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A contribution to knowledge of Oriental *Strobiderus* Jacoby, 1884 (Chrysomelidae, Galerucinae)

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Abstract. A key to the Asiatic species of *Strobiderus* Jacoby, 1884 is given. Four species are described as new for science: *S. vietnamicus* sp.nov. (Vietnam), *S .indochinensis* sp.nov. (Thailand, Vietnam), *S. sulawesianus* sp.nov. (Indonesia: Sulawesi) and *S. palawanicus* sp.nov. (Philippines: Palawan).

Key words. Chrysomelidae – Galerucinae – *Strobiderus* – review – new species

Introduction

WILCOX (1973) listed twelve species in the Paleotropical genus *Strobiderus*, of which eight are from the Oriental region. Four more Oriental species have described in recent years: one from Bhutan (KIMOTO 1977), one from India (BASU & HALDER 1987) and two from China (YANG 1992a, 1992b); further distribution data have also been published (TAKIZAWA 1986, MEDVEDEV 1995, 2002, MEDVEDEV & SPRECHER-UEBERSAX 1998, MOHAMEDSAID 2004). A little biological information, largely concerning food-plants, has appeared as well (JOLIVET & HAWKESWOOD 1995, REID 1998, JOLIVET & VERMA 2002). Keys exist for Indo-China (KIMOTO 1989) and China (YANG 1992b). We present a key for *Strobiderus* species of Asia, including four new species.

Before the current study, species were divided largely by colour, but the investigations underlying this contribution have made it clear that at least some species are quite variable in coloration (for example, *Strobiderus nigriceps* Laboissière). All the species have more or less the same type of aedeagus: a long, thin tube with a very long, filament-like apical process, which may be straight or curved. This process may well be flexible, and in that event neither the degree to which it is curved nor its direction is of any taxonomical value. Colour aside, the main characters used in the key are the proportions of basal antennal segments, the pubescence of the elytra, and the form of the aedeagus. We also include *Strobiderus albescens* (Motschulsky, 1866), but this species differs so greatly in essential characters from the other species in *Strobiderus* that we assume it should be attributed to another genus. Because the holotype is in poor condition and no other specimens are available, we postpone description of a new genus until more specimens become available.

Material

The following abbreviations are used for the institutions in which the material is deposited:

JBBC ..... Jan Bezděk Collection, Brno, Czech Republic
LM ..... L.N. Medvedev Collection, Moscow, Russia
NHMB ..... Naturhistorisches Museum Basel, Switzerland
RBCN ..... Ron Beenen Collection, Nieuwegein, the Netherlands
ZMA ..... Zoölogisch Museum Amsterdam, the Netherlands
ZMMU ..... Zoological Museum of Moscow University, Moscow, Russia

Taxonomy

Key to the species of *Strobiderus*

1(2) Antennal segment 3 shorter than 2. Prothorax fulvous with lateral margins black. Elytra fulvous with black margins, including suture. Antennae except basal segments black, underside fuscous. Proportions of segments 2–4 are 2-2-9. Prothorax strongly punctate, with shallow impression on each side of centre. Elytra without pubescence, with almost regular rows of punctures. Length 3.2 mm. ..... ***S. albescens* (Motschulsky, 1866)**

2(1) Antennal segment 3 much longer than 2. Prothorax entirely fulvous.

3(4) Elytra entirely black. Body fulvous. Antennal segment 3 about three times as long as 2, segment 4 a little longer than 3. Elytra with regular rows of punctures, covered with short erect hairs as well as, more sparsely, long, erect hairs. Prothorax finely punctate, without impression. Length 6 mm. ..... ***S. nigripennis* Jacoby, 1900**

4(3) Elytra fulvous.

5(14) Elytra with long erect hairs only. Abdomen of male not modified.

6(11) Elytra with 11 regular rows of punctures, including a scutellar row.

7(10) Antennal segment 3 about 2.5 times as long as 2.

8(9) Body entirely fulvous. Antennal segment 4 about 1.2 times as long as 3. Prothorax nearly impunctate, without impressions. Length 3.5–4.1 mm. ... . ***S. fulvus* Kimoto, 1977**

9(8) Body fulvous with darkened vertex and blackish genae and base of labrum. Antennal segment 4 about twice as long as 3. Prothorax closely and finely punctate in anterior part, with transverse impression. Length 4.5 mm. Description based on a single male. ..... ***S. xianganus* Yang, 1992**

10(7) Antennal segment 3 about three times as long as 2, segment 4 about 1.5 times as long as 3 (according to original description). Length 5.0–5.5 mm. Description based on two specimens, possibly identical with *S. fulvus* Kimoto, 1977. ..... ***S. orissaensis* Basu & Halder, 1987**

11(6) Elytra with confused punctures, at least beyond half-way. Antennal segment 3 about 2.5 times as long as 2. Body fulvous.

12(13) Elytra with confused punctures beyond half-way. Vertex finely punctuate, prothorax with denser punctures. Length 4.8–5.0 mm. Description based on two specimens. ..... ***S. guiganus* Yang, 1992**

13(12) Elytra with entirely confused punctures. Vertex almost entirely impunctate, prothorax with very fine punctures. Aedeagus Fig. 1. Length 3.7–5.7 mm. ..... ***S. vietnamicus* sp. nov.**

14(5) Elytra with adpressed and, sparser, long, erect hairs, sometimes only with adpressed hairs or almost glabrous upperside. Elytra with regular rows of punctures.

15(18) Species from China, Indo-China and Burma. Elytra with adpressed and erect hairs.

16(17) Abdomen of male strongly modified; segments 2–4 with ridges running obliquely rearwards from mid-section of sternite (Fig. 14). Antennal segment 3 of male about 3.5 times as long as 2. Fulvous, usually with head and apical abdominal segment black, sometimes vertex lighter or head fulvous with black clypeus and stripes along eyes, occasionally pygidium fulvous. Aedeagus with broad basal part longer than narrow apical part (Fig. 2). Length 4.3–6.8 mm. ..... ***S. nigriceps*** **Laboissière, 1936**

17(16) Abdomen of male not modified. Antennal segment 3 of male about 3 times as long as 2. Body entirely fulvous. Aedeagus with broad basal part tending to be shorter than extremely narrow apical part (Figs 3–5). Length 4.3–5.0 mm. ..... ***S. indochinensis*** **sp.nov.**

18(15) Species distributed south of Indo-China.

19(34) Species from Malacca and south-eastern Asian islands, except for Philippines.

20(21) Elytra with dense adpressed hairs, but without long, erect hairs, in male apex of elytra produced in flattened protuberance preceded by deep inward excavation. Antennal segment 3 twice as long as 2, segment 4 about 4.5 times as long as 2 (male). Antennae of male a little longer than body (by the length of the apical segment). Abdomen of male not modified. Body entirely fulvous (Malacca) or apices of elytra black (Sumatra). Length 4.4–5.2 mm. ..... ***S. excavatus*** **(Jacoby, 1884)**

21(20) Elytra with variable pubescence, in male (if known) with simple apices.

22(23) Elytra almost entirely glabrous. Fulvous with apical third of 11th antennal segment black. Antennal segment 3 about three times as long as 2. Surface of prothorax without distinct impressions. Elytra with very regular rows of punctures, very distinct also apically, where pairs of rows merge. Male unknown. Length 5.7–6.6 mm. ..... ***S. sulawesianus*** **sp.nov**.

23(22) Elytra with dense adpressed pubescence and, sparser, long, erect hairs.

24(25) Body fulvous, including head, pygidium and apical abdominal sternite, but apical antennal segments 2–3 more or less piceous. Antennae reach a little beyond halfway along elytra, segment 3 about 2.7–3.0 times as long as 2, segment 4 about the same length as 3. Abdomen of male modified (Figs 15, 16). Aedeagus Fig. 6. Length 4.6–5.3 mm. .... ***S. javanensis*** **(Jacoby, 1886)**

25(24) Fulvous with at least pygidium black. Abdomen of male (if known) not modified.

26(27) Head (except labrum), pygidium and last abdominal sternite black. Antennal segment 3 about 2.5 times as long as 2, segment 4 a little longer than 3. Length 5.0–5.5 mm. ..... ***S. pygidialis*** **(Jacoby, 1896)**

27(26) Head bicolorous or entirely fulvous.

28(31) Head fulvous with clypeus and inner margin of eye black to piceous.

29(30) Species from Malacca. Antennal segment 3 about 3.5 times as long as 2. Abdomen appears entirely black. Length 7.0 mm. ..... ***S.* sp. A**

30(29) Species from Borneo. Antennal segment 3 about 3.3 times as long as 2. Abdomen fulvous with black pygidium and last abdominal sternite. Length 7.2 mm. ..... ***S.* sp. B**

31(28) Head entirely fulvous.

32(33) Proportions of antennal segments 2–4 are about 1:2:4. Aedeagus – Fig. 7. Length 4.5 mm. ..... ***S.* sp. C**

33(32) Proportions of antennal segments 2–4 are about 1:3:4–5. Aedeagus (Fig. 8), practically the same as in immediately preceding species. Length 4.4–5.1 mm. ..... ***S.* sp. D**

34(19) Species from the Philippines. Body entirely fulvous. Antennal segment 3 about 2.5–3 times as long as 2. All known males lack immediately-visible sexual dimorphism.

35(36) Prothorax impunctate. Elytra with adpressed pubescence. Length 3.3–4.0 mm. ..... ***S. laevicollis* Allard, 1889**

36(35) Prothorax distinctly punctate.

37(38) Elytra without distinct pubescence, with elytral rows sharp and distinct up to apex. Aedeagus cuneiform with thinner apical quarter (Fig. 9). Length 5.0–5.5 mm. ..... ***S. palawanicus* sp.nov.**

38(37) Elytra with distinct adpressed pubescence, sometimes with sparse erect hairs.

39(40) Aedeagus widening from base to apical third, then narrowing to elongate triangular process; in lateral view thin apical part oblique to broad basal part (Fig. 10). Length 5.2 mm. 1 male, possibly a new species. .... ***S.* sp. E**

40(39) Aedeagus of other form.

41(42) Aedeagus cuneiform, with extreme apex not curved downwards (Fig. 11). Length 4.4–6.3 mm. ..... ***S. rufus* Allard, 1889**

42(41) Aedeagus parallel-sided with more or less separated narrow apical part; extreme apex curved downwards (Figs. 12, 13).

43(44) Extreme apex of aedeagus hook-like in lateral view (Fig. 12). Length 3.7–3.8 mm. Possibly identical with *S. rufus* Allard. ..... ***S.* sp. F**

44(43) Extreme apex of aedeagus not hook-like, not as strongly curved downwards in lateral view (Fig. 13). Length 3.3–5. mm. Possibly identical with *S. rufus* Allard. ..... ***S.* sp. G**

List of species

Genus *Strobiderus* Jacoby, 1884

Strobiderus JACOBY, 1884: 61. (**Type species:** *Strobiderus excavatus* Jacoby.)
Strobiderus: WEISE 1902: 155.
Strobiderus: Weise 1924: 152.
Strobiderus: MAULIK 1936: 283.
Strobiderus: LABOISSIÈRE 1936: 258.
Strobiderus: GRESSITT & KIMOTO 1963: 397.
Strobiderus: KIMOTO 1989: 196.
Strobiderus: KIMOTO 1990: 231.
Strobiderus: YANG 1992: 187.
Strobiderus: MOHAMEDSAID 2004: 120.
Strobiderus: KIMOTO 2005: 73.
Strobiderus fulvus: BEENEN 2010: 488
Syoplia JACOBY, 1886: 85. (**Type species:** *Syoplia javanensis* Jacoby.)
Syoplia: JACOBY 1894: 329.
Syoplia: WEISE 1924: 152 (= *Strobiderus*)

Strobiderus albescens (Motschulsky, 1866)

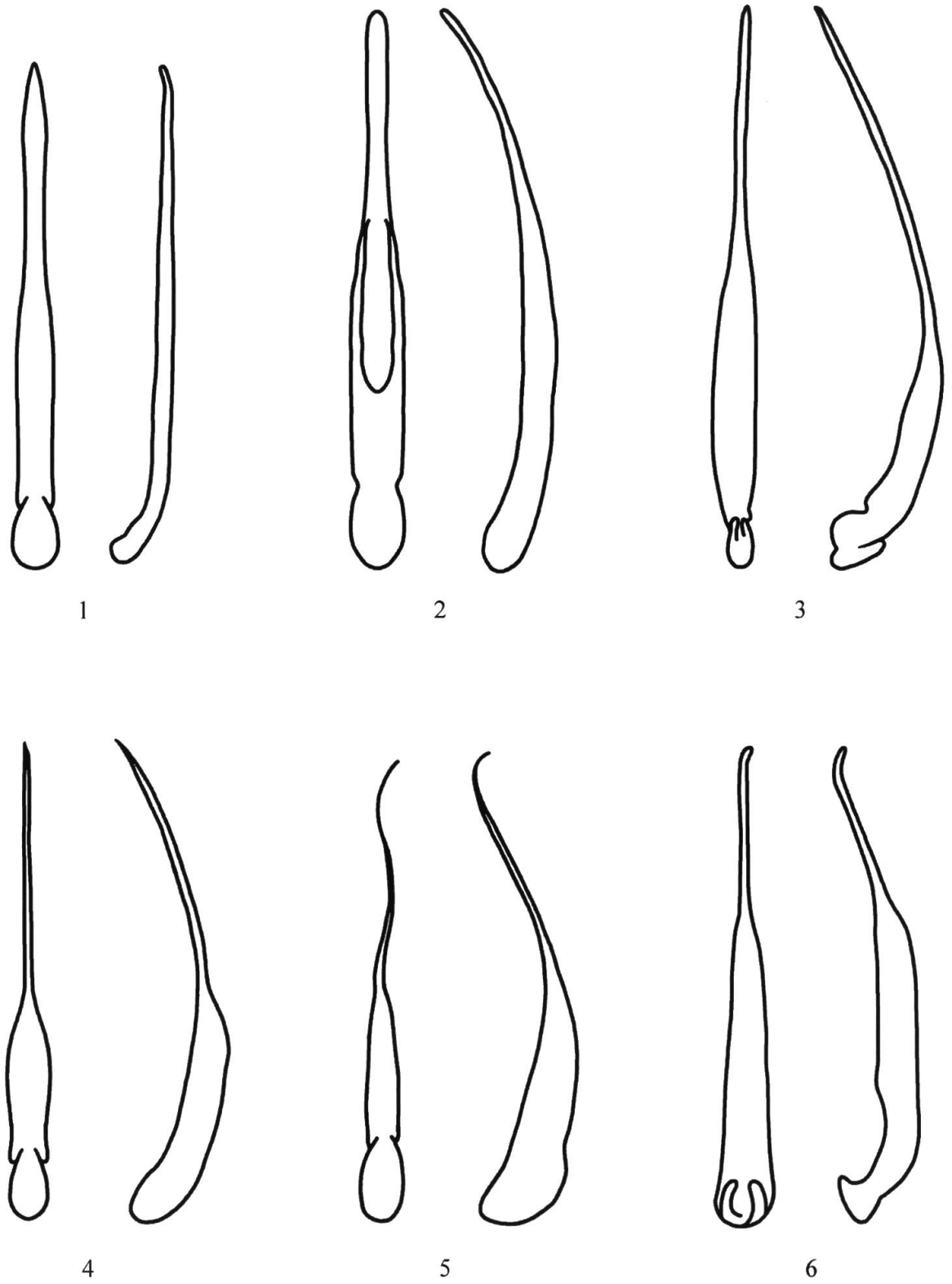
Diabrotica albescens MOTSCHULSKY, 1866: 415.
Strobiderus albescens: WEISE 1924: 153.
Strobiderus albescens: MAULIK 1936: 285.
Strobiderus albescens: SMITH & LAWRENCE 1976: 22, 31.
Strobiderus albescens: WILCOX 1973: 607.
Strobiderus albescens: MEDVEDEV 2006: 417.

Material examined. A single specimen (holotype), possibly male, in poor condition (ZMMU).

Redescription. Fulvous, antennae except basal segments, sides of prothorax and all margins of elytra black. Body elongate-ovate. Head with strongly punctate vertex, frontal tubercles transverse, partly produced in interantennal space. Antennae thin, reaching at least apex of elytra, proportions of segments: 6-2-2-9-9-8-9-7- (following segments missing), segment 3 a little shorter than 2, preapical segments about 6–7 times as long as wide. Prothorax 1.5 times as wide as long, without distinct bristles on sides and angles, surface transversely flattened at centre, strongly and densely punctate, anterior margin difficult to distinguish. Scutellum triangular. Elytra 1.5 times as long as wide, surface with regular rows of punctures, confused near base, interspaces narrow and partly costate. Segment 1 of hind tarsus thin and long, about 0.4 tibia length. Length of body 3.2 mm.

General distribution. Sri Lanka (Nuwara Eliya).

Differential diagnosis. Differs sharply from all species of this genus in very short antennal segments 2 and 3 (same proportions of them as in males of *Arthrotus* Motschulsky, 1858). Very possibly, it represents a new genus, but we have insufficient material to make a decision.



Figs 1–6. Aedeagus *of Strobiderus*, ventral and lateral: 1 – *S. vietnamicus* sp. nov.; 2 – *S. nigriceps* Laboissière; 3 – *S. indochinensis* sp.nov., holotype; 4 – *S. indochinensis* sp.nov., paratype from Thailand; 5 – *S. indochinensis* sp.nov., paratype from Malacca; 6 – *S. javanensis* (Jacoby).

Strobiderus nigripennis (Jacoby, 1900)

Syoplia nigripennis JACOBY, 1900: 132.
Strobiderus nigripennis: WEISE 1924: 153.
Strobiderus nigripennis: MAULIK 1936: 285.
Strobiderus nigripennis: WILCOX 1973: 607.

Material examined. No additional material.

General distribution. South India: Tamil Nadu, Anaimalai hills (after TAKIZAWA, 1986).

Strobiderus fulvus Kimoto, 1977

Strobiderus fulvus KIMOTO, 1977: 379.
Trichobalya fulvus: TAKIZAWA 1988: 540.
Strobiderus fulvus: KIMOTO 1989: 196.
Strobiderus fulvus: MEDVEDEV & SPRECHER-UEBERSAX 1998: 35
Strobiderus fulvus: KIMOTO 2005: 73.
Strobiderus fulvus: BEENEN 2010: 488

Material examined. Western Nepal, Modi Khola, Landrung, 1100–1800m, 3–6.VI.1984, leg. C.J.Rai, 1 female (LM).

General distribution. Bhutan, Nepal, northern India (Gauhati), Laos.

Strobiderus xianganus Yang, 1992

Strobiderus xianganus YANG, 1992: 581.
Strobiderus xianganus: YANG 1992: 188.
Strobiderus xianganus: BEENEN 2010: 488.

Material examined. No additional material.

General distribution. China, Hunan (Wuling Mountains).

Strobiderus orissaensis Basu & Halder, 1987

Strobiderus orissaensis BASU & HALDER, 1987: 229.

Material examined. No additional material.

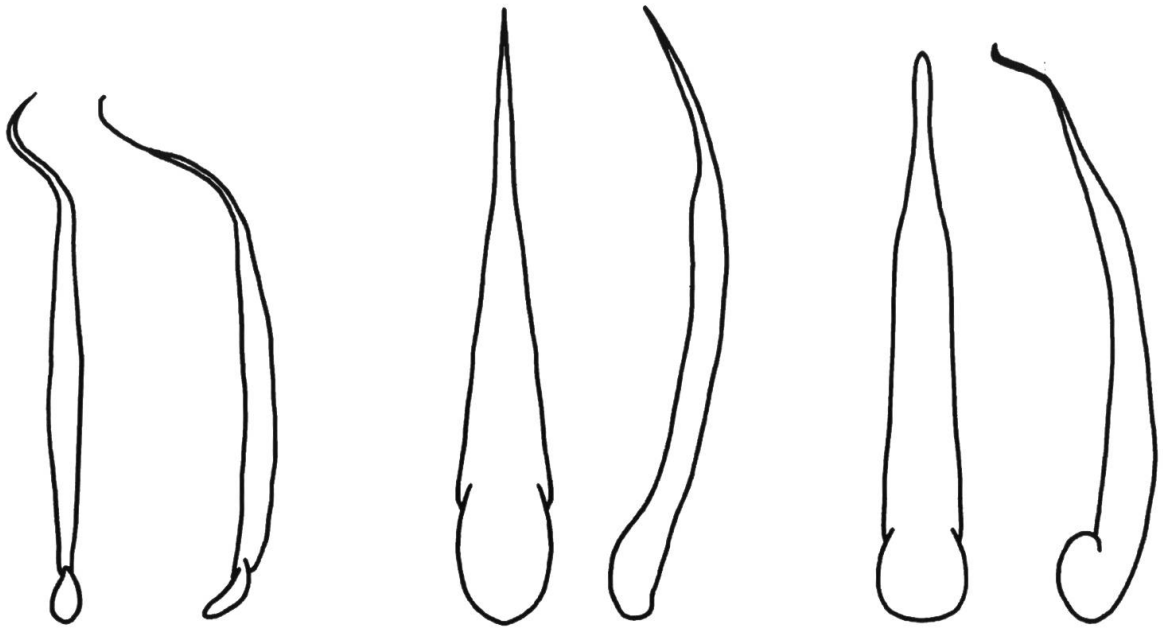
General distribution. India, Orissa (Jarsaguda; Balangir district).

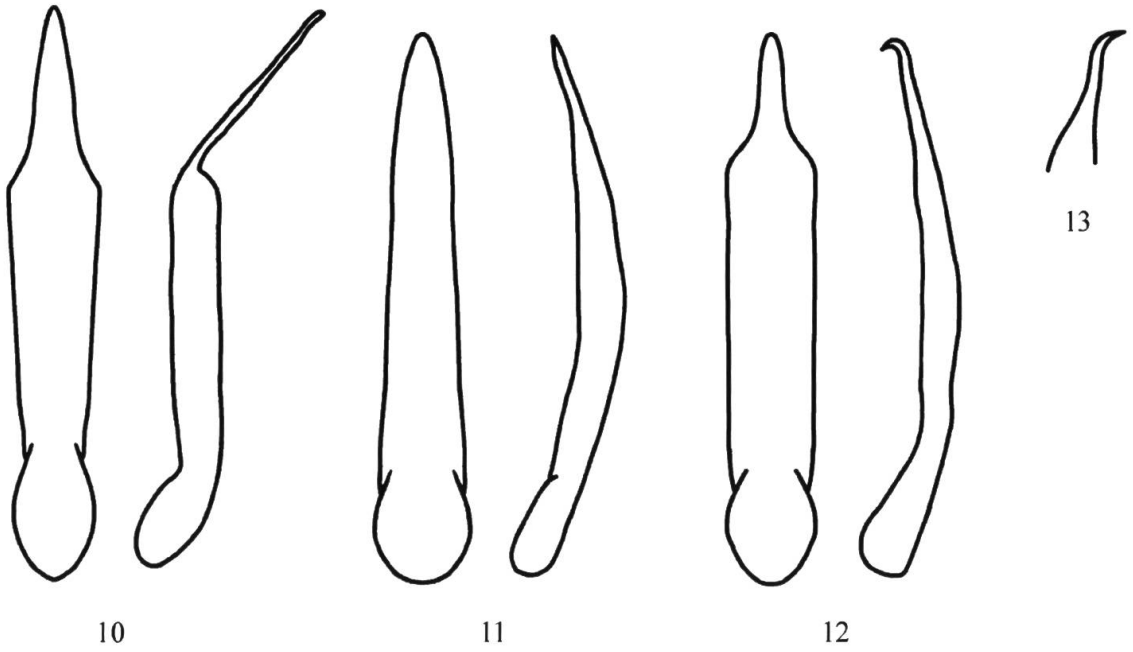
Strobiderus guiganus Yang, 1992b

Strobiderus guiganus YANG, 1992: 187.
Strobiderus guiganus: BEENEN 2010: 488.

Material examined. No additional material.

General distribution. China, Guangxi (Yaosham Mountain).





Figs 7–13. Aedeagus of *Strobiderus*, ventral and lateral: 7 – *S.* sp. C; 8 – *S.* sp. D; 9 – *S. palawanicus* sp. nov.; 10 – *S.* sp. E; 11 – *S. rufus* Allard; 12 – *S.* sp. F; 13 – *S.* sp. G, apex of aedeagus in lateral view.

Strobiderus vietnamicus sp.nov.

Material examined. Holotype (male): Vietnam, Tam Dao, 900m, 31.V.1985, leg. L. Medvedev (LM). Paratypes: same locality, 24.V–6.VI.1985, 1 male, 16 females (LM, 1 ex. – NHMB). Most specimens were collected on *Ipomoea.*

Description. Entirely fulvous.

Body elongate, moderately widened towards the rear. Head lustrous, impunctate, sides of vertex with traces of microsculpture, clypeus with straight anterior margin, frontal tubercles subtriangular, flat. Antennae thin, reaching apical slope of elytra, proportions of segments: 11-6-11-13-13-16-16-16-16-15-15, preapical segments about 8–10 times as long as wide; proportions of segments rather variable, with segment 3 about 2.4–2.8 times as long as 2. Prothorax 1.7 times as wide as long, side margins from base to anterior pore almost straight, surface without impressions, microsculptured and very finely punctate. Scutellum triangular, microsculptured. Elytra 1.6–1.7 times as long as wide, surface with long, erect hairs, confusedly punctuate or with traces of irregular rows, interspaces of punctures without microsculpture. Abdomen of male not modified. Pygidium triangular with broadly rounded apex, punctate and microsculptured. Segment 1 of hind tarsus about one-third of tibia length. Aedeagus Fig. 1. Length of body 5.7–6.6 mm.

General distribution. Vietnam.

Differential diagnosis. Very near to *S. fulvus* Kimoto, 1977, differs largely in confused elytral punctures. From very briefly described *S. guiganus* Yang, 1992, it differs mainly in more confused punctures.

Strobiderus nigriceps Laboissière, 1936

Strobiderus nigriceps Laboissière, 1936: 258.
Strobiderus tonkinensis Laboissière, 1936: 259.
Strobiderus nigriceps: Wilcox 1973: 607.
Strobiderus nigriceps: Kimoto, 1989: 197.
Strobiderus nigriceps: Yang, 1992: 188.
Strobiderus nigriceps: Beenen 2010: 488.

Material examined. Vietnam, Vinh Phu Province, Tam Dao, 900m, 26.VI.1983, leg. L. Medvedev, 14 ex. (LM); – Vietnam, Gia Lai-Contum province, 40 km N Ankhe, Buon Loi, 600m, 3.VII.1981, leg. L.Medvedev, 3 ex. (LM); – same locality, 28.VI.1983, 1 ex. (LM); – Tonkin, Bao-Ha, X–XII.1923, leg. H. Stevens, 1 female (LM).

General distribution. China: Hunan, Vietnam.

Strobiderus indochinensis sp.nov.

Material examined. Holotype (male): Thailand, Phuket, Kamala Beach, 10.I.2000 (RBCN). Paratypes: same locality, 7 males (RBCN), Thailand, Suratthani Prov., Khao Sok National Park, 12.XI.1995, leg. M. Mostovsky, 2 females (LM); – Thailand, Chantaburi, Gong Nam Ron, 19–22.XII.2008, leg. N. Vikhrev, 1 male, 1 female (LM); – Vietnam, Quang Tri Prov., Huong Hoa district, A Xoc village, 310 m, 6.XI.2007, leg. G. Csorba, 1 female (JBBC); – Malacca, Kwala Lumpur, leg. Biro, 1 male (LM)

Description. Entirely fulvous or apical antennal segments more or less darkened.

Body elongate, moderately widening towards the rear. Head lustrous, clypeus impunctate, with straight anterior margin, frontal tubercles triangular, flat, finely microsculptured, vertex microsculptured and finely punctate. Antennae thin, as long as body, proportions of segments: 20-5-14-20-18-18-17-15-15-14-15, preapical segments about 5–6 times as long as wide. Prothorax 1.7 times as wide as long, broadest around mid-length, with side margins feebly rounded, surface transversely impressed behind anterior margin, moderately strongly and densely punctured. Scutellum triangular with rounded apex. Elytra 1.6–1.7 times as long as wide, with regular rows of punctures distinct to apex and rather convex interspaces, covered in quite dense, short and adpressed pubescence and, sparser, long hairs. Pygidium triangular, finely punctate and microsculptured. Abdomen of male not modified. Segment 1 of hind tarsus about 0.45 of tibia length. Aedeagus with thin apical process more or less the same length as broader basal part (Figs 3–5). Length of body 4.3–5.0 mm.

General distribution. Thailand, Vietnam and Peninsular Malaysia. *S. javanensis* recorded from Myanmar (Tenasserim: Kawkareet) by M. Jacoby (MEDVEDEV, 2002) might also belong to this species.

Differential diagnosis. Very alike at *S. javanensis* Jacoby, differs mainly in simple abdomen of male, also in more strongly and densely punctate prothorax.

Strobiderus excavatus Jacoby, 1884

Strobiderus excavatus JACOBY, 1884: 62.
Strobiderus excavatus: WEISE 1924: 153.
Strobiderus excavatus: WILCOX 1973: 607.
Strobiderus excavatus: KIMOTO 1990: 231.
Strobiderus excavatus: MOHAMEDSAID 1999b: 235.
Strobiderus excavatus: MOHAMEDSAID 2000: 355.
Strobiderus excavatus: MOHAMEDSAID 2004: 120.

Material examined. Malaysia, Pahang, Pulou Tioman, 2 km S. Kampung Juara, secondary growth, 15.III.1995, leg. O.Merkl, 1 male (LM).

General distribution. Sumatra, Peninsular Malaysia.

Strobiderus sulawesianus sp.nov.

Material examined. Holotype (female): Indonesia, Sulawesi Utara, Duluduo, Taraut, 0°34′N, 123°54′E, 600m, 17–23.IV.2008, leg. O. Gorbunov (LM). Paratype: same locality, 1 female (LM).

Description. Entirely fulvous, only apical third of 11 antennal segment black.

Body elongate, moderately widening towards the rear. Head microsculptured, clypeus with straight anterior margin and a few punctures at the sides, frontal tubercles subtriangular, flat, vertex with fine punctures among microsculpture. Antennae reach apical slope of elytra, proportions of segments: 11-3-10-12-11-10-9-7-9-9-13, segments thin, pubescent but without long, erect hairs. Prothorax 1.5 times as wide as long, rectangular, side margin between anterior and posterior pores straight, surface without

distinct impressions, with dense and partly rugose punctures and fine microsculpture. Scutellum trapeziform, microsculptured, with a few punctures. Elytra 1.4–1.5 times as long as wide, with 11 rows of punctures, very distinct to apex and connected pair-wise; the first (scutellar) row reaches the anterior third, row 2 connects with 11, 3 with 10, 4 with 9, 5 with 8, 6 with 7; pubescence absent, but incompletely mature specimens have a few hairs on outer side of apical slope. Pygidium triangular with rounded apex, microsculptured and finely punctate. Segment 1 of hind tarsus long, about a quarter of tibia length. Length of body 5.7–6.6 mm.

General distribution. Indonesia: Sulawesi.

Differential diagnosis. Differs from all species except *S. palawanicus* sp.nov. in elytra not pubescent. From *S. palawanicus* differs in pairs of elytral rows merging apically, all interspaces highly convex and body much larger.

Strobiderus javanensis (Jacoby, 1886)

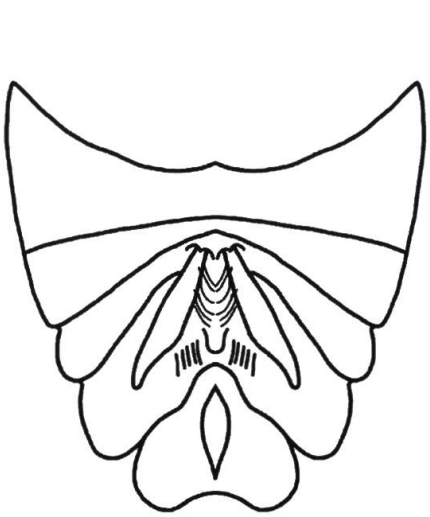
Syoplia javanensis JACOBY, 1886: 85.
Syoplia javanensis: JACOBY 1894: 329.
Strobiderus javanensis: WEISE 1924: 153.
Strobiderus javanensis: WILCOX 1973: 607.
Strobiderus javanensis: KIMOTO 1990: 231.
Strobiderus javanensis: MOHAMEDSAID 1995: 5.
Strobiderus javanensis: MOHAMEDSAID 1998a: 83.
Strobiderus javanensis: MOHAMEDSAID 1998b: 265.
Strobiderus javanensis: REID 1998: 288.
Strobiderus javanensis: MOHAMEDSAID 1999a: 140.
Strobiderus javanensis: MOHAMEDSAID 2000: 310.
Strobiderus javanensis: MOHAMEDSAID 2004: 120.

Material examined. Indonesia, Java, Bagor, 7.VII.1962, leg. I. Darevsky, 1 female; – Indonesia, Rinja Is., 13.VII.1962, leg. I.Darevsky, 1 female; – Indonesia, Java centr., 3km S. of Bandar, 550m, at light, 20.I.1998, leg. R.Cervenka, 8 females (JBBC, 2 ex.–LM); – Indonesia, Java centr., 6km E of Lasem Gunung Celering, 700m, 24.I.1998, leg. R.Cervenka, 1 female (JBBC); – Indonesia, Java or., Taman National Baluran, 60m, 31.I.1998, leg. R.Cervenka, 1 female (JBBC); – Indonesia, Java, Salatiga 1909. 1 male (ZMA); – Indonesia, Java, Banjoewangi, leg, MacGillavry, 1 female (ZMA).

Additional morphological information. Information was previously lacking as to the structure of the male abdomen. The male abdomen of *Strobiderus javanensis* is modified as in Figures 15 and 16; it also features a large sclerite that consists of two arms (Fig. 17). The function of this sclerite, which is much larger than the aedeagus, remains uncertain. It can protrude through a hole in the excavation of the abdomen. It might assist in directing the aedeagus during mating in a similar way as that suggested by MAULIK (1936) for certain species in *Aulacophora* Chevrolat.

General distribution. Indonesia: Sumatra, Java, Nias, Bali, Lombok, Sumbawa, Sumba and Timor.

Differential diagnosis. This species can be separated from the similar *S. indochinensis* sp.nov. by the male abdomen: modified in *S. javanensis* and identical to the female abdomen in *S. indochinensis*.



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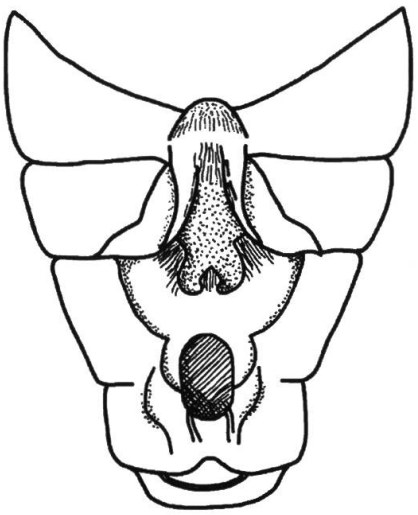

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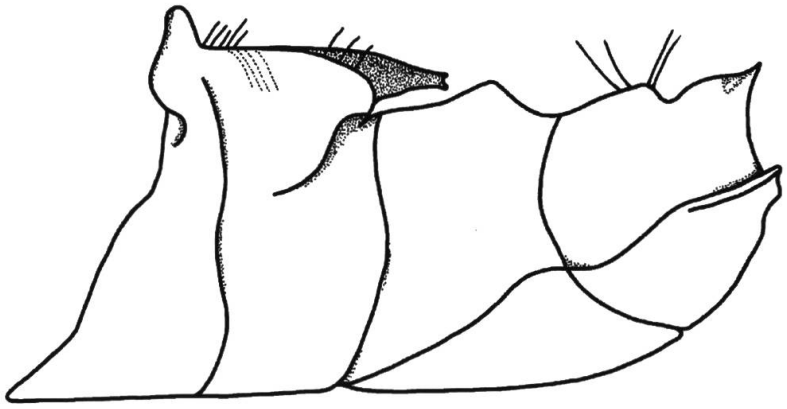

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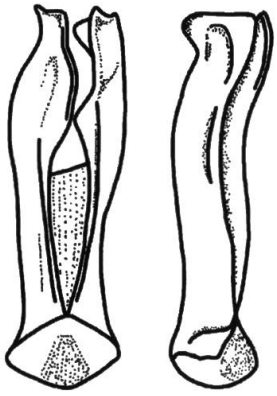

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Figs 14–17. 14, 15. Abdomen of male, ventral view: 14 – *S. nigriceps* Laboissière; 15 – *S. javanensis* (Jacoby). 16 – Male abdomen of *Strobiderus javanensis* (Jacoby): lateral view. 17 – Protrusible sternite of *Strobiderus javanensis* (Jacoby): ventral and lateral view.

Remarks. Indications for Borneo were given by MOHAMEDSAID (2004), but earlier he (MOHAMEDSAID, 1997) determined this specimen from Sarawak as *S. pygidialis* (Jacoby), which means that these specimens have pygidium black. We believe that all indications of *S. javanensis* (Jacoby) from Borneo need confirmation. In our key all specimens from Borneo are given as *S.* sp. C, *S.* sp. D and *S.* sp. E. To date we have included only entirely fulvous specimens in *S. javanensis* (Jacoby). An indication for peninsular Malaysia (MOHAMEDSAID 2000, 2009) also needs confirmation.

Feeding in West Java has been recorded on *Merremia* (REID 1998); in Lombok on *Argyreia* and in Sumba on *Ipomoea batatas* (MOHAMEDSAID 2009). All three genera belong to the plant family Convolvulaceae.

Strobiderus pygidialis (Jacoby, 1896)

Syoplia pygidialis JACOBY, 1896: 497.
Strobiderus pygidialis: WEISE 1924: 153.
Strobiderus pygidialis: WILCOX 1973: 607.
Strobiderus pygidialis: KIMOTO 1990: 231.
Strobiderus pygidialis: MOHAMEDSAID 1999b: 235.
Strobiderus pygidialis: MOHAMEDSAID 1999c: 251.
Strobiderus pygidialis: MOHAMEDSAID 2000: 355.
Strobiderus pygidialis: MOHAMEDSAID, 2004: 120.

Material examined. Malaysia, Pahang, Pulou Tioman, 2km S. Kampung Juara, secondary growth, 15.III.1995, leg. O. Merkl, 1 female (LM); – Malaysia, prov. Johor, Tioman Isl., 10–600m, 15–29.III.2009, leg. V.Hula, 1 female (JBBC).

General distribution. Peninsular Malaysia, Sumatra.

Strobiderus sp. A

Material examined. Peninsular Malaysia, Selangor: [locality unclear], 12.XI.1999, leg. Zui Zul, 1 ex., possibly male, determined by Mohamedsaid as *S. pygidialis*, Jacoby (JBBC).

General distribution. Peninsular Malaysia.

Strobiderus sp. B

Material examined. Indonesia, Kalimantan, Barat, Gunung, Palung National Park, Cabang Panti research site, 1°13′S, 110°7′E, lowland rainforest, 18–26.VII.1993, leg. O. Merkl, 1 female LM).

General distribution. Borneo: Kalimantan.

Remark. This species is similar to *S. pygidialis* and is possibly conspecific.

Strobiderus sp. C

Material examined. [Borneo] Sabah, Lembatri, Danum, "21 Ogos 89" [21.VIII.1989], leg. Solleh, Ismail & Nor, 1 male (JBBC).

General distribution. Borneo: Sabah.

Remark. Determined by Mohamedsaid as *S. javanensis* (Jacoby), but the male has a simple abdomen. It may be *S. pygidialis* Jacoby or a new species.

Strobiderus sp. D

Material examined. [Borneo] Sarawak, Kapit distr., Sebong, Baleh river, 9–21.III.1994, leg. J. Horak, 1 male, 2 females (JBBC, 1 ex. – LM).

General distribution. Borneo: Sarawak.

Remark. Very alike at *S. javanensis* (Jacoby), but differs in dark pygidium, cuneiform aedeagus and simple abdomen of male. It may be *S. pygidialis* Jacoby or a new species.

Strobiderus laevicollis Allard, 1889

Strobiderus laevicollis ALLARD, 1889: 111.
Strobiderus laevicollis: WEISE 1924: 153.
Strobiderus laevicollis: WILCOX 1973: 607.
Strobiderus laevicollis: KIMOTO 1990: 231.

Material examined. The Philippines: Luzon, Subuagrn, 2 females (LM).

General distribution. Luzon.

Remark. Indication for this species from Leyte (MEDVEDEV 1995) should be allocated to *S.* sp.G in the above key, which might be identical with *S. rufus* Allard, 1889.

Strobiderus palawanicus sp.nov.

Material examined. Holotype (male); S. Palawan, Singapan Basin, Tau't Batu Reservation (8°55′N, 117°40′E), 210 m, 11.XII.1990 – 5.I. 1991, leg. P. Lays (LM).

Description. Entirely fulvous.

Body elongate, parallel-sided. Head microsculptured, with a few very fine punctures, mostly on vertex, anterior margin of clypeus straight, frontal tubercles transverse, flat and poorly delimited. Antennae thin and long, proportions of segments: 12-3-10-14-12-11 (following segments missing). Prothorax 1.5 times as wide as long, microsculptured, with fine, dense punctures, transversely impressed behind anterior margin. Scutellum triangular with rounded apex. Elytra twice as long as wide, not pubescent, with regular rows of punctures distinct to apex and moderately convex interspaces, having sparse, fine punctures, but not microsculptured. Pygidium triangular, finely punctate and microsculptured. Segment 1 of hind tarsus half as long as tibia. Aedeagus cuneiform with thinner apical quarter (Fig. 9). Length of body 5.0 mm.

Differential diagnosis. Differs from all Philippine species in elytra not pubescent.

General distribution. Philippines: Palawan.

Strobiderus sp. E

Material examined. The Philippines: Samar, Catbalogan, 1 male (LM).

Distribution. The Philippines: Samar.

Remark. This might be a new species or *S. rufus* Allard, 1889.

Strobiderus rufus Allard, 1889

Strobiderus rufus ALLARD, 1889: 111.
Strobiderus rufus: WEISE 1924: 153.
Strobiderus rufus: WILCOX 1973: 608.
Strobiderus rufus: KIMOTO 1990: 231.

Material examined. The Philippines: Luzon, Mt. Banahao, 1 male (LM); – (Luzon), Manila, 1 male (LM); – North Luzon, Trinidad, 1 female (LM); – Luzon, Los Banos, 1 male, 6 females (LM), – Siargao, Dapa, 1 male (LM).

Distribution. The Philippines: Luzon, Siargao.

Strobiderus sp. F

Material examined. Philippines, North Luzon, Kalinga Province: Butbut, 3.VIII. 1988, leg. P. Lays, 1 male (LM). Luzon.

General distribution. The Philippines: Luzon.

Strobiderus sp. G

Material examined. Philippines, Leyte, Visca N Baybay, cultivated land, 3.III.1991, leg. W.Schawaller, 1 male determined earlier as *S. laevicollis* Allard, 1889 (Medvedev, 1995); – Philippines, Panaon, 1 male (LM); – Philippines, Polillo, 1 female (LM); – Samar, Catbalogan, 1 female (LM); – Mindanao, Kolambugan, 1 male, 1 female (LM); – Mindanao, Dausalan, 1 female (LM).

General distribution. The Philippines: Leyte, Panaon, Polillo, Samar, Mindanao.

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