

THE COMMUNITIES OF WATER BEETLES AND FACTORS THAT INFLUENCE THEM IN LAKES OF TALSĪ PAUGURAINĒ NATURE PARK

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The fauna of water beetles is known fairly well in Latvia (Barševskis u.c. 2005), however the ecology of species is researched incompletely. The aim of the research is to study what environmental factors influence the communities of water beetles in lakes of Talsi pauguraine Nature Park. 12 lakes having different morphology and vegetation are situated in the Talsi Pauguraine Nature Park. In littoral zone of each lake ten sampling sites was established with approximately ten metres distance between them. Water beetles were collected with hydroentomological net and bait traps in May and June 2009. The cover of the vegetation and plant species were determined in these sampling sites. Water pH, temperature, salinity, conductivity and other parameters were measured with Multiparameter Water Quality Sonde.

The distribution of the water beetle individuals and species number in lakes using different sampling methods is shown in Table 1. Medium and big in size water beetles mainly were collected by traps, but medium and small in size beetles – mainly by net. Two protected species were found – *Dytiscus laticornis* and *Graphoderus bilineatus*. *Hydaticus transversalis*, *Ilybius quadriguttatus*, *Cybister lateralmarginalis*, *Hydaticus seminiger* and *Hydroporus palustris* individuals dominated in the communities of water beetles.

Table 1
The distribution of the water beetle individuals and species number in lakes using different sampling methods in May and June 2009.

Lake	Parameters and sampling method					
	Individuals			Species		
	Net	Traps	In total	Net	Traps	In total
Baložu ezers	5	30	35	4	6	10
Mācītājmājas ezers	18	22	40	12	8	18
Sapņu ezers	34	103	137	11	15	20
Sirdsezers	1	17	18	1	5	6
Čumalezers	0	1	1	0	1	1
Ābeļezers	0	19	19	0	3	3
Kalnmuīžas ezers	0	0	0	0	0	0
Kamparezers	20	24	44	7	9	15
Stulbiņezers	18	44	62	5	6	10
Vēzene	1	6	7	1	3	4
Bērzene	4	4	8	3	2	5
Kalnezers	30	71	101	10	16	22
In total	131	341	472	24	25	37

Using DCA analysis it was able to conclude that lakes Sapņezers and Stulbiņezers are similar according to the number of water beetles and species. Baloži Lake, Mācītājmāja Lake and Kalnezers are rather similar. Water temperature of lakes (from 12.5 °C to 15.7 °C) was the most important parameter for the distribution of the water beetle individuals, but other water hydrochemical parameters were unimportant. Insignificant negative correlation between the water temperature and the diversity of water beetle species was stated. Insignificant positive correlation between the average cover of the vegetation and the diversity of water beetle species was stated. It was revealed that the diversity of water beetle species was higher in lakes with large cover of *Sfagnum*, *Nuphar lutea* and *Menyanthes trifoliata*, but it was lower in lakes with large cover of *Phragmites australis*.

References

Barševskis A., Kalniņš M., Cibuļskis R. 2005. Latvijas airvaboles (Coleoptera: Dytisciformia). [sērija: „Latvijas vaboles”, No. 2]. Daugavpils: Baltijas Koleopteroloģijas biedrība, 136 lpp.