

THE STUDY OF ASSOCIATION *TYPHAETUM LAXMANNII* IN THE NATURAL HABITAT FROM THE IERULUI PLAIN

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Abstract

Association Typhetum laxmannii Nedelcu 1969, is distributed to in channels, the water basins in Ierului Plain. This study aims to analyze the phytocenoses of the Typhetum laxmannii (Class Phragmitetea Australis R. Tüxen et Preising 1942) from phytocenologic, floristic and caryologic points of view. Phytocenoses association analysis present a scientific importance, with a total of 27 species, which is a very small biodiversity, some species are rare, vulnerable, endemic and need to be protected. Association Typhetum laxmannii we found in the very small number of location that require training and protection measures, because Typha laxmannii is part of red list from Romania.

Key words: Typha laxmannii, association, phytocenoses, floristic study, life form, ecological indexes.

INTRODUCTION

Câmpia Ierului is located in the North – West of Romania, on the administrative territory of Satu Mare and Bihor counties, being one of the lowest sections of the Western Plain. In the East and North-East it neighbours Crasnei Plain and in the North-West Careiului Plain, in the West Nirului Plain, in the East the Sântăului Plain and the Sălăcea – Săcueni Hillocks, but the great morphological and morphometrical resemblance with the neighbouring units makes it difficult its net geographical delimitation.

The altitude level of Ierului Plain varies between 125 m and 159 m in the North and North-East, decreasing to 100 m in the South, according to the flowing direction of Ier. The highest point it reaches is on the Cetății Hill from Otomani (159 m), and the lowest (100 m) on the actual valley at the border with Hungary. The annual average temperature distribution varies between 9, 7 °C in Carei, 10,3°C in Săcueni and 10,2°C in Oradea. Analyzing the distribution of the annual average precipitation quantities, we find that they increase with altitude from 580,6 mm registered in Săcueni, to 589,3 mm in Carei, the highest station from the studied area.

The *Typhetum laxmannii* Association Nedelcu 1969 appears in the areas with channels and ponds in Ierului Plain. Usually populates in waters 20-50 cm deep, which persisted in dry stations in the summertime.

MATERIAL AND METHODS

To realize this study, there were performed a total of 3 local incursions, and about 5 phytocoenologic sampling on natural habitat. The sample surfaces, homogeneous in floristic and physiognomic terms, were chosen from the channels which cross halophilic meadows. Their size varies between 8-25 m².

The process used was phytocoenologic survey method drawn up by Braun-Blanquet.

Along with species recording, abundance and dominance (AD) were subscribed in relevées after Braun-Blanquet scale subsequently developed by Tüxen (1955) and Ellenberg (1974).

The association's synthetic table was structured after the methodology proposed by Braun-Blanquet (1964) and developed by Ellenberg (1974); therefore, in the column header of the table for the association analyzed the following have been entered: the serial number of land surveys, altitude (m.s.m.), slope, surface (m²), coverage (%).

The following have been considered in the structure of the phytocoenologic table: illustrating or dominant species, characteristic species of the association, species for the recognition or differentiation of the sub- alliance, alliance, order, class and environmental significance [21],

Synthetic phytocoenologic index of constancy (K) whose classes are included between I-V values, that expresses the degree of coenotic fidelity compared to phytocoenoses environment of the association has been entered and calculate don the right of the table.

After Braun-Blanquet & Pavillard (1928), the medium abundance and dominance (mAD) shows percentually the average coverage realized in the association's phytocoenoses by the phytoindividuals of each recorded specie.

Differential species allowed us to set limits in the association for the taxons that are hierarchically superior to the alliance, order and class. The association's phytocoenoses are analyzed and characterized physiognomically, coenologically and ecologically.

In this respect particular attention has been given to the analysis of life forms, floristic elements and ecologic indices (UTR) through their graphical representation.

RESULTS AND DISCUSSION

The *Typhetum laxmannii* Nedelcu 1969 (Tab. 1) were identified in the following localities: Căuaș, Ganaș and Hotoan.

The phytocenoses of the association reunites a number of 27 species which indicates a low biodiversity. The small number of species is due to the extreme life conditions, respectively to the large quantities of salts by penetration of the exchangeable sodium in the adsorptive complex.

The characteristics species of the *Typhetum laxmannii* Nedelcu 1969 is *Typha laxmannii* has a maximum constancy and a large abundance and dominance (82,50%).

The *Phragmition communis* alliance Koch 1926 reunites a number of 5 species among which: *Schoenoplectus lacustris*, *Lycopus europeus*, *Phragmites australis*, *Typha latifolia*, *Typha angustifolia*..

From the *Phragmitetalia* Order and *Phragmitetea* class limitrophe with phytocenosis of the *Phragmition communis* association penetrates a number of about 3 species among which *Alisma plantago-aquatica*, *Butomus umbellatus*, *Veronica anagallis-aquatica*.

The spectrum bioforms (Fig. 1) points out the preponderance in the association of hemicryptophytes (40,74%), followed by helohydatophyte (33,33%). Among the flower elements (Fig. 2) the eurasiatic species are emphasized (44,44%) and less cosmopolite (40,74%) and circumpolar (14,82%).

The specific ecological conditions (Fig. 3) impregnate to the association a mezzo-hydrophilic character (29,63%), less mozzophile (22,22%) and hydrophilic (22,22%), which reflects also in the floristic structure. Depending on the temperature, the species from the association are micro-mezzo-thermal (59,26%), fallowed by euriterms (29,63%). As concerns the chemical reaction of the soil in association, the dominance is disputed by the euriionic species (51,85%) almost equally with those low acid-neutrophil (33,34%).

In the cariologic spectrum (Fig. 4), the polyploidy (59,26%), diploid (25,93%), diplo- polyploidy species (11,11%) and unknown karyotype (3,70%) species.

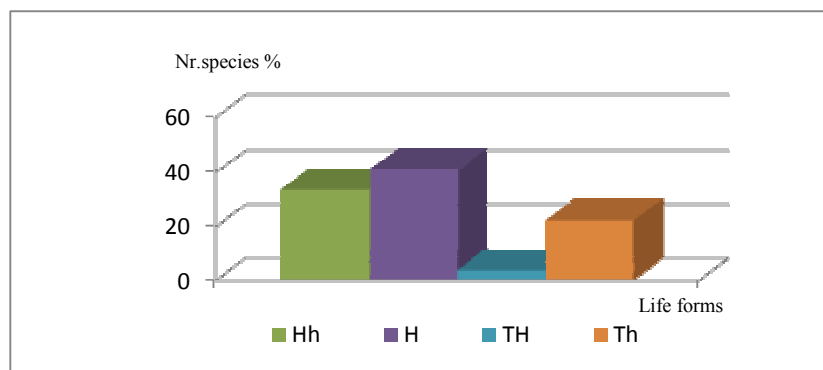


Fig. 1 The life forms of association *Typhetum laxmannii* in Ierului Plain : Hh- Helohydatophytes; H-Hemicryptophytes; TH- Hemiterophytes; Th-Euterophytes;

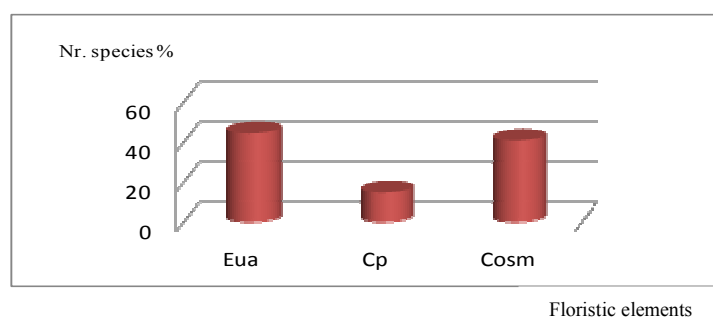


Fig. 2 The spectrum of floristic elements of association *Typhetum laxmannii* in Ierului Plain: Eua-Eurasian; Cp-Circumpolar; Cosm-Cosmopolitan;

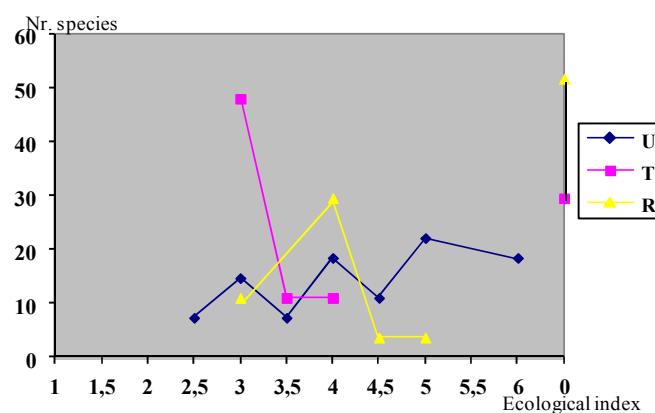


Fig. 3 The diagram of ecologic indices of asociacion *Typhetum laxmannii* in Ierului Plain where: U-humidity, T-temperature, R-the chimical reaction of the soil

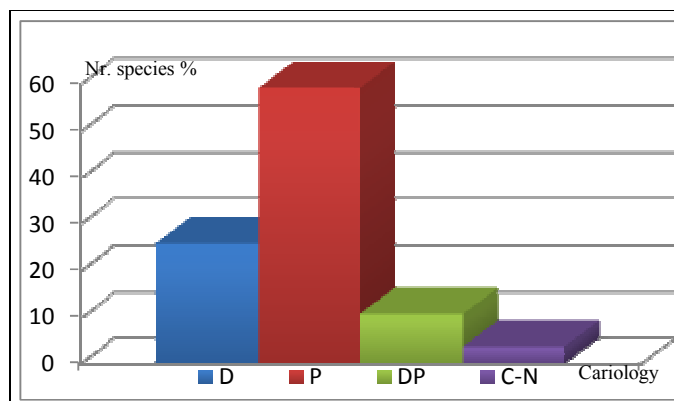


Fig. 4 Cariology spectrum of association . *Typhetum laxmannii* in Ierului Plain: D-Diploid, P-Poliploid, DP-Diplo-poliploid

Table 1

Typhetum laxmannii Nedelcu 1969
(natural aquatic plant from Ierului Plain, Bihor and Satu-Mare Country)

L. f.	F. e.	U.	T.	R.	2 n	Nr. Land Surveys	1	2	3	4	5	K	ADm
						Altitude (m.s.m.)	120	145	145	120	120		
						Surface (m ²)	16	8	20	25	10		
						Coverage (%)	90	100	100	95	100		
1	2	3	4	5	6	7	8	9	10	11	12	14	15
Hh	Eua(C))	5	4	0		Typha laxmannii	5	5	5	4	5	V	82.5
Phragmition communis													
Hh-G	Cosm	6	3	4	P	Schoenoplectus lacustris	+	.	.	+	+	III	0.30
Hh	Eua(M)	5	3	0	D	Lycopus europeus	.	.	+	+	+	III	0.30
Hh	Cosm	5	0	4	P	Phragmites australis	.	.	+	2	.	II	3.60
Hh	Cosm	6	3.5	0	D	Typha latifolia	.	.	.	+	.	I	0.10
Hh	Cosm	6	0	0	D	Typha angustifolia	.	.	+	.	.	I	0.10
Phragmitetalia, Phragmitetea													
Hh	Cosm	6	0	0	D	Alisma plantago-aquatica	.	.	+	+	+	III	0.30
Hh	Eua(M)	6	3	0	DP	Butomus umbellatus	.	.	.	.	+	I	0.10
H-Hh	Cp	5	0	4	DP	Veronica anagallis-aquatica	.	.	+	.	.	I	0.10
Magnocaricetalia													
H	Eua(M)	4.5	4	4.5	P	Teucrium scordium	+	.	1	+	+	IV	1.30
H	Cp	5	3	0	DP	Galium palustre	.	.	+	+	.	II	0.20

Nanocyperetalia, Isoëto-Nanojuncetea												
H	Eua(M)	4	3	4	P	Mentha pulegium	.	.	.	+	+	II 0.20
Th	Cosm	4	3	0	P	Lythrum hyssopifolia	+	.	.	.	.	I 0.10
Puccinellio-Salicornietea												
H	Cosm	3.5	0	4	P	Potentilla reptans	+	.	.	.	.	I 0.10
H	Cosm	2.5	3.5	3	P	Potentilla anserina	+	.	.	.	.	I 0.10
Molinio-Arrhenatheretea												
H	Cp	4	0	0	P	Agrostis stolonifera	2	+	+	+	.	IV 3.80
H	Cosm	4.5	3	3	P	Juncus effusus	1	+	+	.	.	III 1.20
Hh-H	Eua(M)	4	3	4	P	Carex vulpina	+	.	+	+	+	IV 0.40
Th-H	Eua(M)	2.5	3	0	D	Daucus carota ssp. carota	+	.	.	.	.	I 0.10
H	Eua	3	0	0	P	Achillea millefolium	.	+	.	.	.	I 0.10
Bidentetea												
H	Cp	5	3	5	D	Alopecurus aequalis	.	.	+	+	+	III 0.30
Th	Cosm	4	0	3	P	Echinochloa crus-gali	.	+	.	.	+	II 0.20
Th	Eua	4,5	3	0	P	Bidens tripartita	.	.	.	+	.	I 0.10
Variae syntaxa												
0	1	2	3	4	5	6	7	8	9	10	11	12 13
TH-H	Eua(M)	3	3	0	P	Inula britannica	+	.	.	.	.	I 0.10
Th	Eua	3.5	3.5	4	P	Xanthium strumarium	.	+	.	.	.	I 0.10
H-G	Cosm	3	3	4	P	Urtica dioica	.	+	.	.	.	I 0.10
Th	Eua	3	4	0	D	Chenopodium polyspermum	+	.	.	.	.	I 0.10

Localitatea: 1. Căuaș (17.08.2011); 2. Ganaș (17.08.2011);
3. Ganaș (17.08.2011); 4-5.Hotoan (11.07.2011);

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