

CONTRIBUTION TO THE STUDY OF GRASSY VEGETATION IN THE IERULUI PLAIN

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Abstract

Association *Agrostio-Festucetum valesiacae* Borisavljevic et al. 1955, is distributed to degraded, intensive grazed, compact, formed on a crystalline substrate solis in Ierului Plain. This study aims to analyze the phytocoenoses of the *Agrostio-Festucetum valesiacae* (Class *Festuco-Brometea* Br.-Bl. Et R. Tüxen in Br.-Bl. 1949) from phytocoenologic, floristic and economic points of view. Phytocoenoses association analysis present a scientific importance, with a total of 32 specie Meadows give this association a middle phytomass production, with middle economic value.

Key words: association, phytocenoses, floristic study, life form, ecological indexis.

INTRODUCTION

Ierului Plain 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 Santăului Plain and the Sălacea – 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 10,3°C in Săcueni. 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 meadows in Ierului Plain which hasn't been broken up, used by for pastures and meadows. After the canalizations and drainages these meadows suffered a saline progradation, and secondary halophile vegetation appeared, vegetation which is widely spread in this area.

MATERIAL AND METHODS

To realize this study, there were performed a total of 3 local incursions, and about 7 phytocoenologic sampling on natural grasslands. The sample surfaces, homogeneous in floristic and physiognomic terms, were chosen from the studied natural grasslands. Their size varies between 25-100 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.), 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.

Synthetic phytocoenologic indicex 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 *Agrostio-Festucetum valesiacae* Borisavljevic et al. 1955 (Tab. 1) associations have been identified in the following places: Galoșpetreu, Irina and Portișa. It forms xerophilic meadows distributed on habitat where the soils is partially degraded and arid lands.

The class of *Agrostio-Festucetum valesiacae* Borisavljevic et al. 1955 reunites a number of 9 species of which we mention: *Euphorbia cyparissias*, *Galium verum*, *Ononis spinosa*.

From the class *Molinio-Arrhenatheretea* limitrophe to the phytocenosis of the association *Agrostio-Festucetum valesiacae* penetrates a number of approximately 19 species of which we mention: *Festuca pratensis*, *Achillea millefolium*, *Lotus corniculatus*.

The spectrum of bioforms (Fig. 1), points out the preponderancy of the hemicryptophytes in the association (75%), followed by annual terophytes (18,74%). From the floral elements (Fig. 2) the distinguished species is the eurasian one (71,88%), the european (9,37%) and cosmopolitan (6,25%) species are not as much.

Analyzing the phytocenoses of the association in relation with the humidity (Fig. 3) we find that most of the species have a xeromesophilous characteristic (43,75%), followed by the mesophilous species (28,12%). Considering the temperature, the species from the association are micro-mesotherms (40,64%) and fallowed to euriterms (28,12%). As for the chemical reaction of the soil in the association there are dominance disputes between the euriionic species (46,87%) followed closely by the slightly acid-neutrophyle ones (31,25%).

In the cariologic spectrum (Fig. 4) there are, diploid (43,75%), polyploid (34,38%) and diplo-polyploide (21,87%).

The land inhabited by the association of reference are generally grazing. The value of these grasslands is as mediocre and sometimes good quality.

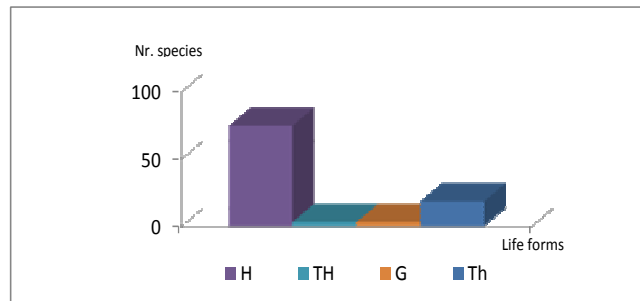


Fig. 1 The life forms of association *Agrostio-Festucetum valesiacae* in Ierului Plain: H-Hemicryptophytes; TH- Hemiterophytes; G-Geophytes; Th-Euterophytes;

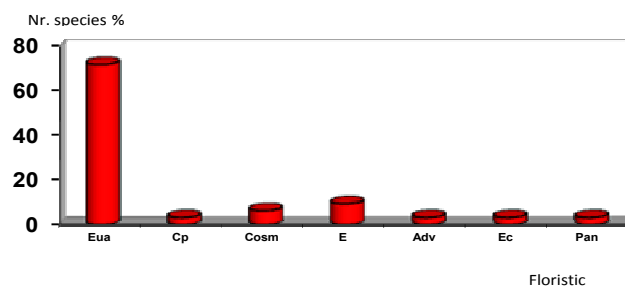


Fig. 2 The spectrum of floristic elements of association *Agrostio-Festucetum valesiacae* in Ierului Plain: Eua-Eurasian; Cp-Circumpolar; Cosm-Cosmopolitan; E- European;Atl- Atlantic; Ec-Ecuatorial; Pan-Pannonian

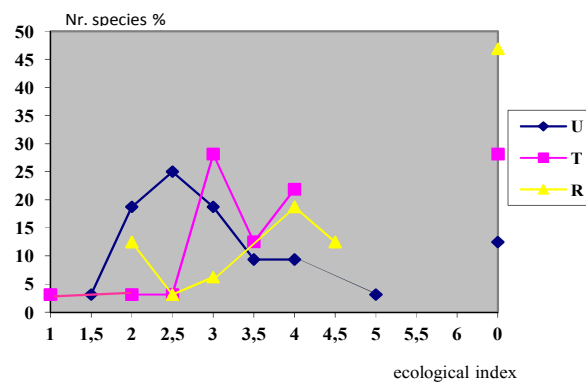


Fig. 3 The diagram of ecologic indices of asociacion *Agrostio-Festucetum valesiacae* in Ierului Plain where: U-humidity, T-temperature, R-the chemical reaction of the soil

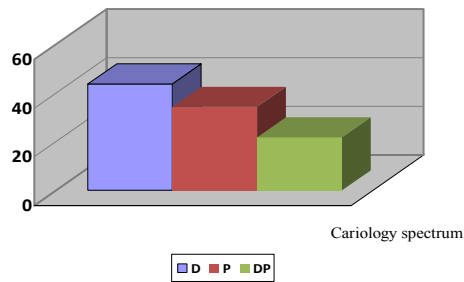


Fig. 4 Cariology spectrum of asociacion *Agrostio-Festucetum valesiaca* in Ierului Plain: D-Diploid, P-Poliploid, DP-Diplo-poliploid

Table 1

Agrostio-Festucetum valesiaca Borisavljevic et al. 1955
(natural grassland from Ierului Plain, Bihor and Satu-Mare Country)

Bio.	E. f.	U.	T.	R.	2 n	Nr. Land Surveys	1	2	3	4	5	6	7	K	ADm
						Altitude (m.s.m.)	105	105	124	124	124	118	118		
						Surface (m ²)	25	30	100	80	40	100	90		
						Coverage (%)	100	90	95	90	100	90	100		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
H	Cp	0	0	0	P	As. Agrostis capillaris	+	1	3	2	1	5	4	V	29.21
H	Eua(C)	1.5	4	4	D	As. Festuca valesiaca	5	4	2	4	5	1	3	V	51.43
Festucion valesiaca, Festucetalia, Festuco-Brometea															
H	Eua	2	3	4	DP	Euphorbia cyparissias	.	.	.	.	+	+	+	III	0.21
H	Eua	2.5	2.5	0	P	Galium verum	.	.	+	.	+	+	.	III	0.21
H(Ch)	E(M)	0	3.5	0	DP	Ononis spinosa	.	.	+	1	.	.	+	III	0.21
H	Pan	5	4	2	DP	Eryngium campestre	+	+	.	.	.	.	.	II	0.14
G(H)	Cosm	2	3.5	0	DP	Cynodon dactylon	.	.	.	.	.	.	+	I	0.07
Th-TH	E	3	3	0	D	Trifolium campestre	+	.	.	.	.	.	.	I	0.07
Molinio-Arrhenatheretea															
H	Eua	3.5	0	0	D	Festuca pratensis	+	+	.	+	+	+	1	V	1.07
H	Eua	3	0	0	P	Achillea millefolium	+	+	+	+	+	+	+	V	0.50
H	Eua	2.5	0	0	P	Lotus corniculatus	.	.	+	+	1	+	+	IV	1.00
H-TH	Eua	3.5	0	0	P	Trifolium repens	+	+	+	.	.	.	.	III	0.21

H	Eua(M)	4	3	4	P	Mentha pulegium	.	.	.	+	.	+	+	III	0.21
H	Eua(M)	2.5	4	4.5	D	Lolium perenne	.	.	.	.	.	+	+	II	0.14
H	Eua	3	3	2.5	D	Hypochoeris radicata	.	.	+	.	+	.	.	II	0.14
H	Eua(M)	2.5	2	3	D	Stellaria graminea	.	.	.	+	+	.	.	II	0.14
H	Eua	0	0	0	D	Plantago lanceolata	.	.	.	+	+	.	.	II	0.14
H	Eua	3	0	0	DP	Centaurea jacea	+	+	.	.	.	.	.	II	0.14
H	Ec	2	3	4	DP	Centaurea pannonica	.	.	.	.	.	.	+	I	0.07
H	Eua	2.5	0	0	D	Leontodon hispidus	+	.	.	.	.	.	.	I	0.07
H	E(M)	3.5	3	4	D	Trifolium hybridum	.	.	.	.	.	+	.	I	0.07
Puccinellio-Salicornietea															
Th	Eua	3	3	2	P	Centaureum umbellatum	.	.	.	.	.	+	+	II	0.14
H	Eua	4	1	2	P	Alopecurus pratensis	.	.	+	.	+	.	.	II	0.14
Th	Eua	2	4	4.5	DP	Hordeum hystrix	+	+	.	.	.	.	.	II	0.14
H(TH)	Eua	2.5	3.5	4.5	D	Cichorium intybus	.	.	.	.	.	+	.	I	0.07
Artemisietea															
Th	Adv	2.5	4	3	P	Xanthium spinosum	.	.	+	+	.	+	.	III	0.21
Th	Eua(C)	2	4	4.5	D	Anthemis austriaca	.	.	.	+	.	+	.	II	0.14
H	Eua	2	4	2	D	Potentilla argentea	.	.	.	.	.	.	+	I	0.07
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Variae syntaxa															
H-G	Cosm	0	0	0	P	Convolvulus arvensis	.	+	+	.	+	.	.	III	0.21
H	Eua	3	3	0	P	Trifolium medium	.	+	+	.	.	.	.	II	0.14
TH	Eua(C)	4	3.5	4	D	Dipsacus laciniatus	.	.	.	.	+	+	.	II	0.14
Th	Eua(M)	2.5	3	0	D	Lepidium campestre	.	.	.	+	.	.	.	I	0.07

Localitatea: 1-2. Loc. Galoșpetreu (08.08.2010); 3-5. Loc. Portiș (23.07.2011);
6-7. Loc. Irina (23.07.2011);

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