AQUATIC AND PALUDICOLOUS VEGETATION FROM SOME BANAT SITES

VEGETAȚIA ACVATICĂ ŞI PALUSTRĂ DIN UNELE STAȚIUNI DIN BANAT

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Abstract: *Pursuant to the research performed in the period 2004-2007 on the vegetation in four accumulations from Timis County (Surduc, Pişchia, Liebling, Sânandrei), we found a significant number of vegetal associations (29), some of which have not been mentioned so far in Banat. Regarding their importance, there exist among them coenoses with a high conservative value, an extremely important issue for preserving their diversity.*

Rezumat: *În urma cercetărilor efectuate în perioada 2004-2007 asupra vegetației din patru acumulări din județul Timiş (Surduc, Pişchia, Liebling, Sânandrei), am constatat existența unui număr însemnat de asociații vegetale (29), unele dintre acestea nemaifiind menționate până acum în Banat. În ceea ce priveşte importanța, există între ele cenoze cu valoare conservativă ridicată, fapt deosebit de important pentru prezervarea diversității acestora.*

Key words: *Banat, aquatic, paludicolous vegetation*

Cuvinte cheie: *Banat, vegetație acvatică, palustră*

INTRODUCTION

Situated in the South-West of the country, where several geographical elements interdependent and overlapping, and benefiting from favourable climate conditions, Banat has complex vegetation. The aquatic and paludicolous vegetation is extremely important under the condition of the land improvement works influencing the existence of several vegetal associations. Although there are some studies in the area (BOȘCAIU, GRIGORE, ARVAT, COSTE) we consider that the aquatic and paludicolous vegetation are not familiar enough. In the accumulation lakes we have studied, we have encountered a significant number of vegetal associations, some of which have not been referred to in connection with Banat so far.

MATERIAL AND METHOD

The study of the vegetation for the four accumulation lakes was performed in the period 2004-2007. During this period, we organized field trips, mainly in spring and summer in order to best detect the vegetation particularities. The research is based on the principles of the Central-European Phitocoenologic School, first applied in our country by BORZA (1934), according to which the fundamental unit in the study of vegetation is the vegetal association. Thus we performed over 130 phitocoenologic samples, and after the data processing, consulting the specialized bibliography, we set the vegetal associations.

RESULTS AND DISCUSSIONS

Following the processing of the field data, we identified a number of 29 vegetal associations. The associations are mainly meso-hygrophila, hygrophila and hydrophila, very few being mesophyl.

In table 1 it is presented their distribution in the four accumulations. In table 2 we set the correspondence of the Romanian habitats (of which our associations are a part) with the

Table 1

The distribution of associations in the accumulations studied

No.	Name of the association	Liebling	Pişchia	Sânandrei	Surduc	presences
1	*Lemnetum minoris* (Oberd. 1957) Müller et Görs 1960	+	+	+	+	4
2	*Spirodeletum polyrrhizae* W. Koch 1954	+	-	-	-	1
3	*Ceratophylletum demersi* (Soó 1927) Hild 1956	+	-	-	+	2
4	*Najadetum minoris* Ubrizsy 1948, 1961	-	-	-	+	1
5	*Myriophyllo -Potametum* Soó 1934	+	+	+	-	2
6	*Trapetum natantis* Müller et Görs 1960	+	+	-	-	2
7	*Polygono – Potametum natantis* Soó 1964	+	-	+	-	2
8	*Scirpo – Phragmitetum* W. Koch 1926	+	+	+	-	3
9	*Typhaetum angustifoliae* Pignatti 1953	+	+	+	-	3
10	*Typhaetum latifoliae* G. Lang 1973	+	-	+	+	3
11	*Glycerietum maximae* Hueck 1931	+	+	+	-	3
12	*Schoenoplectetum lacustris* Eggler 1933	+	+	-	-	2
13	*Iretum pseudacori* Eggler 1933	+	+	-	-	2
14	*Alismato – Eleocharidetum* Máthé et Kovács 1967	-	+	-	+	2
15	*Leersietum oryzoides* Krause 1955 em. Pass. 1957	-	-	-	+	1
16	*Phalaridetum arundinaceae* (Horvatič 1931) Libbert 1931	+	-	+	-	2
17	*Caricetum ripariae* Knapp et Stoffer 1962	+	+	+	+	4
18	*Lindernio pixidariae – Isolepetum supinae*	-	-	-	+	1
19	*Polygono hydropiperi – Bidentetum* Lohm. 1950	-	+	-	+	2
20	*Echinochloo – Polygonetum lapathifolii* Soó et Csűrös 1947	-	+	-	+	2
21	*Conietum maculati* I. Pop 1968	+	-	-	-	1
22	*Sambucetum ebuli* (Kaiser 1926) Felföldy 1942	-	-	+	-	1
23	*Salicetum albae* Issler 1924 s.l.	-	-	+	+	2
24	*Rubo – Salicetum cinereae* Sonasak 1963	+	-	+	+	3
25	*Agrostidetum stoloniferae* (Ujvárosi 1941) Burduja et al. 1956	+	-	-	-	1
26	*Poëtum pratensis* Răv., Căzăc. Et Turenschi 1956	+	-	-	-	1
27	*Alopecuretum pratensis* Regel 1925	+	-	-	-	1
28	*Festucetum pratensis* Soó 1938	-	+	-	-	1
29	*Pruno spinosae – Crataegetum* Heuck 1931	-	-	+	-	1
total associations		**19**	**13**	**13**	**12**	**29**

Table 2

Correspondence among the types of habitats existing in Romania, of which our associations are a part, and those used in the main European classification systems

No.	**Name and code of the habitat in Romania**		**Correspondent**					
	Name	**Code**	NATURA 2000	EMERALD	CORINE	PALEARCTIC	EUNIS	**Associations**
1.	Comunități danubiene cu *Lemna minor, L. trisulca, Spirodela polyrhiza* și *Wolffia arrhiza*	R2202	3150 Natural eutrophic lakes with *Magnopotamition* or *Hydrocharition* – type vegetation	22.41 Free-floating vegetations	22.411 Duckweed (*Lemna, Spirodela, Wolffia*) covers	22.411 Duckweed covers	C1.221 Duckweed covers	*Lemnetum minoris* Soó 1927; *Lemno-Spirodeletum* W. Koch 1954
2.	Comunități danubiene cu *Nymphaea alba, Trapa natans, Nuphar luteum* și *Potamogeton natans*	R2207	3160 Natural dystrophic lakes and ponds	22.43 Rooted floating vegetation	22.43 Rooted floating vegetation	22.43111 *Nuphar* beds	-	*Trapetum natantis* V. Kárpati 1963; *Potametum natantis* Soó 1927
3.	Comunități danubiene cu *Eleocharis acicularis* și *Litorella uniflora*	R2213	3130 Oligotrophic to mesotrophic standing waters with vegetation of teh *Litorella uniflora* and/or *Isoeto-Nanojuncetea*	22.32 Euro-Siberian dwarf annual amphibians swards	-	22.32 Euro-Siberian dwarf annual amphibians swards	C3.44 *Eleocharis acicularis* beds	*Eleocharidetum acicularis* W. Koch 1926 emend. Oberd. 1957
4.	Comunități ponto-sarmatice cu *Najas marina uniflora*	R 2303	1160 Large shallow inlets and bays	-	23.211 Tasselweed communities	23.211 Athalassic tasselweed communities	-	*Najadetum minoris* Ubrizsy 1948, 1961
5.	Tufărișuri ponto-pannonice de porumbar (*Prunus spinosa*) și păducel (*Crataegus monogyna*)	R3122	40AO* Subcontinental peri-Pannonic scrub	!318B1 Pannonic and sub-Pannonic thickets	31.8B3 South-eastern sub-Mediterranean deciduous thickets	31.8B131 Peri-Pannonic hawthorn-blackthorn scrub	F3.241 Central European subcontinental thickets	*Pruno spinosae-Crataegetum* Soó (1927) 1931 (Syn.: *Prunetum moldavicae* Dihoru (1969) 1970, *Rubo caesii-Prunetum spinosae* Rațiu et Gergely 1979)

6.	Pajişti danubian-panonice de *Agrostis stolonifera*	R3715	-	-	-	37.263 Danubio-Pannonic riverine and humid meadows	E2.251 Ponto-Pannonic mesophille hay	*Agrostetum stoloniferae* (Ujvarosi 1941) Burduja 1956
7.	Pajişti danubiano-pontice de *Poa pratensis, Festuca pratensis* şi *Alopecurus pratensis*	R3716	6440 Alluvial meadows of river valleys of the *Cnidion dubii*	37.2 Eutrophic humid	-	37.263 Danubio-Pannonic riverine and humid meadows	E2.251 Ponto-Pannonic mesophille hay	*Poetum pratensis* Răv., Căzac. et Turenschi 1956; *Festucetum pratensis* Soó 1938; *Alopecuretum pratensis* Regel 1925
8.	Păduri danubiene de salcie albă (*Salix alba*) cu *Rubus caesius*	R 4407	92AO *Salix alba* and *Populus alba* galleries	!44.66 Ponto-Sarmatic mixed poplar riverine forest	-	44162 Pontic willow galleries	G1.1142 Ponto-sarmatic steppe willow galleries	*Salicetum albae* Issler 1926 em. Soó 1957
9.	Tufărişuri de zălog (*Salix cinerea*) cu mur (*Rubus caesius*)	R4421	-	-	44.921 Grey willow scrub	44.921 Grey willow carrs	F9.21 Grey willow carrs	*Rubo caesii-Salicetum cinereae* Rațiu et Gergely 1979 (Syn.: *Rubi– Salicetum cinereae* Sonasak 1963, *Alno-Salicetum cinereae* (Kobenza 1950) Pass. 1956)
10	Comunități palustre cu *Glyceria fluitans, Catabrosa aquatica* şi *Leersia oryzoides*	R 5301	-	-	53.16 Reed canary grass (*Phalaris arundinacea*) beds	53.16 Reed canary grass beds	C3.26 *Phalaris arundinacea* beds	*Phalaridetum arundinaceae* (W. Koch) Libbert 1931; *Leersietum oryzoides* Krause 1955 em. Pass. 1957
11	Comunități danubiene mezo-higrofile cu *Eleocharis palustris*	R5302	-	22.31 Euro-Siberian perennial amphibious communities	53.14 A Common spikerrush (*Eleocharis palustris*) beds	53.14A Common spikerrush beds	C3.511 Freshwater dwarf (*Eleocharis*) communities	*Eleocharitetum palustris* Schennicov 1919
12	Comunități danubiene cu	R5305	-	22.31 Euro-Siberian	53.13 Reedmace	53.13 Reedmace beds	C3.231/232 (*Typha*	*Typhetum angustifoliae* Piggnati

	Typha angustifolia și *Typha latifolia*			perennial amphibians communities	(*Typha*) beds		*latifolia/T. angustifolia*) beds	1953; *Typhetum latifoliae* G. Lang. 1973
13	Comunități daco-danubiene cu *Glyceria maxima* și *Schoenoplectus palustris*	R5307	-	-	53.15 Reed Sweetgrass (*Glyceria maxima*) communities	53.151 Reed Sweetgrass	C3.251 Sweetgrass BEDS	*Glycerietum maximae* Hueck 1931
14	Comunități danubiene cu *Phragmites australis* și *Schoenoplectus lacustris*	R5309	-	22.31 Euro-Siberian perennial amphibius communities	53.11 Common reed (*Phragmites australis*) bed	53.113 Gigant *Phragmites* beds	C3.21 *Phragmites* australis beds	*Scirpo-Phragmitetum* W. Koch 1926; *Schoenoplectetum lacustris* Eggler 1933
15	Comunități daco-danubiene cu *Crex elata, C. rostrata, C. riparia* și *C. acutiformis*	R5310	-	-	53.21 Large *Carex* beds	53.21 Large *Carex* beds	-	*Caricetum rapariae* Knapp et Stoffer 1962
16	Comunități ponto-danubiene cu *Bidens tripartita, Echinochloa crus-galli* și *Polygonum hydropiper*	R5312	3270 Rivers with muddy banks with *Chenopodium rubi* p.p. and *Bidention* p.p. vegetation	-	24.52 Euro-Siberian annual river mud communities	24.52 Euro-Siberian annual river mud communities	C3.52 (*Bidens*) communities	*Bidenti-Polygonetum hydropiperis* Lohm. in T.Tx. 1950; *Echinochloo-Polygonetum lapathifolii* Soó et Csűrös 1974

ones used in the main European classification systems. Among the frequently encountered associations, almost in all the four accumulations studied, we mention: *Lemnetum minoris* (Oberd. 1957) Müller et Görs 1960, *Caricetum ripariae* Knapp et Stoffer 1962, *Scirpo – Phragmitetum* W. Koch 1926, *Typhaetum angustifoliae* Pignatti 1953, *Typhaetum latifoliae* G. Lang 1973, *Glycerietum maximae* Hueck 1931. Others, among which: *Spirodeletum polyrrhizae* W. Koch 1954, *Polygono-Potametum natantis* Soó 1964, *Trapetum natantis* Müller et Görs 1960, *Iretum pseudacori* Eggler 1933, were encountered sporadically. From the bibliography consulted, we noticed that the associations *Leersietum oryzoides* Krause 1955 em. Pass. 1957, *Najadetum minoris* Ubrizsy 1948, 1961 and *Ceratophylletum demersi* (Soó 1927) Hild 1956 have not been referred to so far in Banat. We have encountered all of them in the accumulation Surduc. Regarding their conservative value, as it results from table 2, the associations *Najadetum minoris* Ubrizsy 1948, 1961, *Trapetum natantis* V. Kárpati 1963, *Potametum natantis* Soó 1927, *Eleocharidetum acicularis* W. Koch 1926 emend. Oberd. 1957, *Salicetum albae* Issler 1926 em. Soó 1957 are part of habitats with a high conservative value. *Lemnetum minoris* Soó 1927, *Lemno-Spirodeletum* W. Koch 1954, *Phalaridetum arundinaceae* (W. Koch) Libbert 1931, *Eleocharitetum palustris* Schennicov 1919, *Glycerietum maximae* Hueck 1931, *Scirpo-Phragmitetum* W. Koch 1926, *Caricetum ripariae* Knapp et Stoffer 1962 are part of habitats with a moderate conservative value.

CONCLUSIONS

1. In the accumulations studied, we signal the presence of 29 vegetal associations. The Liebling Accumulation displays the largest cenotic diversity (19 associations), in the other accumulations the number of the associations being lower.
2. The associations *Leersietum oryzoides* Krause 1955 em. Pass. 1957, *Najadetum minoris* Ubrizsy 1948, 1961 and *Ceratophylletum demersi* (Soó 1927) Hild 1956 are signaled for the first time in Banat.
3. The associations *Najadetum minoris* Ubrizsy 1948, 1961, *Trapetum natantis* V. Kárpati 1963, *Potametum natantis* Soó 1927, *Eleocharidetum acicularis* W. Koch 1926 emend. Oberd. 1957, *Salicetum albae* Issler 1926 em. Soó 1957, are part of habitats with a high conservative value, whose diversity needs to be preserved.

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