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Neorhegmoclemina catharinae n. sp., a genus new to the Palaearctic fauna, and a new species from Switzerland (Diptera, Scatopsidae)

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Neorhegmoclemina catharinae n. sp. from western Switzerland is described and illustrated. This is the first representative of this genus from Europe and the Palaearctic as a whole. The new species is related to the Nearctic *N. bisaccatum* COOK. A key to the 3 known Palaearctic species of *Rhegmoclemina* s. l. is given. The presence of abdominal sacculi laterales is recorded for the first time in the family Scatopsidae.

Keywords: Scatopsidae, new species, key, Switzerland

INTRODUCTION

I was surprised to recently catch a representative of genus *Rhegmoclemina* s. l. (sensu COOK, 1955) in western Switzerland that proved to be clearly distinct from *Rh. vaginata* (LUNDSTRÖM), the only Palaearctic species known up to now. In fact, this specimen represents an interesting new species belonging to the genus *Neorhegmoclemina*, which was known till now with certainty only from the Nearctic and Neotropical regions.

DESCRIPTION

Neorhegmoclemina catharinae n. sp. (Figs 1–4)

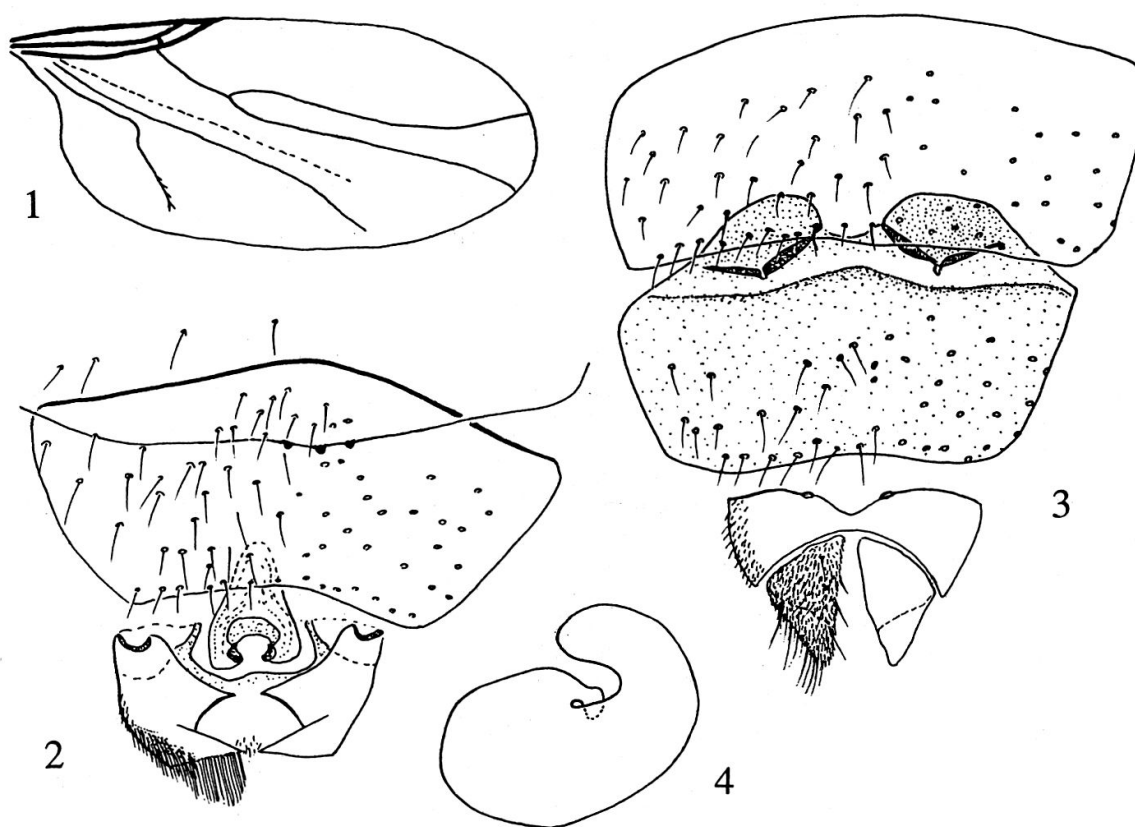
Type material: Holotype female labelled: "Suisse–NE 561.8/205.5, Neuchâtel (r. Matile), 550 m, lisière de forêt thermophile, 24.VII.1995, J.-P. Haenni", "S6409" and "*Rhegmoclemina catharinae* n. sp. Holotype ♀, HAENNI, 1995". The dry preserved specimen is double mounted, with prepared genitalia in glycerine in a microvial attached to the pin of the specimen. It is deposited in the author's collection in the Muséum d'histoire naturelle de Neuchâtel (MHNN).

Diagnosis: The new species is clearly related to the Nearctic *N. bisaccatum* COOK, from which it can easily be separated by the shape of tergite 7, especially that of the 2 pocket-like structures on the anterior margin (Fig. 3) and by the shape of sternite 8 in the genitalia (Fig. 2). The 10-segmented antennal flagellum and the slight median constriction of the fork of M in the wing allow an easy distinction from *Rh. vaginata*.

Description: Female. 1.5 mm long, blackish-brown in general colour, dull. Body and legs covered with a short, dark coloured pilosity and a dense micropilosity, giving a dull general appearance.

Head slightly shiny. Antennae covered with a dense semi-erect pilosity; 10 short flagellar segments, difficult to count. Palpi short, rounded.

Thorax. Scutum blackish-brown, with a pair of prescutellar yellow spots behind the base of the wing, lower part of pleura and outer surface of coxa shiny.



Figs 1–4. *Neorhegmoclemina catharinae* n. sp. ♀: 1. Wing. – 2. Abdominal sternites 6 (posterior margin only) and 7, and genitalia (ventral view). – 3. Abdominal tergites 6 and 7, and genitalia (dorsal view). – 4. Spermatheca.

Thorax weakly compressed laterally; anterior spiracular sclerite elongate, triangular, twice as long as wide, with central spiracular opening. A short but distinct row of 5–6 supra-alar setae; 8–10 marginal scutellar setae.

Wing (Fig. 1) 1.5 mm long, hyaline with anterior veins brown, hind veins hyaline. R_1 very short, joining costa before the middle of the wing. Stem of M fork short, about one fourth the length of fork which is complete, and slightly constricted before the middle. CuA_2 with the double-bend typical of Rhegmoclematini, with 4–(5) macrosetae on dorsal surface. No macrosetae on the other posterior veins or on the membrane behind CuA_2 . Halter brownish with somewhat lighter stem, devoid of setae. Legs lighter, brownish with apical fourth of femora, basal two-fifths of tibiae and tarsi blackish-brown, but basal third of hind metatarsi yellowish-brown.

Abdomen with 7 pregenital segments, the spiracles located on the pleural membrane. Sternite 1 unsclerotized. Sternite 6 with a median group of 3 short, thickened setae on posterior margin (Fig. 2). Segment 7 bordered with a row of posteriorly directed longer blackish setae. Sternite 7 with strongly sclerotized convex anterior margin, emarginate posteriorly (Fig. 2). Anterior margin of tergite 7 (Fig. 3) modified, with a pair of rounded, pocket-like structures concealed under the posterior margin of tergum 6 and separated from the rest of the tergite by a weakly sclerotized longitudinal area.

Genitalia. Sternite 8 divided medially, atrial sclerotization weakly developed anteriorly (Fig. 2). Tergite 8 (Fig. 3) narrowed medially, bearing a pair of vestigial

spiracles on the anterior margin, cerci unremarkable. Spermatheca unlike the usual shape in the family, contorted (Fig. 4).

Male unknown.

Distribution. *Rh. catharinae* is presently known only from type locality in western Switzerland.

Ecology. The unique specimen was caught at a window, 3 m away from the edge of a natural thermophilous *Quercus pubescens*-forest. Other noteworthy scatopsid species have been collected in the same locality, including such rare species as *Holoplagia lucifuga* (LOEW) and *Rhexoza subnitens* (VERRALL) (HAENNI, in press, a).

Etymology. I am pleased to dedicate this new species to my dear wife Catherine, who always supported in many ways my dipterological studies, including letting me use our rooms as a kind of window traps.

Neorhegmoclemina bisaccatum COOK, 1955

Rhegmoclemina (*Neorhegmoclemina*) *bisaccatum* COOK, 1955: *Ann. ent. Soc. Am.* 48: 358, Figs 2G, 3B–C

The female holotype is neither present anymore in the collection of the Iowa State University, nor is it to be found in the collections of the U.S. National Museum in Washington where it should have been deposited since COOK's description, according to ARNETT & SAMUELSSON (1986). Fortunately paratypes and other material are still preserved (slide mounted) in the collections of the University of Minnesota in St. Paul, and they have been available for my study. The male paratype and one female from the same locality and collector as the holotype are labelled by Prof. COOK, and these are most probably the specimens that served for drawing since they totally agree with the figures in COOK (1955). An additional pair identified by Prof. COOK is also present in this collection but this record has apparently not been published so far: "FL, Alachua Co., Lochloosa, G.M.A., 25.VIII.1985, Gopher tortoise burrow". These specimens are clearly conspecific with the types from Ames.

N. bisaccatum is a North American species with an Eastern distribution. It is now known from Iowa, New York, and Florida.

Key for the identification of the Palaearctic species of the genera *Rhegmoclemina* and *Neorhegmoclemina*.

Note. Shortly before the completion of this manuscript, a third, still undescribed European species of *Rhegmoclemina* was discovered in material from Thüringen (Germany) sent to me for identification by R. BELLSTEDT. This new species will be described elsewhere (HAENNI, in press, b), but is already included in the key below.

1. Antennal flagellum 10-segmented; tergite 7 of ♀ with a pair of pocket-like structures on the anterior margin (Fig. 3) *Neorhegmoclemina catharinae* n. sp. (♂ unknown)
- Antennal flagellum 8-segmented: *Rhegmoclemina* 2
2. Tergum 7 of ♂ transverse, wider than long, emarginate posteriorly; genitalia exposed, well visible, long and flattened, more than 3 times as long as wide, trough-like, with a pair of elongate, slender, posteriorly directed appendages and a very short, concealed aedeagus; ♀ with a very long atrial sclerotization extending anteriorly into abdominal segment 5 *Rhegmoclemina vaginata* (LUNDSTRÖM)

- Tergum 7 of ♂ hardly wider than long, with a heavily sclerotized triangular posterior projection, thus genitalia not visible from above; ♂ genitalia shorter, no more than 1.5 times as long as wide, with 2–3 pairs of less elongated, posteriorly directed projections and an elongate, well visible aedeagus
 *Rhegmoclemina bellstedti* HAENNI (♀ unknown) (HAENNI, in press, b)

DISCUSSION

N. catharinae is the first Palaearctic representative of *Neorhegmoclemina*, a taxon that was first described as a subgenus of *Rhegmoclemina* by COOK (1955) to include 2 Nearctic and 3 Neotropical species. An additional species was described by COOK (1978) from Peru. However, no less than 19 undescribed Neotropical species have been studied by AMORIM (1982), who recently elevated the former subgenera *Rhegmoclemina* s. str., *Neorhegmoclemina* and *Austroclemina* to generic level (AMORIM, 1994). The new European species is very characteristic by the presence of a pair of pocket-like structures on the anterior margin of tergite 7, a peculiar feature present only in *N. bisaccatum* until now (see further). The Swiss specimen has been compared with type material of this species, and there is no doubt that the two forms, though distinct, are clearly related, as can also be seen by the shape of the genitalia.

The discovery of a Palaearctic species of *Neorhegmoclemina* is very interesting from a zoogeographical point of view. This genus is mainly Neotropical in distribution, with numerous species in this region, while only 2 species are known from the Nearctic. The 2 Afrotropical species tentatively attributed to *Rhegmoclemina* (*Neorhegmoclemina*) by COOK (1965) certainly do not belong to this taxon. The presence of one species of *Neorhegmoclemina* in the Western Palaearctic can be compared with the case of *Quateiella*, another genus with only one known Palaearctic species, otherwise only Nearctic and Neotropical in distribution (HAENNI, 1988).

The function of the peculiar pocket-like structures on the anterior margin of tergite 7 of *Neorhegmoclemina catharinae* (Fig. 3) remains unknown, but could possibly be glandular. This view is supported by the presence of a pouring-lip-like structure on the posterior margin of these pockets that is apparently merging at the surface of the body just behind the posterior margin of tergite 6. Emission of sexual attractants can be hypothesized, but so far such a fact has never been recorded within Scatopsidae. It is thus likely that the structures described here in *N. catharinae* n. sp. (and also present in *N. bisaccatum* Cook) are analogous with abdominal glands or ampullae described in some dipteran families. Such structures have been recorded in females of isolated genera of Ceratopogonidae, Empididae, Phoridae, Lauxaniidae, Tephritidae (summarized in HENNIG, 1973), and Tipulidae (where they are named sacculi laterales) by TJEDER (1979) and DUFOUR (1993). These paired structures, more or less pocket-like in shape, are usually merging between tergites on the intersegmental membrane and are thought to emit sex pheromones.

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RÉSUMÉ

Neorhegmoclemina catharinae n. sp., un genre nouveau pour la région paléarctique et une nouvelle espèce de Scatopsidé de Suisse (Diptera, Scatopsidae). – *N. catharinae* n. sp., de Suisse occidentale (Neuchâtel), est décrite et figurée. Il s'agit de la première espèce de ce genre découverte en Europe et dans la région paléarctique dans son ensemble. Une clé d'identification des 3 espèces paléarctiques connues de *Rhegmoclemina* s. l. est donnée. La présence de sacculi laterales abdominaux est signalée pour la première fois dans la famille des Scatopsidae.

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