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Taxonomy of '*Euconnus* complex'. Part III. Morphology of *Euconnus* subgenus *Napochus* and revision of the Australian species (Coleoptera, Staphylinidae, Scydmaeninae)

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Abstract

Morphological structures of the type species of *Euconnus* (*Napochus*) are described and illustrated, and compared with those of *Euconnus* s. str. *Napochus* is maintained as a subgenus of *Euconnus*, and its revised diagnosis is given. Australian species of *Napochus* are revised: *E. palmwoodianus* Franz and *E. pisoniae* Franz are redescribed, and *E. setiphallus* **sp. n.**, *E. yadhaigana* **sp. n.**, *E. microlaminatus* **sp. n**, *E. feeneyi* **sp. n.** (with a subspecies *E. feeneyi parallelilaminatus* **ssp. n.**) are described. An unusual variability in body size and proportions of body parts found in *E. feeneyi* is analyzed and discussed.

Key words: Insecta, Coleoptera, Staphylinidae, Scydmaeninae, Cyrtoscydmini, *Euconnus*, *Napochus*, Australia, taxonomy

Introduction

The enormously large and diverse genus *Euconnus* Thomson, 1859, comprising nearly 2500 described species, is a major problem in the taxonomy of Cyrtoscydmini. Cosmopolitan distribution, unclear generic limits, 37 poorly defined subgenera and a large number of species not placed in any subgenus have turned this taxon into a dumping ground for any cyrtoscydmine species showing the following combination of easily observable characters: the occipital constriction much narrower than vertex; tempora long; the mesoventral intercoxal process developed as a high, long and narrow keel strongly projecting ventrally; metacoxae separated by a moderately broad metaventral intercoxal process; and the aedeagus with free (i.e., not fused to the median lobe) parameres (e.g., Franz 1980). Traditionally, if no peculiar characters were found to establish a new genus, a species with the above-mentioned features was placed in *Euconnus*. Morphological structures of the type species of *Euconnus* were described and illustrated in detail only recently (Jałoszyński 2012a). This allowed verification of the status of several *Euconnus*-like genera (Jałoszyński 2012a, 2013), and this long-term project is continued here, with the focus on *Euconnus* (*Napochus*).

Napochus Thomson, 1859 is the largest subgenus of *Euconnus*, currently comprising over 260 nominal species (Newton & Franz 1998). Its type species is the European *Scydmaenus claviger* Müller & Kunze, 1922, and *Napochus* seems to be cosmopolitan. However, status of many species placed in this subgenus solely on the basis of such characters as the shape of pronotum and antennal structure may require verification, and the true distribution of *Napochus* remains unclear. Thomson (1859) gives the following diagnostic characters: *antennae clava 4-articulata, articulis transversis* (antennal club 4-segmented, segments transverse); *palpi maxillares articulo ultimo aciculari* (terminal maxillary palpomere acicular); *thorax antice hirtus* (thorax anteriorly setose). Only the structure of antenna has a value as a diagnostic character; the shape of maxillary palpomere IV is similar in all Cyrtoscydmini, and setation of the prothorax similar to that of *Napochus* can be found in many genera of this tribe and in many subgenera of *Euconnus*, including *Euconnus* s. str. Although an antennal club composed of four antennomeres is also not uncommon among Scydmaeninae and it can be found in other subgenera of *Euconnus*, a sharply demarcated, broad and loosely assembled club with antennomeres VIII−X strongly transverse and rapidly

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structures between species are striking and identification of males does not pose any problems. It seems that external structures are more conservative in this interesting group than the apparently hyperdiverse copulatory organs, a phenomenon common in Scydmaeninae (e.g., in the tribe Cephenniini (Jałoszyński 2007a, b, 2012b)). In one species, *Euconnus feeneyi*, not only are there two externally indistinguishable subspecies differing in a minor detail of the aedeagus, but also a striking polymorphism in body size and shape. Although the increase in body length and elytral width is continuous within a group of nearly sixty specimens measured (Fig. 56), an analysis using a histogram revealed a bimodal distribution of the body length, with two overlapping peaks (Fig. 55). All these small, large, and intermediate specimens, as well as both subspecies of *E. feeneyi* occur in the same area, but since most of the specimens were collected using Malaise traps, specific microhabitats with which they are associated remain unknown. However, small and large specimens of both subspecies were found in samples from the same traps, so it seems that at least males can overcome possible barriers (for instance caused by habitat fragmentation) and reach the same sites. Females, also winged, were impossible to assign to any of the species (which are primarily placed by use of male genital characters). A larger sample of material is required to study this intriguing phenomenon, and it is possible that only molecular analyses may shed some light on the population structure of *E. feeneyi* and the possible evolutionary pathways that lead to such a variability. Scydmaeninae material of several thousand specimens from various regions of Australia was studied during the present work, and *Napochus* was found only in the Cape York area, with the single exception of *E. palmwoodianus* being found in SE Queensland. This may suggest an Oriental origin of the Australian species, but without a comprehensive revision of the Oriental and New Guinean species, and especially of Sundaland, this hypothesis cannot be verified.

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