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Revision of *Stenichnus* Thomson (Insecta, Coleoptera, Scydmaenidae) of Japan and Taiwan

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Abstract Ant-like stone beetles of the genus *Stenichnus* Thomson of Japan and Taiwan are revised. *Stenichnus klapperichi* Franz, *S. taiwanicus* Franz, *S. taiwanensis* (Franz) from Taiwan and *S. pollens* (Sharp) from Kyushu are redescribed. Three new species are described: *S. bellulus* sp. nov. from Taiwan and the Yaeyama Islands, *S. totoro* sp. nov. from the Yaeyama Islands and *S. minipollens* sp. nov. from Hokkaido. Important morphological details (including aedeagi and spermathecae) are illustrated and a key to all treated species is provided.

Key words : Coleoptera, Scydmaenidae, *Stenichnus*, taxonomy, new species, Japan, Taiwan.

Introduction

Stenichnus Thomson (Scydmaeninae, Cyrtoscydmini) is distributed worldwide and comprises nearly two hundred species, being the fourth largest genus in the Scydmaenidae, after *Euconnus* Thomson, *Scydmaenus* Latreille and *Sciacharis* Broun (Newton & Franz, 1998). In South and East Asia, *Stenichnus* is represented only by a few species: *Stenichnus wailimae* Lhoste from Sumatra (Lhoste, 1939; Franz, 1970); *S. klapperichi* Franz, *S. taiwanicus* Franz and *S. taiwanensis* (Franz) from Taiwan (Franz, 1985; Jałoszyński, 2003); *S. pollens* (Sharp) from Japan (Sharp, 1886); *S. aemulator*, *S. dividus* and *S. saltuarius* recently described by Kurbatov (1993) from the Russian Far East. Also the occurrence of two common European species has been reported from East Siberia: *S. bicolor* Denny, and *S. collaris* Müller et Kunze (Denny 1825; Jakobson, 1910; Franz, 1970; Kurbatov, 1993). Additionally, Csiki (1910) in his catalogue of the Scydmaenidae automatically placed in *Stenichnus* two species from the Philippines, originally described in the genus *Cyrtoscydmus* Motschulsky (now treated as a subgenus of *Stenichnus*): *C. fundaebraccatus* C. Schaufuss and *C. manillae* C. Schaufuss. These species in fact do not belong to *Stenichnus* but to the enormously large *Euconnus* complex (Jałoszyński, unpublished observations) and their systematic position will be clarified elsewhere.

The present paper is a continuation of my study on the Scydmaenidae of Japan, and a result of examination of specimens deposited in various museums, as well as materials collected during my two trips to the Yaeyama Islands, in the winter 2002/2003 and summer 2003. One of species collected in Ishigaki-jima and Iriomote-jima appeared to occur also in Taiwan. Therefore, the revision is not limited only to Japan; also all Taiwanese species are included.

The studied material is deposited in the following collections: The Natural History Museum, London, U.K. (BMNH), Hungarian Natural History Museum, Budapest, Hungary (HNHM), National Science Museum, Tokyo, Japan (NSMT), Natural History Museum, Vienna, Austria (NMW), and the private collection of the author, Poznań, Poland (PCPJ).

Taxonomy

Genus ***Stenichnus*** Thomson

Stenichnus Thomson, 1859: 61. Type species: *Scydmaenus exilis* Erichson, 1837 (des. orig.).

Stenichnus is poorly defined, and even the author of the revision of European species, Herbert Franz, has erroneously placed one species in *Horaeomorphus* Schaufuss (Franz, 1985). The mor-

phology of *Horaeomorphus* and *Stenichnus* was compared very recently and some useful diagnostic characters of the latter genus were indicated (Jałoszyński, 2003). Presently *Stenichnus* is divided into five subgenera; status of each of them seems to be unclear. Minor subgenera *Austrostenichnus* Franz, *Scydmaenichnus* Reitter and *Scydmaenilla* King comprise three, five and seven species, respectively; their placement in *Stenichnus* needs to be verified. Subgenera *Stenichnus* s. str. and *Cyrtoscydmus* Motschulsky include a majority of species. Their diagnoses are unclear, and on the basis of the existing literature the subgenera cannot be unambiguously distinguished and seem to be synonymous (discussed below). In the present paper, they are treated collectively as the *Stenichnus*/*Cyrtoscydmus* complex. All species from Japan and Taiwan are members of this large group.

Before a comprehensive revision of the genus is undertaken, the following set of characters can be used to distinguish members of *Stenichnus* s. str. and *Cyrtoscydmus* from all other genera of the Cyrtoscydmini: mandibles sickle-like, long, curved and slender, often with finely serrated internal margin; maxillary palpus with very small palpomere I, elongate, pipe-like palpomere II, enlarged, elongate palpomere III and relatively small and narrow, subconical palpomere IV; clypeus separated from frons by transverse groove; vertex without foveae; neck broad, only slightly narrower than vertex; antenna gradually thickening toward apex; pronotum widest near anterior third, often heart-shaped with straight or arcuate base, with row of ante-basal pits or punctures, lateral margins rounded, without sharp edges or lateral carinae; elytra oval, elongate, with variously developed basal foveae; scutellum small but well visible; procoxae contiguous; mesocoxae separated by very narrow mesosternal process; metacoxae nearly contiguous; mesosternal carina low, not projecting ventrally beyond coxae; metasternum relatively short, usually shorter than visible abdominal sternites.

Diagnostic characters of *Stenichnus* s. str. and *Cyrtoscydmus* were discussed by Franz (1960). In his paper some problems with definitions of the two subgenera were indicated, but diagnoses proposed therein are not entirely clear. According to that paper, *Stenichnus* s. str. comprises species having small and slender body, heart-shaped and very convex pronotum without distinct ante-basal foveae, elongate elytra, each with single, sometimes indistinct basal fovea and without a character called the "Humeralfalte" (see below). Also, the protibiae of males are more broadly clavate, but dorsal margin of the distal, clavate part of femur is never expanded to form a distinct angle. The aedeagus elongate, apical part of the median lobe not considerably shorter than the basal capsule, with a plate-like structure projecting from the apical opening, surrounded at each side by an additional structure of internal sac. The subgenus *Cyrtoscydmus*, in turn, has been defined by the presence of six ante-basal foveae on the pronotum, median four pits in some cases connected by a groove, each elytron with two basal foveae, sometimes indistinctly separated, and the "Humeralfalte" always present (Franz, 1960). The type species of the subgenus *Cyrtoscydmus*, *S. collaris* Müller et Kunze, 1822 (and also many other species of *Cyrtoscydmus* known to the author of the present paper) has each elytron with moderately prominent humeral callus delimited by a short and relatively shallow impression. Therefore, the structure called by Franz and other German-speaking authors the "Humeralfalte" ("humeral fold" of Vit, 1999) can be interpreted as the border between the internal humeral impression and the humeral callus; its shape partially depends on the development of the latter structure (which, in turn, may correlate to the degree of development of hind wings). In the present paper the term "internal humeral impression" is used consequently to replace the German "Humeralfalte".

Diagnoses of the two largest subgenera of *Stenichnus* given by Franz in his revision cited above are ambiguous, and in the very same paper he described or redescribed species of *Cyrtoscydmus*, which do not have six foveae on the pronotum: *S. godarti* Latreille, *S. besucheti* Franz and

S. foveola Ray. They all have a transverse ante-basal row of numerous, small to very small pits or rather punctures. In the key to the Scydmaenidae of Central Europe, Franz and Besuchet (1971) gave characteristics of the two subgenera very similar to those adopted earlier in Franz, 1960. The main modification was that *Stenichnus* s. str. (represented in the area covered by the key by a single species) may have four small foveae on the pronotum, and species of *Cyrtoscydmus*, in some cases, may have a transverse groove or a row of small punctures instead of six ante-basal pits on the pronotum. This alteration was made apparently in order to adjust the definition of *Cyrtoscydmus* to fit better to *S. godarti* and *S. foveola* (*S. besucheti* does not occur in Central Europe). Later, Franz described or redescribed several species, which have characteristics that disagree with earlier diagnoses, without providing any particular reasons for their subgeneric placement. The examples are: *S.* (*Cyrtoscydmus*) *picipennis* Reitter, which has the pronotum without basal foveae or groove and the elytra without humeral calli and without "Humeralfalte", *S.* (*Cyrtoscydmus*) *amplithorax* Reitter, also without typical for *Cyrtoscydmus* structures in the base of the elytra, or *S.* (s. str.) *emgei* Reitter, redescribed as having two basal foveae on the pronotum and a short "Humeralfalte" (Franz, 1975, 1982). The appearance of the base of the pronotum and elytra has not been described in the case of certain number of species, mostly placed in *Cyrtoscydmus*, and reasons for their subgeneric position have not been explained (*e.g.*, *S.* (*Cyrtoscydmus*) *tenerifae* Franz (1971)).

Relationships between the nominotypical subgenus and *Cyrtoscydmus* are additionally complicated by the fact that the type species of the genus *Stenichnus* is *Scydmaenus exilis* Erichson, 1837=*Stenichnus bicolor* Denny, 1825, which was treated as a member of the subgenus *Cyrtoscydmus* by Franz (1960) and Franz & Besuchet (1971). The type species of *Cyrtoscydmus* (*S. collaris*) has been designated only recently (by Franz, in Newton & Franz, 1998). Two species of *Stenichnus* examined during the present work, *S. klapperichi* and *S. taiwanicus*, have been published as *incertae sedis* (Franz, 1985), despite labeling the type material as belonging to *Stenichnus* s. str. (see label data and remarks in the redescriptions of both species in the further parts of the present paper). Moreover, three species recently described by Kurbatov (1993) from the Russian Far East also have not been placed in any subgenus.

The size and number of ante-basal pronotal foveae or punctures is variable within some genera of the Cyrtoscydmini (*e.g.*, *Horaeomorphus*), and it seems to be a rather weak diagnostic character. The lack or presence of humeral calli and internal humeral impressions may be related to the development of hind wings, as mentioned above. Such a correlation was observed in *Syndicus* Motschulsky (Jałoszyński, 2004). In order to clarify the systematics of the *Stenichnus*/*Cyrtoscydmus* complex and to provide ground for unambiguous subgeneric division of *Stenichnus*, a comprehensive study of all species of the genus is necessary. Especially diagnostic value of the above mentioned characters, as well as the number and degree of fusion of basal elytral foveae, must be analyzed.

All species treated in the present paper might be placed in *Cyrtoscydmus*, on the basis of their high similarity to European species belonging to this subgenus. However, the purpose of this revision is to provide descriptions and redescriptions of species of *Stenichnus* inhabiting a relatively small area, and the taxonomical problems briefly indicated in previous paragraphs will require a more comprehensive approach. Therefore, all Japanese and Taiwanese species of *Stenichnus* are herein treated as *incertae sedis*, belonging to the informal *Stenichnus*/*Cyrtoscydmus* complex.

Species of *Stenichnus* of Japan and Taiwan can be identified by means of the following key:

Key to Species of *Stenichnus* of Japan and Taiwan

1. Body length≥2 mm. 2
— Body length<1.8 mm.. 4

2. Antennomere VII distinctly elongate, nearly twice as long as wide. . . . . ***S. totoro*** sp. nov.
— Antennomere VII as long as wide or minimally longer. 3
3. Pronotum slightly longer than wide; antennomere XI about twice as long as wide. Taiwan. . . . . ***S. taiwanensis*** (Franz)
— Pronotum as long as wide; antennomere XI shorter, about 1.5× as long as wide. Kyushu. . . . . ***S. pollens*** (Sharp)
4. Elytral punctation fine and sparse. . . . . ***S. taiwanicus*** Franz
— Elytral punctation very distinct, relatively dense. 5
5. Antennomere VII as long as wide; dorsal margin of clavate part of profemur in males expanded dorsally near middle. Hokkaido. . . . . ***S. minipollens*** sp. nov.
— Antennomere VII distinctly elongate; dorsal margin of clavate part of profemur in males expanded dorsally near apical fourth. Taiwan and Yaeyama Islands. 6
6. Body more slender and larger, 1.6–1.75 mm in length. . . . . ***S. klapperichi*** Franz
— Body more stout and smaller, 1.49–1.6 mm. . . . . ***S. bellulus*** sp. nov.

Stenichnus bellulus sp. nov.

(Figs. 1A–D, 2A, 3A–D, 7A, 8A–B)

Diagnosis. This new species is the smallest Japanese *Stenichnus*, with relatively stout body.

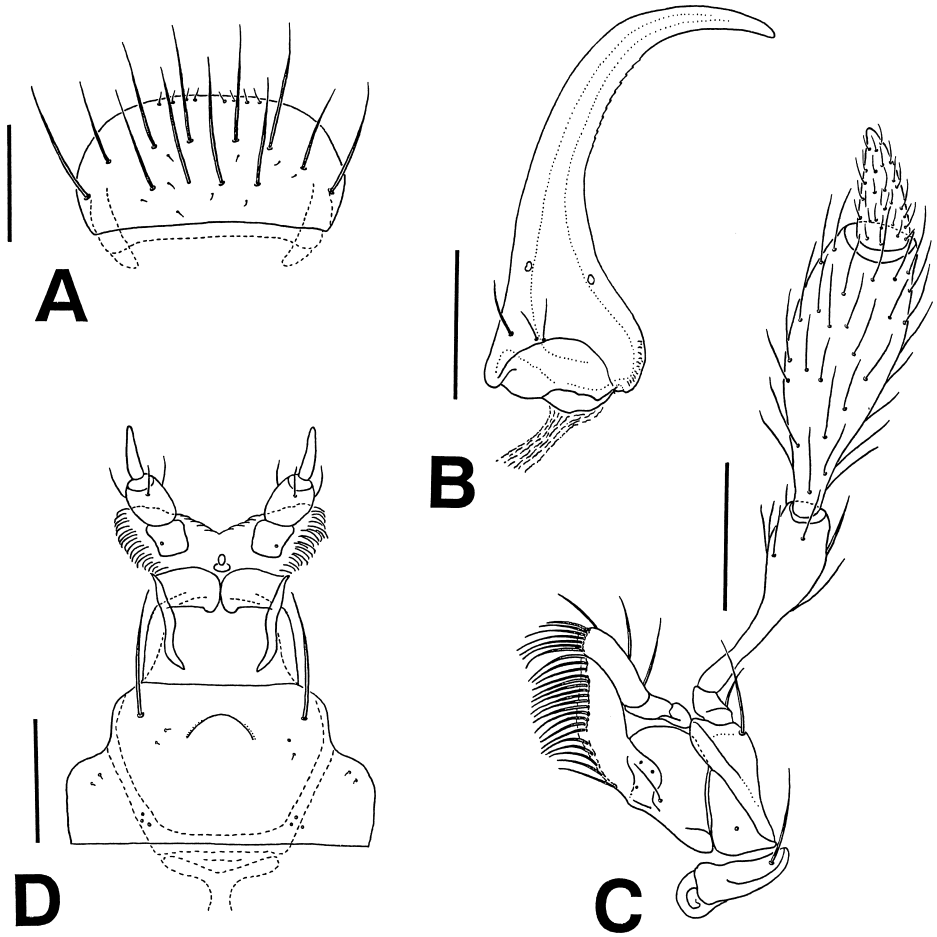

Fig. 1. *Stenichnus bellulus* sp. nov.; labrum in dorsal view (A), left mandible in dorsal view (B), left maxilla in ventral view (C), labium in ventral view (D). Scale: 0.05 mm.

Examination of aedeagus is necessary to confirm identification.

Description. Body small, relatively stout, moderately light brown, legs and palpi slightly lighter; setation light brown.

Male. Body length: 1.49–1.6 mm (mean: 1.55 mm). Head broader than long, widest at large, finely faceted eyes, length: 0.25 mm, width: 0.31 mm. Tempora moderately long, strongly narrowing posteriorly, only slightly, regularly rounded; vertex broad, convex; frons relatively small, trapezoidal, slightly convex; supraantennal tubercles indistinct. Punctation sparse and fine; setation sparse, long, suberect to erect. Antenna (Fig. 2A) slender, length: 0.70–0.72 mm (mean: 0.71 mm), antennomeres I–II and V over twice as long as wide, III–IV twice as long as wide, VI slightly less than twice as long as wide, VII slightly longer than wide, VIII–IX distinctly transverse, XI short, slightly less than 1.5× as long as wide at base, subconical, distinctly asymmetrical.

Mouthparts (Fig. 1A–D): Labrum (Fig. 1A) over twice as broad as long, with rounded anterior and lateral margins, with symmetrically distributed short setae in middle of anterior margin, dorsal surface with very long and very short setae. Mandible (Fig. 1B) elongate, slender, sickle-like, base broadened, with three setae, apical part strongly curved, internal edge very finely serrated, prostheca rudimentary. Maxilla (Fig. 1C) with elongate, triangular stipes; elongate palpifer with long setae in distal part; elongate lacinia divided into broad basal part with seta near internal margin and distal part bearing row of thick and dense setae along internal margin; and elongate galea with three long setae on external lateral margin and row of dense, thick setae along apical margin; palpomere I small, elongate, about twice as long as wide, with single seta; palpomere II elongate, with broadened distal half, over 5× as long as wide at apex, with several moderately long setae in distal half; palpomere III large, widest slightly distally to middle, about 3× as long as wide, with relatively sparse and short setation; palpomere IV small, conical, 2.5× as long as wide at base, with sparse, short setae. Labrum (Fig. 1D) with large, strongly transverse, subtrapezoidal mentum with distinct median tubercle in distal part, pair of long setae and several very short setae on ventral surface, hypopharynx moderately large, palpus labialis relatively short, palpomere I cylindrical, slightly longer than wide, with (possibly) setiferous puncture near base, palpomere II larger than I, twice as long as wide, widest near middle, with three apical setae, palpomere III long and slender, about 5× as long as wide at base, asetose.

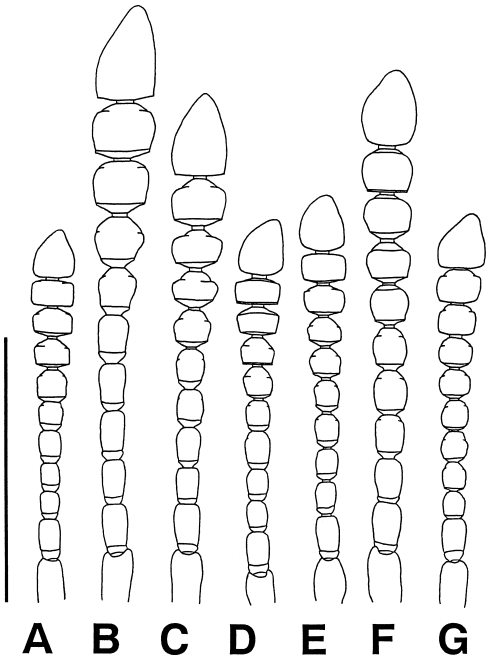

Fig. 2. Right antenna in dorsal view; *S. bellulus* sp. nov. (A), *S. totoro* sp. nov. (B), *S. taiwanensis* (Franz) (C), *S. klapperichi* Franz (D), *S. taiwanicus* Franz (E), *S. pollens* (Sharp) (F), *S. minipollens* sp. nov. (G). Scale: 0.5 mm.

Pronotum as long as wide, widest near anterior fourth, length: 0.39–0.41 mm (mean: 0.4 mm), maximum width: 0.39–0.4 mm (mean: 0.4 mm), width at base: 0.29–0.30 mm (mean: 0.30 mm). Sides strongly narrowing from widest place to posterior third, then only slightly convergent; base arcuate, with four very small, in some specimens very indistinct foveae, all separated by similar distances. Punctation sparse and fine; seta-

tion sparse, long, erect.

Elytra relatively stout, moderately convex, widest clearly before middle, length: 0.85–0.94 mm (mean: 0.90 mm), width: 0.62–0.66 mm (mean: 0.65 mm), EI: 1.37–1.42. Humeral calli and internal humeral impressions indistinct, very faint; single basal fovea on each elytron relatively small, circular, located closer to scutellum than to humerus; apices of elytra separately rounded. Scutellum small, triangular, with rounded apex and hardly visible, circular median impression. Punctation of elytra moderately dense, distinct, composed of relatively well delimited, moderately large punctures; setation relatively sparse,

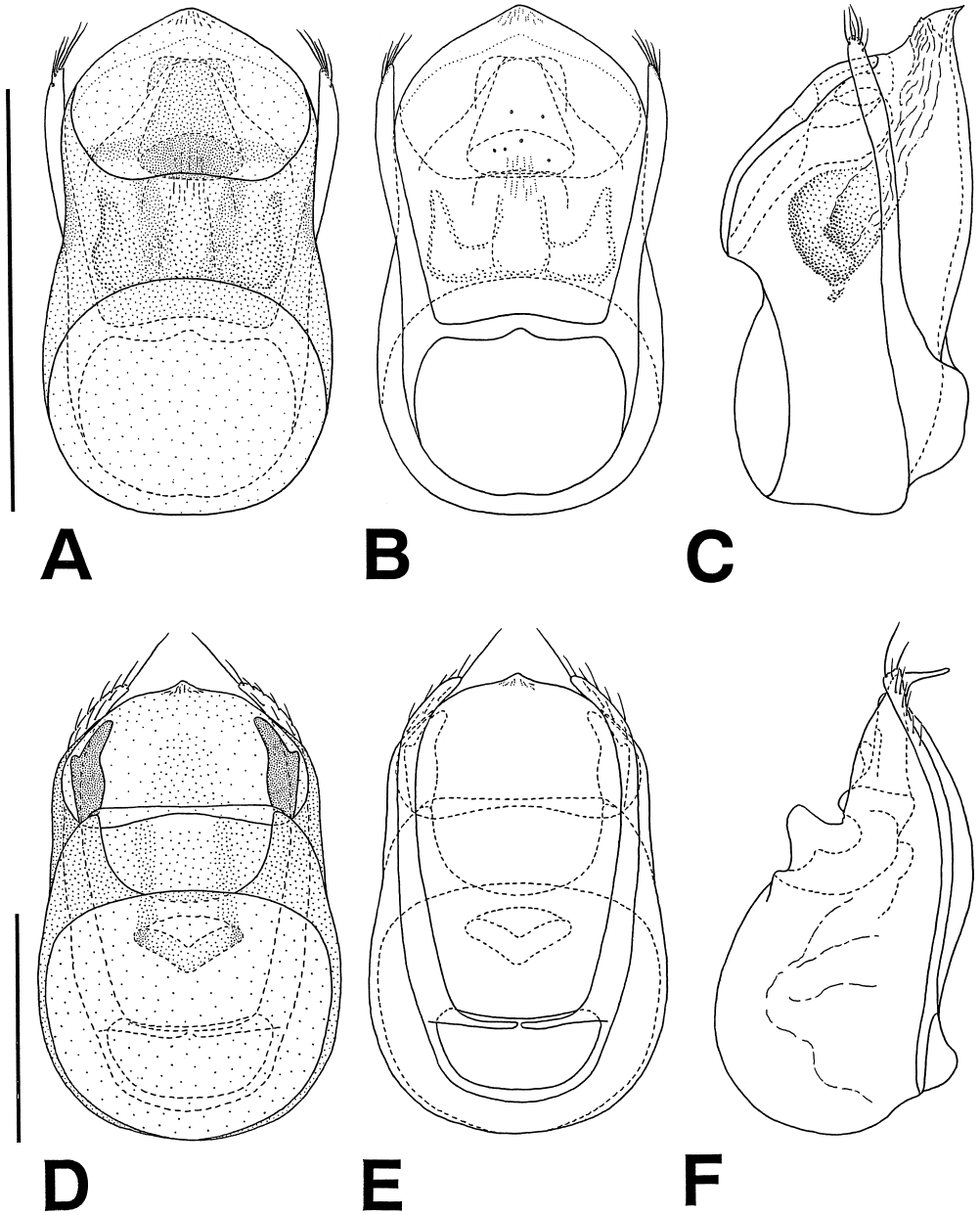

Fig. 3. Aedeagus in dorsal (A, D), ventral (B, E) and lateral (C, F) views, pigmentation indicated only in dorsal aspect; *S. bellulus* sp. nov. (A–C), *S. totoro* sp. nov. (D–F). Scale: 0.2 mm.

long, erect. Hind wings well developed, about twice as long as elytra.

Profemur (Fig. 8A) in apical part with slightly expanded dorsal margin, in lateral view finely serrated.

Aedeagus (Fig. 3A–C) moderately elongate, 0.24 mm in length, relatively lightly sclerotized, with shallow and short median longitudinal groove on dorsal wall; hymenous part of internal sac large; apical part of median lobe with dark subtrapezoidal plate-like structure; in lateral view apex distinctly curved ventrally; parameres relatively short, with several moderately long apical setae.

Female. Very similar to male, differs only in profemora, which are slender, not expanded (Fig. 8B). Body length: 1.53–1.58 mm (mean: 1.56 mm), length of head: 0.25 mm, width of head: 0.30–0.31 mm (mean: 0.31 mm), length of antenna: 0.67–0.70 mm (mean: 0.68 mm), length of

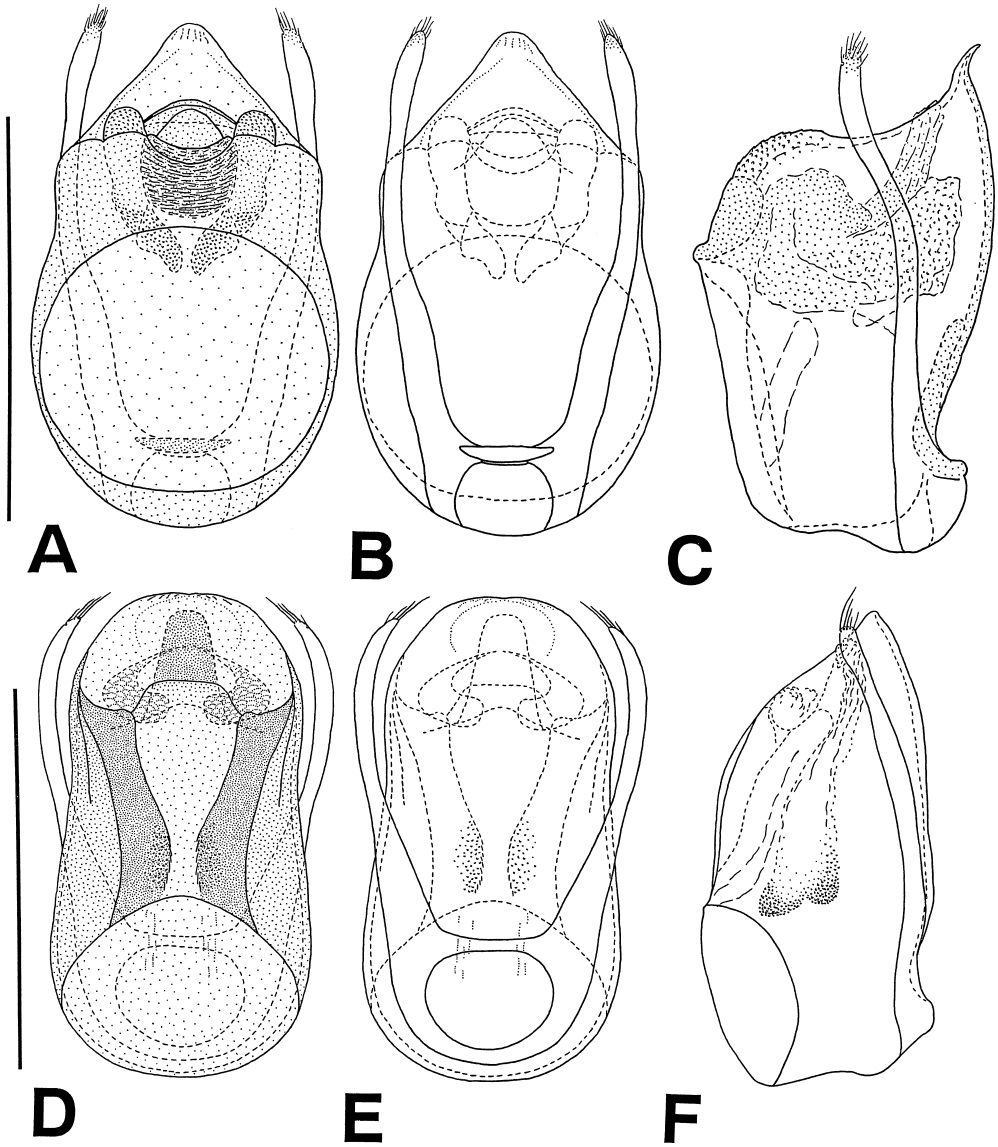

Fig. 4. Aedeagus in dorsal (A, D), ventral (B, E) and lateral (C, F) views, pigmentation indicated only in dorsal aspect; *S. klapperichi* Franz (A–C), *S. taiwanicus* Franz (D–F). Scale: 0.2 mm.

pronotum: 0.37–0.41 mm (mean: 0.4 mm), maximum width of pronotum: 0.4–0.42 mm (mean: 0.41 mm), width of pronotum at base: 0.30–0.31 mm (mean: 0.30 mm), length of elytra: 0.91–0.92 mm (mean: 0.91 mm), width of elytra: 0.62–0.67 mm (mean: 0.66 mm), EI: 1.37–1.47.

Spermatheca (Fig. 7A) small, diameter: 0.07 mm, nearly spherical, with sharply delimited insertion of ductus spermathecae approximate to broad insertion of very weakly sclerotized and barely noticeable accessory gland.

Distribution. Japan: Yaeyama Islands (Sakishima Archipelago), Iriomote-jima and Ishigaki-jima; Taiwan.

Holotype, ♂, Japan, Okinawa Pref., Yaeyama Islands, Ishigaki Is., Mt. Omoto-dake, ca. 100 m, 2. i. 2003, P. Jałoszyński leg. (NSMT). Paratypes: 2♂♂, 2♀♀, same data as holotype, except for 17. ix. 2003 (PCPJ); ♂, same data except for 28. iv. 1999, T. Shimada leg. (NSMT); 2♂♂, same locality, 100 m, 15.–21. iii. 2004, flight intercept trap, S. Nomura leg. (NSMT); 2♀♀, Ishigaki Is., Mt. Banna-dake, ca. 200 m, 31. xii. 2002, P. Jałoszyński leg. (PCPJ); 2♂♂, Ishigaki Is., Ura-Banna, 100 m, 16.–21. iii. 2004, flight intercept trap, S. Nomura leg. (NSMT); ♂, Ishigaki Is., Mt. Buzama, 14.–19. v. 2002, flight intercept trap, S. Hori leg. (NSMT); ♀, Ishigaki Is., Mt. Nosoko-dake, 200 m, 12. vi. 2003, H. Mizushima leg. (NSMT); ♀, Ishigaki Is., Takedarindô, 6. vi. 2003, S. Nagashima leg. (NSMT); ♀, Yaeyama Isls., Iriomote Is., Ôhara env., 13. ix. 2003, P. Jałoszyński leg. (PCPJ); ♂, same data but 19. ix. 2003 (PCPJ); ♂, Iriomote Is., Kanpiree, 12 . iv. 1986, S. Nomura leg. (NSMT); ♀, same data except for 13. iv. 1986 (NSMT); ♂, Taiwan, Taipei Hsien, Fu-Shan, "lake shore, meadow, swept", 25. iii. 2003, L. Papp & M. Foldvari leg. (HNHM).

Etymology. The specific epithet "*bellulus*" in Latin means "pretty, fine, beautiful".

Stenichnus totoro sp. nov.

(Figs. 2B, 3D–F, 5, 7B, 8C–D)

Diagnosis. This species has large body, pronotum about as long as wide or slightly wider than long, antennomeres IX–X nearly as long as wide, relatively long antennomere XI and unique aedeagus.

Description. Body large, relatively stout, moderately light brown, palpi and tarsi slightly lighter; setation light brown.

Male (Fig. 5). Body length: 2.15–2.19 mm (mean: 2.16 mm). Head broader than long, widest at large, finely faceted eyes, length: 0.37–0.40 mm (mean: 0.38 mm), width: 0.45–0.47 mm (mean: 0.46 mm). Tempora long, strongly narrowing posteriorly, only slightly rounded; vertex broad, convex; frons relatively small, trapezoidal, slightly convex; supraantennal tubercles indistinct. Punctation sparse, composed of distinct, but small punctures; setation sparse, long, suberect to erect. Antenna (Fig. 2B) slender, length: 1.05–1.07 mm (mean: 1.06 mm), antennomeres I–V over twice as long as wide, VI–VII about twice as long as wide, VIII–X about as long as wide, XI subconical, elongate, distinctly asymmetrical, twice as long as wide.

Pronotum about as long as wide, widest near anterior fourth, length: 0.56–0.57 mm (mean: 0.565 mm), maximum width: 0.57 mm, width at base: 0.43–0.45 mm (mean: 0.44 mm). Sides strongly narrowing from widest place to posterior third, then only slightly convergent; base arcuate, with 10–12 small, nearly circular pits, some fused one to another, located in indistinct transverse impression. Punctation sparse, composed of relatively small but distinct punctures; setation sparse, long, suberect to erect.

Elytra broad and very convex, widest slightly anterior to middle, length: 1.22 mm, width: 0.94–0.97 mm (mean: 0.95 mm), EI: 1.26–1.3. Humeral calli distinct; internal humeral impression very faint; single basal fovea on each elytron relatively small, circular, located closer to scutellum than to humerus; apices of elytra separately rounded. Scutellum small, triangular, with rounded apex and distinct circular median impression. Punctation of elytra relatively sparse but distinct, composed of slightly diffused, moderately large punctures; setation relatively sparse, long, erect. Hind

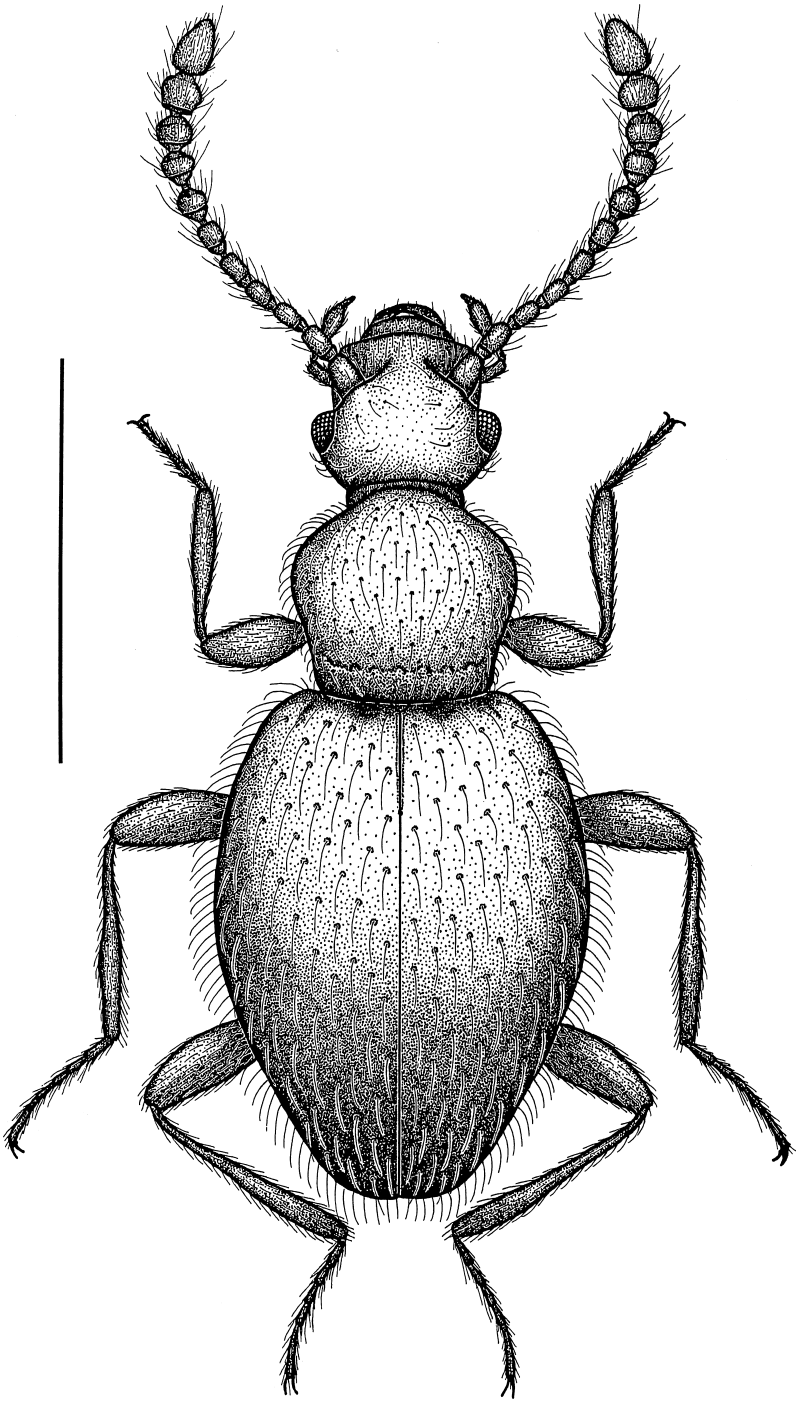

Fig. 5. *Stenichnus totoro* sp. nov., male habitus. Scale: 1 mm.

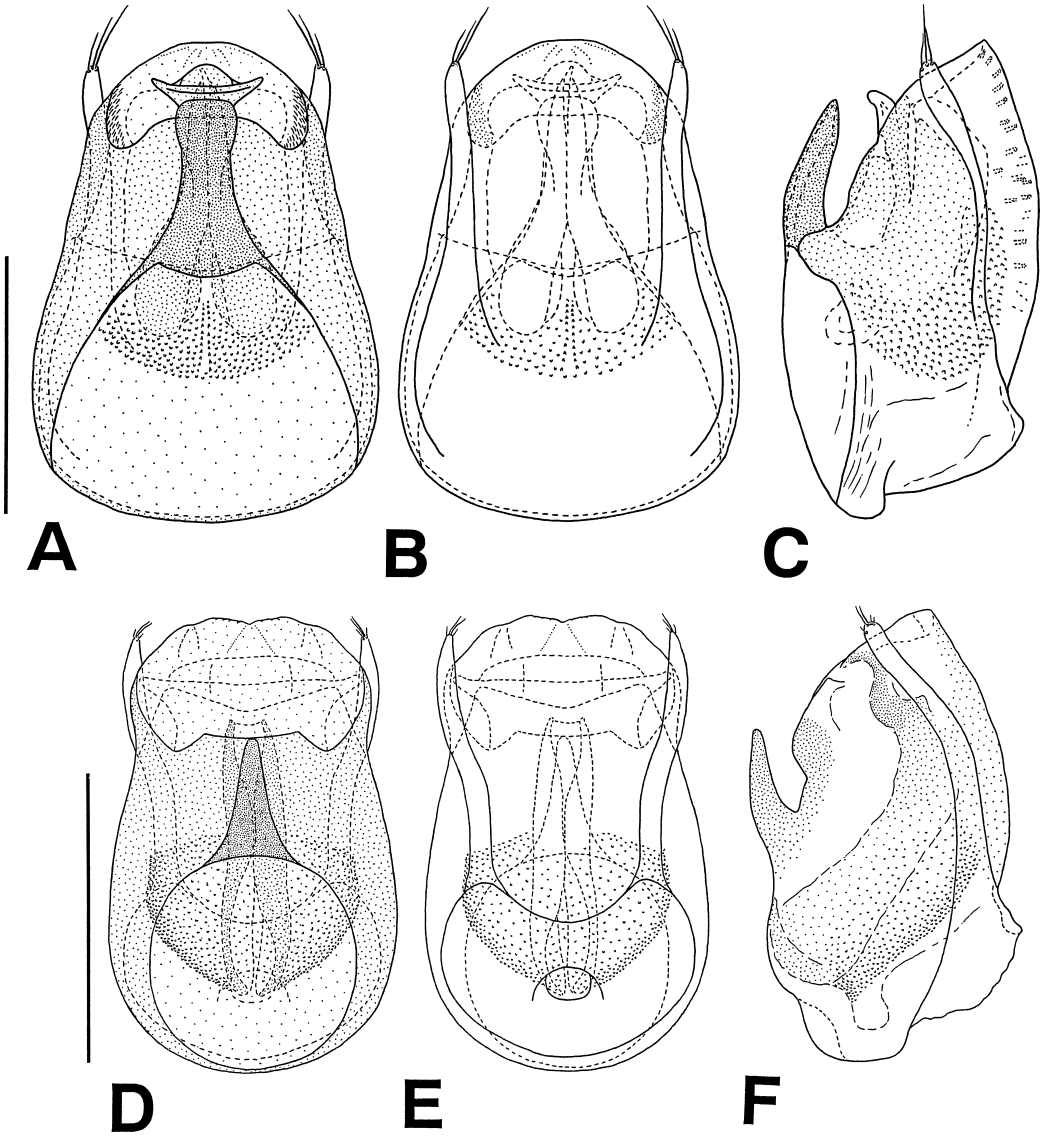

Fig. 6. Aedeagus in dorsal (A, D), ventral (B, E) and lateral (C, F) views, pigmentation indicated only in dorsal aspect; *S. pollens* (Sharp) (A–C), *S. minipollens* sp. nov. (D–F). Scale: 0.2 mm.

wings well developed, about twice as long as elytra.

Profemur (Fig. 8C) in apical part with relatively strongly expanded, round dorsal margin, in dorsal view apex of femur with distinct, slightly coarse punctation.

Aedeagus (Fig. 3D–F) large, 0.40 mm in length, relatively lightly sclerotized, in lateral view with strongly curved apex, in dorso-ventral view median lobe bears pair of triangular lateral expansions above lightly sclerotized, oval hymenous area; internal armature composed of relatively lightly sclerotized V- or short Y-shaped sclerite and pair of elongate lateral sclerites protruding from apical opening; parameres long, slender, not exceeding apex of aedeagus, with numerous apical and subapical setae of various lengths.

Female. Externally similar to male, except for having slender profemora (Fig. 8D), pronotum slightly broader than long and higher elytral index. Body length: 2.12–2.21 mm (mean: 2.15 mm), length of head: 0.37–0.39 mm (mean: 0.37 mm), width of head: 0.42–0.46 mm (mean: 0.44 mm), length of antenna: 1.05–1.07 mm (mean: 1.06 mm), length of pronotum: 0.5–0.56 mm (mean: 0.53 mm), maximum width of pronotum: 0.57–0.59 mm (mean: 0.58 mm), width of pronotum at base: 0.42–0.45 mm (mean: 0.43 mm), length of elytra: 1.25–1.26 mm (mean: 1.25 mm), width of elytra: 0.92–0.97 mm (mean: 0.95 mm), EI: 1.3–1.36.

Spermatheca (Fig. 7B) relatively small, 0.08 mm in diameter, with ovoid, only slightly elongate capsule with conical, long and broad insertion of ductus spermathecae approximate to insertion of accessory gland.

Distribution. Japan: Ryukyus, Yaeyama Islands (Sakishima Archipelago), Iriomote-jima and Ishigaki-jima

Holotype, ♂, Japan, Ryukyus, Okinawa Pref., Yaeyama Isls., Iriomote Is., Ohtomi, 28. iv. 2003, pine wood, Hiroki Satô leg. (NSMT). Paratypes: 2♀♀, same data (NSMT); ♀, Iriomote Is., Ôhara

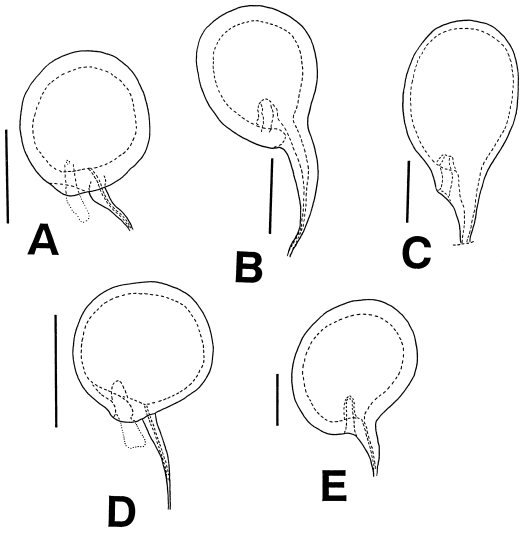

Fig. 7. Spermatheca; *S. bellulus* sp. nov. (A), *S. totoro* sp. nov. (B), *S. taiwanensis* (Franz) (C), *S. klapperichi* Franz (D), *S. taiwanicus* Franz (E). Scale: 0.05 mm.

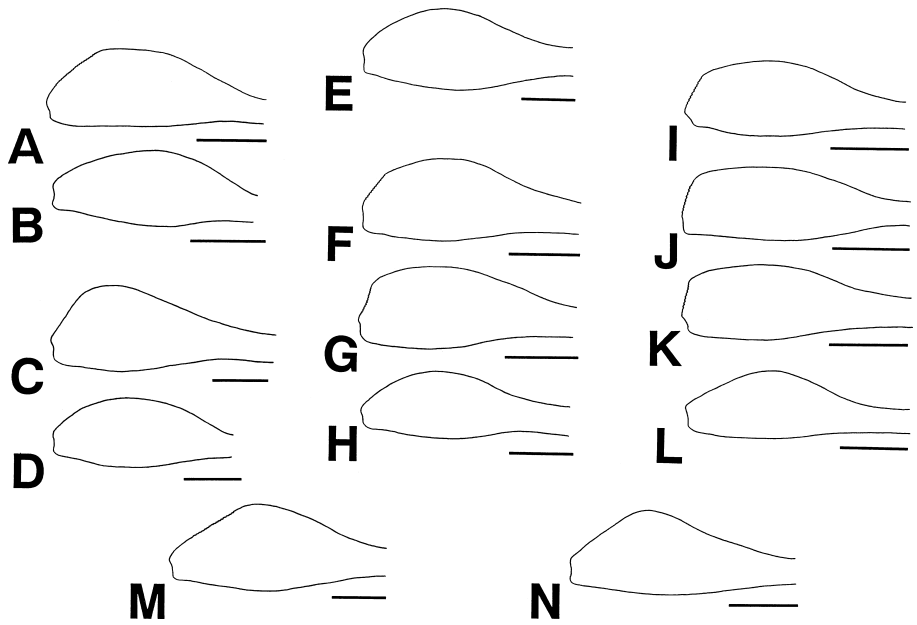

Fig. 8. Distal part of right profemur in antero-lateral view; *S. bellulus* sp. nov., male (A), female (B), *S. totoro* sp. nov., male (C), female (D), *S. taiwanensis* (Franz), female (E), *S. klapperichi* Franz, males (F, G), female (H), *S. taiwanicus* Franz, males (I–K), female (L), *S. pollens* (Sharp), male (M), *S. minipollens* sp. nov., male (N). Scale: 0.1 mm.

env., 3. i. 2003, leaf litter, P. Jałoszyński leg. (PCPJ); ♂, ♀, same data except for 13. ix. 2003 (PCPJ); ♀, same data but 16. ix. 2003 (PCPJ); ♀, same data but 19. ix. 2003, rotten wood (PCPJ); ♀, Iriomote Is., Komi, 2. iii. 2002, T. Ishikawa leg. (PCPJ); ♂, Ishigaki Is., Ura-Banna, 100 m, 16.–21. iii. 2004, flight intercept trap, S. Nomura leg. (NSMT); ♂, Ishigaki Is., Mt. Omoto-dake, 100 m, 15.–21. iii. 2004, flight intercept trap, S. Nomura leg. (NSMT).

Etymology. This species is named after a large, cat-like creature featured in the Japanese cartoon "Tonari no Totoro" by Hayao Miyazaki.

Remarks. This species is most similar to the only known female of *S. taiwanensis* (Franz), but can be distinguished by different proportions of antennomeres and distinctly broader pronotum.

Stenichnus taiwanensis (Franz)

(Figs. 2C, 7C, 8E)

Horaeomorphus (s. str.) *taiwanensis* Franz, 1985: 95; O'Keefe & Li, 1998:159.

Stenichnus (*Cyrtoscydmus*) *taiwanensis* (Franz): Jałoszyński, 2003: 115, figs. 2C, D, J.

Diagnosis. This species can be identified on the basis of its large body, pronotum slightly longer than wide, distinctly transverse antennomeres VIII–X and relatively long antennomere XI.

Redescription. Body large, relatively stout, moderately light brown, setation minimally lighter than body.

Male. Unknown.

Female. Body length: 2.11 mm. Head broader than long, widest at large, finely faceted eyes, length: 0.37 mm, width: 0.45 mm. Tempora long, strongly narrowing posteriorly, only slightly rounded; vertex broad, convex; frons relatively small, trapezoidal, slightly convex; supraantennal tubercles indistinct. Punctation sparse, composed of distinct, but small punctures; setation sparse, long, suberect to erect. Antenna (Fig. 2C) slender, length: 0.97 mm, antennomeres I–II over twice as long as wide, III–VI about as long as wide, VII only minimally longer than wide, VIII–X wider than long, XI subconical, distinctly asymmetrical, twice as long as wide.

Pronotum slightly longer than wide, widest near anterior fourth, length: 0.54 mm, maximum width: 0.52 mm, width at base: 0.41 mm. Sides strongly narrowing from widest place to posterior third, then only slightly convergent toward minimally arcuate base; ante-basal pits numerous (about ten), small, from circular to slightly irregular in shape, located in indistinct transverse groove. Punctation sparse, composed of relatively small but distinct punctures; setation sparse, long, suberect to erect.

Elytra broad and very convex, widest slightly anterior to middle, length: 1.20 mm, width: 0.91 mm, EI: 1.32. Humeri distinct; internal humeral impression very faint; single basal fovea on each elytron relatively small, circular, located closer to scutellum than to humerus; apices of elytra separately rounded. Scutellum small, triangular, with rounded apex and distinct, circular median impression. Punctation of elytra relatively sparse but distinct, composed of slightly diffused, moderately large punctures; setation relatively sparse, long, erect. Hind wings well developed.

Profemur (Fig. 8E) similar to that of females of *S. totoro*, slender.

Spermatheca (Fig. 7C) relatively small, 0.09 mm in diameter, with ovoid, distinctly elongate capsule with conical, short and broad insertion of ductus spermathecae near insertion of accessory gland.

Distribution. Taiwan.

Holotype, ♀, two white labels with black handwritten "Taiwan, 1400 m, Fenchihu, 12.4.77, lg. Klapperich", "Horaeomorphus taiwanensis m." and printed "det. H. Franz"; small label with a female symbol; red label with handwritten "Holotypus", white printed label "*Stenichnus* (*Cyrtoscydmus*) *taiwanensis* (Franz), det. P. Jałoszyński, 2003" (NMW).

Remarks. The only known female of this species is extremely similar to *S. totoro* (see remarks under the latter species).

Stenichnus klapperichi Franz

(Figs. 2D, 4A–C, 7D, 8F–G)

Stenichnus klapperichi Franz, 1985: 94, fig. 4; O'Keefe & Li, 1998:159.

Diagnosis. This species is small, has rather slender body and distinct elytral punctation. Examination of aedeagus is necessary for certain identification.

Redescription. Body small, relatively slender, light to moderately dark brown, legs, palpi and antennae minimally lighter; setation yellowish.

Male. Body length: 1.68–1.75 mm (mean: 1.71 mm). Head wider than long, widest at large, finely faceted eyes, length: 0.24–0.26 mm (mean: 0.25 mm), width: 0.31 mm. Tempora moderately long, strongly convergent, only slightly rounded; vertex broad, convex; frons subtrapezoidal, slightly convex; supraantennal tubercles indistinct. Punctation sparse and fine, unevenly distributed; setation sparse, relatively long, suberect to erect. Antenna (Fig. 2D) slender, 0.74 mm in length, antennomeres I–II over twice as long as wide, III twice as long as wide, IV–V slightly more, VI slightly less than twice as long as wide, VII as long as wide, VIII–IX distinctly transverse, XI subconical, asymmetrical, twice as long as wide.

Pronotum as long as wide or minimally longer, widest near anterior fourth, length: 0.44–0.47 mm (mean: 0.455 mm), maximum width: 0.44–0.45 mm (mean: 0.445), width at base: 0.29–0.30 mm (mean: 0.295 mm). Sides strongly narrowing from widest place to posterior fourth, then only slightly convergent; base arcuate, with six very faint foveae (median pair and two lateral pairs), not connected by groove or impression. Punctation very faint, sparse; setation sparse, long, erect.

Elytra oval, elongate, moderately convex, widest just anterior to middle, length: 1.00–1.02 mm (mean: 1.01 mm), width: 0.74 mm, EI: 1.38–1.45. Humeri relatively indistinct; internal humeral impression very faint, barely noticeable; single basal fovea on each elytron small, circular, located very close to scutellum; apices of elytra separately rounded. Scutellum small, triangular with rounded apex and faint median circular impression. Punctation of elytra distinct, composed of moderately dense, small, relatively well delimited punctures; setation long, moderately dense and erect. Wings well developed, about twice as long as wide.

Profemur (Fig. 8F, G) variable in shape, with slightly or distinctly expanded and very finely serrated apical part of dorsal margin.

Aedeagus (Fig. 4A–C) relatively stout, 0.25 mm in length, moderately darkly sclerotized, with pair of darker, elongate structures in apical part of median lobe surrounding similarly dark median plate; in lateral view apex slightly curved ventrally, in dorso-lateral view apex subtriangular, rounded; parameres relatively short, with several moderately long apical setae.

Female. Externally very similar to male, differing in slender profemora (Fig. 8H), higher elytral index and development of hind wings, which are only slightly longer than elytra, very narrow, apparently non-functional. Body length: 1.60–1.71 mm (mean: 1.65 mm), length of head: 0.24–0.25 mm (mean: 0.25 mm), width of head: 0.29–0.31 mm (mean: 0.30 mm), length of antenna: 0.70–0.80 mm (mean: 0.75 mm), length of pronotum: 0.41–0.45 mm (mean: 0.43 mm), maximum width of pronotum: 0.41–0.45 mm (mean: 0.43 mm), width of pronotum at base: 0.29–0.31 mm (mean: 0.30 mm), length of elytra: 0.95–1.01 mm (mean: 0.97 mm), width of elytra: 0.61–0.71 mm (mean: 0.68 mm), EI: 1.42–1.56.

Spermatheca (Fig. 7D) nearly spherical, very small, 0.06 mm in diameter, with very narrow insertion of ductus spermathecae and well marked, broad insertion of accessory gland.

Distribution. Taiwan.

Holotype, ♂, white handwritten label "Taiwan, 1400 m, Fenchihu, 12.4.77, lg. Klapperich", white handwritten label "*Stenichnus* (s. str.) *klapperichi* m." and printed "det. H. Franz", small label with male symbol, and red handwritten "Holotypus" (NMW). Allotype, ♀, same data as holotype, except for "13.4.77", small label with

female symbol, and red handwritten "Allotypus" (NMW). Paratypes: 1♂, 3♀, same data as holotype, except for yellow identification label with printed "PARATYPUS" (NMW), 1♀, same data as allotype, except for yellow identification label as above (NMW).

Remarks. This species is externally hardly distinguishable from *S. taiwanicus* Franz; it differs in having more distinct punctation on the elytra and in the shape of the aedeagus. Spermathecae of both species are very similar and identification of females may be possible only when they have been collected together with males.

Stenichnus taiwanicus Franz

(Figs. 2E, 4D–F, 7E, 8I–L)

Stenichnus taiwanicus Franz, 1985: 94, fig. 5a, b; O'Keefe & Li, 1998:159.

Diagnosis. This species has small and slender body and relatively finely punctate elytra. Examination of aedeagus is necessary for certain identification.

Redescription. Body small, relatively slender, light to relatively dark reddish-brown, legs and palpi minimally lighter; setation yellowish.

Male. Body length: 1.64–1.73 mm (mean: 1.68 mm). Head wider than long, widest at large, finely faceted eyes, length: 0.25–0.26 mm (mean: 0.26 mm), width: 0.30–0.31 mm (mean: 0.31 mm). Tempora moderately long, strongly convergent, only slightly rounded; vertex broad, convex; frons subtrapezoidal, slightly convex; supraantennal tubercles indistinct. Punctation sparse and fine, unevenly distributed; setation sparse, relatively long, suberect to erect. Antenna (Fig. 2E) slender, length: 0.77–0.8 mm (mean: 0.78 mm), antennomeres I–II and V distinctly over twice as long as wide, III and VI twice as long as wide, IV twice or slightly more than twice as long as wide, VIII as long as wide, IX–X nearly as long as wide (minimally transverse), XI subconical, asymmetrical, twice as long as wide.

Pronotum as long as wide, widest near anterior fourth, length: 0.4–0.45 mm (mean: 0.42 mm), maximum width: 0.4–0.45 mm (mean: 0.41), width at base: 0.30–0.31 mm (mean: 0.30 mm). Sides strongly narrowing from widest place to posterior fourth, then only slightly convergent; base arcuate, with six variably distinct, rather faint foveae; in holotype and some other males distances between pits are subequal, in other specimens pits are grouped in three pairs, usually not connected by groove, but in a few specimens foveae are located in indistinct transverse impression. Punctation very faint, sparse; setation sparse, long, erect.

Elytra oval, elongate, moderately convex, widest just anterior to middle, length: 0.99–1.02 mm (mean: 1.00 mm), width: 0.66–0.67 mm (mean: 0.66 mm), EI: 1.50–1.52. Humeri relatively indistinct; internal humeral impression very faint, barely noticeable; single basal fovea on each elytron small, circular, located closer to scutellum than to humerus; apices of elytra separately rounded. Scutellum small, triangular with rounded apex and faint median circular impression. Punctation of elytra relatively fine, moderately sparse; setation long, moderately dense erect. Hind wings well developed.

Profemur (Fig. 8I–K) shows some degree of inter-individual variability, dorsal margin expanded, with very finely serrated apical part.

Aedeagus (Fig. 4D–F) elongate, relatively slender, 0.25 mm in length, relatively lightly sclerotized, with distinct longitudinal median groove in dorsal wall surrounded at each side by distinctly darker structures; internal sac hymenous, barely visible; apical part of median lobe with darker subtrapezoidal plate-like structure; in lateral view apex not curved; parameres not exceeding apex of aedeagus, with several moderately long apical setae.

Female externally very similar to male, but has slender, non-modified profemora (Fig. 8L) and reduced wings, which are distinctly shorter than elytra and non-functional. Body length: 1.73 mm, length of head: 0.27 mm, width of head: 0.30–0.31 mm (mean: 0.305 mm), length of antenna: 0.76–0.79 mm (mean: 0.77 mm), length of pronotum: 0.45 mm, maximum width of pronotum:

0.43–0.45 mm (mean: 0.44 mm), width of pronotum at base: 0.30 mm, length of elytra: 1.01 mm, width of elytra: 0.66–0.67 mm (mean: 0.665 mm), EI: 1.51–1.53.

Spermatheca (Fig. 7E) large, 0.13 mm in diameter, slightly asymmetrical, with narrow insertion of ductus spermathecae and indistinctly marked, broad insertion of duct of accessory gland.

Distribution. Taiwan.

Holotype, ♂, white handwritten label "Taiwan, Alishan, 2400, 10.6.77, lg. Klapperich", white handwritten "*Stenichnus* taiwanicus m." and printed "det. H. Franz", and red handwritten label "Holotypus" (NMW). Paratypes: 2♂♂, data as holotype, except for yellow handwritten label "Stenichnus taiwanicus m." and printed "PARATYPUS" (NMW). Additional material studied: ♀, M. Taiwan, Tsi Feng, 2300 m, 15. iii. 1989, "Coll. K. Baba"; 2♂♂, 2♀♀, M. Taiwan, Mei Feng, Nan Tou Hsien, 28. vii. 1989, "Coll. K. Baba"; ♂, N. Taiwan, Chu Ton, Shin Chu Hsin, 28. vii. 1989, "Coll. K. Baba" (NSMT, PCPJ).

Remarks. This species is externally extremely similar to *S. taiwanicus* Franz, see remarks under description of that species.

Stenichnus pollens (Sharp)

(Figs. 2F, 6A–C, 8M)

Scydmaenus pollens Sharp, 1886: 49.
Stenichnus (*Cyrtoscydmus*) *pollens* (Sharp): Franz, 1976: 59; Jakobson, 1910: 593.
Stenichnus pollens (Sharp): O'Keefe & Li, 1998: 160.

Diagnosis. *Stenichnus pollens* can be distinguished from similar, large species by relatively short antennomere XI and unique aedeagus.

Redescription. Body large, reddish-brown, legs and antennae minimally lighter, palpi yellowish, setation light brown.

Male. Body length: 2.02 mm. Head broader than long, widest at large, finely faceted eyes, length: 0.34 mm, width: 0.4 mm. Tempora long, strongly narrowing posteriorly, rounded, rapidly bent inwards just before occiput; vertex broad, convex; frons relatively small, trapezoidal, slightly convex; supraantennal tubercles indistinct. Punctation sparse and relatively fine but distinct; setation sparse, long, suberect to erect. Antenna (Fig. 2F) slender, length: 1.02 mm, antennomeres I–IV each over twice as long as wide, V–VI about twice as long as wide, VII 1.5 times as long as wide, VIII–X about as long as wide, XI slightly asymmetrical, rather short, minimally longer than 1.5× width.

Pronotum as long as wide, widest near anterior third, length: 0.51, maximum width: 0.51 mm, width at base: 0.42. Sides strongly narrowing from widest place to about posterior fourth, then only slightly convergent; base arcuate, with numerous small pits slightly irregular in shape and partly fused one to another, pits located in distinctly impressed groove. Punctation very sparse and fine; setation sparse, long, suberect to erect.

Elytra broad and very convex, widest distinctly anterior to middle, length: 1.17 mm, width: 0.90 mm, EI: 1.30. Humeral calli moderately distinct; internal humeral impression very faint, barely noticeable; single basal fovea on each elytron relatively small and shallow, circular, located closer to scutellum than to humerus; apices of elytra separately rounded. Scutellum small, triangular, with rounded apex. Punctation of elytra in anterior $^{2}/_{3}$ very distinct, punctures large, dense and with well delimited margins, in posterior third punctures reducing in diameter and depth, gradually becoming less distinct and with diffused margins; setation moderately dense, long, erect. Hind wings about twice as long as elytra.

Dorsal margin of clavate part of profemur (Fig. 8M) expanded in middle and finely serrated in distal part.

Aedeagus (Fig. 6A–C) large, 0.37 mm in length, darkly sclerotized, with broad base of median lobe, narrowing toward rounded apex, in lateral view apex not curved; dorsal wall with large and dark projection with slightly broadened apical part; endophallus composed of nearly symmetrical, inversely Y-shaped sclerite surrounded at base by hymenous structures of internal sac; parameres long, slender, not exceeding apex of aedeagus, with three apical setae of various

lengths.

Female. Unknown.

Distribution. Japan: Kyushu.

Holotype, ♂, mounted on large rectangle of thick cardboard with faded handwritten "*Scydmaenus pollens* Type D.S., Oyayama, 26. 4. 91 [i.e. 1891], Lewis" (the last word barely legible); the specimen bears small, circular white label with broad red margin and printed "Type H.T.", and small rectangular white label with yellow line and printed above it "Japan.", beneath the line "G. Lewis., 1910-320." (BMNH).

Remarks. The type locality specified in the label as "Oyayama" is situated on the southwestern slope of the Aso Mts., Kumamoto Pref.

Stenichnus minipollens sp. nov.

(Figs. 2G, 6D–F, 8N)

Diagnosis. This *Stenichnus* can be easily identified on the basis of its relatively small body, dorsal margin of profemur in male expanded in middle, antennomeres VI–X as long as wide or wider, very dense punctation of anterior half of elytra and unique aedeagus.

Description. Body small, relatively stout, moderately dark brown, legs, palpi and antenna slightly lighter; setation yellowish.

Male. Body length: 1.59 mm. Head wider than long, widest at large, finely faceted eyes, length: 0.25 mm, width: 0.31 mm. Tempora moderately long, strongly convergent, regularly, slightly rounded; vertex broad and convex; frons subtrapezoidal, nearly flat; supraantennal tubercles indistinct. Punctation sparse and fine, sides of vertex with a few larger punctures; setation sparse, long, suberect to erect. Antenna (Fig. 2G) slender, length: 0.75 mm, antennomeres I–II over twice as long as wide, III–V about 1.5× as long as wide, VI–VIII about as long as wide, IX minimally, X distinctly wider than long, XI short, less than 1.5× as long as wide at base, subconical, distinctly asymmetrical.

Pronotum as long as wide, widest near anterior third, length: 0.39 mm, maximum width: 0.39 mm, width at base: 0.31 mm. Sides strongly narrowing from widest place to posterior 1/5, then only slightly convergent; base arcuate, with minimally impressed transverse row of about twelve small pits of similar, but variable diameters, unevenly distributed, some pits fused one to another. Punctation very sparse and fine; setation sparse, moderately long, erect.

Elytra oval, moderately convex, rather stout, widest just anterior to middle, length: 0.95 mm, width: 0.71 mm, EI: 1.34. Humeral calli and internal humeral impressions very indistinct; single basal fovea on each elytron small, circular, located closer to scutellum than to humerus; apices of elytra separately rounded. Scutellum triangular with rounded apex, median impression not visible. Punctation of elytra in anterior half relatively dense, composed of moderately large and deep, slightly diffused punctures, in posterior half punctures reducing in depth and in hind third they are very diffused and indistinct; setation moderately dense and long, suberect. Hind wings well developed, about twice as long as elytra.

Profemur (Fig. 8N) similar to that of *S. pollens*, with dorsal margin of clavate part expanded in middle, its distal part not serrated.

Aedeagus (Fig. 6D–F) darkly sclerotized, stout, 0.24 mm in length, with long subtriangular projection over dorsal circular hymenous area and elongate, relatively lightly sclerotized internal armature; parameres not reaching apex of median lobe, with several short apical setae.

Female. Unknown.

Distribution. Japan: Hokkaido.

Holotype, ♂, Japan, Hokkaido, Ebetsu central, Nopporo Forest Park, 64414432 Chuosen-S., 21.–30. v. 2002, flight intercept trap, S. Hori leg. (NSMT).

Etymology. This species is named "*minipollens*" because it is very similar to *S. pollens*, except for having much smaller body than its congener described earlier.

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