NOTES ON THE AQUATIC AND PALUDICOLOUS FLORA FROM FOUR ACCUMULATION LAKES (TIMIŞ COUNTY)

OBSERVAŢII ASUPRA FLOREI ACVATICE ŞI PALUSTRE DIN UNELE LACURI DE ACUMULARE DIN JUDEŢUL TIMIŞ

ALINA NEACŞU, I. BORZA

Agricultural and Veterinary University of the Banat, Timişoara, Romania

Abstract: *The paper is focused on performing the synopsis of the aquatic and paludicolous flora from four accumulation lakes in Timis County: Surduc, Pişchia, Liebling, Sânandrei. We inventoried, thus, 103 species on which we made some observations*

Rezumat: *Lucrarea are în vedere realizarea conspectului florei acvatice şi palustre din patru lacuri de acumulare din judeţul Timiş: Surduc, Pişchia, Liebling, Sânandrei. Am inventariat în acest sens 103 specii asupra cărora am făcut unele observaţii.*

Key words: *Surduc, Pişchia, Liebling, Sânandrei, aquatic and paludicolous flora*

Cuvinte cheie: *Surduc, Pişchia, Liebling, Sânandrei, floră acvatică şi palustră*

INTRODUCTION

The aquatic and paludicolous flora in Banat has undergone changes as time passed by, decreasing very much in number in comparison to what GRIGORE (1971) wrote. Many of the species have disappeared, others have considerably diminished their areas and they are also in danger of extinction. In the accumulations we have studied, we signal the presence of 103 aquatic and paludicolous species, only 24 of which being present in every accumulation. The accumulations studied are situated in Timis county, having the following surfaces (water surface): Surduc – 362 ha, Pişchia – 95 ha, Liebling – 60 ha, Sânandrei – 57 ha. In what their utility is concerned, we mention that they are mainly used for sportive fishing and recreation, being managed by specialized associations or by private companies, less accredited.

MATERIAL AND METHOD

Our observations consisted in multiple field trips and in the inventory of the aquatic and paludicolous flora. For presenting the results, we drew up the table 1 in which we noted the species and their presence in the accumulations studied. The species were identified as belonging to the aquatic and paludicolous environment, considering their classification in categories of bioforms (we emphasize on the fact that helohydatophytes are the true water plants) and taking into account the values of the ecologic humidity indexes (when their value is between 4-6, the species are meso-hydrophytes, hydrophytes and ultra-hydrophytes). For each accumulation, we then set the total number of species present and we made several observations, mainly on the species with low occurrence.

RESULTS AND DISCUSSIONS

The aquatic and paludicolous flora in the sites mentioned is distributed as in table 1.

In the four accumulations studied, we inventoried 103 aquatic and paludicolous species. From the table it results that Surduc records the highest specific diversity, within this accumulation being present 77 aquatic and paludicolous macrophytes. In Pischia, their amount is of 71; 60 are at Liebling and only 36 at Sânandrei. This floristic abundance is dependent on the surface of the four accumulations, but especially on the anthropic influence upon them.

Table 1.

The aquatic and paludicolous flora in the accumulation lakes
Liebling, Pişchia, Sânandrei, Surduc

	biof	geo.	U	species	Presence of the species			
					Liebling	Pişchia	Sânandrei	Surduc
1	H	Circ	4	*Agrostis stolonifera* L.	+	+	-	+
2	HH	Eua	6	*Alisma lanceolatum* With.	+	-	-	-
3	HH	Cosm	6	*Alisma plantago-aquatica* L.	-	+	-	+
4	H	Circ (bor)	5	*Alopecurus aequalis* Sobol	+	-	-	-
5	H	Eua	4	*Alopecurus pratensis* L.	+	+	+	+
6	Th	Eua	4,5	*Bidens tripartita* L.	+	+	+	+
7	HH	Cosm	6	*Bolboschoenus maritimus* (L.) Palla	+	-	+	+
8	HH	Eua	6	*Butomus umbellatus* L.	+	+	+	+
9	H	Eua	5	*Calamagrostis canescens* (Weber) Roth.	+	-	-	-
10	H	Circ	4,5	*Caltha palustris* L.	-	-	-	+
11	H	Eua	4	*Calystegia sepium* (L.) R.Br.	+	+	+	+
12	HH	Eua (Med)	6	*Carex acutiformis* Ehrh.	-	+	-	+
13	H	Eur	4	*Carex distans* L.	+	-	-	+
14	HH	Circ (bor)	5	*Carex lasiocarpa* Ehrh.	-	-	-	+
15	HH	Eua (Cont)	4	*Carex melanostachya* Bieb. ex Willd.	-	+	-	-
16	HH	Eua	5	*Carex riparia* Curtis	+	+	+	+
17	HH	Eua	4	*Carex vulpina* L.	+	+	-	+
18	HH	Cosm	6	*Ceratophyllum demersum* L.	-	+	-	+
19	G	Eua	4,5	*Cirsium canum* (L.) All.	+	-	-	-
20	TH	Eua	4,5	*Cirsium palustre* (L.) Scop.	+	-	-	+
21	Th	Cosm	4,5	*Cyperus flavescens* Jacq.	-	+	-	-
22	Th	Eua	6	*Cyperus fuscus* L.	+	-	-	+
23	H	Cosm	4	*Deschampsia caespitosa* (L.) Beauv.	-	-	-	+
24	TH	Eua	4	*Dipsacus laciniatus* L.	+	+	+	-
25	Th	Cosm	4	*Echinochloa crus-galli* (L.) Beauv.	+	+	+	+
26	Th	Circ	5,5	*Eleocharis acicularis* (L.) Roemer et Schultes	-	-	-	+
27	G	Cosm	5	*Eleocharis palustris* (L.) Roemer et Schultes	+	+	-	+
28	H	Eua	4,5	*Epilobium tetragonum* L.	-	+	-	+
29	Th	Adv	4	*Erigeron annuus* (L.) Pers.	-	+	-	+
30	H	Eua	4	*Eupatorium cannabinum* L.	-	+	-	+
31	H	Pont-Med	4,5	*Galega officinalis* L.	+	+	-	-
32	H	Eua	4,5	*Galium uliginusum* L.	-	-	-	+
33	HH	Cosm	5	*Glyceria maxima* (Hartm.) Holmberg.	+	+	+	-
34	Th	Eua	5	*Gnaphalium uliginosum* L.	-	-	-	+
35	H	Eua	4,5	*Gratiola officinalis* L.	+	-	-	+
36	Th	Eua	4	*Impatiens noli-tangere* L.	-	-	-	+
37	H	Circ	5	*Juncus articulatus* L.	-	+	-	+
38	Th	Cosm	4,5	*Juncus bufonius* L.	+	-	-	+
39	H	Cosm	4,5	*Juncus effusus* L.	+	-	+	+
40	H	Eua	4	*Juncus inflexus* L.	-	+	-	-
41	HH	Circ	6	*Leersia oryzoides* (L.) Swartz	-	-	-	+
42	HH	Cosm	6	*Lemna minor* L.	+	+	+	+
43	Th	Eua	4,5	*Lindernia procumbens* (Krocker) Philcox	-	-	-	+
44	HH	Eua	5	*Lycopus europaeus* L.	+	+	+	+
45	Ch	Eur	4	*Lysimachia nummularia* L.	+	+	+	+
46	H	Eua	5	*Lysimachia vulgaris* L.	+	+	+	+
47	Th	Cosm	4	*Lythrum hyssopifolia* L.	-	+	-	+
48	H	Cosm	4	*Lythrum salicaria* L.	+	+	+	+
49	HH	Eua	5	*Mentha aquatica* L.	+	+	+	+
50	H	Eua	4,5	*Mentha longifolia* (L.) Hudson	-	+	+	+
51	H	Eua	4	*Mentha pulegium* L.	-	+	-	+
52	H	Eua	5	*Myosotis scorpioides* L.	+	-	-	+
53	HH	Circ	6	*Myriophyllum spicatum* L.	-	+	-	+
54	HH	Eua	6	*Najas minor* All.	-	-	-	+
55	HH	Eua	6	*Oenanthe aquatica* (L.) Poiret	+	-	-	+
56	H	Dac.-Balc.-Pan.	4	*Oenanthe banatica* Heuffel	-	+	-	-

57	Th	Atl-Med	4	*Peplis portula* L.	-	-	-	+
58	HH	Circ	5	*Phalaris arundinaceea* L.	+	+	+	+
59	HH	Cosm	5	*Phragmites australis* (Cav.) Steudel	+	+	+	+
60	H	Circ	5	*Poa palustris* L.	+	-	-	-
61	G	Cosm	6	*Polygonum amphibium* L.	+	+	+	+
62	Th	Eua	4,5	*Polygonum hydropiper* L.	+	+	-	+
63	Th	Cosm	4	*Polygonum lapathyfolium* L.	-	+	-	+
64	Th	Eua	5	*Polygonum mite* Schrank	+	+	-	+
65	Th	Eua	4,5	*Polygonum persicaria* L.	-	+	+	+
66	MM	Eua	4	*Populus nigra* L.	-	-	+	-
67	HH	Cosm	6	*Potamogeton crispus* L.	+	+	+	+
68	HH	Cosm	6	*Potamogeton natans* L.	+	+	+	+
69	HH	Cosm	6	*Potamogeton pectinatus* L.	-	+	+	-
70	H	Cosm	4	*Potentilla anserina* L.	+	+	-	-
71	Th	Med	4	*Potentilla supina* L.	-	+	-	-
72	Th	Eua	4	*Pulicaria vulgaris* Gaertner	-	+	-	+
73	HH	Cosm	6	*Ranunculus aquatilis* L.	+	-	+	-
74	H	Eua	4	*Ranunculus repens* L.	+	+	+	+
75	HH	Eur	6	*Ranunculus trycophyllus* Chaix	-	+	-	-
76	HH	Eua	6	*Rorippa amphibia* L. (Besser)	+	+	-	+
77	H	Euc	4	*Rorippa austriaca* (Crantz) Besser	+	+	+	-
78	Th	Cosm	5	*Rorippa islandica* L.	-	-	-	+
79	H	Eur	4	*Rorippa sylvestris* (L.) Besser	+	-	-	+
80	H	Eua	4,5	*Rubus caesius* L.	+	+	+	+
81	H	Adv	4,4	*Rudbeckia laciniata* L.	-	-	-	+
82	H	Eua	4	*Rumex crispus* L.	+	+	+	+
83	H	Eur	4	*Rumex obtusifolius* L.	-	+	-	+
84	Th	Eua	5	*Rumex palustris* Sm.	+	-	-	-
85	MM	Eua	5	*Salix alba* L.	+	+	+	+
86	M	Eua	5	*Salix cinerea* L.	+	+	+	+
87	M	Eua	4,5	*Salix fragilis* L.	+	-	-	+
88	M	Eua	5	*Salix purpurea* L.	-	+	-	-
89	M	Eua	5	*Salix triandra* L.	-	+	-	-
90	HH	Cosm	6	*Schoenoplectus lacustris* L.	+	+	-	+
91	H	Euc	5	*Scutellaria hastifolia* L.	+	+	-	+
92	Ch	Eua	4,5	*Solanum dulcamara* L.	+	+	+	+
93	H	Eua	4,5	*Sonchus palustris* L.	-	+	-	-
94	HH	Eua	5,5	*Sparganium erectum* L.	-	+	-	+
95	HH	Cosm	6	*Spirodela polyrhiza* (L.) Schleichen	+	+	+	-
96	H	Circ	4	*Stachys palustris* L.	+	+	-	+
97	H	Eua	4	*Symphytum officinale* L.	+	+	+	+
98	H	Eua	4,5	*Teucrium scordium* L.	-	+	-	-
99	H	Eua	4,5	*Thalictrum flavum* L.	+	+	-	-
100	HH	Eua	6	*Trapa natans* L.	+	+	-	-
101	HH	Cosm	6	*Typha angustifolia* L.	+	+	+	+
102	HH	Cosm	6	*Typha latifolia* L.	+	+	-	+
103	H	Circ	5	*Veronica anagallis-aquatica* L.	-	+	-	+
				Total	60	71	36	77

Among the frequently encountered species in all the four accumulations, we mention the following: *Salix alba* L., *Salix cinerea* L., *Ranunculus repens* L., *Polygonum amphibium* L., *Lythrum salicaria* L., *Typha angustifolia* L., *Carex riparia* Curtis, *Bidens tripartita* L., *Mentha aquatica* L. Less frequent species, which appear only in one of the four lakes, are: *Lindernia procumbens* (Krocker) Philcox, *Peplis portula* L., *Eleocharis acicularis* (L.) Roemer et Schultes, *Leersia oryzoides* (L.) Swartz, *Najas minor* All., *Oenanthe banatica* Heuffel (all encountered only in Surduc), *Alisma lanceolatum* With. (encountered in Liebling) etc. Some of these, whose existence is threatened, are part of habitats which have a high conservative value. *Leersia oryzoides* (L.) Swartz and *Najas minor* All. form characteristic associations, which we signal for the first time in Banat. The species *Lindernia procumbens* (Krocker) Philcox, is listed as community interest species requiring strict protection (in accordance with O.U. no. 57

of June 20th 2007 on the protected natural areas' regime, the conservation of natural habitats, of wild flora and fauna).

CONCLUSIONS

1. In the four accumulation lakes we have studied, we signal the presence of 103 aquatic and paludicolous species.
2. Surduc is the best represented in species – 77, for Pischia the number is 71. In Liebling we noted 60 species and only 36 in Sânandrei.
3. This distribution is connected with the size of the areas on which the lakes are situated and with man's influence on their ecosystems.
4. There are, among them, species which are part of habitats with high conservative value.

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