ACTA ENTOMOLOGICA MUSEI NATIONALIS PRAGAE
Published 30.vi.2012 Volume 52(1), pp. 173–184 ISSN 0374-1036

On a collection of Scaphisomatini (Coleoptera: Staphylinidae: Scaphidiinae) from West Malaysia

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Abstract. Following five species are described from peninsular West Malaysia: *Bironium amicale* sp. nov., *Scaphisoma hajeki* sp. nov., *S. longiusculum* sp. nov., *S. edentatum* sp. nov., and *Toxidium lunatum* sp. nov. *Pseudobironium languei* (Achard, 1920), *Scaphisoma pseudorufum* Löbl, 1986 and *Scaphisoma rufescens* (Pic, 1920) are reported for the first time from West Malaysia.

Key words. Coleoptera, Staphylinidae, Scaphidiinae, taxonomy, West Malaysia

Introduction

The gaps in the knowledge of the Scaphidiinae of West Malyasia are certainly major. Only 20 species are reported from there, while 125 species are known to occur in neighbouring Thailand, which is still considered as inadequately known (Löbl 1990). A recently examined collection of scaphidiines, coming mostly from the Cameron Highland, revealed new species for science and additional new records for West Malaysia. Dealt with here are only members of the Scaphisomatini. The Scaphidiini are diverse in Southeast Asia, and are also present in the examined material from the Cameron Highlands, but most of them cannot be reliably identified because of poor original descriptions and absence of modern revisions of the respective type material.

Material and methods

The locality data are reproduced as given on the respective labels. The material is housed in the following collections:

NMPC National Museum, Prague, Czech Republic;
MHNG Muséum d'histoire naturelle, Geneva, Switzerland;
NHMW Naturhistorisches Museum, Wien, Austria.

The length of antennomeres is measured on dry specimens, the body length is measured from the anterior pronotal margin to the inner apical angle of the elytra (teneral specimens not measured), the abdominal ventrites are counted from the first exposed one, and the sides of the aedeagi refer to their morphological sides, rotated to 90° in the group.

Taxonomy

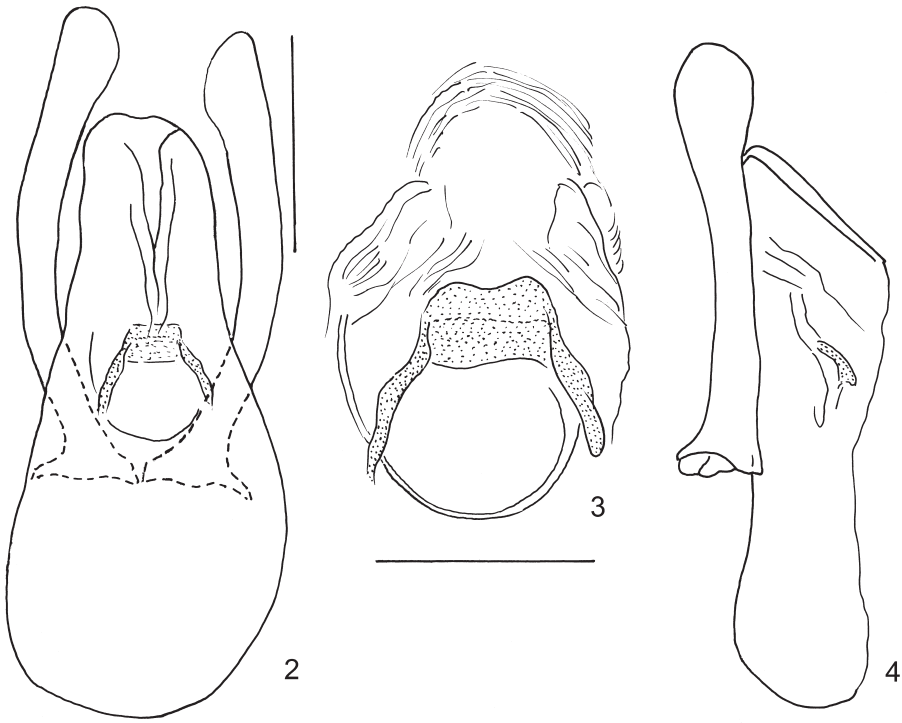
Bironium amicale sp. nov.

(Figs. 1–4)

Type material. Holotype: ♂, 'MALAYSIA, Pahang Cameron Highlands Tanah Rata vill. env. Gunung Jasat [Mt.]; 1470–1705 m 04°28.4–7' N, 101°21.6–22.1' E Jiří Hájek leg. 18.iv.–10.v.2009' (NMPC). Paratypes: 2 ♂♂ 6 ♀♀, 'MALAYSIA, Pahang Cameron Highlands Tanah Rata vill. env. Gunung Jasat [Mt.]; 1470–1705 m 04°28.4–7'N, 101°21.6–22.1'E Jiří Hájek leg. 18.iv.–10.v.2009' (NMPC, MHNG); 3 ♂♂ 1 ♀, 'W. Malaysia Pahang Fraser's Hill 23.–24.6.1995 110 km N of K. Lumpur lgt. S. & E. Becvar' (MHNG).

Description. Length 2.20–2.70 mm, width 1.30–1.68 mm. Body brown to dark reddish-brown, elytra reddish or ochraceous, each with two dark, irregular, transversal fasciae (Fig. 1). Anterior fascia extended apically in middle and along sutural striae. Margins of posterior fascia irregular and not well delimited, narrowed mesally, sometimes reaching apical elytral margin. Apical abdominal segments and femora reddish, tibiae about as light parts of elytra, tarsi, antennae and mouth-parts lighter. Length ratio of antennomeres as: II 16: III 22: IV 35: V 30: VI 45: VII 61: VIII 53: IX 45: X 37: XI 36 (holotype). Pronotum very finely punctate, not microsculptured. Exposed tip of scutellum small. Elytra with deep, finely punctate sutural striae. Adsutural areas raised. Humeral protuberance low, impunctate. Discal punctation of elytra consisting of large, coarse punctures forming oblique, more or less regular rows. Coarse punctures usually smaller or about as large as puncture intervals, becoming irregular near elytral apices. Two punctures rows impressed apically, area along outer impressed row swollen. Punctation on hypomera and mesepisterna hardly visible and very sparse. Mesoventrite convex, lacking ridge and not striate. Middle of metaventrite convex, transversally impressed along metacoxale process, impunctate except for few large punctures situated between mesocoxa, coarse submesocoxale puncture rows and fairly

Fig. 1. *Bironium amicale* sp. nov., paratype.



Figs. 2–4. *Bironium amicale* sp. nov. 2 – aedeagus in dorsal view; 3 – detail of internal sac; 4 – aedeagus in lateral view. Scale bars: 0.1 mm (Figs. 2, 4); 0.2 mm (Fig. 3);

distinct punctures in transverse impression. Lateral parts of metaventrite with few large, coarse punctures. Exposed abdominal tergites and ventrites with punctulate microsculpture. First sternite with distinct median protuberance, impunctate except for submetacoxal rows of coarse punctures. Pro- and mesotibiae slightly curved, longitudinally striate. Protibiae distinctly thickened apically. Metatibiae straight.

Male. Protarsi without lobed segments, segments 1 to 3 strongly widened, segment 1 about as wide as apex of protibia, following segments slightly narrower. Aedeagus (Figs. 2–4) 0.65–0.70 mm long. Median lobe weakly sclerotized, with apical process in same plan as basal bulb and not inflexed, apically moderately narrowed, with obtuse tip. Parameres arcuate in dorsal view, almost straight in lateral view, explanate apically. Internal sac with central sclerotized plate extended proximally by two processes, semicircular basal margin and membranes consisting of finely striate structures.

Differential diagnosis. The aedeagal characters of this species are similar to those of the Philippine *B. trisulcatum* (Heller, 1917). These two species share the shape of the median lobe of the aedeagus and also possess similar parameres. However, *B. trisulcatum* has the apical process of the median lobe weakly inclined and the parameres narrower, in dorsal view being almost straight, not widened at the apex. *Bironium amicale* sp. nov. may readily be

distinguished from *B. trisulcatum* by its colour pattern that is similar to that of *B. nepalense* Löbl, 1992, although the shape of the anterior elytral fasciae is distinctive.

Etymology. The name is a Latin adjective, referring to the friendly attitudes of the collectors of the species.

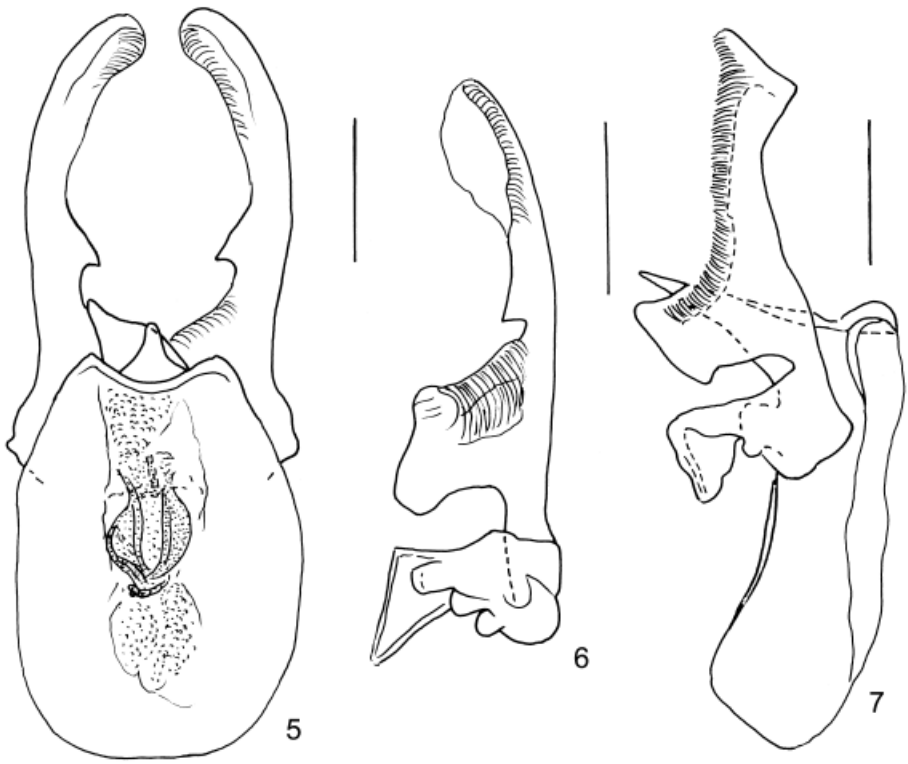
Scaphisoma hajeki sp. nov.

(Figs. 5–7)

Type material. Holotype: ♂, 'MALAYSIA, Perak Cameron Highlands Batu [=Mile] 19 vill. env. 04°22.2' N, 101°20.0' E, 590m Jiří Hájek leg. 5.–15.v.2009' (NMPC). Paratypes: 3 ♂♂, same data as the holotype (NMPC, MHNG).

Description. Length 2.30–2.35 mm, width 1.53–1.56 mm. Pronotum, elytra laterally and in apical fourth, and abdomen ochraceous. Large inner part of elytra darkened, rather light brown, darkened area extended laterally along base and posterior mid-length. Meso- and metaventrite slightly darker than prothorax. Head, antennomeres I to VI and legs lighter than prothorax, yellowish, antennal segments VII to XI slightly darkened. Antennae long, length ratio of antennomeres as: II 10: III 4: IV 13: V 22: VI 18: VII 20: VIII 16: IX 20: X 20: XI 19 (holotype). Segments IV to VI very narrow, about even in width; segment XI about 4 times as long as wide. Pronotum with lateral margins evenly rounded, lateral margin carinae throughout exposed in dorsal view, punctation fairly dense and very fine, punctures rather well delimited, coarser on small mediobasal area than on remaining discal surface. Tip of scutellum exposed. Elytra weakly narrowed apically, with evenly rounded lateral margins, lateral margin carinae distinct in dorsal view, apical margins rounded, lacking serration, inner apical angle situated posterior to level of outer apical angles; sutural margin not raised, adsutural areas flat, sutural striae parallel, starting at level of scutellum, slightly curved outwardly; basal striae absent; discal punctation fairly coarse and dense, most punctures distinctly smaller that puncture intervals. Exposed abdominal tergites very finely punctate, with striate microsculpture. Hypomera, mesepisterna, metaventrite and abdominal ventrites with striate microsculpture. Mesepimera shorter than intervals between them and mesocoxae. Metaventrite and abdominal ventrites very finely punctate, except for submesocoxal and submetacoxal rows of coarse punctures, metaventrite with fine antemetacoxal puncture rows. Middle of metaventrite convex, lacking impressions. Submesocoxal areas convex, 0.07 mm long. Metepisterna hardly convex, at widest point about 0.13 mm, slightly narrowed anteriad, with inner suture deep, sulciform, almost straight. Submetacoxal areas convex, 0.08 mm long. Protibiae barely curved, gradually thickened apically. Mesotibiae straight in basal fifth, distinctly curved between basal fifth and apex, throughout evenly thick. Metatibiae hardly sinuate, narrowed between mid-length and apical sixth, at apex thicker than in basal half.

Male. Tarsomeres 1 of prolegs and mesolegs strongly widened, almost as wide as apices of tibiae. Tarsomeres 2 of prolegs and mesolegs much narrower, still strongly widened, tarsomeres 3 weakly widened. Middle part of abdominal ventrite 6 prominent and truncate. Aedeagus (Figs. 5–7) 1.57 mm long. Basal bulb large, oval, sub-symmetrical, weakly sclerotized basally, strongly sclerotized apically; ventral wall with low median ridge. Apical part of median lobe asymmetrical, consisting of two robust, strongly inflexed processes, dorsal process short, in axis with aedeagus, ventral process long, oblique, tapering in ventral view.



Figs. 5–7. *Scaphisoma hajeki* sp. nov. 5 – aedeagus in dorsal view; 6 – paramere in ventral view; 7 – aedeagus in lateral view. Scale bars = 0.3 mm.

Parameres symmetrical, each extended at base to form large process oriented proximally, and with large antebasal lobe, robust mesal denticle and explanate, rounded apex. Internal sac complex, with sclerotized plates in centre and membranous basal and apical parts consisting of scale-like structures.

Differential diagnosis. The peculiar shape of the mesotibiae may be a sexual character. This species is a member of the *Scaphisoma tricolor* group, defined by large aedeagi with strongly asymmetrical apical process of the median lobe and parameres bearing large ventral and dorsal lobes. The aedeagal characters of the new species suggest relationships with *S. borneense* Pic, 1916 from Kalimantan (Indonesia) and *S. luctuosum* Löbl, 1986 from Meghalaya (India), although the shape of the parameres is quite distinctive in each of these species. The new species may be readily distinguished by the presence of a median tooth on the inner side of the parameres, and externally by the colour of the body, un-shortened sutural striae of the elytra, and the comparatively short ultimate antennomere.

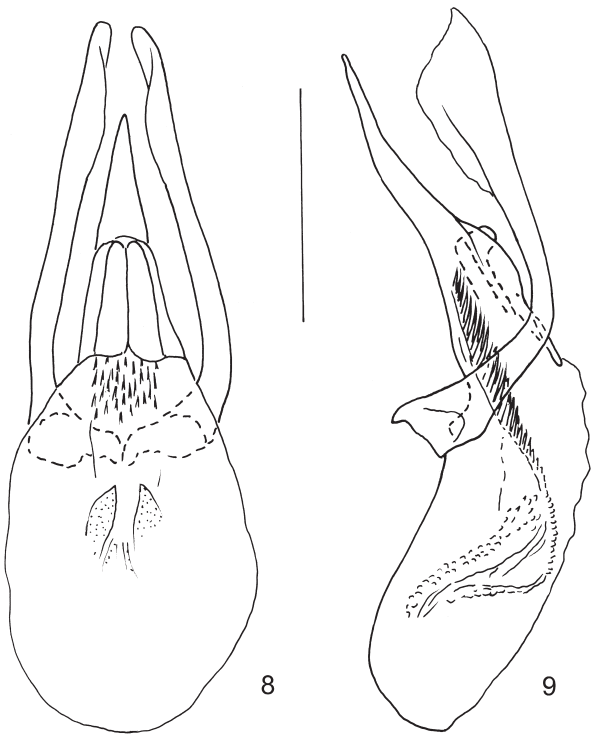
Etymology. The species is named in honour of its collector, Jiří Hájek, Praha, Czech Republic.

Scaphisoma longiusculum sp. nov.

(Figs. 8–10)

Type material. Holotype: ♂, 'MALAYSIA, Pahang Cameron Highlands Tanah Rata vill. env. Gunung Jasat [Mt.]; 1470–1705 m 04°28.4–7' N, 101°21.6–22.1' E Jiří Hájek leg. 18.iv.–10.v.2009' (NMPC). Paratypes: 1 ♂, 5 ♀♀, same data as the holotype (NMPC, MHNG).

Description. Length 1.60–1.70 mm, width 1.04–1.17 mm. Head and most of body dark reddish-brown to almost black, elytra each with light, ochraceous transverse subapical fascia, and at apices narrowly lighter. Subapical fascia expanded in outer half of elytra, not reaching elytral mid-length, apically reaching to posterior seventh of elytron. Apical abdominal segments, legs and antennomeres I to VI light ochraceous to yellowish, following antennomeres slightly darkened. Length ration of antennomeres as: II 10: III 3: IV 9: V 13: VI 12: VII 15: VIII 13: IX 15: X 14: XI 18 (holotype). Segments IV to VI narrow, V and VI slightly wider than IV, VI about 6 times as long as wide; segments VII and VIII each about 4 times as long as wide; segment XI about 4.5 times as long as wide. Pronotum with lateral margins evenly rounded, lateral margin carinae not visible in dorsal view, discal punctation fine, sparse, punctures well delimited. Tip of scutellum visible. Elytra moderately narrowed apically, with lateral margins rounded, lateral margin carinae exposed; apical margins trunctate, lacking serration;



Figs. 8–9. *Scaphisoma longiusculum* sp. nov., aedeagus in dorsal (8) and lateral view (9). Scale bar = 0.2 mm.

sutural margin not raised in basal half, weakly raised in apical half; adsutural areas flat, finely punctate; sutural striae starting at base, not curved laterally, weakly converging apically; discal punctation coarse, forming irregular longitudinal rows reaching subapical fasciae, with puncture diameters smaller than puncture intervals. Punctation on posterior fasciae very fine and irregular. Hypomera with barely visible microsculpture. Mesepimeron almost 1.5 times as long as interval to mesocoxae. Metaventrite lacking microsculpture, without basomedian impressions, centre weakly convex, with fairly coarse punctures in basomedian area, very finely punctate on anterior area. Lateral parts of metaventrite very finely punctate, each with antemetacoxal row of fine punctures. Submesocoxal lines slightly convex, submesocoxal areas 0.04 mm long. Metepisterna flat, 0.09 mm wide, narrowed anteriad, with inner suture moderately deep, almost straight between rounded angles. Exposed abdominal ventrites with striate microsculpture, microsculpture evanescent on basolateral parts of ventrite 1. Submetacoxal lines convex, fairly coarsely punctate, submetacoxal areas 0.05–0.06 mm long. Abdominal punctation very fine and sparse. Tibiae straight, mesotibiae and metatibiae evenly narrow.

Male. Segments 1 to 3 of protarsi slightly widened. Aedeagus (Figs. 8–10) 0.72 mm long. Median lobe symmetrical, fairly strongly sclerotized. Apical process of median lobe longer than basal bulb, tapering, in lateral view sinuate. Parameres long and narrow, strongly curved in lateral view, widened apically. Internal sac with two weakly sclerotized plates covering scale-like structures and two mesal rods followed apically by dense spine-like structures.

Differential diagnosis. This species has the characters of the *Scaphisoma rouyeri* group (defined by the symmetrical aedeagus with mesally incompletely fissured dorsal wall of the apical process of the median lobe and the parameres each bearing a small mesal lobe, elytral punctation forming coarse longitudinal rows, abdomen with transversely striate microsculpture (see Löbl 1981) except for the parameres which are not lobed mesally. The aedeagal characters suggest relationship with the Indian *S. aurun* Löbl, 1979. The latter species has parameres widened more proximally and sclerotized plates of the internal sac situated centrally. Both species may be easily distinguished by their external characters, in particular by the uniformly brown body and very dense and irregular elytral punctation in *S. aurun*. *Scaphisoma aurun* was originally placed in the *S. haemorrhoidale* group, based on the shape of the parameres and the elytral punctation not arranged to form longitudinal rows (Löbl 1979).

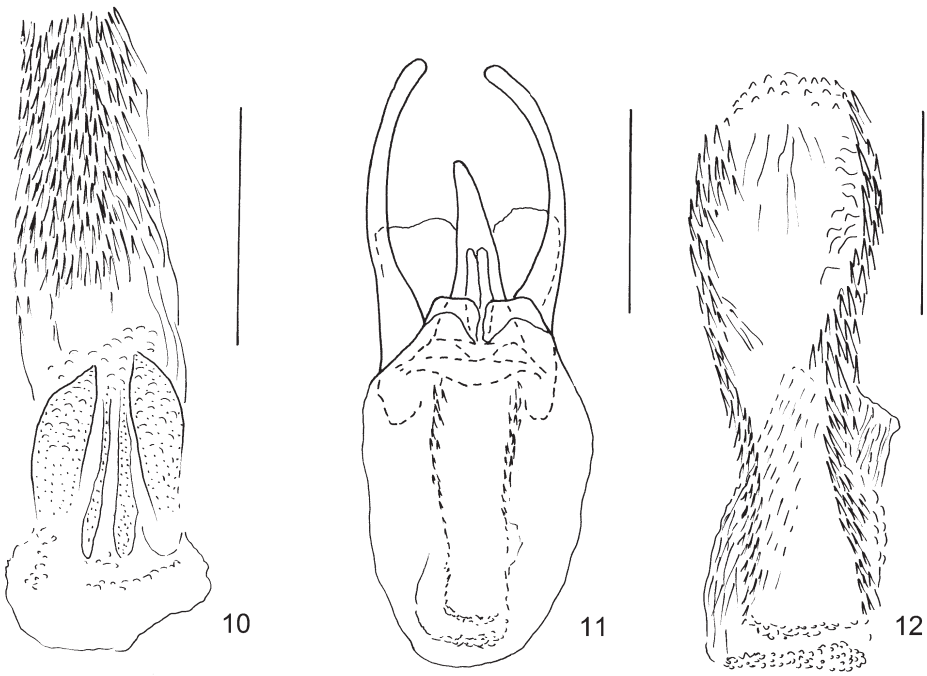
Etymology. The name is a Latin adjective, referring to the long parameres of the aedeagus.

Scaphisoma edentatum sp. nov.

(Figs. 11–14)

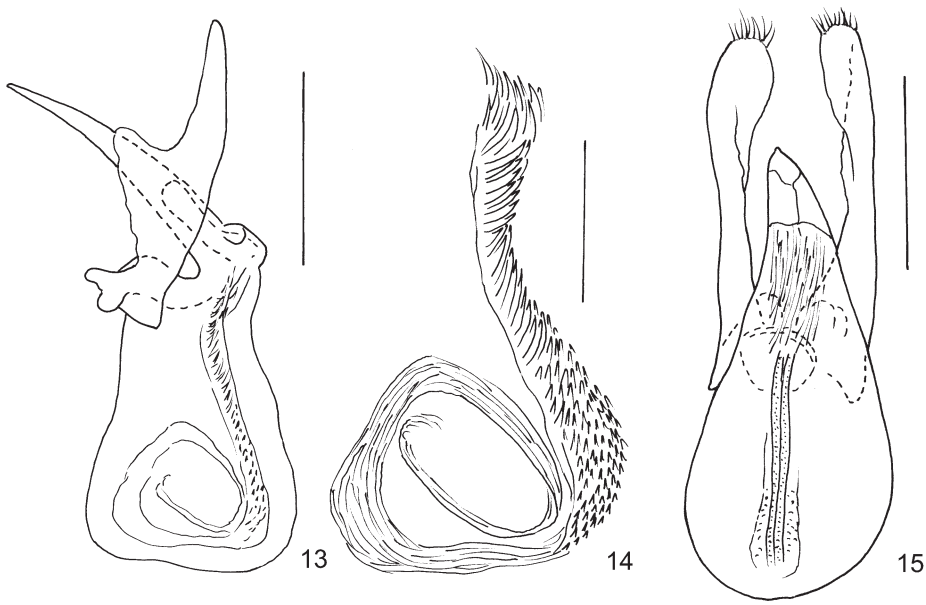
Type material. Holotype ♂: 'MALAYSIA, Pahang Cameron Highlands Tanah Rata vill. env. Gunung Jasat [Mt.]; 1470–1705 m 04°28.4–7' N, 101°21.6–22.1' E Jiří Hájek leg. 18.iv.–10.v.2009' (NMPC). Paratypes: 2 ♂♂, with the same data as the holotype (NMPC, MHNG).

Description. Length 1.55–1.63 mm, width 1.02–1.11 mm. Head and body blackish-brown to black, apices of elytra, apex of abdomen and appendages light, ochraceous or yellowish. Antennomeres VII to XI hardly darker than preceding segments. Length ratio of antennomeres as: II 9: III 4: IV 8: V 15: VI 15: VII 18: VIII 14: IX 20: X 19: XI 21 (holotype). Segments V and VI narrow, only slightly wider than segment IV and each about 6 times as long as wide.



Figs. 10–12. 10 – *Scaphisoma longiusculum* sp. nov., internal sac in dorsal view, scale bar = 0.1 mm. 11–12 – *Scaphisoma edentatum* sp. nov.: 11 – aedeagus in dorsal view, scale bar = 0.2 mm; 12 – internal sac in dorsal view, scale bar = 0.1 mm.

Segments VII and VIII each about 4.5 times as long as wide. Segment XI as wide as segment VII, 5 times as long as wide. Pronotum with lateral margins weakly rounded, almost oblique near base, lateral margin carinae visible near base in dorsal view, punctation dense and fine, consisting of fairly well delimited punctures becoming clearly larger and more dense on basolateral area, some punctures near basal margin about as large as puncture intervals. Tip of scutellum exposed. Elytra moderately narrowed apically, with rounded lateral margins, lateral margin carinae throughout visible in dorsal view, apical margins rounded, lacking serration, inner apical angle situated posterior to level of outer apical angles, sutural margin not raised, adsutural area flat, with single puncture row, sutural striae shortened, starting behind level of scutellum, converging apically; basal striae absent; discal punctation coarse, consisting of deep, well delimited punctures to large part arranged to form longitudinal rows, smallest intervals between punctures about as puncture diameters. Hypomera with striate microsculpture. Mesepimera about twice as long as interval to mesocoxae. Metaventrite microsculptured, in middle weakly convex, lacking impressions, coarsely punctate. Submesocoxal lines parallel, coarsely punctate, submesocoxal areas about 0.03 mm long. Lateral parts of metaventrite very finely punctate, with impressed row of antemetacoxal punctures. Metepisterna flat, with inner suture arcuate, at widest point 0.10 mm, narrower anteriad than posteriad. Exposed abdominal



Figs. 13–15. 13–14 – *Scaphisoma edentatum* sp. nov.: 13 – aedeagus in lateral view, scale bar = 0.2 mm; 14 – internal sac in lateral view, scale bar = 0.1 mm. 15 – *Toxidium lunatum* sp. nov., aedeagus in dorsal view, scale bar = 0.2 mm.

ventrites very finely punctate, with striate microsculpture; ventrite 1 with subcoxale lines moderately arcuate, subcoxale areas 0.05 mm long. Tibiae straight, evenly narrow.

Male. Segments 1 to 3 of protarsi slightly widened. Median process of abdominal ventrite 6 triangular, about 0.04 mm long. Aedeagus (Figs. 11–14) 0.58–0.68 mm long, symmetrical, fairly strongly sclerotized. Apical process of median lobe strongly inflexed, slightly curved and tapering, about as long as basal bulb. Parameres gradually narrowed toward mid-length and arcuate in dorsal view, each with large lobe. Internal sac with lateral rows of dense spines, and conspicuously long, spiral basal part, lacking sclerotized plates or tooth-like structures.

Differential diagnosis. This species is a member of the *Scaphisoma rouyeri* group. Its aedeagal characters are similar to those in *S. delictum* Löbl, 1981, *S. pseudodelictum* Löbl, 1986 and *S. malignum* Löbl, 1986. It may be distinguished from these species by the lobes of the parameres extended basally, and not restricted onto the mesal section, and differs from *S. delictum* and *S. pseudodelictum* by the evenly narrow and curved apical part of the parameres (see also Löbl 1986), and the long lateral spine-like structures of the internal sac. In addition, the body of *B. edentatum* is notably darker than that in the allied species.

Etymology. The name is a Latin adjective, referring to the absence of robust, teeth-like structures in the internal sac.

Toxidium lunatum sp. nov.

(Fig. 15)

Type material. Holotype: ♂, '1.–3.IV.1990 Malaysia Cameron Highl. Gn. Beremban leg. A. Riedel' (MHNG). Paratypes: 1 ♀, '20.IV.1990 Malaysia Cameron Highl. Gn. Brinchang leg. A. Riedel' (MHNG); 1 ♀, 'MALAYSIA, Pahang Cameron Highlands Tanah Rata vill. env. Gunung Jasat [Mt.]; 1470–1705 m 04°28.4–7' N, 101°21.6–22.1' E Jiří Hájek leg. 18.iv.–10.v.2009' (NMPC); 2 ♀♀, 'W. Malaysia Pahang Cameron Highlands 12.–15.ii.1998 Tanah Rata, Gn. Jasar lgt. S. Becvar' (MHNG); 1 ♀, 'MALAYSIA-W, Pahang, 30 km SE of Ipoh, 1500m, Banjaran Titi Wangsa, Tanah Rata, 14–15.iii. 2002, P. Černohorský leg.' (NMHW).

Description. Length 2.10–2.50 mm, width 1.15–1.27 mm. Head and most of body very dark, blackish with reddish shine or black. Elytra each with C-shaped, reddish fascia open laterally, narrowed along suture. Femora and tibiae dark reddish-brown. Apical abdominal segments, tarsi and antennomeres I and II, eventually also III and IV light, ochraceous, following antennomeres darkened. Length ration of antennomeres as: II 13: III 11: IV 12: V 16: VI 13: VII 17: VIII 13: IX 16: X 14: XI 19 (holotype). Segments III and IV even, very narrow, segments V and VI slightly wider. Pronotal punctation very fine, consisting of comparatively well delimited punctures distinct at 25 times magnification. Tip of scutellum exposed. Elytra with sutural striae very shallow, variable in length, starting slightly posterior to basal fourth, or more apically, beyond middle of sutural length; basal striae present, very shallow, variably long, complete and joined to lateral striae, reaching almost level of scutellum or shortened and visible only in middle section of elytral base; lateral and epipleural striae converging in apical part only, lateral stria coarsely and densely punctate, discal punctation not forming rows, irregularly coarse and dense, most punctures clearly smaller than puncture intervals. Metathoracic wings fully developed. Mesoventrite lacking distinct median ridge, with two very shallow and short admesal striae or impressions. Metaventrite flattened in middle, appearing impunctate, most punctures hardly visible at 100 times magnification, few very fine punctures visible at lower magnification; submesocoxal line convex, with few distinct punctures; submesocoxal area 0.08 mm, about as long as half of shortest interval to metacoxa. Metepisternum flat, hardly narrowed apically, with suture straight, deep and wide, in particular at proximal end. Exposed abdominal segments with extremely fine punctation hardly visible at 100 times magnification, microsculpture apparently absent. Tibiae straight.

Male. Tarsomeres 1 to 3 of prolegs similar, slightly widened. Aedeagus (Fig. 15) 0.58 mm long. Median lobe gradually narrowed apically, with apical process weakly inflexed and shorter than basal bulb. Parameres narrowed in middle, with apical lobe weakly sclerotized and setose apical margin. Internal sac with long rod followed by membranes very finely longitudinally striate.

Differential diagnosis. The colour pattern of elytra separates this species from other Asian congeners (see the key in Löbl (1999)). Its aedeagus is similar to that in *T. pubistylis* Löbl, 1990 suggesting close relationships. The parameres in the latter species are distinctive, having an apical setose lobe, and the membranous structures of the internal sac are not longitudinally striate.

Etymology. The name is a Latin adjective, referring to the crescent shape of the reddish elytral band.

New records

Pseudobironium languei (Achard, 1920)

Material examined: **MALAYSIA: Pahang:** 1 spec., Tasik Chini (Lake) primaval forests surrounding lake, V. Hula, L. Purchart, F. Růžička, 2.–5.iii.2007 (NMPC).

Distribution. Vietnam and West Malaysia. New to Malaysia.
Comments. This species and *P. sparsepunctatum* (Pic, 1915) are the sole known members of the genus possessing short and robust maxillary palpi (see Löbl 1982).

Scaphisoma pseudorufum Löbl, 1986

Material examined: MALAYSIA: Pahang: 5 spec., Cameron Highlands Tanah Rata vill. env. Gunung Jasat [Mt.]; 1470–1705 m 04°28.4–7′N, 101°21.6–22.1′E Jiří Hájek leg. 18.iv.–10.v.2009 (NMPC, MHNG).

Distribution. Nepal, northern India, West Malaysia and China. New to Malaysia.
Comments. The species is characterized by its very short fourth antennomere in combination with a long fifth antennomere, the sutural striae of the elytra extended along the base, and the exposed abdominal ventrites with striate microsculpture.

Scaphisoma rufescens (Pic, 1920)

Material examined: MALAYSIA: Perak: 1 spec., Cameron Highlands Batu [=Mile] 25 vill. env. 04°23.2′N, 101°22.8′E, 740m Jiří Hájek leg. 25.–28.iv.2009 (NMPC).

Distribution. Thailand, West and East Malaysia, Singapore, Vietnam, Yunnan. New to West Malaysia.

Scaphoxium grande Löbl, 1986

Material examined: MALAYSIA: Pahang: 3 spec., Cameron Highlands Tanah Rata vill. env. Gunung Jasat [Mt.]; 1470–1705 m 04°28.4–7′N, 101°21.6–22.1′E Jiří Hájek leg. 18.iv.–10.v.2009 (NMPC, MHNG).

Distribution. West Malaysia.
Comments. The species was to present known only by its holotype, coming also from the Cameron Highlands.

Acknowledgements

My cordial thanks are due to Jiří Hájek (Prague, Czech Republic) for his effort in field and the material provided for study, Alexander Riedel (Karlsruhe, Germany) and Stanislav Bečvář (České Budějovice, Czech Republic) for the generously donated specimens, and to Harald Schillhammer (Wien, Austria) for a loan of material.

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