

## RESEARCHES ON THE HALOPHILIC VEGETATION OF THE PRUT RIVER MEADOW (REPUBLIC OF MOLDAVIA)

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**Key words:** halophilic (salt marsh) vegetal associations

**Abstract:** The floristic and geobotanic investigations developed on the left side of the Prut river meadow evidenced four salt marsh vegetal associations; out of these 4 ones, worth mentioning - as quite rare in the Pruto-Nistrean space - is the *Iridetum halophilae* association.

The vegetation of salt marshes in the Prut river meadow includes halophilic lawns, spread over flat sufaces sometimes very extended one, in the river meadow, in the meadows of Camenca and Racovăț, as well as side salty pools. The salt marshes from the region taken into study occur on various types of chernozem rich in chlorides and sulfates or in carbonates and chlorides. The most extended salt marshes may be found in the vicinity of Drujineni, Valea Rusului, Branîște, Călinești, Grozești, Zagarancea, Balatina, Leova.

During the floristic and geobotanical researches developed - between 1994-1996 -, on the left side of the Prut meadow there have been put into evidence 4 halophilic vegetal associations, included in the following cenotaxonomic system of classification:

### PUCCINELLIO-SALICORNIETEA Topa 39

#### FESTUCO-PUCCINELLIETALIA Soó 68

#### Puccinellion limosae (Soó 33) Wendelbg. 43

1. *Camphorosmetum annuae* (Rapaics 16) Soó 68
2. *Puccinellietum limosae* Rapaics 27
3. *Iridetum halophilae* (Prodan 39 n. n.) I. Șerbănescu 65  
    *Juncion gerardi* Wendelbg. 43
4. *Juncetum gerardi* Nordhagen 23, Wenzl. 34 (non Warming 60)

### Description of the associations

#### 1. *Camphorosmetum annuae* (Rapaics 16) Soó 68

It occurs as 1m<sup>2</sup> - 20 m<sup>2</sup> groups, on barren soils - either saliniferous ground or microbanks - or on excessively salinized slopes. The soil is either compact - argillaceous or clay-sandy, of variable humidity, however dry for most part of the year and wholly

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unfitted for cultivation. These are xero-mesophilic or mesophilic, mesothermal, acidophilic or acids-neutrophilic cenoses.

Two phytocenoses of this association have been identified, at Grozești and Drujineni (in the lower meadow of Prut).

The representatives of this association do not form a compact vegetation, the soil's covering degree exceeding quite rarely 50-60%. The colour of these dispersed groups ranges from grey-greenish to scarlet, which is the colour of *Camphorosma annua*, the dominating species. Besides it, there also occur *Puccinellia limosa*, *Spergularia marina*, *Trifolium fragiferum*, *Taraxacum bessarabicum*, together with other 5 species (see the table). The identified phytocenoses include both terophyte and hemicryptophyte species (50% each), belonging to Euro-Asian and sub-Mediterranean elements (25% each), as well as to cosmopolitan, Panonic, Pontic and continental ones (12.5% each).

## 2. *Puccinellietum limosae* Rapaics 27

Halophilic, xeromorphous, moderately thermophilic phytocenoses. They appear as large spaces, on meadow humic gley soil, alkali soils, saline soils or side saliferous chernozems with clayish-sandy up to argillaceous structure and variable humidity.

Such phytocenoses have been also evidenced on large sufaces in the salty meadow of Drujineni, Grozești and Călinești.

The dominating species of these phytocenoses is *Puccinellia limosa*, accompanied by *Camphorosma annua*, *Spergularia marina*, *Taraxacum bessarabicum*; sometimes, in conditions of increased humidity, *Juncus gerardi* also occurs. The major bioforms are represented by terophytes (45.5%) and hemicryptophytes (36.4%). Out of the floristic elements, special mention should be made of the equal participation of cosmopolitan, continental and sub-Mediterranean species (18.2% each), followed by the Panonic, Pontic, Ponto-Mediterranean, circumpolar and Euro-Asian ones (9.1% each).

These sufaces, with large "bald areas" of efflorescent salts have no fodder value and can be hardly meliorated.

## 3. *Iridetum halophilae* (Prodan 39 n. n.) I. Șerbănescu 65

Xero-mesophilic phytocenoses, mesothermal up to moderately thermophilic, acidoneutrophilic or neutro-basophilic, installed both in salty depressions or on the suface of drained pools.

A single phytocenosis of this type has been identified in the "Pădurea Domnească" reservation, on the border of the low meadow forest (the place of Balatina); it represents one of the rare associations met in the region between Nistru and Prut.

The phytocenoses are weakly united, with a general degree of covering of 45% - 50%, and be-layered. In the upper layer, *Iris halophila* is predominant, while the lower one is represented by *Juncus gerardi*, *Limonium gmelini*, *Artemisia maritima*, *Lactuca saligna*. The prevailing bioforms are the hemicryptophytes (61%), followed by geophytes (28%), and to a lower extent - biannual camephytes and terophytes (5.5% each) are also present. Out of the geo-elements, a higher weight is represented by the Euro-Asian (44.5%), circumpolar, continental and central-European species (11.1% each).

#### 4. *Juncetum gerardi* Nordhagen 23, Wenzl. 34 (non Warming 60)

Primary, halophilic phytocenoses, organized in permanently wet and salty micro-depressions, as well as meso-xerophilic phytocenoses, forming stripes in the space between pools or running waters and the neighbouring, strongly salinized regions.

Such groups have been identified at Lipcani, Drujineni, Zagarancea, Butești (in the Camenca river meadow), Braniște (the "Suta de movile" reservation), Crihana Veche (the lacustrine complex of Manta) at Vișoara and Călinești (the "Pădurea Domnească" reservation), Bădragii Vechi, Vadu lui Isac.

The cenoses form stripes around pools and swamps being more or less rich in different species, as depending on their vicinity to the more intensely salinized soils. Out of the three mappings presented in the Table, special mention should be made - besides the prevailing species - *Juncus gerardi* - of *Spergularia marina*, *Taraxacum bessarabicum*, *Lepidium latifolium*, *Trifolium fragiferum*, *Rorippa sylvestris*, *Matricaria matricarioides*, *Aster tripolium*, also participating to the formation of cenoses. The cenoses are mainly of hemicryptophytes (78.5%), while the floristic spectrum is very rich, being represented by circumpolar (28.6%), Euro-Asian (21.4%), cosmopolite and sub-Mediterranean (14.2% each), Pontic, European and continental species (7.1% each).

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A. *Camphorosmetum annuae* (Rapaics 16) Soć 38 (mapping 1, 2)

B. *Puccinellietum limosae* Rapaics 27 (mapping 3, 4)

C. *Iridetum halophilae* (Prodan 39 n. n.) I. Şerbănescu 65 (mapping 5)

D. *Juncetum gerardi* Wenzl. 34 (mapping 6-8)

Association	A		B		C		D	
Altitude	55	40	55	65	65	50	65	100
% covering	35	45	40	50	45	50	60	50
No. of mapping	1	2	3	4	5	6	7	8
<i>Camphorosma annua</i>	4	4	+	1	-	-	-	-
<i>Puccinellia limosa</i>	+	+	5	4	-	-	-	+
<i>Iris halophila</i>	-	-	-	-	3	-	-	-
<i>Juncus gerardi</i>	-	-	+	+	+	5	3	3
<b>Puccinellio-Salicornietea</b>								
<i>Alopecurus pratensis</i>	-	-	-	-	+	-	-	-
<i>Artemisia maritima</i>	+	+	+	-	+	-	-	-
<i>Aster tripolium</i>	-	+	+	+	-	+	-	+
<i>Cichorium intybus</i>	+	-	-	-	+	-	-	-
<i>Eleocharis palustris</i>	-	-	-	-	-	-	+	-
<i>Lepidium latifolium</i>	-	-	-	-	-	+	+	-
<i>Limonium gmelini</i>	-	-	-	-	+	-	-	-
<i>Matricaria chamomilla</i>	+	+	-	+	-	+	-	+
<i>Scorzonera cana</i>	-	-	+	+	-	-	-	-
<i>Spergularia marina</i>	+	+	+	-	-	+	-	-
<i>Taraxacum bessarabicum</i>	-	+	+	+	-	+	-	-
<b>aliae</b>								
<i>Agropyron repens</i>	-	-	-	-	+	-	-	-
<i>Agrostis stolonifera</i>	+	-	-	-	-	+	+	-
<i>Asperula humifusa</i>	-	-	-	-	+	-	-	-
<i>Beckmannia eruciformis</i>	-	-	-	-	-	-	+	-
<i>Carex acutiformis</i>	-	-	-	-	+	-	-	+
<i>Centaurea jacea</i>	-	-	-	-	+	-	-	-
<i>Convolvulus arvensis</i>	-	-	-	-	+	-	-	-
<i>Filipendula vulgaris</i>	-	-	-	-	+	-	-	-
<i>Lactuca saligna</i>	-	-	-	-	+	-	-	-
<i>Lepidium ruderales</i>	+	-	-	+	-	-	-	-
<i>Lolium perenne</i>	+	-	-	-	-	+	-	-
<i>Poa pratensis</i>	-	-	-	-	+	+	-	+
<i>Peucedanum palustre</i>	-	-	-	+	+	-	-	-
<i>Potentilla reptans</i>	-	-	-	-	-	+	-	-
<i>Rorippa sylvestris</i>	-	-	-	-	-	+	+	-
<i>Scutellaria hastifolia</i>	-	-	-	-	+	-	-	-
<i>Trifolium fragiferum</i>	+	+	-	-	-	-	+	+

Mappings have been made at: 1, 3. Drujineni; 2. Grozeşti; 4, 7. Călineşti; 5. Balatina; 6. Zagaranca (swampy ground); 8. Branşte ("Suta de movile" reservation).