CONSIDERATIONS CONCERNING THE CONSERVATION STATUS OF THE NATURAL HABITATS FROM BUILA-VÂNTURARIȚA NATIONAL PARK

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Abstract
In this paper a characterization of the conservation status of natural habitats from Buila-Vânturariţa National Park was maded. There were analyzed three types of habitats, according to NATURA 2000 classification, as follows: 8210 Calcareous rocky slopes with chasmophytic vegetation; 4070 Bushes with Pinus mugo and Rhododendron hirsutum (Rhododendretum hirsuti) and 6190 Rupicolous Pannonic grasslands (Stipo-Festucetalia pallentis).*

Key words: *natural habitats, conservation, Buila-Vânturariţa National Park*

1. INTRODUCTION

Environmental conservation is currently one of the most debated worldwide topics. There are many initiatives and strategies for the sustainable use of natural resources (Candrea et al., 2009). Under the European Habitats Directive, each EU member state has committed to maintaining and restoring the natural habitats, wild fauna and flora of community interest at a favorable conservation status to contribute to the maintenance of biodiversity.

In the period 2007-2012, our country has made the assessment of the conservation status of natural habitats (Annex I) and species (Annexes II, IV and V) as part of the research projects that have been involved experts, structures and associations. This assessment was done not only in the NATURA 2000 sites, but nationwide. This first evaluation forwarded to the European Commission in 2013 will serve as a basis for the future evaluation of the conservation status of habitats and species of community interest (Combroux et Schwoerer, 2007).

Conservation status of a natural habitat is given by the all factors which act on it and characteristic species and that may affect its distribution, structure, functions and surviving of the characteristic species on long-term (Candrea et al., 2009).

Buila-Vânturariţa National Park is part of the ecological network NATURA 2000, being declared as SCI-Site of Community Interest (Order of the Minister of Environment and Sustainable Development no. 1964/13.12.2007) and SPA-Special Protection Areas (HG no. 1284/24.10.2007).

2. MATERIAL AND METHOD

The identification and characterization of the natural habitats from Buila-Vânturariţa National Park was undertaken in 2011-2012 as part of the project SOP-Environment-*The assessment conservation and detailed mapping of habitats (forest habitats, grasslands/meadows, screes) from the Buila-Vânturariţa National Park.*

In this respect, there have been maded phytosociological surveys in the field, in accordance with the method of Central-European School from Zürich-Montpellier. The codes of the habitats correspond to the NATURA 2000 and Romanian system of classification. The conservation status of the habitats was assessed by the indicators considered useful in this assessment: size of the area; presence of alien species; specific composition; structure and dynamic elements of the phytocoenoses. The assessment of the conservation status of habitats (according to Article 17 of the

Habitats Directive 92/43/EEC) was maded by their classification into one of four categories: „good" (green), „unfavorable, inadequate" (orange), „very unfavorable" (red) and „unknown" (gray), depending on the attributes declared for each of them, threats of destruction and hazards that may cause destruction or disappearance (Neblea, 2012).

3. RESULTS AND DISCUSSIONS

8210 Calcareous rocky slopes with chasmophytic vegetation

(**R 6206** South-East Carpathian Communities of the limestone, rock walls cracks with *Cystopteris fragilis, Campanula carpatica, Saxifraga cuneifolia* and *Valeriana sambucifolia***; R6209** South-East Carpathian Communities of limestone rocks with *Asplenium trichomanes* ssp. *quadrivalens* and *Poa nemoralis*)

Coenosis of this habitat were identified in Costeşti Gorges, Bistrița Gorges and Curmătura Builei. The vegetation in the cracks of the rocks characteristic to this habitat is installed on slopes with eastern and western exposition, inclination of 70^0, at altitudes between 580-1148 m, where it formed a thin layer of rendzina soil.

Characteristic species: *Asplenium viride, A. trichomanes* ssp. *quadrivalens, Ctenidium molluscum*.

Edifying species: *Asplenium viride*, *A. trichomanes* ssp. *quadrivalens*, *Cystopteris fragilis, Poa nemoralis*.

Frequent species in composition: *Polypodium vulgare, Asplenium ruta-muraria, A. scolopendrium, Saxifraga paniculata, S. cuneifolia, Sedum hispanicum, S. maximum, Jovibarba heuffelii, Galium album, G. kitaibelianum, Dianthus spiculifolius, Cnidium silaifolium, Athamantha turbith* ssp. *hungarica, Scabiosa lucida, Asperula taurina, Linum uninerve, Campanula rapunculoides, Seseli libanotis, Laserpitium latifolium, Valeriana sambucifolia, V. montana, Thalictrum minus, Thymus pulegioides*.

Figure 1. Asplenio quadrivalenti-Poëtum nemoralis Soó ex Gergely et al. 1966 (Costeşti Gorges)

Characteristic plant groupings to the *Asplenio-Cystopteridetum fragilis* Oberd. (1936) 1949 occur as enclaves within the association *Asplenio quadrivalenti-Poëtum nemoralis* Soó ex Gergely et al. 1966, being identified in Bistrița Gorges. Site conditions (steep and cracked slopes, pronounced moisture) are favorable to the maintenance of these groups.
In the habitats edified by *Poa nemoralis* are well represented heliophilous, mesothermal and transgressive species characteristic to sesleriets These groups have a high expansion on the limestone cliffs from Buila-Vânturarița, having a very good state of preservation in all analyzed points. These coenoses occupy lower surfaces to Curmătura Builei, being identified near to touristic routes. This represents a potential threat to the integrity of the habitat.
The habitat maintains its characteristic structure, although in some areas, biotopes dominated by *Poa nemoralis* can evolve to sesleriets because the expansion of typical species to *Seslerietea albicantis* class. Floristic composition is completed by species of the *Seslerio-Festucion pallentis* alliance (*Jovibarba heuffelii, Dianthus spiculifolius, Galium album, Cnidium silaifolium*) that characterizes xerophilous meadows installed on calcareous rocks.
Shrubs layer is represented by *Sambucus nigra, Spiraea chamaedrifolia, Lonicera xylosteum*. I also noted juveniles of *Acer platanoides, A. pseudoplatanus, Fraxinus excelsior, Taxus baccata, Fagus sylvatica, Abies alba*. Herbaceous synusia is dominated by *Poa nemoralis* with a coverage of 75%. Muscinal layer is very well-developed, with a coverage up to 30%.
It is a habitat of high conservative value, which houses endemic species listed in the Red List of vascular plants from Romania (Oltean et al., 1994): *Linum uninerve, Taxus baccata, Veronica bachofenii, Athamantha turbith* ssp. *hungarica, Dianthus spiculifolius*.

4070* Bushes with *Pinus mugo* and *Rhododendron hirsutum* (*Rhododendretum hirsuti*)
(**R 3105** South-East Carpathian bushes of mountain pine (*Pinus mugo*) with alpine rose (*Rhododendron myrtifolium*))

Coenosis edified by mountain pine and alpine rose vegetate at the upper limit of spruce forests, being identified in the investigated area at over 1800 m altitude (Buila Peak, Vânturarița Peak), on slopes with northern, north-western, western exposition and degrees of inclination between 10-45^0 .
Characteristic species: *Pinus mugo, Calamagrostis villosa, Vaccinium myrtillus, Rhododendron myrtifolium*.
Edifying species: *Pinus mugo, Vaccinium myrtillus, Rhododendron myrtifolium*.
Frequent species in composition: *Campanula patula* ssp. *abietina, C. serrata, Vaccinium myrtillus, V. vitis-idaea, Homogyne alpina, Soldanella hungarica, Thymus balcanus, Hieracium villosum, Dryas octopetala, Anthoxanthum odoratum, Veratrum album, Picea abies* juv., *Festuca nigrescens, Agrostis capillaris, Aconitum tauricum, Salix silesiaca*.
Shrub layer is dominated by *Pinus mugo* with a height of 2-3 m. We noticed the expansion of mountain pines in meadows or their interplay with alpine and boreal heaths of the *Campanulo abietinae-Juniperetum* Simon 1966 association. We also mention the development of *Sorbus aucuparia, Picea abies, Salix caprea* in the glades, at the inferior limit. The herbaceous and subshrubs layer is edified by *Vaccinium myrtillus, V. vitis-idaea, Juniperus sibirica, Calamagrostis villosa, Luzula luzuloides, Homogyne alpina, Campanula patula* ssp *abietina, Deschampsia caespitosa.*
Distribution of these groupings is mosaicated, alternating with fescue grasslands, *Juniperus* and *Vaccinium* communities. The composition of the latter is practically included in the inferior structure of mountain pines coenosis. This is an intermediate stage towards to uniform coverage of the land with mountain pine in an advanced stage of evolution.
Currently, the mountain pine communities do not form thickets of large expansion, but there is a positive development in terms of occupancy of new surfaces. Grazing should be considered in order to avoid the risk of mechanical damage of the mountain pine seedlings in young stages.

Figure 2. Mountain pine communities on the western slopes of Buila Mountain

6190 Rupicolous Pannonic grasslands (*Stipo-Festucetalia pallentis*)

The xerophilous coenosis of *Thymus comosus* and *Festuca rupicola* populate the limestone rocks from inferior mountainous region at altitudes between 500-800 m. It grows on rendzina soils, rich in humus, with neutral reaction. These groupings prefer slopes with southern exposition in the Costeşti Gorges, while in the entrance of Bistrita Gorges vegetate on the eastern slopes, strongly sunshine.

Characteristic species: *Thymus comosus, Festuca rupicola, Melica ciliata*.

Edifying species: *Thymus comosus, Festuca rupicola*.

Frequent species in composition: *Jovibarba heuffelii, Koeleria splendens, Dianthus spiculifolius, Scabiosa lucida, Alyssum petraeum, Galium album, G. kitaibelianum, Asplenium ruta-muraria, Poa nemoralis, Teucrium chamaedrys, Dichanthium ischaemum, Campanula sibirica, Silene italica, Allium fuscum, Sedum maximum, S. annuum, Rosa corymbifera, Nepeta nuda, Centaurea micranthos, Fraxinus ornus, Echium vulgare, Coronilla varia*.

The phytocoenosis are well structured: the upper layer has a height of 35-40 cm, consisting of *Festuca rupicola, Melica ciliata, Galium album, G. kitaibelianum, Koeleria splendens, Centaurea atropurpurea, Origanum vulgare, Silene italica, Seseli libanotis, Valeriana montana, Veronica bachofenii*; the middle layer of 10-15 cm height with *Teucrium chamaedrys, Alyssum petraeum, Allium fuscum, Scabiosa lucida*; the inferior layer not exceeding 10 cm, represented by *Asplenium ruta-muraria, A. trichomanes, Thymus comosus, Sedum hispanicum, Saxifraga paniculata, Euphrasia salisburgensis*.

Floristic composition is very heterogeneous, including characteristic species for the next coenotaxons: *Seslerion rigidae, Seslerietalia* (*Dianthus spiculifolius, Centaurea atropurpurea, Scabiosa lucida, Scrophularia heterophylla* ssp. *laciniata, Alyssum petraeum*), *Achnatherion Calamagrostis, Thlaspietalia* (*Galium album, Origanum vulgare*) and *Asplenietea rupestris* (*Asplenium ruta-muraria, Poa nemoralis, Saxifraga paniculata*). Above the Bistrita Monastery we found a tendency of evolution to the dominated groups of *Dichanthium ischaemum*. The integrity of

habitat can be affected only by human impact, because both Costeşti Gorges and above of Bistrita Monastery, these coenoses are close to touristic routes.

Figure 3. Thymo comosi-Festucetum rupicolae (Csürös et Gergely 1959) Pop et Hodişan 1985 (Bistrița Gorges)

Alien species: *Setaria viridis, Cirsium arvense*.
This habitat includes sozological categories listed in the Red List of vascular plants from Romania (Oltean et al., 1994): *Veronica bachofenii, Centaurea atropurpurea, Thymus comosus, Dianthus spiculifolius*.

4. CONCLUSIONS

The phytosociological research realized in 2011-2012 allowed the identification of three natural habitats in the National Park Buila-Vânturarița, according to Natura 2000 classification: 8210 Calcareous rocky slopes with chasmophytic vegetation; 4070* Bushes with *Pinus mugo* and *Rhododendron hirsutum* (*Rhododendretum hirsuti*) and 6190 Rupicolous Pannonic grasslands (*Stipo-Festucetalia pallentis*).
The conservation status of these habitats is good and we can provide the green code according to European classification.

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