

THE FOREST VEGETATION OF MUNCELUL MIC-MUNCELUL MARE- POIENIȚA TOMII-FEREĞI ZONE (HUNEDOARA COUNTY, ROMANIA)

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Abstract

The forest vegetation of Muncelul Mic-Muncelul Mare-Poienița Tomii-Feregi zone (Hunedoara County, Romania)

In this paper is presented the forest vegetation of Muncelu Mic-Muncelu Mare-Poienița Tomii-Feregi zone (Hunedoara County). Our searches, made during 2007 and 2008, have identified, five vegetal associations. The forest vegetation is installed along the rivers, or on the hills in that region. Every association, in this paper, is accompanied by: a live form's spectrum, a fitogeographical spectrum, and a phytosociological table.

Key words: forest, vegetation, Muncelu Mic-Muncelul Mare- Poienița Tomii-Feregi, Hunedoara County, Romania

Rezumat

Vegetația forestieră a zonei Muncelu Mic-Muncelu Mare-Poienița Tomii-Feregi (Județul Hunedoara, România)

In această lucrare este prezentată vegetația forestieră a zonei Muncelu Mic-Muncelu Mare-Poienița Tomii-Feregi (Județul Hunedoara). Cercetările noastre, efectuate în anii 2007 și 2008 au identificat cinci asociații vegetale. Vegetația forestieră se află de-a lungul râurilor sau în zona dealurilor. Fiecare asociație este acompaniată de spectrul bioformelor, spectrul fitogeografic și tabelul fitosociologic.

Cuvinte cheie: vegetație forestieră, Muncelu Mic-Muncelu Mare-Poienița Tomii-Feregi, județul Hunedoara

Introduction

Poiana Ruscă Mountains, bordered by the Retezat, Țarcu and Godeanu Mountains (in the southern and eastern part) form the NW part of the Southern Carpathians (SE Romania) extending over about 2,640 km². Its average altitude ranges between 700 and 1,000 m above sea level, with the highest peaks of Padeș Mt. (1,374 m), Ruscă Mt. (1,356 m) and Muncelu Hill (1,149 m) situated in the eastern part of the Poiana Ruscă Mountains. Here, various habitats are intermixed (meadows, pastures, deciduous forests, cultivated areas).

The Valley of Muncel tributary to Dobra River crosses this region from Vețel locality to Poienița Tomii and Feregi localities situated in the tableland of Poiana Ruscă Mountains.

Geological substratum is formed by crystalline schists.

Climate. The annual average of temperature is about 2-8⁰C, and the annual average of precipitation is 1,200-1,400 mm in the central range, where the snowcover lasts 100-150 days. The climate is milder at the peripheral, lower regions, the annual mean temperature is 9-11⁰ C, the annual precipitations are just 600-700 mm and the snowcover lasts for only 25-50 days.

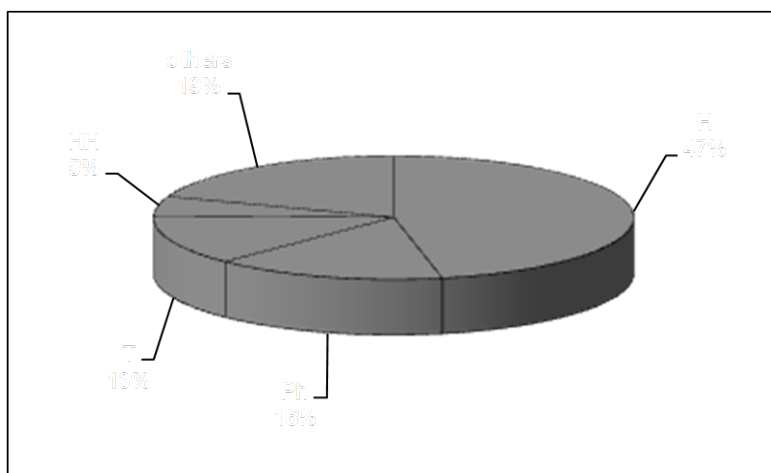
During 2007-2008 five vegetal associations were recorded from Muncelu Valley. Thus, the forest vegetation is installed along the rivers, or on the hills in that region. Every association, in this paper, is accompanied by: a live form's spectrum, a fitogeographical spectrum, and a phytosociological table. The nomenclature of the vascular plant species follows the "Flora Europaea" (1964-1980), Flora RPR-RSR (1952-1976) and the nomenclature of the vegetation follow MUCINA (1997) and Coldea (1997).

Description of the vegetal associations

1. Ass. *Salicetum albae-fragilis* Issler 26, *SALICETEA PURPUREAE* MOOR 1958, *SALICETALIA PURPUREAE* MOOR 1958, *SALICION ALBAE* Soó 1930

This is a meso-hygrophilous vegetal association, including stable phytocoenoses, installed on alluvial soils and floating alluvial soils. These vegetal associations have a great importance, being so-called riverside coppice, with poplars and willows stands (framed in the third class of cropping power). The trees are in two-layer strata, achieving 60-70% coverage of the soil. The herbaceous stratum covers the soil up to 50%. The shrub layer is missing in this association.

Live form's spectrum: H=36 (47%); Ph=12 (16%); T=10 (13%); H (G)=4 (5%), others=15 (19%)



Fitogeographical spectrum: Eua=35 (46%); E=11(15%); Cosm=7 (10%); Circ=6 (8%);
Eua (submedit) =4 (5%); Adv=3 (4%); others=12%.

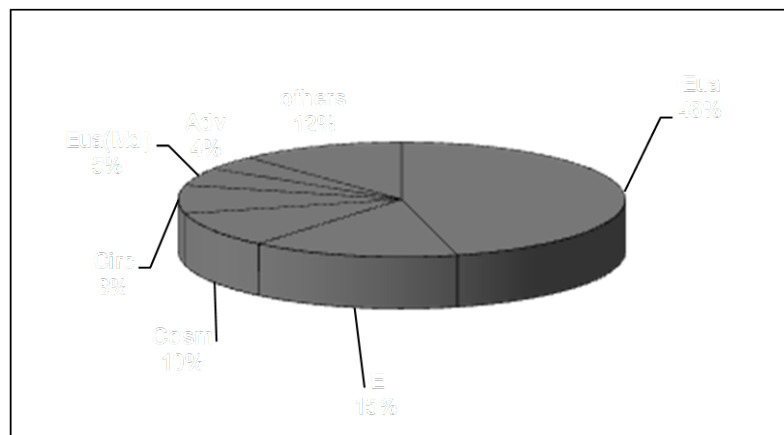


Table No. 1

Coverage of trees, %	60	65	60	65	60	
Height of trees, m	8-10	8-10	8-10	8-10	8-10	
Surface of relevé, m ²	400	400	400	400	400	
Diameter of trees, cm	15-20	15-20	25-30	25-30	25-30	
Coverage of grass layer, %	15	15	10	15	15	
Relevé number	1	2	3	4	5	K
Salix alba	3	3	3	3	3	V
Salix alba juv.	+	-	-	+	-	II
Salix fragilis	2	2	2	1	1	II
Salicion albae						
Populus alba	1	1	1	+	1	V
Populus alba juv.	-	+	+	-	+	I
Populus nigra	+	1	+	2	1	V
Populus nigra juv	-	-	+	-	-	I
Salicetalia et Salicetea purpureae						
Lysimachia nummularia	+	+	-	+	+	III
Urtica dioica	+	-	-	+	+	III
Rubus caesius	-	-	+	+	-	II
Saponaria officinalis	-	-	+	-	-	I
Humulus lupulus	-	+	+	-	-	II
Oenothera biennis	+	-	-	-	+	II
Aristolochia clematitis	-	-	+	+	+	II
Physalis alkekengi	+	-	-	-	-	I
Agrostion stoloniferae						
Lolium perenne	+	+	+	+	+	V
Poa angustifolia	+	+	+	+	+	V
Agrostis stolonifera	+	+	+	-	+	IV

<i>Elymus repens</i> ssp. <i>repens</i>	+	+	+	-	+	IV
<i>Carex hirta</i>	-	-	+	1	-	I
<i>Quercus-Fagetea</i>						
<i>Populus tremula</i>	-	+	-	+	1	I
<i>Populus tremula</i> juv.	-	-	-	1	-	I
<i>Pyrus pyraeaster</i>	-	-	-	+	+	I
<i>Rhamnus catharticus</i>	-	-	-	+	+	II
<i>Rhamnus catharticus</i> juv.	-	+	-	-	-	I
<i>Sambucus nigra</i>	+	-	-	-	-	I
<i>Sambucus nigra</i> juv.	-	-	-	-	+	I
<i>Prunus spinosa</i>	+	-	-	-	-	I
<i>Prunus spinosa</i> juv.	+	-	-	-	-	I
<i>Polygonatum odoratum</i>	-	-	-	-	+	I
<i>Prunella vulgaris</i>	+	-	-	-	-	I
<i>Torilis japonica</i>	-	-	-	+	-	I
<i>Aliae</i>						
<i>Ballota nigra</i>	+	+	-	-	+	III
<i>Taraxacum officinale</i>	+	+	+	-	+	IV
<i>Erigeron annuus</i>	+	-	-	+	+	III
<i>Euphorbia cyparissias</i>	+	+	-	-	+	III
<i>Potentilla reptans</i>	+	+	-	-	+	III
<i>Ulmus minor</i>	+	+	-	-	-	II
<i>Polygonum hydropiper</i>	+	-	-	-	+	II
<i>Rorippa amphibia</i>	-	-	+	+	-	II
<i>Fraxinus excelsior</i>	+	-	-	-	-	I
<i>Bidens tripartita</i>	+	+	-	-	-	II
<i>Calamagrostis epigejos</i>	+	-	-	+	-	II
<i>Artemisia absinthium</i>	-	-	+	+	-	II
<i>Polygonum lapathifolium</i>	+	-	-	-	+	II
<i>Daucus carota</i>	+	-	+	-	-	II
<i>Tussilago farfara</i>	-	-	+	+	-	II
<i>Scirpus maritimus</i>	+	-	-	+	-	II
<i>Inula britannica</i>	-	-	+	-	-	II
<i>Silene latifolia</i> ssp. <i>alba</i>	+	-	-	-	+	II
<i>Solanum dulcamara</i>	-	-	+	-	-	I
<i>Fallopia convolvulus</i>	+	-	-	-	-	I
<i>Potentilla argentea</i>	-	-	-	-	-	I
<i>Arctium tomentosum</i>	-	+	-	-	+	I
<i>Fragaria vesca</i>	-	-	-	-	-	I
<i>Agrimonia eupatoria</i>	+	-	-	-	+	I
<i>Echium vulgare</i>	-	-	+	-	-	I
<i>Artemisia annua</i>	-	-	-	+	-	I
<i>Leonurus cardiaca</i>	-	-	-	-	+	I
<i>Verbascum phlomoides</i>	-	-	-	+	-	I
<i>Veronica anagallis-aquatica</i>	+	-	-	-	-	I
<i>Tanacetum corymbosum</i>	-	-	-	+	-	I
<i>Trifolium repens</i>	-	1	-	-	-	I
<i>Geranium pusillum</i>	-	-	-	1	-	I
<i>Stellaria nemorum</i>	+	-	-	-	-	I
<i>Hypericum perforatum</i>	-	-	+	-	-	I
<i>Bellis perennis</i>	-	-	-	-	+	I
<i>Equisetum ramosissimum</i>	-	-	-	+	-	I

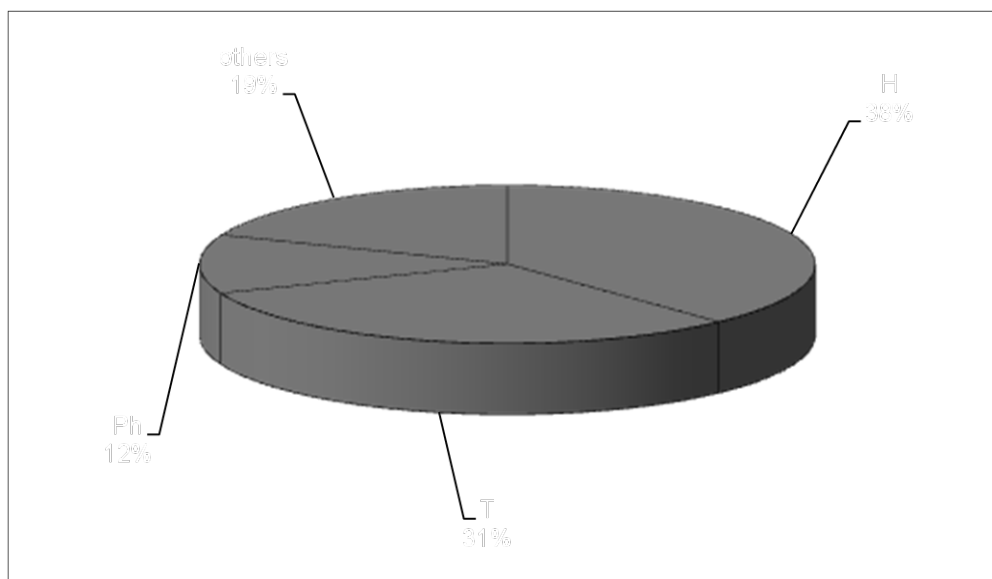
Rumex crispus	-	-	-	-	+	I
Sambucus ebulus	-	+	-	-	-	I
Ranunculus repens	+	-	-	-	-	I

Data of the relevées: 1: 17 Jul. 2008; 2-3: 8 Aug. 2008; 4-5: -27 Jul. 2007

2. Ass. Bromo sterilis-Robinetum pseudacaciae Pocs 1954, *QUERCETEA PUBESCENTIS* DOING-KRAFT EX SCAMONI ET PASSARGE 1959, *QUERCETALIA PUBESCENTI-PETRAEAE* KLIKA 1933, *ROBINION PSEUDACACIAE* M. CSÜRÖS-KÁPTALAN 1968

This association is a thermophilous one, as it can find a lot of vascular plants from Class Quercetea pubescenti-petraeae. The coverage of the herbaceous stratum reaches at 40-65%. There is well known that the Acacia plantations are characterized by a very heterogeneous flora, as: *Galium aparine*, *Rubus caesius*, *Ballota nigra*, *Bromus sterilis*, *Alliaria petiolata*, *Urtica dioica*, *Leonurus cardiaca*, *Physalis alkekengi*.

Live form's spectrum: H=25 (38%); T=20 (31%); Ph=8 (12%); others=19%.



Fitogeographical spectrum: Eua=22 (33%); E=11 (17%); Cosm=6 (9%); Circ=6 (9%); Ec=5 (8%); Adv=4 (6%); others=18%.

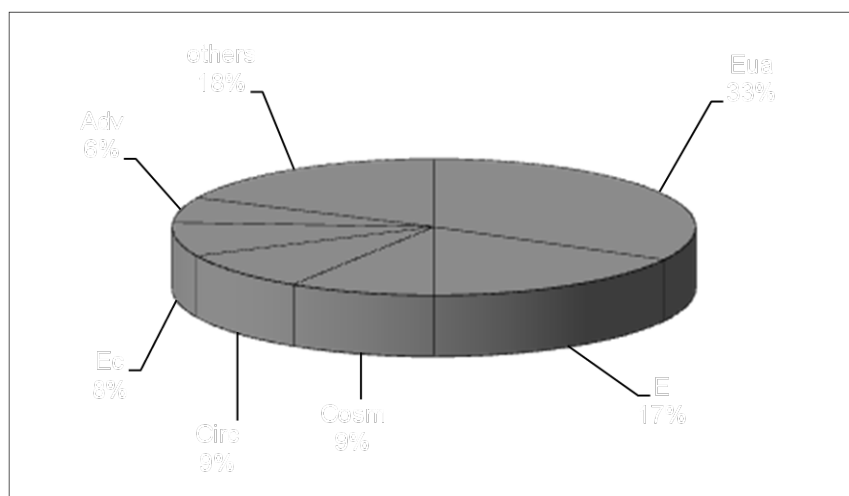


Table no. 2

Surface of relevé, m ²	400	400	400	400	400	
Coverage of trees, %	65	50	40	65	65	
Height of trees, m	8-10	10	8-10	10-12	9-11	
Diameter of trees, cm	20-25	20-25	20-25	20-25	20-25	
Coverage of shrubs, %	3	2	11	2	2	
Coverage of grass layer, %	35	50	50	55	50	
Relevé number	1	2	3	4	5	K
<i>Robinia pseudacacia</i>	4	4	4	4	4	V
<i>Robinia pseudacacia</i> juv.	+	+	+	+	+	V
<i>Bromus sterilis</i>	2	+	+	+	+	V
<i>Anthriscus cerefolium</i> ssp. <i>trichosperma</i>	+	+	2	+	+	V
<i>Urtica dioica</i>	+	2	+	+	+	V
<i>Ballota nigra</i>	+	2	+	+	+	V
<i>Conium maculatum</i>	+	+	+	+	+	V
<i>Chelidonium majus</i>	+	+	+	+	3	V
<i>Secale silvestre</i>	+	+	2	+	+	V
<i>Robinion pseudacaciae</i>						
<i>Morus alba</i>	-	+	-	+	-	II
<i>Gleditsia triacanthos</i>	+	-	-	-	-	I
<i>Acer negundo</i> juv.	+	-	-	+	-	I
<i>Prunetalia et Prunion spinosae</i>						
<i>Geum urbanum</i>	+	+	-	+	+	IV
<i>Sambucus nigra</i>	+	-	+	+	+	IV
<i>Euonymus europaeus</i>	+	+	-	+	-	III
<i>Euonymus europaeus</i> juv.	+	-	+	+	-	II
<i>Crataegus monogyna</i>	+	-	-	+	-	II

<i>Crataegus monogyna</i> juv.	+	+	-	-	+	III
<i>Rosa canina</i>	-	-	+	+	-	II
<i>Origanum vulgare</i>	-	+	-	-	+	II
<i>Quercetea pubescenti-petraeae</i>						
<i>Clinopodium vulgare</i>	+	+	-	+	-	III
<i>Silene latifolia</i> ssp. alba	+	-	+	+	-	III
<i>Pyrus pyraeaster</i>	+	+	-	+	-	III
<i>Campanula macrostachya</i>	+	-	-	+	-	II
<i>Lithospermum officinale</i>	-	+	-	-	+	II
<i>Fallopia dumetorum</i>	+	+	-	-	-	II
<i>Arctium lappa</i>	+	-	-	+	-	II
<i>Saponaria officinalis</i>	-	-	+	-	+	II
<i>Achillea setacea</i>	+	+	-	-	-	II
<i>Chenopodietea</i>						
<i>Stellaria media</i>	+	+	-	+	+	IV
<i>Chenopodium album</i>	+	-	+	+	-	III
<i>Geranium pusillum</i>	+	-	+	+	-	III
<i>Fumaria schleicheri</i>	-	-	+	+	+	III
<i>Convolvulus arvensis</i>	-	+	-	-	+	II
<i>Solanum nigrum</i>	-	+	+	-	-	II
<i>Senecio vernalis</i>	+	-	+	-	-	II
<i>Capsella bursa-pastoris</i>	+	-	-	-	+	II
<i>Sonchus arvensis</i>	-	+	+	-	-	II
<i>Sisymbrium et Sisymbrietalia</i>						
<i>Conyza canadensis</i>	+	-	-	+	+	III
<i>Sisymbrium officinale</i>	-	+	+	-	-	II
<i>Bromus tectorum</i>	-	+	+	-	-	II
<i>Polygonum aviculare</i>	+	-	-	+	-	II
<i>Festuco-Brometea</i>						
<i>Potentilla argentea</i>	-	+	+	-	-	II
<i>Galium humifusum</i>	+	-	-	+	-	II
<i>Poa angustifolia</i>	+	-	-	+	-	II
<i>Muscari racemosum</i>	+	-	-	+	-	II
<i>Euphorbia cyparissias</i>	-	+	+	-	-	II
<i>Berteroia incana</i>	+	-	+	-	-	II
<i>Poa compressa</i>	-	+	-	-	+	II
<i>Medicago lupulina</i>	-	-	+	-	+	II
<i>Aliae</i>						
<i>Alliaria petiolata</i>	+	+	-	+	+	IV
<i>Cirsium arvense</i>	-	+	+	-	-	II
<i>Artemisia absintium</i>	+	-	-	+	-	II
<i>Taraxacum officinale</i>	-	+	-	+	-	II
<i>Thlaspi perfoliatum</i>	-	-	+	-	-	I
<i>Torilis arvensis</i>	-	+	-	-	-	I
<i>Setaria viridis</i>	+	-	-	-	-	I
<i>Veronica arvensis</i>	-	-	+	-	-	I
<i>Agrostis stolonifera</i>	-	-	-	+	-	I
<i>Arctium minus</i>	-	-	-	-	+	I
<i>Veronica polita</i>	-	+	-	-	-	I

<i>Elymus repens</i> ssp. <i>repens</i>	+	-	-	-	-	I
<i>Myosotis arvensis</i>	-	-	+	-	-	I
<i>Althaea cannabina</i>	-	+	-	-	-	I

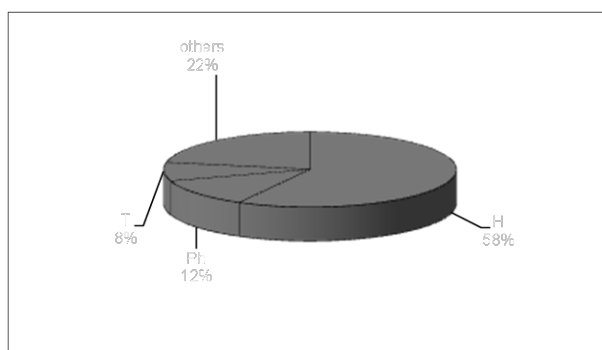
Data and place of the relevées: 1-Muncelul Mic forest 20 Jun., 2008; 2 - Muncelul Mare forest, 20 Jun., 2008; 3 - Feregi forest, 17 Jul., 2008; 4 - Muncelul Mare forest, 18 Aug., 2008; 5 - Poienița Tomii forest, 19 Jul., 2008

3. Ass. *Pruno spinosae*-*Crataegetum* (Soó 1927) Hueck 1931, *RHAMNO-PRUNETEA* RIVAS GODAY ET BORJA 1961, *PRUNETALIA* Tx. 1952, *PRUNION FRUTICOSAE* Tx. 1952 (=PRUNION SPINOSAE Soó 1940)

Phytocoenoses of this vegetal association are spread in the clearings of the forests, on the skirts of the forests, or on the place of the former forests, on plane fields or on the slopes of the hills, usually on the East or South-East exposures.

The characteristic and dominant species of this association, *Prunus spinosa* ssp. *dasyphylla*, and *Crataegus monogyna*, make up medium coverage indices (up to 70% to 75%), on surfaces between 100 m² to 300 m². The first one of the characteristic species, is a constant one in all the phytocoenoses, while the second one, are met sporadically only. The herbaceous layer is relatively well developed, edified by various species, immigrated here from other vegetal associations. Among these species, the next ones are more frequently: *Ballota nigra*, *Galium aparine*, *Poa angustifolia*, *Elymus repens* ssp. *repens*, *Calamagrostis epigejos*. The economical importance of this association is in their pioneer's role in the vegetation succession towards the installation of the forests; besides, on those slopes quite declined, these phytocoenoses have a stabilizer role and against the soil erosion.

Live form's spectrum: H=29 (58%); Ph=6 (12%); T=4 (8%); others=22%.



Fitogeographical spectrum: Eua=19 (38%); E=7 (14%); Ec=5 (10%); Circ=4 (8%); others=30%.

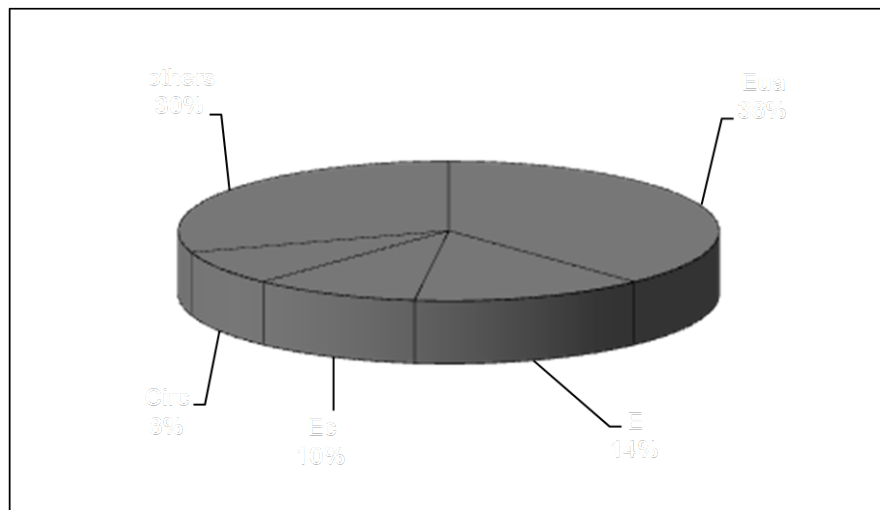


Table No. 3

Surface of relevé, m ²	200	200	200	200	200		
Coverage of vegetation, %	75	75	75	70	70		
Relevé number	1	2	3	4	5	K	
Prunus spinosa ssp.	4	4	4	4	4	V	
dasyphylla							
Crataegus monogyna	+	+	+	+	+	V	
Prunion spinosae et							
Prunetalia							
Cornus sanguinea	+	+	-	-	+	III	
Origanum vulgare	+	+	+	+	-	III	
Rosa canina	+	+	-	-	+	III	
Potentilla argentea	-	+	-	+	-	II	
Euonymus europaeus	-	+	-	-	-	I	
Aristolochia clematitis	-	-	+	-	-	I	
Veronica chamaedrys	-	-	-	+	-	I	
Humulus lupulus	+	-	-	-	-	I	
Quercetea pubescenti-							
petraeae							
Geum urbanum	-	+	+	-	-	II	
Clinopodium vulgare	+	-	-	-	+	II	
Acer tataricum	+	-	-	+	-	II	
Tanacetum corymbosum	-	+	-	-	-	I	
Festuco-Brometea							
Poa angustifolia	-	+	+	+	-	III	
Salvia nemorosa	+	-	+	+	-	III	
Daucus carota	+	+	-	-	+	III	
Gagea arvensis	+	-	-	+	-	II	
Calamagrostis epigejos	-	+	-	-	+	II	

Eryngium campestre	-	+	+	-	-	II
Salvia verticillata	-	-	-	+	-	I
Viola hirta	+	-	-	-	-	I
Euphorbia cyparissias	-	-	-	-	+	I
Erysimum diffusum	-	+	-	-	-	I
Verbascum phoeniceum	-	-	+	-	-	I

Aliae

Ballota nigra	+	+	-	+	+	IV
Hypericum perforatum	-	+	+	-	+	III
Fragaria viridis	-	+	-	+	-	II
Artemisia absinthium	+	-	+	-	-	II
Lamium purpureum	-	+	+	-	-	II
Anemone ranunculoides	-	-	+	+	+	III
Stachys officinalis	-	+	-	+	-	II
Cichorium intybus	+	-	+	-	-	II
Stachys recta	+	-	-	+	-	II
Agrimonia eupatoria	+	-	-	-	+	II
Glechoma hederacea	-	-	+	-	-	I
Physalis alkekengi	-	+	-	-	-	I
Vicia cracca	-	-	+	-	-	I
Achillea setacea	+	-	-	-	-	I
Tanacetum vulgare	-	-	-	-	+	I
Conium maculatum	-	-	+	-	-	I
Erigeron annuus	-	-	-	+	-	I
Matriacria perforata	+	-	-	-	-	I
Prunella vulgaris	-	+	-	-	-	I
Torilis arvensis	-	-	-	+	-	I

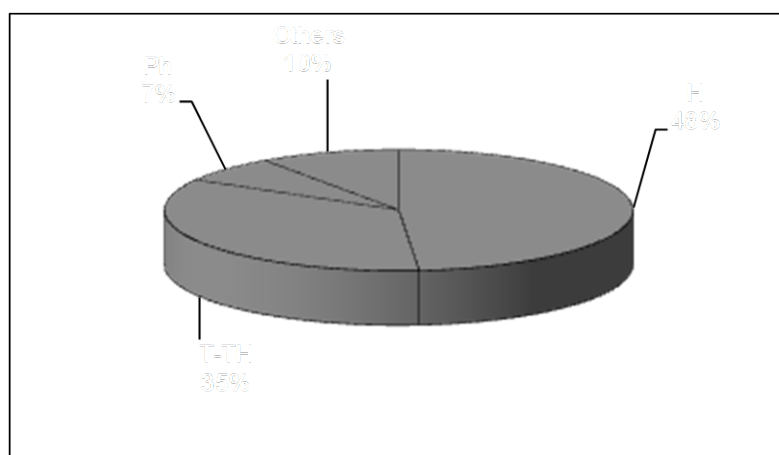
Data and place of the relevés: 1-2: Muncelul Mic forest, 17 jul. 2007; 3-4: Feregi forest, 18 aug 2008
5: Poienita Tomii forest, aug., 2008

4. Ass. Agrostetum stoloniferae Burduja et al.1956, *MOLINIO – ARRHENATHERETEA R.*
Tx. 1937 *POTENTILLO – POLYGONETALIA R.* Tx. 1947, *POTENTILLION ANSERINAE R.* Tx. 1947

These phytocoenosis occupy relatively limited areas in Muncel and they can be found at an average altitude of 500-600 m, on soil with slight slope, with southern an eastern exposition.

The characteristic and dominant species *Agrostis stolonifera* are accompanied by other 71 species.

Live form's spectrum: (H=48,6%) Ph= (7%); T= (35%); others=7%.



Fitogeographical spectrum: Eua (62,5%), Circ (10%), Ec(10%), E (7%), Adv (6%)

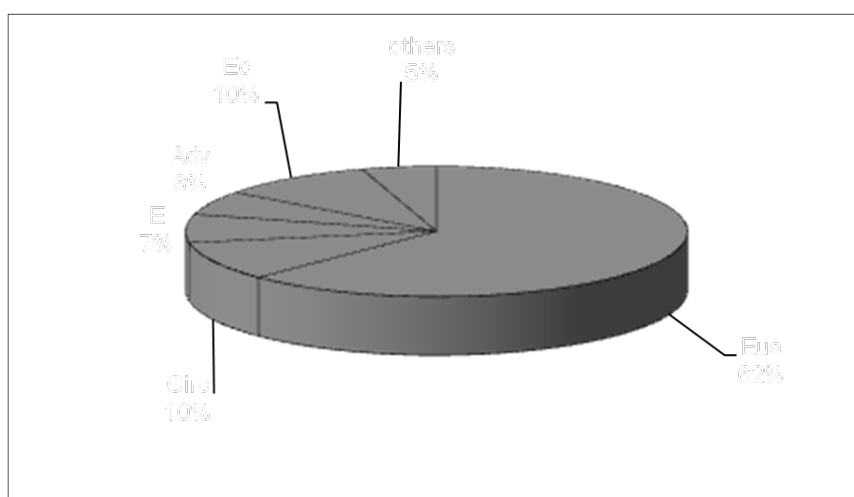


Table no 4

Expozition	S	S	SE	E	E	
Covering (%)	85	80	100	100	100	K
Relevé number	1	2	3	4	5	
Caract d'ass.						
<i>Agrostis stolonifera</i>	3	3	4	5	4	V
<i>Potentillion anserinae</i>						
<i>Alopecurus geniculatus</i>	-	-	+	+	-	II
<i>Carex hirta</i>	+	+	-	+	+	IV
<i>Juncus inflexus</i>	-	-	+	-	+	II
<i>Mentha longifolia</i>	-	-	+	-	+	II
<i>Ranunculus repens</i>	-	-	-	+	-	I
<i>Ranunculus sardous</i>	+	-	+	-	-	II
<i>Rorippa austriaca</i>	+	+	+	+	+	V
<i>Rorippa sylvestris</i>	+	+	+	-	+	IV
<i>Rumex crispus</i>	-	+	+	+	-	III

Potentillo-Polygonetalia

<i>Althaea officinalis</i>	-	-	-	+	-	I
<i>Bromus commutatus</i>	-	+	-	+	-	II
<i>Elymus repens</i>	+	1	+	+	1	V
<i>Inula britannica</i>	+	+	-	+	+	IV
<i>Mentha pulegium</i>	+	+	-	+	-	III
<i>Potentilla reptans</i>	+	+	+	+	+	V
<i>Trifolium fragiferum</i>	-	+	2	+	1	IV

Arrhenatherion et

Arrhenatheretalia

<i>Alopecurus pratensis</i>	-	+	-	-	-	I
<i>Crepis biennis</i>	-	-	+	-	-	I
<i>Dactylis glomerata</i>	+	-	+	+	-	III
<i>Daucus carota</i>	-	+	+	+	-	III
<i>Leontodon hispidus</i>	+	-	-	-	+	II
<i>Medicago lupulina</i>	+	+	+	+	+	
<i>Odontites vernus ssp. serotinus</i>	-	+	-	-	-	I
<i>Taraxacum officinale</i>	+	+	+	-	+	IV
<i>Trifolium campestre</i>	-	+	-	+	-	II

Lolio-Plantaginion et

Plantaginietalia majoris

<i>Cichorium intybus</i>	-	+	+	-	-	II
<i>Cynodon dactylon</i>	-	-	-	-	+	I
<i>Lepidium ruderae</i>	+	-	-	-	-	I
<i>Lolium perenne</i>	-	-	+	+	+	III
<i>Plantago major</i>	+	+	+	+	+	V
<i>Polygonum aviculare</i>	-	-	-	+	-	I
<i>Verbena officinalis</i>	-	+	-	+	-	II

Molinio-Arrhenatheretea

<i>Lotus corniculatus</i>	-	+	+	-	+	III
<i>Lysimachia nummularia</i>	+	-	-	-	+	II
<i>Ononis arvensis</i>	-	+	-	+	-	II
<i>Plantago lanceolata</i>	+	-	+	+	+	IV
<i>Ranunculus acris</i>	-	-	+	+	-	II
<i>Rumex acetosa</i>	+	-	+	-	-	II
<i>Trifolium pratense</i>	-	+	+	-	+	III
<i>Trifolium repens</i>	+	+	+	+	+	V

Phragmiti-Magnocaricetea

<i>Alisma plantago-aquatica</i>	-	-	-	+	+	II
<i>Bolboschoenus maritimus</i>	-	-	-	+	-	I
<i>Eleocharis palustris</i>	-	-	-	+	-	I
<i>Epilobium hirsutum</i>	-	-	+	-	-	I
<i>Lycopus europaeus</i>	+	+	-	-	+	III
<i>Lythrum salicaria</i>	+	-	-	-	+	II
<i>Phragmites australis</i>	+	-	-	-	-	I

<i>Festuco-Brometea</i>						
<i>Achillea setacea</i>	+	+	+	-	+	IV
<i>Galium humifusum</i>	+	+	-	-	-	II
<i>Medicago falcata</i>	+	+	-	-	-	II
<i>Potentilla argentea</i>	+	-	-	-	-	I

Artemisietea vulgaris et

Stellarietea mediae

<i>Anthriscus sylvestris</i>	-	+	+	-	-	II
<i>Arctium tomentosum</i>	+	-	-	-	-	I
<i>Artemisia vulgaris</i>	-	+	-	-	-	I
<i>Bromus arvensis</i>	1	1	-	-	-	II
<i>Cirsium arvense</i>	-	+	-	-	-	I
<i>Cirsium vulgare</i>	2	+	+	-	+	IV
<i>Consolida regalis</i>	-	+	-	-	-	I
<i>Conyza canadensis</i>	+	-	-	-	-	I
<i>Leonurus marrubiastrum</i>	+	-	-	-	-	I
<i>Melilotus albus</i>	-	+	-	-	-	I
<i>Melilotus officinalis</i>	+	1	+	-	-	III
<i>Sonchus arvensis</i>	+	-	+	-	-	II
<i>Tussilago farfara</i>	-	-	+	-	-	I
<i>Xanthium spinosum</i>	-	-	-	+	-	I
<i>Xanthium strumarium</i>	+	+	+	+	+	V

Variae syntaxa

<i>Agrimonia eupatoria</i>	+	-	-	-	-	I
<i>Bidens tripartita</i>	-	-	+	-	-	I
<i>Centaurium erythraea</i>	-	-	-	+	-	I
<i>Juncus gerardi</i>	-	-	-	+	+	II
<i>Thalictrum aquilegiifolium</i>	+	-	-	-	-	I

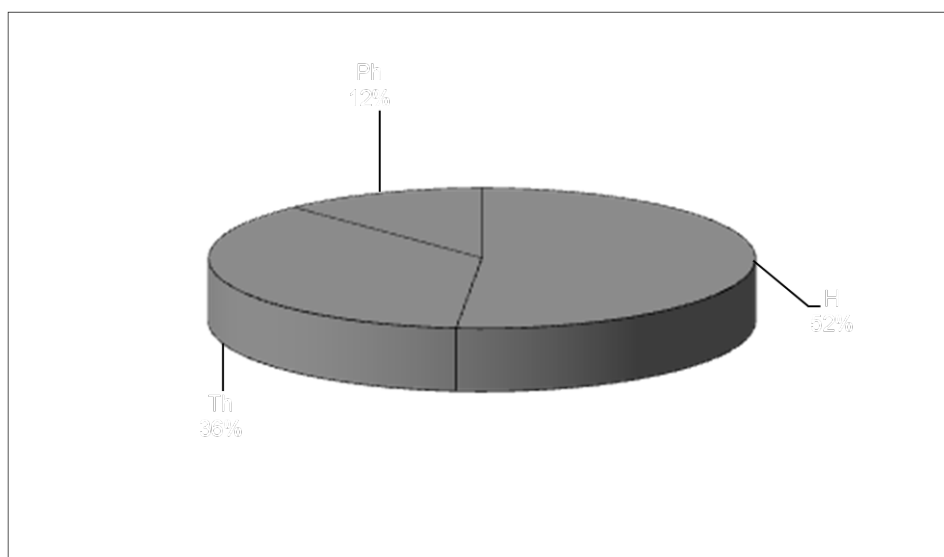
Data of the relevés: 1-2 – 20 iun 2008; 3 –10 iun. 2007; 4-5 –19 jul. 2008

5. Ass. *Rorippo austriacae* – *Agropyretum repentis* (Timar 1947) R. Tx. 1950, *MOLINIO* – *ARRHENATHERETEA* R. Tx. 1937, *POTENTILLO* – *POLYGONETALIA* R. Tx. 1947, *POTENTILLION ANSERINAE* R. Tx. 1947

(Syn.: *Rorippo* – *Agrostietum stoloniferae* (Moor 1958) Oberd. et T. Müller 1961; *Rumici* – *Agrostietum stoloniferae* Moor 1958)

The *Rorippo austriacae* association is characteristic to the hillocky zone but also is frequently met in the sub-mountainous zone. The characteristic and dominant species *Rorippa austriaca* and *Elymus repens* are accompanied by other species (65): *Agrostis stolonifera*, *Trifolium fragiferum*, *Trifolium repens*, *Poa angustifolia*, *Capsella bursa-pastoris*, *Lolium perenne*.

The bioforms spectrum presents the preponderance of the hemicryptophytes (51,5%) thus illustrating a moderate climate, followed by the therophytes (36,4%) and phanerophytes (12%).



The floristic elements spectrum indicates the prevalence of the eurasian elements (63,7%), followed by the cosmopolites elements (13,6%) and european and central european elements, each of them present in a 7% proportion.

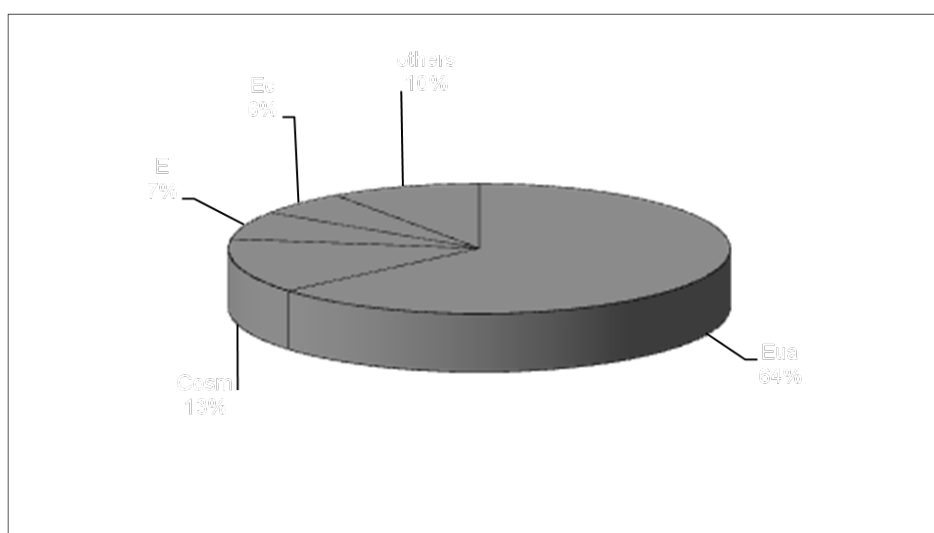


Table no 5

Expozition	-	-	S	-	SV	
Coverage of vegetation (%)	100	100	80	90	75	K
Relevé number	1	2	3	4	5	
Caract d'ass.						
Rorippa austriaca	+	+	+	+	+	V
<i>Potentillion anserinae</i>						
Carex hirta	+	-	-	+	-	II
Juncus inflexus	-	-	+	-	+	II
Mentha longifolia	-	+	+	-	-	II
Ranunculus repens	-	+	-	+	-	II
Ranunculus sardous	+	-	-	+	+	III
Rorippa sylvestris	+	+	+	+	+	V
Rumex crispus	+	-	+	-	+	III
<i>Potentillo-Polygonetalia</i>						
Agrostis stolonifera	+	1	1	+	+	V
Althaea officinalis	+	-	+	-	+	III
Bromus commutatus	-	+	+	-	-	II
Elymus repens	5	4	3	4	3	V
Inula britannica	-	-	+	-	+	II
Potentilla reptans	+	+	+	+	+	V
Trifolium fragiferum	+	1	1	+	1	V
<i>Arrhenatherion et Arrhenatheretalia</i>						
Alopecurus pratensis	+	+	+	+	-	IV
Crepis biennis	-	-	-	+	-	I
Dactylis glomerata	-	+	-	-	+	II
Daucus carota	-	-	+	+	-	II
Medicago lupulina	-	-	+	+	+	III
Taraxacum officinalis	-	-	+	-	+	II
Trifolium campestre	+	-	+	-	-	II
<i>Lolio-Plantaginion et Plantaginetalia majoris</i>						
Cichorium intybus	-	+	-	+	+	III
Cynodon dactylon	-	+	-	+	-	II
Erodium cicutarium	-	+	+	-	-	II
Hordeum murinum	+	-	-	+	+	III
Lepidium ruderae	-	-	+	+	-	II
Lolium perenne	+	+	+	1	+	V
Plantago major	+	+	+	-	-	III
Verbena officinalis	-	-	+	-	-	I
<i>Molinio-Arrhenatheretea</i>						
Lotus corniculatus	+	-	+	+	-	III
Ononis arvensis	-	-	-	+	-	I
Plantago lanceolata	+	+	+	+	+	V
Ranunculus acris	-	+	-	+	-	II
Rumex acetosa	-	-	-	-	+	I
Trifolium pratense	+	-	+	+	-	III

Trifolium repens	1	+	+	+	1	V
<i>Phragmiti-Magnocaricetea</i>						
Bolboschoenus maritimus	+	-	-	-	-	I
Eleocharis palustris	-	-	-	-	+	I
Lycopus europaeus	+	-	-	-	-	I
<i>Festuco-Brometea</i>						
Achillea setacea	-	-	-	+	+	II
Alyssum desertorum	-	-	+	+	-	II
Artemisia austriaca	-	-	-	+	+	II
Eryngium campestre	-	-	+	-	-	I
Euphorbia cyparissias	-	+	-	-	-	I
Galium humifusum	+	+	-	-	-	II
Medicago falcata	-	+	-	+	-	II
Poa angustifolia	+	-	+	1	+	IV
Potentilla argentea	-	+	-	+	-	II
<i>Puccinellio-Salicornietea</i>						
Juncus gerardi	+	+	+	-	-	III
Lotus corniculatus	-	+	-	-	-	I
Matricaria recutita	-	-	+	-	-	I
Puccinellia distans ssp. limosa	-	+	-	-	-	I
<i>Artemisietea vulgaris et Stellarietea mediae</i>						
Bromus tectorum	+	+	-	-	-	II
Capsella bursa-pastoris	-	-	1	+	-	II
Cardaria draba	-	-	-	-	+	I
Carduus acanthoides	-	+	-	-	+	II
Carduus nutans	-	-	+	+	-	II
Chenopodium album	-	-	-	+	-	I
Cirsium vulgare	-	+	+	-	+	III
Lappula squarrosa	-	-	+	+	-	II
Vicia tetrasperma	+	-	-	-	-	I
Xanthium spinosum	-	-	-	-	+	I
Xanthium strumarium	+	+	+	+	+	V
<i>Variae syntaxa</i>						
Arenaria serpyllifolia	-	-	+	-	-	I
Bidens tripartita	+	-	-	-	-	I
Veronica chamaedrys	-	-	-	+	-	I

Data of the relevés: 1-17 jul. 2008; 2 –19 jul. 2008; 3 –17 jul.2008; 4 -17 jul 2008; 5 – jul.2008

Literature cited

- ELLENBERG H. 1974. Indicator values of vascular plants in Central Europe. *Scripta Geobotanica*, IX, Verlag Erich Goltze K.G., Göttingen: 5-97.
- OBERDORFER E., FREIBURG Br. 1983. *Süddeutsche Pflanzengesellschaften*, III, VEB Gustav Fischer Verlag Jena.
- SANDA V., POPESCU A., STANCU DANIELA ILEANA. 2001. Structura cenotică și caracterizarea ecologică a fitocenozelor din România. Ed. Conphis.

- BORZA AL. 1963. Fitocenoze specifice pentru țara noastră (I), *Acta Botanica Horti Bucurestiensis*, **2**: 779-784.
- COLDEA GH. (ED.), 1997, Les associations végétales de Roumanie, 1. Les associations herbacées naturelles. Presses Universitaires de Cluj.
- MORARIU I. 1944. Aupra ecologiei și sociologiei lui *Quercus pedunculiflora* C. Koch, *Rev. Pădurilor*, **10-12**: 257-267.
- MUCINA L. 1997. Conspectus of Classes of European Vegetation, *Folia Geobotanica Phytotax.*, **32**: 117-172.
- TUTIN T.G., HEYWOOD V.H., BURGESS N.A., MOORE D.M., VALENTINE D.H., WALTERS S.M. & WEBB D.A. (eds). 1964-1980. *Flora Europaea*. Vol. 1-5. Cambridge: Cambridge University Press.

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