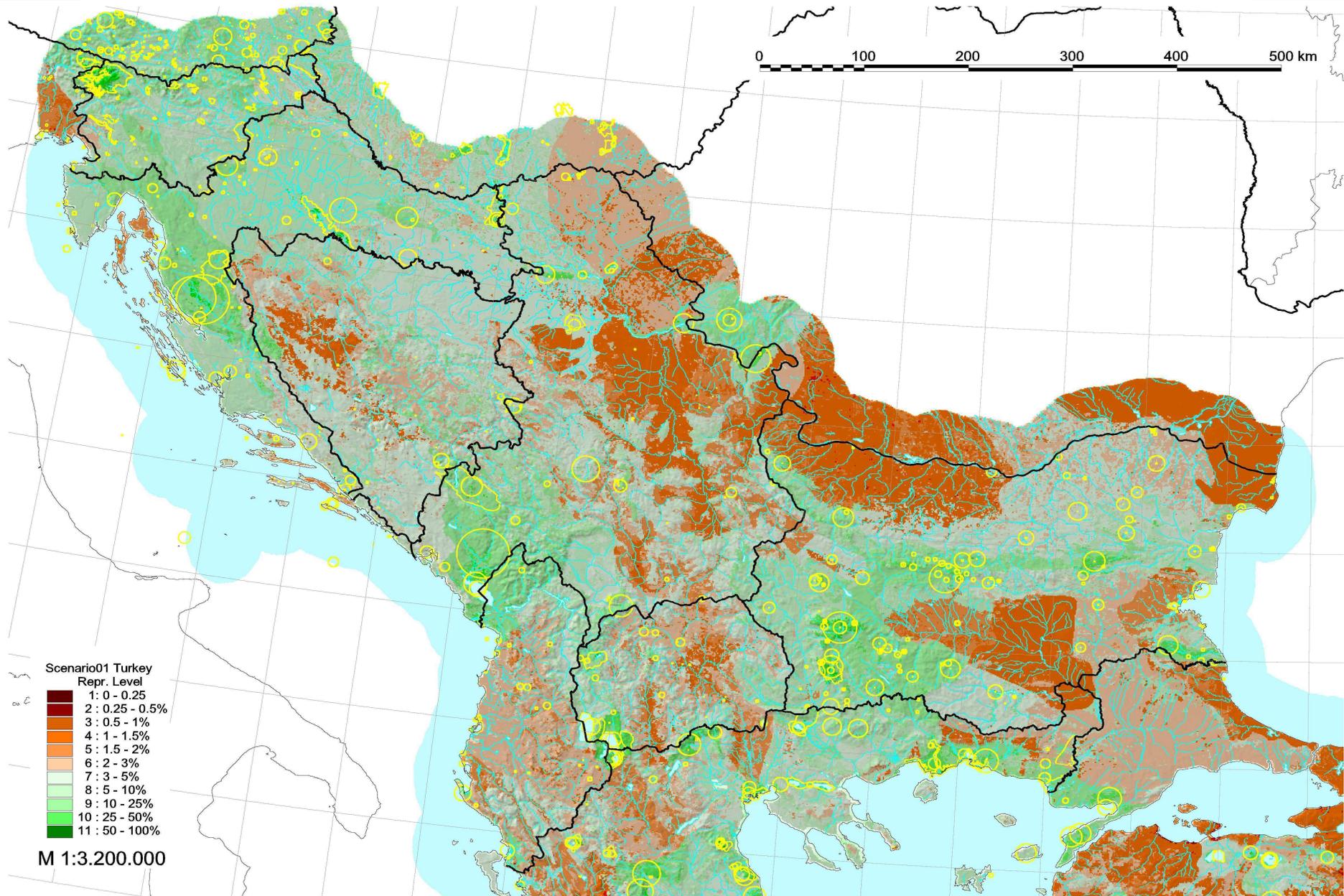
# Rivers map - draft



## Gap analysis map - representativity of protected areas network

- Four layers have been combined into one layer, so that each grid cell has four attributes:
  - Elevation
  - WWF Ecoregion class
  - River basin information
  - Mountain data
- The combined layer compared to the PAs layer (data from UNEP-WCMC). In the map, PAs are represented as polygon and circles (corresponding to the adequate size but not the shape of the PAs).

# Gap analysis map - representativity of protected areas network



## Gap analysis map - representativity of protected areas network

- Overlapping the two layers, the percentage of the grid cells with the same values (i.e. same altitude, same ecoregion, same river basin and mountain info) was calculated to find out the most important gaps in the PA network of the region, namely, to identify areas with the same attributes in and outside PAs.
- Results: the percentage of cells with the same values are presented in a green-red scale, the darkest red being areas very poorly represented within PAs, green are areas “more” protected.

## Next steps - Data gathering and assimilation

- **Threshold analysis - based upon selected species data core areas using habitat specific size criteria.**
- **Existing and possible corridors for selected species.**
- **Gap-analysis II to identify gaps in developed ecological network**
- **Maps of other sectors to identify areas of common interest and development**
- **Include comments of consultation process**