

Ochthebius rugulosus Wollaston in Fennoscandia (Coleoptera, Hydraenidae)

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Previous Fennoscandian records of *Ochthebius* (*Asiobates*) *minimus* (Fabricius, 1792) partly refer to the externally very similar species *O. rugulosus* Wollaston, 1857. The two species differ chiefly in the structure of the apex of the median lobe of the aedeagus. Material of both species was examined from Norway, Sweden and Finland. *O. rugulosus* largely replaces *O. minimus* in northern Fennoscandia, but distributions show a large overlap. All known Swedish records of both species are mapped.

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Introduction

In the genus *Ochthebius* Leach, the *minimus*-group of the subgenus *Asiobates* Thomson comprises 13 species of which five occur in Europe (Jäch 1990). Hansen (1987) considered *O. minimus* (Fabricius, 1792) as the only Fennoscandian species of the group, which he referred to as the subgenus *Homalochthebius*. This species is widely distributed in the Palaearctic Region, and in fresh stagnant waters it is the most frequently encountered species of the genus in central and parts of northern Europe.

Ochthebius rugulosus Wollaston, 1857, was discovered in Sweden after the examination of the aedeagi of specimens resembling *O. minimus*, and a record from the Jämtland province was published by Jäch (1990). Subsequently the species revealed to be widespread in northern Europe. As an addendum to Hansen (1987), *O. rugulosus* is here described in the same style.

Description

Ochthebius rugulosus Wollaston, 1857

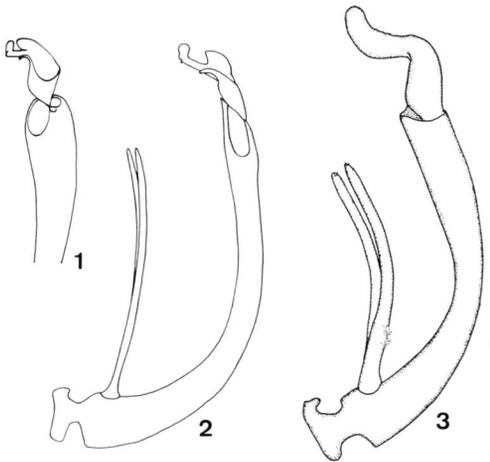
Figs 1, 2.

Length 1.9 - 2.1 mm. Black, dorsal surface with dark bronze hue. Labrum with fine reticulation, anterior margin very shallowly emarginate. Cly-

peus with fine reticulation in anterior half and fine punctation in posterior half. Frons smooth between coarse punctures; fovea deep; ocelli indistinct. Antennal base yellow, club brown. Maxillary palpi brown, apical segment dark brown. Pronotum laterally depressed in anterior half and forming "ears", in posterior fourth with small emargination filled with narrow transparent membrane; longitudinal median furrow not reaching anterior margin; raised part without distinct fovea; smooth between coarse punctures. Elytron with lateral margin rounded, punctato-striate, each puncture with fine seta; punctures apically finer, interstices feebly convex. Metasternum pubescent with glabrous centre. Abdomen ventrally pubescent except last two sterna. Appendages brown, tarsi often slightly darker, claws yellowish brown.

Male. Protarsus dilated basally. Outer edge of mandible with tuft of stout setae. Elytron shining, feebly reticulate. Aedeagus (Figs 1, 2) with basal part of median lobe broad and strongly chitinized, apical part weakly chitinized, ending in an upward projection. Parameres equally sized with few distal setae.

Female. Protarsus and mandible simple. Elytron less shining with more pronounced transverse reticulation.



Figs 1–3. *Ochthebius*, aedeagus. –1–2. *O. rugulosus* Wollaston. –1. Apex of median lobe, dorsal view. –2. Lateral view. –3. *O. minimus* (Fabricius), lateral view. Scale bar 0.1 mm. Drawings: B. Drost (1, 2) and A. N. Nilsson (3).

O. rugulosus can be included in Hansen's (1987:34–37) *Ochthebius* key by rephrasing the second alternative of couplet 9 as follows:

- Raised middle portion of pronotum without such depressions. 9a
- 9a Protarsus dilated basally; outer edge of mandible with a tuft of stout setae (**males**). 9b
- Protarsi and mandibles simple (**females**).
- . . . 6. *minimus* (Fabricius) and *rugulosus* Wollaston
- 9b Aedeagus as in Figs 1, 2 *rugulosus* Wollaston
- Aedeagus as in Fig. 3. 6. *minimus* (Fabricius)

Taxonomic remarks

Perkins (1980) and Jäch (1990) discussed the taxonomical status of subgenera in *Ochthebius* and, as far as *Homalochthebius* and *Asiobates* are concerned, concluded that they, differing only in the absence or presence of pronotal fovea respectively, form a natural group: the subgenus *Asiobates*. Moreover, the name *Homalochthebius* Kuwert is formally a junior synonym of the subgenus *Rhopalohelophorus* in the genus *Helophorus*, as the type species was misidentified (Hansen 1987, in litt.).

O. rugulosus was first described from Madeira. Canary specimens differ from Fennoscandian ones by their more pronounced elytral reticulation and slightly differently shaped aedeagus. Based on these differences one could conclude that they

are two different species. However, Jäch (1990) concluded that *O. rugulosus* is a species with a very variable punctuation and reticulation. Within populations these characters are rather constant.

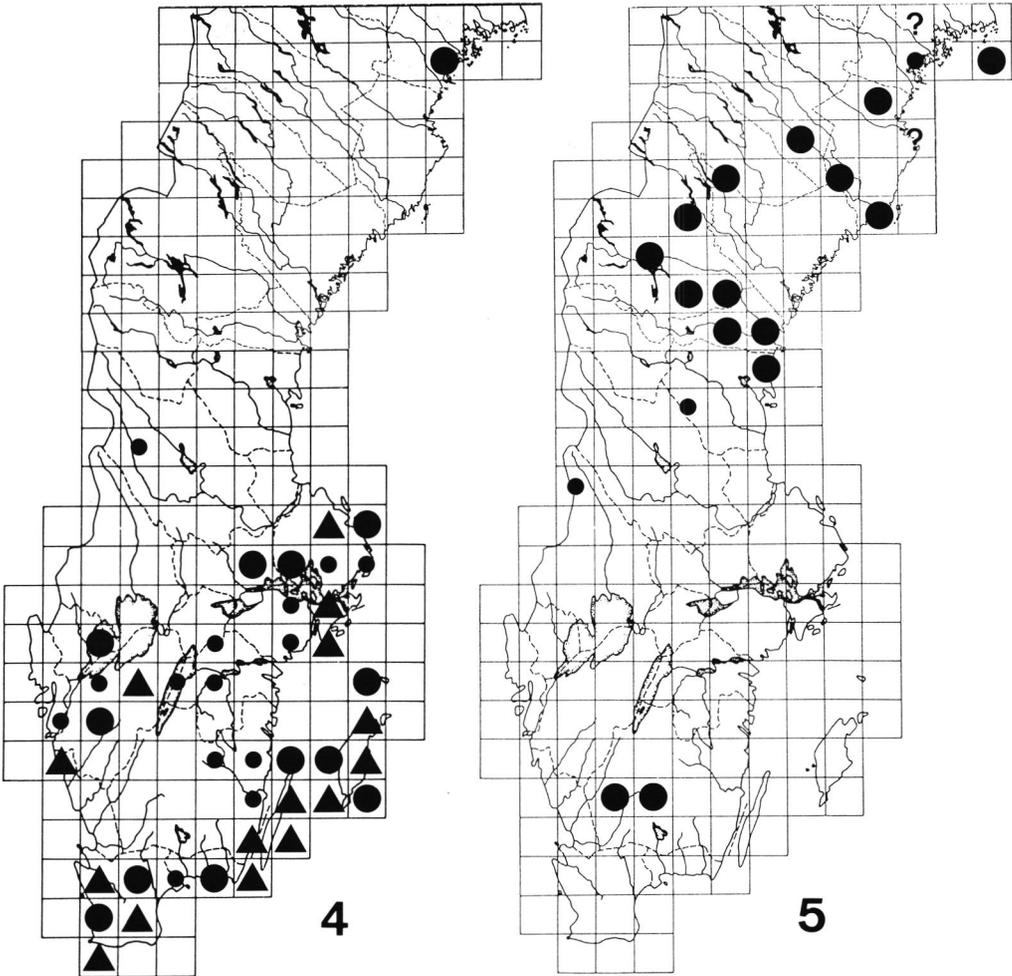
It is very difficult to find any significant external difference between *O. rugulosus* and *O. minimus*. However, the following characters may provide some help for the separation of the two species: the colour of the legs (pale brownish yellow in *O. minimus*; darker in *O. rugulosus*) and the relative length of the mesotarsus. In males the last mesotarsomere of *O. minimus* is long and basally strongly curved, and also in females of *O. minimus* it is evidently more slender than in those of *O. rugulosus*. Most females of Fennoscandian *O. rugulosus* have a weaker elytral reticulation than those of *O. minimus*, but the identification of single individuals remains uncertain.

Distribution and habitat

Both *O. minimus* and *O. rugulosus* are widely distributed in the Palaearctic Region (Jäch 1990), but not found in North America (Perkins, in litt.). *O. rugulosus* is known from North Africa to Fennoscandia and eastwards to Israel, Siberia and China (Jäch 1990). Sahlberg's (1880) record of *Asiobates pygmaeus* from NW Siberia in fact refers to both *O. minimus* (Selenkina) and *O. rugulosus* (Jenniseisk, Swedish Museum of Natural History, Stockholm).

We have examined all Swedish material available in museums and private collections previously identified as *O. minimus*. The true *O. minimus* is widely distributed in South Sweden north to Upland (Fig. 4), but seemingly absent from the South Swedish Highland. A large proportion of the known records are from southeast Sweden, i.e. SK, ÖL and GO. Two isolated records are known from DR: Lima (9.viii.1941 leg. A. Olsson) and NB: Luleå (18.vi.1985 leg. K. Persson). We have seen specimens from the following provinces: SK-VG, DS-VS, DR and NB. All records of *O. minimus* from northern Sweden given by Nilsson (1984) in fact refer to *O. rugulosus*. Most or all of Jäch's (1990:fig. 66) records of *O. minimus* from northern Fennoscandia are based on erroneous literature data (including Nilsson 1984) and actually refer to *O. rugulosus*.

O. rugulosus is chiefly confined to northern Sweden (Fig. 5), with two isolated records from the South Swedish Highland in SM (Växjö



Figs 4–5. Swedish distribution. –4. *Ochthebius minimus* (Fabricius). –5. *O. rugulosus* Wollaston. Records in 50x50 km squares of the National Grid system are given as: small dot = before 1950, large dot = since 1950, triangle = both periods, ? = not controlled record.

Utbredning i Sverige. Symboler anger fynd i Rikets näts femmilrutor enligt: liten prick = före 1950, stor prick = 1950 och senare, triangel = både före och 1950 och senare, ? = ej kontrollerat fynd.

7.vii.1952 leg. Lohmander, Natural History Museum Gothenburg; 4 km S of Skeppshult 19.vi.1985 leg. et coll. S.Persson). We have seen specimens from the following provinces: SM, VR, HS, ME and JÄ-LY.

Together the two species occur all over Sweden except for most of Lapland. However, it seems that there are areas bordering the South Swedish Highland that lack both species. The junior author has spent several periods collecting water beetles

in the Ätran River Valley north of Ulricehamn in VG without recording a single *Ochthebius* specimen. This absence is probably real.

The isolated occurrence of *O. minimus* at Luleå was not expected, but fits neatly with the Finnish distribution of this species. We examined material from northeastern Fennoscandia borrowed from the University Zoological Museum, Helsinki. Specimens of *O. minimus* were seen from the coastal areas of the provinces ObS and ObN. The

northernmost record is from Simo, Maksniemi (15.viii.1944 leg. Håkan Lindberg), and the species has probably a wider distribution in South Finland. Specimens of *O. rugulosus* were seen from the following provinces: Ok, ObS, Ks, LkW, LkE and Lr. The southernmost records are from Liminka and Kajaani.

Material from Norway was borrowed from the Zoological Museum in Bergen, including both the main collection and the late Andreas Strand's collection. The specimens of *O. minimus* were all from southeast Norway, including the following provinces: Ø, AK, Bø and VE. *O. rugulosus* is seemingly more widespread in Norway with records from the following provinces: AK, Bø, Bv, NTy and Fn. The record from Fn is from Skogavre (leg. Strand) and we have also seen a female from Nesseby h:d, Nyborg (4–9.vi.1963 leg. Israelsson, University Entomological Museum, Lund). The two species are sympatric in southeast Norway, and co-occur at least on Brønnøy, Asker.

The material we have studied indicates that *O. minimus* is a southern and *O. rugulosus* a northern species in Fennoscandia. The distributions show a considerable overlap and areas of sympatry were found in southeast Norway and along the northern Bothnian coast of Sweden and Finland. Based on the Swedish maps the two species more or less exclude each other in their distributions and both species have never been taken together in Sweden at one locality. This vicariance, however, is not the result of differences in habitats, as both species occur in a wide range of habitats. Both species inhabit slowly running and stagnant waters (lakes, ponds, ditches) with well developed emergent vegetation. Oligotrophic waters and ephemeral habitats are avoided by both species. More observations from other parts of Europe are necessary to see whether this observed vicariance in Sweden

occurs in other parts of Europe or that it only applies to the Swedish situation.

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Sammanfattning

Studier av de hanliga könsorganen har visat att de djur från Fennoskandien som tidigare bestämts till *Ochthebius minimus* (Fabricius) även innefattar *O. rugulosus* Wollaston. Karaktärer ges för åtskilljandet av de båda arterna. *O. minimus* har en sydligare utbredning men förekommer även vid kusten av Bottenvikens nordligaste del. *O. rugulosus* finns fr a i norra Norge, Sverige och Finland, med spridda fynd i Sydnorge och på det Sydsvenska höglandet.