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Laccobius gracilis MOTSCHULSKY, 1855 (Coleoptera: Hydrophilidae), a beetle new in the Polish fauna, with a revised checklist of *Laccobius* occurring in Poland

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ABSTRACT. *Laccobius gracilis* MOTSCH. has been recorded for the first time in the Polish fauna. Notes are provided about the species' ecology and how best to catch it. A revised checklist of species from the genus *Laccobius* occurring in Poland is presented.

KEY WORDS: Hydrophilidae, *Laccobius*, chorology, checklist, new records, Poland.

INTRODUCTION

Twelve species from the genus *Laccobius* have been reported from Poland so far (GENTILI & CHIESA 1975, BURAKOWSKI et al. 1976, PAKULNICKA 2003, PRZEWOŹNY & MIŁKOWSKI 2004b). In this paper, the localities of a new species for Poland from this genus are presented. Following analysis of these data and literature, two species should be excluded from the Polish fauna. Therefore, a critical checklist of species from the genus *Laccobius* occurring in Poland is given. *L. gracilis* is the 11th unequivocally identified species from this genus recorded in Poland.

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MATERIALS AND METHODS

The material comprises 129 specimens from three localities. The beetles were collected mostly using the flotation method and a strainer, also with the "catch on sight" method. The voucher specimens are in the authors' collections.

RESULTS

Upper Silesia: Grabówka (UTM: CA07), 24 VII 1998 – 2 ♂♂, 1 ♀; Lubieszów (CA07), 12 VIII 2010, 80 exx.; 13 IX 2010, 35 exx., water bodies forming in the "Kotlarnia" sand quarry, leg. C. Greń.

The species is very numerous in the water bodies in sand quarries, in the initial stages of their succession, about a year to three years after their formation. In general, these pools are devoid of vegetation except for filiform algae and isolated clumps of reed-bed plants in the shore zone. Beetles of this species inhabit the shore zones (Fig. 1.), where they dig burrows in the sand. There may be up to a dozen individuals per decimetre of shore line. They are not present in the older water bodies with aquatic and reed-bed plants, and organic sediments already formed, despite the close vicinity to pools in the pioneer stages of succession, situated in the same area of the sand quarry.

Małopolska Upland: Radom-Wincentów (EC10), sand quarry, 17 VIII 2003, 1 ♀, leg. M. Miłkowski, det. & ver. M. Przewoźny.

This individual was earlier recorded incorrectly as *L. colon* in PRZEWOŹNY & MIŁKOWSKI (2004a). After verification of the species identification, this female turned out to be a specimen of *L. gracilis*. We hereby correct the information from that publication.

DISCUSSION

Species from the subgenus *Microlaccobius*, including *L. gracilis*, differ from other subgenera by their elytral puncturation and in comparison with all other Polish species by their moderately smaller size. The puncturation of the elytra consists of two kinds of punctures, smaller and larger ones, arranged alternately in more or less regular rows. The distance between the rows of larger punctures is larger than the diameter of the punctures in the rows (GENTILI & CHIESA 1975).

Fig. 1. Collecting site in Lubieszów sand quarry, Poland.

Fig. 2. Habitus of *Laccobius gracilis* MOTSCH.

Four species of this subgenus are known from Europe, three of them occurring in central Europe (HANSEN 2004). Only *L. alternus* has been recorded from Poland so far (BURAKOWSKI et al. 1976). *Laccobius gracilis* is missing from the key by GALEWSKI (1990), generally an inadequate tool for the identification of Polish water scavenger beetles. It can be identified on the basis of GENTILI & CHIESA (1975) or using the keys from the Die Käfer Mitteleuropas series (LOHSE 1971, HEBAUER 1989). *L. gracilis* differs from *L. alternus* by the lack of microreticulation between the punctures on the pronotum (visible in *L. alternus* at 40x magnification), and by the shape of the aedeagus. The habitus of *L. gracilis* is shown in Fig. 2.

Laccobius gracilis is mainly of Mediterranean distribution, reaching as far as central Europe and Iran. It is very rare in central Europe. The species is highly polymorphic in its range and is divided into five subspecies (HANSEN 2004). According to literature data, this beetle is found mainly on the shores of slow flowing waters with a sandy bottom, frequently without vegetation. It is also defined as a thermophilous species (BOUKAL et al. 2007, HANSEN 1987).

In Poland, according to our data, the species inhabits working sand quarries, where it is found in water bodies in the early stages of succession. It does not occur in water bodies with more advanced stages of succession. It is thought that in Poland this species is highly stenotopic, occurring only in specific habitats, which is why it has not been recorded before. The best way to catch this species is flotation of sand from the shoreline: one gathers up the top layer of sand and throws it into the water, after which the beetles will float up to the surface.

Checklist

Below is a current checklist of the Polish species of the genus *Laccobius*. Species definitely recorded from Poland are marked with consecutive numbers. Species recorded incorrectly and deleted from the list are marked with "–", and species marked with "?" need to have their present occurrence in Poland confirmed by new data. Synonyms are given in square brackets. Comments on some species are given below the species list.

Genus: *Laccobius* ERICHSON, 1837

Subgenus: *Dimorpholaccobius* ZAITZEV, 1938

–. *Laccobius (Dimorpholaccobius) atrocephalus atrocephalus* (REITTER, 1782) [1)]

1. *Laccobius (Dimorpholaccobius) bipunctatus* (FABRICIUS, 1775)
   [*L. alutaceus* THOMSON, 1868]
2. *Laccobius (Dimorpholaccobius) obscuratus obscuratus* ROTTENBERG, 1874
   [*L. scutellaris* auct. nec MOTSCHULSKY, 1855]

?3. *Laccobius (Dimorpholaccobius) simulatrix* D'ORCHYMONT, 1932 [2)]

4. *Laccobius (Dimorpholaccobius) sinuatus sinuatus* MOTSCHULSKY, 1849

5. *Laccobius (Dimorpholaccobius) striatulus* (FABRICIUS, 1801)
?6. *Laccobius (Dimorpholaccobius) ytenensis* SHARP, 1910 [3)]

Subgenus: *Laccobius* s. str.

7. *Laccobius (Laccobius) albipes* KUWERT, 1890
–. *Laccobius (Laccobius) cinereus* MOTSCHULSKY, 1860 [4)]
8. *Laccobius (Laccobius) colon* (STEPHENS, 1829)
[*L. biguttatus* GERHARDT, 1877]
9. *Laccobius (Laccobius) minutus* (LINNAEUS, 1758)

Subgenus: *Microlaccobius* GENTILI, 1974

10. *Laccobius (Microlaccobius) alternus* MOTSCHULSKY, 1855
11. *Laccobius* (*Microlaccobius*) *gracilis gracilis* MOTSCHULSKY, 1855

[1)] This species occurs in the Mediterranean area. In Europe reported only from Italy and Spain; otherwise known from the whole of north Africa, Israel and Syria (HANSEN 2004). In Poland recently recorded from the Olsztyńskie Lake District – the Mazurian Lake District (PAKULNICKA 2003, PAKULNICKA 2008), but this seems unlikely considering its geographical range. Those data may well refer to *L. ytenensis* (see the comment next to that species).

[2)] An eastern European and central Asian species, reaching its western range limit in France, and its eastern limit in Iran and Kazakhstan. In Europe, most common in the south-east of the continent (HANSEN 2004). A thermophilous beetle, inhabiting the shores of open, stagnant water bodies or slowly flowing waters (BOUKAL et al. 2007). There is only one record from Poland, based on old museum materials from Sanok in the Western Bieszczady Mts. (GENTILI & CHIESA 1975). This record was not taken into consideration by the authors of Katalog Fauny Polski (BURAKOWSKI et al. 1976). Its present occurrence in Poland should be confirmed by new data.

[3)] A beetle treated earlier as a subspecies of *L. atrocephalus* (GENTILI & CHIESA 1975), also in popular keys to the identification of water scavenger beetles of central Europe (LOHSE 1971, HEBAUER 1989), nowadays raised to species rank (HANSEN 2004). It has an Atlantic distribution, mainly in western Europe, from Morocco to central Europe (HANSEN 2004). An acidophilous species, inhabiting the shores of different stagnant water bodies, frequently peaty (BOUKAL et al. 2007). Poland, based on old museum materials from Susz in the the Masurian Lake District (GENTILI & CHIESA 1975). Considering its overall range, its distribution in Poland is probably limited to the north of the country. PAKULNICKA's (2003 and 2008) data on *L. atrocephalus* should probably be related to this species.

[4)] A beetle with a distribution range limited to eastern Asia, from central Siberia to the Russian Far East. Also recorded from Kyrgyzstan, Mongolia, Uzbekistan and northern China (HANSEN 2004). In Europe, recorded only twice from Hanover and Kiel in the 19th century (GENTILI & CHIESA 1975). Considering the geographical range of this species,

those records are misidentifications (it is easily confused with *L. minutus*) or imported specimens. Its occurrence in Europe is very doubtful. Reported only once from Poland, from the Gdańsk area (the Baltic Coast), in a work on the ecology of Central European beetles (KOCH 1989). In view of its geographical range and the lack of voucher specimens, it should be deleted from the list of Polish hydrophilids.

The most common *Laccobius* species in Poland, with the widest distribution and most frequent occurrence, are *L. minutus* and *L. bipunctatus*. The species which occurs rarely but is present in almost the whole country is *L. striatulus*. All other species from this genus are very rare in Poland; only single specimens have been recorded and only from a few localities (PRZEWOŹNY 2009).

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