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Taxonomic notes on the Oriental Scydmaenidae. Part I: Systematic position of *Parastenichnus* FRANZ (Coleoptera: Staphylinoidea)

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ABSTRACT. The Oriental genus *Parastenichnus* FRANZ, 1970 (Coleoptera, Scydmaenidae) is reduced to a subgenus of *Microscydmus* SAULCY & CROISSANDEAU. Diagnostic characters of the subgenus are given and discussed. *Microscydmus* (*Parastenichnus*) *singaporensis* (FRANZ), n. comb. and *Microscydmus* (*Parastenichnus*) *unicus* (FRANZ), n. comb. (both from Singapore) are redescribed; important characters (including aedeagi) are illustrated.

Key words: entomology, taxonomy, Coleoptera, Scydmaenidae, Cyrtoscydmini, *Parastenichnus*, *Microscydmus*, Orient.

INTRODUCTION

Herbert FRANZ established several small (sometimes monospecific) genera of the Scydmaenidae from Southeast Asia. Unfortunately, his descriptions often lack important diagnostic characters, and the status of some taxa remains unclear. One of such mysterious and poorly defined genera is *Parastenichnus* FRANZ, proposed for two species, *P. unicus* and *P. singaporensis*, both occurring in Singapore (FRANZ 1970). Examination of the type material undertaken during my study has revealed that illustrations of the aedeagi given in the original description were too simplified to be useful for species determination. Moreover, some important diagnostic characters were apparently overlooked, or described in a misleading way. FRANZ underlined the lack of modification of mesotibiae in *P. unicus* as an important character to distinguish this species from *P. singaporensis*. In fact, both species have mesotibiae strongly modified. Moreover, the modification of protibiae

in *P. unicus* illustrated in the original description rather remotely resembles that observed in the holotype; and measurements of the other species were overestimated. However, the most important finding during the present study was that *P. unicus* and *P. singaporensis* show characters typical for *Microscydmus* SAULCY & CROISSANDEAU. In the original description, *Parastenichnus* was compared to *Microscydmus*, but the characters given as different in fact can be found in the latter genus. The most unique character used by FRANZ to define *Parastenichnus* was an unusual modification of protibiae in the males of both *P. singaporensis* and *P. unicus*. The apical part of the tibia is expanded, with a comb of tooth-like projections (illustrated in FRANZ 1970). Also mesotibiae of both species are modified in a similar way. Examination of the males of *Microscydmus nanus* (SCHAUM), the type species of *Microscydmus*, undertaken during the present study, revealed a similar, but weaker expansion of the apical part of the protibiae (as shown in Fig. 2). This character in *Microscydmus* is herein described for the first time. Besides the modified tibiae, *P. singaporensis* and *P. unicus* share with the type species of *Microscydmus* the following characters: the very small body; the antennal insertions narrowly separated; the antennal club composed of antennomeres IX-XI; the pronotum with rounded sides and four small antebasal pits; a single, relatively large basal fovea on each elytron; the very short basisternal part of the prosternum; all coxae nearly contiguous; and also a similar shape of the aedeagus. They differ from *M. nanus* in having longer tempora, extremely short and sparse body setation, very small but visible scutellum; and, first of all, in having a longitudinal, slightly slant, low and narrow carina on each side of metasternum, running posteriorly from its anterior external margin. The latter character was not mentioned by FRANZ in his original description. The length of tempora and setation is variable within *Microscydmus*, but in European *M.* (s. str.) *nanus* and *M.* (s. str.) *minimus* setation is much longer and denser than in the species from Singapore. The scutellum is not visible only in *Microscydmus* s. str., but visible in the remaining subgenera (i.e., *Delius* CASEY, *Neoscydmus* FRANZ and *Neladius* CASEY). The lateral metasternal carina or keel was not described previously in any genus of the Scydmaenidae. *Parastenichnus* is herein reduced to a subgenus of *Microscydmus*, and the presence of the carina on each side of the metasternum is treated as a diagnostic subgeneric character.

Two specimens of *P. unicus* are deposited in the FRANZ Collection, presently at the Naturhistorisches Museum Wien, Austria (NMW) - the holotype, and a single paratype. The latter turned out to be a male belonging to a different species. It has lateral metasternal keels and visible scutellum, as well as modified pro- and mesotibiae, and clearly belongs to *Microscydmus* (*Parastenichnus*). However, the aedeagus is partly damaged (parameres are missing). Therefore, it will be briefly described below, but not as a new species.

Genus *Microscydmus* SAULCY & CROISSANDEAU

Microscydmus SAULCY & CROISSANDEAU, 1893: 225 (without species); type species: *Scydmaenus nanus* SCHAUM, 1844 (subsequent monotypy by CROISSANDEAU, 1898: 105).

Microscydmus is a large genus comprising nearly 170 species distributed worldwide. Only slightly more than twenty of them are known to occur in the Oriental Region: in Sri Lanka, Malaysia, Thailand and Taiwan. However, the genus in the current shape may be heterogenous, and a comprehensive revision is necessary to verify the status of some species. The very small body (usually below 1 mm), and a relatively uniform morphology make the genus difficult to study. Moreover, the existing descriptions (mostly given by Herbert FRANZ) lack important details, and most of the species can be identified only by comparison to the type material. The generic diagnosis can be based on the following characters (found in European *M.* (s. str.) *nanus* (SCHAUM), the type species of the genus): the antennal insertions located on the anterior part of the head, narrowly separated; the antennae with a distinct club composed of antennomeres IX-XI; the pronotum with rounded sides, without lateral edges or carinae, usually with four small antebasal pits; each elytron with a relatively large basal fovea; the basisternal part of the prosternum very short; all coxae nearly contiguous; the aedeagus symmetrical, with well developed parameres.

Microscydmus is divided into four subgenera. *Delius* and *Neladius* are known from the USA, each represented by a single species; *Neoscydmus* comprises nine species occurring in South America and West Indies, the majority of species are treated by NEWTON & FRANZ (1998) as belonging to *Microscydmus* s. str. However, most species of the genus were described by FRANZ, and usually information concerning their subgeneric placement is not given in the original descriptions.

Subgenus *Parastenichnus* FRANZ

Parastenichnus FRANZ, 1970: 574 (as genus); type species: *Parastenichnus singaporensis* FRANZ, 1970 (des. orig.).

DIAGNOSIS

Parastenichnus, herein reduced to a subgenus of *Microscydmus*, is characterized by the following characters: scutellum very small but visible; each side of metasternum with longitudinal, slightly slant, narrow carina or keel running posteriorly and slightly toward middle from anterior external margin of sternum (Fig. 1); body covered with extremely short, sparse setae.

The subgenus comprises two described and a single undescribed species; all known to occur in Singapore.

Microscydmus (*Parastenichnus*) *singaporensis* (FRANZ), n. comb.

(Figs 1, 3, 4, 9-11)

Parastenichnus singaporensis FRANZ, 1970b:575, fig. 35a,b; 36.

DIAGNOSIS

Unique modifications of pro- and mesotibiae as well as the shape of the aedeagus can be used to identify this species (female characters unknown).

REDESCRIPTION

Male (Fig. 1). Body very small, 0.93 mm in length, relatively stout, very convex, moderately light brown, shiny, covered with very short, grayish setae. Head about as long as broad, broadest at eyes, length (measured from anterior margin of clypeus to posterior margin of vertex) 0.21 mm, maximum width 0.22 mm; tempora longer than length of eye in dorsal view, rounded together with convex vertex, which is abruptly delimited from occipital constriction, in lateral view the highest point of head is located near posterior margin of vertex, then vertex and frons are strongly lowering anteriorly; frons subtriangular, convex, slightly expanded between antennal insertions; both vertex and frons with very indistinct, sparse and relatively fine punctation; setation moderately dense, very short, nearly recumbent. Eyes large, oval, with slightly emarginate posterior margins, coarsely faceted. Antennae short, 0.29 mm in length, with antennomere I large, about twice as long as wide, II slightly shorter but nearly as wide as I, antennomeres III-VIII very compact, distinctly narrower than I-II; III-IV slightly shorter than wide, V-VI minimally longer, but still slightly shorter than wide, VII-VIII slightly broader than III-VI, slightly transverse, antennomeres IX-XI enlarged, forming sharply delimited, moderately compact club, antennomere IX slightly shorter than wide, X distinctly wider but only slightly longer than IX, XI as broad as IX, subconical, about 1.5 times as long as wide at base.

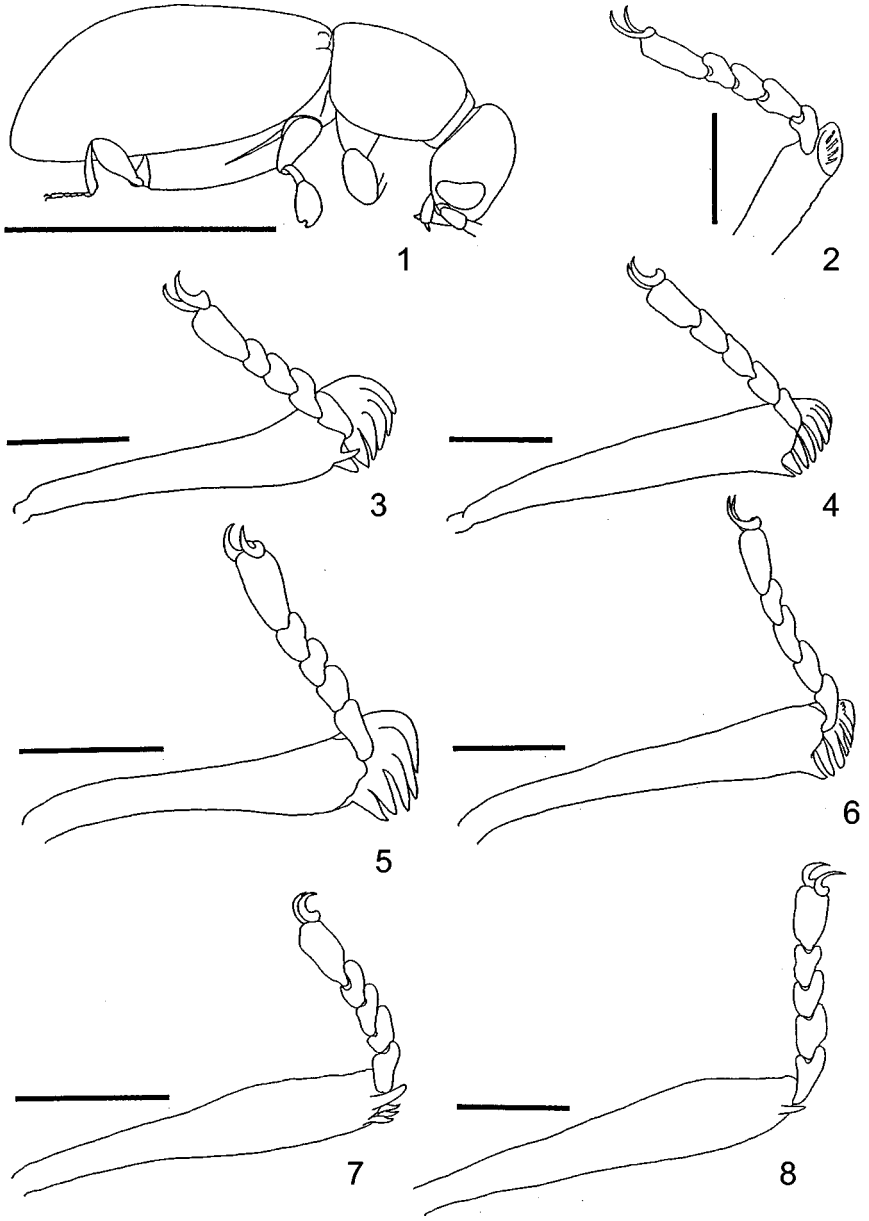
Pronotum subquadrate, with all margins rounded, slightly broader than long, widest in middle, length 0.25 mm, width 0.27 mm. Base with four very small pits, of which external pair is barely noticeable. Disc with hardly visible, sparse and very shallow diffused punctures; setation extremely short, sparse, nearly recumbent.

Elytra oval, widest distinctly anterior to middle, length 0.47 mm, width 0.32 mm, EI (elytral index = length/combined width) 1.47. Each elytron with barely marked humeral callus and relatively large, circular basal fovea located in middle between humerus and very small, subtriangular scutellum. Elytral punctation distinct, composed of sparse, shallow and very small, diffused punctures; setation very short and sparse, nearly recumbent. Hind wings well developed, about twice as long as elytra.

Legs relatively short, robust; all femora gradually (not abruptly) clavate, pro- and mesotibiae (Figs 3 and 4) with expanded apices bearing respectively 7 and 8 subtriangular teeth; pro- and mesotarsi inserted subapically, metatibiae not modified.

Aedeagus (Figs 9-11) 0.14 mm in length, lightly sclerotized, drop-shaped, with broad base separated by lateral constriction, rounded sides and subtriangular apex; internal armature relatively simple, very lightly sclerotized; parameres long and slender, each with single long apical seta.

Female. Unknown.



1, 3, 4. *Microscydmus* (*Parastenichnus*) *singaporensis* (FRANZ); 1 – holotype male in lateral view, simplified; 3 – apex of right protibia and tarsus of male in dorsal view; 4 – apex of right mesotibia and tarsus of male in dorsal view. 2. *Microscydmus* (s. str.) *nanus* (SCHAUM); apex of right protibia and tarsus of male in dorsal view. 5-6. *Microscydmus* (*Parastenichnus*) *unicus* (FRANZ); apex of right protibia and tarsus (3) and mesotibia and tarsus (4) of male in dorsal view. 7-8. *Microscydmus* (*Parastenichnus*) sp.; apex of right protibia and tarsus (7) and mesotibia and tarsus (8) of male in dorsal view (scale bars: 1 – 0.5 mm, 2-8 – 0.05 mm)

TYPE MATERIAL

Holotype (male): white label with typed „Bukit Timah Nat. Res., Singapore, Forest litter" and handwritten „16.11.66", DHM [i.e. D. H. Murphy]", yellow label with handwritten „Parastenichnus singaporensis m." and printed „det. H. Franz", red label with handwritten „Typus" (NMW). During the present study a white printed label was added: „*MICROSCYDMUS* (*PARASTENICHNUS*) *singaporensis* (Franz), det. P. Jałoszyński, 2005".

DISTRIBUTION

Singapore.

REMARKS

The holotype lacks left elytron.

Microscydmus (*Parastenichnus*) *unicus* (FRANZ), n. comb.

(Figs 5, 6, 12-14)

Parastenichnus unicus FRANZ, 1970b:576, fig. 37a,b.

DIAGNOSIS

The shape of the aedeagus and uniquely modified pro- and mesotibiae are unambiguous key characters of this species.

REDESCRIPTION

Male. This species is very similar to *M. singaporensis*; only differences are described below. Body length 0.93 mm; head slightly shorter than in the former species, length 0.19 mm, width 0.23 mm; eyes slightly larger; antenna longer, 0.32 mm in length, with antennomeres III-IV subquadrate; punctation of vertex and frons more distinct, sparse and fine but very well visible under magnification 40x; pronotum with slightly more rounded lateral margins, especially near hind angles, widest in anterior third, length 0.25 mm, width 0.26 mm; elytra with the widest place just posterior to middle, length 0.49 mm, width 0.35 mm, EI 1.40; elytral punctation slightly less distinct.

Legs with pro- and mesotibiae modified as in Figs 5 and 6, number of apical teeth smaller than in *M. singaporensis*.

Aedeagus (Figs 12-14) 0.16 mm in length, very similar to that of *M. singaporensis*, differs in more complicated and darker sclerotized internal armature which is composed of subtrapezoidal central complex and lighter structures in apical part.

Female. Unknown.

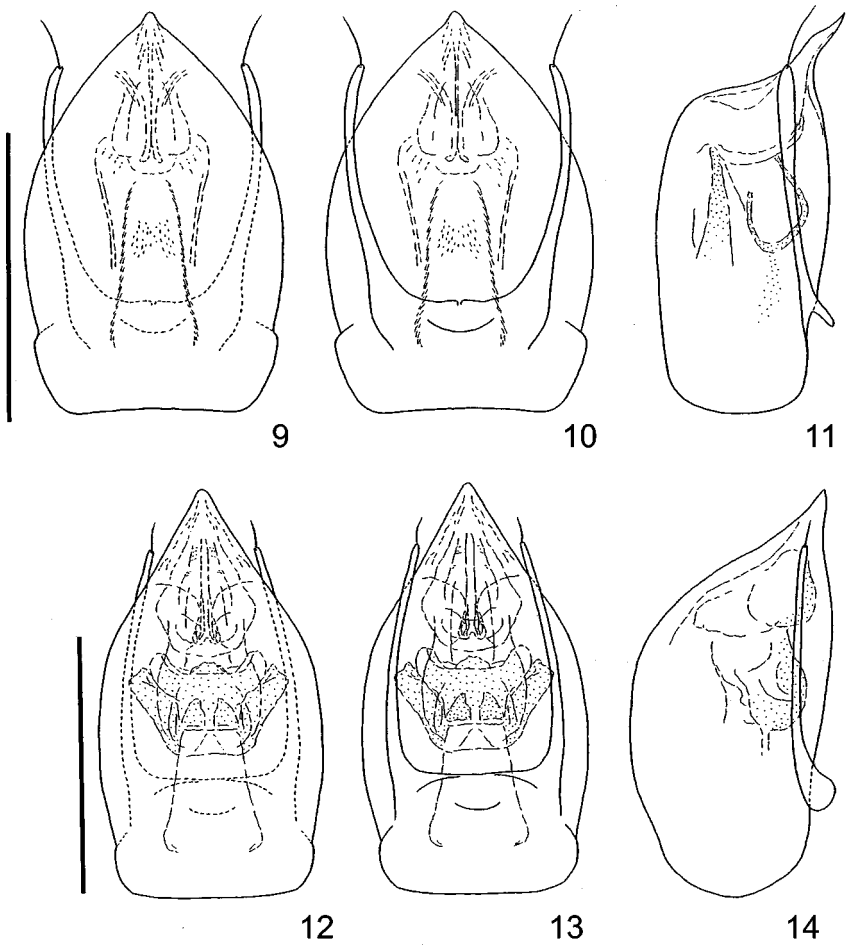
TYPE MATERIAL

Holotype (male): white handwritten label „Bukit Timah Nature Reserve, Singapore", white handwritten label „lg. Murphy, 4.10.1965", red handwritten

label „Typus", yellow label with handwritten „Parastenichnus unicus m." and printed „det. H. Franz", and very small, white label with handwritten „131" (NMW). During the present study a white printed label was added: „*MICROSCYDMUS* (*PARASTENICHNUS*) *unicus* (Franz), det. P. Jałoszyński, 2005".

DISTRIBUTION

Singapore.



9-11. *Microscydmus* (*Parastenichnus*) *singaporensis* (FRANZ). 12-14. *Microscydmus* (*Parastenichnus*) *unicus* (FRANZ); aedeagus in dorsal (9, 12), ventral (10, 13) and lateral (11, 14) views (scale bars: 0.1 mm)

REMARKS

FRANZ (1970) in the original description gave an inaccurate, misleading illustration of the apical part of the protibia, and erroneously stated that mesotibiae are not modified. Moreover, he gave an overestimated body width – 0.7 mm (sic!), and also stated that this species is slightly larger than *P. singaporensis*, and is 1 mm long, whereas the holotypes of both species are exactly of the same length (0.93 mm).

Microscydmus (*Parastenichnus*) sp.

This undescribed species was misidentified by FRANZ and included into the type series of *P. singaporensis* as a paratype. It clearly differs from the two species redescribed above in having smaller body (0.86 mm in length), different proportions of elytra (EI 1.22), and first of all in simpler modifications of pro- and mesotibiae, as illustrated in Figs 7 and 8, respectively. Unfortunately, the aedeagus of this specimen is partly damaged and lacks parameres. This species will be named and properly described when additional material becomes available.

MATERIAL EXAMINED

Male, white label with typed „Bukit Timah Nat. Res., Singapore, Forest litter" and handwritten „17.3.67", additional white printed label „Bukit Timah Singapore" with „A74-3" handwritten on its reverse side, yellow handwritten label „Parastenichnus singaporensis m" and printed „PARATYPUS" (NMW). During the present study a white printed label was added: „*MICROSCYDMUS* (*PARASTENICHNUS*) sp. (not *singaporensis*), det. P. Jałoszyński, 2005".

DISTRIBUTION

Singapore.

REMARKS

This specimen was mentioned in FRANZ, 1970 with a wrong collecting date (7.3.1967, whereas it is 17.3.1967 on the label).

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