

Materials to knowledge of aquatic beetles (Coleoptera: Hydroadephaga, Hydrophiloidea, Staphylinoidea, Byrrhoidea) of the Kashubian Landscape Park

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ABSTRACT. Materials to knowledge of aquatic beetles (Coleoptera: Hydroadephaga, Hydrophiloidea, Staphylinoidea, Byrrhoidea) of the Kashubian Landscape Park.

The paper presents new data about the distribution of aquatic beetles (Coleoptera: Hydroadephaga, Hydrophiloidea, Staphylinoidea, Byrrhoidea) in the Kashubian Landscape Park. During the study 82 species were found in this area. Among the reported species a few are rare in Poland, such as: *Dytiscus lapponicus*, *Graphoderus bilineatus*, *Rhantus incognitus*, *Hydroporus gyllenhalii*, *Hydroporus morio*.

KEY WORDS: water beetles, Coleoptera aquatica, Kashubian Landscape Park, Kashubia, Poland, new records, faunistics.

INTRODUCTION AND STUDY AREA

“True aquatic beetles” is an ecological group of species that are at least partly submerged for most of the time of their adult stage (JÄCH 1998). In Poland they are represented by 13 families with 362 species (PETRYSZAK & ALEKSANDROWICZ 2004, PRZEWOŹNY 2004, PRZEWOŹNY *et al.* 2004, PRZEWOŹNY & RUTA 2010).

Kashubian Landscape Park is, almost whole, located in mesoregion of the Kashubian Lake District (KONDRACKI 2009) and according to the classification adopted in the *Catalogue of the Polish Fauna* belongs to the Pomeranian Lake District (RAFALSKI 1960). It covers an area of 32 303 ha, of which 16 712 ha (50.3%) are agricultural lands, 11 230 ha (33.8%) are forests and 3 430 ha (10.3%) are water courses and reservoirs. The total area of 48 lakes (reservoirs over 1 ha) located in the park is 3 145 ha and 9.62% of the park area, which in Polish conditions is very high value (PRZEWOŹNIAK 2000).

The park was established to protect the landscape typical for the late-glacial lake district. It is part of the ecological system of protected areas, adjacent to 5 protected landscape areas, and in its further surroundings there are landscape parks: Trójmiejski, Wdzydzki and Dolina Słupi. It is a spring area for neighboring lower areas. The park is divided into two almost equal parts: the Łeba (Pomeranian river) and Radunia (tributary of the Vistula river) rivers catchments. The share of non-flood areas is up to 50% (PRZEWOŹNIAK 2000).

Despite the establishment of the park, the protection of this area is insufficient and the degree of examination of the fauna, especially invertebrates, is very poor. Only well-studied are the Cerambycidae of the Mirachowski Forests (northern part of the park)

(ZIELIŃSKI 1999, 2004) and some water insects (Odonata, Heteroptera, Coleoptera, Trichoptera, Lepidoptera) and Ceratopogonidae of the Kurze Grzędy and Staniszewskie Błoto Reserves (BUCZYŃSKI *et al.* 2009). Northern Poland is an important area of occurrence of many rare and endangered water beetles due to many well-preserved habitats, especially lakes, peatbogs and clean rivers flowing in a varied landscape (thanks to which there are also species known mainly from mountain areas) (BUCZYŃSKI & PRZEWOŹNY 2009).

The aim of the study was better cognition the fauna of water beetles in this area and to allow future analysis of species composition in the face of threats, particularly for typhobiont and typhophilous species, such as melioration, agricultural impacts, and increasing tourism.

MATERIAL AND METHODS

The material was collected in the years 2014-2016 on 51 study sites in the area of the Kashubian Landscape Park. Aquatic beetles (adults) were caught using a hydrobiological net and, on some sites, bottle traps with bait (meat) left for up to 48 hours. Approximately 75 semi-quantitative samples were collected (some sites were visited twice) and over a dozen traps were set. In the case of the studied part of the Łeba River, the partially decayed branches were removed from the water in search of the beetles from Elmidae family.

Caught specimens are included in the collection of the first author and the Department of Systematic Zoology, Faculty of Biology, Adam Mickiewicz University in Poznań.

LIST OF SITES

Sites were assigned to several different types of environments:

1. Big lakes

Big lakes, usually with sandy bottom and scanty coastal vegetation.

Sites: No. 17, Potęgowskie Lake, [CF03], 54°26.87'N/18°01.81'E; 28, Bukowskie Lake, [XA92], 54°21.78'N/17°57.26'E; 49, Długie Lake, [CF02], 54°18.47'N/18°00.06'E; 50, Nierzostowo Lake, [CF01], 54°16.89'N/18°00.73'E

2. Peatbogs type 1:

Lakes with the edges overgrown by *Sphagnum* sp.

10 sites: 6, [XA93], 54°26.23'N/17°59.95'E; 7, [XA93], 54°26.25'N/17°59.90'E (only Gyrinidae were caught); 9, [XA93], 54°26.16'N/17°59.71'E; 15, [XA93], 54°25.91'N/ 17°57.72'E; 18, Okuniewko Lake, [XA93], 54°25.18'N/17°58.91'E; 24, [XA92], 54°22.78'N/17°57.30'E; 25, [XA92], 54°22.61'N/17°57.36'E; 27, [XA92], 54°21.93'N/17°58.22'E; 34, [CF12], 54°20.03'N/18°09.92'E; 45, [CF02], 54°18.48'N/18°01.04'E

3. Peatbogs type 2:

Lakes almost completely covered with *Sphagnum* sp. There are only a few small open water areas in each.

5 sites: 8, [XA93], 54°26.27'N/17°59.71'E; 13, [XA93], 54°25.93'N/17°58.38'E; 14, [XA93], 54°25.96'N/17°57.82'E; 16, [XA93], 54°25.51'N/17°57.15'E; 20, [XA83], 54°23.03'N/17°54.66'E

4. Small peatbog reservoir:

Small, rectangular, artificial tank created during the extraction of peat.

1 site: 10, [XA93], 54°26.11'N/17°59.74'E

5. Small water reservoirs:

Shallow ponds with usually thick layer of detritus. Area less than 0.2 ha.

12 sites: 11, [CF03], 54°25.78'N/18°00.12'E; 19, [XA83], 54°23.32'N/17°54.32'E; 31, [CF12], 54°20.51'N/18°09.88'E; 32, [CF12], 54°20.37'N/18°09.91'E; 36, [CF12], 54°18.09'N/18°05.17'E; 38, [CF12], 54°18.11'N/18°04.93'E; 39, [CF02], 54°18.68'N/18°01.90'E; 40, [CF02], 54°18.66'N/18°01.79'E; 41, [CF02], 54°18.66'N/18°01.27'E; 42, [CF02], 54°18.67'N/18°01.09'E; 43, [CF02], 54°18.57'N/18°01.22'E; 46, [CF02], 54°18.30'N/18°01.22'E

6. Small periodic water body with sedges:

1 site: 5, [CF03], 54°26.26'N/18°00.66'E

7. Łeba river:

1 site: 4, [CF03], 54°26.67'N/18°01.30'E

8. Drainage ditches:

Mostly with standing water. Often with well-developed vegetation.

10 sites: 3, [CF03], 54°26.90'N/18°01.33'E; 12, [XA93], 54°25.93'N/17°58.43'E; 21, [XA92], 54°22.51'N/17°56.50'E; 30, [XA92], 54°21.39'N/17°55.96'E; 33, [CF12], 54°20.20'N/18°09.97'E; 37, [CF12], 54°18.10'N/18°05.05'E; 44, [CF02], 54°18.57'N/18°01.20'E; 47, [CF02], 54°18.44'N/18°00.09'E; 48, [CF02], 54°18.47'N/18°00.10'E (estuary to the lake); 51, [CF01], 54°16.87'N/18°00.18'E

9. Puddles in stream bed of periodic streams:

Puddles in dried streams on steep hillsides. 3 sites.

Sites: 1, [CF03], 54°26.87'N/18°01.81'E; 2, [CF03], 54°26.87'N/18°01.62'E; 35, [CF12], 54°17.63'N/18°06.71'E

10. Puddles on forest roads:

Small shallow tanks in ruts in forests roads.

4 sites: 22, [XA92], 54°22.57'N/17°56.52'E; 23, [XA92], 54°22.71'N/17°56.94'E; 26, [XA92], 54°22.40'N/17°57.43'E; 29, [XA92], 54°21.38'N/17°56.30'E

RESULTS

The collected material includes 1744 specimens representing 82 species from 32 genera and 9 families (Table 1): Gyrinidae (6 species), Haliplidae (4), Noteridae (1), Dytiscidae (55), Dryopidae (1), Elmidae (1), Hydrophilidae (9), Helophoridae (3) and Hydraenidae (2).

This represents 23% of the national fauna for these families (PETRYSAK & ALEKSANDROWICZ 2004, PRZEWOŹNY 2004, PRZEWOŹNY *et al.* 2004, PRZEWOŹNY & RUTA 2010). 34 species were not previously reported from area of the Kashubian Landscape Park (BUCZYŃSKI *et al.* 2009). Dominant species were *Anacaena lutescens* STEPH. It represented 19% (339 individuals in 21 locations) of all collected water beetles. Nearly all were found in puddles and ditches. The second most abundant species was *Noterus crassicornis* (MÜLL.), which in turn was mainly found in peatbogs and less abundant in small water reservoirs (171 individuals in 14 sites). Apart from these two species in 10 or more sites were caught *Acilius canaliculatus* (NICOLAI) (15 sites), *Dytiscus marginalis* L. (12), *Hydroporus palustris* (L.) (11), *Acilius sulcatus* (L.) (10) and *Hyphydrus ovatus* (L.) (10).

Relatively low, in relation to other landscape parks, number of found species (e.g. in the nearby Wdzydze Landscape Park 113 species were recorded in BUCZYŃSKI & PRZEWOŹNY 2009 paper) may be due to the type of selected research sites. A significant part of them were acidic shaded forest reservoirs or in a few cases flowing waters settled largely by stenotopes. Tyrphobiont and tyrphophilous species were the largest group of stenotopes: respectively 35% and 42% of all species and individuals.

Table. 1. List of species of aquatic beetles recorded in Kashubian Landscape Park during the study.

Tabela 1. Chrząszcze wodne odnotowane w Kaszubskim Parku Krajobrazowym.

No. Lp.	Species Gatunek	Study sites no. Numer stanowiska	A	B	C	D	E	F	G	H	I	J
Gyrinidae												
1.	<i>Gyrinus aeratus</i> STEPHENS, 1835	17, 28, 49	+									
2.	<i>Gyrinus distinctus</i> AUBÉ, 1836	17	+									
3.	<i>Gyrinus marinus</i> GYLLENHAL, 1808	6, 7, 13, 28, 49	+	+	+							
4.	<i>Gyrinus minutus</i> FABRICIUS, 1798	6, 7, 14, 51		+	+					+		
5.	<i>Gyrinus natator</i> LINNAEUS, 1758	14			+							
6.	<i>Gyrinus substriatus</i> (LINNAEUS, 1758)	3, 28, 51	+							+		
Haliplidae												
7.	<i>Haliplus flavicollis</i> STURM, 1834	49	+									
8.	<i>Haliplus fluviatilis</i> AUBÉ, 1836	49	+									
9.	<i>Haliplus heydeni</i> WEHNCKE, 1875 ♂	22, 30, 31, 36					+			+		+
10.	<i>Haliplus ruficollis</i> (DE GEER, 1774) ♂	13, 28, 31, 32, 37, 39, 41, 42, 49	+		+		+			+		

No. Lp.	Species Gatunek	Study sites no. Numer stanowiska	A	B	C	D	E	F	G	H	I	J
	<i>Haliplus heydeni/ruficollis</i> ♀	6, 13, 23, 30, 31, 32, 36, 37, 38, 39		+	+		+			+		+
Noteridae												
11.	<i>Noterus crassicornis</i> (MÜLLER, 1776)	6, 8, 13, 14, 15, 18, 19, 24, 27, 31, 39, 41, 42, 49	+	+	+		+					
Dytiscidae												
12.	<i>Agabus affinis</i> (PAYKULL, 1798)	37								+		
13.	<i>Agabus bipustulatus</i> (LINNAEUS, 1767)	29, 51								+		+
14.	<i>Agabus guttatus</i> (PAYKULL, 1798)	1,2									+	
15.	<i>Agabus paludosus</i> (FABRICIUS, 1801)	51								+		
16.	<i>Agabus sturmii</i> (GYLLENHAL, 1808)	24, 37, 47, 48		+						+		
17.	<i>Agabus undulatus</i> (SCHRANK, 1776)	32, 36, 38					+					
18.	<i>Ilybius aenescens</i> THOMSON, 1870	24		+								
19.	<i>Ilybius ater</i> (DE GEER, 1774)	36, 37, 38					+			+		
20.	<i>Ilybius chalconatus</i> (PANZER, 1796)	29, 35									+	+
21.	<i>Ilybius fenestratus</i> (FABRICIUS, 1781)	15, 25, 27, 49, 50	+	+								
22.	<i>Ilybius fuliginosus</i> (FABRICIUS, 1792)	47, 48								+		
23.	<i>Ilybius guttiger</i> (GYLLENHAL, 1808)	37								+		
24.	<i>Platambus maculatus</i> (LINNAEUS, 1758)	3, 17, 47, 49	+							+		
25.	<i>Colymbetes paykulli</i> ERICHSON, 1837	37, 40					+			+		
26.	<i>Colymbetes striatus</i> (LINNAEUS, 1758)	40, 45		+			+					
27.	<i>Rhantus exoletus</i> (FORSTER, 1771)	24, 32, 37		+			+			+		
28.	<i>Rhantus frontalis</i> (MARSHAM, 1802)	6		+								
29.	<i>Rhantus grapii</i> (GYLLENHAL, 1808)	38					+					
30.	<i>Rhantus incognitus</i> SCHOLZ, 1927	51								+		

No. Lp.	Species Gatunek	Study sites no. Numer stanowiska	A	B	C	D	E	F	G	H	I	J
31.	<i>Rhantus suturalis</i> (MACLEAY, 1825)	5, 37						+		+		
32.	<i>Rhantus suturellus</i> (HARRIS, 1828)	14			+							
33.	<i>Acilius canaliculatus</i> (NICOLAI, 1822)	6, 8, 10, 11, 14, 20, 24, 25, 32, 37, 38, 40, 41, 45, 46		+	+	+	+				+	
34.	<i>Acilius sulcatus</i> (LINNAEUS, 1758)	6, 13, 14, 20, 24, 25, 37, 38, 42, 45		+	+		+				+	
35.	<i>Graphoderus bilineatus</i> (DE GEER, 1774)	18		+								
36.	<i>Graphoderus cinereus</i> (LINNAEUS, 1758)	6, 13, 20		+	+							
37.	<i>Graphoderus zonatus</i> (HOPPE, 1795)	6, 8, 14, 20, 24		+	+							
38.	<i>Cybister lateralimarginalis</i> (DE GEER, 1774)	6, 13, 24		+	+							
39.	<i>Dytiscus circumcinctus</i> AHRENS, 1811	6		+								
40.	<i>Dytiscus dimidiatus</i> BERGSTRÄSSER, 1778	19, 34, 37, 45		+			+				+	
41.	<i>Dytiscus lapponicus</i> GYLLENHAL, 1808	6, 14, 20, 24, 25		+	+							
42.	<i>Dytiscus marginalis</i> LINNAEUS, 1758	6, 13, 14, 20, 24, 37, 39, 40, 41, 45, 46		+	+		+				+	
43.	<i>Hydaticus seminiger</i> (DE GEER, 1774)	6, 8, 25, 37, 38, 44		+	+		+				+	
44.	<i>Hydaticus transversalis</i> (PONTOPPIDAN, 1763)	38					+					
45.	<i>Hydroglyphus geminus</i> (FABRICIUS, 1792)	5						+				
46.	<i>Graptodytes pictus</i> (FABRICIUS, 1787)	9, 15, 25, 30		+							+	
47.	<i>Hydroporus angustatus</i> STURM, 1835	38, 39, 41, 42					+					
48.	<i>Hydroporus dorsalis</i> (FABRICIUS, 1787)	10, 31, 37, 39, 41				+	+				+	
49.	<i>Hydroporus erythrocephalus</i> (LINNAEUS, 1758)	6, 12, 14, 31, 37		+	+		+				+	
50.	<i>Hydroporus figuratus</i> (GYLLENHAL, 1826)	31, 32					+					
51.	<i>Hydroporus gyllenhalii</i> SCHJØDTE, 1841	13, 36			+		+					
52.	<i>Hydroporus incognitus</i> SHARP, 1869	29, 32					+					+

No. Lp.	Species Gatunek	Study sites no. Numer stanowiska	A	B	C	D	E	F	G	H	I	J
53.	<i>Hydroporus melanarius</i> STURM, 1835	12, 13, 21			+					+		
54.	<i>Hydroporus memnonius</i> NICOLAI, 1822	12, 33, 41					+			+		
55.	<i>Hydroporus morio</i> AUBÉ, 1838	21								+		
56.	<i>Hydroporus neglectus</i> SCHAUM, 1845	38					+					
57.	<i>Hydroporus obscurus</i> STURM, 1835	6, 13, 14, 16		+	+							
58.	<i>Hydroporus palustris</i> (LINNAEUS, 1761)	12, 22, 30, 32, 37, 38, 39, 41, 43, 46, 49	+				+			+		+
59.	<i>Hydroporus striola</i> (GYLLENHAL, 1826)	38, 44					+			+		
60.	<i>Hydroporus tristis</i> (PAYKULL, 1798)	12, 13, 21			+					+		
61.	<i>Hydroporus umbrosus</i> (GYLLENHAL, 1808)	6, 12, 13, 14, 37		+	+					+		
62.	<i>Hygrotus inaequalis</i> (FABRICIUS, 1777)	6, 31, 37, 38		+			+			+		
63.	<i>Oreodytes sanmarkii</i> (SAHLBERG, 1826)	4							+			
64.	<i>Porhydrus lineatus</i> (FABRICIUS, 1775)	13, 31, 32, 37			+		+			+		
65.	<i>Hyphydrus ovatus</i> (LINNAEUS, 1761)	9, 13, 15, 18, 24, 30, 32, 37, 39, 41		+	+		+			+		
66.	<i>Laccophilus minutus</i> (LINNAEUS, 1758)	47								+		
Dryopidae												
67.	<i>Dryops cf. auriculatus</i> (GEOFFROY, 1785)	37								+		
Elmidae												
68.	<i>Elmis aenea</i> (MÜLLER, 1806)	4							+			
Helophoridae												
69.	<i>Helophorus flavipes</i> FABRICIUS, 1792	5, 21, 31					+	+		+		
70.	<i>Helophorus granularis</i> (LINNAEUS, 1760)	13			+							
71.	<i>Helophorus nanus</i> STURM, 1836	37								+		
Hydraenidae												
72.	<i>Limnebius parvulus</i> (HERBST, 1797)	5, 31, 36					+	+				

No. Lp.	Species Gatunek	Study sites no. Numer stanowiska	A	B	C	D	E	F	G	H	I	J
73.	<i>Ochthebius minimus</i> (FABRICIUS, 1792)	29										+
Hydrophilidae												
74.	<i>Anacaena limbata</i> (FABRICIUS, 1792)	33, 47, 48								+		
75.	<i>Anacaena lutescens</i> (STEPHENS, 1829)	3, 5, 12, 13, 18, 21, 22, 23, 26, 29, 30, 32, 33, 37, 38, 41, 42, 44, 49, 51	+	+	+		+	+		+		+
76.	<i>Enochrus affinis</i> (THUNBERG, 1794)	14, 37			+					+		
77.	<i>Enochrus ochropterus</i> (MARSHAM, 1802)	6, 13, 14, 37, 42		+	+		+			+		
78.	<i>Enochrus quadripunctatus</i> (HERBST, 1797)	5, 37						+		+		
79.	<i>Enochrus testaceus</i> (FABRICIUS, 1801)	31, 49	+				+					
80.	<i>Helochares obscurus</i> (MÜLLER, 1776)	6, 36, 37, 39		+			+			+		
81.	<i>Hydrobius fuscipes</i> (LINNAEUS, 1758)	21, 38, 39, 48, 51					+			+		
82.	<i>Laccobius bipunctatus</i> (FABRICIUS, 1775)	51								+		

Explanations: A – big lakes, B – peatbogs type 1, C – peatbogs type 2, D – small peatbog reservoir, E – small water reservoirs, F – shallow periodic water body with sedges, G – Łeba river, H – drainage ditches, I – puddles in stream bed of periodic streams, J – puddles on forest roads.

Objaśnienia: A – duże jeziora, B – torfowiska typ 1, C – torfowiska typ 2, D – mały zbiornik torfowiskowy, E – niewielkie zbiorniki wodne, F – płytki okresowy zbiornik porośnięty turzycą, G – rzeka Łeba, H – rowy melioracyjne, I – kałuże w korytach okresowych strumieni, J – kałuże na leśnych drogach.

RARE AND INTERESTING SPECIES

Overview of some of the most interesting or rare in Poland species. Unless otherwise stated, a hydrobiological net were used. For species on the Red List of Threatened Animals in Poland (PAWŁOWSKI *et al.* 2002), the threat category is given.

Hydroporus gyllenhalii SCHIÖDTE, 1841

Tyrphophilous, its range cover almost whole Europe, it is not present only in some southern parts of the continent (GALEWSKI 1971). Occurs mainly in the north of the country and in the mountains (BURAKOWSKI *et al.* 1976). In the Kashubian Landscape Park widespread in the Kurze Grzędy and Staniszewskie Błoto nature reserves (BUCZYŃSKI *et al.* 2009). Over the last 30 years found in only few sites (BUCZYŃSKI *et al.* 2001, PRZEWOŹNY & BUCZYŃSKI 2005, NIJBOER 2006, BUCZYŃSKI & PRZEWOŹNY 2006, RYCHLA & BUCZYŃSKI 2013, GREŃ *et*

- al.* 2016). Its threat category on the *Red List of Threatened Animals in Poland* is VU, but it is proposed to change it to EN (PRZEWOŹNY & BUCZYŃSKI 2005).
- Kobylasz (UTM: XA93), peatbog type 2 (site 13), 12.04.2015, 7 exx.
 - Lampa (CF12), small water reservoir (site 36), 05.05.2015, 1 ex.

Hydroporus morio AUBE, 1838

- Tyrphophilous, occurs in northern Palearctic and in Alaska (GALEWSKI 1971). Like the previous one, it is in recession and under threat, recorded from scattered localities over the last 30 (BIESIADKA 1991, MIELEWCZYK 1996, BUCZYŃSKI & PRZEWOŹNY 2002, TRZECIAK 2002, MIELEWCZYK 2003a, 2003b, PRZEWOŹNY & BUCZYŃSKI 2005, BANASZAK & OLEKSA 2006, PAKULNICKA 2006, PAKULNICKA & BIESIADKA 2011, BUCZYŃSKI *et al.* 2012, PRZEWOŹNY & KOT 2014, PAKULNICKA *et al.* 2016a, 2016b). One of the most numerous beetles in the Kurze Grzędy and Staniszewskie Błoto nature reserves (BUCZYŃSKI *et al.* 2009). Threat category: EN.
- Nowalczyno (XA92), drainage ditch (site 21), 16.09.2015, 3 exx.

Dytiscus lapponicus GYLLENHAL, 1808

Next to *D. semisulcatus* the smallest national representative of this genus. Tyrphophilous, boreal-mountainous species of circumboreal distribution, found in the northern part of the country (GALEWSKI 1971). It has been recorded from only over a dozen sites, modernly in Pomeranian Lake District, the Baltic Seacoast and the Masurian Lake District. In Kashubian Landscape Park it was found in the Wielkie Lake (BIESIADKA 1996, BUCZYŃSKI & ZAWAL 2004, BUCZYŃSKI & SERAFIN 2005, PRZEWOŹNY & BUCZYŃSKI 2005, BUCZYŃSKI *et al.* 2009, BUCZYŃSKI *et al.* 2013).

Mainly associated with sphagnum bogs. Endangered not only because of the habitat occupied, but also the low dispersion capacity (non-volatile species) (PRZEWOŹNY & BUCZYŃSKI 2005). Threat category VU, PRZEWOŹNY & BUCZYŃSKI (2005) postulate its increase to the EN and inventory of its sites and their protection through the establishment of nature reserves as an umbrella species of peatland waters (CZACHOROWSKI *et al.* 2000). It is under partial legal protection.

Found in 5 new sites with the use of bottle traps with bait (meat) left at about 48h (in the case of status 6 at 24h), a total of 29 individuals. For 15 peatbogs type 1 and type 2, traps were used only for 8. This makes it even more likely that in the Kashubian Landscape Park there are many sites and numerous individuals of this species.

- Kobylasz (XA93), peatbog type 1 (site 6), 24–25.05.2015, 8 exx.
- Nowalczyno (XA92), peatbog type 1 (site 24), 16–18.09.2015, 6 exx.
- Nowalczyno (XA92), peatbog type 1 (site 25), 16–18.09.2015, 8 exx.
- Kobylasz (XA93), peatbog type 2 (site 14), 12–14.04.2015, 4 exx.
- Kamienica Królewska (XA83), peatbog type 2 (site 20), 16–18.09.2015, 3 exx.

Oreodytes sanmarkii (C. R. SAHLBERG, 1826)

Like the other two European species of genus, reophilous species with boreal–mountainous distribution (BURAKOWSKI *et al.* 1976). It was only recently shown in Poland from lowlands on 6 sites in the Baltic Seacoast and the Pomeranian Lake District (PRZEWOŹNY & BUCZYŃSKI 2005, PRZEWOŹNY & GEMBARZEWSKA 2009, Greń 2009).

- Miłoszewo (CF03), Łeba river (site 4), 12.09.2014, 3 exx.

Rhantus incognitus R. SCHOLZ, 1927

Rare European reophilous species. Occurs from Latvia to Slovakia and from eastern Germany to western Russia, probably in the westward expansion. Center of its occurrence is eastern

Poland, in the western part of the country so far found only in several sites (GAWROŃSKI 2005, PRZEWOŹNY & LUBECKI 2006, BUCZYŃSKI *et al.* 2011, PAKULNICKA & ZAWAL 2012, RYCHŁA & BUCZYŃSKI 2013). Threat category EN.

– Wygoda Łączyńska (CF01), drainage ditch with water flow (site 51), 19.09.2014, 1 ex.

Hydroporus figuratus (GYLLENHAL, 1826)

Recently separated from the related species *Hydroporus dorsalis* (FABR.), formerly belonging to the genus *Suphrodytes*. Very similar species with high coloration variation and similar distribution (Europe, Asia Minor and Siberia) may even occupy the same water reservoir (BURAKOWSKI *et al.* 1976, BERGSTEN *et al.* 2012). In Poland probably more widely distributed than *H. dorsalis*, but so far found only in several lands: Baltic Seacoast, Pomeranian Lake District, Masurian Lake District, Podlasie, Białowieża Primeval Forest and Lublin Uplands (BERGSTEN *et al.* 2012, BUCZYŃSKI *et al.* 2012, PAKULNICKA *et al.* 2016a, PRZEWOŹNY & KOT 2014, GREŃ *et al.* 2017).

On site 31. caught with *H. dorsalis* (this species found in 5 sites, 11 specimens).

– Kartuzy (CF12), small water reservoir (site 31), 11.10.2014, 2 exx.

– Kartuzy (CF12), small water reservoir (site 32), 11.10.2014, 3 exx.

Graphoderus bilineatus (DE GEER, 1774)

Tyrphophilous, widely distributed in Poland. Legally protected in Poland, is located in the II and IV attachments of the European Union directive 92/43/EWG, so-called “habitats directive”. Monitoring of the species listed in the directive, conducted in recent years has led to a significant increase in the number of known sites (PRZEWOŹNY *et al.* 2014).

– Kobylasz (XA93), peatbog type 1 (Okuniewko Lake) (site 18), 07.09.2014, 1 ex.

Graphoderus zonatus (HOPPE, 1975)

Tyrphophilous, nearctic distribution. Probably the rarest representative of this genus in Poland.

Inhabitat mainly small with well-developed vegetation, water reservoirs (BURAKOWSKI *et al.* 1976, PRZEWOŹNY & KOT 2014).

At position 6, where as many as 61 individuals were caught, a large part of the lake is shallow.

The brackets indicate how many of caught specimens come from bottle traps.

– Kobylasz (XA93), peatbog type 1 (site 6), 25.05.2015, 61(59) exx.

– Nowalczysko (XA92), peatbog type 1 (site 24), 18.09.2015, 1 ex.; 16.09.2015, 1(1) ex.

– Kobylasz (XA93), peatbog type 2 (site 14), 06.09.2014, 1 ex.; 14.04.2015, 5(3) exx.

– Kamienica Królewska (XA83), peatbog type 2 (site 20), 18.09.2015, 3(2) exx.

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STRESZCZENIE

Materiały do poznania chrząszczy wodnych (Coleoptera: Hydroadephaga, Hydrophiloidea, Staphyloidea, Byrrhoidea) Kaszubskiego Parku Krajobrazowego

W pracy przedstawiono nowe dane o rozmieszczeniu chrząszczy wodnych (Coleoptera: Hydroadephaga, Hydrophiloidea, Staphyloidea, Byrrhoidea) na terenie Kaszubskiego Parku Krajobrazowego. Park leży na Pojezierzu Pomorskim, reprezentuje krajobraz typowy dla pojezierzy młodoglacjalnych. Zbiorniki i ciek wodne stanowią ponad 10% jego powierzchni. Opisywane badania prowadzono w latach 2014-2016. Na 51 stanowiskach odłowiono za pomocą czepaka hydrobiologicznego oraz pułapek butelkowych 1744 chrząszcze reprezentujące 9 rodzin i 82 gatunki. Stanowi to 23% krajowej fauny tych rodzin. Znaczną część stanowiły tyrfobionty i tyrfofile: odpowiednio 35% i 42% wszystkich odłowionych gatunków i osobników. 34 gatunki nie były wcześniej wykazywane z tego terenu. Kilka z odnotowanych jest rzadko spotykanych w Polsce, m.in.. *Dytiscus lapponicus*, *Graphoderus bilineatus*, *Rhantus incognitus*, *Hydroporus gyllenhalii*, *Hydroporus morio*.

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