

Notes on *Scaphisoma* of Kalimantan (Coleoptera: Staphylinidae: Scaphidiinae)

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Abstract. The Kalimantan species of *Scaphisoma* Leach, 1815 are reviewed. The following species are redescribed: *S. borneense* Pic, 1916, *S. lineatopunctatum* (Pic, 1916), *S. punctatipenne* Pic, 1916, *S. punctatum* (Pic, 1915) and *S. submaculatum* Pic, 1920. Lectotypes are designated for these species, and for *S. oblongum* Pic, 1916. *Scaphisoma punctatipenne*, described as a variety of *S. oblongum*, is available and raised to species rank. *Scaphisoma atrithorax* Pic, 1916 is placed in synonymy with *Scaphisoma obliquemaculatum* Motschulsky 1863. Two new species are described: *S. apparatus* sp. nov. and *S. tarsale* sp. nov. A key to the Kalimantan species of *Scaphisoma* is provided.

Key words. Coleoptera, Staphylinidae, Scaphidiinae, *Scaphisoma*, redescription, new species, lectotype designation, new record, key to species, Borneo, Kalimantan, Oriental Region

Introduction

The few species of *Scaphisoma* Leach, 1815, reported from Kalimantan were described by PIC (1915a, 1916a,b,c, 1920), and several were incorrectly placed. *Baeocera discoideale* Pic, 1916 and *B. ruficolor* Pic, 1916 were dealt with in my previous papers, both were transferred to *Scaphisoma* and redescribed, and the former was renamed *S. pici* Löbl, 1979 because of secondary homonymy. Subsequent to Pic's publications, only one species, *S. rufescens* Pic, 1920, was reported from Kalimantan (LÖBL 1981a, 1997). Recently, I have received from my colleague J. Hájek (Prague), several unidentified scaphidiines, including two new species and several new records of *Scaphisoma* from Kalimantan. This new material prompted this study to review the remaining, previously described species from the area. At present 13 species of *Scaphisoma* are known from Kalimantan, a number that likely represents a minute fraction of the group occurring in that part of Borneo.

Material and methods

The type material of species described by M. Pic and a few other specimens are in Muséum national d'Histoire naturelle, Paris, France (MNHN), the remaining specimens are housed in the Národní muzeum, Prague, Czech Republic (NMPC) and Muséum d'histoire naturelle, Genève, Switzerland (MHNG). The locality data are given verbatim, as on the respective labels, different labels are separated by a slash. Additional remarks are given in square brackets. The body length is measured from the anterior pronotal margin to the inner apical angle of the elytra. The maximal length and width ratios of the antennomeres are given, measured on slides. Characters of metanepisterna concern their exposed parts, statements about punctuation on metaventrite and ventrite 1 does not refer to punctures margining subcoxal lines. The abdominal ventrites are counted from the first visible one (i.e., the third morphological) following LAWRENCE et al (2010). The sides of the aedeagi refer to their morphological side, with the ostium situated dorsally, while it is in the resting position rotated 90°. The eventually extruded parts of the internal sacs of the aedeagi are not considered in length measurements.

Results

Scaphisoma apparatus sp. nov.

Type locality. Indonesia, East Kalimantan, ca 55 km W of Balikpapan, PT Fajar Surya Swadaya area, 01°13.3'S, 116°21.0'E, 100 m a.s.l.

Type material. HOLOTYPE: ♀, 'Indonesia, E. Kalimantan, ca 55 km W of Balikpapan PT Fajar Surya Swadaya [area] 01°13.3'S 116°21.0'E, 100m J. Hájek, J. Schneider, P. Votruba leg. 24-25+29.xi.2011 / border of Acacia mangium plantation and primary rainforest, stream and waterfall, puddles; individual collecting, + light trap' (NMPC). PARATYPE: ♀, with the same data as the holotype (MHNG).

Description. Length 1.90 mm, width 1.36 mm. Head and body dark reddish-brown, pronotum darkened along basal margin, elytra darkened in middle, between basal and apical fourth. Femora, tibiae and abdominal ventrites lighter, tarsi and antennae much lighter than pronotum. Pronotum without microsculpture, elytra with conspicuous punctulate microsculpture, dull. Antennae with length/width ratio of antennomeres as follows: III 17/11 : IV 33/10 : V 45/10 : VI 56/11 : VII 62/14 : VIII 52/11 : IX 67/15 : X 55/15 : XI 77/15. Pronotum with lateral margins rounded, lateral margin carinae visible in dorsal view except near angles, discal punctuation fairly fine and dense, well delimited, puncture intervals mostly about twice as large to as large as puncture diameters, pubescence distinct. Apex of scutellum exposed. Elytra dull, with conspicuous microsculpture consisting of punctures and striae, and very shallowly wrinkled; lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angle not prominent, situated about in level with outer angles, sutural margin not raised, sutural striae shallow, curved at base, extended along basal margins to form basal striae reaching outer third of elytral basal width (dorsal view), parallel between level of scutellum and mid-length, converging from mid-length apically, adsutural areas flat, with puncture row, combined about 0.15 mm wide at mid-length, with very fine, irregular puncture row. Elytral punctuation very fine and sparse, hardly visible at 50× magnification, punctures margining sutural striae distinct. Punctuation fairly distinct and dense on basal part

of pygidium, becoming finer toward pygidial apex. Hypomera not microsculptured, very finely punctate. Mesepimeres shorter than interval to mesocoxae and 4 times as long as wide. Metaventrite not microsculptured, convex in middle, flattened apicomersed, without apicomedian impressions, with punctation very fine between mesocoxae, becoming coarse and dense toward apical intercoxal process, with coarse punctures well delimited and to part larger than puncture intervals. Lateral parts of metaventrite very finely and sparsely punctate, without antecoxal puncture row. Submesocoxal lines parallel, margined by conspicuously coarse puncture; submesocoxal areas 0.05 mm, about as fourth of interval to metacoxae. Metanepisterna convex, 0.12 mm wide, moderately narrowed anteriorly, with inner suture almost straight, deeply impressed. Tibiae straight. Abdomen with strigulate microsculpture, ventrites extremely finely and sparsely punctate. Submetacoxal lines of ventrite 1 subparallel, conspicuously coarsely punctate, submetacoxal areas about 0.05 mm long, almost as fifth of interval to apical margin of ventrite.

Differential diagnosis. This species differs significantly from all Asian congeners, with the notable exception of the Japanese *S. pecki* Löbl, 1982, by its dull, conspicuously microsculptured elytra. It may be easily distinguished from *S. pecki* by the darkened middle part of the elytra, the elytral punctation being hardly visible, much finer than pronotal punctation, the antennomere XI longer than X, while both are equally long in *S. pecki*, the metaventrite lacking impressions and with narrower submesocoxal areas, the presence of strigulate abdominal microsculpture, and the entire ventrite 1 very finely punctate.

Etymology. The species epithet is a Latin adjective, referring to the conspicuous distinctive characters.

Distribution. Indonesia (Kalimantan).

Scaphosoma borneense Pic, 1916

(Figs 1–3)

Scaphosoma borneense Pic, 1916c: 7.

Type locality. Indonesia, Kalimantan, Martapura.

Type material examined. LECTOTYPE (by present designation): ♂, 'Martapoera Z. O. Borneo Doherty VI. VII [printed] / type [handwritten by Pic] / TYPE [red, printed] / *Scaphosoma* Pic [handwritten by Pic] / borneense Pic [handwritten by Pic] / Lectotype *Scaphosoma borneense* Pic des. Löbl, 2014' (MNHN).

Redescription. Length 1.90 mm, width 1.37 mm. Head, thorax, hypomera excepted, elytra and abdominal ventrite 1 to 4 uniformly reddish-brown, femora and tibiae slightly lighter, hypomera, apical abdominal segments, tarsi and antennae distinctly lighter, almost yellowish. Pronotum and elytra lacking microsculpture. Antennae with length/width ratio of antennomeres as follows: III 15/8 : IV 47/6 : V 63/7 : VI 54/8 : VII 61/13 : IX 55/12 : X : 55/13 : XI 73/12 (antennomere VIII missing). Pronotum with lateral margins rounded, lateral margin carinae visible in dorsal view, discal punctation very fine and sparse. Point of scutellum exposed. Elytra with lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angle not prominent, situated posterior level of outer angles, sutural margin raised, sutural striae fairly deep, shortened, starting about 0.35 mm posterior tip of scutellum, slightly converging apically, adsutural areas slightly roof-like raised, combined 0.14 wide at proximal end, with single row of coarse punctures. Elytral punctation coarse and

dense, punctures well delimited, puncture diameters mostly about half to as large as puncture intervals. Hypomera not microsculptured, very finely punctate. Mesepimeres almost as long as interval to mesocoxae and 6 times as long as wide. Metaventrite convex in middle, with two apicomedian impressions not clearly delimited, bearing a few fairly coarse punctures. Antecoxal puncture lines present, impressed, consisting of fine punctures. Remaining surface of metaventrite uniformly and very finely punctate, with punctures hardly visible at 100× magnification, fairly coarse punctures margining submesocoxal lines excepted. Median part of metaventrite not microsculptured, lateral parts with strigulate microsculpture. Submesocoxal lines convex, submesocoxal areas 0.04 mm long, as fifth of interval to metacoxae. Metanepisterna slightly convex, 0.13 mm wide, moderately narrowed anteriorly, with inner suture weakly rounded, impressed below level of metaventrite. Protibiae and metatibiae straight, mesotibiae curved. Abdomen with strigulate microsculpture. Ventrite 1 very finely and sparsely punctate, except on basomedian area bearing few fairly coarse punctures; submetaxocal lines convex, submetaxocal areas 0.05 mm long, about as fourth of interval to apical margin of ventrite.

Male characters. Segments 1 and 2 of protarsi and mesotarsi strongly widened, segments 1 almost as wide as the apices of tibiae. Segments 3 of protarsi and mesotarsi weakly widened. Abdominal ventrite 6 with apical lobe large, about 0.15 mm long, truncate apically. Aedeagus (Figs 1–3) about 1.00 mm long. Median lobe with basal bulb strongly sclerotized at apical side, almost membranous proximally. Dorsal branch of apical process tapering, at base widened and weakly sclerotized. Ventral branch of apical process oblique and truncate at apex in dorsal view, sinuate in lateral view, with minute apical denticle and very fine subapical granulation on ventral side. Internal sac with complex denticulate and spinose structures, sclerotized spines and lobes.

Differential diagnosis. The species is a member of the *S. tricolor* group, and fairly similar to *S. chujoii* Löbl, 1982 from Sarawak (see LÖBL 1982). It may be readily distinguished from the latter, and other species possessing a basal bulb of the median lobe that is expanded apicodorsally, by the truncate apex of the ventral branch of the apical process of the median lobe (in dorsal view), which is very finely granulate on its ventral side (in lateral view).

Comments. The antennae were broken off and the antennomeres III to VII, IX to XI, and X and XI were found in glue below the specimen. They are now mounted on a slide. Both antennomeres VIII are missing. In addition, the proximal end of the basal bulb of the aedeagus is damaged.

Distribution. Indonesia (Kalimantan).

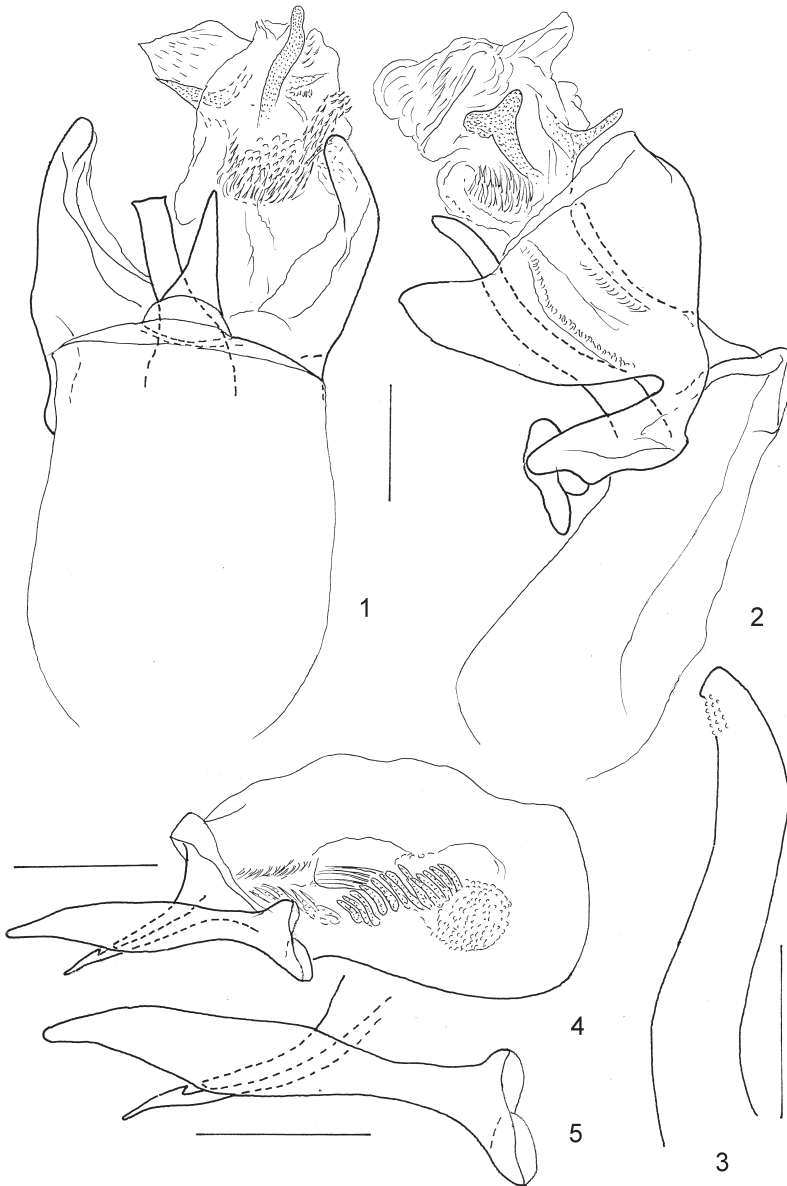
Scaphisoma lineatopunctatum (Pic, 1916)

Pseudoscaphosoma lineatopunctatum Pic, 1916c: 7.

Type locality. Indonesia, Kalimantan, Martapura.

Type material examined. LECTOTYPE (by present designation): ♀, 'Martapura S.E. Borneo Doherty 1891 [printed] / type [handwritten by Pic] / TYPE [red, printed] / Scaphosoma probabl [handwritten by Pic] / Pseudoscaphosoma lineatopunctatum Pic (handwritten by Pic / Lectotype Scaphisoma lineatopunctatum (Pic) des. Löbl, 2014' (MNHN).

Additional material examined. 2 ♀♀, 'Borneo Is., Poling (sic) Hot Spring, Sabah Malaysia 30.IV.1980 M. & A. Sakai' (MHNG).



Figs 1–5. Aedeagi of *Scaphisoma*: *S. borneense* Pic, 1916, internal sac extruded, in dorsal view (1), in lateral view (2), in ventral branch of apical process in lateral view (3). *S. mindanaosum* Pic, 1926, aedeagus in lateral view (4), paramere and apical process of median lobe in lateral view (5). Figs 1, 2 and 4: scale bars = 0.2 mm, Figs 3 and 5: scale bars = 0.1 mm.

Redescription. Length 1.60 mm, width 1.15 mm. Head, pronotum and most of elytra very dark, almost blackish-brown, elytra each with not clearly delimited lighter subhumeral area, rather indistinct light subapical spot touching sutural stria and separated from narrowly light apices by dark area. Apical abdominal segments light brown to yellowish, femora reddish-brown, tibiae, tarsi and antennae yellowish. Antennae with length/width ratio of antennomeres as follows: III 18/8 : IV 27/5 : V 58/7 : VI 45/8 : VII 50/10 : VIII 46/8 : IX 54/10 : X 55/11 : XI 75/12. Pronotum with lateral margins rounded, lateral margin carinae visible in dorsal view, discal punctation very fine and sparse. Point of scutellum exposed. Elytra with lateral margin carinae entirely exposed in dorsal view, apical margins rounded, inner apical angle not prominent, situated posterior level of outer angles, sutural margin raised, sutural striae deep, not curved at base and not extended along basal margins, strongly converging from bases to apices, in particular posterior basal fourth; adsutural areas flat, slightly impressed, combined 0.32 mm wide at base, about 0.20 mm just posterior basal third, very narrow near apices, irregularly and finely punctate in anterior third, with single puncture row in apical section. Punctures along both sides of anterior section of sutural striae dense and coarse, well delimited, outer punctures margining basal third of sutural striae larger than puncture intervals. Remaining elytral punctation sparse and very fine, consisting mostly of not clearly delimited punctures; a few somewhat larger punctures present on anterior part of disc. Hypomera not microsculptured, very finely punctate. Mesepimeres about as long as interval to mesocoxae and 3 times as long as wide. Meta-ventrite with hardly visible strigulate microsculpture, convex in middle, with apicomedian part flattened and bearing fairly coarse puncture, lacking impressions; with very shallow median stria, punctation almost evanescent; antecoxal puncture lines present, impressed, coarsely punctured. Submesocoxal lines parallel, submesocoxal areas 0.04 mm long, as sixth of interval to metacoxae, distinctly punctate. Metanepisterna slightly convex, 0.12 mm wide, moderately narrowed anteriorly, with inner suture almost straight, not impressed below level of metaventrite. Protibiae straight, mesotibiae and metatibiae curved. Abdomen with strigulate microsculpture. Ventrite 1 very finely and sparsely punctate, basomedian area lacking coarse punctures; submetacoxal lines subparallel, submetacoxal areas 0.04 mm long, hardly as fifth of interval to apical margin of ventrite.

Differential diagnosis. The relationships of the species are unknown in absence of male characters. The species is, however, quite well characterized by its metaventrite being striate in the middle and the elytra with strongly converging sutural striae, in combination with the body colour. The record from Sabah is new.

Distribution. Indonesia (Kalimantan) and Malaysia (Sabah).

Scaphisoma mindanaosum Pic, 1926

(Figs 4–5)

Scaphosoma mindanaosum Pic, 1926: 2.

Material examined. 4 spec., 'Indonesia, E. Kalimantan, ca 50 km W of Balikpapan Pt Fajar Surya Swadaya [area] 01° 13.4'S 116°22.6'E, 66m J. Hájek, J. Schneider, P. Votruba leg. 27+30.XI.2011 / stream in primary rainforest, ca. 2m wide, sandy+mud bottom; collecting in stream and tributaries, on vegetation and dead wood' (NMPC, MHNG).

Distribution. Indonesia (Sumatra, Kalimantan), Philippines (Mindanao), Laos, and Vietnam.
Comments. PIC (1926) described this species from the Philippines, and its aedeagus in dorsal view was figured and characterized in LÖBL (1972). The aedeagal characters seen in lateral view are useful and therefore they are here illustrated (Figs 4–5). Diagnostic characters were also given, and distributional information completed in LÖBL (1981b). The present record is new for Kalimantan.

Scaphisoma obliquemaculatum Motschulsky, 1863

Scaphisoma obliquemaculatum Motschulsky, 1863: 435.

Pseudoscaphosoma atrithorax Pic, 1916c: 7, **syn. nov.**

Scaphosoma rufomaculatum Pic, 1921: 5.

Scaphosoma luteoapicale Pic, 1923: 17.

Type localities. *Pseudoscaphosoma atrithorax*: Indonesia, Kalimantan, Martapura; *Scaphisoma luteoapicale*: Vietnam, Lac Tho; *S. obliquemaculatum*: Sri Lanka, Nuwara Eliya; *S. rufomaculatum*: Indonesia, Sumatra, Padar Mardang.

Type material examined. *Pseudoscaphosoma atrithorax*: LECTOTYPE (by present designation): ♀, 'Martapura S.E. Borneo Doherty 1891 [printed] / type [handwritten by Pic] / TYPE [red, printed] / Ps. n sp. [handwritten by Pic] / atrithorax Pic [handwritten by Pic] / Lectotype *Scaphisoma atrithorax* (Pic) des. Löbl, 2014' (MNHN).

Additional material examined. 2 ♀♀, 'Indonesia, E. Kalimantan, ca 55 km W of Balikpapan Pt Fajar Surya Swadaya [area] 01°13.3'S 116°21.0'E, 100m J. Hájek, J. Schneider, P. Votruba leg. 24–25+29.XI.2011 / border of Acacia mangium plantation and primary rainforest, stream and waterfall, puddles; individual collecting, + light trap' (NMPC, MHNG).

Distribution. Indonesia (Kalimantan, Sulawesi, Sumatra, Java, Sumbawa), Malaysia (Sarawak), Mascarene Islands, Sri Lanka, Thailand, and Vietnam.

Comments. *Scaphisoma obliquemaculatum* was redescribed in LÖBL (1971). In absence of distinctive characters, I place *Pseudoscaphosoma atrithorax* Pic in synonymy with this widely distributed species. The MNHN houses five additional females identified by Pic as *P. atrithorax*. They come from Sumatra, Fort de Kock (present Bukittinggi), and were collected in 1926 by E. Jacobson. They are mounted on a single pin and bear a subsequently given red 'TYPE' label.

Scaphisoma pici Löbl, 1979

Baeocera discoidalis Pic, 1916c: 7 (homonym of *Scaphisoma discoidalis* Achard, 1915).

Scaphisoma discoidale: LÖBL (1973): 158.

Scaphisoma pici Löbl, 1979: 102 (new substitute name).

Type locality. Indonesia, Kalimantan, Martapura.

Type material. Studied by LÖBL (1973).

Distribution. Indonesia (Kalimantan).

Comments. The species, originally published as *Baeocera discoidale* [sic] Pic, 1916, was redescribed and transferred to *Scaphisoma* by LÖBL (1973). It was given the new substitute name of *S. pici* by LÖBL (1979), because of secondary homonymy with *S. discoidale* Achard, 1915, placed in synonymy with *S. binotatum* Achard, 1915. Currently, only the single original female specimen of *Scaphisoma pici* is known. It was held for the holotype in LÖBL (1973).

***Scaphisoma punctatipenne* Pic, 1916, stat. nov.**

Scaphosoma oblongum var. *punctatipenne* Pic, 1916a: 4.

Type locality. *Scaphosoma oblongum*: 'Ile Nias', *S. oblongum* var. *punctatipenne*: 'Bornéo'.

Type material examined. *Scaphosoma oblongum*: LECTOTYPE (by present designation): ♀, 'Lahago Centraal Nias 4II-10III 1896 I.Z.Kannegieter [printed] / type [handwritten by Pic] / TYPE [red, printed] / *Scaphosoma oblongum* Pic [handwritten by Pic] / Lectotype *Scaphisoma oblongum* Pic des. Löbl, 2014' (MNHN). *Scaphosoma oblongum* var. *punctatipenne*: LECTOTYPE (by present designation): ♀, 'Martapura S. E. Borneo Doherty 1891 [printed] / type [handwritten by Pic] / TYPE [red, printed] / *Sc oblongum punctatipenne* Pic [handwritten by Pic] / Lectotype *Scaphisoma punctatipenne* Pic des. Löbl, 2014' (MNHN).

Redescription. Length 1.45 mm, width 0.95 mm. Head and body very dark reddish-brown, apical elytral margins lighter. Apical abdominal segments and appendages light, yellowish. Pronotum and elytra without microsculpture. Antennae with length/width ratio of antennomeres as follows: III 9/7 : IV 14/6 : V 38/5 : VI 50/6 : VII 51/10 : VIII 45/8 : IX 53/11 (right antenna, with segment X and XI broken, left antenna missing). Pronotum with lateral margins rounded, lateral margin carinae not visible in dorsal view, discal punctation very fine, punctures dense, not well delimited, pubescence indistinct. Point of scutellum exposed. Elytra with lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angle not prominent, situated posterior level of outer angles, sutural margin not raised, sutural striae fairly deep, curved at base, not extended along basal margins, parallel between level of scutellum and mid-length, slightly converging from mid-length apically, adsutural areas flat, with single fine puncture row, at mid-length combined about 0.09 mm wide, shortly posterior scutellum combined about 0.11 mm wide. Punctuation on small humeral area very fine, on most of basal halves of elytral disc coarse and conspicuously dense, punctures well delimited, to large part about twice as large as puncture intervals. Punctuation posterior elytral mid-length becoming gradually finer and sparser. Hypomera not microsculptured, very finely punctate. Mesepimeres as long as interval to mesocoxae and 4 times as long as wide. Metaventrite weakly convex between mesocoxae, flattened apicomeresally, lacking impressions or grooves, very finely and sparsely punctured laterally, fairly coarsely and very densely punctured on median part, with punctures to part as large as puncture intervals, lateral parts of metaventrite lacking microsculpture, median part with strigulate microsculpture. Submesocoxal lines weakly convex, distinctly punctured, submesocoxal areas 0.05 mm long, as third of interval to metacoxae. Metanepisterna flat, in level with metaventrite, 0.09 mm wide, weakly narrowed anteriorly, inner suture straight, rounded at angles. Protibiae and mesotibiae straight, metatibiae somewhat curved. Abdomen with strigulate microsculpture. Ventrite 1 very finely and sparsely punctured laterally, with dense and fairly coarse punctures on basal half of median area, similar to those on median part of metaventrite; submetaxocal lines convex, submetaxocal areas 0.07 mm long, about as half of interval to apical margin of ventrite.

Comments. This species was described as a variety of *S. oblongum* Pic, 1916. According to the ICZN Art. 45.6.4, the name *S. punctatipenne* Pic, 1916 is available and the taxon is to be dealt with as a subspecies of *S. oblongum* Pic, 1916. The latter species was described from Nias, and since its description never again reported. Both, *S. oblongum* and *S. punctatipenne* possess similar pronota and elytra, and in particular a quite striking pattern of elytral

punctuation, though *S. oblongum* is less darkly colored. These species may be distinguished by characters of the ventral side of the body. *Scaphisoma oblongum* has the mesepimera much longer, about 5 times as long as the interval to the mesocoxae; the metaventrite convex in the middle, with two very shallow apicomedian impressions, the strigulate microsculpture distinct also on the lateral parts of the metaventrite, but not near the metanepisterna, the metasternal punctuation is generally fine all over though consisting of larger punctures between metacoxae, the antemetacoxal puncture rows present; the submesocoxal lines parallel, the submesocoxal areas narrower, 0.03 mm long, a sixth of the interval to the metacoxae; the metanepisterna impressed below level of the metaventrite and slightly convex, the median part of the ventrite 1 very finely punctate, the submetacoxal areas shorter, about a third of the interval to the apical margin of the ventrite.

Distribution. Indonesia (Kalimantan).

Scaphisoma punctatum (Pic, 1915)

Pseudoscaphosoma punctatum Pic, 1915: 31.

Type locality. Indonesia, Kalimantan, Martapura.

Type material examined. LECTOTYPE (by present designation): ♀, 'Martapura S.E. Borneo Doherty 1891 [printed] / Type [handwritten by Pic] / TYPE [red, printed] / *Pseudoscaphosoma punctatum* Pic [handwritten by Pic] / *Scaphosoma* probabl [handwritten by Pic] / *Scaphisoma punctatum* (Pic) det. Löbl 1976 / Lectotype *Scaphisoma punctatum* (Pic) des. Löbl 2014' (MNHN). The lectotype has the left antenna mounted on celluloid slide, the antennomeres VII to XI of the right antenna are broken off and missing.

Additional material examined. 1 ♀, with the same locality data as the lectotype (MHNG).

Redescription. Length 1.37 mm, width 0.92 mm. Head and most of body very dark brown with somewhat reddish lustre, apical sixth of elytra, apical abdominal segments, tarsi and antennae yellowish or very light brown, femora and tibiae also lighter than most of body, but not as light as tarsi. Pronotum and elytra without microsculpture. Antennae with length/width ratio of antennomeres as follows: III 12/5 : IV 20/5 : V 30/6 : VI 30/7 : VII 42/10 : VIII 28/8 : IX 41/10 : X 42/10 : XI 50/14. Pronotum with lateral margins rounded, lateral margin carinae not visible in dorsal view, discal punctuation fine, dense, well delimited, near base distinctly coarser than on anterior half; pubescence indistinct. Apical part of scutellum exposed. Elytra with lateral margin carinae entirely exposed in dorsal view, apical margins slightly rounded, inner apical angle not prominent, situated posterior level of outer angles, sutural margin raised, sutural striae deep, not curved at base and not extended along basal margins, gradually converging apically, adsutural areas flat at sutural margin, combined 0.18 mm wide at elytral base, each with two distinct puncture rows reaching mid-length, single puncture row in apical halves. Elytral punctuation conspicuous, each elytron with 5 or 6 oblique puncture rows consisting of large and well delimited punctures, mostly much larger than puncture intervals. Inner puncture rows reaching apical third of disc, latter very finely and sparsely punctate. Humeral areas very finely punctate, areas between puncture rows and lateral margins impunctate. Inner puncture rows long, starting near base, outer puncture rows short, limited onto middle third of each elytron. Punctuation on surfaces between anterior parts of inner puncture rows and sutural striae distinct, similar to that on basal part of pronotum. Hypomera not microsculptured, appearing impunctate. Mesepimeres as long as two thirds

of interval to mesocoxae and 3 times as long as wide. Metaventricle weakly convex mesally, with very shallow apicolateral impressions, lacking microsculpture in middle and on sides, with strigulate microsculpture between mesocoxae and metacoxae, punctation mostly very fine and sparse, several large punctures in and near apicomedian impression, antecoxal puncture rows present, not impressed. Submesocoxal lines weakly convex, distinctly punctured, submesocoxal areas 0.04 mm long, as third of interval to metacoxae. Metanepisterna flat, at inner margin impressed below level of metaventricle, 0.09 mm wide, weakly narrowed anteriorly, inner suture almost straight, rounded at angles. Tibiae straight. Abdomen with strigulate microsculpture and very finely punctate. Ventricle 1 with submetaxocoxal areas 0.08 mm long, strongly convex, about as two thirds of interval to apical margin of ventricle.

Distribution. Indonesia (Kalimantan).

Comments. This species is absent from new collections and its male characters remain unknown. The shape of the sutural striae of the elytra suggest possible relationships with members of the *S. haemorrhoidale* or *S. pictum* groups, the conspicuous pattern of the elytral punctation suggest relationships with members of the *S. rouyeri* group.

Scaphisoma rouyeri Pic, 1916

Scaphosoma (Scutoscaphosoma) rouyeri Pic, 1916a: 3.

Scutoscaphosoma subovatum Pic, 1920: 24.

Scaphisoma rouyeri: LÖBL (1981a): 156.

Type locality. *Scaphosoma rouyeri*: Indonesia, Java, Mt. Semeru; *S. subovatum*: Malaysia, Sarawak.

Type material. Studied by LÖBL (1981a).

Material examined. 1 spec., 'Indonesia, E. Kalimantan, ca 50 km W of Balikpapan Pt Fajar Surya Swadaya [area] 01° 13.4'S 116°22.6'E, 66m J. Hájek, J. Schneider, P. Votruba leg. 27+30.XI.2011 / stream in primary rainforest, ca. 2m wide, sandy+mud bottom; collecting in stream and tributaries, on vegetation and dead wood' (NMPC).

Distribution. Indonesia (Java, Kalimantan), Malaysia (Sarawak), and Thailand.

Comments. This species was previously known from Java, Sarawak and Thailand; new record for Kalimantan. The diagnostic characters are given in LÖBL (1981a).

Scaphisoma rufescens (Pic, 1920)

Pseudoscaphosoma punctatum var. *rufescens* Pic, 1920: 24.

Scutoscaphosoma distinctipenne Pic, 1923: 195.

Scaphisoma rufescens: LÖBL (1981a): 157.

Type locality. *Scaphosoma punctatum* var. *rufescens*: Malaysia, Banggi island; *S. distinctipenne*: Vietnam, Lac Tho.

Type material. Studied by LÖBL (1981a).

Material examined. 3 spec., 'Indonesia, E. Kalimantan, ca 50 km W of Balikpapan Pt Fajar Surya Swadaya [area] 01°13.4'S 116°22.6'E, 66m J. Hájek, J. Schneider, P. Votruba leg. 27+30.XI.2011 / stream in primary rainforest, ca. 2m wide, sandy+mud bottom; collecting in stream and tributaries, on vegetation and dead wood' (NMPC, MHNG).

Distribution. This species is widely distributed, recorded from China (Yunnan), Indonesia (Kalimantan and Bali), Malaysia (peninsular, Sabah, Sarawak, Banggi), Singapore, Thailand, and Vietnam.

Comments. The diagnostic characters are given in LÖBL (1981a).

Scaphisoma ruficolor (Pic, 1916)

Baeocera ruficolor Pic, 1916b: 19.

Scaphisoma ruficolor: LÖBL (1973): 156.

Type locality. Indonesia, Kalimantan, Martapura.

Type material. Studied by LÖBL (1973).

Material examined. 13 spec., 'Indonesia, E. Kalimantan, ca 50 km W of Balikpapan Pt Fajar Surya Swadaya [area] 01° 13.4'S 116°22.6'E, 66m J. Hájek, J. Schneider, P. Votruba leg. 27+30.XI.2011 / stream in primary rainforest, ca. 2m wide, sandy+mud bottom; collecting in stream and tributaries, on vegetation and dead wood' (NMPC, MHNG).

Distribution. Indonesia (Kalimantan).

Comments. Currently, only the single original specimen from Martapura is known. It was held for the holotype and redescribed in LÖBL (1973).

Scaphisoma submaculatum Pic, 1920

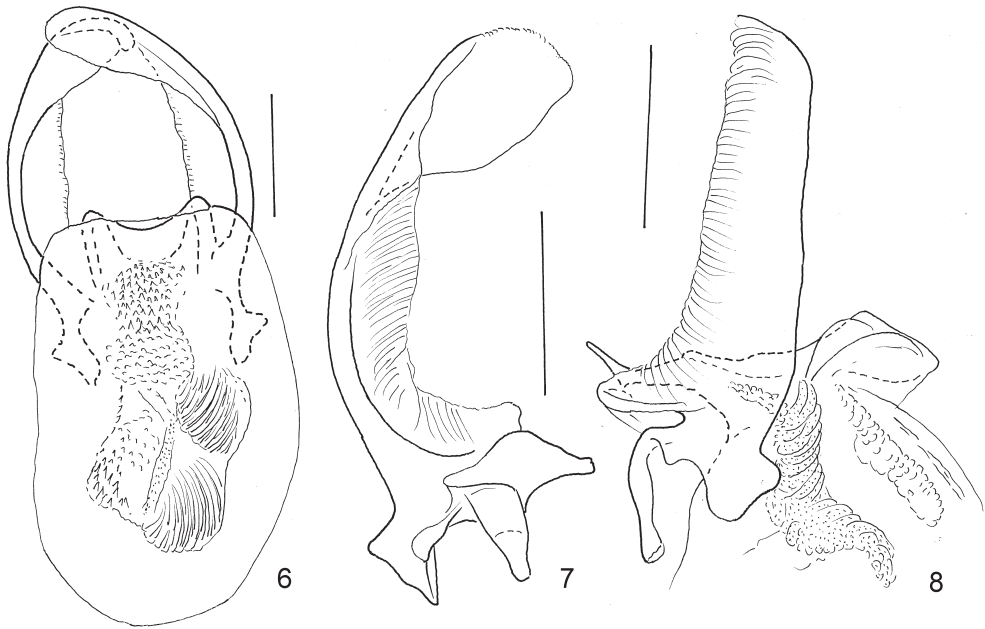
(Figs 6–8)

Scaphosoma submaculatum Pic, 1920: 24.

Type locality. Indonesia, Kalimantan, Martapura, Riam Kanan.

Type material examined. LECTOTYPE (by present designation): ♂, 'Riam Kanan Martapoera Z. O. Borneo Doherty VI, VII [printed] / type [handwritten by Pic] / *Baeocera probab* [handwritten by Pic] / sp. de la divin 1–2 [handwritten by Pic] / *submaculatum* Pic [handwritten by Pic] / TYPE [red, printed] / Lectotype *Scaphisoma submaculatum* Pic des. Löbl, 2014' (MNHN).

Redescription. Length 1.90 mm, width 1.32 mm. Head and body reddish-brown, elytra slightly darkened posterior mid-length and along lateral margins, in apical fifth lighter, almost yellowish. Mesoventrite and metaventrite somewhat darker than pronotum. Abdomen becoming lighter apically, as femora and tibiae lighter than pronotum. Pronotum, elytra, hypomera, mesoventrite and metaventrite lacking microsculpture. Antennae with length/width ratio of antennomeres as follows: III 18/8 : IV 37/6 : V 50/6.5 : VI 60/7 : VII 65/12 : VIII 58/7 : IX 62/11 : X 60/13 (left antennomere XI and right antennomeres VII–XI missing). Pronotum with lateral margins rounded, lateral margin carinae not visible in dorsal view, discal punctation very fine, punctures dense, not well delimited, pubescence indistinct. Point of scutellum exposed. Elytra with lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angle not prominent, situated somewhat posterior level of outer angles, sutural margin not raised, sutural striae deep, curved at base and extending laterally pronotal lobe, converging apically, adsutural areas flat, with single puncture row, near scutellum combined 0.16 mm, at mid-length combined 0.12 mm wide. Elytral punctation very fine and dense anterior mid-length, similar to pronotal punctation, punctation posterior elytral mid-length less fine, consisting of punctures fairly well delimited, with puncture intervals mostly about twice to three times as large as puncture diameters. Hypomera smooth. Mesepimeron about as long as half of interval to mesocoxa, about 2.5 times as long as wide. Metaventrite convex in middle, lacking impressions or sulci; punctation even, very fine and sparse. Submesocoxal areas 0.04 mm, about as fifth of interval to metacoxa, submesocoxal lines convex, only with few fine marginal punctures; antecoxal puncture rows present, in impressed lines. Metanepisternum



Figs 6–8. Aedeagus of *Scaphisoma submaculatum* Pic, 1920 in dorsal view (6), paramere in ventral view (7), apical part of aedeagus in lateral view (8). Scale bars = 0.2 mm.

flat, in level with metaventrite, 0.14 mm wide, moderately narrowed anteriorly, with inner margin somewhat arcuate, at angles rounded. Protibiae straight, mesotibiae and metatibiae slightly bent in apical halves. Basomedian area of abdominal ventrite 1 with fairly coarse punctures, remainder of abdomen very finely punctate, abdominal microsculpture strigulate. Submetacoxal areas 0.08 mm, somewhat shorter than half of interval to apical margin of ventrite 1, submetacoxal lines convex, with fine margin punctures.

Male characters. Tarsomeres 1 to 3 of protarsi slightly widened. Aedeagus (Figs 6–8) 1.01 mm long, symmetrical. Median lobe with basal bulb weakly sclerotized, very large, overlapping apical process, lacking prominent articular process. Apical process bifurcate, perpendicular to axis of basal bulb, strongly sclerotized, near tip very narrow and abruptly bent, with ventral denticle (lateral view). Parameres wide, lobed, arcuate in dorsal view, overlapping apically, membranous inner lobes finely striate. Internal sac lacking flagellum, bearing complex denticulate structures.

Distribution. Indonesia (Kalimantan).

Comments. This species is a member of the *S. binhanum* group (see LÖBL 1979), well characterized by its aedeagal features, in particular by the unique shape of the apical process of the median lobe, as seen in lateral view.

Scaphisoma tarsale sp. nov.

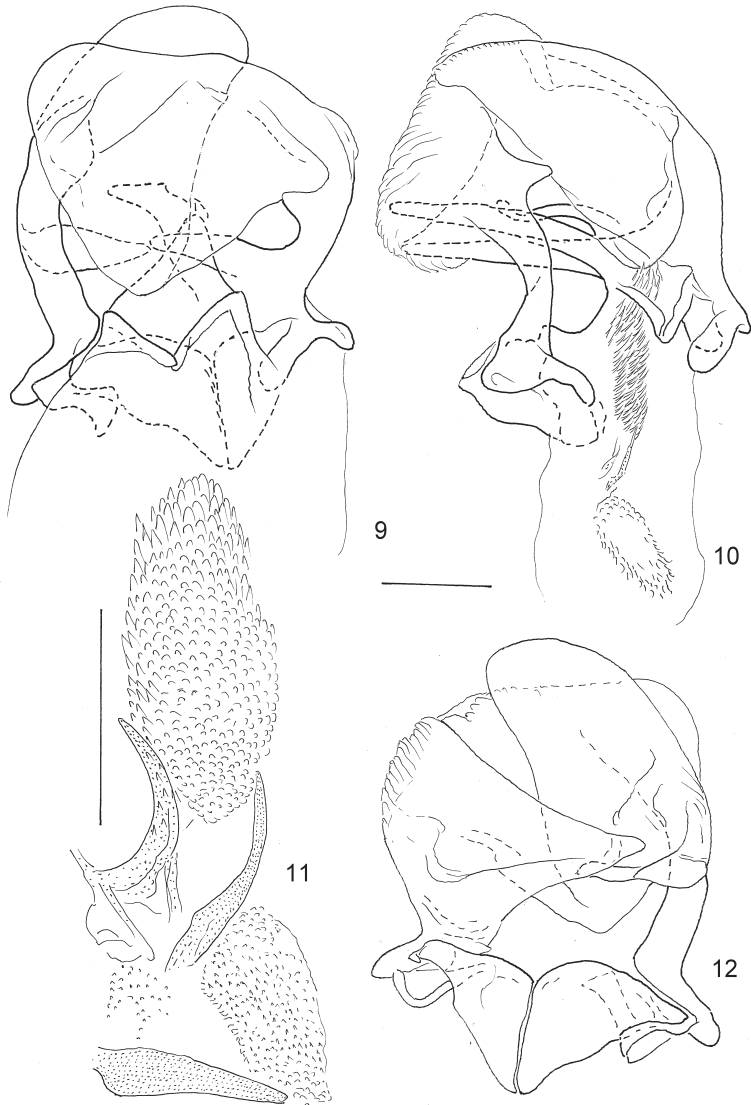
(Figs 9–12)

Type locality. Indonesia, East Kalimantan, ca. 55 km W of Balikpapan, PT Fajar Surya Swadaya area, 01°13.3'S, 116°21.0'E, 100 m a.s.l.

Type material. HOLOTYPE: ♂, 'Indonesia, E. Kalimantan, ca 55 km W of Balikpapan PT Fajar Surya Swadaya [area] 01°13.3'S 116°21.0'E, 100m J. Hájek, J. Schneider, P. Votruba leg. 24-25+29.xi.2011 / border of *Acacia* mangium plantation and primary rainforest, stream and waterfall, puddles; individual collecting, + light trap' (NMPC). PARATYPE: ♂, with the same data as the holotype but '23.xi.2011' and 'base camp surrounded with *Acacia* plantation; individual collecting on vegetation, dead wood and in puddles, + light trap' (MHNG).

Description. Length 1.95–2.04 mm, width 1.36–1.38 mm. Head, pronotum and apical abdominal segments light reddish-brown, most of elytra, mesoventrite and metaventrite dark reddish-brown, apical fifth of elytra light, almost yellowish, ventrite 1 light, darkened near apical margin, appendages somewhat lighter than pronotum. Pronotum and elytra without microsculpture. Antennae with length/width ratio of antennomeres as follows: III 13/10 : IV 46/9 : V 67/9 : VI 57/9 : VII 65/13 : VIII 50/8 : IX 63/8 (antennomeres X and XI missing). Pronotum with lateral margins rounded, lateral margin carinae visible in dorsal view, discal punctation very fine, punctures dense, not well delimited, slightly larger on basomedian area than in middle, pubescence indistinct. Apical part of scutellum exposed. Elytra with lateral margin carinae exposed in dorsal view, apical margins slightly rounded, inner apical angle not prominent, situated somewhat posterior level of outer angles, sutural margin not raised, sutural striae shallow, starting posterior level of scutellum, almost parallel anterior mid-length, weakly converging posterior mid-length, indicated by puncture row in basal third of elytron; adsutural areas flat, with single puncture row, combined 0.15 mm at elytral mid-length. Elytral punctation coarse and dense, much coarser than pronotal punctation, consisting of punctures fairly well delimited, with puncture intervals mostly about 1.5 to 2 times as large as puncture diameters. Hypomera smooth. Mesepimeron somewhat shorter than interval to mesocoxa, about 3 times as long as wide. Metaventrite with distinct strigulate microsculpture, except on sides, in middle somewhat convex, with two shallow apicomedian, distinctly punctate impressions, antecoxal puncture rows present, in impressed lines, remaining punctation very fine and sparse. Submesocoxal areas 0.04 mm, about as quarter of interval to metacoxa, submesocoxal lines parallel, with coarse marginal punctures. Metanepisternum flat, somewhat below level of metaventrite, 0.12 mm wide, weakly narrowed anteriorly, with inner margin almost straight, rounded near apical angles. Protibiae straight, mesotibiae distinctly curved, metatibiae hardly sinuate, slender than protibiae or mesotibiae. Abdomen with strigulate microsculpture. Intercoxal process of ventrite 1 with irregular transverse row of fairly coarse punctures, remaining surface of ventrites very finely and sparsely punctate. Submetaxocal lines convex, coarsely punctate, submetaxocal areas 0.06 mm, as fifth of interval to apical margin of ventrite.

Male characters. Protarsomere 1 strongly widened, about as wide as protibial apex, protarsomere 2 moderately widened, protarsomere 3 narrow, about as protarsomere 4. Mesotarsomere 1 conspicuously strongly enlarged, wider than mesotibial apex, mesotarsomere 2 about as wide as mesotibial apex, mesotarsomere 3 moderately widened. Ventrite 6 prominent apically, forming large, about 0.20 mm long, rounded lobe. Aedeagus (Figs 9–12) about 1.15 (proxi-



Figs 9–12. Aedeagus of *Scaphisoma tarsale* sp. nov., in dorsal view (9), in lateral view (10), internal sac in dorsal view (11), parameres in ventral view (12). Scale bars = 0.2 mm.

mal part of median lobe damaged) – 1.22 mm long. Median lobe with ventral branch almost perpendicular to aedeagal axis, tapering, in dorsal view appearing sinuate. Dorsal branch of apical process sinuate in lateral view. Parameres with large, overlapping lobes attached to strongly sclerotized processes. Internal sac with basal and apical tufts of spine-like and scale-like structures, and three denticles, basal denticle transverse, following two denticles bent.

Differential diagnosis. This new species is similar to and likely closely related with *S. tricolor* Heller, 1917, from the Philippines. It may be readily distinguished by the broadly triangular dorsal branch of the aedeagal apical process and by the shape of the sclerites of the internal sac, in particular the straight and comparatively short basal sclerite, and the absence of a plate between the two mesal sclerites.

Etymology. The species epithet refers to the shape of the strongly widened tarsi.

Distribution. Indonesia (Kalimantan).

Key to the Kalimantan species of *Scaphisoma*

- 1 Elytra conspicuously microsculptured, dull. *S. apparatus* sp. nov.
- Elytra glabrous, not microsculptured. 2
- 2 Elytra with sutural striae bent along base to form basal striae. 3
- Elytra without basal striae. 4
- 3 Antennomere V much longer than IV. Lateral pronotal carinae visible in dorsal view. ...
..... *S. ruficolor* (Pic, 1916)
- Antennomere V as long as IV. Lateral pronotal carinae not visible in dorsal view.
..... *S. pici* Löbl, 1979
- 4 Elytral disc with conspicuously, oblique puncture rows. 5
- Elytral disc with punctation irregular, not arranged in rows. 6
- 5 Puncture rows not shortened on inflexed lateral parts of elytral disc and extended to, or almost to apical fifth of elytra. *S. rouyeri* Pic, 1916
- Puncture rows shortened on inflexed lateral parts of elytral disc and not extended onto apical third of elytral disc. *S. punctatum* Pic, 1915
- 6 Sutural striae of elytra starting posteriad to tip of scutellum. 7
- Sutural striae of elytra starting at or anteriad to tip of scutellum. 8
- 7 Pronotum and elytra concolor. Median part of metaventricle lacking microsculpture. Parameres not overlapping. *S. borneense* Pic, 1916
- Pronotum lighter than elytra. Median part of metaventricle microsculptured. Parameres overlapping. *S. tarsale* sp. nov.
- 8 Apical third to half of elytron appearing impunctate, basal half of elytra coarsely punctate. *S. rufescens* (Pic, 1920)
- Elytral punctation distinct on entire discal surface. 9
- 9 Elytra with sutural striae conspicuously strongly converging apically, angulate in anterior section. 10
- Elytra with sutural striae weakly converging apically or parallel, not angulate. 11
- 10 Punctation on adsutural areas of elytra much coarser than middle of elytral disc. Combined basal width of adsutural area 0.32 mm. Elytra with subapical and discal areas lighter than remaining surface. *S. lineatopunctatum* (Pic, 1916)
- Punctation on adsutural areas similar to that on elytral disc. Combined basal width of adsutural areas about 0.25 mm. Apex of elytra lighter than remaining elytral surface.
..... *S. mindanaosum* Pic, 1926
- 11 Elytral punctation conspicuously dense, puncture diameters on basal halves of elytra about twice broader than intervals. Ventricle 1 with submetacoxal areas about as long as

- half of intervals to apical margin. *S. punctatipenne* Pic, 1916
- Elytral punctuation sparse, puncture diameters narrower than puncture intervals. Ventricle 1 with submetacoxal areas shorter than half width of intervals to apical margin. 12
- 12 Body 1.90 mm long. Pronotum and elytra light reddish brown, elytra lacking spots. Basomedian part of ventrite 1 with coarse punctures. *S. submaculatum* Pic, 1920
- Body 1.15–1.35 mm long. Pronotum and elytra very dark, blackish-brown to black, each elytron with reddish humeral spot and lighter apical area. Entire ventrite 1 very finely punctate. *S. obliquemaculatum* Motschulsky, 1863

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