

HAYFIELDS VEGETATION FROM NEMIRA RIDGE (BACĂU COUNTY)

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Key words: meadows, protected area, anthropic

INTRODUCTION

Synthetic information about the herbaceous vegetation of the Nemira Mountains are published by Barabaș Victoria (1982, 2000), Mititelu D. , Barabaș N. (1994).

MATERIAL AND METHODS

Investigațiile au fost făcute după metoda fitosociologică, completată cu aspecte din modelul de monitorizare al habitatelor.

Investigations have been made after the fitosociologic method, completed with aspects from the monitoring model of habitat.

RESULTS AND DISCUSSIONS

The peak has an approximate direction N-S direction, always meadows were owned by locals, the Town Hall and of Forest Arrondissement Dărmănești operated by grazing sheep, often over production capacity of ecosystems. Some species considered rare today quotes over time have not been found. The slopes have strong inclination, rarely moderate, the soil is thin, dry, with many stones. The springs emerge in spruce fir regions.

Grass vegetation covers the ground entirely, often over 95%. By grazing sheep of good forage species *Nardus phytocoenosis* have expanded much in the place called Nemira Saddle, where is a passage of sheep to Nemira Ponds replaced completely grass vegetation, remaining only grazed bilberry grove. By grounding of animals, both *Festuca rubra* with *Agrostis capillaris* vegetation and the one of *Nardus stricta* are replaced by *Urtica dioica* and *Rumex alpinus*. After the consumption of nitrogen reserves transitional plant associations of the Ass. *Deschampsietum caespitosae* Hayek ex Horvatić was installed, spread in Ceangau Glade. (Table 1).

The spectrum of bioforms: Hemicriptophyte 77,77%, Therophyte, 5,55%, Hemitherophyte, 5,55%, Phanerophyte 11,11% (Fig.1)

The spectrum of geographic elements: Eurasian 27,77% ,European 27,77%, Alpino + European 5.55%, Circumpolar 22,22%, Cosmopolitan 16,66% (fig. 2).

The spectrum of ecologic elements: Light L4=16,66%, L5=5,55%, L6=11,11%, L7=22,22%, L8=33,33%, L9=5,55%, LX=5,55%

Temperature: T4=11,11%, T6=5,55%, TX=83,33%

Humidity: U3=5,55%, U5=22,22%, U6=22,22%, U7=33,33%, U8=5,55%, U9=5,55%, Ux=5,55%

Soil reaction: R4=11,11%, R5=11%, R7=11%, Rx=72,22%

Mineral nitrogen: N1= 5,55%, N3=22,22%, N5=22,22%, N7= 16,66%, N8=16,66%, N9=5,55%, Nx= 11,11% (Fig. 3).

Table 1. Ass. *Deschampsietum caespitosae*
Hayek ex Horvatić

The number of installed panels	1
Surface (m2)	100
Altitude	1390
Vegetation cover (%)	93
Car. Ass.	
<i>Deschampsia caespitosa</i>	4
Deschampsion	
<i>Juncus effusus</i>	+
Filipendulion	
<i>Hypericum acutum</i>	+
Arrhenatheretalia	
<i>Campanula patula</i>	+
Molinio-Arrhenatheretea	
<i>Agrostis stolonifera</i>	1
Rumicion alpini	
<i>Rumex alpinus</i>	2
<i>Urtica dioica</i>	+
<i>Rumex alpinus</i>	+
Glycerio-Sparganion	
<i>Veronica anagalis-aquatica</i>	+
Festuco-Brometea	
<i>Hieracium bauhini</i>	+
Epilobion fleischerii	
<i>Calamagrostis pseudophragmites</i>	+
Atropetalia	
<i>Rubus idaeus</i>	+
Fagetalia	
<i>Stachys sylvatica</i>	+
<i>Galeopsis speciosa</i>	+
<i>Rubus hirtus</i>	+
<i>Myosotis sylvatica</i>	+
Piceetalia	
<i>Luzula luzuloides</i>	+

The place and date of installing the pannels Ceangau Glade (Lat. N 46°09' 858, Long.E 026° 20' 778), 31.07.2014.

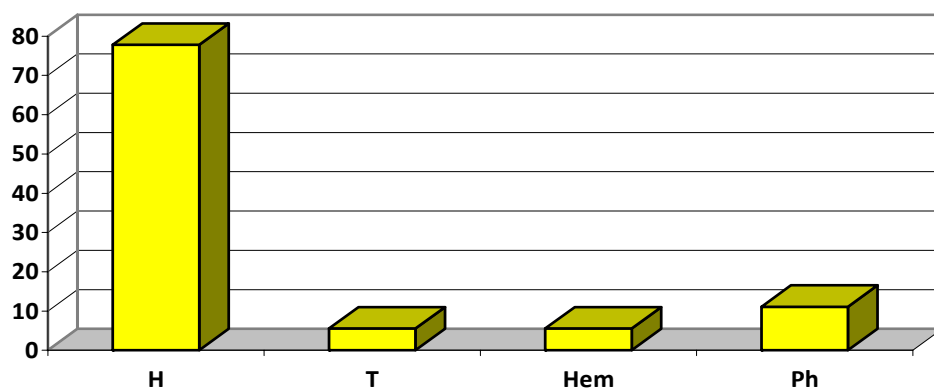


Fig 1. The spectrum of bioforms for Ass. *Deschampsietum caespitosae* Hayek ex Horvatić

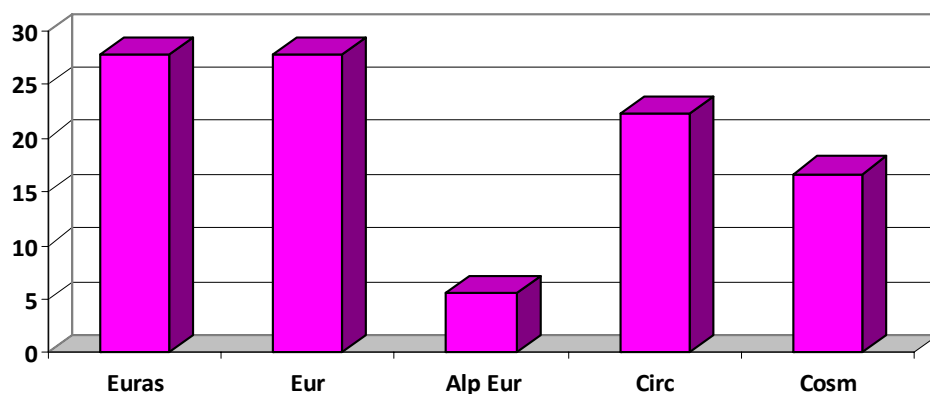


Fig 2. The spectrum of geographic elements for Ass. *Deschampsietum caespitosae* Hayek ex Horvatić

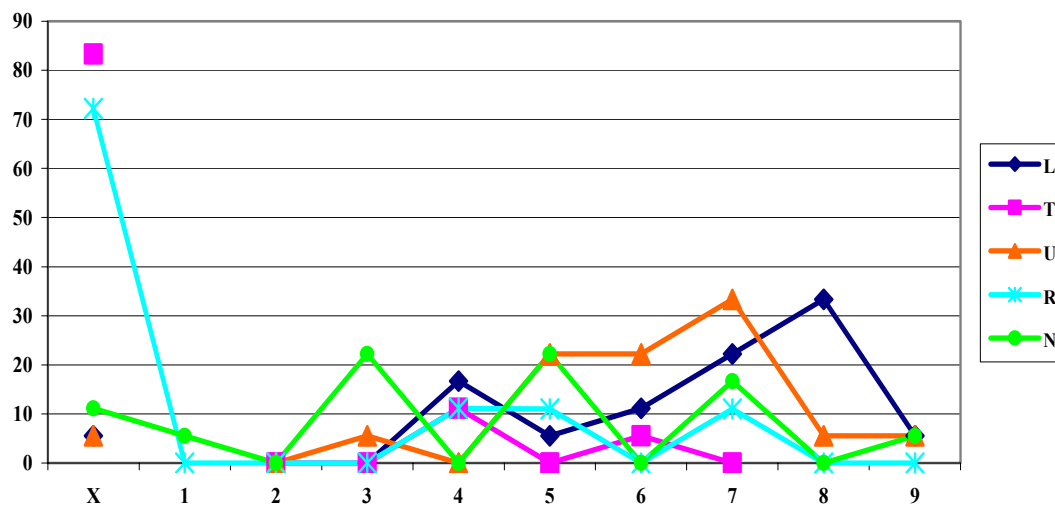


Fig 3. The spectrum of ecologic elements for Ass. *Deschampsietum caespitosae* Hayek ex Horvatić 1930

Ass. *Festuco rubrae-Agrostietum capillaris* Horvatić 1951, *nardetosum strictae* (Csűrös et Resmeriță). The plant list is short because before the establishment of protected site was pasture, most species are framed in *Molinio-Arrhenatheretea*, after them, followed quantitatively by *Nardo-Callunetea*. Nardets have higher surfaces, are present throughout

the entire mountainous ridge, have a very small number of species, are derived from decades from hayfield of *Festuca rubra* with *Agrostis capillaris*. In the grasslands have not been found rare plants, from the monitored plants just *Campanula serrata* is found sporadically, but this must be the frequency (Table 2).

Table 2. Ass. *Festuco rubrae-Agrostietum capillaris* Horvatič 1951, *nardetosum strictae* (Csürös et Resmeriță)

Number of installed panels	1	2	3	4	5	6	7
Surface (m2)	100	100	100	100	100	100	100
Altitude	1500	1500	1209	1365	1474	1246	1234
Vegetation cover (%)	92	98	97	92	92	100	92
Car. Ass.							
<i>Festuca rubra</i>	+	3	1	2	2	3	4
<i>Agrostis capillaris</i>	2	3	2	3	1	2	1
Diff. Subass.							
<i>Nardus stricta</i>	4	2	4	3	4	3	2
Cynosurion							
<i>Alchemilla vulgaris</i>	-	-	-	+	-	+	-
<i>Polygala amara</i>	-	-	-	+	-	-	-
Arrhenatheretalia							
<i>Thymus pulegioides</i>	+	-	-	+	-	-	-
<i>Veronica chamaedrys</i>	+	+	+	+	+	+	+
<i>Stellaria graminea</i>	-	-	-	-	-	+	-
<i>Campanula patula</i>	-	+	-	+	-	-	-
<i>Euphrasia stricta</i>	-	-	-	-	+	+	-
Rumicion alpini							
<i>Rumex obtusifolius</i>	-	-	-	-	-	+	-
<i>Urtica dioica</i>	+	+	-	+	-	-	-
Molinion							
<i>Gentiana pneumonante</i>	-	-	-	-	+	-	-
Filipendulion							
<i>Hypericum acutum</i>	+	+	-	+	-	+	+
Deschampsion							
<i>Deschampsia caespitosa</i>	+	+	+	+	+	+	+
<i>Juncus effusus</i>	-	-	-	-	-	-	+
Molinio- Arrhenatheretea							
<i>Poa pratensis</i>	+	-	+	-	-	-	-
<i>Campanula serrata</i>	+	-	-	+	+	+	+
<i>Trifolium repens</i>	-	-	+	+	-	-	+
<i>Anthoxanthum odoratum</i>	-	-	-	+	-	-	-
<i>Taraxacum officinale</i>	-	-	-	-	+	-	-
<i>Achillea distans</i>	-	-	-	-	-	-	+
<i>Leontodon autumnalis</i>	-	-	-	-	-	-	+
Potentillo-ternatae-Nardion							
<i>Viola declinata</i>	-	-	-	-	-	-	+
<i>Hieracium aurantiacum</i>	-	-	-	-	-	-	+
Nardo-Callunetea							
<i>Hieracium pilosella</i>	-	-	-	+	+	+	+
<i>Potentilla erecta</i>	+	+	+	+	+	+	-
Piceetalia excelsiae							
<i>Calluna vulgaris</i>	-	+	-	-	-	-	-
<i>Juniperus nana</i>	-	-	1	-	+	+	+
<i>Luzula luzuloides</i>	-	-	-	+	+	+	-
Pino-Quercetalia							
<i>Luzula palescens</i>	-	+	+	+	+	+	+
Vaccino-Piceetea							
<i>Vaccinium myrtillus</i>	1	+	+	-	+	-	-
<i>Picea abies juv.</i>	-	-	-	-	+	-	-
<i>Vaccinium vitis-idaea</i>	-	-	-	-	+	-	-
Koelerio-Corinephoretea							
<i>Rumex acetosella</i>	-	+	-	+	-	+	+
Quercio-Fagetea s.l.							
<i>Fragaria vesca</i>	-	-	-	-	-	+	-
<i>Viola reichenbakhiana</i>	-	-	-	+	-	-	-
Festucetalia valesiacae							
<i>Achillea collina</i>	-	-	-	-	-	-	+
Variae syntaxa							
<i>Poa annua</i>	-	-	-	-	-	-	+
<i>Cirsium vulgare</i>	-	-	-	+	-	-	-
<i>Cirsium arvense</i>	-	-	-	+	-	-	-

The place and date of installing the pannels:

1. Nemira Mare (august, 2013); 2. Farcul Mic (august 2013); 3. Islaz Mereni (Lat. N 46°08 512, Long.E 026° 21 282); 4. Poiana de sub Șandru (Lat. N 46° 11 212 Long.E 026° 21 141); 5. Farcul Mare (Lat. N 46°16 447, Long.E 026° 19 078); 6. și 7. - Ceangau Mountain and Culmea Mghiară (Islaz Mereni - Lat. N 46°08 456, Long.E 026° 20 321, Islaz Mereni-Lat. N 46°09 507, Long.E 026° 22 793).

The spectrum of bioforms: Hemicriptophyte 73,17%, Therophyte = 4,87%, Hemitherophyte= 4,87 Geophytes = 2,43%, Chamephytes = 9,755, Phanerophytes = 4,87% (Fig.4)

The spectrum of geographic elements: European =34,14%, Circumpolar=12,19%, Eurasian= 39,02%, Cosmopolitan=12,19%, End. Carp.=2,43% (Fig.5)

The spectrum of ecologic elements: Light L4 = 7,31%, L5 = 2,43%, L6 = 17,07%, L8 = 43,9%, L9 = 2,43%, Lx = 2,43%.

Temperature :T3=2,43%,T4=17,07%, T5=12,19%, T6=2,43%,Tx=65,85%. The maximum temperatures during summer do not 20°C.

Humidity: U2=2,43%, U4=21,95%, U5=39,02%,U6=12,19%,U7=7,31%, U8=2,43%,

Ux=14,63% . In the category U5 enter plants specific to soils moderately wet but on ridge soils are dry out by strong winds.

Soil reaction: R1=2,43%, R2=2,43%, R3=7,31%, R4=9,75%, R5=17,07%, R6=7,31%, R7=2,43%, Rx=51,21%.

Mineral nitrogen: N1=4,87%, N2=26,82%, N3=12,19%, N4=4,87%, N5=7,31%, N6=7,31%, N7=7,31%, N8=7,31%, Nx=19,51%. In category N2 enters plants of mineral soils low in nitrogen.

Salinity: S1=2,43% (Fig.6)

Young spruces (*Picea abies*) and dwarf juniper (*Juniperus nana*) are cleared up through meadows maintenance works.

The unfavorable pressure always came through grazing.

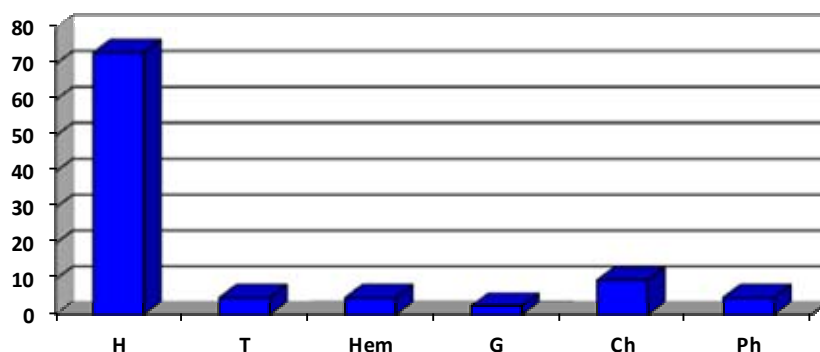


Fig. 4. The spectrum of bioforms for Ass. *Festuco rubrae-Agrostietum capillaris* Horvatič 1951, *nardetosum strictae*(Csürös et Resmeriță)

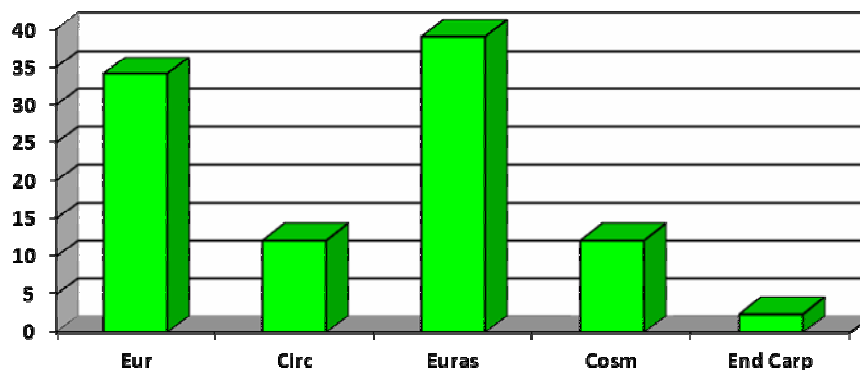


Fig. 5. The spectrum of geographic elements for Ass. *Festuco rubrae-Agrostietum capillaris* Horvatič 1951, *nardetosum strictae*(Csürös et Resmeriță)

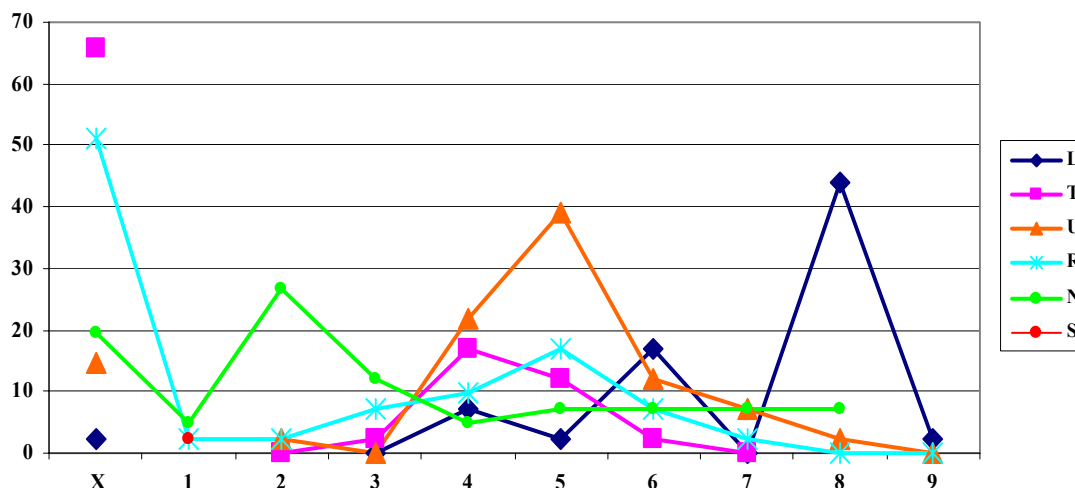


Fig 6. The spectrum of ecologic elements for Ass. *Festuco rubrae-Agrostietum capillaris* Horvatič 1951, *nardetosum strictae* (Csürös et Resmeriță)

CONCLUSIONS

After delimitation of Natura 2000 site Nemira Ridges, the anthropo-zoogene pressure fell hard, grasslands habitats were affected, the other types of habitats (forests, rocky regions, of rivers) are not affected. The forbidden of grazing could lead to a lifting of plant diversity. If in the monitoring actions will not be found species cited with many decades ago that one will be considered extinct.

ABSTRACT

The site Natura 2000 Nemira Ridges, from bottom to top, is covered predominantly by forests with spruce, tone vegetation and meadows. This study tracked the anthropic effects on the most exposed phytocoenosis are comprised. We analyzed the most extensive grassy transitional plant associations that have the following framing.

Class MOLINIO-ARRHENATHERETEA Tx.1937

Ord. *Molinietalia caeruleae* W Koch 1926 (Syntaxon syn *Deschampsietalia caespitosae* Horvatič 1958)

All. *Deschampsion caespitosae* Horvatič 1930

Ass. *Deschampsietum caespitosae* Hayek ex Horvatič

Order ARRHENATHERETALIA R.Tüxen 1931

Alliance CYNOSURION Tx. 1947

Ass. *Festuco rubrae-Agrostietum capillaris* Horvatič 1951, *nardetosum strictae* (Csürös et Resmeriță)

Phytocoenosis biodiversity is much diminished. The conservation status is unfavorable, trend unknown yet, although it held shares of bushes

and trees deforestation isolate and grazing was forbidden in protected perimeter. The anthropo-zoogene pressure could be reduced up to cancellation. Status of protected area was necessary because there were no more specific rare quotes found over time and should be protected by steep slopes with stone vegetation. The hayfields cover less than 10% of the site, we analyzed only the site, they are on the side of Bacau and consequently their surface is smaller but it is possible that a century before in its grasslands have been more species than in all other habitat types.

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