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Spatial approach to the assessment of anthropic impact on biodiversity based on the Nomenclature of Territorial Units for Statistics (NUTS) applicable to Romania

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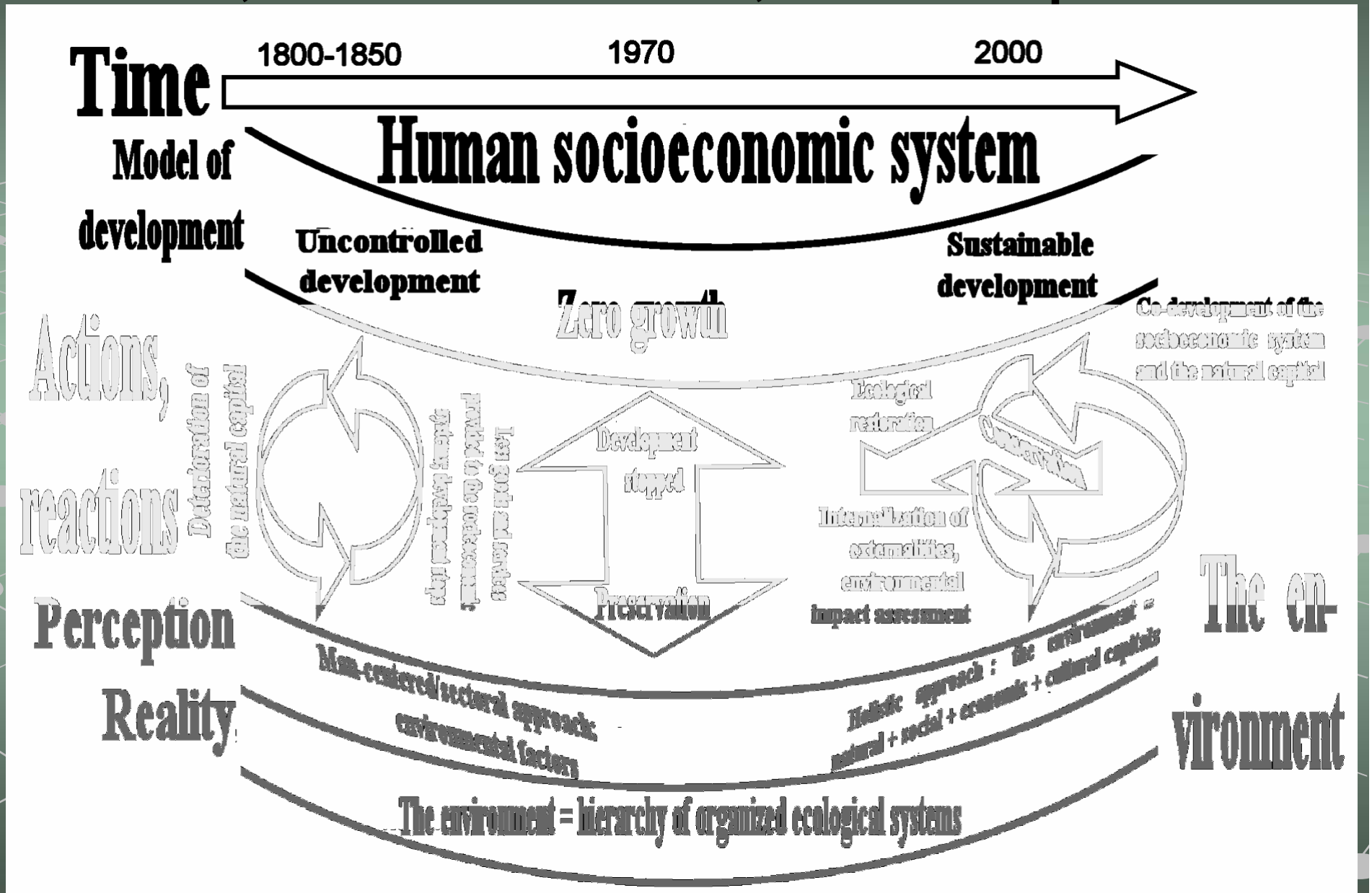
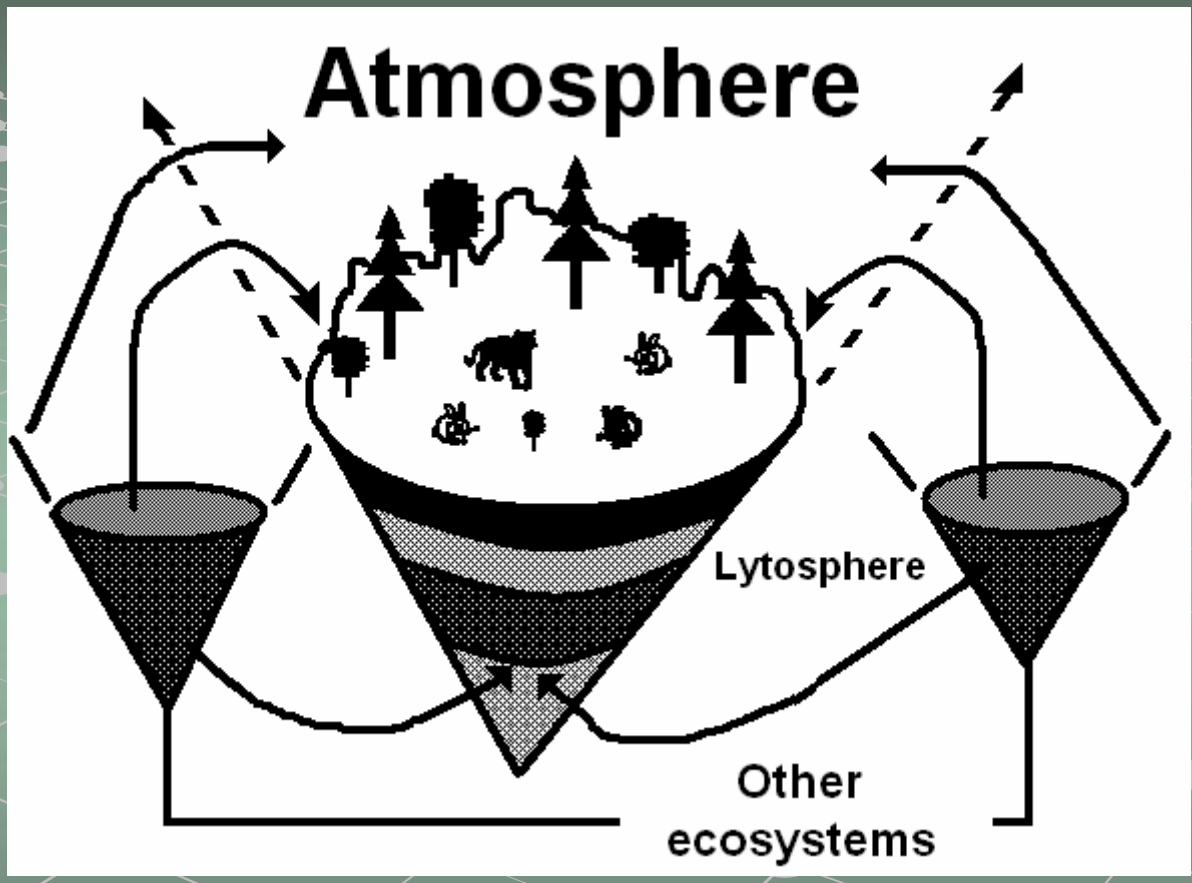
Man, environment, development



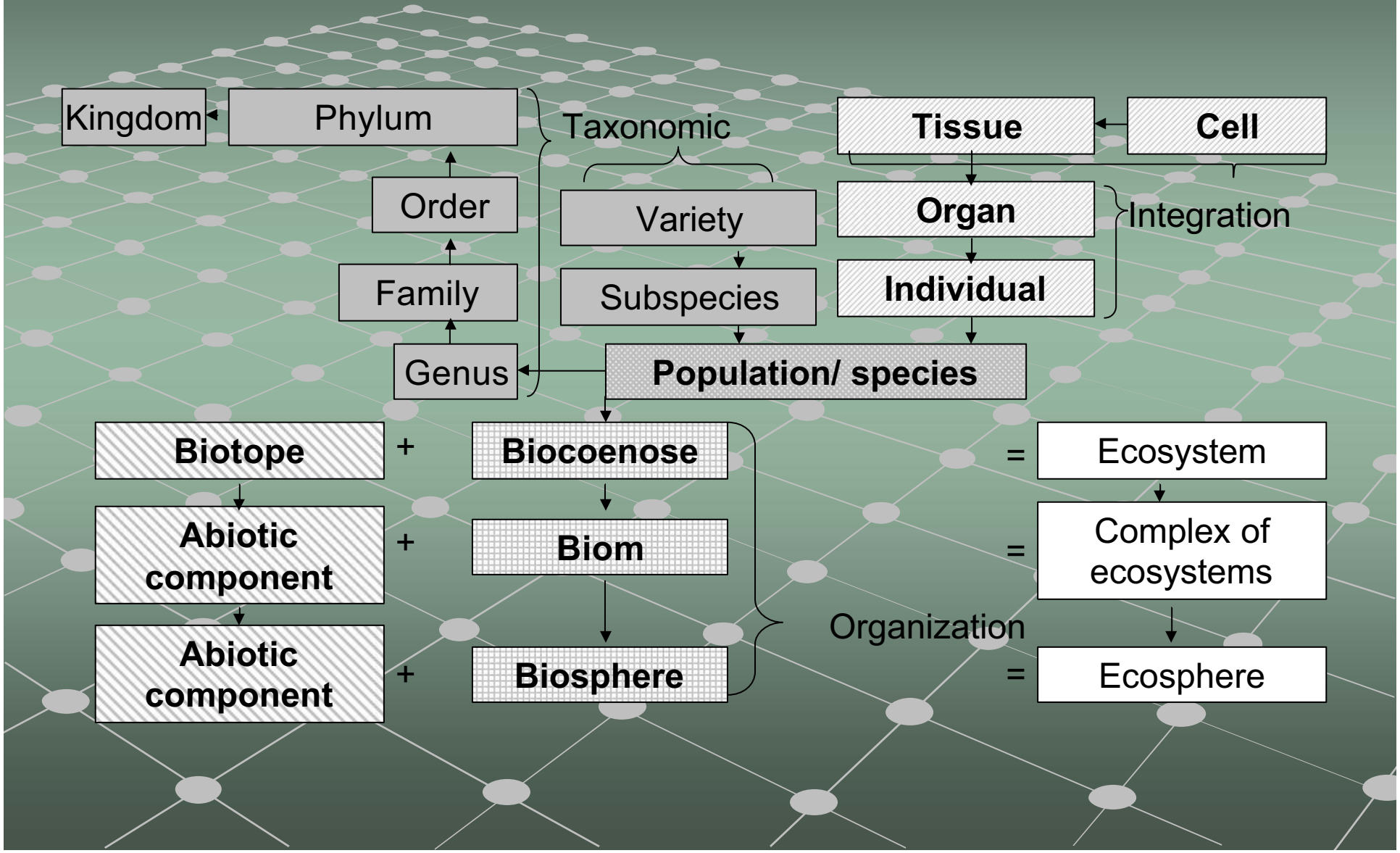
Structure of ecological systems

- An ecological system consists of a lifeless (***abiotic***) component, *i.e.*, all geological, geographical, climatic etc. factors, and a live (***biotic***), component, *i.e.*, all vegetal and animal species. The two are tightly connected and form a whole.



- The main functions of ecological systems are ***biogeochemical circuits*** and ***self-regulation***; the later provides for the continuity of structure in time and space in a dynamic equilibrium, as ecological systems evolve continuously through ***ecological succession***.

Hierarchy of ecological systems



Biodiversity

- Rio de Janeiro convention on biological diversity: variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.
- What means: diversity of biocoenoses, biotopes; of complexes of ecosystems (including ecosystems), of human population and artificial ecological systems.
- Components:
  - Ecological diversity, at several levels: complexes of ecosystems, species and ecological niches
  - Diversity of organisms – taxonomical hierarchy
  - Genetic diversity – genotypes, frequency in populations
  - Cultural diversity – interaction of man at all levels, traditional lifestyles

Spatial biodiversity

- a diversity – ecosystem,
- ß diversity – ecosystems within a complex of ecosystems,
- ? diversity – regional complex of ecosystems, *e.g.*, biogeographical regions within a continent,
- d diversity – macroregional complex of ecosystems, *e.g.*, global biogeographical regions.

CORINE Classification

- European Environmental Agency uses CORINE (Coordinated Information on the European Environment classification of land cover and use. CORINE classification has three levels.
- Data from 1990 and 2000 – use of a common methodology for a large territory makes updating impossible at less than some 10 years, yet 2000 data were made available in 2004
- ***Land use*** – how do people use land; ***land cover*** what is actually there, from a biophysical viewpoint

CORINE Levels

- Level 1: artificial surfaces, agricultural areas, forest and semi natural areas, wetlands, water bodies
- Level 2 (categories of the class “artificial surfaces”): urban fabric; industrial, commercial and transport units; mine, dump and construction sites; artificial, non-agricultural vegetated areas
- Level 3 (sub-categories of the class “artificial surfaces”): continuous urban fabric; discontinuous urban fabric; industrial or commercial units; road and rail networks and associated land; port areas; airports; mineral extraction sites; dump sites; construction sites; green urban areas; sport and leisure facilities
- Level 1 – land cover, levels 2 and 3 – land use

Spatial planning in Romania

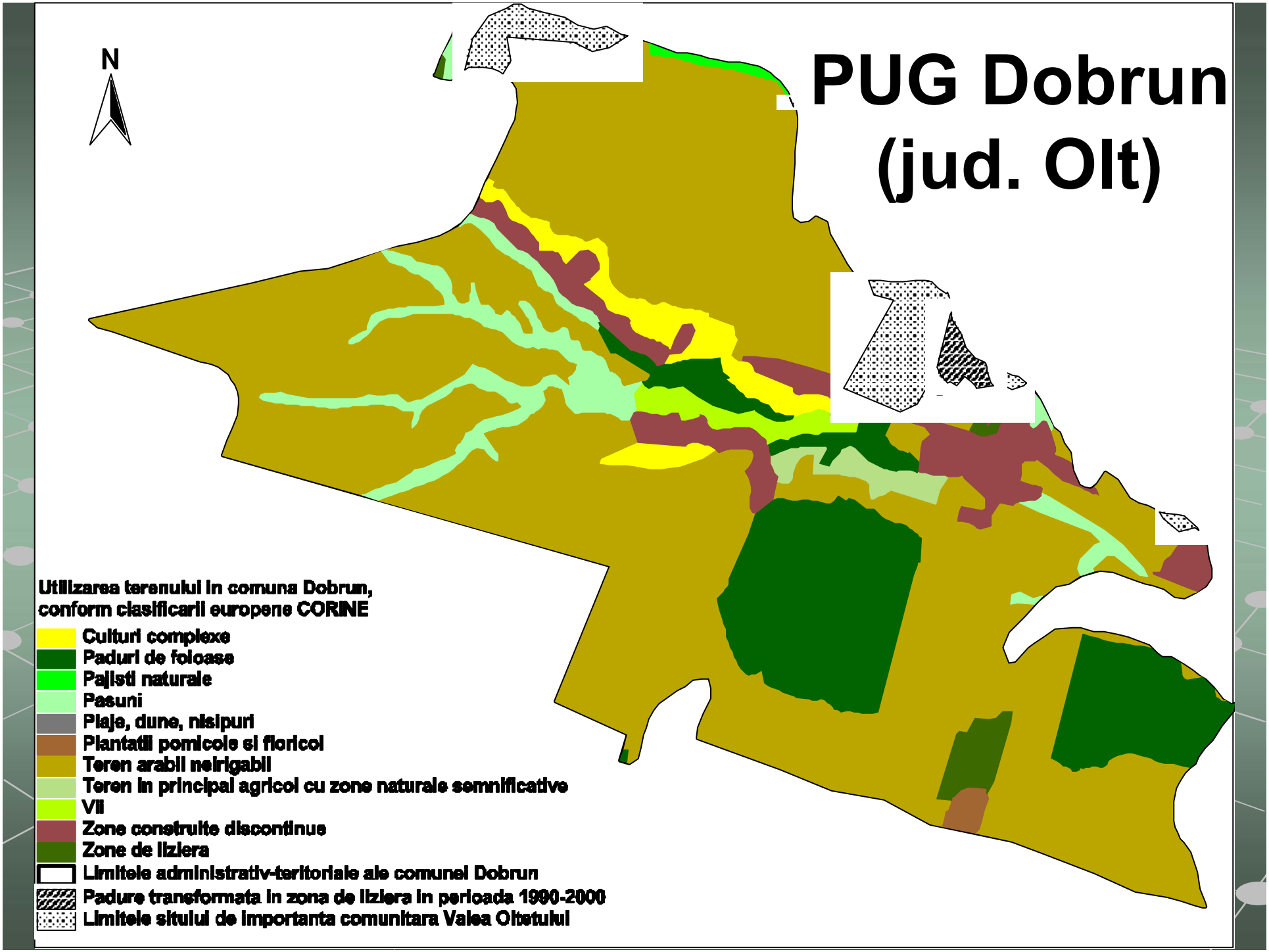
- Spatial planning aims to [...] **approve spatial and urban planning documents**.
- Main objectives of spatial planning:
  - a) balanced socioeconomic development of regions and zones, respecting their specifics;
  - b) improve quality of life oh humans and communities;
  - **c) responsible management of natural resources and environmental protection;**
  - **d) wise land use.**

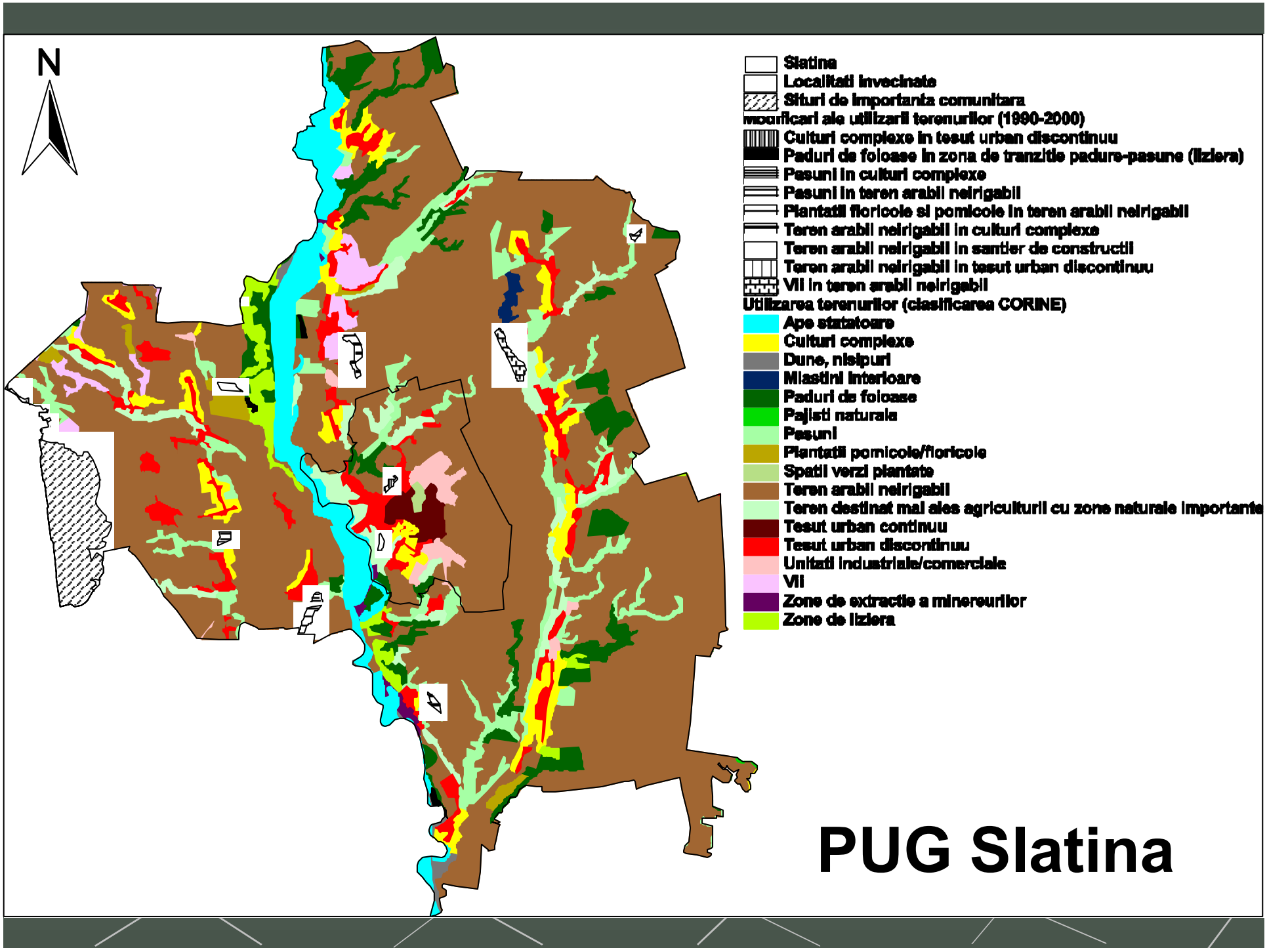
Urbanism in Romania

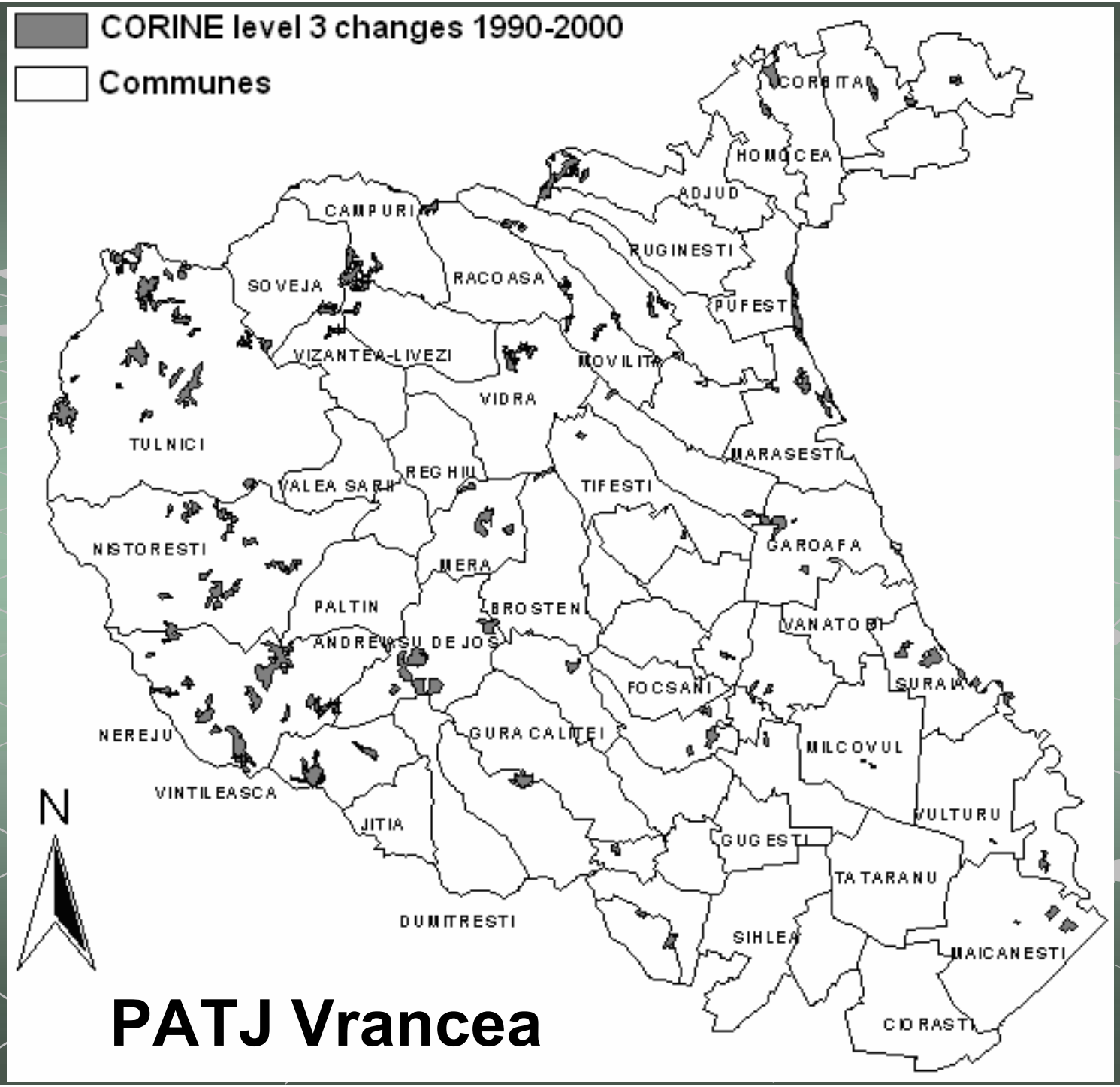
- Main objectives of urbanism:
  - a) improve life quality by eliminating dysfunctions, provide access to infrastructure, public services and convenient housing for all people;
  - b) create conditions to meet special needs of children, elderly, disabled people;
  - c) wise land use, according to urban function; controlled urban sprawl;
  - **d) protection and valorization of built and natural heritage;**
  - **e) provide for the quality of built, arranged and vegetated spaces in all urban and rural settlements;**
  - **f) protect settlements against natural hazards.**

Urban and spatial planning documents

- Chapters (MAPPM and MLPAT, 2000):
  - Environment: description of relief, clime, fauna, flora, runoff and underground water resources, soil resources (including forest vegetation), subsoil resources, natural hazards (floods, land slides, earthquakes, avalanches), technological hazards and pollution, areas with water deficits, uncontrolled household and industrial waste deposits, environmental quality of air, water, and soil.
  - Natural and built heritage: natural heritage includes protected areas, areas to be protected, including landscapes, underlining degradation of environment due to anthropic interventions and valuable natural resources to be protected (URBANPROIECT, 2006; MDLPL, 2008).
- All elements are used to assess the gap between current situation and what is planned for a given time frame, establish a diagnosis and identify priorities; all these are the base of the spatial development strategy and proposed programme of actions (URBANPROIECT, 2006; MDLPL, 2008).


N
PUG Dobrun
(jud. Olt)
Utilizarea terenului in comuna Dobrun,
conform clasificarii europene CORINE
Culturi complexe
Paduri de foioase
Pajisti naturale
Pasuni
Plaje, dune, nisipuri
Plantatii pomicole si floricol
Teren arabil neirigabil
Teren in principal agricol cu zone naturale semnificative
Vii
Zone construite discontinue
Zone de liziera
Limitele administrativ-teritoriale ale comunei Dobrun
Padure transformata in zona de liziera in perioada 1990-2000
Limitele sitului de importanta comunitara Valea Oltetului


N
Slatina
Localitati invecinate
Situri de importanta comunitara
Modificari ale utilizarii terenurilor (1990-2000)
Culturi complexe in tesut urban discontinuu
Paduri de foioase in zona de tranzitie padure-pasune (liziera)
Pasuni in culturi complexe
Pasuni in teren arabil neirigabil
Plantatii floricole si pomicole in teren arabil neirigabil
Teren arabil neirigabil in culturi complexe
Teren arabil neirigabil in santier de constructii
Teren arabil neirigabil in tesut urban discontinuu
Vii in teren arabil neirigabil
Utilizarea terenurilor (clasificarea CORINE)
Ape statatoare
Culturi complexe
Dune, nisipuri
Mlastini interioare
Paduri de foioase
Pajisti naturale
Pasuni
Plantatii pomicole/floricole
Spatii verzi plantate
Teren arabil neirigabil
Teren destinat mai ales agriculturii cu zone naturale importante
Tesut urban continuu
Tesut urban discontinuu
Unitati industriale/comerciale
Vii
Zone de extractie a minereurilor
Zone de liziera
PUG Slatina



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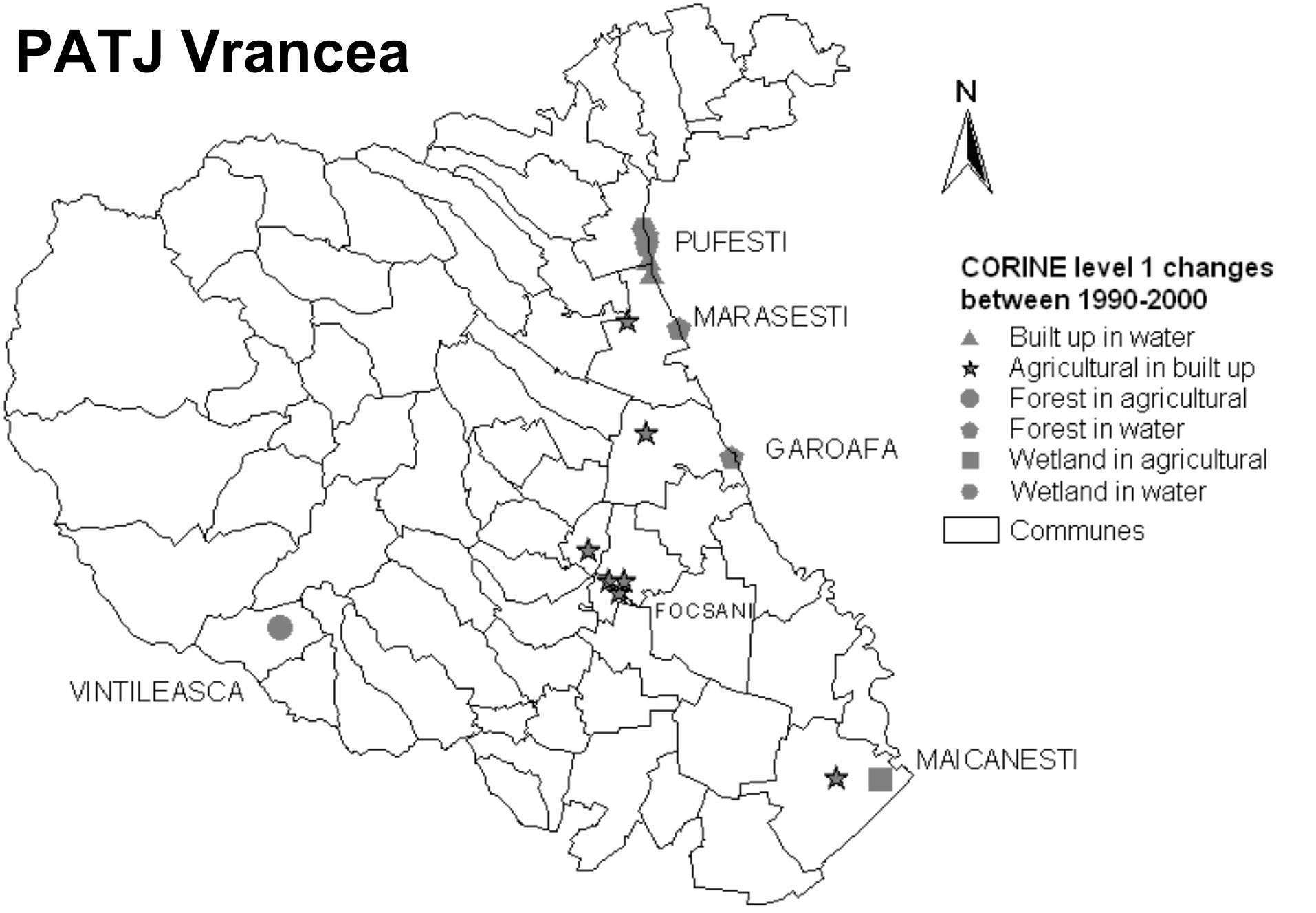
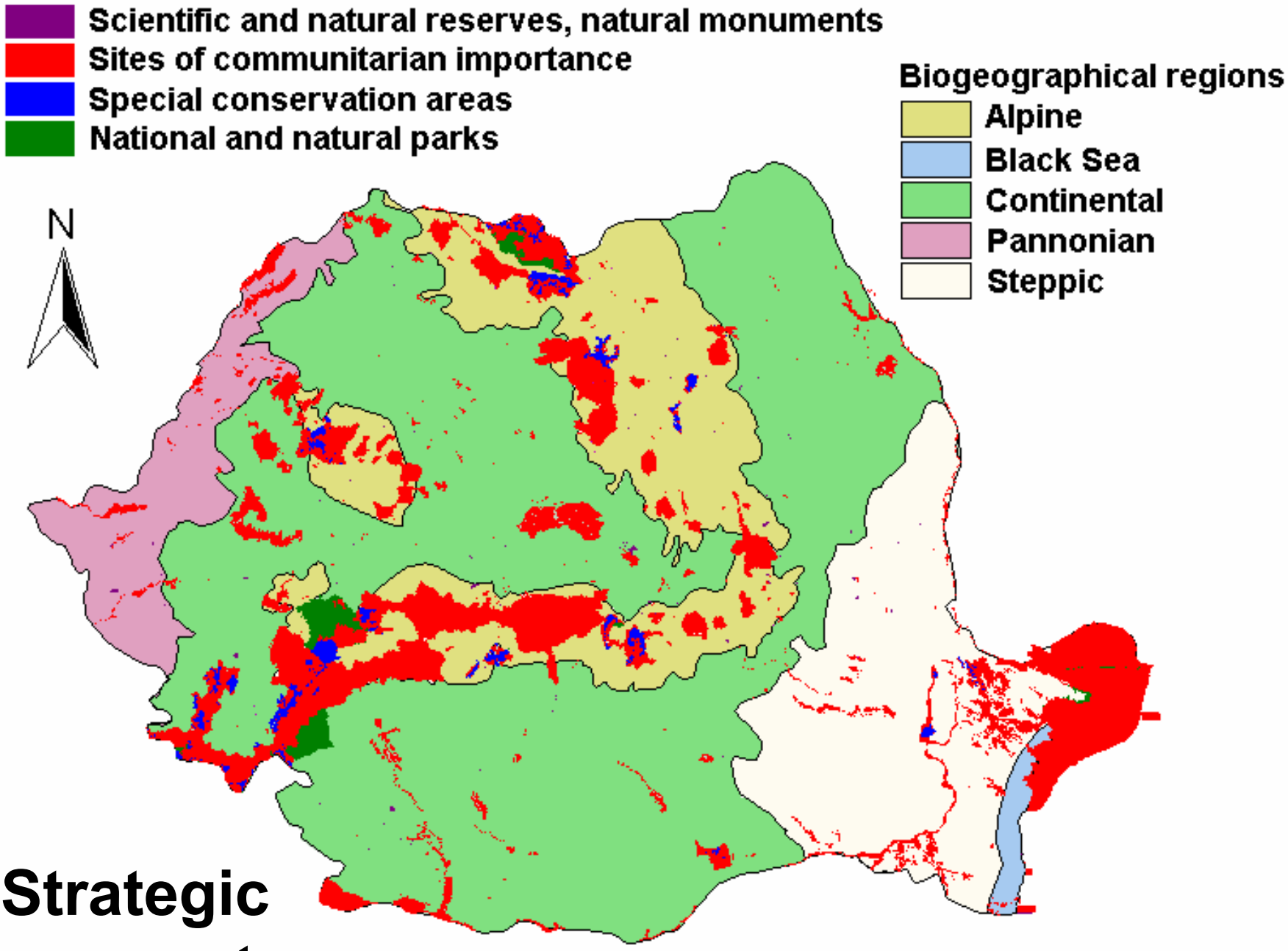
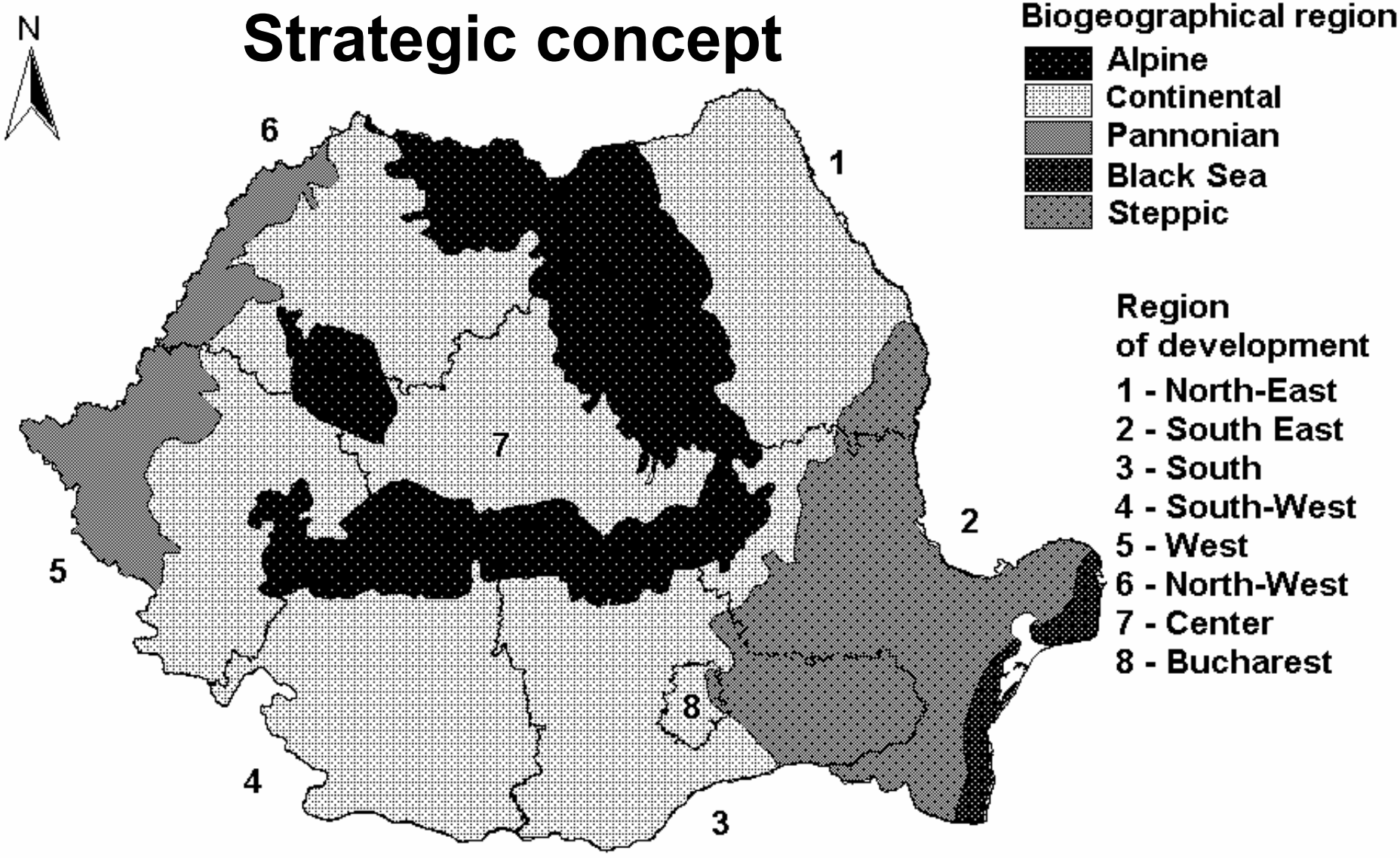




Strategic concept

Strategic concept



Characterization of the complexes of ecosystems within the regions of development

Region of development	***Biogeographical region***
Bucharest	Steppic and Continental. High diversity despite of reduced surface.
Center	Alpine and Continental (in the center).
North-East	Alpine and Continental (predominant).
North-West	Alpine, Continental (predominant, situated in the center) and Pannonian (West). High diversity.
South	Alpine (North), Continental (predominant, South) and Steppic (East). High diversity.
South-East	Alpine, Continental, Steppic and Black Sea, disposed in this order as parallel bands from NE to SW. Highest diversity.
South-West	Alpine (North, poorly represented), Continental (predominant, in the South). High diversity.
West	Alpine, Continental and Pannonian, disposed in this order as parallel bands, relatively equal, from NE to SW. High diversity.

Thank you for your attention.

Any questions, please?