

The first record of *Paracymus aeneus* (GERMAR, 1824) (Coleoptera: Hydrophilidae) in Poland with notes on halophilous and halobiontic Hydrophilidae and Hydraenidae in Polish fauna

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ABSTRACT. The first record of *Paracymus aeneus* in Poland is reported. Data on the occurrence of other Polish halophilous and halobiontic species of Hydrophilidae and Hydraenidae are reviewed and supplemented with new localities of several species.

KEY WORDS: Coleoptera, Hydrophilidae, Hydraenidae, *Cercyon littoralis*, *Paracymus aeneus*, *Enochrus bicolor*, *Ochthebius marinus*, faunistics, saline habitats, new records.

INTRODUCTION

Saline habitats, both inland and coastal ones, are of extreme scientific interest because of specific and unique flora and fauna inhabiting them. Nevertheless, only few papers concerning associated beetles' fauna were published in Poland (e.g. PODGÓRNIAK 1960 - Hydradephaga, BLANK-WEISSBERG 1929 - Carabidae, KORNOBIS 1979 - water beetles, BUCZYŃSKI & KOWALIK 2003 - water beetles). A comprehensive study of carabid-assemblages of saline habitats has been conducted in various regions of Poland by M. STACHOWIAK, although majority of collected data has not been published yet. Data on halophilous beetles belonging to other families is scarce and fragmentary; records are often based on old findings. Therefore, knowledge of distribution is very poor, and status of endangerment is impossible to estimate.

In the present paper data relevant to Polish species of halophilous and halobiontic Hydrophilidae and Hydraenidae is reviewed. Although these two families belong to different superfamilies (Hydrophiloidea and Staphylinoidea, respectively), they both exhibit similar adaptations and their members inhabit mainly aquatic or semi-aquatic habitats, including a relatively high number of species believed to be associated with saline habitats. New records of several species are presented, including the first finding of *Paracymus aeneus* in Poland.

The division of Poland and region names were adopted after the Catalogue of Polish Fauna.

The paper is divided into two parts. In the first part, detailed data on the first locality of *Paracymus aeneus* in Poland is presented. In the second part, a list of Hydrophilidae and Hydraenidae inhabiting saline habitats is provided. The list is followed by a review of species recorded or likely to occur in Poland, supplemented with comments on their ecology, distribution, and new localities in Poland.

The first record of *Paracymus aeneus* (GERMAR, 1824) in Poland

During faunistic survey of an inland salt marsh near Kołobrzeg (Baltic Coast) several individuals of *Paracymus aeneus* were collected by the authors:

Baltic Coast: Kołobrzeg (UTM: WA30), inland salt marsh surrounding salty springs, among algae in shallow, muddy puddles, 9 VIII 2005, 15 exx., together with numerous individuals of *Enochrus bicolor* F. and *Ochthebius marinus* PAYK., leg. R. RUTA.

The collecting site (Figs 1-2) is located 2 km SE from the centre of Kołobrzeg, near Budzistowo, adjoining the Parsęta river. It is overgrown with *Puccinellietum maritimae* (WARMING 1906) CHRIST. 1927, with populations of *Aster tripolium* L., *Plantago maritima* L., *Spergularia salina* J. et C. PRESL, *Halimione pedunculata* (L.) AELLEN, *Salicornia europaea* L., etc.

Paracymus aeneus (Fig. 3) is easy to distinguish from all other Polish hydrophilids. It differs from *Anacaena* THOMSON – the genus most likely to be confused with *Paracymus* THOMS. – in having more elongated body, the tarsomere IV longer than II (in *Anacaena* – shorter), and body with metallic hue (in *Anacaena* body is not metallic). *Paracymus aeneus* is included in popular keys for the identification of Central European Coleoptera (e.g. LOHSE 1971, GALEWSKI 1990).

Paracymus THOMSON, 1867 is a genus distributed throughout the world, comprising over 100 described species. *Paracymus aeneus* occurs in Europe (ranging from Portugal and Spain to European territory of Russia, and from Great Britain and south of Fennoscandia to the Mediterranean coasts), North Africa (Egypt and Tunisia) and Asia (Turkey, Middle Asia, Central Asia, East Siberia and Far East of Russia) (HANSEN 2004). Due to incomplete faunistic data, it would be premature to conclude that *P. aeneus* is rare in its global range, but at least in some European countries, *P. aeneus* is believed to be a very rare species. It is classified as “stark gefährdet” (equivalent of EN - endangered) on German Red List (GEISER et al. 1998).



Fig. 1. Salt marsh in Kolobrzeg, habitat of *Paracymus aeneus*, *Enochrus bicolor*, and *Ochthebius marinus*. Photo by M. STACHOWIAK.



Fig. 2. Salt marsh in Kolobrzeg, habitat of *Paracymus aeneus*, *Enochrus bicolor*, and *Ochthebius marinus*. Photo by M. STACHOWIAK.



Fig. 3. *Paracymus aeneus*, habitus. Photo by R. RUTA.

Halophilous and halobiontic Hydrophilidae and Hydraenidae of Poland

Up to date, 45 species of Hydraenidae and 107 species of Hydrophilidae are known to occur in Poland (previous data summarized by PRZEWOŹNY (2004b)). They are marked with an asterisk in the presented below (Tab.1) checklist of halophilous and halobiontic members of the two families recorded from Central Europe (the region defined as in the series “Die Käfer Mitteleuropas”, data compiled after KOCH 1989). The following abbreviations and symbols are used: HP – halophilous, HB – halobiontic, ? – absent in the list; “-” – not endangered; CR – critically endangered; EN – endangered; VU – vulnerable; R – very rare or geographically restricted species; DD – data deficient; nomenclature follows that of HANSEN (2004). *Cercyon marinus*, which may be regarded as a halotolerant species, is common in various habitats, and was not included in the list.

Table 1. A checklist of halophilous and halobiontic Hydrophilidae and Hydraenidae of Poland

Species	Association with saline habitats (after KOCH 1989)	Endangerment status in Germany (after GEISER et al. 1998)	Endangerment status in Poland (after PAWŁOWSKI et al. 2002)
Hydrophilidae:			
* <i>Helophorus fulgidicollis</i> MOTSCH.	HP	VU	-
<i>Helophorus micans</i> FALD.	HP	?	-
* <i>Cercyon depressus</i> STEPH.	HB	-	-
* <i>Cercyon littoralis</i> (GYLL.)	HB	-	EN
* <i>Paracymus aeneus</i> (GERM.)	HB	EN	-
* <i>Limnoxenus niger</i> (GMELIN)	HP	NT	-
* <i>Laccobius sinuatus</i> MOTSCH.	HP	-	-
<i>Laccobius syriacus</i> GUILL.	HP	?	-
* <i>Enochrus bicolor</i> (FABR.)	HP	-	EN
* <i>Enochrus fuscipennis</i> (THOMS.) (= <i>Enochrus caspius</i> (KUW.))	HP	-	-
* <i>Enochrus halophilus</i> (BED.)	HB	DD	-
* <i>Berosus bispina</i> REICHE & SAULCY	HP	R/CR	-
* <i>Berosus spinosus</i> (STEV.)	HP	R	-
Hydraenidae:			
<i>Ochthebius auriculatus</i> REY	HB	EN	-
* <i>Ochthebius dilatatus</i> STEPH.	EB	-	-
<i>Ochthebius exaratus</i> (MULS.)	HP	?	-
<i>Ochthebius lividipennis</i> PEYR.	HP	-	-
* <i>Ochthebius marinus</i> (PAYK.)	HB	-	CR
* <i>Ochthebius meridionalis</i> REY	HB	?	-
<i>Ochthebius nanus</i> STEPH.	HP	CR	-
<i>Ochthebius peisonis</i> GANGLB.	HB	-	-
<i>Ochthebius punctatus</i> STEPH.	HP	?	-
* <i>Ochthebius viridis</i> PEYR.	HP	EN	-

Review of species

In the following part of the paper, notes on the ecology, distribution and new localities concerning species that were recorded or are likely to occur (but not yet recorded) in Poland are presented. Names of the species that are not truly halophilous were taken into brackets; species doubtfully recorded or likely to occur in Poland are marked with a question mark.

Helophorus (Rhopalohelophorus) fulgidicollis MOTSCHULSKY, 1860

In Poland recorded (on the base of a single specimen) from Szczecin by WICHTOWSKA & SOBCZAK (1994). According to HANSEN (1987) it is not uncommon in Denmark, what may suggest occurrence in other localities along the Baltic coast.

***Cercyon* (s.str.) *littoralis* (GYLLENHAL, 1808)**

Recorded recently from Rewal (BOROWIEC & KANIA 1991), and Jurata (PRZEWOŹNY 2004a). Old findings are known also from other sites on the Baltic Coast, and a few inland localities (environs of Warszawa, Panasówka in Roztocze and Wielkopolska-Kujawy Lowland [its common occurrence in Dębina forest in Poznań (SZULCZEWSKI 1922) seems to be doubtful and most likely that record was based on misidentification] (BURAKOWSKI et al. 1976). It is an endangered species according to the Polish Red List of Animals (PAWŁOWSKI et al. 2002).

New record:

Baltic Coast: Pogorzelica ad Niechorze (WV09), sifted from algae accumulated on the seashore, 8-9 VII 2001, 1 ex., leg. R. RUTA.

***Cercyon* (s.str.) *depressus* STEPHENS, 1829**

Records in Poland are based on doubtful identifications of specimens collected over 100 years ago at the Baltic Coast (without detailed locality given) (MROCKOWSKI, STEFAŃSKA 1991). Hence, it was not included in the recent check-list of Polish beetles (PRZEWOŹNY 2004b). This *Cercyon* is inhabiting the seashores of Baltic and Black Seas, According to HANSEN (1987), it is widespread along the seashores of Denmark, occurring together with *C. littoralis*, although less abundant.

[*Limnoxenus niger* GMELIN, 1790]

This species is known from scattered localities in various regions within Polish lowlands. In recent years, it was found only twice – in Poleski National Park (BUCZYŃSKI, PIOTROWSKI 2002) and in Warta River valley near Rogalinek (PRZEWOŹNY 2004). According to HANSEN (1987), this species is only occasionally found in brakish water and should not be regarded as halophilous. Findings in Poland seem to confirm that the species is not halophilous, or it may be tolerant to saline waters but not restricted to such habitats.

[*Laccobius* (*Dimorpholaccobius*) *sinuatus* MOTSCHULSKY, 1849]

This species is known from localities in Pomorskie Lake District, Lower Silesia, Western and Eastern Beskidy Mts. on the base of old findings. In recent years it was collected in the vicinity of Olsztyn (PAKULNICKA & BARTNIK 1999, PAKULNICKA 2003) and in Poznań (PRZEWOŹNY 2002). This *Laccobius* occurs in salty habitats only occasionally, and it should not be regarded as halophilous.

***Enochrus* (*Lumetus*) *bicolor* (FABRICIUS, 1792)**

The species is known to occur both in salty and fresh waters. Recorded from scattered localities in various regions of Poland (Baltic Coast, inland salt marshes in Ciechocinek, Owczary ad Busko Zdrój, saline waters from a coal mine in Lublin Upland and several

freshwater localities) (BURAKOWSKI et al. 1976, BUCZYŃSKI & KOWALIK 2003). Usually single individuals are found (BUCZYŃSKI & PRZEWOŹNY 2005). In salty marshes in Kołobrzeg dozens of beetles were observed among algae in shallow puddles. It is an endangered species according to the Polish Red List of Animals (PAWŁOWSKI et al. 2002), but BUCZYŃSKI & PRZEWOŹNY (2005) suggested changing its status to vulnerable.

New records:

Baltic Coast: Kołobrzeg (WA30), inland salt marsh surrounding salty springs, among algae in shallow, muddy puddles, 9 VIII 2005, very abundant, hundreds of individuals were observed, together with *Paracymus aeneus* and *Ochthebius marinus*, leg. R. RUTA.

Pomeranian Lake District: Stobno vic. (XU08), bank of fish pond, 11-13 IX 2004, 1 ex., leg. R. RUTA.

[Enochrus (Lumetus) fuscipennis (THOMSON, 1884)]

Recorded from Poland by PAKULNICKA (2003) and PRZEWOŹNY (2004). On both localities it has not been collected in association with saline water bodies, and therefore it does not seem to be halophilous.

Enochrus (Lumetus) halophilus (BEDEL, 1878)

In Poland a single specimen was recorded, found in Szczecin by WICHTOWSKA & SOBCZAK (1994). According to HANSEN (1987) this species occurs exclusively on salt marshes along the coasts. New localities are likely to be found during exploration of Polish salty habitats along the Baltic coast.

Berosus (Enoplurus) spinosus STEVEN, 1808

This species is rarely collected in Poland, it is known from scattered localities, both from fresh and salty waters (e. g. Ciechocinek, Busko Zdrój). Recently recorded from Mazury Lake District (GAWROŃSKI et al. 2003) and Lublin Upland (on the basis of materials collected in 1968) (BUCZYŃSKI et al. 2003).

Berosus (Enoplurus) frontifoveatus KUWERT, 1888
= *Berosus bispina* REICHE et SAULCY, 1856 s. auct.

According to the recent revision (SCHÖDL 1991), “true” *B. bispina* is a Mediterranean species. Central European specimens identified as *B. bispina* in fact belong to *B. frontifoveatus* KUWERT, 1888 (PRZEWOŹNY 2004). Inland localities in Poland (BOROWIEC & KANIA 1991, KUBISZ & SZWAŁKO 1991a, 1991b, PRZEWOŹNY 2004), situated far away from any known salty habitats suggest that it may be only a halotolerant species.

? *Ochthebius (Asiobates) dilatatus* STEPHENS, 1829

Although this species is known from German localities, close to Polish boundary (MROCZKOWSKI & STEFAŃSKA 1991), it has not been recorded in Poland yet. HANSEN (1987) stated that it was fairly common along the Danish coasts and it occurred exclusively in salt marshes along the coasts, being more eurytopic in the southern part of its range (in Southern Europe).

***Ochthebius (s.str.) marinus* (PAYKULL, 1798)**

Known from Gdańsk, Ciechocinek, Lower Silesia, Trzebnica, Cieszyn, and Czarna (Ustrzyki Górne district), recorded also from Pomorze Zachodnie (BURAKOWSKI et al. 1976). In recent decades, this species was recorded only from environs of Karsibór (KORNOBIS 1979) and it was classified as critically endangered in the Polish Red List of animals (PAWŁOWSKI et al. 2002). According to HANSEN (1987) it is widely distributed and common along European coasts and in inland saline localities.

New record:

Baltic Coast: Kołobrzeg (WA30), inland salt marsh surrounding salty springs, among algae in shallow, muddy puddles, 9 VIII 2005, several dozens of individuals, leg. R. RUTA.

? *Ochthebius (s.str.) meridionalis* REY, 1885

A single individual was collected in Silesia at the beginning of the 20th century, although identification seems to be doubtful. Therefore, it was omitted in the recent checklist (PRZEWOŹNY 2004b).

[*Ochthebius (s.str.) viridis* PEYRON, 1858]

A single beetle identified as *O. viridis fallciosus* GANGLBAUER, 1901 was found on Uznam Island. Identification was suggested doubtful by MROCZKOWSKI & STEFAŃSKA (1991). JÄCH (1991) stated that *O. viridis* s. auct. should be splitted into two, closely allied species, and gave information about the occurrence of "*O. viridis* 1" in Wrocław (SW Poland). Taxonomic status of this form has not been clarified yet due to difficulties in obtaining several type specimens. The species does not seem to be truly halophilous.

Remarks

The knowledge of halophilous beetles inhabiting Poland is extremely poor and the research is at a rather initial stage. Many records based on old findings have not been confirmed for over 50 years. Moreover, several halophilous beetle species are likely to be found in Poland, e.g. *Laccobius decorus* (known from Baltic countries, occurring on Baltic coasts) or *Ochthebius auriculatus* (ranging from Western France and the British Isles to Southern Scandinavia, according to HANSEN 1987). It can be concluded that a detailed

faunistic survey of saline habitats should be undertaken to collect data on the occurrence, distribution and ecology of halophilous beetles in Poland.

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