

RUDERAL AND SEGETAL VEGETAL ASSOCIATIONS OF *ARTEMISIETEA VULGARIS* LOHMEYER ET AL. EX VON ROCHOW 1951 CLASS IN THE BERZUNȚI MOUNTAINS AREA, BACĂU COUNTY

Irina Mădălina Ardei

Key words: ruderal and segetal vegetal associations, Berzunți Mountains

INTRODUCTION

The Berzunți Mountains are situated in the eastern extremity of the central part of Eastern Carpathians. The researched territory is situated in the Trotuș river hydrographic basin, from north to south between 46° 28' 04" (on Moinești saddle) and 46° 16' 10" northern latitude (on Cireșoaia saddle) and from west to east between 26° 27' 59" on Ormeniș stream and 26° 38' 41" eastern longitude in the area of Brătești village [3, 7, 12-13]; it occupies a 140 km² area of which approximately 50% is covered with forest vegetation, 20% with lawns of which 15% pastures and 5% hayfields, the rest being occupied with agricultural fields, urban areas, access roads.

MATERIAL AND METHODS

The research concerning the studied area, from the point of view of vegetation, follows the method of the Zürich-Montpellier phytocenological school, proposed by J. Braun-Blanquet and J. Pavillard.

To this aim, we used the method of surveys „on the itinerary”, covering the whole region, according to the steps described in the studies of authors CRISTEA V., GAFTA D., PEDROTTI FR., 2004, *Fitosociologie* [6] și ȘTEFAN N., 2005, *Fitocenologie și Vegetația României* [17]. We achieved the nomenclature, classification and description of vegetal associations following especially the study of CHIFU T., MÂNZU C., ZAMFIRESCU OANA, 2006, *Flora și vegetația Moldovei (România)*, vol. II [4], adding the phytosociological studies by SANDA V., POPESCU A., BARABAȘ N., 1997, *Cenotaxonomia și caracterizarea grupărilor vegetale din România* [15] and SANDA V., POPESCU A., DANIELA ILEANA STANCU, 2001, *Structura cenotică și caracterizarea ecologică a fitocenozelor din România* [16].

The nomenclature of species is made according to the following studies: CIOCĂRLAN V., 2000, *Flora ilustrată a României. Pteridophyta et Spermatophyta*. Ediția a II-a revizuită și adăugită, Editura Ceres, București [5] and SANDA V., BIȚĂ-NICOLAE CLAUDIA, BARABAȘ N., 2003, *Flora cormofitelor spontane și cultivate din România*, Editura „Ion Borcea”, Bacău [14]. The types of bioforms and floristic elements were taken from CHIFU T., MÂNZU C., ZAMFIRESCU OANA, 2006, *Flora și vegetația Moldovei (România)*, vol. I, Editura Universității “Alexandru Ioan Cuza” Iași [4].

RESULTS AND DISCUSSIONS

The conspect of vegetal associations. The associations studied by us were classified as follows:

Class ARTEMISIETEA VULGARIS
Lohmeyer et al. ex von Rochow 1951

Order *Onopordetalia acanthii* Br.-Bl. et R.
Tx. ex Klika et Hadač 1944

Alliance *Onopordion acanthii* Br.-Bl. et al 1936

- As. *Carduetum acanthoides* Felföldy 1942

- As. *Potentillo argenteae* – *Artemisietum absinthii* Falinski 1965

Alliance **Dauco-Melilotion** Görs 1966

- As. *Tanaceto- Artemisietum vulgaris* Sissingh 1950

- As. *Poo-Tussilaginetum* Tx. 1931

Alliance **Arction lappae** R. Tx. 1937

- As. *Arctietum lappae* Felföldy 1942

- As. *Hyoscyamo-Conietum maculati* Slavnić 1951

Order **Agropyretalia repentis** Oberd. et al. 1967

Alliance **Convolvulo arvensis-Agropyrrion repentis** Görs 1966

- As. *Lepidietum drabae* Timar 1950

Order **Sisymbrietalia** J.Tx. in Lohmeyer et Preising in R Tx 1950

Alliance **Sisymbrian officinalis** R. Tx., Lohmeyer et Preising in R. Tx. 1950

- As. *Hordeetum murini* Libbert 1933

- Alliance *Atriplicion nitentis* Passarge 1978
 - As. *Cynodonto* –*Atriplicetum tataricae* Morariu 1943
 Alliance *Malvion neglectae* (Gutte 1966) Hejny 1978
 - As. *Malvetum pussilae* Morariu 1943

The description of vegetal associations

- As. *Carduetum acanthoides* Felföldy 1942

Wetted thistle weed group

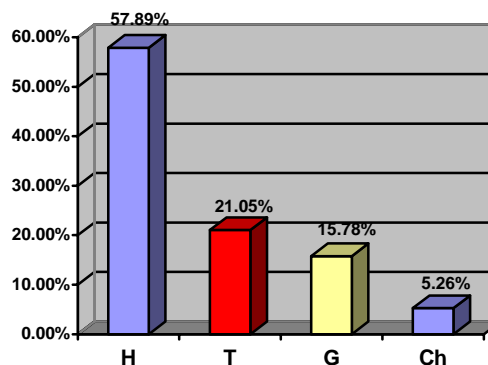
The phytocenoses of this association can be met on manure platforms, on fields with decaying organic substances, in the degradation phase of lawns. It is a tall association, typically nitrophile. The number of individuals is very large, impeding the development of other species[8]. The species characteristic to the association is *Carduus acanthoides*, being dominant and extended to large areas.

The analysis of bioforms establishes the dominance of Hemicryptophytes (H) with 57,89%, followed by Terophytes (T) with 21,05%, then Geophytes with 15,78% and Camephytes with 5,26%.

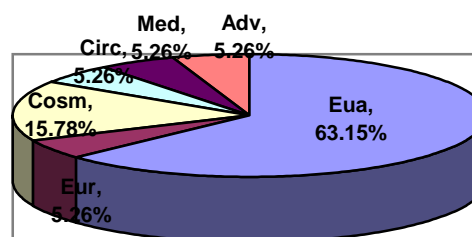
The analysis of floristic elements shows that the highest weight belongs to eurasian species (Eua) with 63,15 %, then cosmopolitan species (Cosm) with 15,78 %, the circumpolar (Circ), adventive (Adv), european (Eur), mediterranean (Med) having 5,26% each.

Number of survey	1	2	3
Altitude (m)	370	360	455
Vegetation cover (%)	80	85	80
Area (m ²)	50	25	50
Number of species	9	10	7
Association characteristic			
<i>Carduus acanthoides</i>	4	5	4
Onopordion et Onopordetalia			
<i>Anthemis tinctoria</i>	+	-	-
<i>Artemisia austriaca</i>	-	-	1
<i>Ballota nigra</i>	-	+	-
<i>Cirsium arvense</i>	-	+	-
<i>Lavatera thuringiaca</i>	-	-	+
<i>Malva sylvestris</i>	-	+	-
<i>Marrubium vulgare</i>	1	+	-
Molinietalia et Molinio-Arrhenatheretea			
<i>Agrostis stolonifera</i>	+	-	+
<i>Ajuga reptans</i>	-	+	-
<i>Equisetum arvense</i>	+	-	-
<i>Inula britannica</i>	-	-	+
<i>Lotus corniculatus</i>	-	+	-
<i>Mentha longifolia</i>	+	-	-
<i>Plantago lanceolata</i>	-	+	+
<i>Potentilla anserina</i>	+	-	-
<i>Stellaria graminea</i>	+	+	-
Variae syntaxa			
<i>Arenaria serpyllifolia</i>	-	-	+
<i>Galinsoga parviflora</i>	-	+	-
Place and date of survey realization: 1. Berzunți (3.08.2008); 2. Brătești-Bărsănești (5.08.2007); 3. Buda-Berzunți (3.08.2008)			

Floristic bioform spectrum of
Carduetum acanthoides association
Felföldy 1942



Floristic element spectrum of
Carduetum acanthoides association
Felföldy 1942



- As. *Potentillo argenteae* –*Artemisietum absinthii* Falinski 1965

Wormwood and silvery cinquefoil weed group. It is a ruderal association to be met at village periphery or in road margins in well-lit places rich in organic substances.

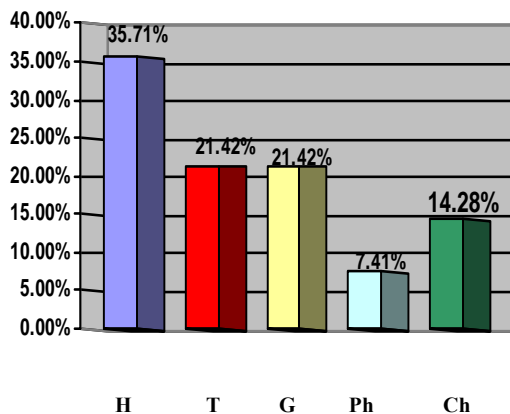
The phytocenoses are almost exclusively dominated by *Artemisia absinthium*. Besides we mention: *Ballota nigra*, *Conium maculatum*, *Convolvulus arvensis* etc.

The analysis of bioforms indicates the prevalence of Hemicryptophytes (H) with 35,71%, followed by Terophytes (T) and Geophytes having 21,42% each, Camephytes (Ch) with 14,28% and Phanerophytes (Ph) with 7,41%.

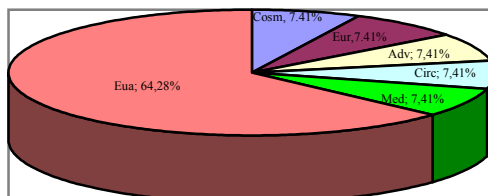
The analysis of floristic elements proves the dominance of eurasian species (Eua) with 64,28%, then follow the cosmopolitan (Cosm), the circumpolar (Circ), the european (Med) having 7,41% each. (Eur), the adventive (Adv) and the mediterranean (Med) having 7,41% each.

Number of survey	1	2	3	4	5	
Altitude (m)	370	370	270	370	370	
Vegetation cover (%)	80	85	80	80	80	
Area (m ²)	30	20	30	20	25	
Number of species	7	6	6	6	5	
Association charact.						
<i>Artemisia absinthium</i>	4	4	2	3	4	V
<i>Potentilla argentea</i>	2	2	3	2	2	V
Arction lappae						
<i>Arctium lappa</i>	-	+	-	+	-	II
<i>Ballota nigra</i>	+	-	+	-	-	II
<i>Conium maculatum</i>	-	-	-	+	+	II
<i>Lamium album</i>	+	-	-	+	-	II
<i>Lycium barbarum</i>	-	+	-	-	-	I
Artemisietea vulgaris						
<i>Armoracia rusticana</i>	-	-	+	-	-	I
<i>Chenopodium bonus-henricus</i>	+	-	-	-	-	I
<i>Dipsacus laciniatus</i>	-	+	+	-	-	II
<i>Marrubium vulgare</i>	-	-	-	+	-	I
<i>Solanum dulcamara</i>	-	-	-	-	+	I
Variae syntaxa						
<i>Elymus repens</i>	+	+	+	-	+	IV
<i>Convolvulus arvensis</i>	+	-	-	-	-	I
Place and date of survey realization: 1,2-Berzunți (3.08.2008) 2.Plopu- Dărmănești (27.08.2009); 3,4.Vâlcele –Tg. Ocna.(5.08.2009)						

Floristic bioform spectrum of
Potentilla argenteae – Artemisietum absinthii association Falinski 1965



Floristic element spectrum of
Potentilla argenteae – Artemisietum absinthii association Falinski 1965



- As. *Tanaceto- Artemisietum vulgaris*
Sissingh 1950

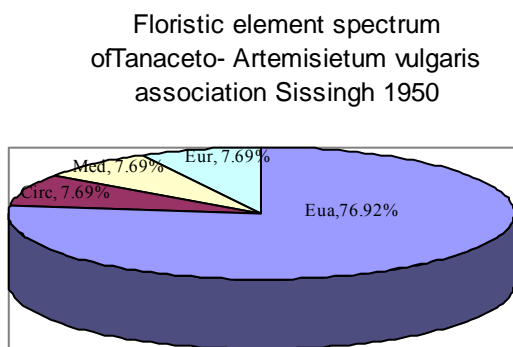
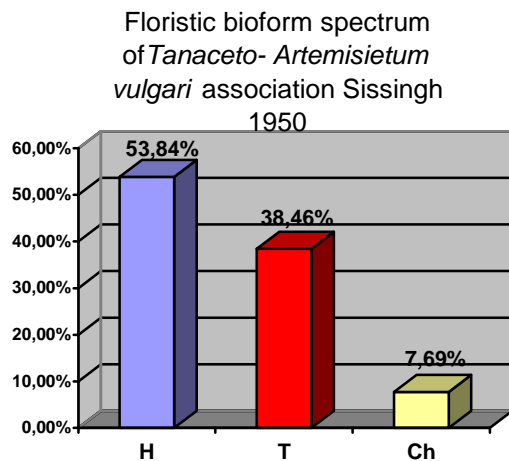
Tansy and mugwort weed group

The phytocenoses of this association have tall weed groups spread on uncultivated fields and hayfields. Among constant species we noticed as abundant *Tanacetum vulgare* and *Artemisia vulgaris* besides frequent species as: *Ballota nigra*, *Conium maculatum*, *Bunias orientalis*, *Arctium lappa*, etc[9].

The analysis of bioforms shows that among species within phytocenoses Hemicryptophytes (H) are obviously dominant with 53,84%, followed by Terophytes (T) with 38,46% and Camephytes (Ch) with 7,69%.

The analysis of floristic elements proves the dominance of eurasian species (Eua) with 76,92%, then follow the circumpolar (Circ), the central-european (Euc) and the mediterranean (Med) having 7,69% each.

Number of survey	1
Altitude (m)	370
Vegetation cover (%)	90
Area (m ²)	50
Number of species	13
Association characteristic	
<i>Tanacetum vulgare</i>	5
<i>Artemisia vulgaris</i>	+
Arction lappae	
<i>Arctium lappa</i>	+
<i>Ballota nigra</i>	+
<i>Bunias orientalis</i>	+
<i>Conium maculatum</i>	+
Artemisietea vulgaris	
<i>Dipsacus laciniatus</i>	+
<i>Solanum dulcamara</i>	+
<i>Myosotis arvensis</i>	+
Variae syntaxa	
<i>Cichorium inthybus</i>	+
<i>Coronilla varia</i>	+
<i>Galium verum</i>	+
<i>Agrimonia eupatoria</i>	+
Place and date of survey realization: Berzunți (3.08.2008)	



Number of survey	1	2	3	4	5	K
Altitude (m)	370	250	250	370	370	
Vegetation cover (%)	60	55	50	55	55	
Area (m²)	25	25	25	25	25	
Number of species	10	6	5	10	6	
Association characteristic						
<i>Tussilago farfara</i>	4	4	4	3	4	V
Molinio- Arrhenatheretea						
<i>Agrostis stolonifera</i>	+	-	1	-	-	II
<i>Lolium perenne</i>	+	1	-	+	-	III
<i>Epilobium plaustre</i>	-	-	-	+	-	I
<i>Lotus corniculatus</i>	-	-	+	-	-	I
<i>Mentha longifolia</i>	-	+	-	-	-	I
<i>Plantago major</i>	-	-	+	+	-	II
<i>Prunella vulgaris</i>	+	-	-	1	-	II
<i>Taraxacum officinale</i>	+	+	-	+	-	III
Onopordetalia et Artemisietea						
<i>Arctium lappa</i>	-	-	-	+	+	II
<i>Cirsium vulgare</i>	+	-	-	-	-	I
<i>Dipsacus laciniatus</i>	-	-	-	+	-	I
<i>Medicago lupulina</i>	+	-	-	-	-	I
<i>Tanacetum vulgare</i>	-	+	-	-	-	I
Galio-Urticetea						
<i>Urtica dioica</i>	+	-	-	-	+	II
<i>Sambucus ebulus</i>	-	-	-	+	-	I
Variae syntaxa						
<i>Althaea officinalis</i>	-	-	-	+	+	II
<i>Elymus repens</i>	1	-	+	-	+	III
<i>Daucus carota</i>	-	+	-	-	-	I
<i>Plantago lanceolata</i>	+	-	-	-	-	I
<i>Ranunculus repens</i>	-	-	-	-	1	I
Spreading: 1. Berzunți (3.08.2008); 2,3. Poieni-Tg. Ocna.(5.08.2009); 4,5. Vâlcele-Tg Ocna.(5.08.2009)						

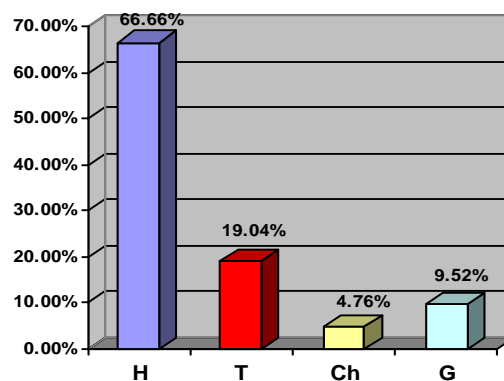
- As. *Poo-Tussilaginetum* Tx. 1931
Coltsfoot weed group

The phytocenoses of *Tussilago farfara* are present on clay fields, crumbled banks, in wet shady places [1]. It is a pioneer association contributing to the attenuation of depth erosion and to the bank stabilisation through the extension of the dominant species *Tussilago farfara* besides *Daucus carota*, *Stellaria media*, *Urtica dioica*, *Taraxacum officinale* etc.

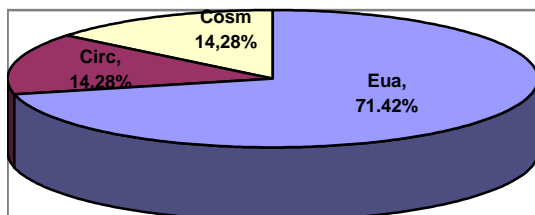
The analysis of bioforms establishes the dominance of Hemicryptophytes (H) with 66,66%, followed by Terophytes (T) with 19,04 %, Geophytes (G) with 9,52% and Camephytes 4,76%.

The analysis of floristic elements indicates that the highest weight belongs to eurasian species (Eua) with 71,42 %, followed by the cosmopolitan (Cosm) and the circumpolar (Circ) having 14,28 % each.

Floristic bioform spectrum *Poo-
Tussilaginetum* association Tx.
1931



Floristic element spectrum of *Poo-Tussilaginetum* association Tx. 1931



- *As. Arctietum lappae* Felföldy 1942

Greater burdock and black horehound weed group

The phytocenoses of this association were identified in villages, growing near fences and in untended yards. They are tall, dense and persistent. We mention some dominant species: *Arctium lappa*, *Arctium tomentosum*, *Leonurus cardiaca*, *Ballota nigra* etc.; besides these *Lamium album*, *Urtica dioica* etc. also participate.

The analysis of bioforms shows that among species within phytocenoses Hemicryptophytes (H) are obviously dominant with 52%, followed by Terophytes (T) with 44% and Geophytes (G) with 4%.

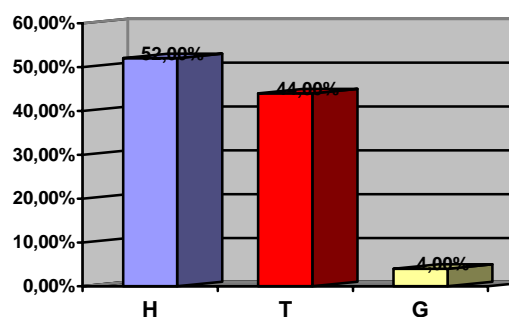
The analysis of floristic elements proves the dominance of eurasian species (Eua) with 60%, followed by adventive (Adv) with 12%, the central-european (Euc), the circumpolar (Circ), the cosmopolitan (Cosm) having 8% each and finally the european (Eur) with 4%.

Number of survey	1	2	3	4	5	K
Altitude (m)	300	460	460	370	370	
Vegetation cover (%)	90	85	90	80	90	
Area (m²)	50	25	50	50	25	
Number of species	13	9	9	10	6	
Association charac						
<i>Arctium lappa</i>	4	4	5	4	4	V
<i>Arction lappae</i>						
<i>Arctium tomentosum</i>	+	+	-	+	-	III
<i>Ballota nigra</i>	+	-	-	1	1	III
<i>Armoracia rusticana</i>	+	-	-	-	-	I
<i>Chelidonium majus</i>	+	+	+	-	-	III
<i>Lamium album</i>	-	-	+	-	-	I
Dauco-Melilotion						
<i>Cichorium inthylus</i>	-	-	-	-	+	I
<i>Datura stramonium</i>	+	-	-	+	-	II
<i>Daucus carota</i>	-	-	-	+	-	I
<i>Linaria vulgaris</i>	+	-	-	+	-	II
<i>Oenothera biennis</i>	-	-	+	-	-	I
Artemisietalia						
<i>Artemisia vulgaris</i>	+	-	-	-	+	II
<i>Cirsium vulgare</i>	1	+	-	-	-	II
<i>Chenopodium bonus-henricus</i>	-	-	+	-	-	I
<i>Dipsacus laciniatus</i>	+	-	-	-	+	

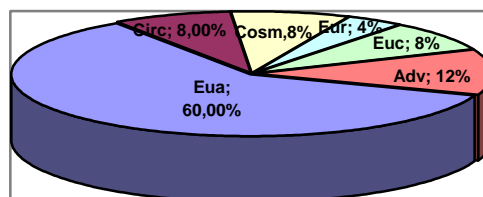
<i>Galium mollugo</i>	-	+	-	-	-	I
<i>Leonurus cardiaca</i>	-	-	-	+	-	I
<i>Tanacetum vulgare</i>	-	-	+	-	-	I
<i>Stellarietea mediae</i>						
<i>Atriplex tatarica</i>	-	-	-	+	-	I
<i>Atriplex patula</i>	+	-	-	-	-	I
<i>Lactuca serriola</i>	-	+	+	-	-	II
<i>Solanum nigrum</i>	-	+	+	-	-	II
<i>Galio-Urticetea</i>						
<i>Urtica dioica</i>	+	1	+	+	-	IV
Variae syntaxa						
<i>Salvia glutinosa</i>	-	+	-	+	-	II
<i>Stachys sylvatica</i>	+	-	-	-	+	II

Place and date of survey realization: 1. Larga-Doftea na (1.09.2008); 2, 3 Cucuieți-Dofteana (1.09.2008); 4,5 Berzuntî (3.08.2008)

Floristic bioform spectrum of *Arctietum lappae* association Felföldy 1942



Floristic element spectrum of *Arctietum lappae* association Felföldy 1942



- *As. Hyoscyamo - Conietum maculati* Slavnić 1951

Hemlock weed group

The phytocenoses of this association can be met near villages in places covered with manure. Except *Conium maculatum*, which grows above 2 m, realizing a 75-100% cover, we can mention a smaller number of species as: *Arctium lappa*,

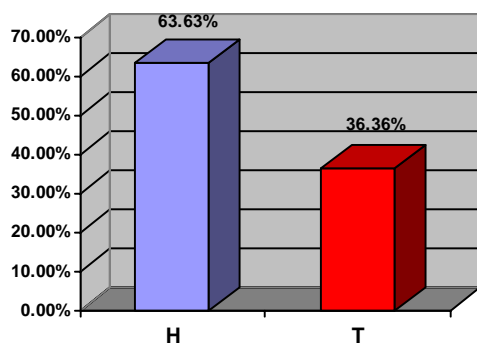
Leonurus cardiaca, *Ballota nigra*, *Lamium maculatum* etc.

The analysis of bioforms indicates the predominance of Hemicryptophytes (H) with 63,63%, followed by Terophytes (T) with 36,36%.

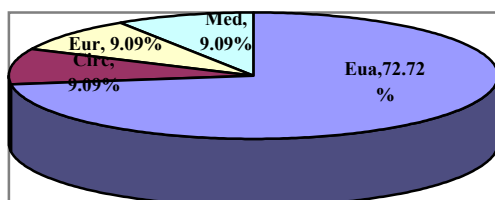
The analysis of floristic elements proves the dominance of eurasian species (Eua) with 72,72%, followed by the circumpolar (Circ), the european (Eur) and the mediterranean (Med) having 9,09% each.

Number of survey	1	2
Altitude (m)	260	400
Vegetation cover (%)	80	95
Area (m ²)	50	25
Number of species	9	8
Association characteristic		
<i>Conium maculatum</i>	5	5
Arction lappae		
<i>Arctium lappa</i>	+	+
<i>Ballota nigra</i>	+	
<i>Rumex obtusifolius</i>	+	-
<i>Lamium maculatum</i>	-	+
Artemisietalia		
<i>Artemisia vulgaris</i>	+	+
<i>Dipsacus laciniatus</i>	-	+
<i>Leonurus cardiaca</i>	-	+
<i>Tanacetum vulgare</i>	+	-
Variae syntaxa	+	
<i>Daucus carota</i>	+	+
<i>Trifolium repens</i>	+	+
Place and date of survey realization: 1. Poieni- Tg. Ocna(5.08.2009); 2.Valea Șoșii- Poduri (3.08.2008)		

Floristic bioform spectrum of Hyoscyamo
- *Conietum maculati* association Slavnić
1951



Floristic element spectrum of
Hyoscyamo - *Conietum maculati*
association Slavnić 1951



- As. *Lepidietum drabae* Timar 1950

Whitetop weed group

The phytocenoses of *Lepidium draba* constitute a ruderal-segetal association because it is met on the margin of the roads, paths, untended yards and agricultural fields.

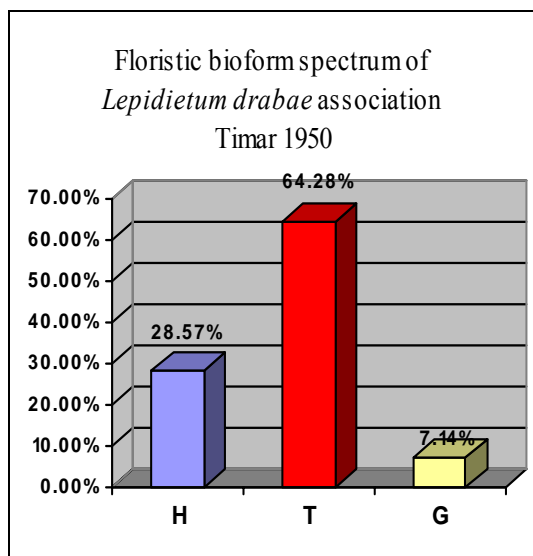
The dominant species is *Lepidium draba* with a 50-80% cover. Although they do not occupy large areas (50-100 m) they are very dense.

The floristic composition of this association is not too varied; among the species found we can mention: *Lepidium campestre*, *Arenaria serpyllifolia*, *Capsella bursa-pastoris*, *Artemisia vulgaris*, *Consolida regalis* etc.

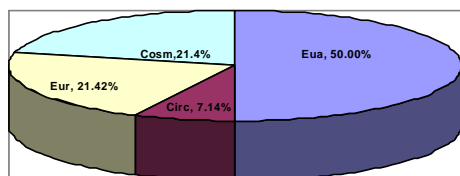
The analysis of bioforms indicates the predominance of Terophytes (T) with 64,28%, followed by Hemicryptophytes (H) with 28,57% and Geophytes (G) with 7,14%.

The analysis of floristic elements proves the dominance of eurasian species (Eua) with 50%, followed by cosmopolitan (Cosm) and the european (Eur) having 21,42% each, then the circumpolar (Circ) with 7,14%.

Number of survey	1	2	3
Altitude (m)	455	455	460
Vegetation cover (%)	80	70	60
Area (m ²)	50	50	50
Number of species	7	9	8
Association characteristic			
<i>Cardaria draba</i>	4	4	4
Arction lappae			
<i>Rumex obtusifolius</i>	+	-	-
Onopordetalia acanthii			
<i>Echium vulgare</i>	-	+	+
Stellarietea mediae			
<i>Asperugo procumbens</i>	+	-	+
<i>Atriplex tatarica</i>	-	+	+
<i>Chenopodium album</i>	-	+	-
<i>Lamium amplexicaule</i>	1	-	-
<i>Lepidium campestre</i>	+	-	-
<i>Lolium perenne</i>	-	+	-
<i>Malva pusilla</i>	+	+	-
<i>Stellaria media</i>	-	-	+
<i>Sysimbrium officinale</i>	-	+	+
Variae syntaxa			
<i>Elymus repens</i>	+	1	+
<i>Taraxacum officinale</i>	-	+	+
Place and date of survey realization: 1, 2 Buda-Berzunți (20.05.2009); 3. Sf. Sava Monastery (20.05.2009)			



Floristic element spectrum of
Lepidietum drabae association Timar
1950



- As. *Hordeetum murini* Libbert 1933
Wall barley weed group

It forms phytocenoses with a summery presence, which populate road margins, sunny dry places frequently trodden by man. The characteristic species *Hordeum murinum* is dominant; besides other species vegetate such as: *Atriplex tatarica*, *Lepidium ruderales*, *Cynodon dactylon* etc.

The analysis of bioforms shows the predominance of Terophytes (T) cu 58,82%, followed by Hemicryptophytes (H) with 23,52%, Geophytes (G) with 11,76% and Camephytes (Ch) with 5,88%.

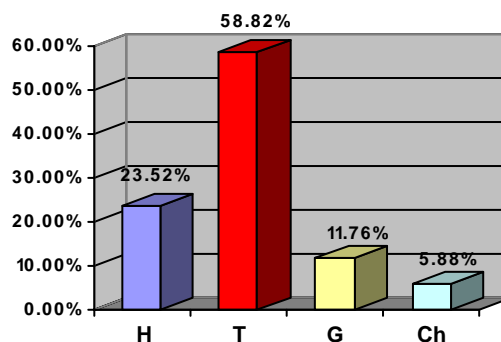
The analysis of floristic elements indicates the predominance of the eurasian species (Eua) with 41,17%, followed by the cosmopolitan species (Cosm) with 29,41%, the european (Eur) with 17,64%, the circumpolar (Circ) and the mediterranean (Med) having 5,88% each.

Number of survey	1	2	3
Altitude (m)	455	455	460
Vegetation cover (%)	80	85	80
Area (m ²)	25	25	25
Number of species	7	8	10
Association character.			
<i>Hordeum murinum</i>	5	4	5
Sysimbrion officinalis			
<i>Asperugo procumbens</i>	+	-	-

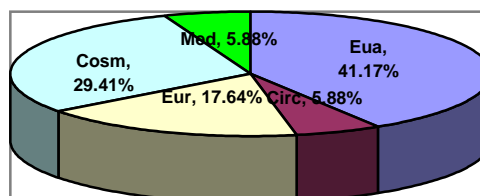
<i>Crepis biennis</i>	-	-	+
<i>Cardaria draba</i>	-	+	+
<i>Echium vulgare</i>	+	+	-
<i>Sisymbrium officinale</i>	-	+	-
<i>Chenopodieta albi</i>			
<i>Setaria viridis</i>	+	+	-
<i>Stelarietea mediae</i>			
<i>Capsella bursa-pastoris</i>	-	1	+
<i>Convolvulus arvensis</i>	-	-	1
<i>Geranium pusillum</i>	+	-	-
<i>Stellaria media</i>	-	+	+
<i>Artemisietea</i>			
<i>Arctium lappa</i>	+	-	-
<i>Artemisia absinthium</i>	-	-	+
<i>Ballota nigra</i>	-	-	+
<i>Marrubium vulgare</i>	-	+	-
<i>Variae syntaxa</i>			
<i>Elymusrepens</i>	1	-	+
<i>Poa annua</i>	-	-	+

Place and date of survey realization: 1, 2 Buda-Berzunți (3. 08. 2008); 3. Sf. Sava Monastery(3. 08. 2008)

Floristic bioform spectrum of
Hordeetum murini association
Libbert 1933



Floristic element spectrum of
Hordeetum murini association Libbert
1933



- As. *Cynodonto – Atriplicetum tataricae* Morariu 1943

Tatarian orache weed group

The association is spread on paths, on the margins of roads and well lighted yards with a dry trodden surface. It is a compact weed group comprising 20-50 plants/m², mostly formed by the dominant species *Atriplex tatarica*; besides there can be frequently met: *Lepidium draba*, *Lactuca serriola*, *Amaranthus retroflexus*, *Elymus repens*, *Tanacetum vulgare* etc[11].

The analysis of bioforms indicates the predominance of Terophytes (T) cu 62,5%, followed by Hemicryptophytes (H) cu 27,5%, Geophytes (G) and Camephytes (Ch) having 5% each.

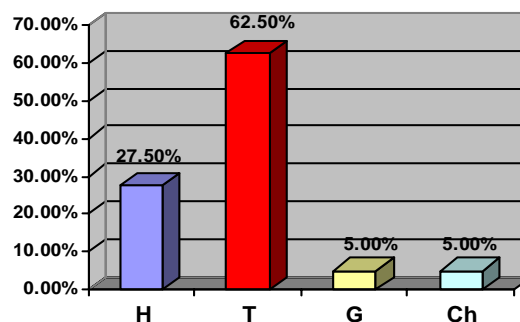
The analysis of floristic elements proves the dominance of eurasian species (Eua) with 21,05%, followed by the european species (Eur) and the cosmopolitan (Cosm) having 17,5% each, the adventive (Adv) with 10%, the circumpolar (Circ), the mediterranean (Med) and the central-european (Euc) having 2,5% each.

Number of survey	1	2	3	4
Altitude (m)	360	360	300	300
Vegetation cover (%)	90	85	90	85
Area (m ²)	25	25	25	25
Number of species	14	13	16	16
Association characteristic				
<i>Atriplex tatarica</i>	5	5	5	4
Sisymbrium officinale				
<i>Amaranthus retroflexus</i>	+	+	+	+
<i>Asperugo procumbens</i>	-	-	-	+
<i>Crepis biennis</i>	-	-	+	-
<i>Echium vulgare</i>	-	-	+	-
<i>Lepidium ruderalis</i>	1	-	+	-
<i>Sisymbrium officinale</i>	-	-	-	+
Atriplicetum nitentis				
<i>Echinochloa crus-galii</i>	+	+	-	-
<i>Iva xanthifolia</i>	-	-	+	-
<i>Solanum nigrum</i>	+	-	+	-
Sisymbrietalia				
<i>Bromus sterilis</i>	-	-	-	1
<i>Datura stramonium</i>	+	+	-	-
<i>Lactuca serriola</i>	+	-	-	-
<i>Lepidium campestre</i>	+	-	-	-
<i>Thlaspi arvense</i>	-	-	-	+
Chenopodieta albi				
<i>Scleranthus annuus</i>	-	-	-	+
<i>Setaria viridis</i>	-	+	+	-
Stelarietia mediae				
<i>Convolvulus arvensis</i>	-	-	1	-
<i>Geranium pusillum</i>	-	-	-	+
<i>Senecio vulgaris</i>	-	-	+	-
<i>Stellaria media</i>	-	1	+	+
Artemisietia				
<i>Arctium lappa</i>	-	+	-	-
<i>Artemisia absinthium</i>	+	-	-	-
<i>Ballota nigra</i>	-	-	-	+
<i>Berteroa incana</i>	+	-	-	-
<i>Carduus acanthoides</i>	-	-	-	+
<i>Erigeron annuus</i>	-	-	+	-
<i>Malva sylvestris</i>	+	-	-	-

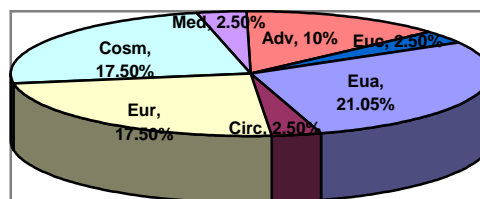
<i>Tanacetum vulgare</i>	-	-	+	-
Festuco-Brometia				
<i>Achillea setacea</i>	+	-	-	-
<i>Elymus repens</i>	-	+	+	+
<i>Medicago minima</i>	-	+	-	-
<i>Plantago media</i>	-	+	-	-
Molinio-Arhenatheretia				
<i>Achillea millefolium</i>	+	+	-	-
<i>Cichorium intybus</i>	-	+	+	-
<i>Dactylis glomerata</i>	-	-	-	+
<i>Daucus carota</i>	-	-	-	+
<i>Lolium perenne</i>	-	-	-	+
<i>Polygonum aviculare</i>	-	+	+	-
<i>Prunella vulgaris</i>	+	-	-	-

Place and date of survey realization: 1, 2. Brătești-Bărsănești (6.08.2009); 3,4. Larga-Dofteana (19.07.2009)

Floristic bioform spectrum of *Cynodonto –Atriplicetum tataricae* association Morariu 1943



Floristic element spectrum of *Cynodonto –Atriplicetum tataricae* association Morariu 1943



- As. *Malvetum pusillae* Morariu 1943

Low mallow weed group

This association is spread on road margins, near houses and in yards, where the soil is rich in decaying organic substances. It develops on sunny dry fields, trodden by birds [2]. Besides the dominant species *Malva pusilla*, which can have an exclusive presence, *Polygonum aviculare*,

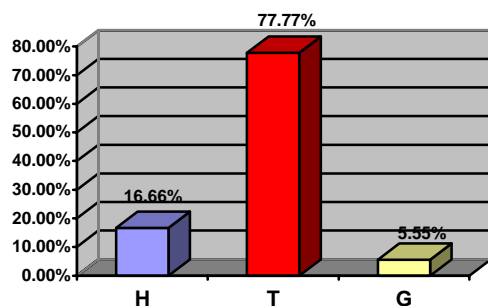
Capsella bursa-pastoris, *Lepidium ruderae*, *Echium vulgare* etc. also appear.

The analysis of bioforms indicates the predominance of Terophytes (T) with 77,77%, followed by Hemicryptophytes (H) with 16,66% and Geophytes (G) with 5,55%.

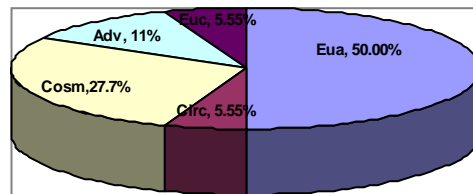
The analysis of floristic elements proves the dominance of eurasian species (Eua) with 50%, followed by the cosmopolitan (Cosm) with 27,77%, the adventive (Adv) with 11,11%, the circumpolar (Circ) and the central-european (Euc) having 5,55% each.

Number of survey	1	2	3	4
Altitude (m)	370	370	460	460
Vegetation cover (%)	90	95	90	95
Area (m ²)	25	25	25	25
Number of species	7	5	9	9
Association characteristic				
<i>Malva pusilla</i>	4	5	4	4
<i>Sisymbrium officinale</i>				
<i>Echium vulgare</i>	-	-	+	-
<i>Lepidium ruderae</i>	+	-	-	+
<i>Matricaria perforata</i>	+	-	-	-
<i>Atriplicion nitentis</i>				
<i>Amaranthus retroflexus</i>	-	-	-	+
<i>Solanum nigrum</i>	-	-	-	+
<i>Sisymbrietalia</i>				
<i>Datura stramonium</i>	-	-	-	+
<i>Lactuca serriola</i>	-	-	+	-
<i>Stellarietea mediae</i>				
<i>Cardaria draba</i>	-	-	+	1
<i>Lamium purpureum</i>	-	+	+	-
<i>Stellaria media</i>	+	+	1	-
<i>Molinio-Arrhenatheretea</i>				
<i>Elymus repens</i>	1	+	+	-
<i>Medicago lupulina</i>	+	-	-	-
<i>Plantago major</i>	-	-	-	+
<i>Poa annua</i>	+	-	-	-
<i>Polygonum aviculare</i>	-	+	1	+
<i>Trifolium repens</i>	-	-	+	-
<i>Variae syntaxa</i>				
<i>Capsella bursa-pastoris</i>	-	-	-	1
Place and date of survey realization: 1,2. Vâlcele- Tg. Ocna (5.08.2007); 3,4. Cucuiești-Dofteana (19.07.2009)				

Floristic bioform spectrum of
Malvetum pussilae association
Morariu 1943



Floristic element spectrum of
Malvetum pussilae association
Morariu 1943



CONCLUSIONS

The ruderal and segetal vegetal associations belonging to ARTEMISIETEA VULGARIS Lohmeyer et al. ex von Rochow 1951 class in Berzunți Mountains area, Bacău County, have a floristic composition influenced by the anthropic factor. The 10 vegetal cenotaxa identified, grouped in 3 orders and 7 alliances, prove the fact that this weed groups can be classified in the types of anthropic vegetation in Moldova area.

ABSTRACT

The study underlines the presence of 10 ruderal and segetal vegetal associations belonging to ARTEMISIETEA VULGARIS Lohmeyer et al. ex von Rochow 1951 class. These vegetal cenotaxa were identified in the Berzunți Mountains area, Bacău County. All vegetal associations described are accompanied by phytocenological tables, floristic elements, geoelement analyses and graphics.

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REFERENCES

1. BARABAȘ N., 1974 - Contribuții la studiul vegetației din Bazinul Tazlăului, St. Com.Muz. Șt. Nat. Bacău. 7: 93-178
2. BARABAȘ N., 1978 - Noi contribuții la studiul florei și vegetației din Bazinul Tazlăului, Muz. Șt. Nat. Bacău. Stud. și Comunic., 1976-1977, 9-10: 163-192
3. BRÂNDUȘ C., 1981 - Subcarpații Tazlăului. Studiu geomorfologic, Editura Academiei Republicii Socialiste România, București: 113-128

4. CHIFU T., MÂNZU C., ZAMFIRESCU OANA, 2006 - Flora și vegetația Moldovei (România), vol. I și II. Editura Universității "Alexandru Ioan Cuza" Iași
5. CIOCÂRLAN V., 2000 - Flora ilustrată a României. Pteridophyta et Spermatophyta. Ediția a II-a revizuită și adăugită, Editura Ceres, București
6. CRISTEA V., GAFTA D., PEDROTTI FR., 2004 - Fitosociologie, Editura Presa Universitară Clujeană, Cluj-Napoca
7. MARIN M., 1999 - Depresiunea Subcarpatică Tazlău-Cășin. Studiu pedogeografic, Editura Corson, Iași
8. MITITELU D., BARABAȘ N., 1975 - Caracterizarea geobotanică a Văii Troțușului. Stud. și Comunic., 8, Muz. Șt. Nat. Bacău: 163-218
9. MITITELU D., BARABAȘ N., 1978 - Flora și vegetația județului Bacău, Stud. și Comunic. 1976-1977, 9-10, Muz. Șt. Nat. Bacău.:193-272
10. MITITELU D., BARABAȘ N., BÂRCĂ C., COSTICĂ M., 1994 - Contribuții noi la cunoașterea florei și vegetației județului Bacău. Stud. și Comunic. 1980-1993, 13, Muz. Șt. Nat. Bacău.:81-108
11. MITITELU D., BARABAȘ N., 1972 - Vegetația Văii Troțușului (II) (Sectorul Tg. Troțuș-Dărmănești). Muz. Șt. Nat. Bacău. Stud. și Comunic.: 159-176
12. PUȘCARCIUC MARELENA, PUȘCARCIUC R., 2005 - 101 drumeții în bazinul median al Văii Troțușului, Editura Renaissance, București
13. PUȘCARCIUC MARELENA, PUȘCARCIUC R., 2007 - Culmea Berzunți: Creasta principală, Revista Invitație în Carpați, nr. 82. oct. (www.iic.ro).
14. SANDA V., POPESCU A., STANCU DANIELA ILEANA, 2001 - Structura cenotică și caracterizarea ecologică a fitocenozelor din România, Editura Conphis
15. SANDA V., POPESCU A., BARABAȘ N., 1997 - Cenotaxonomia și caracterizarea grupărilor vegetale din România, Stud. și Comunic., vol.14, Muz. Șt. Nat. Bacău
16. SANDA., BIȚĂ-NICOLAE CLAUDIA, BARABAȘ N., 2003 - Flora cormofitelor spontane și cultivate din România, Editura „Ion Borcea”, Bacău
17. ȘTEFAN N., 2005 - Fitocenologie și Vegetația României, Editura Universității „Al. I. Cuza” Iași

AUTHORS' ADDRESS

ARDEI IRINA MĂDĂLINA - "Ion Borcea" Natural Sciences Museum Complex, Bacău, Romania
e-mail: irinahaidau@yahoo.com