THE *VENTENATO DUBIAE-XERANTHEMETUM CYLINDRACEUM* ASSOCIATION (BORZA 1950) SANDA ET AL. 1988, FROM THE MUREŞ RIVER'S LOWER NARROW PATH

Păşcuţ Călin Gheorghe*, Burescu Petru*

*University of Oradea, Faculty of Environmental Protection, 26 Gen. Magheru St., 410048, Oradea, Romania, e-mail: pascutcalin@yahoo.com

Abstract

The phytocoenological study of Ventenato dubiae-Xeranthemetum cylindraceum association (Borza 1950) Sanda et al. 1988, was conducted based on field research undertaken in the summer of 2015 in the Mureş River's lower narrow path, in the perimeter of Nicolae Bălcescu and Căpâlnaş localities (Arad county).

For the association identified a synthetic table has been compiled which provides information relating to floristic composition of phytocenoses, life forms and floristic elements.

Key words: association, phytocoenoses, floristic elements, life forms.

INTRODUCTION

This association was found on the left bank of the River Mureş near the Căpâlnaş locality and on the right bank near Nicolae Bălcescu locality, in Arad county (Fig. 1).

Fig. 1. Location of study

Mureş Corridor, located in the southern part of Arad county, is a net line between Poiana Ruscă Mountains and Lipovei hills on the south and Zărandului Mountains on the north.

It emerges as a distinct unit between Deva and Lipova, where on a distance of about 70 km the Mureş River forms a corridor with sector basins and narrow valleys which reflects an extremely complex morphology. Thanks to the features it presents the Mureş Corridor is also known as the Mureş River's lower narrow path.

The geological formations of the studied area, belonging to the Mesozoic and Neozoic era are made of Neojurassic limestone, ophiolitic and sedimentary rocks.

Due to climatic factors and geomorphological structure, pedogenetical processes evolve towards heterogeneity of the genetic types of soil. In the studied area the following fundamental genetic soil types can be determined: brown forest soil, argillic brown soil and alluvial soils.

MATERIAL AND METHODS

The nomenclature adopted for the identified species is in accordance with the works developed by Ciocârlan V. (2009) and Sârbu I. et al. (2013).

The ordering of the association in higher sintaxonimicall units, alliance, order, class was done in accordance with the specialty papers developed by Pott R. (1995), Mucina L. (1997), Sanda V. et al. (2008).

Information on life forms and floristic elements are based on the works of Sanda V. et al. (1983, 2003), Cristea V. et al. (2004), Ciocârlan V. (2009).

Description of vegetable association is based on floristic relevées which were put together in a table of association. In the table mentioned the species giving the name of the association were mentioned first, then the characteristic species of the alliance, order and class.

The list is continued with the species from other classes and finally the accidental species (Variae Syntaxa) (Chifu T., 2014). For the phytocoenoses studied an analysis of life forms and floristic elements, materialized through spectra was carried out.

The surfaces of the sample were chosen in the characteristic fragments of the phytocoenoses, having an area of 100 m^2 (Cristea V. et al., 2004).

RESULTS AND DISCUSSION

The association grows in dry places, on sunny expositions (S, SE, SV), where groundwater is deep, at altitudes of 182-208 m, on a slope of 5-20º degree (Table 1).

Table 1

Ventenato dubiae-Xeranthemetum cylindraceum association (Borza 1950) Sanda et al. 1988

L.f.	**F.e.**	**Number**		1	2	3	4
		GPS coordonates	**Altitude (m)**	182	188	202	208
			Lat. N	46.03714	46.03679	45.97531	45.97903
			Long. E	22.09225	22.09659	22.24656	22.24602
		Vegetation coverage (%)		90	70	80	80
		Exposition		S	S	SE	SV
		Slope (degree) (º)		15	20	8	5
		Area (m²)		100	100	100	100
0	*1*	*2*		*3*	*4*	*5*	*6*
Th	M	As. *Ventenata dubia*		2	3	3	4
Th	Mp	As. *Xeranthemum cylindraceum*		2	1	1	+
		Thero-Airion, Corynephoretalia canescentis					
Th	M	*Aira elegantissima*		+	+	+	·
H	Eua	*Dichanthium ischaemum*		3	2	·	+
Th	Eua	*Filago minima*		+	·	·	+
Th	Eua	*Medicago minima*		+	+	+	+
Th	Eua	*Vulpia myuros*		·	·	2	·
		Koelerio-Corynephoretea					
H	E	*Hieracium pilosella*		+	+	+	+
G	Eua	*Poa bulbosa*		·	+	+	·
H	Eua	*Potentilla argentea*		+	+	+	+
H	Cosm	*Rumex acetosella*		+	·	·	·
Th	E	*Trifolium campestre*		·	·	·	+
		Festuco-Brometea					
H	Eua	*Agrimonia eupatoria*		+	+	·	·
H	Mp	*Asperula cynanchica*		+	+	·	+
H	Cosm	*Cerastium holosteoides*		+	·	·	·
H	E	*Dianthus carthusianorum*		+	·	·	·
H	P	*Eryngium campestre*		+	·	·	·
H	Eua	*Euphorbia cyparissias*		+	·	+	+
Th	Ec	*Euphrasia stricta*		+	·	+	·
H	Eua	*Festuca rupicola*		+	1	·	·
H	Eua	*Festuca valesiaca*		1	·	+	·
Th	E	*Geranium pusillum*		+	+	·	·
H	Cp	*Koeleria macrantha*		+	·	·	·
H	Eua	*Sanguisorba minor*		+	·	·	·
Ch	End Carp	*Thymus comosus*		+	·	1	1
		Molinio-Arrhenatheretea					
H	Eua	*Achillea millefolium*		·	+	·	+
H	Eua	*Anthoxanthum odoratum*		+	·	1	1
H	E	*Carlina acaulis*		·	·	+	+
H	Cosm	*Cerastium holosteoides*		+	·	·	·
H	E	*Cynosurus cristatus*		·	·	+	·
H	Eua	*Festuca pratensis*		·	·	+	·
H	Eua	*Lotus corniculatus*		+	+	·	·

0	1	2	3	4	5	6
H	Eua	*Plantago lanceolata*	+	+	+	·
H	Cp	*Poa pratensis*	·	·	·	+
H	Eua	*Polygala vulgaris*	·	·	+	·
H	Cosm	*Rumex acetosa*	·	·	+	+
		Variae Syntaxa				
mPh	Eua	*Prunus spinosa*	+	+	·	+
nPh	E	*Rosa canina*	+	·	·	+
nPh	M	*Rosa gallica*	·	·	+	+
Th	Eua	*Bromus sterilis*	+	·	·	·
H	Atl-M	*Genistella sagittalis*	·	·	+	·
TH	E	*Verbascum phlomoides*	+	·	·	·

Place and date of mapping: 1 - 2 Nicolae Bălcescu (Arad county) 05.06.2015; 3 - 4 Căpâlnaş (Arad county) 05.06.2015.

where: L.f. - life forms; mPh - Mezophanerophytes; nPh - Nanophanerophytes; Ch - Camephytes; H - Hemicryptophytes; G - Geophytes; Th - Annual terophytes; TH - Biannual terophytes F.e. - floristic elements; Eua-Eurasian; Cp - Circumpolar; E - European; Ec - Central European; Atl-M - Atlantic-Mediterranean; M - Mediterranean; Cosm - Cosmopolitan; Mp - Mediterano-pontic; P - Pontic; End Carp - Carpathian endemism.

Coenotaxonomically the association is classified in *Koelerio-Corynephoretea* class Klika in Klika et Novák 194, *Corynephoretalia canescentis* order Klika 1934, *Thero-Airion* alliance R. Tüxen ex Oberdorfer 1957.

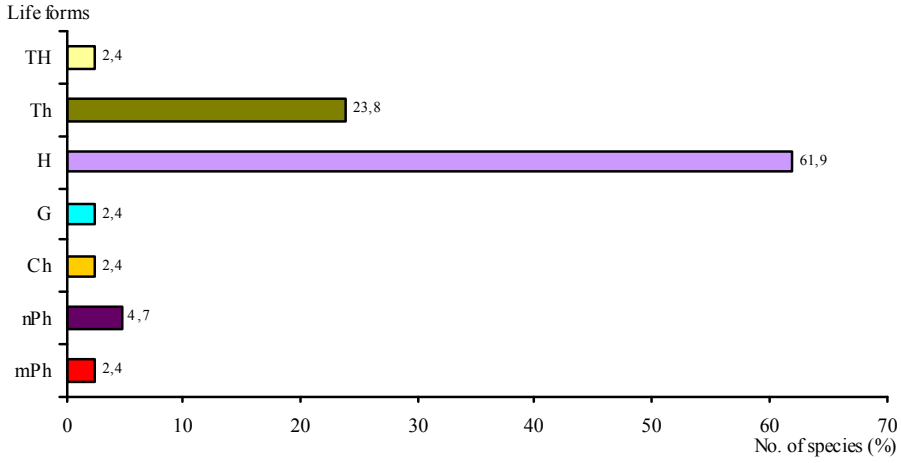

Fig. 2. The life forms spectrum of the *Ventenato dubiae-Xeranthemetum cylindraceum* association

The largest group of life forms (Fig. 2) is the species of hemicryptophytes (61.9%), followed by terophytes (26.2%).

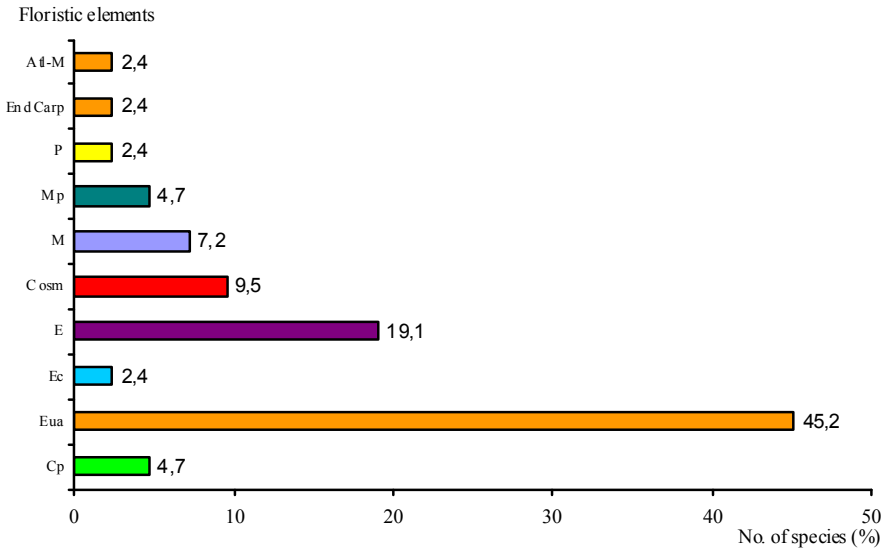

Fig. 3. Spectrum of floristic elements of the *Ventenato dubiae-Xeranthemetum cylindraceum* association

In the floristic elements spectrum (Fig. 3), one can observe the large number of Eurasian species (45.2%), supplemented by European species (19.1%) and Cosmopolitan ones (9.5%).

CONCLUSIONS

In these meadows from *Ventenata dubia* and *Xeranthemum cylindraceum* there are a series of terophytes species, *Aira elegantissima*, *Filago minima*, *Medicago minima*, *Vulpia myuros*, *Trifolium campestre*, *Euphrasia stricta*, *Geranium pusillum* which demonstrates that these phytocoenoses appear as evolution from useful weeds that grow on land left uncultivated. The direction of evolution of these meadows is given by *Dichanthium ischaemum*.

It can be seen that in this association the hemicryptophytes and terophytes species prevail, which demonstrates that these grasslands suffer an intense process of ruderalisation.

The association structure is dominated by Eurasian species amid which there are interspersed European, Cosmopolitan and Mediterranean elements.

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