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HABITAT MAPPING OF BÖRZSÖNY MOUNTAINS

Results of the habitat mapping

Content

Introduction to habitat mapping

The methodology for habitat mapping evolved in the Hungarian vegetation botanical and nature conservation practice in the 1990s, based on the vegetation mapping. The overgrown numbers of vegetation categories did not enable the practical use for nature conservation purposes, they were not able to serve as a base for proper treatment planning. The first General Hungarian Habitat Categorization System (Általános Nemzeti Élőhelyosztályozási Rendszer – Á-NÉR) was published in 1997. There have been several updates so far, the actual category system was prepared in 2011 and includes every single habitat type occurring in Hungary. The Danube-Ipoly National Park Directorate has prepared 90 habitat maps since its establishment in 1997 in its administration area.

The goal of the habitat mapping is to picture the vegetation patterns of the determined area (on the average scale of 1:5.000 – 1:10.000). The applied category system must be appropriately rough to describe a manageable patch size and not be too fragmented, as well as it needs to be adequately structured to enable the detachment of the different management claimed patches. This allows the surveyor to map 2-300 ha area on a daily basis. The quality isolation of the patches is only partly achievable based on the habitat categories. The other very important base of the analysis is the adaptation of the naturalness-degradation scale, which allows the description of the different status of the patches under the same habitat categories. E.g. the comparison between a well-structured, more layered, mixed beech forest and a same-aged, unmixed young beech forest is only possible with the collection of the additional data.

Further important supplementary information was surveyed during the implementation:

- the presence of protected and rare plant species;
- the potential habitat type;
- the threats and risks;
- any treatment/management proposal.

The potential vegetation could determine the end goal of nature conservation management.

The collected data allows the National Park Directorates to fulfill their obligations to display Natura 2000 marker habitats during the forest management planning. These data also simplify the nature conservation management planning itself: we will see how many areas are available from the exact habitat types, the distribution of the high nature conservation value habitats, and pictures of the general threat of the area.

The technical methodology for habitat mapping

The prepared map should include the digital delineation of the vegetation units on the map. The delineation should be prepared so that the described patches are comparable to the categories of the General National Habitat Categorization System (Á-NÉR 2011) and in order to reflect the limits of the habitat boundaries experienced on the field. The minimal patch size is 5.000 m^2 for the habitat patches significantly distinct from their environment and 2.000 m^2 for habitat patches requiring different nature conservation management (rock towers, rockslides, clear cuts, natural clearings).

The use of hybrid categories must be avoided if possible, except in the cases of separated, well-bordered, transitional habitat patches, as well as alien coniferous or non-coniferous stands are mixed with native non-coniferous second-growth forest stands.

In the habitats where Natura 2000 species and habitat occurs, the Á-NÉR 2011 categories must be validated for the Natura 2000 habitat classification system based on Haraszthy (2014), and Nature 2000 habitat code must be noted.

The rate of naturalness must be determined from a scale of 1-5 (1: very bad; 5: in a very good naturalness state) according to Németh-Seregélyes-scale.

The patches determined as the same Á-NÉR category with a different naturalness value must be described separately when other parameters differ too.

The following attributes must be described for every differently mapped patch:
- ÁNÉR-code;
- The code of the Natura 2000 habitat;
- Name of the forest habitat;
- Value of the naturalness;
- Name of the surveyor;
- Date of the field survey: year and month;
- Short (maximum 500 characters) description;
- Description of threats;
- Suggestion for the nature conservation management (maximum 500 characters).

The surveyor must note the typical, rare, protected, or invasive, and alien species on the survey routes during the mapping and mark them as point data on the map. The other invasive species must be noted within the short description.

Results

The Danube-Ipoly National Park Directorate will carry out the habitat mapping for 30.000 ha within the framework of the Centralparks Interreg CE1359 project. For the 24.880,4ha area, an external expert was contracted. The work has been completed on the summer of 2021.

Based on the data received, we drew the following conclusions (Chart 1 and 2). For the clear visibility of the results, we only name habitat groups within the 1st chart.

Habitat Group	Area (ha)	Ratio (%)
Euhydrophyte vegetation	0,3	0,0
Springs, transition mires and raised bogs	0,1	0,0
Marshes	11,9	0,0
Rich fens, wet grasslands and tall herb vegetation	14,9	0,0
Mesic hay meadows, pastures and dry heaths	138,0	0,5
Dry and semi-dry closed grasslangs	423,6	1,4
Open dry grasslands	7,3	0,0
Scrub	194,3	0,6
Riverine and swamp woodlands	238,5	0,8
Mesic deciduous woodlands	13590,7	44,7
Dry deciduous woodlands	7551,5	24,8
Rocky forests	964,7	3,2
Other treeless vegetation	394,1	1,3
Other tree-dominated habitats	4894,8	16,1
Forests and plantations dominated by non native tree species	1379,3	4,5
Other habitats	259,7	0,9
Agricultural habitats	316,1	1,0
Water bodies	19,3	0,1
Sum	**30399,0**	**100,0**

Chart 1: Distribution of the habitat categories

As we can see, the mesic deciduous woodland group is the most abundant group (mainly: beech, hornbeam and sessile oak). The second most abundant group is made by turkey oak, pubescent oak. The grasslands and moors are only sparsely distributed, covering little area. Most of these are holding wide variety of protected species.

Naturalness value	Area (ha)	Ratio (%)
1	1834,4	6,0
2	5204,9	17,1
3	6834,9	22,5
4	15880,9	52,2
5	644,0	2,1
Summary	**30399,0**	**100,0**

Chart 2: Distribution of the naturalness-state scale (1: very bad; 5: in a very good naturalness state)

The naturalness value is a usable, practical tool to assessing naturalness of patches of habitat maps. We can see, that the majority of the areas in relatively good condition, but the poor and average condition is also very present.

Natura 2000 habitat code	Area (ha)	Ratio (%)
NA	7461,3	24,54
3150	0,2	0,00
3160	0,1	0,00
40A0	1,4	0,00
6190	5,3	0,02
6210	12,3	0,04
6240	411,3	1,35
6410	8,2	0,03
6430	6,3	0,02
6440	0,4	0,00
6510	116,1	0,38
6520	21,9	0,07
7230	6,6	0,02
8150	1,8	0,01
8220	0,2	0,00
9110	4,2	0,01
9130	4643,9	15,28
9180	964,7	3,17
91E0	238,8	0,79
91G0	8942,6	29,42
91H0	1272,0	4,18
91M0	6279,4	20,66
Summary	**30399,0**	**100,00**

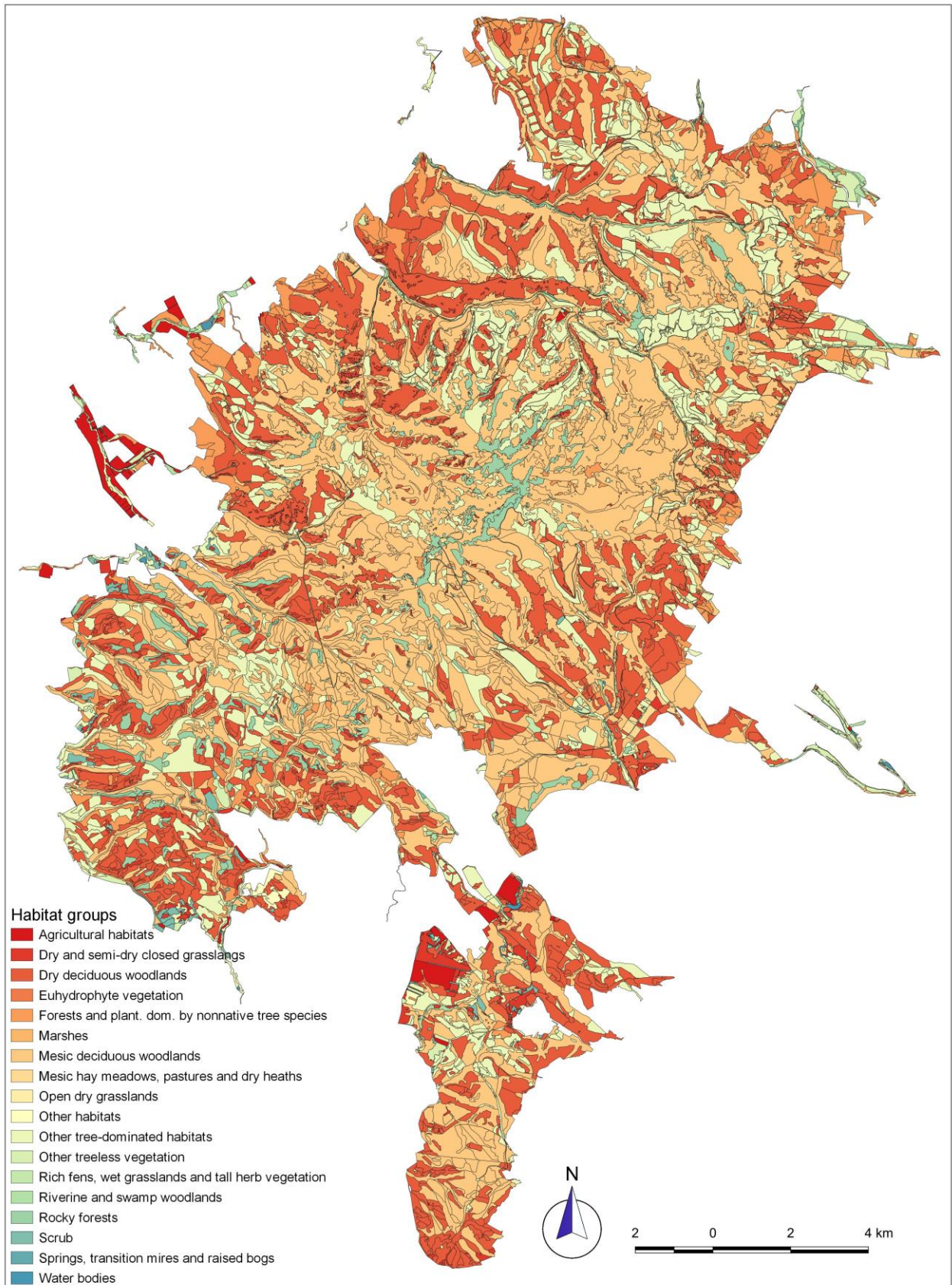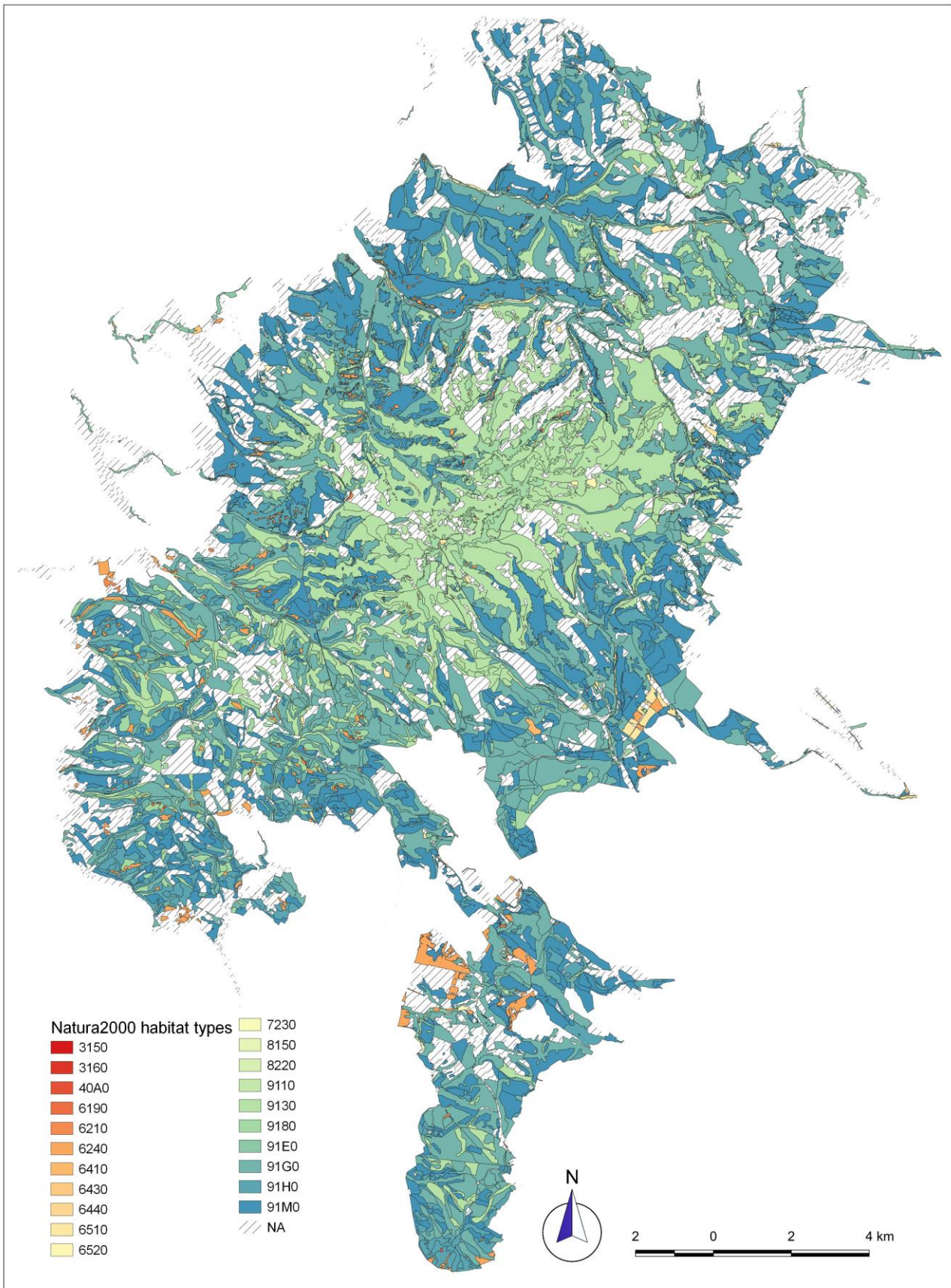Chart 3: Distribution of Natura 2000 habitat categories

We can see, that 24,5% is not recognizable as a Natura habitat. Apart from this, the most abundant categories are 91G0 (Pannonic hornbeam-oak forests), 91M0 (Pannonic turkey oak forests), 9130 (Asperulo-Fagetum beech forests).

However, the most valuable habitat types, holding most of the iconic species (e.g.: *Iris sibirica, Gentianella* austriaca, *Primula elatior, Astrantia major, Rosa pendulina, Spiraea media, Rhysodes sulcatus*) are sparse. E.g.: Molinia meadows (6410), mesic grasslands (6510), Continental scrub (40A0), rock-relieve forests (9180) and riverside alder forests (91E0) with a small distribution area and a high nature conservation value.

The mountainous grasslands (6510, 6410, altogether 350 ha) are presented only as a small part of the habitats but are high priority habitats, they host high nature conservation value species (e.g. *Gantienella austriaca, Gentiana pneumonanthe, Iris sibirica*). That is why the description of the grasslands' state and the maintenance of the grasslands based on the surveys are extremely important and is a special focus of the project too.

On the following figures, you can see the prepared habitat maps according to vegetation groups, Natura 2000 habitat types and naturalness – degradation.

Habitat groups
- Agricultural habitats
- Dry and semi-dry closed grasslangs
- Dry deciduous woodlands
- Euhydrophyte vegetation
- Forests and plant. dom. by nonnative tree species
- Marshes
- Mesic deciduous woodlands
- Mesic hay meadows, pastures and dry heaths
- Open dry grasslands
- Other habitats
- Other tree-dominated habitats
- Other treeless vegetation
- Rich fens, wet grasslands and tall herb vegetation
- Riverine and swamp woodlands
- Rocky forests
- Scrub
- Springs, transition mires and raised bogs
- Water bodies

N

2 0 2 4 km

Natura2000 habitat types
- 3150
- 3160
- 40A0
- 6190
- 6210
- 6240
- 6410
- 6430
- 6440
- 6510
- 6520
- 7230
- 8150
- 8220
- 9110
- 9130
- 9180
- 91E0
- 91G0
- 91H0
- 91M0
- NA

N

2   0   2   4 km

Naturalness value
1
2
3
4
5

N

2   0   2   4 km

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