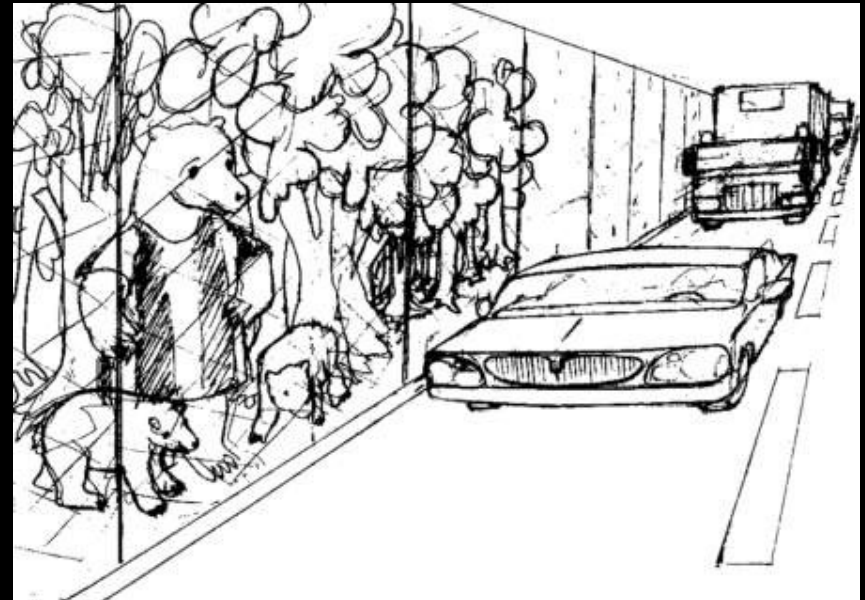


GIS Model for the Ecological Network in Romania, a Tool for Sustainable Development



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Administration

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Forest Research and
Management Institute



WHY?



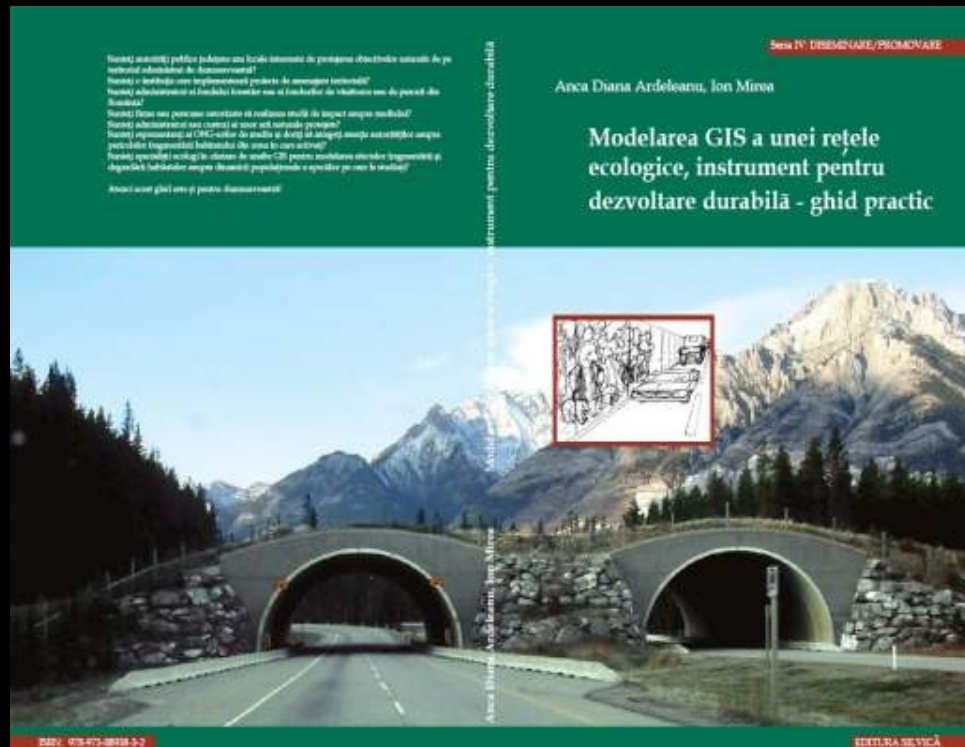
OBJECTIVES

create a model
for the Romanian
ecological network



public awareness

illustrate priorities
at local level



What we did at national level:

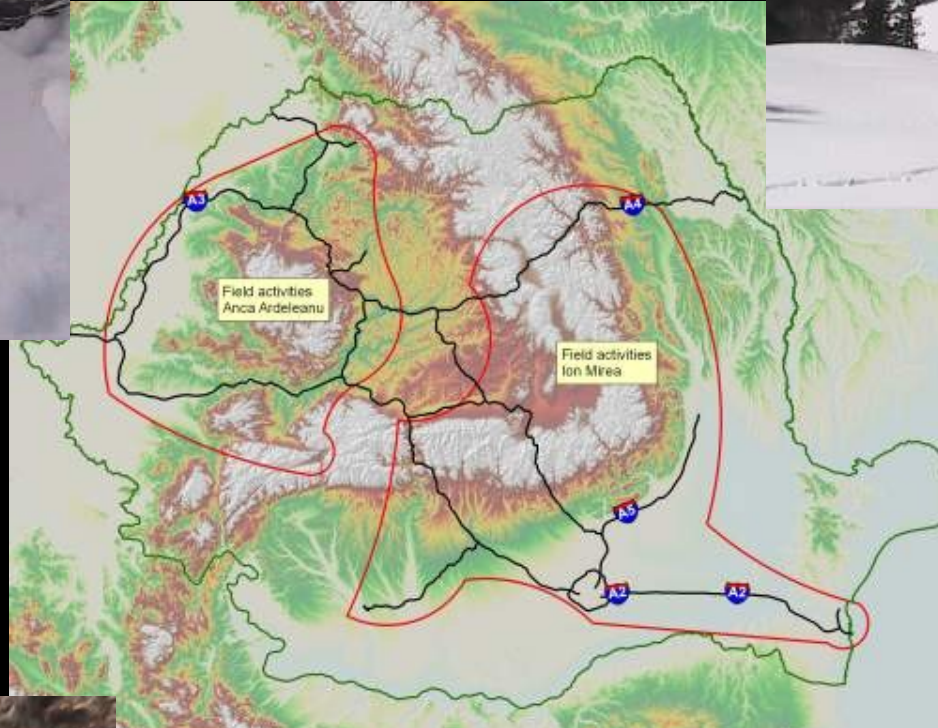
1. Identification of umbrella-species:



Whom do we connect?

Umbrella-species are those animals or plants, from different groups, that, due to their ecological particularities (narrow habitat selection, sensitivity towards habitat size or other critical factors, complex interspecific relations, sensitivity towards habitat fragmentation) may be chosen to illustrate also the distribution and dispersal needs of other species from the analyzed area, that, even if important for conservation, are not known as extensively, or have too narrow or too wide a distribution.

2. Field work:



CorridorDesigner for ArcGIS 9.x (Majka, D., J. Jenness, and P. Beier. 2007. Corridor Designer: ArcGIS tools for designing and evaluating corridors. Available at <http://corridordesigning.org>)

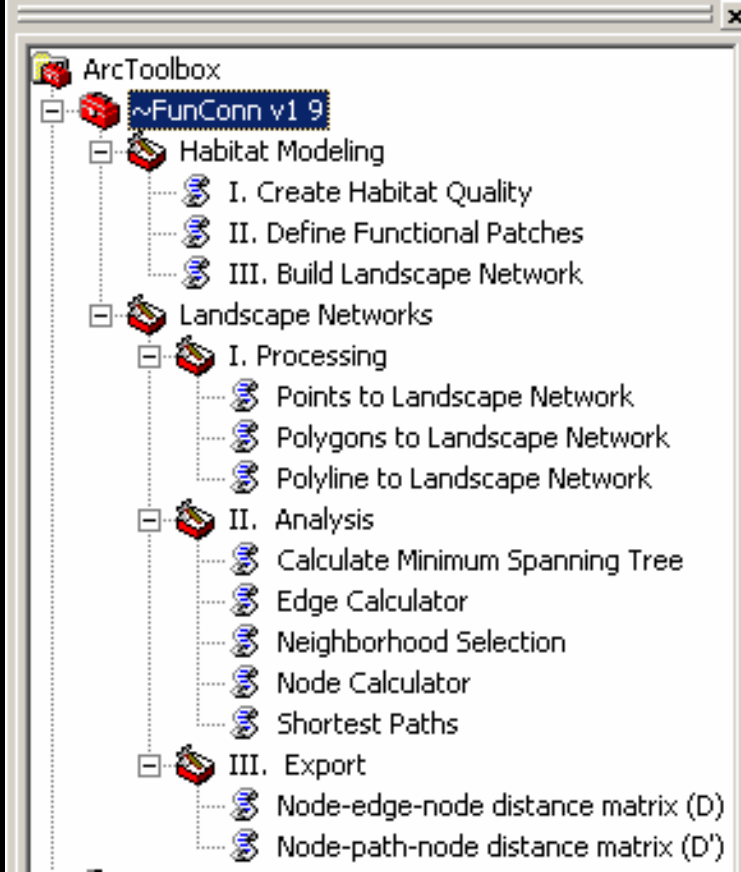
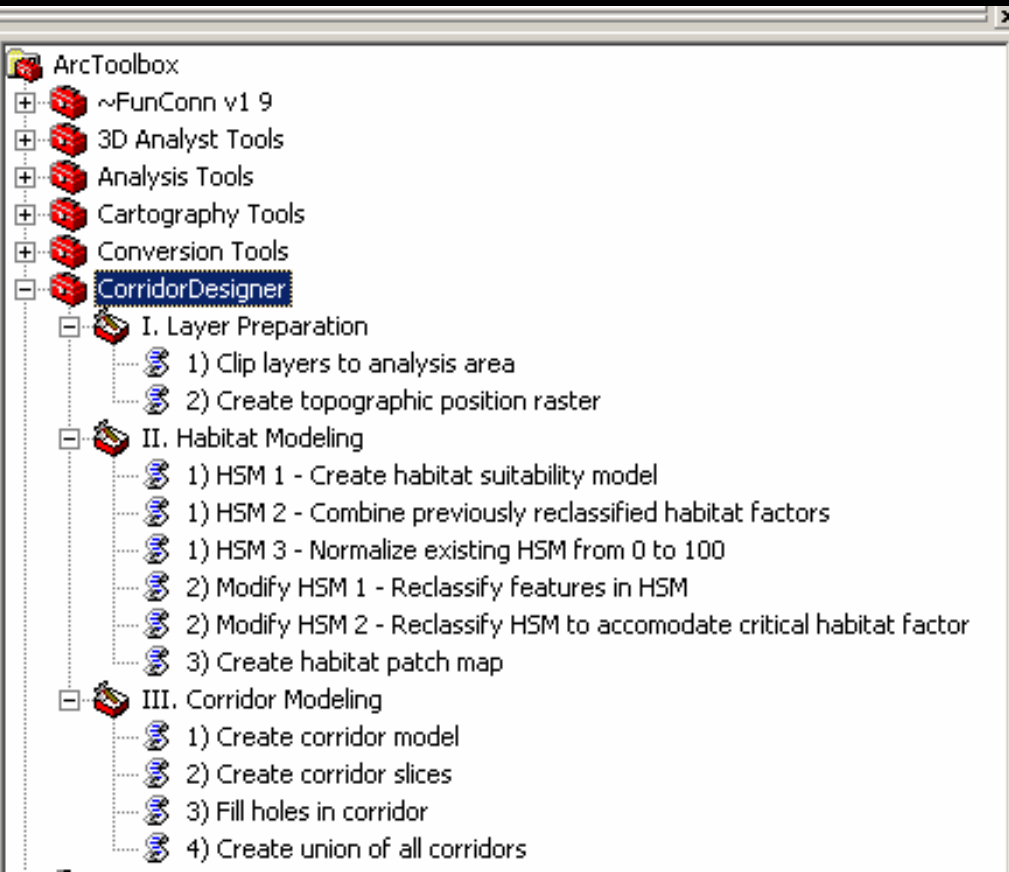
FunConn for ArcGIS 9.1 (Theobald, D.M., J.B. Norman, M.R. Sherburne. 2006. FunConn v1: ArcGIS tools for Functional Connectivity Modelling. Natural Resource Ecology Lab, Colorado State University, Fort Collins, CO. Available at <http://www.nrel.colostate.edu/projects/starmap>)

Hawth's Tools for ArcGIS 9.x (Beyer, H.L. 2004. Hawth's Analysis Tools for ArcGIS. Available at <http://www.spatialecology.com/htools>)

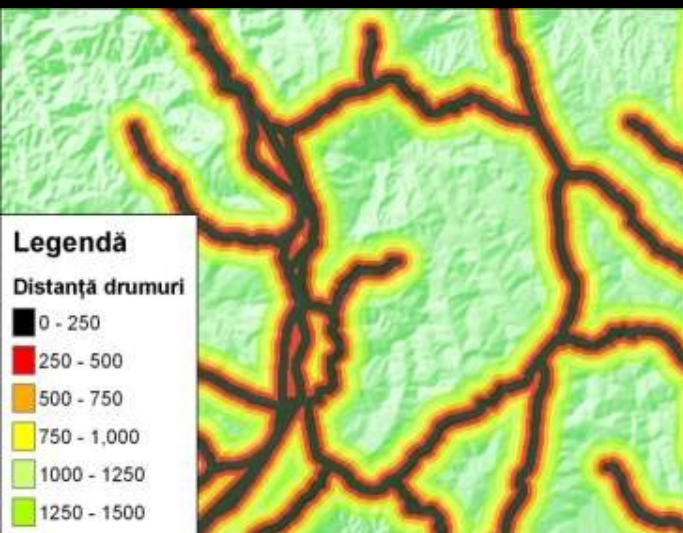
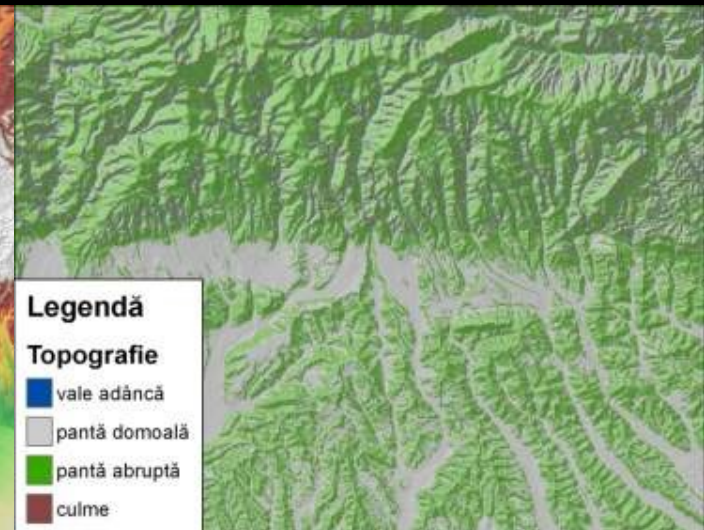
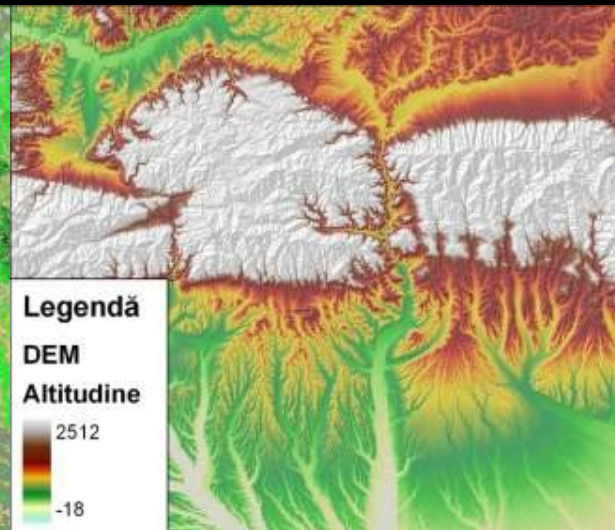
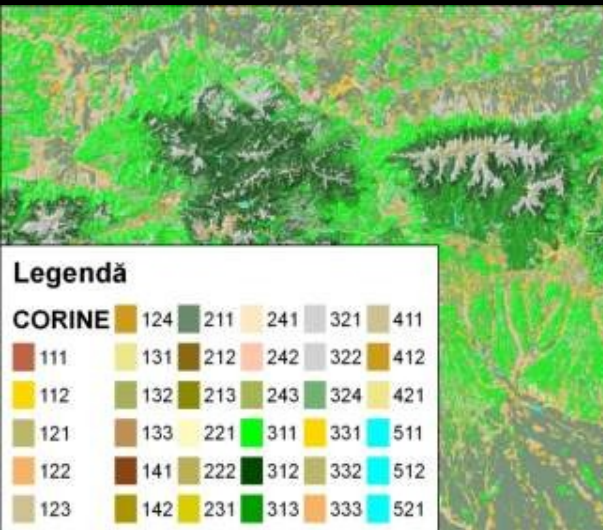
ArcStats 0.7 for ArcGIS 9.x (Best, B.D, S. Loarie, S. Quian, P. Halpin, D. Urban, 2005. ArcRstats – multivariate habitat modelling with ArcGIS and R statistical software. Available at <http://www.nicholas.duke.edu/geospatial/software>)

Marxan for ArcView 3.x (Ball, I.R, H.P. Possingham, 2000. Marxan V1.8.2 – Marine reserve design using spatially explicit annealing, a Manual. Available at <http://www.uq.edu.au/marxan/index.html?page=77655&p=1.1.4.3>)

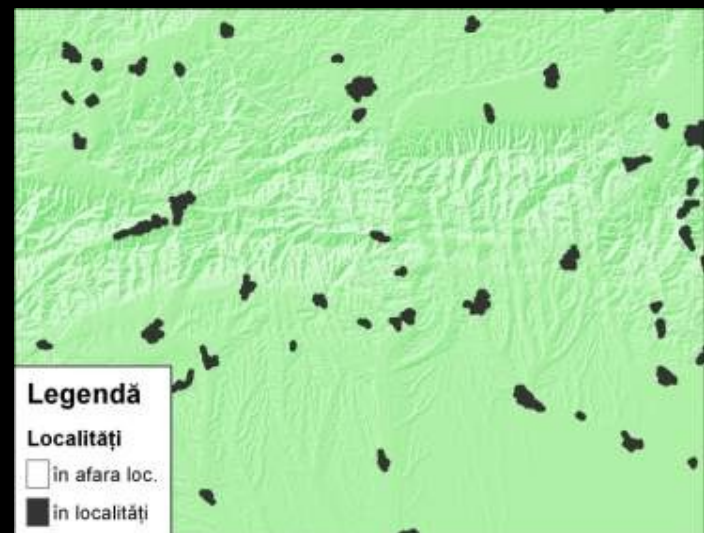
3. Selection of software for the analysis



4. Selection of habitat factors



1. Corine Landcover
2. DEM
3. Topography
4. Distance from roads
5. Distance from inhabited places



6. Habitat quality raster

The figure displays five Notepad windows, each showing a different data file. The first window, 'brownbear_indcvt.txt', contains a list of 3D coordinates (x, y, z) for various points. The second window, 'brownbear_elev_m.txt', shows elevation data for specific points. The third window, 'brownbear_topo.txt', shows topographic data for a few points. The fourth window, 'brownbear_dstroad.txt', shows road distance data for a few points. The fifth window, 'brownbear_urban.txt', shows urban data for a few points.

Point	X	Y	Z
0	:	:	0
111	:	:	0
112	:	:	0
121	:	:	0
122	:	:	0
123	:	:	0
124	:	:	0
131	:	:	0
132	:	:	0
133	:	:	0
141	:	:	0
142	:	:	0
211	:	:	0
212	:	:	0
213	:	:	0
221	:	:	0
222	:	:	50
231	:	:	30
241	:	:	0
242	:	:	0
243	:	:	30
311	:	:	100
312	:	:	100
313	:	:	100
321	:	:	30
322	:	:	30
324	:	:	60
331	:	:	0
332	:	:	80
333	:	:	60
411	:	:	0
412	:	:	0
421	:	:	0
511	:	:	0
512	:	:	0
521	:	:	0

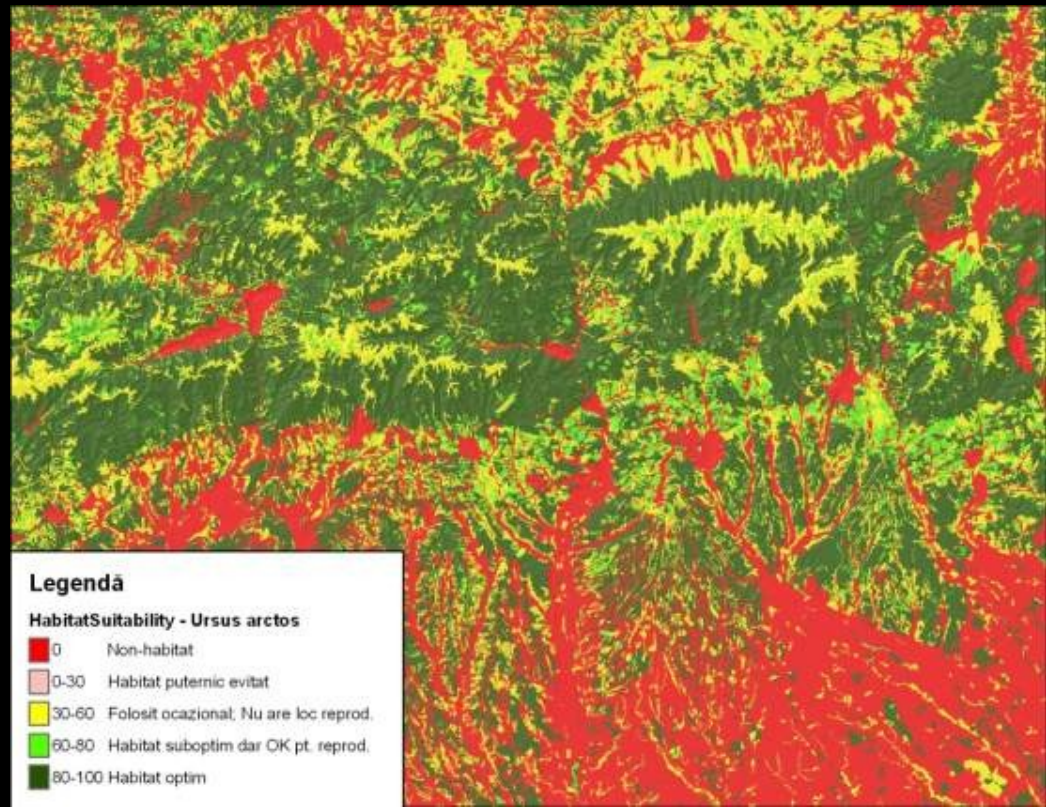
Point	Elevation (m)
-18	500
500	1000
1000	1500
1500	2000
2000	2512

Point	Topo
1	35
2	70
3	100
4	60

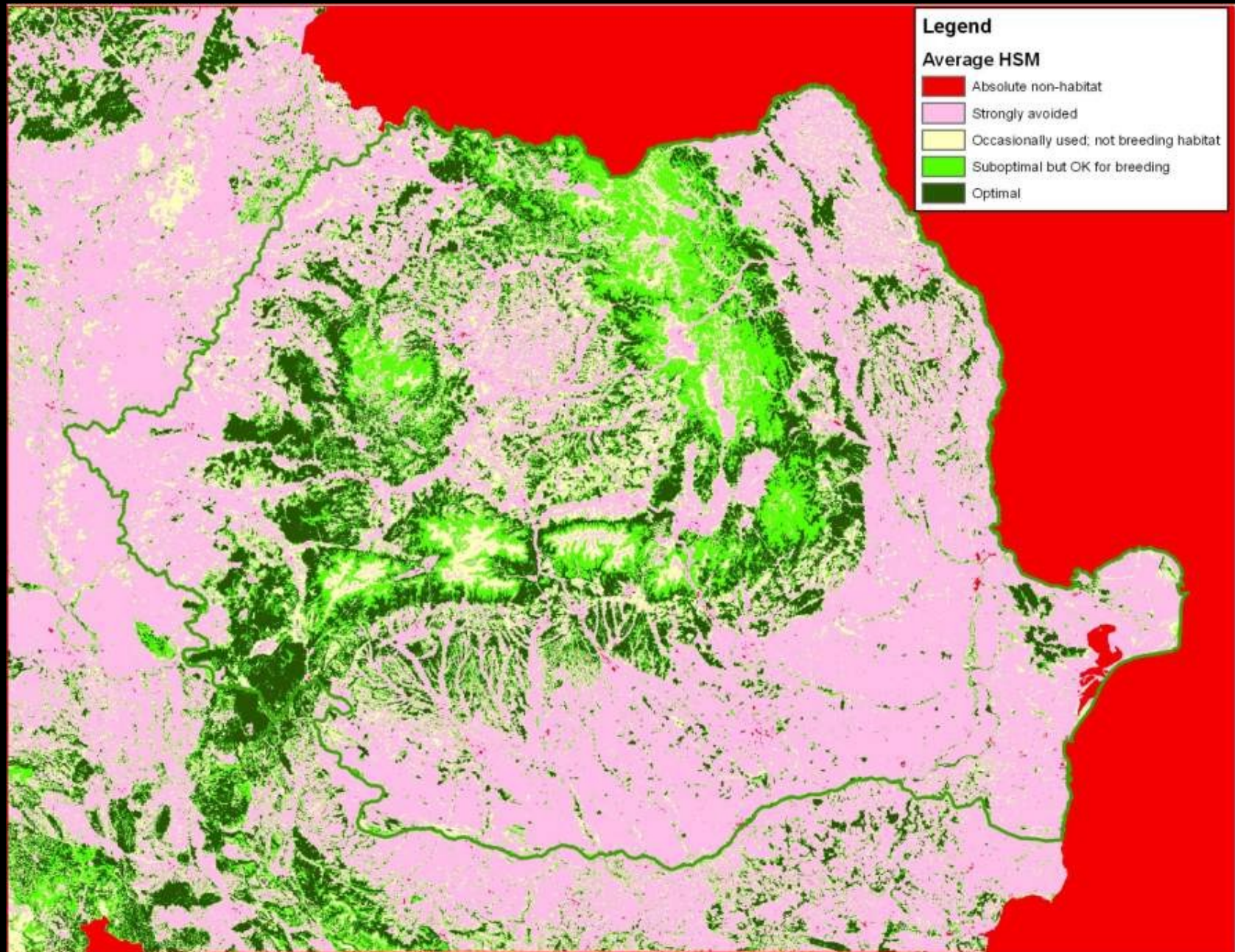
Point	Distance
0	100
100	500
500	1500
1500	126578.4844

Point	Urban
1	100
2	0

- 100 Most favorable habitat offering maximum reproductive success and maximum survival chances
- 80 The smallest value for habitats suitable for successful reproduction
- 60 The smallest value for habitats continually used for dispersal, but only occasionally for reproduction
- 30 The smallest value for habitats occasionally used, without the possibility for reproduction
- <30 Avoided habitats
- 0 The species is entirely absent from the area



7. Habitat quality raster - mean value

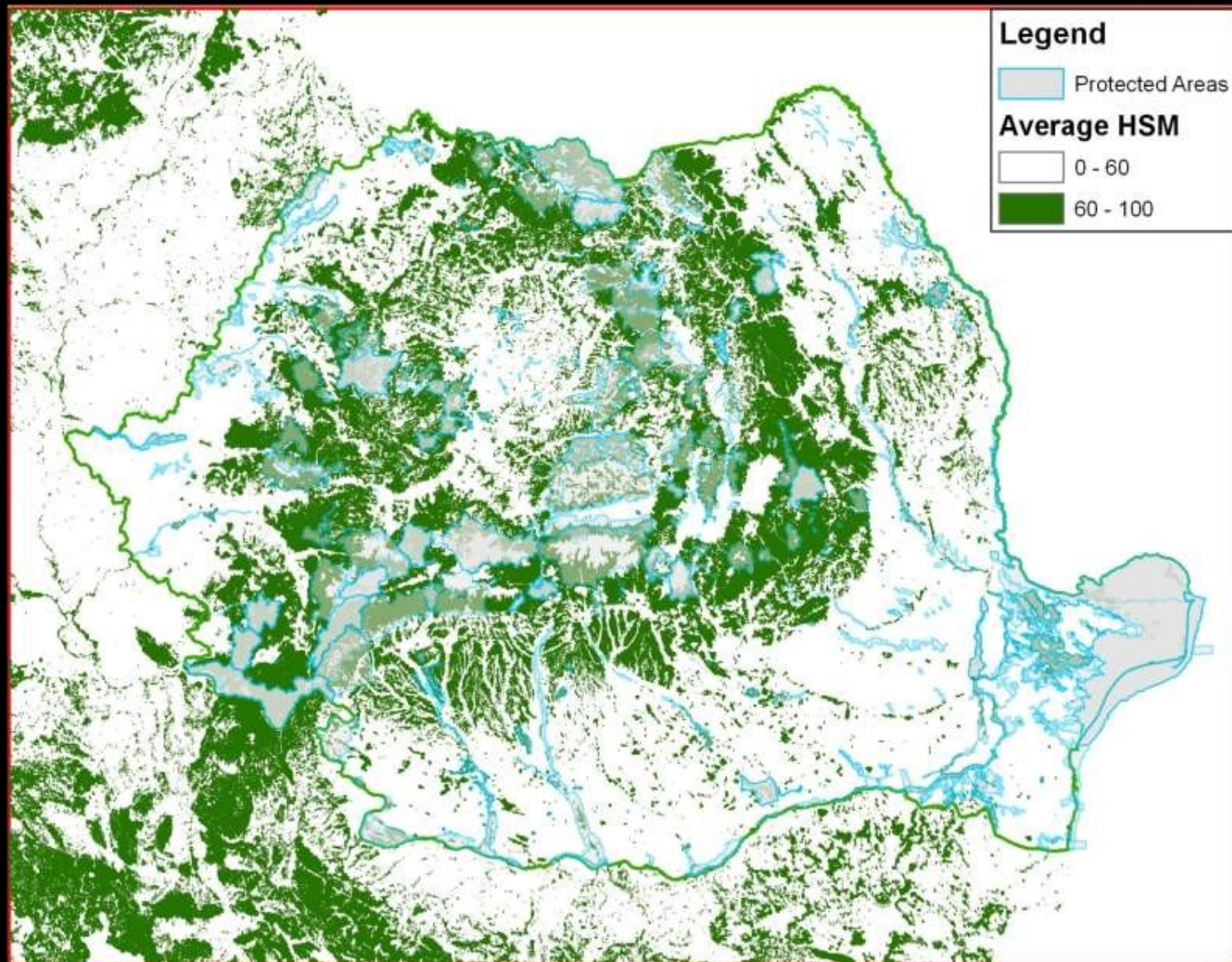


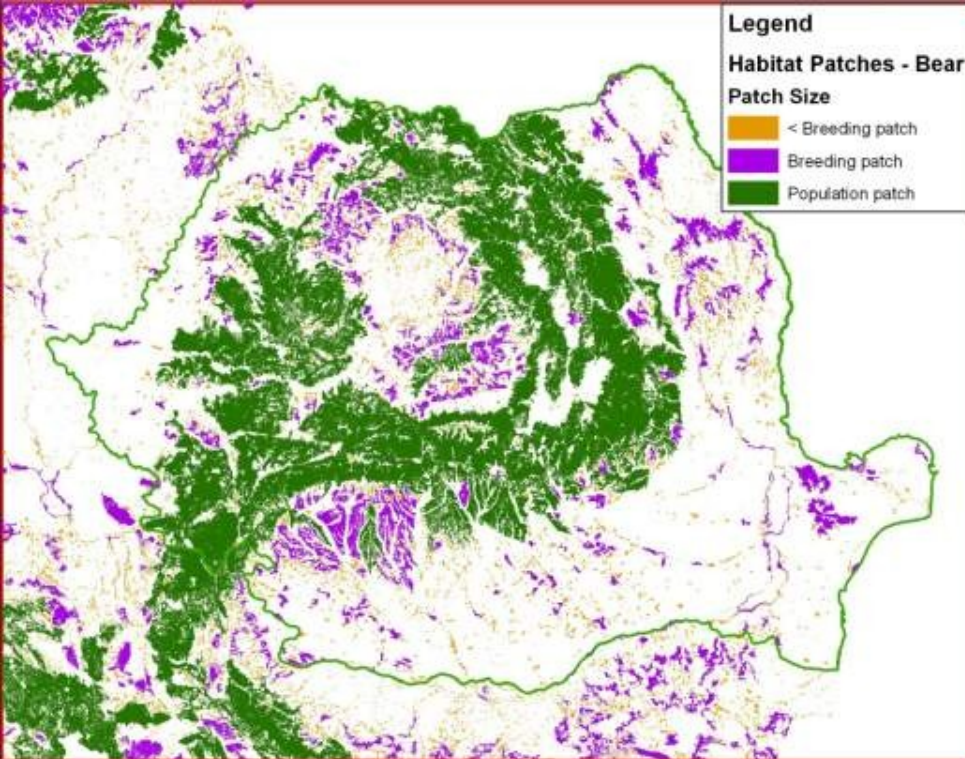
8. GAP Analysis

9% of the habitat >80 is included in national or nature parks, or DD biosphere reserve

21% of the habitat >80 is included in Natura 2000 - pSCI

15% of the habitat >80 is included in Natura 2000 - SPA

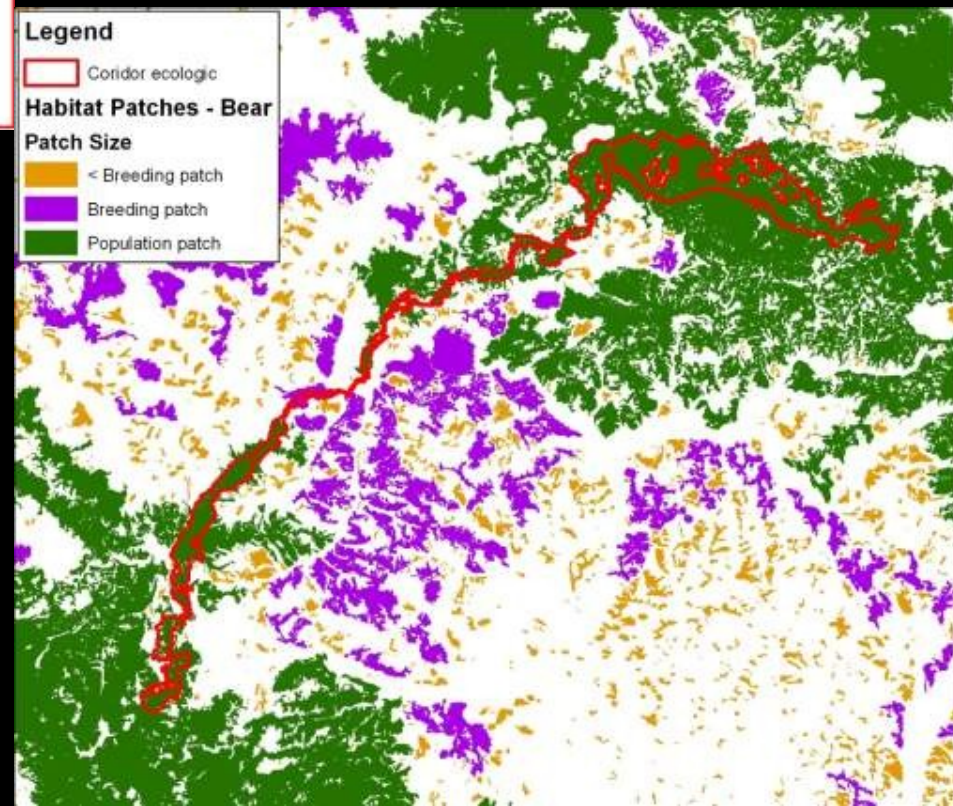


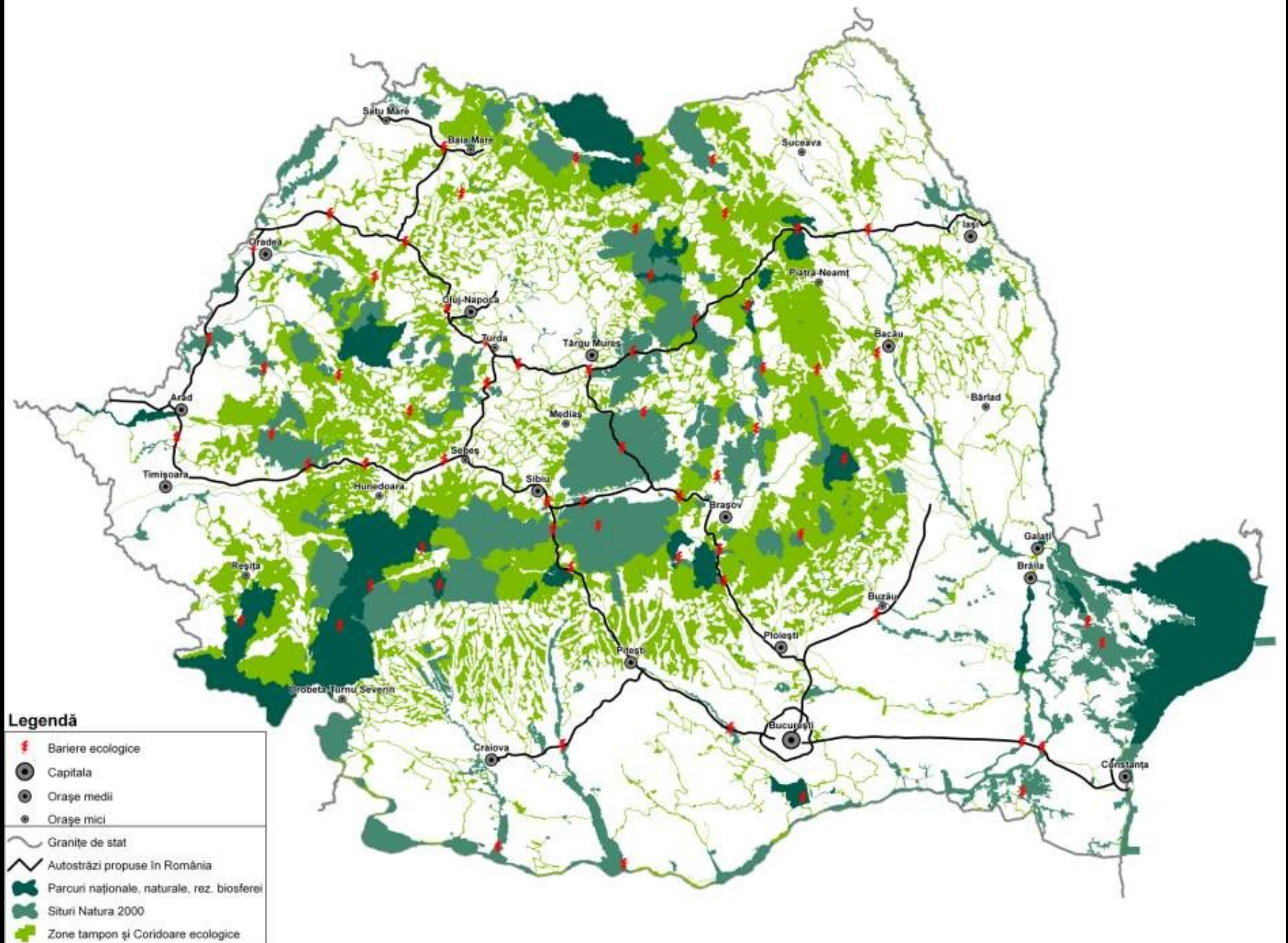


9. Generation of habitat patches

10. Digitization of ecological corridors

- a) Local scale – automatically, using CorridorDesigner
- b) National scale - manually





GIS vector model for an ecological network



**Public awarness at local level
- Prahova Valley**



NatuÆregio
trainees for nature



Thank you!

Bucharest, 25 november 2009

NNA
Alfred Toepfer Akademie
für Naturschutz



eurONATUR FOUNDATION

