

ECOLOGICAL STUDY OF LAPUS COUNTRY

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ABSTRACT. The aim of this study is the treatment done in a modern vision of the theoretical and practical Lapus Country phytosociologically and ecologically. The scientific novelty of the investigation was to achieve cenotaxonomy. The region stockings under study regard field identification and description of several plant associations in the study area. Also, drafting tables and graphs comparative analytic characterization allowed cenotaxonomic and ecological plant associations. A useful tool in the analysis of ecological categories of plants are values corresponding indicator and the main ecological factors that are found in both floristic list totals 1,212 plant tax belonging cormophyte and the analytical tables of plant associations described in the study.

Keywords: ecological indices, edaphic humidity, temperature, soil reaction, flora, plant associations, ecodiagram

INTRODUCTION

Lapus Country is characterized by a complex geological structure that led to the development of various landforms and extremely picturesque landscape comprising three units: the lowland, dominated by depression Lapus, the hilly and mountainous areas.

The existence of a rich and varied vegetation, grouped in different types of state is the result of environmental influences, the variety of landforms with significant differences of their level, the types of soil, the geomorphological complexity, the anthropomorphic and anthropological influences. The region presented in the study is within the moderate continental type of climate, fairly cool, water mountainous areas.

MATERIALS AND METHODS

Flora and vegetation of this researched field observed and interpreted the results achieved in terms of asking and requiring the ecological and phytosociological study.

Floral inventory of the Lapus land was made both on the basis of studies in the subject of research, as well as on the summary data available in the literature. For ecological interpretation the floristic diversity we have achieved a description of taking into account the ecological values of: moisture, temperature, soil reaction. Share of species with specific ecological valence to the factors U, T, R, we represented her both numerically and graphically as environmental spectrum.

Ecological behavior of plant associations we have analyzed according to the main ecological indices: U, T, R, corresponding work developed Ș. Csürös et al., 1970, V. Sanda et al., 1983, V. Cristea et al., 2004. The values of these indices were noted based on the data presented G. Ardelean, C. Karácsonyi, 2005, A. Ardelean, 2006, V. Ciocârlan, 2009.

The ecological characterization of plant groups have developed ecodiagrams bringing together information on the valence species to edaphic moisture,

air temperature, soil reaction and abundance-dominance of each environmental category.

For interpretation of U, T, R, we correlate information relating to the natural environment, the history of vegetation, the intensity of anthropogenic activities in quantitative and qualitative structure phytocenoses and their dynamic stage (V. Cristea et al., 2004).

RESULTS AND DISCUSSIONS

Species identified in the study were analyzed according to their behavior towards the main ecological factors: moisture (U), temperature (T) and chemical soil reaction (R).

These environmental factors play in their interpretation numerical spectral weight organic species specific meanings to U, T, R, and interpretation of the values we performed according to information on the natural history of vegetation and anthropogenic influences.

The results are relevant to the ecological character of the flora and its consistency with the climate and with the pedogenesis substrate (table 1, figure 1).

Thus, according to the rules of moisture there is a dominance it is mesophilic species (41.66%), followed by dry mouth it is mesophilic (28.02%), and it is mesohydrophilic (17.85%). And smaller hydrophilic species it is found (4.75%), it is xerophilic (3.35%), amfitolerante (3.24%), and it is hydrophilic (1.08%).

The high percentage of mesophilic species is consistent with extensive areas of mountain and hilly meadows where mesophilic grow as: *Agrostis tenuis*, *Alchemilla glaucescens*, *Anthriscus sylvestris*, *Astragalus cicer*, *Astrantia major*, *Cerastium brachypetalum*, *Clematis alpina*, *Corydalis solida*, *Cynosurus cristatus*, *Dactylis glomerata*, *Festuca rubra*, *Fragaria vesca*, *Helleborus purpurascens*, *Ligusticum mutellina*, *Linum catharticum*, *Lotus pedunculatus*, *Lychnis viscaria*, *Pastinaca sativa*, *Poa alpina*, *P. pratensis*, *Potentilla inclinata*, *Ranunculus platanifolius*, *Rumex acetosa*, *R. kernerii*, *Saxifraga*

aizoides, Silene dioica, Stellaria graminea, Thalictrum minus, Trifolium montanum, Trifolium pratense.
Mention of woody species: *Acer platanoides, Betula*

pendula, Carpinus betulus, Corylus avellana, Crataegus monogyna, Fagus sylvatica, Quercus petraea.

Table 1

Statistics species grouped by main ecological indices													
Ind. ecol.		1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	0
U	Nr.	10	21	140	119	297	88	121	44	43	1	10	30
	%	1,08	2,27	15,15	12,87	32,14	9,52	13,09	4,76	4,65	0,10	1,08	3,24
T	Nr.	12	6	95	38	464	74	79	2	8	-	-	146
	%	1,29	0,64	10,28	4,11	50,21	8,00	8,55	0,21	0,86	-	-	15,80
R	Nr.	24	-	57	-	250	-	317	-	34	-	-	242
	%	2,58	-	6,16	-	27,04	-	34,30	-	3,68	-	-	26,19

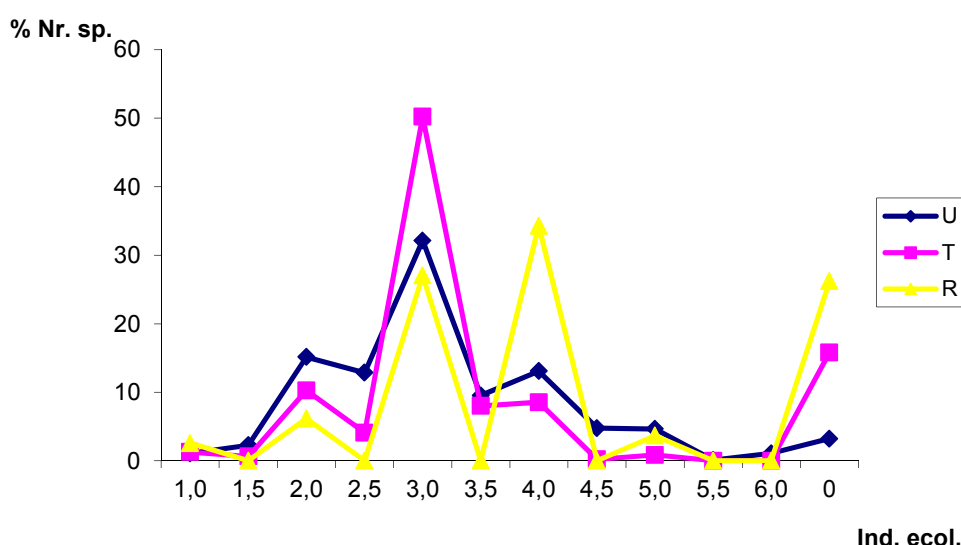


Fig. 1. The spectrum of vascular flora of ecological indicators the Lapus Country

Xero-mesophile species exhibit occupies the southern slopes of the highlands eroded or even those on the southern coast rocky mountain: *Acinos alpinus, Anagallis arvensis, Asperula cynanchica, Arenaria serpyllifolia, Cerastium pumilum, Coronilla varia, Cornus mas, Dianthus barbatus, D. carthusianorum, Euphorbia cyparissias, Festuca ovina, F. rupicola, Fragaria viridis, Holosteum umbellatum, Minuartia verna, Oenothera biennisi, Phleum montanum, Poa bulbosa, Polygala comosa, P. major Potentilla arenaria, P. leucopolitana, Rosa canina, R. gallica, Rumex acetosella, Saxifraga carpathica, Scleranthus annuus, Sedum maximum, Silene acaulis, S. nutans, Trifolium pannonicus.*

Depending on the temperature most species belong to the category micro-mesothermal (58.21%), followed by the large difference in species micro-terme (14.39%) and amfitolerante (15.80%). Most common species encountered micro-mesothermal the Land of Lapus are: *Abies alba, Achillea colina, Alopecurus pratensis, Alnus glutinosa, Anemone ranunculoides,*

Arum maculatum, Briza media, Calamagrostis arundinacea, Campanula glomerata, C. patula, Carex montana, C. spicata, C. sylvatica, Carpinus betulus, Carum carvi, Cirsium canum, Crepis biennis, C. paludosa, Crucjata laevipes, Cynosurus cristatus, Daucus carota, Dentaria bulbifera, Erigeron acer, Fagus sylvatica, Festuca drymeja, F. rupicola, F. sylvatica, Fragaria vesca, Fritillaria meleagris, Galanthus nivalis, Galium aparine, Geranium pratense, G. robertianum, Hieracium transsilvanicum, Hypericum maculatum, Holcus lanatus, Linaria vulgaris, Lolium perenne, Melica picta, Milium effusum, Mycelis muralis, Oxalis acetosella, Petasites kablikianus, Picea abies, Poa nemoralis, Primula vulgaris, Prunella laciniata, Ranunculus arvensis, R. ficaria, Rosa canina, Rubus hirtus, R. idaeus, Rumex crispus, Salix caprea, S. purpurea, Sanicula europaea, Stachys palustris, Trifolium campestre, T. medium, Urtica dioica, Veratrum album, Veronica urticifolia, Viola hirta.

Table 2. As. Saponario-Salicetum purpureae (Br.-Bl. 1930) Tschou 1946

					No. surveying	1	2	3	4	5	6	7	8	9	10	K
					Area (m ²)	100	100	100	100	100	100	100	100	100	100	
					Covering (%)	80	90	90	100	80	100	80	70	90	90	
					Altitude (m)	240	250	340	320	350	330	260	260	280	300	
Biof.	El. flor.	U	T	R	Exhibition	E	E	NE	NE	E	E	NE	NE	N	NE	
					Inclination (°)	5	5	5	5	5	5	5	5	5	5	
CHAR. ASS.																
nPh	Eua	5	3	4	<i>Salix purpurea</i>	4	5	5	4	3	5	4	5	4	2	V
H	Eua	3	3	0	<i>Saponaria officinalis</i>	1	+	+	+	1	+	+	+	+	-	V
SALICETALIA PURPUREAE ET SALICETEA PURPUREAE																
Th	Adv	4	0	4	<i>Echinocystis lobata</i>	+	+	-	-	-	-	+	-	-	-	II
H-Hh	Cosm	4	2,5	0	<i>Lythrum salicaria</i>	+	+	+	-	-	-	-	+	-	-	III
Hh	Cosm	5	0	4	<i>Phragmites australis</i>	+	-	-	-	-	+	-	-	-	+	II
H	Eua	4	0	0	<i>Ranunculus repens</i>	+	+	-	-	+	-	-	-	+	-	III
H	Eua	4	3	0	<i>Rumex crispus</i>	-	+	-	-	-	-	+	-	-	-	I
Ph	Ec	4	3	4	<i>Salix eleagnos</i>	-	-	+	-	-	-	-	+	-	-	I
H	Cosm	3	3	4	<i>Urtica dioica</i>	-	+	-	+	+	-	-	-	-	+	III
POPULETALIA																
H	Eua	3,5	3	4	<i>Cucubalus baccifer</i>	-	-	-	+	+	+	-	-	-	-	II
H	Eua	4	3	3	<i>Eupatorium cannabinum</i>	+	+	-	-	-	-	-	-	+	-	II
Hh	Eua	5	3	0	<i>Lycopus europaeus</i>	-	-	+	+	+	-	+	-	-	-	III
Th	Eua	4,5	3	0	<i>Polygonum persicaria</i>	-	+	+	+	-	-	-	-	-	+	III
VARIAE SYNTAXA																
G	Cp	0	0	0	<i>Agropyron repens</i>	-	+	-	-	+	-	-	+	-	-	II
H	Cp	4	0	0	<i>Agrostis stolonifera</i>	+	-	+	+	+	-	-	-	+	+	IV
Hh	Cosm	6	0	0	<i>Alisma plantago-aquatica</i>	-	+	-	+	-	-	-	-	+	-	II
H	Eua	4	3	3	<i>Angelica sylvestris</i>	+	-	+	+	-	+	+	-	-	-	III
H-Ch	Cp	2,5	3	4	<i>Artemisia vulgaris</i>	+	+	-	-	-	-	-	-	-	+	II
Th	Eua	4,5	3	0	<i>Bidens tripartita</i>	+	-	-	+	-	+	-	-	-	-	II
Th	Eua	3	4	0	<i>Brassica nigra</i>	-	+	+	-	-	-	-	+	-	-	II
G	E	0	3	0	<i>Carex hirta</i>	+	-	-	-	-	-	+	+	-	-	II
Th	Cosm	4	0	3	<i>Echinochloa crus-galli</i>	-	-	+	+	-	-	-	-	+	+	III
G	Cp	5	2	0	<i>Equisetum palustre</i>	-	+	-	-	-	+	-	-	-	-	I
H	Cosm	4,5	3	3	<i>Juncus effusus</i>	+	+	-	-	+	-	-	+	-	-	III
TH-H	Eua	3	4	4	<i>Pastinaca sativa</i>	-	-	+	+	-	-	-	+	-	-	II
H	sM	3	0	0	<i>Plantago lanceolata</i>	-	+	-	-	-	-	-	-	-	+	I
H	E	4	3	4	<i>Rorippa sylvestris</i>	-	+	-	-	-	-	+	-	-	-	I
H	Eua	3	0	0	<i>Taraxacum officinale</i>	+	+	-	-	-	-	+	-	-	-	II
H	Eua	3	3	5	<i>Trifolium fragiferum</i>	+	-	-	-	-	-	-	-	+	-	I
G-Hh	Cosm	6	3,5	0	<i>Typha latifolia</i>	-	-	+	-	-	-	-	-	+	-	I

Place and date of surveying: 1.-2. Răzoare 24.07.2009, 3.-4. Dobric 25.07.2009, 5.-6. Stoiceni 25.07.2009, 7.-8. Borcut 25.07.2009, 9.-10. Vima Mică 24.07.2009.

Plant preferences corresponding to the chemical reaction of the soil, of the species present in the region dominates the plants low-neutrophil acid (34.30%),

with the addition of significant values, the species, neutrophils acid (27.04%) and eurionice (26.19%). couple of weak acid-neutrophils dominant species

found in the study area are: *Agrimonia eupatoria*, *Allium ursinum*, *Alnus incana*, *Anthriscus sylvestris*, *Arctium lappa*, *Arrhenatherum elatius*, *Asarum europaeum*, *Astragalus glycyphyllos*, *Carex montana*, *C. sylvatica*, *Chelidonium majus*, *Cirsium canum*, *C. oleraceum*, *Consolida regalis*, *Coronilla varia*, *Cornus mas*, *C. sanguinea*, *Crepis biennis*, *Euphorbia cyparissias*, *Dactylis glomerata*, *Dentaria bulbifera*, *Dipsacus laciniatus*, *Festuca rupicola*, *Fraxinus excelsior*, *Galanthus nivalis*, *Galeopsis ladanum*, *Geum urbanum*, *Helleborus purpurascens*, *Hieracium transsilvanicum*, *Impatiens noli-tangere*, *Lamium maculatum*, *Ligusticum mutellinoides*, *Linum catharticum*, *Lithospermum officinale*, *Mentha longifolia*, *Pastinaca sativa*, *Potentilla anserina*, *P. recta*, *Primula elatior*, *Ranunculus sardous*, *Rorippa sylvestris*, *Rumex alpinus*, *R. sanguineus*, *Salix purpurea*, *Sanguisorba minor*, *Scilla bifolia*, *Sedum telephium*, *Silene gallica*, *S. pusilla*, *Thalictrum aquilegifolium*, *Trifolium alpestre*, *Tussilago farfara*, *Urtica dioica*, *Viola hirta*, *Viola odorata*.

To highlight the diversity or homogeneity of the ecological requirements of the species collected in phytocenosis I chose to plant associations suggestive description of four Lapus Country.

As. *Saponario-Salicetum purpureae* (Br.-Bl. 1930) Tschou 1946 (Syn.: *Salicetum purpureae* (Soó 1930) Wendelberger-Zelinka 1952) phytocenosis include red osier are present along the valleys, in the form of belts or small groves near the water. We identified this association in the meadow on the banks Lapus and its tributaries, Stoiceni and Dobric Driven alluvial soils, sandy soils. Phytocenosis totaling 30 species analyzed (table 2).

Ecological characterization revealed that the mezo-hydrophytes are the most numerous (44.82%), the high percentage found in red wicker mesophilic associations (24.15%). Hydrophytes (13.80%) and hydrophytes (6.90%) are fewer in number (figure 2). Their presence is explained by keeping water in the habitat for most of the year. From the thermal point of view, the micro-mesothermal have the highest numerical value (55.17%), as a result of their being situated species amfitolerante (31.03%). Compared to the chemical reaction of the soil near eurionice species, which are the majority (51.72%) in phytocenosis with red wicker vegetate chiefly neutrophils and species-poor acid (31.03%).

In the eco-diagram the association of *Saponario-Salicetum purpureae* (figure 3) appears mezo-hydrophytes nature, micro-meso and amfitolerant the meadows populated by the water meadows.

As. *Salicetum albae* Issler 1924 (Syn.: *Salicetum albae-fragilis* R. Tüxen 1934) Lapus is present in the meadow, in the area Razoare and Targu Lapus and Lapus Gorge, where most often forms a narrow belt along the River Lapus and less dense water meadows. Phytocenosis totaling 60 species analyzed (table 3).

The analysis of ecological indicators (figure 4) that the association is of a mesophilic (48.33%), the micro-

mesothermal (66.66%) and has an acid reaction, neutrophil (35.00%).

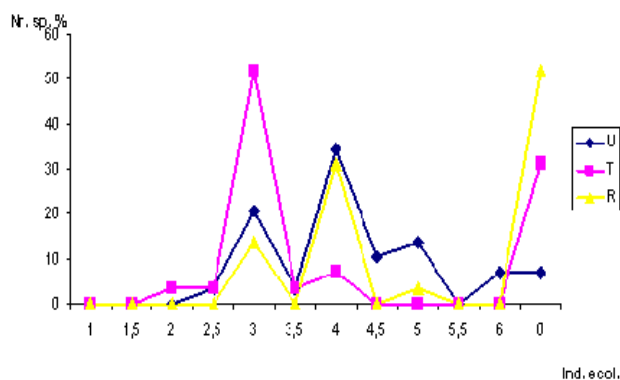


Fig. 2. Spectrum of ecological association *Saponario-Salicetum purpureae*

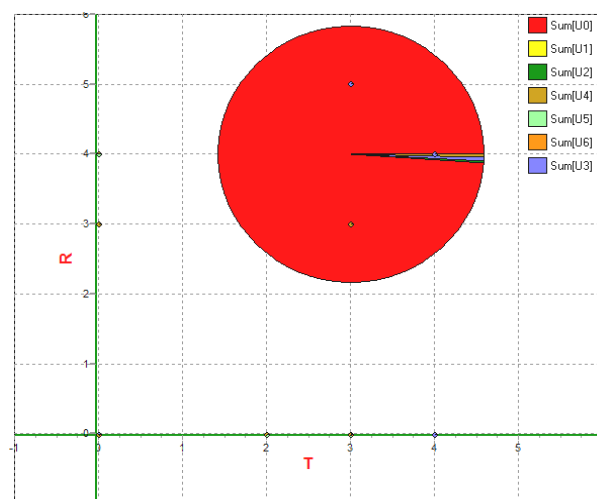


Fig. 3. Ecodiagrama of association *Saponario-Salicetum purpureae*

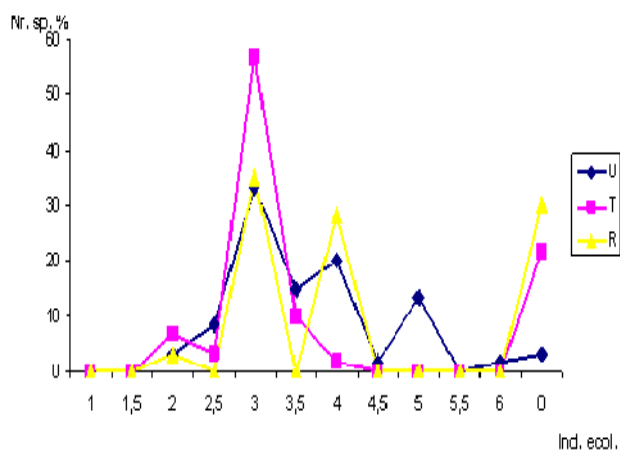


Fig. 4. Spectrum of ecological association *Salicetum albae*

In the eco-diagram (figure 5) there appears the meso-hydrophilic character mesophilic, micro-mesothermal and the neutrophil acid phytocoenoses willows. Due to the seasonal fluctuations of the water regime in these associations vegetate and xero-mesophile species and hydrophilic.

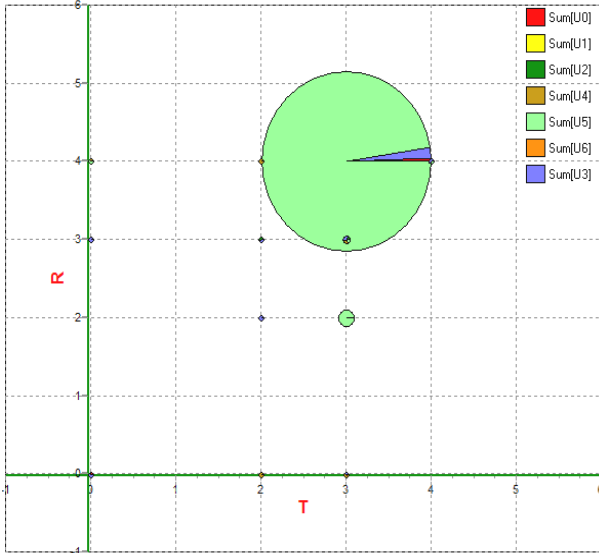


Fig. 5. Ecodiagrama asociației *Salicetum albae*

As. *Luzulo albidiae-Fagetum sylvaticae* Zólyomi 1955, includes as tocenozele association that were installed on highly inclined slopes with acidic brown soils of Lapus Montains and Țibleș Mountain. We identified these phytocoenosis and Minghet Mountain and exhibition of the Hudin slopes in the north or east. It is an association of climax, regional, Montana, acidophile, which influence the structure and floristic composition. Phytocoenosis represents 41 analyzed species (table 4).

Environmental behavior (figure 6) represents the small fluctuation of the limited species of this association. Regarding the humidity index, the most numerous species are mesophilic (60.97%). In terms of temperature, most species are micro-mesothermal (75.61%). Compared to the chemical reaction of the soil, the acid number of species are neutrophils (48.78%).

The analysis of tge eco-diagram (figure 7) shows that the association *Luzulo albidiae-Fagetum sylvaticae* has a mesophilic, micro-mesothermal, and acid-neutrophil character.

As. *Carpino-Fagetum Paucă* 1941, includes mixed beech and hornbeam forests are the most widespread in the region studied. They occupy a large part of the exhibition in the shady or intermediate slopes at an average altitude of about 500-750 m grown on acid brown soils, luvic brown, slightly acid to neutral, deep middle, which formed the crystalline schists. We identified this association in Mountan Satra, Monain.

Preluca, VI. Great and Rohi Rohi. Phytocoenosis totaling 45 species analyzed (table 5).

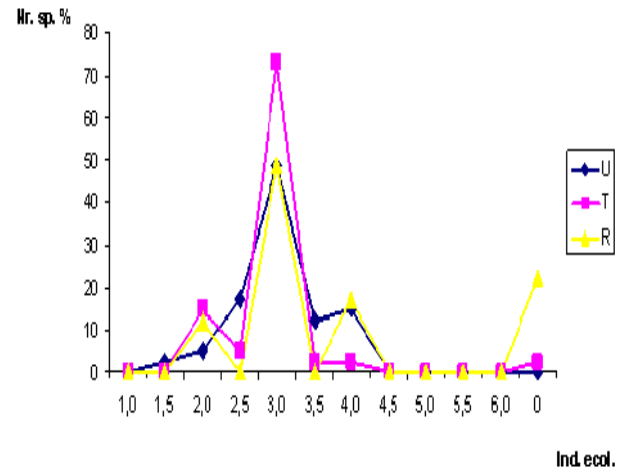


Fig. 6. Spectrum of ecological indicators in association *Luzulo albidiae-Fagetum sylvaticae*

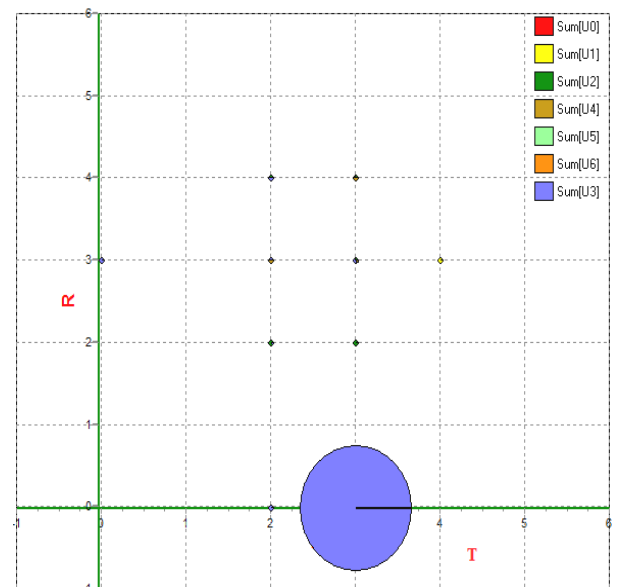


Fig. 7. Ecodiagrama association *Luzulo albidiae-Fagetum sylvaticae*

The environmental analysis (figure 8) has highlighted the association of the following results: Depending on the moisture level, most species are mesophilic (68.89%), depending on the temperature, most species are micro-mesothermal (77. 78%) and chemical reaction of the soil has selected a high percentage of species-neutrophil acid (40.00%), closely followed by weak acid species, neutrophils (31.11%).

Analyzing the above ecodiagrama (figure 9) you can see that most of *Carpino-Fagetum* phytocoenoses character occupies resorts of mesophilic micro-and meso-neutrophil acid substrat and some of them behave as xero-mesophile, microterm and eurionic.

Ardelean A.

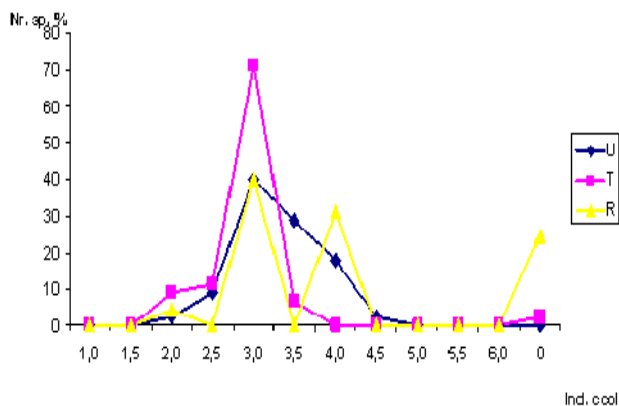


Fig. 8. Spectrum of ecological indicators in association *Carpino-Fagetum*

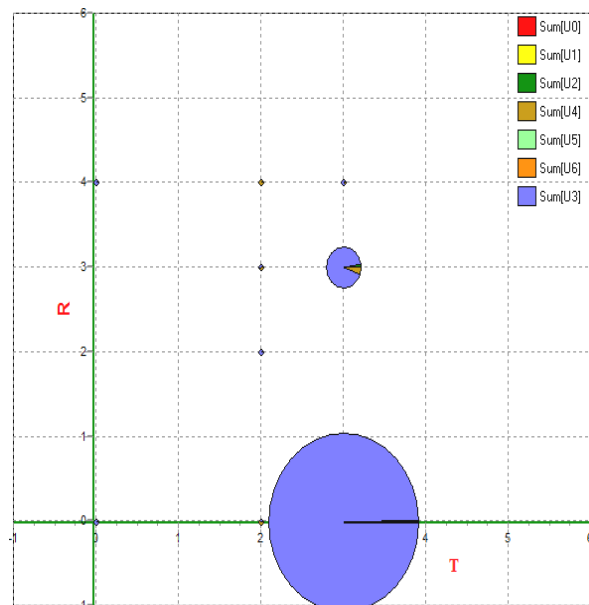


Fig. 9. Ecodiagrama association *Carpino-Fagetum*

Table 3. *As. Salicetum albae* Issler 1924 s.l.

					No. surveying	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	K
					Area (m ²)	40	30	50	50	20	20	20	30	20	20	30	30	50	40	40	
					Altitude (m)	34	30	300	200	320	30	280	280	30	32	30	330	340	360	350	
					Exhibition	NV	NV	SV	SV	SV	S	SV	SV	S	V	SV	SV	V	SV	SV	
					Inclination (°)	5	3	3	2	2	3	2	2	3	5	3	3	5	5	5	
Biof.	El. flor.	U	T	R	Coagulation canopy	7	7	9	8	6	7	8	9	8	6	7	7	7	8	6	
CHAR. ASS.																					
mPh	Eua	5	3	4	<i>Salix alba</i>	5	5	4	4	3	4	5	5	5	5	5	3	4	3	3	V
SALICION ALBAE																					
H	Eua	3,5	3	4	<i>Cucubalus baccifer</i>	+	+	-	-	-	+	-	+	-	-	+	-	+	-	-	II
H	Eua	3,5	3	4	<i>Humulus lupulus</i>	-	-	+	+	+	-	+	-	+	-	+	+	-	-	-	III
mPh	Eua	5	3	2	<i>Salix fragilis</i>	+	+	1	1	2	1	+	+	-	+	+	2	1	2	2	V
SALICETEA & SALICETALIA PURPUREAE																					
H	Cp	4	2	4	<i>Chrysosplenium alternifolium</i>	-	+	+	-	-	-	+	+	-	-	-	+	+	-	-	II
H	Cosm	2,5	3,5	3	<i>Convolvulus arvensis</i>	-	-	+	+	+	-	-	+	+	-	-	-	+	+	-	III
nPh	Ec	3	3	4	<i>Cornus sanguinea</i>	+	-	-	-	-	+	+	-	-	+	+	-	-	+	+	I
Th	Adv	4	0	4	<i>Echinocystis lobata</i>	-	-	+	+	-	+	-	-	-	+	-	-	-	+	-	II
G	Cosm	3	3	0	<i>Equisetum arvense</i>	+	-	-	-	+	+	-	-	-	+	+	-	-	-	+	II
H	Eua	4	3	3	<i>Eupatorium cannabinum</i>	-	-	+	+	+	+	-	-	-	+	-	-	-	+	-	III
Hh	Cosm	5	0	4	<i>Phragmites australis</i>	+	+	+	-	-	+	+	-	+	-	+	-	+	-	+	III
H	Eua	4	3	0	<i>Rumex crispus</i>	+	+	+	+	-	+	+	-	+	+	-	+	-	+	+	IV
nPh	Eua	5	3	4	<i>Salix purpurea</i>	+	+	-	-	-	-	-	+	-	-	-	-	+	-	-	II
G-H	Eua	0	3	4	<i>Tussilago farfara</i>	+	+	-	-	+	+	-	+	+	-	-	-	-	+	-	III
H	Cosm	3	3	4	<i>Urtica dioica</i>	+	+	+	+	+	-	-	-	+	+	-	+	+	+	-	V
ALNO-PADION																					
Mph	Eua	5	3	3	<i>Alnus glutinosa</i>	+	+	+	+	-	-	+	-	-	+	-	-	-	+	-	IV

H	Eua	4	3	3	<i>Angelica sylvestris</i>	-	-	+	+	+	-	+	+	-	+	+	-	+	+	-	III	
H	Eua	5	3	3	<i>Petasites hybridus</i>	-	-	-	-	+	-	-	+	-	-	+	-	-	+	-	I	
nPh	Eua	5	3	3	<i>Salix cinerea</i>	+	+	-	-	-	+	-	-	+	-	-	+	-	-	+	II	
nPh	E	3	3	3	<i>Sambucus nigra</i>	-	-	-	+	-	-	-	+	-	-	+	-	-	+	-	I	
QUERCO-FAGETEA																						
mPh	E	2,5	3	3	<i>Acer campestre</i>	-	+	-	-	-	-	-	+	-	-	-	-	+	-	-	I	
H-G	Eua	3,5	3	3		+	+	-	-	-	+	-	-	-	+	-	+	-	-	+		
					<i>Aegopodium podagraria</i>																II	
G	Ec	3,5	3,5	4	<i>Allium ursinum</i>	-	+	-	-	-	-	+	+	-	-	-	-	-	-	-	I	
G	E	3,5	3	4	<i>Anemone ranunculoides</i>	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	I	
Mph	Ec	3	3	3	<i>Carpinus betulus</i>	+	+	+	+	-	-	-	-	+	-	-	+	+	-	-	IV	
nPh	Mp	2	3,5	4	<i>Cornus mas</i>	+	-	-	-	-	-	+	-	-	-	+	-	-	-	-	I	
nPh	E	3	3	3	<i>Corylus avellana</i>	+	+	+	+	-	-	-	-	-	-	-	-	-	-	+	+	IV
G	End	4	2	4	<i>Dentaria glandulosa</i>	-	+	-	-	-	-	-	+	-	+	-	-	-	-	-	I	
H	Cosm	4	3	0	<i>Dryopteris filix-mas</i>	-	-	+	-	-	+	-	-	+	-	-	-	-	-	+	-	I
G	Eua	3,5	3,5	4	<i>Erythronium dens-canis</i>	+	-	+	-	-	-	-	+	-	-	-	+	-	-	-	II	
Mph	E	3	3	4	<i>Fraxinus excelsior</i>	-	+	-	+	-	-	+	-	-	-	-	-	-	-	-	II	
Th	DB	2,5	3	3	<i>Melampyrum bihariense</i>	-	-	+	-	+	-	-	-	+	-	+	-	-	-	+	+	I
G	Eua	3,5	3	3	<i>Ranunculus ficaria</i>	-	+	-	-	-	-	+	-	+	-	-	-	-	-	+	-	I
nPh	E	3	2,5	2	<i>Rubus hirtus</i>	+	+	-	-	-	-	-	-	-	-	+	+	+	-	-	II	
H	DB	4	2	0	<i>Telekia speciosa</i>	-	-	+	+	-	-	+	-	-	-	+	-	-	-	-	II	
MOLINIO-ARTENATHERETEA																						
H	Eua	3	0	0	<i>Achillea millefolium</i>	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	I	
H	Eua	3	0	0	<i>Campanula persicifolia</i>	+	-	-	-	-	-	-	-	+	-	-	-	+	-	-	I	
Th	Cosm	3	3	0	<i>Chenopodium album</i>	-	-	-	-	+	-	-	-	+	-	-	-	+	-	-	I	
Th-H	Cp	2,5	3	0	<i>Erigeron acer</i>	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	I	
H	Eua	3	2,5	3	<i>Galium molugo</i>	-	+	-	-	-	+	-	-	-	+	-	-	-	+	-	I	
H	Cosm	3	0	0	<i>Lolium perene</i>	-	+	-	-	-	-	+	+	-	-	+	+	-	-	+	I	
H	Eua	3,5	0	0	<i>Ranunculus acris</i>	-	+	-	-	-	+	-	-	-	+	-	-	-	+	-	I	
Th	Cosm	3	0	0	<i>Stellaria media</i>	-	-	+	+	-	-	+	+	-	-	+	+	-	-	+	II	
H	Eua	3	0	0	<i>Taraxacum officinale</i>	+	+	+	+	-	-	-	+	-	+	-	-	-	-	-	IV	
H	Eua	3,5	0	0	<i>Trifolium repens</i>	-	-	+	+	-	-	-	-	-	-	-	+	-	+	-	II	
H	Eua	3	0	3	<i>Vicia cracca</i>	+	-	+	+	-	-	-	+	-	+	-	+	-	-	-	III	
VARIAE SYNTAXA																						
G	Cp	0	0	0	<i>Agropyron repens</i>	+	+	+	+	+	+	-	+	-	+	-	+	-	+	-	V	
G	Adv	3	3,5	0	<i>Armoracia rusticana</i>	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	I	
TH	E	2	3	0	<i>Carduus acanthoides</i>	-	+	-	+	-	-	+	-	-	-	+	-	-	-	+	II	
TH	E	4	3	0	<i>Carduus crispus</i>	+	-	-	-	-	+	-	+	-	+	-	+	-	+	-	I	
G-Hh	Eua	5	4	4	<i>Carex riparia</i>	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	I	
H-Th	Eua	3	0	3	<i>Cichorium intybus</i>	-	-	+	-	-	-	+	-	-	-	+	-	-	-	+	I	
Th	Eua	3	3	3	<i>Conium maculatum</i>	+	-	+	-	-	+	-	+	-	+	-	+	-	+	-	II	
H	Adv	4	3	3	<i>Inula helenium</i>	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	II	
H	Cosm	4,5	3	3	<i>Juncus effusus</i>	-	-	-	-	+	-	-	+	-	+	-	+	-	-	+	I	
H	sM	3	0	0	<i>Plantago lanceolata</i>	-	+	-	-	-	+	+	-	-	-	-	-	+	+	-	I	
Th	Eua	4	3	3	<i>Pulicaria vulgaris</i>	-	-	-	-	+	-	-	+	-	+	-	+	-	-	+	I	
H	Cp	2,5	2	3	<i>Solidago virgaurea</i>	-	-	+	-	-	+	+	-	-	-	-	-	+	+	-	I	
H	E	4	3	0	<i>Symphytum officinale</i>	-	-	-	+	-	-	-	+	-	+	-	+	-	-	+	I	
G-Hh	Cosm	6	3,5	0	<i>Typha latifolia</i>	-	-	+	-	-	-	-	-	-	-	+	-	+	+	+	I	

Place and date of surveying: 1.-12. Ch. Lăpuşului 15.07.2009, 2. Ch. Lăpuşului 15.03.2009, 3.-4.-5.-6. Răzoare 16.07.2009, 7.-8.-11. Târgu Lăpuş 16.07.2009, 9.-10. Peteritea 17.07.2009, 13.-14.-15. Vima Mică, 14.07.2009.

Table 4. As. *Luzulo albidiae-Fagetum sylvaticae* Zólyomi 1955

					No. surveying		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	K
					Area (m ²)		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	
					Cover trees layer (%)		80	70	80	70	80	70	80	70	80	70	80	70	80	70	70	
					Herbaceous layer coverage (%)		20	20	20	25	20	10	20	10	15	20	15	20	15	15	15	
					Altitude (m)		850	600	880	920	900	800	820	870	900	930	910	890	880	880	870	
Biof.	El. flor.	U	T	R	Exhibition		E	E	NE	E	E	E	E	NE	E	E	NE	E	NE	NE	E	
					Inclination (°)		35	30	40	35	35	30	30	25	35	35	35	35	30	30	25	
CHAR. ASS.																						
MPh	E	3	3	0	<i>Fagus sylvatica</i>	4	4	4	5	5	4	4	4	5	5	5	4	5	4	4	V	
H	Ec	2,5	2,5	2	<i>Luzula luzuloides</i>	+	1	+	1	+	1	1	1	+	+	+	1	+	+	+	V	
SYMPHYTO-FAGION et FAGETALIA SYLVATICAE																						
Mph	Ec	4	3	3	<i>Abies alba</i>	-	-	-	+	-	-	-	-	+	+	-	-	-	-	-	I	
Th	Eua	4	3	3	<i>Cardamine impatiens</i>	-	+	-	-	-	+	-	+	-	+	+	-	-	+	-	I	
H	Eua	3,5	3	3	<i>Carex pilosa</i>	-	-	-	-	+	-	-	-	+	-	-	-	+	-	-	I	
G	E	3	3	4	<i>Dentaria bulbifera</i>	+	-	+	+	+	-	+	-	+	-	-	-	-	-	+	IV	
H	Cosm	4	3	0	<i>Dryopteris filix-mas</i>	-	+	-	-	+	-	-	-	-	-	+	+	-	+	-	II	
H	Eua	3	0	3	<i>Epilobium montanum</i>	-	+	-	+	-	-	+	-	+	-	+	-	-	-	-	II	
G	Eua	3	3	0	<i>Galium odoratum</i>	+	+	+	-	+	-	-	+	-	-	-	-	-	-	-	IV	
Th	Cosm	3,5	3	3	<i>Geranium robertianum</i>	-	-	-	+	-	-	-	-	-	+	-	-	+	-	-	I	
H	Cp	3	2	2	<i>Luzula multiflora</i>	-	+	+	-	+	-	+	-	-	-	+	+	-	+	-	III	
H-G	E	2,5	3	4	<i>Melica uniflora</i>	-	+	-	-	+	-	-	-	+	-	-	+	-	-	-	II	
H	DB	3,5	2	3	<i>Pulmonaria rubra</i>	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-	II	
nPh	Cp	3	3	3	<i>Rubus idaeus</i>	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	I	
H	Eua	3,5	3	4	<i>Sanicula europaea</i>	+	-	+	-	-	-	+	-	+	-	+	-	-	-	-	II	
H	E	3	2,5	4	<i>Veronica urticifolia</i>	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	II	
QUERCO-FAGETEA																						
mPh	E	2,5	3,5	4	<i>Acer platanoides</i>	-	-	-	+	-	-	-	-	+	+	-	-	-	-	-	I	
MPh	Ec	3,5	3	3	<i>Acer pseudoplatanus</i>	+	-	+	+	+	-	+	-	-	-	-	+	-	+	+	II	
H	Eua	3	3	0	<i>Campanula persicifolia</i>	-	-	-	-	+	-	-	+	+	-	-	-	-	-	-	I	
H	Eua	3	2	0	<i>Campanula rapunculoides</i>	-	+	+	-	-	+	-	-	-	+	+	-	-	-	-	II	
G	E	2,5	3	4	<i>Cephalanthera longifolia</i>	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	I	
nPh	E	3	3	3	<i>Corylus avellana</i>	-	+	-	-	+	-	-	-	-	-	-	+	-	-	-	II	
H	Eua	3	2	2	<i>Cruciata glabra</i>	-	-	+	+	-	-	-	+	+	-	-	-	+	+	-	II	
G-H	E	4	2	3	<i>Festuca drymeia</i>	-	+	+	+	-	-	+	-	-	+	+	-	-	-	-	III	
Th	Eua	3	3	0	<i>Galeopsis speciosa</i>	+	-	+	-	-	-	-	+	-	-	-	-	-	-	+	II	
H	E	3	3	3	<i>Hieracium mororum</i>	-	+	-	-	-	-	-	-	+	-	-	+	-	-	-	I	
Th-TH	Eua	2,5	3	3	<i>Moehringia trinervia</i>	-	+	-	-	-	-	-	-	-	-	-	+	-	+	-	I	
H	E	3	3	3	<i>Mycelis muralis</i>	+	-	+	+	+	-	-	-	+	+	+	+	-	-	-	IV	
H	Eua	3	3	0	<i>Poa nemoralis</i>	+	+	+	+	+	-	+	+	-	+	-	+	+	-	+	V	
CARPINION BETULI																						
Mph	Ec	3	3	3	<i>Carpinus betulus</i>	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	II	
G	Ec	2,5	3	3	<i>Galium schultesii</i>	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	II	
Th	DB	2,5	3	3	<i>Melampyrum bihariense</i>	-	+	-	-	-	-	-	-	+	-	+	-	-	-	-	I	
VARIAE SYNTAXA																						
H	Ec	3	3	3	<i>Atropa bella-donna</i>	-	+	+	-	-	-	-	-	-	-	-	-	+	-	-	II	
H-G	Ec	2	3	2	<i>Calamagrostis arundinacea</i>	+	-	+	+	-	-	-	-	+	-	-	-	+	-	-	III	

Ch-nPh	Pp	1,5	4	3	<i>Chamaecytisus albus</i>	-	+	-	-	-	+	+	-	-	-	+	-	-	-	-	I
H	Ec	3	3	3	<i>Genistella sagittalis</i>	-	-	+	-	-	-	+	-	+	-	+	-	+	-	+	I
Th	Eua	4	3	4	<i>Impatiens noli-tangere</i>	-	-	+	-	+	-	+	-	+	-	+	-	+	-	+	II
H-G	Cp	4	3	3	<i>Oxalis acetosella</i>	+	-	-	-	-	+	-	-	-	+	-	-	-	+	-	I
H	Cosm	3	3	0	<i>Prunella vulgaris</i>	+	-	-	-	-	+	+	-	-	+	+	-	-	+	+	I
G	Cosm	3	3	0	<i>Pteridium aquilinum</i>	+	-	-	-	-	-	+	-	-	-	+	-	+	-	-	I
Ch	Eua	2	2	2	<i>Veronica officinalis</i>	-	+	-	+	-	-	+	-	+	-	+	-	+	-	+	II

Place and date of surveying: 1.-15. M-ții. Lăpuș 25.05.2008, 2.-3.-7. M-ții. Lăpuș 23.07.2008, 4.-5.-6.-9. M-ții. Țibleș 15.08.2008, 10.-11.-12. M-ții. Minghet 25.07.2008, 8.-13.-14. M-ții. Hudin 30.07.2008

Table 5. As. Carpino-Fagetum Paucă 1941

					No. surveying	1	2	3	4	5	6	7	8	9	10	11	K
					Area (m ²)	400	400	400	400	400	400	400	400	400	400	400	
					Cover trees layer (%)	70	80	80	70	80	70	80	70	80	70	70	
					Herbaceous layer coverage (%)	25	30	20	20	20	15	20	20	25	15	10	
					Altitude (m)	650	500	450	350	750	400	600	420	600	670	500	
Biof.	El. flor.	U	T	R	Exhibition	NV	N	NE	N	NV	NV	NE	V	NV	V	NV	
					Inclination (°)	15	20	17	10	15	10	15	10	20	15	15	
CHAR. ASS.																	
MPh	E	3	3	0	<i>Fagus sylvatica</i>	3	4	4	3	4	3	4	3	4	3	3	V
Mph-mPh	Ec	3	3	3	<i>Carpinus betulus</i>	2	1	1	2	1	2	1	2	1	1	+	V
LATHYRO HALLERSTEINII-CARPINENION																	
H	Ec	4,5	3	3	<i>Aposeris foetida</i>	+	+	-	+	+	-	+	+	-	-	-	IV
G	End.C	4	2	4	<i>Dentaria glandulosa</i>	-	-	+	-	-	+	-	-	+	-	-	I
H-Ch	Eua	3	3	3	<i>Stellaria holostea</i>	-	+	-	+	+	-	-	-	+	+	-	III
SYMPHYTO CORDATI-FAGION																	
mPh	E	2,5	3	3	<i>Acer campestre</i>	-	+	+	-	-	-	+	+	-	-	-	II
G	Cp	3,5	3	0	<i>Anemone nemorosa</i>	-	-	-	+	-	-	-	-	+	-	-	I
H	Cp	3,5	3	4	<i>Carex sylvatica</i>	+	+	-	+	-	-	+	-	+	-	-	III
H	Eua	3,5	3	4	<i>Circaea lutetiana</i>	-	+	-	-	-	-	+	-	-	-	+	I
H	Cosm	4	3	0	<i>Dryopteris filix-mas</i>	-	-	-	-	+	-	-	+	-	-	-	I
G-H	E	4	2	3	<i>Festuca drymeja</i>	-	-	+	+	-	-	-	+	+	-	-	II
G	Eua	3	3	0	<i>Galium odoratum</i>	+	+	+	-	+	+	-	+	-	+	-	IV
H	Ec	3,5	3	3	<i>Pulmonaria officinalis</i>	+	+	-	-	+	+	-	-	+	-	-	III
Ph	E	2	3	4	<i>Pyrus pyraeaster</i>	+	-	-	-	-	-	+	-	-	-	-	I
H	Eua	3	2,5	3	<i>Viola reichenbachiana</i>	-	-	+	-	-	-	-	+	-	-	-	I
FAGETALIA SYLVATICAE																	
G	Ec	3,5	3,5	4	<i>Allium ursinum</i>	-	-	-	+	-	-	+	-	+	-	-	I
H-G	Eua	3,5	3	4	<i>Asarum europaeum</i>	-	+	-	-	-	-	+	-	-	-	+	I
H	Eua	3	2	0	<i>Campanula rapunculoides</i>	-	-	+	-	-	-	-	+	-	-	-	I
Ch	E	3	3,5	4	<i>Euphorbia amygdaloides</i>	-	-	-	-	+	-	-	-	+	+	-	I
H	Eua	4	3	3	<i>Festuca gigantea</i>	+	-	-	-	-	-	+	-	-	-	-	I
H	Ec	3	0	4	<i>Lamium galeobdolon</i>	+	+	+	+	-	-	+	+	+	-	-	IV
H	Eua	3	3	3	<i>Lathyrus vernus</i>	-	+	-	+	-	-	+	-	+	-	-	II
H-G	Cp	4	3	3	<i>Oxalis acetosella</i>	-	+	+	+	-	-	-	-	+	+	-	III
nPh	E	3	2,5	2	<i>Rubus hirtus</i>	+	-	-	-	-	-	-	-	-	-	-	I
H	Eua	3,5	3	4	<i>Sanicula europaea</i>	+	-	-	-	-	-	+	-	-	-	-	I
QUERCO-FAGETEA																	
H-G	Eua	3,5	3	3	<i>Aegopodium podagraria</i>	-	+	-	+	+	-	-	+	-	+	-	III

G	Cp	3,5	3	0	<i>Anemone nemorosa</i>	-	-	-	+	+	-	-	+	+	-	-	II
H	Cosm	4	2,5	0	<i>Athyrium filix-femina</i>	+	+	+	+	-	-	+	+	+	+	-	IV
TH	E	3	2,5	3	<i>Campanula patula</i>	+	-	-	-	+	-	-	-	+	-	-	II
H	E	3	3	3	<i>Carex digitata</i>	-	-	+	-	-	-	+	-	-	-	-	I
Ph	sM	3	3	3	<i>Cerasus avium</i>	-	+	-	-	-	+	-	-	-	-	+	I
nPh	Ec	3	3	4	<i>Cornus sanguinea</i>	+	+	-	-	-	-	+	-	-	-	+	II
nPh	E	3	3	3	<i>Corylus avellana</i>	+	-	-	-	-	+	-	-	-	-	+	I
nPh-						+	-	-	-	+	+	-	-	-	+	-	II
mPh	Eua	2,5	3,5	3	<i>Crataegus monogyna</i>	+	-	-	-	+	+	-	-	-	+	-	II
H	Eua	3	2	2	<i>Cruciata glabra</i>	+	+	-	-	-	-	+	-	-	-	-	II
G	E	4	3	4	<i>Dentaria bulbifera</i>	-	-	-	-	+	-	-	-	+	-	-	I
H-G	E	2,5	3	4	<i>Melica uniflora</i>	-	+	-	+	-	-	+	-	+	-	-	II
H	E	3	3	3	<i>Mycelis muralis</i>	+	+	+	-	-	-	-	+	+	-	-	III
MPh-						+	-	-	+	+	-	-	-	+	+	-	III
mPh	E	2,5	3	0	<i>Quercus petraea</i>	+	-	-	+	+	-	-	-	+	+	-	III
MPh	E	3,5	3	0	<i>Quercus robur</i>	-	+	-	-	-	-	+	-	-	-	-	I
G	Ec	3,5	3	4	<i>Scilla bifolia</i>	-	-	-	+	+	-	-	-	+	+	-	II
VARIAE SYNTAXA																	
H	Eua	3,5	2,5	0	<i>Ajuga reptans</i>	-	-	+	-	+	-	-	-	+	-	-	II
H	Cosm	3,5	3	0	<i>Holcus lanatus</i>	+	-	-	-	-	-	-	+	-	-	-	I
G	Eua	3	3	3	<i>Polygonatum odoratum</i>	-	+	-	-	-	-	-	-	-	+	-	I
H	Eua	4	3	4	<i>Rubus caesius</i>	-	-	+	-	-	+	-	-	-	-	+	I

Place and date of surveying: 1.-2. Ms. Preluca 27.07.2008, 3.-8. Ms. Şatra 27.07.2008, 4.-9. Rohiţa 15.05.2008, 5.-10.VI. Mare 28.07.2008, 6.-7.-11. Rohia 20.06.2008.

CONCLUSIONS

In conclusion, flora in the Lapus area is of a mesophilic micro-meso, slightly acid to acid-neutrophil-neutrophil.

The research undertaken will complete this study in the field, having the objective of phytosociological and of ecological knowledge of plants across the country of Lapus, for their efficient and rational exploitation and conservation of species of interest.

Ecological characterization we performed taking into account three environmental indices: moisture, temperature and soil reaction, which were set out in accordance to the scale used ecological indices used by Ş. Csürös et al. and A. Popescu, V. Sanda. Description green is to conserve biodiversity of this area.

Depending on the distribution and zoning geoelements, geobotany Romanian territory and taking into account the criteria floristic criterion pedogeographical, climatic criteria, the criterion of geomorphological and ecological criteria the territory of Lapus Country is Central European floristic region, province Carpathian Carpathian Subprovincia District north-central mountains.

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