

## NATURAL HAYFIELDS FROM GHIMEȘ-PALANCA (BACĂU COUNTY)

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**Key words:** *Ass. Festuco rubrae-Agrostetum capillaries*, habitat 6520 – mountain hayfields, Ghimeș- Făget

### INTRODUCTION

The synthetic studies of flora and vegetation from the Ghimeș and Făget districts are found in the paper Trotus Valley Vegetation (sector Dărmănești-Ghimeș) by Mititelu D. and Barabaș N. (1974). Very little information is for the upper basin of brook Cold Valley located in Bacău County (lower basin is in Harghita County) and brook Adalmaș basin, situated in on the opposite side of Trotus on the county boundary. After delimitation of protected area, this area was highlighted by the monitoring work.

### MATERIAL AND METHODS

ROSCI 0323 natural area-Ciucul de Jos, is bounded in the upper basin of the river Trotus, in Harghita and Bacău Counties. Meadows habitats near the localities Gimeș and Palanca were monitored. For each sketch the following issues were identified: topographic factors, have appreciated the grassland areas have been chosen sample areas, soil moisture, soil type, vegetation cover, cover with shrubs, types of injury, conservation status, the trend of evolution of vegetation, features, list of species.

### RESULTS AND DISCUSSIONS

Extent: Răchitiș (large surfaces), the peak of the Răchitiș towns and Făgetul de Sus (large areas), Bolovăniș, Aldămaș, Popoiu de Jos.

About 90% of the grasslands are dominated by transitional plant associations of *Festuco rubrae - Agrostetum capillaris* assigned by *Molinio-Arrhenatheretea*. Nardets occupies very small surfaces, are more spread on grazed places. In the list of plant species sporadically participates *Festuco-Brometea*, *Trifolio-Geranietea Querco-Fagetea*, and *Vaccino-Piceetea*. Weed species from hayfields are very rare, in this class of plants stand out *Pteridium aquilinum* populations.

Boundaries between forest and meadow are well drawn; woody plants are cut young edges, for maintenance of hayfields funds were allocated.

Coverage with grass vegetation is over 90%, the bushes are grubbed. The hay is of good quality. The necosite plots accumulate litter. The slopes have strong inclination (15-30 degrees). There is no preference for the slope although the samples chosen does not occupy the slopes with Northern exhibition, the largest areas analyzed in this sector can be found on affluents from the left bank of the Trotus river.

Soils are dry, but near the top of the water, the resorts with moist soil cover very small surfaces (table 1).

The spectrum of geographic elements: Circumpolar 5%, Alpine- European 3%, Alpino-Carpatho-Balkan 1%, European 22%, Central European 10%, continental Europe 2%, Eurasian 47%, endemic 1% Ponto-Mediterranean 1%, Ponto-Pannonian 1%, Pannonian-getic 1%, cosmopolitan 6% (Figure 1).

The spectrum of life forms: hemicriptophite 72%, terophite 9%, chamephite 8%, geophite 6% fanerophite 5% (fig. 2).

Spectrum of ecologic indexes:

Light:  $L_3=3\%$ ;  $L_4=3\%$ ;  $L_5=6\%$ ;  $L_6=8\%$ ;  $L_7=42\%$ ,  $L_8=30\%$ ,  $L_9=3\%$ . In the category L7 enters plants which suffer from weak light shading, in L8 enters light plant which only exceptionally and for a short time may incur shading.

Temperature:  $T_2=2\%$ ,  $T_3=3\%$ ,  $T_4=11\%$ ,  $T_5=28\%$ ;  $T_6=9\%$ ,  $T_7=7\%$ ,  $T_x=42\%$ ; From category T5 form part plants of temperate climate in hilly areas and foothills, in Tx are included euritherm plants.

Humidity:  $U_2=3\%$ ,  $U_3=8\%$ ,  $U_4=36\%$ ,  $U_5=18\%$ ,  $U_6=9\%$ ,  $U_7=5\%$ ,  $U_8=2\%$ ,  $U_9=1\%$ ,  $U_x=20\%$ . The plants from class U4 are predominantly for dry soils, rarely moist, from U7 plants of damp moist soils, well drained, but not wet.

Soil reaction:  $R_2=6\%$ ,  $R_3=3\%$ ,  $R_4=4\%$ ,  $R_5=17\%$ ,  $R_6=4\%$ ,  $R_7=16\%$ ,  $R_8=6\%$ ,  $R_9=2\%$ ,  $R_x=41\%$

Mineral nitrogen:  $N_1=4\%$ ,  $N_2=22\%$ ,  $N_3=23\%$ ,  $N_4=6\%$ ,  $N_5=8\%$ ,  $N_6=9\%$ ,  $N_7=3\%$ ,  $N_8=3\%$ ,  $N_x=22\%$  (Fig. 3).

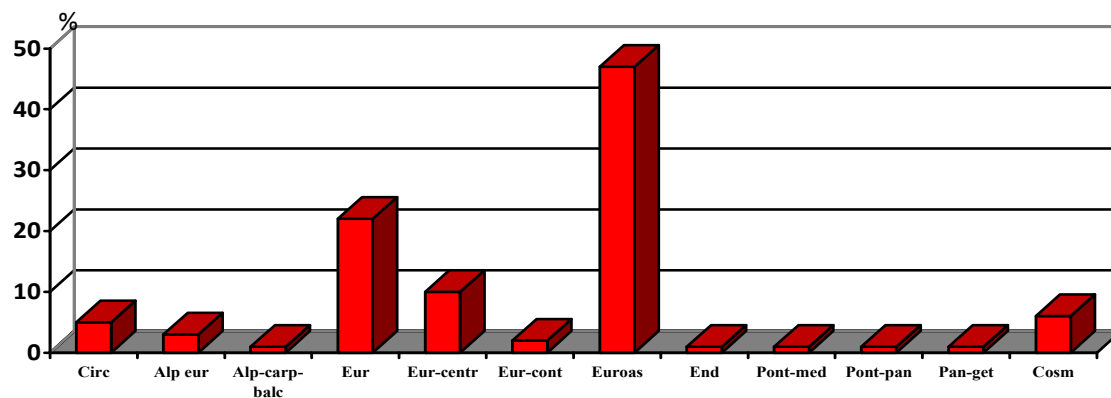


Fig.1- The spectrum of geographic elements for Ass. *Festuco rubrae-Agrostetum capillaris*

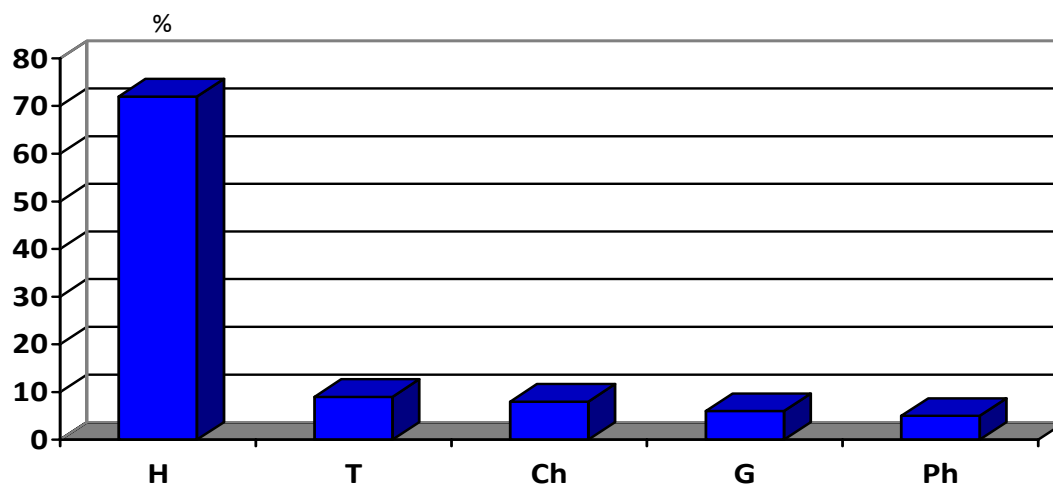


Fig.2- The spectrum of life forms for Ass. *Festuco rubrae-Agrostetum capillaris*

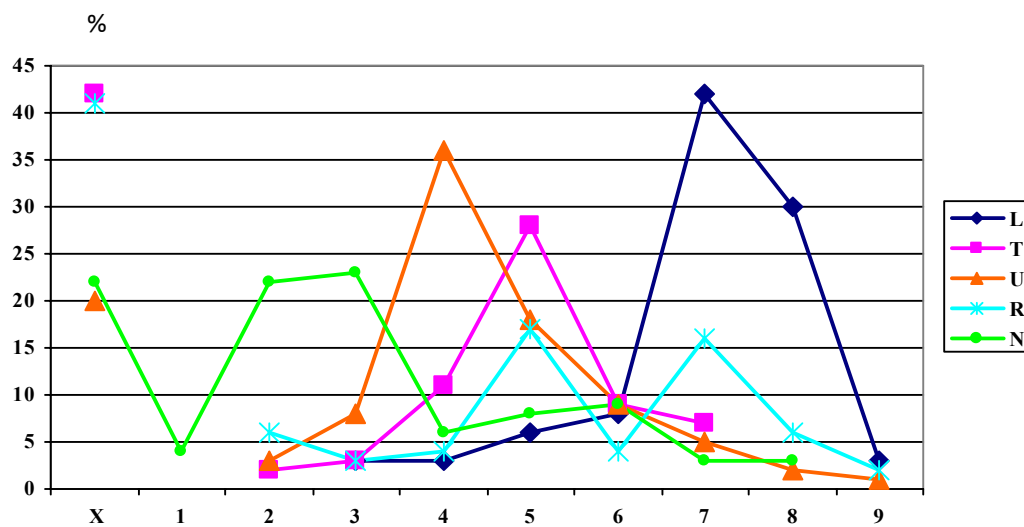


Fig.3. Spectrum of ecologic indexes for Ass. *Festuco rubrae-Agrostetum capillaris*

Tabel 1. Ass. *Festuco rubrae*-*Agrostetum capillaris*

No of mapping	1	2	3	4	5	6	7
Surface of mapping	100	100	100	100	100	100	100
Altitudinal	1020	1117	1141	1118	1054	934	1185
Exposition	SE	SV	SE	SE	V	V	SV
Tilting (°)	16-30	16-30	16-30	10-15	10-15	16-30	30-40
Vegetation cover (%)	93,5	97,6	95,5	95	96	97	93,5
<b>Carr. Ass.</b>							
<i>Festuca rubra</i>	4	2	1	4	2	3	4
<i>Agrostis capillaris</i>	2	3	3	2	3	3	1
<b>Cynosurion</b>							
<i>Centaurea pseudophrygia</i>	+	+	+	.	+	+	.
<i>Potentilla erecta</i>	+	+	+	+	+	+	.
<i>Trifolium panonicum</i>	+	1	.	.	+	+	.
<i>Polygala amara</i>	.	+	+	.	.	.	.
<i>Hypochoeris radicata</i>	.	.	+	+	.	.	.
<b>Phyteumo-Trisetion</b>							
<i>Luzula luzuloides</i>	.	.	.	.	.	+	.
<i>Veratrum album</i>	.	+	.	.	.	.	.
<i>Trisetum flavescens</i>	.	.	.	+	+	.	.
<i>Viola tricolor</i>	.	.	.	+	.	.	.
<i>Hypericum cutum</i>	.	.	.	.	+	.	+
<b>Filipendulion</b>							
<i>Cirsium erisithales</i>	.	.	+	+	.	.	.
<b>Arrhenatherion</b>							
<i>Geranium pratense</i>	+	+	+	+	.	.	.
<b>Arrhenatheretalia</b>							
<i>Briza media</i>	1	1	3	+	1	.	.
<i>Thymus pulegioides</i>	.	.	.	.	.	+	.
<i>Carlina acaulis</i>	.	.	.	+	.	.	+
<i>Arrhenatherum elatius</i>	.	.	.	+	.	.	.
<i>Plantago lanceolata</i>	+	.	.	.	+	+	.
<i>Alchemilla vulgaris</i>	+	1	.	.	+	+	+
<i>Euphrasia stricta</i>	.	.	.	.	.	.	+
<i>Vicia cracca</i>	+	.	.	.	+	.	.
<i>Polygala vulgaris</i>	.	+	+	.	+	.	.
<i>Veronica chamaedrys</i>	.	.	+	.	.	+	.
<i>Knautia arvensis</i>	.	.	+	+	+	.	.
<b>Molinion</b>							
<i>Stachys officinalis</i>	.	.	+	+	+	.	.
<i>Laserpitium prutenicum</i>	.	.	.	+	.	+	.
<b>Molinietalia</b>							
<i>Trollius europaeus</i>	+	.	+	.	.	.	.
<i>Colchicum autumnale</i>	+	1	1	+	.	+	.
<i>Hypericum montanum</i>	.	.	.	.	.	+	.
<i>Deschampsia caespitosa</i>	.	.	+	.	.	.	.
<i>Lathyrus pratense</i>	.	.	+	.	+	.	.
<i>Cirsium canum</i>	.	.	.	.	.	+	.
<i>Linum catharticum</i>	.	.	.	.	+	.	+
<b>Molinio- Arrhenatheretea</b>							
<i>Trifolium pratense</i>	1	+	.	.	.	.	.
<i>Lotus corniculatus</i>	+	.	.	+	+	+	.
<i>Vicia craca</i>	.	+	.	+	.	.	.
<i>Cerastium fontanum</i>	+	.	.	.	.	.	+
<i>Prunella vulgaris</i>	+	.	.	.	+	.	.
<i>Dactylis glomerata</i>	+	.	+	.	.	+	.
<i>Leontodon autumnalis</i>	+	.	+	+	+	+	+
<i>Ranunculus acer</i>	.	.	+	+	+	+	.
<i>Leucanthemum vulgare</i>	.	.	+	.	+	+	+
<i>Carum carvi</i>	.	.	+	.	.	.	.
<i>Plantago media</i>	.	.	+	.	+	+	.
<i>Stellaria graminea</i>	.	.	.	+	+	+	.
<i>Cynosurus cristatus</i>	.	.	.	.	+	+	+
<i>Rhinanthus minor</i>	+	2	.	+	2	+	.
<i>Sieglingia decumbens</i>	.	.	.	.	+	.	.
<i>Taraxacum officinalis</i>	.	.	.	.	.	+	.
<b>Festuco -Brometea s.l.</b>							
<i>Hypericum perforatum</i>	+	.	.	+	.	.	.
<i>Scabiosa ochroleuca</i>	+	.	.	.	.	.	.
<i>Anthyllis vulneraria</i>	.	+	+	.	.	.	.
<i>Scabiosa columbaria</i>	.	+	+	.	.	.	.
<i>Pteridium aquilinum</i>	.	.	1	.	.	+	1
<i>Salvia pratensis</i>	+	.	.	+	.	.	.
<i>Gentiana cruciata</i>	.	.	+	.	.	+	.

<i>Galium verum</i>	.	.	.	+	+	.	.
<i>Thymus pannonicus</i>	.	.	.	+	.	.	+
<i>Pilosella officinarum</i>	.	.	.	.	+	.	+
<i>Pimpinella saxifraga</i>	.	.	.	.	+	.	+
<i>Sesleria heufleriana</i>	.	.	.	.	.	+	.
<i>Carlina vulgaris</i>	.	.	.	.	.	.	+
<i>Prunella grandiflora</i>	.	.	+	.	.	.	.
<b>Potentillo ternatae- Nardion</b>							
<i>Galium cruciata</i>	+	.	.	+	+	.	.
<i>Nardus stricta</i>	.	.	.	.	1	+	1
<i>Geum montanum</i>	.	.	+	.	.	.	.
<i>Lycopodium clavatum</i>	.	.	.	.	.	.	+
<i>Veronica officinalis</i>	.	.	.	.	.	+	+
<b>Seslerietalia</b>							
<i>Helianthemum alpestre</i>	.	.	+	.	.	.	.
<b>Trifolio- Geranietea s.l.</b>							
<i>Digitalis grandiflora</i>	.	.	.	+	+	.	.
<i>Trifolium ochroleucon</i>	.	.	.	.	1	.	+
<i>Medicago falcata</i>	.	.	.	.	.	.	.
<i>Achillea distans</i>	.	.	.	+	+	+	.
<i>Coronilla varia</i>	.	.	+	.	.	.	.
<i>Medicago falcata</i>	.	.	.	+	.	.	.
<i>Trifolium alpestre</i>	+	.	+	+	.	+	+
<i>Teucrium chamaedrys</i>	.	.	.	+	.	.	.
<i>Trifolium ochroleucon</i>	.	.	.	.	.	+	.
<b>Mulgedio-Aconietea</b>							
<i>Rosa pendulina</i>	.	.	+	.	.	.	.
<b>Querco-Fagetea s.l.</b>							
<i>Vicia sylvatica</i>	.	.	+	.	.	.	.
<i>Ranunculus cassubicus</i>	.	.	.	.	.	+	.
<i>Primula veris</i>	.	.	+	.	.	+	.
<i>Rubus hirtus</i>	.	.	.	.	.	+	.
<i>Viola reichenbachiana</i>	+	.	.	+	+	+	+
<i>Astrantia major</i>	.	+	+	.	.	.	.
<i>Galium schultesii</i>	.	.	+	.	.	.	.
<i>Fragaria vesca</i>	.	.	.	+	.	+	+
<b>Vaccino-Piceetea s.l.</b>							
<i>Juniperus communis</i>	.	.	.	.	.	+	+
<i>Vaccinium vitis-idaea</i>	.	.	.	.	.	.	+
<i>Pinus sylvestris</i>	.	.	.	.	.	+	.
<b>Variae syntaxa</b>							
<i>Cirsium arvense</i>	.	.	.	.	.	.	+
<i>Cirsium vulgare</i>	.	.	.	.	.	+	.
<i>Cirsium furiens</i>	.	.	.	.	.	+	.
<i>Silene italica</i>	+	.	.	+	.	.	.
<i>Equisetum sylvaticum</i>	+	.	.	.	.	.	.
<i>Achillea collina</i>	+	.	.	+	.	+	+
<i>Salix cinerea juv.</i>	.	+	.	.	.	.	.

Place and date of mapping:

1. Springs Tărhăuș- Palanca (Lat N. 46° 63557, Long. E 026° 11758), 16.09.2014;
2. Răchitiș (Lat N 46° 40 799, Long. E 026° 02 169), 16.09.2014;
3. Răchitiș (Lat. N 46°66 553, Long. E 026° 15230), 16.09.2014;
4. Răchitiș (Lat. N 46° 40 113, Long. E 026° 01 203), 16.09.2014;
5. Răchitiș (Lat. N 46° 40 015, Long. E 026° 01 989), 16.09.2014;
6. Brook Aldămaș (Lat N. 46°54405, Long 026°07571), 16.09.2014;
7. The hill between Răchitiș și Făgetul de Sus (Lat N. 46°61 065, Long 026°03670), 16.09.2014.

## CONCLUSIONS

The selection was carried out at the end of the period of vegetation, in September, in order to observe the degree of injury of vegetation in areas of the sample chosen 100 species of herbs has been identified.

Investigation was possible because the land is private property bounded, so many of the plots remain unripe due to rarefied local population,

grazing does not exceed the degree of tolerance of the grasslands and does not expand.

The trend of evolution of the vegetation remains stable because there are no present and future threats to put pressure on.

Their exploitation can not affect the composition of vegetation. These hayfields have the highest conservation status.

The monitoring was developed within the project "Services for the monitoring of the

conservation status of habitats of Community interest (salt marsh, continental dunes, grasslands, freshwater) of Romania".

#### ABSTRACT

The Ghimeş Pass meadows are located in middle mountain level, on hillsides with strong slopes with dry soils, with much skeleton, with a good crop production due to the predominance of two good forage species such as *Agrostis capillaris* and *Festuca rubra*. They are exploited by locals in traditional system. The antropo-zoogene pressure all over the place has low or very low intensities, have not reported the upcoming threats, conservation status is very good. If on create conditions for agro-tourism, this kind of activities will not bring problems of organic nature.

#### REFERENCES

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