Zootaxa 3774 (1): 001–030
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3774.1.1
http://zoobank.org/urn:lsid:zoobank.org:pub:B5A2EF46-2BF6-4ED3-A5F4-5F9951400545

The smallest Cyrtoscydmini of Australia: revision of *Microscydmus* Saulcy & Croissandeau and *Penicillidmus* gen. n. (Coleoptera, Staphylinidae, Scydmaeninae)

PAWEŁ JAŁOSZYŃSKI
Museum of Natural History, University of Wrocław, Sienkiewicza 21, 50-335 Wrocław, Poland. E-mail: scydmaenus@yahoo.com

Abstract

The Australian members of *Microscydmus* are revised, and a new subgenus *Scydmomicrus* **subgen. n.** is established to accommodate seven species: *M.* (*Sc.*) *australiensis* Franz (type species of *Scydmomicrus*), *M.* (*Sc.*) *nasicornis* Franz, *M.* (*Sc.*) *capitiseboraci* **sp. n.**, *M.* (*Sc.*) *queenslandicus* **sp. n.**, *M.* (*Sc.*) *styxianus* **sp. n.**, *M.* (*Sc.*) *edithensis* **sp. n.**, and *M.* (*Sc.*) *tooloomensis* **sp. n.** A new *Microscydmus*-like genus, *Penicillidmus* **gen. n.**, is described to include *Penicillidmus masseyensis* **sp. n.** (type species of *Penicillidmus*) and *P. unicolor* **sp. n.** Species of *Microscydmus* and *Penicillidmus* are distributed along the eastern coast of Australia, from the northern Cape York to northeastern New South Wales, and females of an undescribed *Microscydmus* are recorded from southern New South Wales. The revised taxa comprise the smallest Australian Cyrtoscydmini, with body lengths of only 0.50–0.65 mm (*Microscydmus*) and 0.83–0.86 mm (*Penicillidmus*). For comparative purposes, morphological details of the type species of *Microscydmus*, *M. nanus*, are described, and structures of the new subgenus and new genus are illustrated. Variations of character states within *Microscydmus* found among Australian species are discussed.

Key words: Insecta, Coleoptera, Staphylinidae, Scydmaeninae, Cyrtoscydmini, *Microscydmus*, *Scydmomicrus*, *Penicillidmus,* Australia, taxonomy

Introduction

Species of Cyrtoscydmini can be as small as 0.5–0.7 mm, and genera that include such tiny beetles are difficult to study. Most previous authors assigned newly described species to genera basing predominantly on several characters observable on dry-mounted specimens. When dealing with beetles that measure a half-millimeter, frequently with deflexed heads that make the bodies seem even shorter, such an approach leaves a very limited number of available characters to examine. These include typically the general body shape, the shape of the head and position of the compound eyes; the shape and composition of the antennal club; the shape and structures of the pronotum (e.g., presence/absence of lateral carinae, ante-basal pits and grooves); and the number of basal elytral foveae. In rare cases, when specimens were dissected, also the male genital structures were included in diagnoses. But often new species were described on the basis of females only (e.g., all hitherto known Australian species of *Microscydmus* Saulcy & Croissandeau, 1893 (Franz 1975)). In the smallest Cyrtoscydmini the body shapes are relatively uniform, the head is often deflexed and difficult to examine, especially with card-mounted specimens; the pronotal carinae, pits, grooves and impressions are difficult to observe on a tiny and sometimes densely setose prothorax; the elytral foveae can be concealed by the pronotal base overlapping the base of the elytra; and preparation of the aedeagus may result in detaching and losing the parameres or distorting the median lobe, which in the smallest species is usually thin-walled and fragile. These problems become evident in revisions of previously described genera and commonly, dorsal characters are insufficient for generic diagnoses or even misleading. Examples of previously ill-defined taxa whose descriptions were based mostly on dorsal characters can be found in the recent revision of several Neotropical genera, comprising small species (0.54–0.73 mm in length): *Microraphes* Franz, 1980, *Heteroscydmus* Franz, 1980, *Mimoscydmus* Franz, 1980 and *Amimoscydmus* Jałoszyński, 2013 (the latter established for a species previously included in *Mimoscydmus*) (Jałoszyński 2013a). Important ventral

Accepted by J. Klimaszewski: 22 Jan. 2014; published: 4 Mar. 2014

References

Casey, T.L. (1897) Coleopterological notices, VII. *Annals of the New York Academy of Science*, 9, 285–684. http://dx.doi.org/10.1111/j.1749-6632.1896.tb55435.x

Chaudoir, M. (1845) Notices entomologiques sur le gouvernment et la ville de Kiew. (Pselaphes). *Bulletin de la Société Impériale des Naturalistes de Moscou*, 18, 158–213.

Croissandeau, J. (1898) Monographie des Scydmaenidae. *Annales de la Société Entomologique de France*, 67, 105–167.

Franz, H. (1970) Zur Kenntnis der Scydmaeniden-Fauna von Singapore, Malakka und Indonesien (Coleoptera: Scydmaenidae). *Beiträge zur Entomologie*, 20, 535–578.

Franz, H. (1975) Revision der Scydmaeniden von Australien, Neuseeland und den benachbarten Inseln. *Österreichische Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Klasse*, 118, 1–312.

Franz, H. (1980) Monographie der südamerikanischen Scydmaenidae mit Einschluss einiger mittelamerikanischer Arten (Coleoptera). *Folia Entomologica Hungarica*, 41, 39–264.

Franz, H. (1985) Revision Caseyscher Scydmaenidentypen. *Sitzungsberichte der Österreichischen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Klasse, Abteilung I*, 194, 149–186.

Hadley, A. (2010) Combine ZP software, new version, [WWW document]. Available from: http://www.hadleyweb.pwp.blueyonder.co.uk/CZP/News.htm (accessed 14 February 2014)

Jałoszyński, P. (2005) Taxonomic notes on the Oriental Scydmaenidae (Coleoptera). Part I: Systematic position of *Parastenichnus* Franz. *Genus*, 16 (4), 555–562.

Jałoszyński, P. (2011) Discovery of Eutheiini (Coleoptera: Staphylinidae, Scydmaeninae) in Australia, with implications for phylogeny and biogeography of *Paraneseuthia* Franz. *European Journal of Entomology*, 108, 687–696. http://dx.doi.org/10.14411/eje.2011.087

Jałoszyński, P. (2012) Systematic position of Australian genus *Palaeoscydmaenus* Franz (Coleoptera, Staphylinidae, Scydmaeninae). *Zootaxa*, 3501, 63–73.

Jałoszyński, P. (2013a) Revision of Neotropical genera *Microraphes* Franz, *Heteroscydmus* Franz and *Mimoscydmus* Franz (Coleoptera, Staphylinidae, Scydmaeninae). *Zootaxa*, 3722 (2), 245–266. http://dx.doi.org/10.11646/zootaxa.3722.2.7

Jałoszyński, P. (2013b) Revision of subgenera of *Stenichnus* Thomson, with review of Australo-Pacific species (Coleoptera, Staphylinidae, Scydmaeninae). *Zootaxa*, 3630 (1), 39–79. http://dx.doi.org/10.11646/zootaxa.3630.1.2

Jałoszyński, P. (2013c) Three new species of *Paraneseuthia* Franz from Australia (Coleoptera, Staphylinidae, Scydmaeninae). *Zootaxa*, 3702 (6), 566–572. http://dx.doi.org/10.11646/zootaxa.3702.6.4

Newton, A.F. Jr. & Franz, H. (1998) World catalog of the genera of Scydmaenidae (Coleoptera). *Koleopterologische Rundschau*, 68, 137–165.

O'Keefe, S.T. (1998) Notes on the classification of North American ant-like stone beetles (Coleoptera: Scydmaenidae). *The Coleopterists Bulletin*, 52, 259–269.

Saulcy, F. & Croissandeau, J. (1893) Tableau des genres des Scydmaenidae. *Annales de la Société Entomologique de France*, 62, 225–238.

Schaum, H.R. (1844) Nachträge zur Monographie der Gattung *Scydmaenus*. *Zeitschrift für die Entomologie*, 5, 459–472.