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Late-instar larva of *Scydmaenus (Parallomicrus) rufus* Müller & Kunze (Coleoptera: Staphylinidae, Scydmaeninae)

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Abstract

The late-instar (most likely the last instar) larva of *Scydmaenus (Parallomicrus) rufus* is described. A comparative study with other known larvae of *Scydmaenus* (belonging to *Scydmaenus* s. str. and the subgenus *Cholerus*) is carried out and it is concluded that while the general body form and some characters are shared by immature *Parallomicrus* and *Cholerus*, there are nevertheless features present in *Parallomicrus* and *Scydmaenus* s. str. that are absent in *Cholerus*. A subcylindrical and strongly elongated body differentiates immature *Parallomicrus* from *Scydmaenus* s. str., while the following characters, present in *Parallomicrus*, are not known in *Cholerus*: a pair of long lateral setae on head capsule, four (and not five) pairs of dorsoanterior setae on the nasale, more than 10 teeth on the anteroventral margin of nasale instead of five only, three (and not two) solenidia on the antennomere III, three (and not two) pairs of labial setae, slightly (and not strongly) elongate abdominal segment IX, and abdominal segment X not constricted near base.

Key words: Coleoptera, Staphylinidae, Scydmaeninae, Scydmaenini, *Scydmaenus*, *Parallomicrus*, larval morphology, Palaearctic

Introduction

Although the genus *Scydmaenus* Latreille, 1802 comprises over 700 species (Newton & Franz 1998), preimaginal stages are well known in merely two central European species. The larva of *Scydmaenus* (s. str.) *tarsatus* Müller & Kunze, 1822 was partially described by Meinert (1888) whose illustrations were redrawn several times (e.g., Arnolde et al. 1964; Kühnelt 1961; Larsson 1941; Ganglbauer 1899; Klausnitzer 1978) and Brown & Crowson (1980), and redescribed in detail by Jałoszyński & Kilian (2012), with notes on its natural history. Later Jałoszyński (2012a) obtained and described the pupa of this species, the second pupa ever described for Scydmaeninae. Also Jałoszyński & Kilian (2012) described the larva of *Scydmaenus (Cholerus) hellwigii* (Herbst, 1792). *Scydmaenus* comprises 31 subgenera (Newton & Franz 1998), and therefore the current state of knowledge of preimaginal stages must be considered as rudimentary.

Larvae of Scydmaeninae are rarely collected and they usually cannot be unambiguously identified to the species level. Obtaining immature stages by rearing adults is also very difficult. Scydmaenines are typically tiny beetles and they are predacious. Some of them require a special type of prey, either springtails or certain species of mites (Jałoszyński 2012b; Jałoszyński & Olszanowski 2013, 2015). Jałoszyński & Kilian (2012) reported a successful rearing of the larva of *Scydmaenus hellwigii*, but it was only one larva obtained from a group of 30 adults. De Marzo (1983) reared larvae of *Palaeostigus pilifer* (Kraatz, 1879) and made observations of their feeding habits; some behavioral data were also presented by Jałoszyński & Kilian (2012) for larvae of *Scydmaenus tarsatus*. Jałoszyński obtained a pupa from a mature larva of *S. tarsatus* (Jałoszyński 2012a) and an adult from a mature larva of *Stenichmus collaris* (Müller & Kunze, 1822) (Jałoszyński 2013), but even such short rearing attempts are often unsuccessful. Molecular methods will allow for assigning field-collected larvae to species, but this method has not yet been used for Scydmaeninae. Current efforts in the author's laboratory are focused on rearing mature larvae taken from their natural environment to obtain identifiable adults and the last shed larval skin for morphological descriptions. This strategy already gave expected results in the case of *Stenichmus collaris* (Jałoszyński 2013).