



## Revision of Neotropical genera *Microraphes* Franz, *Heteroscydmus* Franz and *Mimoscydmus* Franz (Coleoptera, Staphylinidae, Scydmaeninae)

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### Abstract

Neotropical ant-like stone beetle genera *Microraphes* Franz, *Heteroscydmus* Franz and *Mimoscydmus* Franz are revised. *Microraphes pygmaeus* Franz, *Heteroscydmus yapacariensis* Franz and *Mimoscydmus brasiliensis* Franz are redescribed; *Mimoscydmus baruerii* Franz is transferred to a new genus *Amimoscydmus* **gen. nov.**, resulting in *Amimoscydmus baruerii* (Franz) **comb. nov.** Together with the large genus *Microscydmus* Saulcy & Croissandeau all these taxa comprise the smallest known Cyrtoscydmini, with the body length typically below 1 mm, and often as small as nearly half a millimeter. All treated genera are redefined, and morphological structures of all species are illustrated. Unusual transformations of the ventral prothoracic structures found in this group of Scydmaeninae are discussed as putative effects of miniaturization.

**Key words:** Insecta, Coleoptera, Staphylinidae, Scydmaeninae, Cyrtoscydmini, *Microraphes*, *Heteroscydmus*, *Mimoscydmus*, *Amimoscydmus*, *Microscydmus*, Neotropical, taxonomy

### Introduction

The majority of extremely small ant-like stone beetles of the tribe Cyrtoscydmini belong to a cosmopolitan genus *Microscydmus* Saulcy & Croissandeau, 1893. This probably heterogeneous taxon (Jałoszyński, unpublished obs.) currently includes over 170 species, most of them as small as only 0.6–0.8 mm of body length. Several other genera of extremely small Cyrtoscydmini were also described, mostly from the Neotropical region. They seem clearly different from *Microscydmus* (at least from *M. nanus* (Schaum, 1844), the Palaearctic type species of *Microscydmus*), and were described as similar to such morphologically different genera as *Neuraphes* Thomson, 1859, *Microscydmus*, *Protoconnus* Franz, 1967 or even *Pseudoeudesis* Binaghi, 1948, which belongs to Scydmaenini (e.g., Franz 1980). Most enigmatic genera of such tiny beetles are *Microraphes* Franz, 1980, *Heteroscydmus* Franz, 1980 and *Mimoscydmus* Franz, 1980. They were all described in a single paper, and the body length of species placed in these genera ranges from 0.5 to 0.7 mm (Franz 1980). Morphological structures of these taxa were described inadequately and it is a nearly impossible task to assign newly collected and unidentified specimens to *Microraphes*, *Heteroscydmus* or *Mimoscydmus* on the basis of original descriptions alone. Moreover, aedeagi of all species belonging to these three genera were illustrated in such a way that in some cases it is not even possible to guess whether the parameres are present or absent.

The present study is a part of a systematic revision of all world genera of Scydmaeninae in order to prepare grounds for a phylogeny-based re-classification of this still poorly known subfamily. The genera *Microraphes*, *Heteroscydmus* and *Mimoscydmus* were selected for a comprehensive redescription on the basis of a preliminary study that revealed not only a remarkable diversity of structural details in such extremely small beetles, but also significant differences between two species of *Mimoscydmus*, which despite a superficial similarity are certainly not congeneric.