

Natura 2000 – network or a sum of sites

Analysis of the connectivity of target zones with other Natura 2000 sites

Summary

Goal of the analysis

Analysis was made within project “Restoration and conservation of riparian forests of habitat type *91E0 in Natura 2000 sites and model areas in Bulgaria“, LIFE13 NAT/BG/000801. In particular in relation to the implementation of activity A5: Analysis of the connectivity of target sites with other Natura 2000 sites. In order to improve the ecological connectivity of the Natura 2000 sites from the network, the Habitat Directive requires from the member states to encourage management and protection of the characteristics of the landscape that are important for the flora and fauna on the level of special planning. This requirement is also set in the Bulgarian legislation, but the primary expectations before the analysis were that it was currently just left on paper.

The implementation of this activity is a test for the future work on the issues of connectivity of Natura 2000 sites. The analysis was made for Maritsa River and its connection to 4 other Natura 2000 sites and namely – Chirpanski vazvishenia, Orizisha -Tsalapitsa, Reka Mecka and Chinar Dere.

Method of work

The work was done in the following sequence:

1. Choosing of 10 “focus” species of different groups that are to be protected in the Reka Maritsa site. For these species the structural or functional connectivity with other sites is of crucial importance for the migration, resettlement, vulnerability of fragmentation and finding new habitats in the risk of climate change.
2. For the chosen species – identification of their specific basic requirements for the landscape (for example types of habitats regarding the level of suitability, types of barrier elements, thresholds of areas, lengths, etc. for the previous two criteria, etc.) that guarantee permeability, functional or structural connectivity between the sites.
3. Mapping through GIS of the main elements related to the structural and functional connectivity of the considered sites. The aim is to determine which territories respond to the requirements of the species for movement between the sites.



4. Analysis of the planning documentation that regulate the activities in the relevant territories: Regional plan for development; municipal plans for development; forest management plans; general special plans, etc. The following information is being extracted: land purpose and plans for the territory in the relevant planning document.
5. Identification of the current or potential threats for change of the land purpose of the territories that allow connectivity.
6. Preparation of recommendations for special planning of the territories that guarantee the protection of wildlife corridors.
7. Identification of potential places appropriate for future conservation activities aiming at improvement of the permeability functional or structural connectivity between the sites.

Resume of the results

The species are: *Barbus cyclolepis*, *Triturus karelinii*, *Bombina bombina*, *Elaphe sauromates*, *Testudo hermanni*, *Testudo graeca*, *Emys orbicularis*, *Lutra lutra*, *Vormela peregrusna*, *Spermophilus citellus*.

The connecting elements between the sites are known as wildlife corridors. In the table below are shown the elements of the landscape that are important for each species.

Connecting elements	Species	More detailed description / habitat
Rivers	<i>Barbus cyclolepis</i>	Middle and upper river courses where the water is fast the bottom is covered with sand, gravel or stones.
	<i>Emys orbicularis</i>	Plain or mountain rivers with vegetation of <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> Rivers with muddy banks with <i>Chenopodion rubri</i> and <i>Bidention</i> p.p.
	<i>Lutra lutra</i>	Fresh water basins mostly overgrown with dense vegetation or inaccessible rocky shores and adjacent coastal strip with a width of 20-100 meters. Of particular importance are deep rivers, canals.
Stagnant water	<i>Triturus karelinii</i> <i>Emys orbicularis</i>	Solid oligotrophic to mesotrophic waters with benthic formations of <i>Chara</i> . 3140 Natural eutrophic lakes with vegetation of the type <i>Magnopotamion</i> or <i>Hydrocharition</i> . Backwater, old river beds and abandoned rubble dams



	Bombina bombina	Natural and artificial lakes, rivers, springs, canals, temporary puddles, etc. Prefers ponds with abundant vegetation.
	Lutra lutra	микроязовири
Thinned forests and shrubs	Elaphe sauromates	Thinned forests and shrubs or steppe vegetation, hollows gorges, headlands. Rarely enters the outskirts of wetlands.
	Testudo hermanni, Testudo graeca	West Eurasian deciduous bushes (thickets) of hornbeam, thorn, lilac and others. Hard-leaved bushes Thermophilic and sub-Mediterranean oak woods (oak, oak, oak) Thermophilic mixed forests (hornbeam, ash, linden, maple, etc.).
Riparian forests	Lutra lutra	
Open fields with natural vegetation	Testudo hermanni, Testudo graeca,	Grassy steppe grasslands and dry limestone terrains
	Vormela peregrusna	Heaths, rocky places, bushes, vines, gardens, farmyards, meadows, grassland valleys, canyons and more.
	Spermophilus citellus.	Open uncultivated areas covered with low grass (meadows, pastures, dry steppes, headlands, along roads, etc.).

The analysed planning documents are: Regional plan for development; Regional special scheme, municipal plans for development; general special plans, Plan for management of river basins, etc. The following information was extracted:

- Information for the land purpose and way of permanent usage of the territories that are important for the connectivity of the protected sites.
- Planned changes in the land purpose and way of permanent usage of the relevant territories as well as important investment intentions.
- Measures and mechanisms for protection of the connecting elements of the landscape that are marked in the different planning documents.

Conclusions from the analysis of the planning documents

- The territorial scope and status of protected sites from Natura 2000 is reflected in most of the plans, mainly because of the legal restrictions on territorial development and their potential for ecotourism. Not reported, however, are the connecting elements of the landscape in areas without a special legal status. Good exceptions to this trend are the measures to improve the ecological status of waters in the river basin management plan and the concept of Municipal Environmental Network of Maritsa Municipality.



- Often the measures in the Regional plans for development related to management activities in riverbeds are measured in very simple and unambiguous indicators like number / km of cleaned riverbeds / gullies.
- The measures for the development of green systems of settlements in many cases are logically separated from the conservation measures for the biodiversity and protected areas / sites.
- Some of the plans for the new planning period mention concerns related to the impacts of climate change. Adaptation measures, however, are mostly related to engineering infrastructure. The potential for adaptation on the landscape and ecosystem level is not counted.
- Plans and strategies for 2014-2020 are much more specific regarding the financial parameters, probably due to the increased capacity of municipalities and regional administrations to handle project financing. At the same time almost can not be found specific financial projections for measures aimed at biodiversity.

It can generally be concluded that Art. 30 paragraph 2 of the Biodiversity Act is not being applied or is applied in limited circumstances.

Threats for wildlife corridors

Main threats to connecting wildlife corridors are felling of coastal trees, construction of dykes and water power plants, fragmentation from road infrastructure, drainage, burning, change of the land use, urbanization, plowing pastures, meadows, pollution, building of solar parks and quarries in water currents.

Specific threats identified in planning documents are:

- Change of land purpose of terrains that are within or in immediate vicinity of the main wildlife corridors of Reka Maritsa site BG0000578 with the neighbouring protected sites. Examples for this are the new multifunctional areas around E80 main road Plovdiv-Pazardzhik.

Measures for flood protection or irrigation measures are not in accordance with the environmental objectives of the territory. These may be for example removal of riparian vegetation or building of rapids along the rivers Martinka, Tekirska, Omurovska, Potoka, Mechka and Chinar dere.

- Measures for flood protection or irrigation measures are not in accordance with the environmental objectives of the territory. These may be for example removal of riparian vegetation or building of rapids along the rivers Martinka, Tekirska, Omurovska, Potoka, Mechka and Chinar dere.
- Intensive agricultural or other use of the terrains that are very close to the wildlife crossings under Trakia Highway.



Recommendations for spatial planning to ensure the protection of the territories providing connectivity

- Integration of the provisions of Art. 30 paragraph 2 of the Biodiversity Act in the new general plans and development schemes at municipal and higher spatial level: The specific spatial solutions for the protection and maintenance of the connecting elements of the landscape can be varied and depend primarily on the willingness of the contracting administration and the degree of awareness of the expert teams preparing the relevant projects. Perhaps in many cases it will be necessary to make compromise between the objectives of urban development and the objectives for environmental protection for the territory.
- The existing landscape elements with natural or semi-natural vegetation shall with priority be related to the areas with functional purpose as forests and green areas in the respective plans. As far as possible, their purpose shall not be converted into residential, industrial or other urban areas, while ensuring their spatial connectivity. This applies to rivers and their banks, watered old riverbeds, wetlands, flood plains, forest shelterbelts and other forest vegetation in the plains.
- Municipal and regional development plans shall include measures for the maintenance and restoration of protected areas and green connections between them. This will allow easier justification for public funding of restoration projects.
- The integration of the National Ecological Network as ecosystem measure for adaptation to climate change in planning documents and strategies.

Documents

1. Report for the requirements of wildlife corridors between Natura 2000 sites BG0000628 – Chirpanski vazvishenia, BG0000436 – Reka Mechka, BG0000438 – Reka Chnardere and BG0002086 – Orizishta Tsalapitsa with BG0000578 – Reka Maritsa
2. Maps of the analysed sites – general map and separate maps for each one of the four sites with Reka Maritsa site.
3. Analysis of the planning documents that regulate the activities within connecting elements of the landscape between protected sites from Natura 2000 network.
4. Report from the analysis of the forest territories connecting the researched protected sites.

