SALT LOVING PASTURELANDS ASSOCIATIONS FROM THE NORTHEASTERN PART OF BRĂILA COUNTY

ASOCIAŢII HALOFILE DE PAJIŞTI DIN N-E JUDEŢULUI BRĂILA

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Abstract. *The flora and the vegetation of the salt loving pasturelands from the N-E part of Brăila County are dominated by Salicornia herbacea – Puccinellia distans – Juncus gerardi formations, adapted to the high salt concentrations in the salty type soils. The vegetation coverage for the salt loving associations in the area is 55–75%, from which the graminee species occupy 20–25%, the leguminous species 1–3% and the various ones, 72–79%. There were identified and described the salt loving associations Puccinellietum distantis Knapp. ssp. limosae 1948, Juncetum gerardi Wenzel 1934, Artemisietum maritimae Soó, Camphorosmetum annuae Rapc.1916, Soó 1933 and Obiontume verruciferae.*

Key words: salt loving pasturelands, floristic structure, Brăila County

Rezumat. *Flora şi vegetaţia pajiştilor sărăturoase din zona de N-E a judeţului Brăila sunt dominate de formaţiile de Salicornia herbacea – Puccinellia distans – Juncus gerardi, adaptate la concentraţii mari de săruri în solurile de tip solonceac. Acoperirea cu vegetaţie a asociaţiilor halofile din zonă este de 55–75%, din care gramineele au o pondere de 20–25%, leguminoasele 1–3% şi speciile diverse 72–79%. Au fost identificate şi descrise asociaţiile halofile Puccinellietum distantis Knapp. 1948, Juncetum gerardi Wenzel 1934, Artemisietum maritimae Soó, Camphorosmetum annuae Rapc.1916, Soó 1933 şi Obione verrucifera.*

Cuvinte cheie: pajişti sărăturoase, stuctura floristică, Brăila

INTRODUCTION

The pasturelands situated on salty soils (salty and alkaline) occupy a surface of 69,000 ha in Romania, in: Romanian Eastern Plain, Oltenia's Plain, Western Plain, Moldavia's Plain and small surfaces in other areas (Florea N., 1958; Teaci D and cowork., 1980). Most of these pasturelands are low productive, some of them without forage value and provide in a very small matter to the fodder base.

The salt loving pasturelands occupy surfaces located in the steppe and forest steppe areas, on soils with a high content of soluble salts and they are used especially for pasturing (Puşcaşu Soroceanu Evdochia and cowork., 1963). This paper intended to identify and register the species from the salt loving pasturelands' associations from the north-eastern part of Brăila County.

MATERIAL AND METHOD

The study and the description of the salt loving flora and vegetation was made after the floristic phytocenological system, in the spirit of Central European school, elaborated by J. Braun-Blanquet in 1928, where the basic unit in the description of the vegetal carpet is the vegetal association, which reunites in a biotope species with similar ecological features. In order to characterize the salt loving pasturelands' associations, we appreciated the vegetation coverage degree, the floristic structure on groups of species, the biological form

and the floristic element, registering all parameters according to the usual technical methods. For each identified salt loving association, we made at least five floristic harvestings (relevees), where we appreciated the abundance and the dominance (A + D) and the frequency (F), these contributing in establishing the vegetation coverage degree.

RESULTS AND DISCUSSIONS

In the studied area we identified and described six salt loving pasturelands' associations (Puşcaşu Soroceanu Evdochia and cowork., 1963):

1. Association *Puccinellietum distantis ssp. limosa* Rapaics ex Soó R. 1936.

The association is dominated by *Puccinellia distans* which forms a herbaceous carpet with a 62–75% coverage (tab.1).

Table 1

As. *Puccinellietum distantis ssp. limosae*

Perimeter	Salcia-Tudor Măxineni		Roman Tudor Vladimirescu		Traian		Lacu Sărat		Muchea	
Coverage (%)	62		75		72		70		65	
Floristic structure (%)	Graminees	43	G.	56	G.	52	G.	56	G.	52
	Leguminous	1	L.	3	L.	3	L.	2	L.	2
	Various	18	D.	16	D.	17	D.	12	D.	11

The vegetal carpet's floristic structure is dominated by graminees (43–56%) followed by the various species (11–18%) and the leguminous species (1–3%). The dominant biological form is represented by the hemi cryptophytes and terrophytes; the dominant phytogeographic element is the Eurasian one.

The *Puccinellia distans* pasturelands are used through pasturing and can be improved through calcium sulphate amendments and organic and mineral fertilization. Their productivity is good, even if they are used especially for pasturing.

2. Association *Camphorosmetum annuae* Wenzl. 1934.

This association is widespread in small areas in the form of clusters, indicating strong salty resorts. In floristic composition falls a few species, from which the obligatory halophytes are dominant. The vegetation coverage degree is 55 - 62%, the various species being dominant (42-47%) (table 2).

Table 2

As. *Camphorosmetum annuae* Wenzl. 1934

Perimeter	Salcia-Tudor Măxineni		Roman Tudor Vladimirescu		Traian		Lacu Sărat		Muchea	
Coverage (%)	55		60		62		58		55	
Floristic structure (%)	Graminees	9	G.	12	G.	13	G.	14	G.	10
	Leguminous	2	L.	1	L.	2	L.	2	L.	1
	Various	44	D.	47	D.	46	D.	42	D.	44

From the biological forms, the terrophytes and hemi cryptophytes are dominant, and the dominant phytogeographic element is the Eurasian one. *Camphorosma annuae* has a maximum competition capacity, forming a low carpet of reddish hue. This association's productivity is small and can be used by sheep during the dry periods of the summer.

3. Association *Obionetum verruciferae* Ţopa E.,1939.

This association is spread on moderate to strong salted soils, in Bărăgan depressions, where it occupies under a hundred hectares. This association contains few species, *Obione verrucifera* being the dominant one, the various species having the biggest percentage (47–52%), while the graminees and the leguminous species have a smaller participation (tab. 3). The vegetation coverage degree is low (50–57%), the terrophytes and hemi cryptophytes being dominant, as biological forms, and in what regards the phytogeographic elements, the Eurasian and cosmopolite species prevail. This association has no fodder value.

Table 3

As. *Obionetum verruciferae* Ţopa E., 1939

Perimeter	Salcia-Tudor Măxineni		Roman Tudor Vladimirescu		Traian		Lacu Sărat		Muchea	
Coverage (%)	50		55		57		52		51	
Floristic structure (%)	Graminees	2	G.	4	G.	5	G.	3	G.	2
	Leguminous	1	L.	-	L.	-	L.	-	L.	1
	Various	47	D.	51	D.	52	D.	49	D.	48

4. Association *Juncetum gerardi* Wenzl. 1934.

Juncus gerardi, the dominant specie, covers small surfaces in flood plains, on low salty soils (salty humic gley soils). The vegetation coverage degree is 55–60%, the highest percentage being occupied by the various species (45–46%) (table 4).

Table 4

As. *Juncetum gerardi* Wenzl., 1934

Perimeter	Salcia-Tudor Măxineni		Roman Tudor Vladimirescu		Traian		Lacu Sărat		Muchea	
Coverage (%)	55		60		60		59		55	
Floristic structure (%)	Graminees	8	G.	14	G.	14	G.	13	G.	8
	Leguminous	1	L.	1	L.	1	L.	1	L.	1
	Various	46	D.	45	D.	45	D.	45	D.	46

From the biological forms, the hemi cryptophytes are dominant, followed by the terrophytes, and the Eurasian floristic elements prevail. This association's fodder value is weak and can be used by sheep only for a short period.

5. Association *Artemisetum maritimae* Ţopa E.,1939

This association forms pasturelands of *Artemisia maritimae* with salt loving wormwood, spread on solonetz and salty humic gley soils. The vegetation coverage degree is 50 – 65%, dominated by the various species (42 – 53%).

Table 5

As. *Artemisetum maritimae* Ţopa E.,1939

Perimeter	Salcia-Tudor Măxineni		Roman Tudor Vladimirescu		Traian		Lacu Sărat		Muchea	
Coverage (%)	50		60		65		55		52	
Floristic structure (%)	Graminees	7	G.	9	G.	10	G.	8	G.	7
	Leguminous	1	L.	2	L.	2	L.	2	L.	1
	Various	42	D.	49	D.	53	D.	45	D.	44

From the biological spectrum's point of view, the hemi cryptophytes and terrophytes are dominant, and in what regards the floristic elements, a high percentage is occupied by the Eurasian and continental species (tab. 5). The fodder value of the pasturelands dominated by this association is low and they can be used only for sheep pasturing.

6. Association *Salicornietum prostratae* Soó R.,1947

This association is spread on small surfaces, in the form of small clusters, on soils with a high content of salts (salty soils). Its floristic composition includes few species, all of them obligatory halophytes. The vegetation coverage degree is 55 – 75%, the various species being dominant (44 – 56%) (tab. 6). In what regards the floristic elements, the Eurasian and continental species are dominant, and as biological spectrum, the hemi cryptophytes and terrophytes have the highest percentage. The association has no fodder value, but it can evolve, on moister places, towards the *Suaedetum maritimae* association, and by draining and drying the soil, towards the *Puccinellietum distantis* association.

Table 6

As. *Salicornietum prostratae* Soó R.,1947

Perimeter	Salcia-Tudor Măxineni		Roman Tudor Vladimirescu		Traian		Lacu Sărat		Muchea	
Coverage(%)	55		70		75		68		60	
Floristic structure (%)	Graminees	10	G.	16	G.	17	G.	14	G.	11
	Leguminous	1	L.	1	L.	2	L.	2	L.	1
	Various	44	D.	53	D.	56	D.	52	D.	48

CONCLUSIONS

The salt loving pasturelands are spread in the northeastern part of the Brăila County on small surfaces, part of them being used for pasturing, but with a small fodder value;

There were identified and described 6 salt loving pastureland associations: *Puccinellietum distantis ssp. limosae, Camphorosmetum annuae, Obionetum verruciferae, Juncetum gerardi, Artemisietum maritimae* and *Salicornietum prostratae*;

Wider surfaces of salt loving pasturelands are dominated by *Puccinellietum distantis ssp. limosae* association, which can be used for pasturing and has a medium to good fodder value;

The soils occupied by salt loving pasturelands can be improved through amendments, washing, fertilization, measures which improve the floristic composition of the vegetal carpet.

REFERENCES

1. Florea N., 1958 – *Privire generală asupra sărăturilor din R.P.R.Cercetări de Pedologie*. Ed. Acad. R.P.R., Bucureşti;

2. Puşcaşu Soroceanu Evdochia şi colab., 1963 – *Păşunile şi fâneţele din România – studiu botanic şi agroproductiv.* Ed. Acad. R.P.R.,Bucureşti;

3. Teaci D. Şi colab., 1980 – *Resursele de terenuri de pajişti din R.S. România şi problemele principale ale productiivităţii actuale şi de perspectivă.* Lucr. Şt. SCCp Măgurele – Braşov, vol,VI