STUDY OF JUMCO INFLEXI-MENTHETUM LONGIFOLIAE ASSOCIATION IN THE OAS MOUNTAINS (NORTH WESTERN ROMANIA)

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Abstract

This paper aims to describe abaut the presence of the association Junco inflexi-Menthetum longifoliae Lohmeyer 1953, found in the Oas Mountains.

The association Junco inflexi-Menthetum longifoliae Lohmeyer 1953, was analysed in terms of life forms spectrum, floristic elements spectrum, ecological indices (humidity, temperature, chemical reaction of the soil).

Key words: association, phytocoenosis, biological forms, floristic elements, ecological indexes, Oas Mountans.

INTRODUCTION

The Oas Mountains are located north-west of the Oriental Carpathians, between Tisa and Depression Maramures to the north, Gutai Mountains to the east, the River Tur to the south and the Somes Plain to the west.

The analysed territory has a temperate continental climate with warm summers and milder winters than the rest of the country.

In our country this association is common, as mentioned in Oltenia (Cârţu, 1972; Popescu et Sanda, 1974), in Muntenia (Popescu et al.,1984), in Moldova (Zanoschi, 1974; Zamfirescu, 2007), in Transylvania (Drăgulescu, 1995), in Crişana (Pop, 1968; Ardelean, 1999; Burescu, 2001; Karácsonyi, 2011). The association was also quoted in Hungary (Borhidi, 2003) and Germany (Pott,1995).

MATERIALS AND METHODS

The identification, as detailed as possible, of the phytocoenosis of the association *Junco inflexi-Menthetum longifoliae* Lohmeyer 1953 (Fig. 1), from the Oaş Mountains was based on field investigations during the years 2010 - 2012. The nomenclature of taxa was done according to Ciocârlan (2009). In the study of vegetation we used phytocoenological research methods of Central European school based on the principles and methods elaborated by Braun-Blanquet (1964), Ellenberg (1974) and adapted by

Borza et Boşcaiu (1965), to the particularities of the vegetation layer in our country.

For ordering and grouping the species in the association table (Table 1), to superior cenotaxons, sub-alliance, alliance, order and class were considered the traditional ecological-floristic systems of the authors Braun-Blanquet (1964), Ellemberg (1974), Tüxen (1955), Soó (1980) and also the paper recently appeared belonging to Sanda et al., (2008).

RESULTS AND DISCUSSION

The phytocoenosis of this association in the investigated area occupies reduced areas in the meadow lands in Turț, Călinești Oaș and Târșolț. They present as islets of vegetation dominated by *Juncus inflexus* and secondarily by *Mentha longifolia* (Fig.1).

Fig. 1. *Junco inflexi-Menthetum longifoliae* Lohmeyer 1953, Călinești Oaș

In the floristic composition of the association there are notable species characteristic to the sub-alliance *Juncenion effusi*, the alliance *Potentillion anserinae*, the order *Potentillo-Polygonetalia* and the classe *Molinio-Arrhenatheretea*, of which the most common are: *Carex hirta*, *Elymus repens, Potentilla reptans, Ranunculus repens, Agrostis capillaris, Lysimachia nummularia, Mentha pulegium, Epilobium tetragonum, Taraxacum officinale, Trifolium repens* (Table 1).

The life forms spectrum (Fig. 2), indicates the dominant of the hemicryptophytes species (H = 51.28%), followed by the annual therophytes (Th = 20.51%).

Under the rapport of floristic elements (Fig. 3), in the analysed phytocoenosis the Eurasian species are predominate (Eua = 56.41%),

followed by cosmopolites (Cosm = 20.51%) and circumpolar (Cp = 12.82%).

Table 1

Association *Junco inflexi-Menthetum longifoliae* Lohmeyer 1953

					Nr. releveului	1	2	3	4	5	
					Expoziția	-	-	-	-	-	
					Altitudine (m)	170	170	180	180	190	
					Suprafața (m^2)	25	25	25	25	25	
					Acoperire (%)	100	100	90	100	100	
Biof.	E. f.	U	T	R	Suprafața (m^2)	25	25	25	25	25	K
					Char. Ass.						
H	Eua(M)	4	4	4	*Juncus inflexus*	4	4	4	4	4	V
H(G)	Eua(M)	4,5	3	0	*Mentha longifolia*	2	+	+	2	+	V
					Juncenion effusi, Potentillion anserinae, Potentillo-Polygonetalia						
H	Cp(Bor)	4	0	0	*Agrostis stolonifera*	+	.	.	+	+	III
G	E(M)	0	3	0	*Carex hirta*	.	+	+	+	+	IV
G	Cp	0	0	0	*Elymus repens*	+	+	.	+	+	IV
H	Eua	5	2,5	0	*Epilobium tetragonum*	.	+	+	+	.	III
TH-H	Eua(M)	3	3	0	*Inula britannica*	+	.	.	.	+	II
G	Eua	4	3	4	*Juncus compressus*	.	+	+	+	+	IV
H	Eua	4,5	3	5	*Mentha pulegium*	.	+	.+	+	+	III
H	Cosm	3,5	0	4	*Potentilla reptans*	+	.	+	+	+	IV
H	Eua(M)	4	0	0	*Ranunculus repens*	+	+	+	+	+	IV
H-G	E	4	3	4	*Rorippa sylvestris ssp. sylvestris*	+	.	+	.	+	III
					Molinio-Arrhenatheretea						
H	Cp(bor)	0	0	0	*Agrostis capillaris*	.	+	+	+	+	IV
H	Cosm	4	0	0	*Deschampsia caespitosa*	+	.	.	.	+	II
H	Eua	3,5	0	0	*Festuca pratensis*	.	.	+	+	.	II
H	Eua	3,5	3	0	*Holcus lanatus*	+	+	.	+	+	IV
Ch	E	4	3	0	*Lysimachia nummularia*	+	.	.	+	+	III
H	Eua	3	0	0	*Plantago lanceolata*	.	+	.	+	+	III
H	Eua(M)	3	0	0	*Taraxacum officinale*	+	.	+	+	+	III
H	Eua	3,5	0	0	*Trifolium repens*	+	.	+	+	.	III
					Plantaginetea majoris						
G(H)	Cosm	2	3,5	0	*Cynodon dactylon*	.	+	+	.	.	II
TH	Eua	4	3,5	4	*Dipsacus laciniatus*	.	+	.	.	.	I
H	Adv	3,5	3	4	*Juncus tenuis*	+	.	.	+	+	III
H	Eua	3	3	0	*Lolium perenne*	.	+	+	.	+	III
H	Eua	3	0	0	*Plantago major*	+	.	+	.	+	III
H	Eua	4	3	0	*Rumex crispus*	.	+	+	.	.	II
Th-H	Cosm	3	3	4	*Verbena officinalis*	.	.	+	.	.	I
					Isoeto-Nanojuncetea						
Th	Eua	3	3	2	*Centaurium eryhraea*	.	.	.	+	+	II
Th	Eua	5	3	4	*Gnaphalium uliginosum*	.	.	.	+	.	I
Th	Eua	3,5	3	3	*Hypericum humifusum*	+	.	+	.	.	II
Th	Cosm	4,5	0	3	*Juncus bufonius*	.	+	.	+	.	II
Th	Eua	4	3	3	*Pulicaria vulgaris*	+	.	.	.	+	II
Hh	Cp(bor)	5	3	0	*Equisetum fluviatile*	.	.	+	.	+	II
Th	Cosm	4	3	4	*Spergularia rubra*	+	.	.	.	.	I
					Variae syntaxa						
Th	Cosm	4,5	0	4	*Cyperus flavescens*	+	.	+	.	.	II
Phm	Eua	4	3	3	*Frangula alnus*	.	+	.	.	+	II
Hh	Cosm	5	3	0	*Glyceria fluitans*	+	.	.	+	.	II
Th	Eua	4,5	3	0	*Polygonum persicaria*	.	+	+	.	+	III
H	Cp(bor)	3	3	0	*Prunella vulgaris*	.	+	.	.	+	II

Place and date of mapping: Turț, 27.07.2011 (rel. 1-2), Călinești-Oaș, 27.07.2011 (rel. 3-4) și Târșolț, 30.07.2010 (rel. 5).

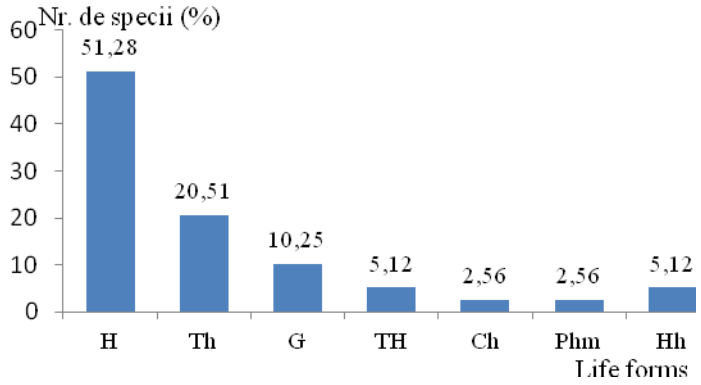

Fig. 2. Life forms spectrum of the association *Junco inflexi-Menthetum longifoliae* Lohmeyer 1953

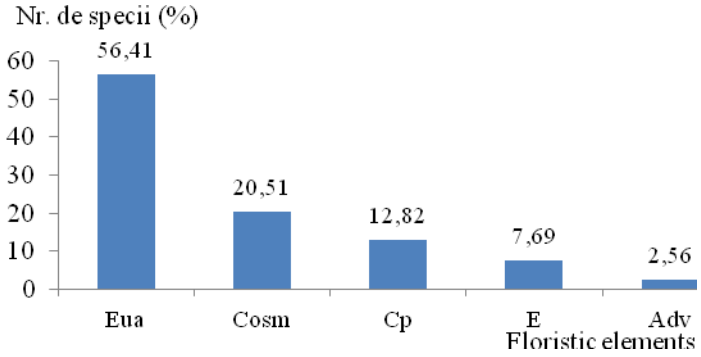

Fig. 3. Floristic elements spectrum of the association *Junco inflexi-Menthetum longifoliae* Lohmeyer 1953

The diagram of the ecological indices (Fig. 4), shows that most species of the association are mezohydrophylous ($U_{4-4,5}$ = 43.58%) in terms of humidity, followed by mesophylous ($U_{3-3,5}$ = 35,89%), hygrophylous (U_5 = 10,25%). Depending on the temperature the majority are mesothermophylous species ($T_{3-3,5}$ = 61.53%), followed by micro-thermophylous ($T_{2-2,5}$ = 15,78%), euri-thermophylous (T_0 = 33.33%) and from the chemical reaction of the soil, the dominant species are euri-ionical (R_0 = 58,97%), followed by weak acid-neutrophylous (R_4 = 25.64%).

Economically speaking, the analysed phytocoenosis have a very good forage value. The medicinal species are noted in the association (*Centaurium eryhraea, Taraxacum officinale),* forage plants *(Agrostis stolonifera, Carex hirta, Elymus repens, Deschampsia caespitosa, Festuca pratensis, Trifolium repens, Holcus lanatus, Plantago major*), yielding honey (*Mentha longifolia, Epilobium tetragonum, Mentha pulegium,*

Potentilla reptans, Taraxacum officinale, Trifolium repens, Dipsacus laciniatus, Verbena officinalis, Prunella vulgaris).

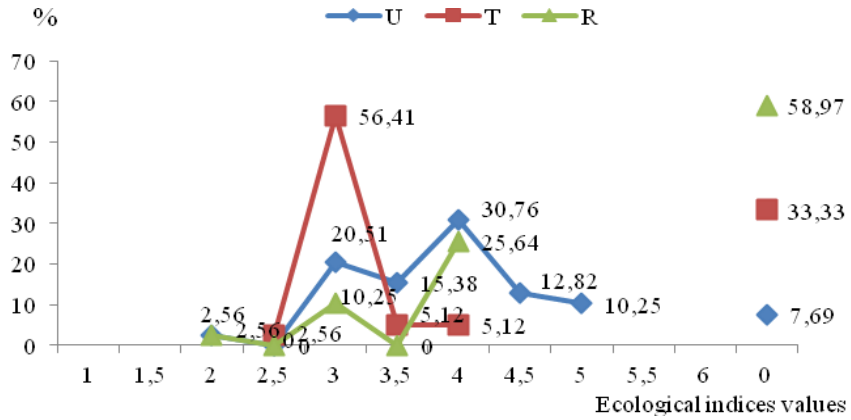

Fig. 4. Diagram of ecological indices for the association *Junco inflexi-Menthetum longifoliae* Lohmeyer 1953

CONCLUSIONS

The association *Junco inflexi-Menthetum longifoliae* Lohmeyer 1953, contains a number of 39 species, of which the largest part is occupied by the hemicryptophytes (20 specii).

From the analysis of the diagram of the ecological indices the association has a mezo-hygrophyl, micro-mesotherm and euri-ionic character.

In this association are some species with feeding value (*Agrostis stolonifera, Carex hirta, Elymus repens, Deschampsia caespitosa, Festuca pratensis, Trifolium repens*).

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