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CONTRIBUTIONS TO THE VEGETATION STUDY FROM THE VASLUI RIVER BASIN (I)

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Summary: This paper presents two associations from the *Rhamno - Prunetea* Rivas Goday et Borja Carbonell 1961 class and the *Salicetea purpureae* Moor 1958 class.

Key words: phytocoenology, bioforms, floristic elements, ecological indices.

Introduction

The Vaslui River Basin is located in the central area of the Moldavian Plateau, between Iași in the North and Vaslui in the South. The territory being characterized by a hilly relief of a plateau, interrupted by several valleys. It is characterised by a temperate continental climate, with dry and cold winters and hot or even very hot and dry summers. The prevailing soils here are chernozems, on the plateaus and slopes, and alluvial soils, along the meadows and narrow valleys.

Material and methods

For the identification of plant associations, we used phytosociological research methods according to the Central–European school. The establishment of the bioforms and floristic elements was made on the basis of *Flora ilustrată a României – Pteridophyta et Spermatophyta*, by V. Ciocârlan (2000) [2]. The ecological indices were noted having in mind the works of H. Ellenberg [4].

After analysing some recent papers on phytosociological nomenclature and classification [1, 5, 8], the associations presented in this work have been included in the following phytocoeno-system:

RHAMNO – PRUNETEA Rivas Goday et Borja Carbonell 1961

PRUNETALIA SPINOSAE R. Tx. 1952

PRUNION SPINOSAE Soó 1951

Pruno spinosae – Crataegetum Hueck 1931

SALICETEA PURPUREAE Moor 1958

SALICETALIA PURPUREAE Moor 1958

SALICION ALBAE Soó 1930

Salicetum albae Issler 1926

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Results and discussions

Ass. *Pruno spinosae – Crataegetum* Hueck 1931
(Syn.: *Pruno spinosae – Crataegetum* Soó 1931)

Chorology: Chircești (Mititelu D., 1975), Emil Racoviță, Dănești, Poieni, Pripoare hill, Dobrovăț

Ecology: The *Prunus spinosa* and *Crataegus monogyna* bushes are encountered at the edge of woods and glades, on cleared sites or sunny coasts.

The phytocoenological characterisation: Besides these two edifying species we also encounter: *Rosa canina*, *Rubus caesius*, but also a large number of herbaceous species in the classes *Festuco-Brometea* conferring the association a xerophile character, alternating with the mesophile character, *Molinio-Arrhenatheretea*. The species characteristic to the classes *Artemisietea vulgaris* and *Stellarietea mediae* show the effect of the anthropozoogenous actions (**Tab. 1**).

After the analysis of the surveys we noticed the following: the **bioforms spectrum** shows us the dominance of hemicryptophytes (73.22%), followed by terophytes (7.14%) and hemiterophytes (10.71%) which underlines the presence of the anthropic factor in the area. The presence of the phanerophytes amounts to a percentage of 8.93%. The **phytogeographical spectrum** indicates the dominance of the Eurasian elements (64.27%), followed by European (19.64%) and Pontic (8.94%), reflecting thus the temperate character of the area and also the presence of the species from the Southern area. Besides circumpolar elements (3.57%), cosmopolite (1.79%) and adventive (1.79%) participate. The **spectrum of ecological indices** indicate the presence of heliophilous species (45.65%), amphotolerant to temperature (39.14%) with spreading area in Central Europe (39.13%) which develop on dry up to moderate-humid soils (39.13%), amphotolerant with regard to soil reaction (50%) and the amount of mineral nitrogen in the soil (19.56%).

Observations: The association has been recorded in this area within a study, but without presenting a table of floristic surveys.

Table 1. Ass. *Pruno spinosae – Crataegetum* Hueck 1931

Number of survey	1	2	3	4	5	6	
Altitude (m.s.m.)	320	328	245	310	245	270	
Exposition	-	NV	-	E	-	S	
Slope (°)	-	2	-	8-9	-	20	
Coverage of the shrub layer (%)	90	70	65	50	85	60	
Coverage of the herbaceous layer (%)	20	6	5	10	15	5	
Surface of survey (m ²)	50	25	25	25	50	50	
Number of species	30	14	13	14	24	38	K
Association's characteristics							
<i>Prunus spinosa</i>	+	4	3	1	4	2	V
<i>Prunio spinosae et Prunetalia</i>							
<i>Crataegus monogyna</i>	5	1	2	3	2	3	V
<i>Rubus caesius</i>	-	+	-	-	-	-	I
<i>Origanum vulgare</i>	-	-	-	-	+	-	I
<i>Rhamno-Prunetea</i>							
<i>Evonymus europaeus</i>	+	-	+	+	-	+	IV

Rosa canina	-	+	+	-	1	+	IV
Clematis vitalba	+	-	-	+	+	-	III
Cornus sanguinea	-	+	+	-	-	+	III
Acer campestre	-	-	-	-	-	+	I
<i>Quercu-Fagetea</i>							
Salvia glutinosa	-	-	-	-	+	-	I
Campanula rapunculoides	-	-	-	-	-	+	I
Carpinus betulus	-	-	-	-	-	+	I
Geum urbanum	-	-	-	-	-	+	I
Dryopteris filix-mas	-	-	-	-	-	+	I
<i>Festuco-Brometea</i>							
Achillea setacea	+	-	-	+	-	+	III
Fragaria viridis	+	-	-	-	+	+	III
Koeleria macrantha	+	-	-	-	+	-	II
Euphorbia glareosa ssp. glareosa	+	-	-	-	+	-	II
Eryngium campestre	+	-	-	+	-	-	II
Dichanthium ischaemum	+	-	-	-	+	-	II
Galium verum	+	-	-	-	-	+	II
Galium humifusum	+	-	-	-	-	-	I
Potentilla argentea	+	-	-	-	-	-	I
Echium vulgare	+	-	-	-	-	-	I
Salvia nemorosa	+	-	-	-	-	-	I
Inula germanica	-	-	+	-	-	-	I
Polygala major	-	-	+	-	-	-	I
Dianthus membranaceus	-	-	-	+	-	-	I
Hieracium bauginii	-	-	-	-	-	+	I
Stachys germanica	-	-	-	-	-	+	I
Cerintho minor	-	-	-	-	-	+	I
Medicago falcata	-	-	-	-	-	+	I
Potentilla recta	-	-	-	-	-	+	I
Plantago media	-	-	-	-	-	+	I
<i>Molinio-Arrhenatheretea</i>							
Trifolium repens	+	-	-	+	+	+	IV
Plantago lanceolata	+	+	-	-	+	+	IV
Cichorium intybus	+	-	+	+	-	-	III
Lotus corniculatus	1	-	-	+	-	+	III
Trifolium pratense	+	-	-	-	+	+	III
Centaurea jacea	+	+	-	-	+	-	III
Lolium perenne	+	+	-	-	+	-	III
Veronica chamaedrys	-	+	-	-	+	+	III
Achillea millefolium	-	+	+	-	+	-	III
Taraxacum officinale	+	-	-	+	-	-	II
Leucanthemum vulgare	-	+	-	-	+	-	II
Dactylis glomerata	-	-	+	-	-	+	II
Ranunculus acris	-	-	-	+	-	+	II
Medicago lupulina	+	-	-	-	-	-	I
Leontodon autumnalis	+	-	-	-	-	-	I
Stachys officinalis	-	-	+	-	-	-	I

Daucus carota	-	-	-	+	-	-	I
Rumex crispus	-	-	-	-	-	+	I
Ajuga reptans	-	-	-	-	-	+	I
Poa pratensis	-	-	-	-	-	+	I
Equisetum arvense	-	-	-	-	-	+	I
<i>Artemisietea vulgaris</i>							
Verbascum phlomoides	+	+	-	+	-	-	III
Echinops sphaerocephalus	+	-	-	-	-	-	I
Carduus nutans	+	-	-	-	-	-	I
Artemisia absinthium	+	-	-	-	-	-	I
Linaria vulgaris	-	+	-	-	-	-	I
Sambucus ebulus	-	-	-	+	-	-	I
Erigeron acris ssp. acris	-	-	-	-	+	-	I
Carduus acanthoides	-	-	-	-	+	-	I
Ballota nigra ssp. nigra	-	-	-	-	+	-	I
Berteroa incana	-	-	-	-	-	+	I
Elymus repens	-	-	-	-	-	+	I
<i>Stellarietea mediae</i>							
Erigeron annuus	-	+	-	-	-	+	II
Artemisia annua	-	-	-	+	-	+	II
Lathyrus tuberosus	-	-	+	-	-	-	I
Conyza canadensis	-	-	+	-	-	-	I
Torilis arvensis	-	-	-	-	-	+	I
<i>Variae syntaxa</i>							
Agrimonia eupatoria	+	-	-	-	+	+	III
Galium album	+	-	-	-	+	-	II
Hypericum perforatum	-	-	+	-	+	-	II
Torilis japonica	-	+	-	-	-	-	I
Tanacetum corymbosum	-	-	+	-	-	-	I
Silene vulgaris	-	-	-	-	+	-	I
Dianthus armeria	-	-	-	-	-	+	I
Galium mollugo	-	-	-	-	-	+	I

Place and date of the surveys: 1. Emil Racoviță, 6.08.2003; 2. Dănești, 5.08.2002; 3, 5. Poieni, 27.07.2003, 06.2001; 4. Pripoare hill, 06.2001; 6. Dobrovăț, 1.07.2004

Ass. *Salicetum albae* Issler 1926
(Syn.: *Salicetum albae-fragilis* R. Tx. 1937)

Chorology: Bârnova (Mititelu D. and collab., 1995), Dobrovăț, Pocreaca, Dănești, Codăești

Ecology: The association was encountered in few places in the Vaslui River Basin and it occupies the major river bed and the brooks and riversides. It also shows in the form of narrow band accompanying the water courses and it rarely form dense riverside coppices.

The phytocoenological characterisation: The arborescent layer ensures a reduced covering and it is dominated by *Salix alba*, besides which *Salix fragilis* and

Populus alba develop (**Tab. 2**). The bushes layer is poorly represented, we remind here *Rubus caesius*. With regard to the herbaceous layer, this is made of various hygrophilous species which withstand the floods or water stagnation for a long period of time, among which we mention: *Urtica dioica*, *Phragmites australis*, *Glechoma hederacea*, *Bidens tripartita*, *Lythrum salicaria*, *Lycopus europaeus* etc.

After the analysis of the surveys we noticed the following: from the **bioforms spectrum**, the hemicryptophytes (51.72%) dominate, followed by geophytes (13.78%), phanerophytes (17.25%), terophytes (10.35 %), hemiterophytes (3.45%) and hydrophytes (3.45%); from the **phytogeographical spectrum**, we observe dominance of the Eurasian elements (51.72%), followed by the cosmopolite (20.68%) and circumpolar (13.80%). Besides, the European elements (6.90%) also participate, the Central European (3.45%) and the adventive (3.45%). The **spectrum of ecological indices** shows us the presence of the species developing in full light (50%), mesothermal (42.86%), with spreading area in Central Europe (35.71%), growing on damp-moist up to wet soils (8-25%, 10-17.85%), amphitolerant to the soil reaction (46.42%) with high content of mineral nitrogen (7-25%, 8-28.57%).

Observations: The association has been recorded in this area within a study, but without presenting a table of floristic surveys.

Table 2. Ass. *Salicetum albae* Issler 1926

Number of survey	1	2	3	4	5	
Altitude (m.s.m.)	270	270	150	240	85	
Coverage of the arborescent layer (%)	75	90	80	60	70	
Coverage of the herbaceous layer (%)	2	7	10	8	7	
Surface of survey (m ²)	25	25	20	20	20	
Number of species	8	12	7	9	6	K
Association's characteristics						
<i>Salix alba</i>	4	5	5	4	4	V
<i>Salicion, Salicetalia et Salicetea purpureae</i>						
<i>Salix fragilis</i>	1	-	-	+	1	III
<i>Populus alba</i>	+	-	-	+	-	II
<i>Calamagrostis epigejos</i>	-	+	-	-	-	I
<i>Phragmiti-Magnocaricetea</i>						
<i>Phragmites australis</i>	+	1	+	+	+	V
<i>Typha latifolia</i>	+	-	+	+	+	IV
<i>Lycopus europaeus</i>	+	+	-	-	-	II
<i>Glyceria maxima</i>	-	+	-	-	-	I
<i>Eleocharis palustris</i>	-	+	-	-	-	I
<i>Alisma plantago-aquatica</i>	-	-	+	-	-	I
<i>Polygonum hydropiper</i>	-	-	-	+	-	I
<i>Mentha aquatica</i>	-	-	-	+	-	I
<i>Molinio-Arrhenatheretea</i>						
<i>Lythrum salicaria</i>	+	-	-	-	+	II
<i>Mentha pulegium</i>	-	-	+	-	-	I
<i>Inula britannica</i>	-	+	-	-	-	I
<i>Mentha longifolia</i>	-	+	-	-	-	I
<i>Verbena officinalis</i>	-	+	-	-	-	I

Vicia cracca	-	-	-	-	+	I
Variae syntaxa						
Echynocystis lobata	-	-	1	1	-	II
Clematis vitalba	-	-	1	+	-	II
Eupatorium cannabinum	+	-	-	-	-	I
Lamium maculatum	-	+	-	-	-	I
Bidens tripartita	-	+	-	-	-	I
Lemna minor	-	+	-	-	-	I

Place and date of the surveys: 1, 2. Dobrovăț, 23.08.2003; 3. Pocreaca, 23.08.2003; 4. Dănești, 5.08.2002; 5. Codăești, 24.08.2003

Conclusions

- The spectrum of bioforms, of floristic elements and of ecological indices shows us that our results are according with specialty literature.
- These associations were noticed in the area undergoing study, but without presenting a table with of floristic surveys.

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