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## On the Bornean species of *Scaphoxium* LÖBL, 1979 (Coleoptera, Staphylinidae, Scaphidiinae)

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**A b s t r a c t :** An account of the species of *Scaphoxium* LÖBL of Borneo is given. Four species are recognized. Two species, *S. opacum* and *S. opertum*, are described as new, and new records are given for *S. taylori* LÖBL. A key to the *Scaphoxium* of Borneo is given.

**K e y w o r d s :** Staphylinidae, shining fungus beetles, Sabah, Brunei, taxonomy

### Introduction

*Scaphoxium* LÖBL, 1979 was established to accommodate eleven species placed in *Toxidium* and three additional, new Indian species (LÖBL 1979). Members of the genus possess strongly approximate mesocoxae and metacoxae, as those of *Scaphobaeocera* CSIKI, 1909 and *Toxidium* LECONTE, 1860. *Scaphoxium* may be easily distinguished by the lobed ventral margin of the pronotum and the bent antennomere III, and are separated from the similar *Scaphobaeocera* also by the fused mesepimera (see LESCHEN & LÖBL 2005). Subsequently, four Afrotropical species originally described in *Toxidium* and several new species have been added so that *Scaphoxium* currently comprises 45 species. The genus is unknown from the New World. Its range extends in Asia from India and Sri Lanka to Japan and the Philippines, several species are also known to occur in Australia, Melanesia, the Seychelles, on Madagascar and on the African continent (see LÖBL 2018). *Scaphoxium* are usually found in moist forest floor litter, often together with members of *Baeocera* ERICHSON, 1845 and *Scaphobaeocera* though notably scarcer in samples (personal observation). Their life history remains unknown.

Only a single species of *Scaphoxium*, *S. taylori* LÖBL, 1981, is currently known from Borneo. The study of collections present in the Geneva museum yielded three additional species, two new to science and described below, one probably new yet in absence of diagnostic male characters only briefly mentioned, included in the key and left unnamed.

### Material and techniques

The material studied is housed in the Muséum d'histoire naturelle, Genève, Switzerland (MHNG). The locality data of the holotypes are reproduced verbatim. The body-length is measured from the anterior pronotal margin to the posterior inner angles of elytra. The length/width ratios of the antennomeres are measured on slide-mounted antennae. The abdominal microsculpture refers to the exposed segments, and not 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 specimen.

## Results

### *Scaphoxium opacum* nov.sp. (Figs 1, 2)

**Material examined:** Holotype ♂, MALAYSIA – Sabah Kinabalu Nat. Park Poring H. Spr. 600 m 11.VII.92 Heiss (MHNG). Paratypes: 4♂♂, 8♀♀, with the same data as the holotype; 1♂, SABAH, Poring Hot Springs, 31.III.1983, B. Hauser (MHNG); 2♂♂, BRUNEI, Temburong, Kuala Belalong F.s.c., mixed Dipterocarp for. 16-20.IV.1993, E. Heiss (MHNG).

**Description:** Length 1.35-1.43 mm, width 0.65-0.70 mm, dorsoventral diameter 0.65-0.76 mm. Head and most of body dark brown to blackish with reddish shine, prothorax and abdomen sometimes lighter than elytra, mesoventer and metaventer. Apical abdominal segments, antennae and tarsi light, yellowish. Femora and tibiae reddish brown, darker than tarsi and antennae. Length/width ratios of antennomeres as: III 22/4: IV 20/4: V 27/5: VI 24/6: VII 40/7: VIII 36/6: IX 39/10: X 43/10: XI 52/10. Pronotal punctation very fine, hardly visible at 25 times magnification. Scutellum concealed. Elytral punctation distinct, punctures well delimited, fine and dense, clearly visible at 20 times magnification, sutural striae parallel, shortened, starting about 0.25 mm posterior of level of pronotal lobe. Adsutural areas flat. Hypomeron very finely punctate, with short stria delimiting inferior vertical surface. Mesoventrite with shallow median impression, lacking mesal ridge, bearing longitudinally striate microsculpture; latter distinct between procoxae and mesocoxae, absent laterally of coxal cavities. Mesocoxal process of mesoventrite notched. Median part of metaventrite flattened or hardly impressed, impunctate, with microsculpture consisting of short oblique striae. Lateral parts of metaventrite not microsculptured, each with patch of fairly coarse punctures absent from posterior surface. Submesocoxal lines angulate, with oblique inner and outer sections, punctate only along outer section. Submesocoxal areas 0.04-0.05 mm long, as halves or somewhat longer than halves of shortest intervals to metacoxae. Metanepisternum flat, parallel-sided, with straight, wide, shortened, and punctate suture. Abdomen apparently impunctate, with exposed segments bearing transversally striae microsculpture.

**Male characters:** Segments I to III of protarsi hardly widened. Aedeagus (Figs 1, 2) 0.59-0.66 mm long. Parameres narrow, each with rounded subapical lobe. Internal sac bearing pair of admesal, teeth-like sclerites, pair of narrow, weakly sclerotized basal filamentous structures, and broad apical vesicle covered by scales.

**Comments:** This new species is likely related to *S. taylori*. It may be distinguished by the denser and more distinct elytral punctation, the strigulate microsculpture present on the mesoventrite, the metaventrite and the abdomen, the sides of the metaventrite bearing dense and coarse punctures, the internal sac of the aedeagus bearing two strongly sclerotized admesal tooth-like denticles and lacking a central sclerite.

**Etyymology:** The species epithet is a Latin adjective meaning dull.

***Scaphoxium opertum* nov.sp. (Figs 3-5)**

**Material examined:** Holotype: ♂, [E Malaysia] 10 miles point from Keningau Sabah, Is. Borneo 7.iii.1993 T. Ueno leg. (MHNG).

**Description:** Length 1.80 mm, width 1.0 mm, dorsoventral diameter 1.08 mm. Head and most of body dark brown, apical abdominal segments much lighter, femora and tibiae slightly lighter than thorax, tarsi and antennae yellowish. Length/width ratios of antennomeres as: III 15/7: IV 19/8: V 30/8: VI 28/9: VII 45/13: VIII 35/11: IX 43/13: X 42/15: XI 58/15. Pronotal punctation very fine, hardly visible at 25 times magnification. Scutellum concealed. Elytral punctation distinct, punctures not well delimited, fine and dense, clearly visible at 20 times magnification, sutural striae parallel, shortened, starting about 0.20 mm posterior of level of pronotal lobe. Adsutural areas flat. Hypomeron very finely punctate, with short stria delimiting inferior vertical surface. Mesoventrite not microsculptured, impunctate, with low mesal ridge delimited by shallow impressions. Mesocoxal process of mesoventrite notched. Metaventrte not microsculptured, very finely and sparsely punctate, slightly convex in middle. Submesocoxal lines convex, punctate only along outer section. Submesocoxal areas 0.05 mm long, about as halves of shortest intervals to metacoxae. Metanepisternum flat, parallel-sided, with straight, narrow, shortened, and punctate suture. Abdomen very finely and sparsely punctate, dense basal puncture rows in middle of lateral margins of ventrites I excepted. Ventrites I to IV lacking microsculpture, apical abdominal segments with punctulate microsculpture.

**Male characters:** Segments I to III of protarsi hardly widened. Aedeagus (Figs 3-5) 0.86 mm long. Parameres narrow, each with subapical, mesally oriented, acute denticle. Proximal part of internal sac longitudinally striate. Middle of internal sac with two short, incurved sclerites surrounded by finely denticulate membranes and followed by two sclerites pointed apically and two narrow apical pieces.

**Comments:** The aedeagal characters suggest relationship of this new species to *S. grande* LÖBL, 1986. Notable are the very similar parameres having each a narrow subapical denticles pointed mesally. The structures of the internal sacs are, however, significantly distinctive in these two species, in particular by the presence of a pair of sclerotized subapical teeth and two narrow, apical sclerites present in *S. opertum*, absent from *S. grande*. Only *S. simulans* (LÖBL, 1971) 1986 possesses narrow and acute subapical parameral denticles. It is readily distinguished by its significantly smaller body (1.3 mm long) and the internal sac lacking teeth-like sclerites.

**Ety m o l o g y:** The species epithet is a Latin adjective meaning secrete, mysterious.

***Scaphoxium taylori* LÖBL, 1981**

*Scaphoxium taylori* LÖBL, 1981: 101, Figs 1-3.

*Scaphoxium taylori* LÖBL, 2011: 312, Figs 18-20.

**Material examined:** 2♂♂, SABAH, Sabalangan River env., about 25 km SE Sapulut, 26.VI.1988, J. Kodada & F. Ciampor; 1♀, SABAH, Poring Hot Springs, Langanan River, 850 m, 14.V.1987, D. Burckhardt & I. Löbl; 1♂, BRUNEI, Temburong, Kuala Belalong F.s.c., 60-300 m, 16-20.IV.1993, E. Heiss (all MHNG).

**Comments:** The species was based on a single male from the Semengoh Forest Reserve in Sarawak, and subsequently reported from the Philippine islands Luzon, Palawan and Mindanao.

***Scaphoxium* sp.**

**Material examined:** 1♀, SABAH, Mt. Kinabalu Nat. Park, Headquarters, 5.V.1980, M. & A. Sakai (MHNG).

**Comments:** This is likely an undescribed species, similar to the above described *S. opertum*, though its body is smaller and darker. It may be clearly distinguished by the characters given in the key below.

**Key to the Bornean species of *Scaphoxium* spp.**

- 1 Body length 1.65-1.80 mm.....2
- Body length 1.35-1.50 mm.....3
- 2 Antennomere XI much longer than antennomere X and about 4 times as long as wide. Mesocoxal process of mesoventrite notched.....*S. opertum* nov.sp.
- Antennomere XI slightly longer than antennomere X and nearly 3 times as long as wide. Mesocoxal process of mesoventrite notched.....*Scaphoxium* sp.
- 3 Mesoventrite and metaventrite not microsculptured. Ventrites II to V with punctulate microsculpture. Internal sac with small central sclerite between elongate admesal sclerites.....*S. taylora* LÖBL
- Mesoventrite, metaventrite and abdomen with strigulate microsculpture. Internal sac with two admesal teeth-like sclerites, lacking central sclerite.....*S. opacum* nov.sp.

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**Zusammenfassung**

Die vier von Borneo bekannten Arten der Gattung *Scaphoxium* LÖBL, 1979 werden besprochen. *Scaphoxium opertum* nov.sp. von Sabah und *S. opacum* nov.sp. von Sabah und Brunei werden beschrieben. *S. taylora* LÖBL, 1981 wird zum ersten Mal von Sabah und Brunei gemeldet. Eine Bestimmungstabelle der vier Arten wird vorgelegt.

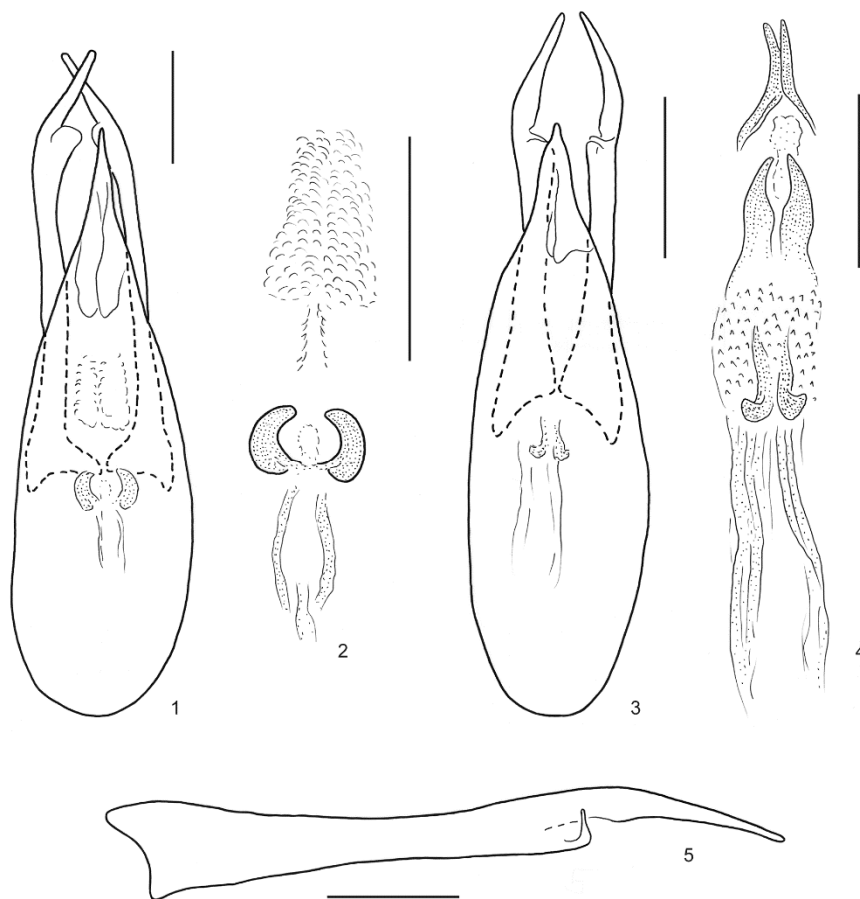
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**Figs 1, 2.** *Scaphoxium opacum* nov. sp., aedeagus in dorsal view (1), internal sac (2), scale = 0.1 mm. **Figs 3-5.** *Scaphoxium opertum* nov. sp., aedeagus in dorsal view, scale = 0.2 mm (3), internal sac, scale = 0.1 mm (4), paramere, scale = 0.1 mm (5).



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