On the Cypariini (Coleoptera: Staphylinidae: Scaphidiinae) of Borneo

Authors: Löbl, Ivan, and Cosandey, Vivien

Source: Revue suisse de Zoologie, 130(1) : 1-9

Published By: Muséum d'histoire naturelle, Genève

URL: https://doi.org/10.35929/RSZ.0084

Revue suisse de Zoologie (March 2023) 130(1): 1-9 ISSN 0035-418

On the Cypariini (Coleoptera: Staphylinidae: Scaphidiinae) of Borneo

Ivan Löbl & Vivien Cosandey

Muséum d'histoire naturelle de Genève, C.P. 6434, CH-1211 Genève 6, Suisse; ivan.lobl@bluewin.ch, vivien.cosandey@ville-ge.ch

Abstract: Surveys of the Insects of the Danum Valley Conservation Area in Sabah, Malaysia yielded species of the Scaphidiinae genus *Cyparium* Erichson, 1845. In the present paper, four are described while a fifth potential new species, only represented by a single female, is left undescribed. A key to the ten species of *Cyparium* known at present to occur in the Sundaland is provided.

Keywords: Shining fungus beetles - taxonomy - new species - Sabah - Sundaland.

INTRODUCTION

Cyparium Erichson, 1845, currently comprising 58 species (Löbl, 2018; Von Groll & Lopes-Andrade, 2022), is the only genus of the tribe Cypariini Achard, 1924. The tribe is a well-supported monophyletic lineage (Leschen & Löbl, 1995). Previously, the weakly sclerotized compression areas on the basal bulb of the aedeagus were not mentioned as a synapomorphy. Their function is unknown yet possibly analogous to that of the compression plates of aedeagi in a number of other Staphylinidae. The shape of the compression areas may be species specific, as suggested by the illustrations in Ogawa & Sakai (2011), Von Groll & Lopes-Andrade (2022), and the present paper.

The distribution of *Cyparium* seems to be pantropical, extending into the southern United States (Newton *et al.,* 2000) and north-eastern Asia (Löbl, 2018). Two species of *Cyparium* are also present in New Zealand though the genus is unknown from Melanesia and Australia. And it seems to be absent from oceanic islands, Africa north of the Sahara, Europe, Madagascar and Chile (Löbl & Leschen, 2003).

The biology of *Cyparium* is poorly known. The adults and larvae are found mainly on Agaricales, Clavariaceae and Hydnaceae. The larvae feed on hyphae (Newton, 1984; Kompantsev & Pototskaya, 1987), live in carpophores (Kompantsev & Pototskaya, 1987), and have been observed tunnelling through the stalks of hosts. Probably they do not build retreats as members of *Scaphidium* Olivier, 1790 or *Toxidium* LeConte, 1860 (see Leschen, 1994).

The 20 currently known Asian species of *Cyparium* are poorly represented in collections, unlike the New World *Cyparium* (IL, personal observation), possibly due to prevailing choices of collecting techniques. Only four Asian species, *C. bowringi* Achard, 1922, *C. mikado* Achard, 1923, *C. montanum* Achard, 1922, and *C. sibiricum* Solsky, 1871 have been each reported several times (Löbl, 2018) and collected in numerous specimens. Similarly, the Bornean fauna comprises a unique known member of the genus, *C. punctatum* Pic, 1916. It was found more than a century ago on the Island of Banguiy (the present Banggi Island) and subsequently reported from the Philippines only (Löbl, 2006). Thus, to date the genus *Cyparium* has not been reported from the main island of Borneo.

Surveys of insects of the Danum Valley Conservation Area, using flight intercept traps, yielded numerous Scaphidiinae (see Löbl, 2022) including five species of *Cyparium*, and all of them are new to science. This is the first time that several Asian species of *Cyparium* have been found to be syntopic suggesting high diversity of the genus in the Sundaland. In the present study four are described as new species. The fifth, represented by a simple female, may be readily distinguished, yet in absence of male characters is preferably not described formally and not named. The characters of the female genitalia have been rarely used for species discrimination

Manuscript accepted 19.09.2022
DOI: 10.35929/RSZ.0084

in Scaphidiinae. They are given by Ogawa & Sakai (2011), Ogawa *et al*. (2016) and Von Groll & Lopes-Andrade (2022) for a few members of *Cyparium* and the present study confirms their usefulness.

MATERIAL AND METHODS

The material studied is deposited in the collections of the Oxford University Museum of Natural History, Oxford, UK (OUMNH) and Muséum d'histoire naturelle, Genève, Switzerland (MHNG).

The locality data of the holotypes are reproduced verbatim, data from different labels are separated by a slash. All type specimens are provided with appropriate identification labels. The body length is measured from the anterior pronotal margin to the posterior inner angles of the elytra. The widths are measured at the widest point of the respective body parts. Statements about metaventral punctation do not refer to punctures margining submesocoxal lines, unless specified. Statements about abdominal microsculpture do not refer to the intersegmental membranes. The sides of the aedeagi refer to their morphological side with the ostium situated dorsally, while it is in resting position rotated 90°. The dissected body parts are embedded in Euparal and fixed on a separate card on the same pin as the respective specimens. The abbreviation FIT is used for flight intercept trap.

For the primary references of the named taxa see Löbl (2018).

TAXONOMY

Cyparium castaneum Löbl, sp. nov.

Figs 1, 1a, 5-9

Holotype: OUMNH, male; SABAH: Lahad Datu Ulu Segama For. Res. Danum Valley F.C., 200 m, N 04°57.9' E 117°48.1' / 3-13.xi.2005, D. Mann & E. Slade lgt. FIT lowland mixed dipterocarp for[est]. Nat[ure]. trail area, OUMNH 2065-051.

Paratypes: OUMNH, MHNG, 2 males, 4 females; with same data as holotype. – OUMNH, 1 male, with same data but D. Mann, E. Slade & J. Villanueva lgt., west trail area, OUMNH 2006-05. – OUMNH, 1 male; with same data but 24.x.2005, nature trail area, first inferior FIT, OUMNH 2006-05. – OUMNH, MHNG, 1 male, 1, female; SABAH: Lahad Datu Ulu Segama For. Res. Danum Valley Forest Centre, N 04°57' E 117°48' / 450 m, 1-5.ix.2005, prim. forest, D. Mann, E. Slade & J. Villanueva. FIT, lowland mixed dipterocarp forest, Nature trail area. – MHNG, 1 female; SABAH: Lahat Datu, Ulu Segama Forest Reserve, Danum Valley Conservation Area, Borneo Rain Forest Lodge, N 05°02.682' E 117°45.553', 250 m, iii-iv.2005, E. Slade & J. Villanueva lgt., FIT, primary dipterocarp forest, OUMNH 2065-062. – OUMNH, MHNG, 3 males, 3 females; SABAH: Lahat Datu, Ulu Segama Forest Reserve, Coup 88 logging area, N 04°59.738' E 117°50.165', 250 m, iii-iv.2005, FIT no 2, E. Slade & J. Villanueva lgt., selectiv. logged dipterocarp for., Yayasan Sabah Logging Concession, OUMNH 2005-062.

Diagnosis: Body size and colour similar to those of *C. punctatum* Pic, 1916, *C. semirufum* Pic, 1917, *C. siamense* Löbl, 1990, and *C. testaceum* Pic, 1920. Pronotum distinctly microsculptured, lacking obvious antebasal puncture row; elytra with four discal puncture rows and distinctly punctate puncture-row intervals; metaventrite with apicomedian impression separated by mesal ridge; aedeagus with apical process of median lobe sinuate near apex (lateral view); apex of parameres abruptly narrowed.

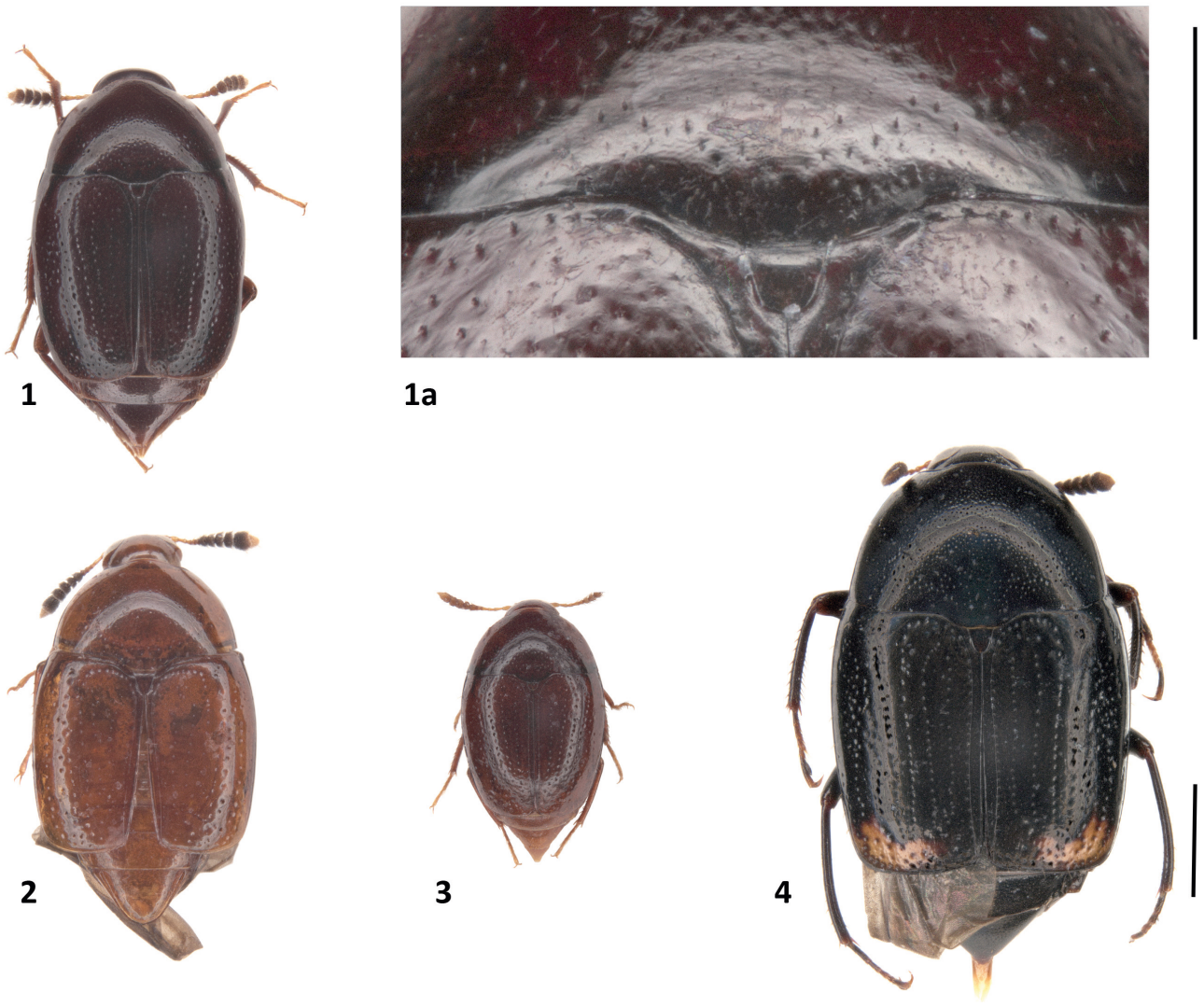
Etymology: The species epithet is a Latin adjective referring to the chestnut body colour.

Description: Length 2.50-2.95 mm, width 1.85-2.15 mm. Body in dorsal view as Fig. 1. Head and nearly entire body chestnut brown or dark reddish-brown, venter of thorax sometimes darkened, apex of abdomen or all ventrites lighter. Femora and tibiae as body, tarsi light brown to yellowish. Antennomeres I to VI and mouth-parts as tarsi, antennomeres VII to X and basal part of antennomere XI dark brown, narrowed part of antennomere XI yellowish. Head with frons finely punctate, punctures much smaller than puncture intervals, shallow, posterior level of eyes somewhat larger and denser than between eyes; frons at narrowest point 0.15-0.20 mm, about as half of eye-width in dorsal view, with extremely fine microsculpture hardly seen at high magnification. Pronotum and elytra not iridescent. Pronotum with distinct punctulate to striate microsculpture (Fig. 1a); lateral margins slightly sinuate; lateral margin striae exposed, finely punctate; discal punctation fairly fine, coarser than that on vertex, puncture intervals in middle of disc about 2 to 3 times as large as puncture diameters, punctation becoming sparser laterally; antebasal puncture row absent or hardly traceable. Scutellum with exposed part convex, about as long as wide. Elytra lacking microsculpture, combined slightly wider than long, slightly narrowed apically, lateral contours weakly convex near base and near apex, straight in middle; apical crenulation distinct; lateral margin striae punctate, bearing macrosetae. Elytron each with four puncture rows nearly obsolete in some specimens; inner two rows starting posterior of basal eighth of elytron, two outer rows starting near basal margin, irregular and consisting of fine punctures on basal eighth of elytron; all rows becoming coarser posterior of basal fifth and extending to apical fourth of elytron; punctation coarse and irregular laterally of outer puncture row, with punctures as

large as those forming rows and notably larger than pronotal punctures; humeral area and intervals between puncture rows finely punctate; sutural striae extending along basal margins about to level of outer margin of pronotal lobe. Hypomeron and mesanepisternum lacking microsculpture and impunctate. Mesocoxal process about twice as wide as mesocoxa. Median part of metaventrite impunctate, lacking microsculpture, convex in anterior half; posterior half with two impressions partly separated by mesal ridge. Lateral parts of metaventrite with scattered, extremely fine punctation; submesocoxal line coarsely punctate, extending posteriad along metanepisterna. Metacoxal process of metaventrite flat, with prominent angles, apical margin concave. Protibia and metatibia straight, protibia with long row of short dorsal spines, mesotibiae curved, with 6 to 8 dorsal spines. Exposed tergites and ventrites with distinct punctulate microsculpture. Tergites VII and VIII with punctation fairly fine and dense, similar to pronotal punctation. Ventrite I with dense basal row of elongate, coarse punctures broadly interrupted in middle; punctation fine and sparse near base, becoming very fine apically. Following ventrites very finely punctate.

Male. Protarsomeres I to III weakly enlarged, each about 1.5 times as wide as protarsomere IV, narrower than apex of protibia, bearing short tenent setae, combined about as long as protarsomere V. Mesotarsomeres I to III evenly, weakly widened and bearing tenent setae. Aedeagus (Figs 5-8) 1.55-1.72 mm long. Median lobe with elongate basal bulb, compression areas sharply delimited, apical process strongly inflexed, subcylindrical, at tip curved. Internal sac with two bands of very fine and short spines, lacking distinct sclerites. Parameres about as long as apical process, nearly straight in dorsal view, sinuate in lateral view, narrow but distinctly widened subapically.

Female. Bursa copulatrix with X-shaped sclerite. Gonostyle with three apical macrosetae and several short



Figs 1-4. *Cyparium* spp., dorsal view. (1) *C. castaneum* sp. nov. (1a) ditto, basomedian part of pronotum and elytra. (2) *C. glabrum* sp. nov. (3) *C. minutissimum* sp. nov. (4) *C. ornatum* sp. nov. Scale = 1 mm.

setae, gonocoxite with three subapical macrosetae and several short setae (Fig. 9).

Comments: The aedeagal characters, the long apical process of the median and the narrow parameres notably, suggest relationships of *C. castaneum* with *C. montanum* Achard, 1922 and *C. yunnanum* (Achard, 1920). These species differ conspicuously by the colour pattern, punctation and microsculpture.

Cyparium glabrum Löbl, sp. nov.

Figs 2, 10, 11

Holotype: MHNG, male; Borneo Sabah Danum Valley 14-16.ii.1978, FIT G. de Rougemont.

Diagnosis: Body size and shape similar to those of *C. castaneum*; pronotum lacking microsculpture and possessing a distinctive antebasal puncture row; elytron with six discal puncture rows (similar to those of *C. testaceum* and *C. semirufum*); metaventrite lacking microsculpture and very finely punctate; aedeagus with apical process of median lobe short and perpendicularly inflexed, tip rather obtuse; parameres widened apically; internal sac with distinct rows of short spines, as those of *C. semirufum* and *C. punctatum*.

Etymology: The species epithet is a Latin adjective meaning smooth.

Description: Length 2.20 mm, width 1.75 mm. Body in dorsal view as Fig. 2. Head, dorsum of body and entire abdomen uniformly light reddish-brown, venter of thorax darkened. Legs as dorsum of body. Antennomeres I to IV ochraceous, V and VI hardly darkened, VII to X and basal half of XI blackish, narrowing apical half of antennomere XI brown. Head with frons finely punctate, punctures much smaller than puncture intervals, shallow, posterior level of eyes hardly larger, not denser than in between eyes; frons lacking microsculpture, at narrowest point 0.21 mm, as eye-width in dorsal view. Pronotum and elytra not iridescent and lacking microsculpture. Pronotum with lateral margins evenly convex; lateral margin striae exposed, impunctate; discal punctation very fine and very shallow, most punctures not clearly delimited, puncture intervals in middle of disc partly about as large or notably larger that puncture diameters, antebasal puncture-row rather indistinct. Scutellum with exposed part flat, about as long as wide. Elytra combined about 1.2 times as wide as long, slightly narrowed apically, lateral contours straight except for weakly convex basal section; apical crenulation distinct; lateral margin striae punctate, lacking macrosetae. Elytron each with six puncture rows; inner and outer puncture rows strongly shortened, third puncture row extending to base, fourth and fifth puncture rows irregular; intervals between puncture rows and near lateral margin impunctate; sutural striae extending along basal margins about to level of outer margin of pronotal lobe. Hypomeron and mesanepisternum lacking microsculpture and impunctate. Mesocoxal process about 1.5 times as wide as mesocoxa. Metaventrite lacking microsculpture, very finely and sparsely punctate. Median area of metaventrite convex; submesocoxal line impunctate, not bordered by a ridge. Metacoxal process of metaventrite flat, with prominent angles, apical margin obtuse V-shaped. Protibia straight, with three fairly long dorsal spines. Mesotibia and metatibia curved, mesotibiae with five dorsal spines. Abdomen lacking microsculpture. Tergites VII and VIII with punctation very fine and rather sparse, consisting of well delimited punctures. Ventrite I with basal punctures not elongate, fairly coarse, broadly interrupted in middle; remaining punctation as on metaventrite and on following ventrites, very fine and sparse.

Male. Protarsomeres I to III nearly evenly enlarged, each about 1.5 times as wide as protarsomere IV, narrower than apex of protibia, bearing short tenent setae, combined shorter than protarsomere V. Aedeagus (Figs 10, 11) 0.80 mm long. Median lobe with elongate basal bulb, compression areas weakly delimited, apical process strongly inflexed, perpendicular to axis of basal bulb, not curved at tip. Internal sac with very fine and short spines, lacking distinct sclerites. Parameres somewhat longer than apical process, hardly curved posterior mid-length in dorsal view, nearly straight and gradually widened in lateral view.

Comments: The aedeagal characters suggest a relationship with *C. punctatum*.

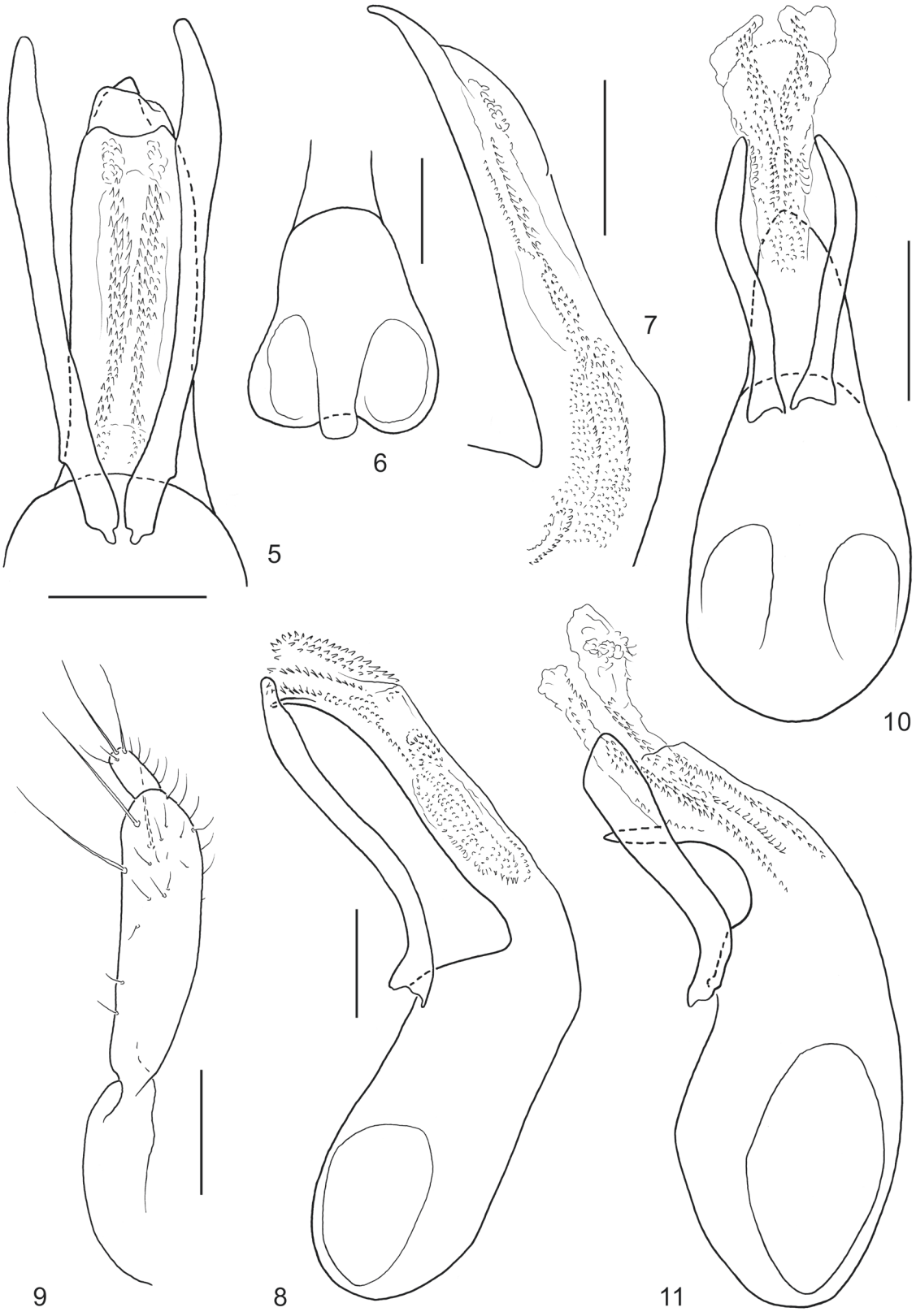
Cyparium minutissimum Löbl, sp. nov.

Figs 3, 12-15

Holotype: OUMNH, male; SABAH: Lahad Datu Ulu Segama For. Res. Danum Valley For. Centre, N 04°57.9' E 117°48.1' / 200 m, 24.x.2005, D. Mann, E. Slade & J. Villanueva lgt. / lowland mix. dipterocarp for. Nature trail area, 1st infer FIT OUMNH 2006-051.

Paratypes: OUMNH, MHNG, 2 females; SABAH: Lahad Datu Ulu Segama For. Res. Danum Valley For. Centre, N 04°58' E 117°482' / 450 m, prim. forest, viii.1998, D. Bebber lgt. lowland mix. dipterocarp for., FIT OUMNH 2003-050.

Diagnosis: A small-sized species with body length inferior to 2 mm; pronotum and elytra uniformly dark brown, pronotum with antebasal puncture row hardly visible; elytra with five discal puncture rows; venter of thorax lacking microsculpture; metaventrite very finely punctate and with two distinct apicomedian impressions; ventrites bearing punctulate microsculpture; aedeagus with parameres lobed posterior of mid-length and denticulate near basis.



Figs 5-11. *Cyparium* spp., genital characters. (5) *C. castaneum* sp. nov., aedeagus in ventral view, without proximal part of basal bulb, scale = 0.2 mm. (6) ditto, basal bulb of aedeagus in ventral view, scale = 0.3 mm. (7) ditto, apical process of aedeagus in lateral view, internal sac in repos, scale = 0.2 mm. (8) ditto, aedeagus in lateral view, internal sac partly extruded, scale = 0.3 mm. (9) ditto, gonocoxite and gonostyle, scale = 0.1 mm. (10, 11) *C. glabrum* sp. nov., aedeagus in ventral and lateral views, internal sac extruded, scale = 0.2 mm.

Etymology: The species epithet is a Latin adjective meaning very small.

Description: Length 1.78-1.86 mm, width 1.55-1.72 mm. Body in dorsal view as Fig. 3. Head, dorsum of body and entire abdomen uniformly dark brown or abdomen lighter than remainder of body, venter of thorax darkened. Femora and tibiae as dorsum of body, tarsi slightly lighter. Antennomeres I to VI ochraceous, VII to X and basal half of antennomere XI dark brown, apical half of XI lighter than basal half. Head with frons finely, irregularly punctate, punctures much smaller than puncture intervals, shallow, posterior level of eyes somewhat finer and sparser than between eyes; frons lacking microsculpture, at narrowest point 0.10-0.12 mm, half of eye-width in dorsal view. Pronotum and elytra not iridescent and lacking microsculpture. Pronotum with lateral margins evenly convex; lateral margin striae entirely or partly concealed, impunctate; discal punctation fine, very shallow, most punctures not clearly delimited, puncture intervals in middle of disc smaller that puncture diameters, incurved antebasal row of coarser punctures irregular, not obvious. Scutellum with exposed part flat, wider than long. Elytra combined about as wide as long, slightly narrowed apically, lateral contours weakly convex, nearly straight in middle section; apical crenulation absent; lateral margin striae punctate, with macrosetae. Elytron each with five puncture rows; inner puncture row shortened anteriorly, second, third and fourth puncture rows extending to or nearly to base, fifth puncture row irregular and very short; intervals between puncture rows and near lateral margin impunctate; apical fourth of disc with irregular, coarse punctation; sutural striae fine, extending along basal margins about to level of outer margin of pronotal lobe. Hypomeron and mesanepisternum lacking microsculpture and impunctate. Mesocoxal process about as wide as mesocoxa. Metaventrite lacking microsculpture, very finely and sparsely punctate. Median area of metaventrite convex, with two rather deep impressions widened posteriad and extending onto metacoxal process; submesocoxal line with sparse coarse punctures, extending laterally. Metacoxal process of metaventrite flat, with obtuse prominent angles and concave apical margin. Protibia and metatibia straight, protibia with few short dorsal spines. Mesotibia weakly curved, with seven or eight dorsal spines. Tergites VII and VIII with punctation very fine and rather sparse, hardly visible at 100 times magnification and with strigulate and punctulate microsculpture. Ventrites bearing punctulate microsculpture, very finely and sparsely punctate. Ventrite I with basal punctures not elongate, fairly coarse, broadly interrupted in middle.
Male. Protarsomere I slightly wider than protarsomeres II and III, about 1.5 times as wide as protarsomere IV, narrower than apex of protibia, bearing short tenent setae; combined protarsomeres I to III about as long as protarsomere V. Mesotarsomeres I to III weakly widened and bearing tenent setae. Aedeagus (Figs 12-14) 0.92 mm long. Median lobe with long, gradually narrowing basal bulb, compression areas nearly indistinct, apical process strongly inflexed, perpendicular to axis of basal bulb, straight at tip. Internal sac bearing very fine and short spines, lacking distinct sclerites. Parameres longer than apical process, curved in dorsal and lateral views, each with a prominent lateral denticle near base, widened and lobed mesally posterior mid-length.
Female. Bursa copulatrix lacking distinct sclerite. Gonostyle with three apical and one subapical long setae. Gonocoxite with two subapical and three lateral long setae and few short setae (Fig. 15).

Comments: The aedeagal characters suggest a relationship with *C. jiroi* Ogawa & Sakai, 2011 though the shape of their parameres is distinctive. These species differ conspicuously by their body length (2.41-2.60 mm in *C. jiroi*) and the metaventral punctation (coarsely punctate in *C. jiroi*).

***Cyparium ornatum* Löbl, sp. nov**.

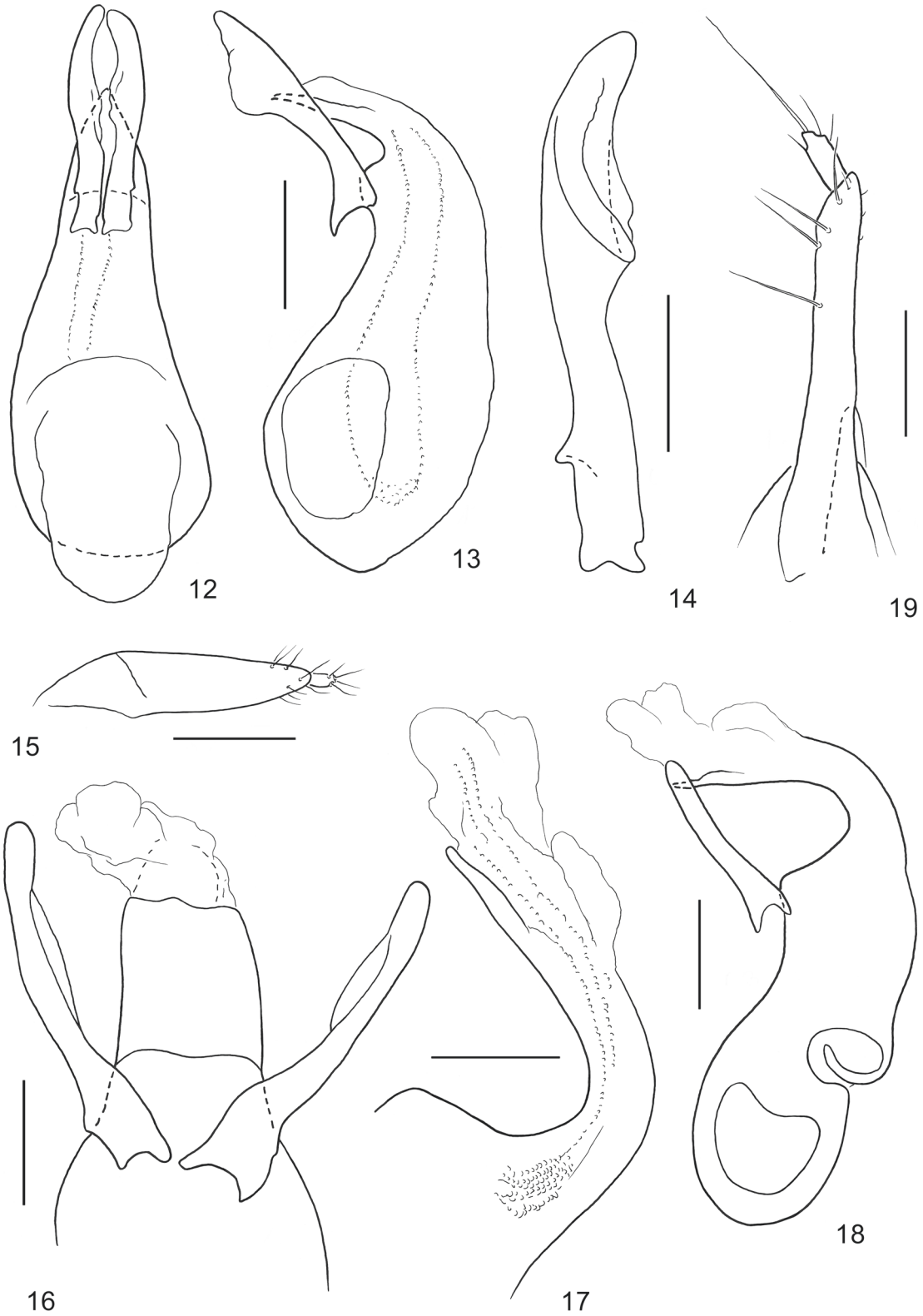
Figs 4, 16-19

Holotype: OUMNH, male; SABAH: Lahad Datu Ulu Segama For. Res. Danum Valley For. Centre, N 04°57' E 117°48' / 200 m, 24.x.2005, D. Mann, E. Slade & J. Villanueva lgt. / lowland mix. dipterocarp for. Nature trail area, 1st infer FIT OUMNH 2006-051.

Paratypes: OUMNH, MHNG, 2 females; SABAH: Lahad Datu Ulu Segama For. Res. Danum Valley For. Centre, N 04°57.9' E 117°48.1' / 450 m, 1-5.ix.2005, prim. forest, D. Mann, E. Slade & J. Villanueva lgt. / lowland mix. dipterocarp for. Nature trail area FIT OUMNH. – OUMNH, 1 female; with same data but 22-23.xi.2005, Nature trail area, 1st infer FIT OUMNH 2006-051. – OUMNH, MHNG, 2 females; SABAH: Lahad Datu Ulu Segama For. Res., Coupe 88 logging area, N 04°58.736' E 117°50.165' / 250 m, iii-iv.2005, FIT no 2 / E. Slade & J. Villanueva lgt. Selectiv. logged dipterocarp for. Yayasan Sabah Logging Concession OUMNH 2005-062.

Diagnosis: Body medium-sized, black; elytron with well delimited yellowish apical band; pronotum and elytra iridescent; pronotum lacking antebasal puncture row; elytron with five discal puncture rows; hypomeron, mesanepisternum and metaventrite with strigulate microsculpture; aedeagus with two basolateral and one dorsal compression areas sharply delimited, apical process slightly sinuate near tip in lateral view, internal sac lacking distinct sclerites, parameres weakly curved in dorsal and lateral views, with narrow, weakly sclerotized mesal lobe.

Etymology: The species epithet is a Latin adjective meaning ornamented.



Figs 12-19. *Cyparium* spp., genital characters. (12, 13) *C. minutissimum* sp. nov., aedeagus in ventral and lateral views, scale = 0.2 mm. (14) ditto, paramere in ventral view, scale = 0.1 mm. (15) ditto, gonocoxite and gonostyle, scale = 0.1 mm. (16, 17) *C. ornatum* sp. nov., aedeagus in ventral and lateral views, without proximal part of basal bulb, internal sac extruded, scale = 0.2 mm. (18) ditto, aedeagus in lateral view, scale = 0.3 mm. (19) ditto, gonostyle and gonocoxite, scale = 0.1 mm.

Description: Length 3.25-4.0 mm, width 2.20-2.68 mm. Body in dorsal view as Fig. 4. Head, thorax, most of elytron and entire abdomen black, elytron with yellowish apical band expanded laterally, nearly touching lateral striae, not reaching sutural stria. Femora and tibiae very dark brown to blackish, tarsi ochraceous to brown. Antennomeres I to VI ochraceous to light brown, VII to X dark brown, basal half of antennomere XI as dark as X, its apical half lighter. Head with frons finely and densely punctate, punctures much smaller than puncture intervals, well delimited, posterior level of eyes about as between eyes; frons lacking microsculpture, at narrowest point 0.20-0.25 mm, about two thirds of eye-width. Pronotum and elytra iridescent, lacking distinct microsculpture. Pronotum with lateral margins oblique in basal halves, convex in anterior halves; lateral margin striae entirely exposed, punctate; discal punctation fairly coarse, punctures well delimited, deep, puncture intervals in middle of disc smaller than puncture diameters, antebasal puncture-row absent. Scutellum with exposed part flat, slightly wider than long, bearing strigulate microsculpture. Elytra combined about as wide as long, distinctly narrowed apically, lateral contours convex in basal third, oblique in posterior basal third; apical crenulation distinct; lateral margin striae punctate, with macrosetae. Elytron with five puncture rows; inner two puncture rows shortened anteriorly, third and fourth puncture rows extending to base, fifth puncture row irregular and very short; intervals between puncture rows extremely finely punctate; areas laterally of fifth puncture row and near apical margin irregularly, coarsely punctate; area along lateral striae extremely finely punctate; sutural striae fine, not extending along basal margins. Hypomeron and mesanepisternum with strigulate microsculpture and few extremely fine punctures. Mesocoxal process slightly wider than mesocoxa. Metaventrite bearing strigulate microsculpture, very finely and sparsely punctate, punctation on apicomedian area denser than on area between mesocoxae and on lateral areas. Median area of metaventrite convex between mesocoxae, shallowly impressed apically; submesocoxal line with dense row of coarse punctures not extending laterally of coxae. Metacoxal process of metaventrite flat, with mesal stria, obtuse angles and concave apical margin. Protibia straight, with twelve short dorsal spines. Mesotibia and metatibia weakly curved, mesotibia with few long dorsal spines. Tergites VII and VIII with punctation fine and dense, well visible at 15 times magnification, somewhat finer and much denser than that on pronotum; strigulate microsculpture present. Ventrites bearing strigulate microsculpture, finely and rather densely punctate. Ventrite I with basal punctures not elongate, nearly as fine as remaining punctures, broadly interrupted in middle.

Male. Protarsomeres I to III strongly widened and bearing tenent setae; protarsomere I conspicuously short, II notably larger, about 3 times as wide as protarsomere IV and wider than apex of protibia, protarsomere III slightly smaller than II; combined protarsomeres I to

Key to the *Cyparium* species of the Sundaland

1	Elytra with distinctive bicolorous pattern	2
-	Elytra uniformly reddish to black	4
2	Pronotum rufous, darkened along basal margin. Elytra with darkened transversal band posterior mid-length	*C. variegatum* Achard, 1922
-	Pronotum uniformly blackish to black, elytra lacking darkened transversal band	3
3	Elytra yellowish or ochraceous, with blackish pattern along puncture-rows	*C. bowringi* Achard, 1922
-	Elytra black, each with well delimited yellowish apical band	*C. ornatum* sp. nov.
4	Pronotum and elytra black or blackish	5
-	Pronotum and elytra rufous to ochraceous	6
5	Elytra iridescent. Metaventrite very finely punctate. Aedeagus with parameres distinctly widened apically	*C. javanum* Löbl, 1990
-	Elytra not iridescent. Metaventral sides coarsely punctate. Aedeagus with parameres hardly widened apically	*C. celebense* Ogawa & Löbl, 2016
6	Pronotum with distinct punctulate to strigulate microsculpture	*C. castaneum* sp. nov.
-	Pronotum lacking microsculpture	7
7	Metaventral sides coarsely punctate	*Cyparium* sp.
-	Metaventrite entirely very finely punctate	8
8	Body length 2.2 to 2.5 mm. Abdomen lacking microsculpture	9
-	Body length inferior to 2 mm. Abdomen with punctulate microsculpture	*C. minutissimum* sp. nov.
9	Pronotum with antebasal puncture row. Abdominal punctation much coarser than metaventral punctation. Apical process of median lobe oblique to aedeagal axis, robust and gradually narrowed	*C. punctatum* Pic, 1916
-	Pronotum lacking antebasal puncture row. Metaventrite and abdomen with very fine, similar punctation. Apical process of median lobe perpendicular to aedeagal axis, evenly narrow near tip	*C. glabrum* sp. nov.

III about as long as protarsomere V. Mesotarsomeres I to III evenly wide, bearing tenent setae. Aedeagus (Figs 16-18) 1.35 mm long. Median lobe with elongate basal bulb, two basolateral and one dorsal compression areas sharply delimited. Apical process of median lobe strongly inflexed, subcylindrical, slightly sinuate near tip in lateral view. Internal sac mostly membranous, with extremely fine and short denticulate structures, lacking distinct sclerites. Parameres about as long as apical process, weakly curved in dorsal and lateral views, with narrow, weakly sclerotized mesal lobe, not widened at apex.

Female. Bursa copulatrix lacking distinct sclerite. Gonostyle with one very long apical seta and two short subapical setae. Gonocoxite with single subapical seta and three long lateral setae (Fig. 19).

Comments: The species may be easily distinguished from its congeners by the elytral colour pattern.

Cyparium sp.

Material examined: MHNG, 1 female; SABAH: Lahad Datu Ulu Segama For. Res. Danum Valley For. Res., N 04°57.9' E 117°48' / 200 m, 3-13.xi.2005, Primary forest, D. Mann, E. Slade & J. Villanueva lgt., lowland mixed dipterocarp for. West trail area, FIT, OUMNH 2006-05.

Comments: This species is similar to *C. minutissimum* but possesses coarsely punctate sides of the metaventrite and ventrite I. It is also characterized by the gonocoxite and gonostyle lacking short setae and the narrow gonostyle with three evenly long apical setae. It may be easily distinguished from other Asian congeners by its small body size.

ACKNOWLEDGEMENTS

Specimens from the Danum Valley Conservation Area were collected in the field with the permission of the Danum Valley Management Committee and the Economic Planning Unit of the Prime Minister's Department under permit no. UPE Ruj. UPE 40/200.1959 issued to Dr Eleanor Slade and project no. 224 under the Royal Society SEARRP. The scaphidiines have been sorted out of the samples thanks to the kindness of Jon Cooter (Hereford), and Robert Douglas (Oxford University Museum of Natural History) arranged their loan. The late Guillaume de Rougemont generously donated material to the Muséum d'histoire naturelle, Geneva. Our thanks are due also to Christina Lehmann-Graber for her technical assistance and to Bernard Landry (Geneva) and Richard A.B. Leschen (Auckland) for comments.

REFERENCES

Kompantsev A.V., Pototskaya V.A. 1987. Novye dannye po lichikam zhukov-chelnovidok (Coleoptera, Scaphidiidae). [Pp 87-100]. *In:* Ekologiya i morfologiya nasekomych-obyvateley gribnych substratov. *Nauka, Moskva,* 120 pp.

Leschen R.A.B. 1994. Retreat-building by larval Scaphidiinae (Staphylinidae). *Mola* 4: 3-5.

Leschen R.A.B., Löbl I. 1995. Phylogeny of Scaphidiinae with redefinition of tribal and generic limits (Coleoptera: Staphylinidae). *Revue suisse de Zoologie* 102: 425-474.

Löbl I. 2006. On the Philippine species of Cypariini and Scaphidiini (Coleoptera: Staphylinidae: Scaphidiinae). *Revue suisse de Zoologie* 113: 23-49.

Löbl I. 2018. Coleoptera: Staphylinidae: Scaphidiinae. World Catalogue of Insects. Volume XVI. *Brill, Leiden/Boston,* i-xvi + 1-418 pp.

Löbl I. 2022. Supplement to the knowledge of the Scaphisomatini of Sabah, Malaysia (Coleoptera: Staphylinidae: Scaphidiinae). *Acta Musei Moraviae, Scientiae biologicae* 107(1-2): 7-19.

Löbl I., Leschen R.A.B. 2003. Scaphidiinae (Insecta: Coleoptera: Staphylinidae). *Fauna of New Zealand* 48: 1-94.

Newton A.F. Jr. 1984. Mycophagy in Staphylinoidea (Coleoptera). [Pp. 302-353]. *In:* Wheeler Q., Blackwell M. (eds). Fungus/insect relationships. Perspectives in ecology and evolution. *Columbia University Press, New York*, 514 pp.

Newton A.F., Thayer M.K., Ashe J.S., Chandler D.S. 2000. 22. Superfamily Staphylinoidea Latreille, 1802 Staphyliniformia Lameere, 1900; *Brachelytra auctorum.* 22. Staphylinidae Latreille, 1802. [Pp. 272-418]. *In:* Arnett R.H., Thomas M.C. (eds). American beetles. Volume 1. Archostemata, Myxophaga, Adephaga, Polyphaga: Staphyliniformia. *CRC Press; Boca Raton, London, New York, Washington, D.C.*, xv + 443 pp.

Ogawa R., Sakai M. 2011. A review of the genus *Cyparium* Erichson (Coleoptera, Staphylinidae, Scaphidiinae) of Japan. *Japanese Journal of Systematic Entomology* 17(1): 129-136.

Ogawa R., Löbl I., Maeto K. 2016. A new species of the genus *Cyparium* from northern Sulawesi, Indonesia (Coleoptera, Staphylinidae, Scaphidiinae). *Acta entomologica Musei nationalis Pragae* 56(1): 195-201.

Von Groll E., Lopes-Andrade C. 2022. Contribution to the taxonomy of Neotropical *Cyparium* Erichson (Coleoptera: Staphylinidae: Scaphidiinae) with description of five new species. *European Journal of Taxonomy* 835: 1-97.