

R E S E A R C H P A P E R

Review of the genus *Cavelerius* (Heteroptera: Blissidae) with descriptions of three new species from China and Southeast Asia

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Abstract. The species of the genus *Cavelerius* Distant, 1903 (Hemiptera: Heteroptera: Lygaeoidea: Blissidae) are reviewed based on re-examination of the type images. A total of thirteen species are recognized in this genus, including three new species: *Cavelerius nigrivena* sp. nov. from Thailand and Laos; *Cavelerius parvimaclulatus* sp. nov. from Thailand, and *Cavelerius yunnanensis* sp. nov. from China: Yunnan. *Cavelerius tinctus* (Distant, 1903) is newly recorded from China, and *Cavelerius antennatus* Slater & Miyamoto, 1963 is newly recorded from India: Meghalaya. A key to all known species of *Cavelerius* is provided.

Key words. Hemiptera, Heteroptera, Lygaeoidea, Blissidae, new species, new record, China, India, Southeast Asia

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Introduction

The family Blissidae (Hemiptera: Heteroptera: Lygaeoidea) includes 55 genera and nearly 420 described species distributed worldwide (DELLAPÉ & HENRY 2020, GAO et al. 2011). The genus *Cavelerius*, erected by DISTANT (1903a), was thoroughly revised by SLATER & MIYAMOTO (1963) and nine species were included then. SLATER (1979) transferred *Macropes tinctus* Distant, 1903 to *Cavelerius* and a revised key was provided too. All the ten known species are distributed in the Oriental Region (SLATER 1964, SLATER & O'DONNELL 1995, DELLAPÉ & HENRY 2020); two species have been recorded from China (ZHENG & ZOU 1981).

In this paper, we attempt to provide results of a taxonomic revision conducted based on material of the genus *Cavelerius* from China and Southeast Asia. Among the studied specimens, thirteen species of *Cavelerius* are recognized. Three species have been documented from China, including one new species and one new record. Additionally, two new species have been described as the first representatives of the genus from Thailand

and Laos. A key to all known species of *Cavelerius* is provided.

Material and methods

Composite images and measurements were obtained with a M205C or M205FA Leica stereomicroscope and camera using the Leica Application Suite software (version 4.5.0).

Label data are cited verbatim, lines on the same label are divided by a slash (/), different labels are divided by double slashes (//). Printed [pr] and handwritten [hw] texts are indicated. Details of male and female genitalia dissection methods and terminologies used in this article are those given in ASHLOCK (1957) and SLATER & MIYAMOTO (1963). All measurements in the text are given in millimeters.

Abbreviations of depositories of the material examined are as follows:

AMNH	American Museum of Natural History, New York, USA;
BMNH	Natural History Museum, London, United Kingdom;
HNHM	Hungarian Natural History Museum, Budapest, Hungary;
IZAS	Institute of Zoology, Academia Sinica, Beijing, China;
NHMW	Naturhistorisches Museum, Wien, Austria;
NKUM	Institute of Entomology, Nankai University, Tianjin, China.



Taxonomy

Cavelerius Distant, 1903

(Figs 1–16)

Cavelerius Distant, 1903a: 44. Type species. *Cavelerius illustris* Distant, 1903, by monotypy.

Cavelerius: DISTANT (1903b: 21, 23–24); SLATER & MIYAMOTO (1963: 139–154); SLATER (1964: 462); SLATER (1979: 58, 79–82); ZHENG & ZOU (1981: 68); SLATER & O'DONNELL (1995: 48); PÉRICART (2001: 72).

Diagnosis (based on SLATER 1979). Body linear, moderately slender, covered with long yellow hairs. Head, anterior lobe of pronotum and abdomen shining, posterior lobe of pronotum and scutellum pruinose. Hemelytra with lateral margin slightly concave, narrowest portion at level of claval commissure. Metathoracic scent gland auricle ear-like, rounded but moderately elongate. Fore femora mutic. Fore coxal cavities closed. Wing microptery, brachyptery, and submacroptery common. Apical corial margin straight, membrane opaque but thin, noticeably differentiated from adjacent corium.

Economic relevance. The ‘Oriental chinch bug’, *Cavelerius saccharivorus* (Okajima, 1922), is an important pest of sugarcane, particularly in South East Asia, and the ‘black bug of sugarcane’, *C. excavatus* (Distant, 1901), and *C. sweeti* Slater & Miyamoto, 1963, are serious pests of sugarcane in India (SWEET 2000). Other species feed on other grasses (SLATER 1979).

Key to species of *Cavelerius*

(modified from SLATER 1979 and SLATER & MIYAMOTO 1963)

1. Second antennal segment unicolorous brown or black, strongly contrasting with pale first segment and concolorous or nearly so with segments three and four.
 2. Second antennal segment yellow or light brown at least in basal one-third, concolorous with segment one; apical part of second and all of third and fourth segments dark or first three antennal segments light brown. 7
 2. Membrane tapering to a blunt point posteriorly extending caudad only onto tergite IV (brachypterous) or abdominal tergite VI (submacropterous); membrane colour in great part white with a large irregular central brown patch or pale yellow with only veins adjacent to corium brown. 3
 - Membrane either reduced to short widely separated pads or extending onto abdominal tergite VII, broad and not tapering at tip and entirely brown except for small pale areas at base, adjacent to apex of corium and at apex of hemelytra. 4
 3. Membrane white with an irregular central brown patch, not adjacent to a dark spot on corium; membrane fully overlapping in brachypterous specimens (Fig. 1e). *C. saccharivorus* (Okajima, 1922)
 - Membrane pale yellow with brownish black veins and a very small brownish black spot, adjacent to a dark spot on corium; membrane only overlapping on inner edge in brachypterous specimens (Fig. 13c). *C. parvimaculatus* sp. nov.
4. Second antennal segment longer than interocular space; femora black or very dark brown. *C. nigrolimbatus* Slater & Miyamoto, 1963
 - Second antennal segment shorter than interocular space; femora orange or yellow. 5
5. Head longer than fourth antennal segment; clypeus extending forward to apical end of first antennal segment; hemelytra frequently reduced to short widely separated “pads” (Fig. 7). *C. mishmiensis* Slater & Miyamoto, 1963
 - Head shorter than fourth antennal segment; clypeus extending forward only to basal third of first antennal segment; hemelytra not reduced to short widely separated “pads”. 6
6. Caudal margin of pronotum laterad of base of scutellum extended posteriorly as prominently produced lobes, these lobes frequently acute at apex; fourth antennal segment only slightly longer than 1.5 times length of segment three (Fig. 4). *C. illustris* Distant, 1903
 - Caudal margin of pronotum nearly evenly concave, not produced into prominent posteriorly directed lobes laterad of base of scutellum (Fig. 8); fourth antennal segment long, more than 1.75 times as long as segment three. *C. obscuratus* Slater & Miyamoto, 1963
7. First three antennal segments unicolorous, bright orange-yellow or yellow, only fourth segment darkened (Fig. 1a). *C. antennatus* Slater & Miyamoto, 1963
 - First and at least basal one-third of second antennal segment white to pale yellow, remainder of antennae brown to black. 8
8. Posterior margin of pronotum distinctly concave, postero-lateral lobes laterad of scutellum strongly produced and terminally rounded (Figs 1d; 5); interocular space more than 1.25 times as wide as length of third antennal segment; membrane broad and non-tapering to apex. *C. minor* Slater & Miyamoto, 1963
 - Posterior margin of pronotum distinctly or slightly concave, postero-lateral lobes laterad of scutellum neither strongly produced nor terminally rounded; interocular space less than 1.25 times as wide as length of third antennal segment; membrane somewhat narrowed to apex. 9
9. Colour of membranal veins dark posteriad of blackish brown spot and gradually fading to yellow (Fig. 13a); terminal one-third of corium totally blackish brown; membranal dark spot far from lateral margin. *C. nigrivena* sp. nov.
 - Colour of membranal veins almost concolorous with background colour; terminal one-third of corium blackish brown except for exocorium, or membranal dark spot close to or reaching lateral margin. 10
10. Second antennal segment greater than or subequal to interocular width; spiracles on laterotergite II nearly one-third as large as total width of laterotergite II there; inner lobe of paramere flat on apical surface. ... 11
 - Second antennal segment shorter than interocular width; spiracles on laterotergite II smaller than one

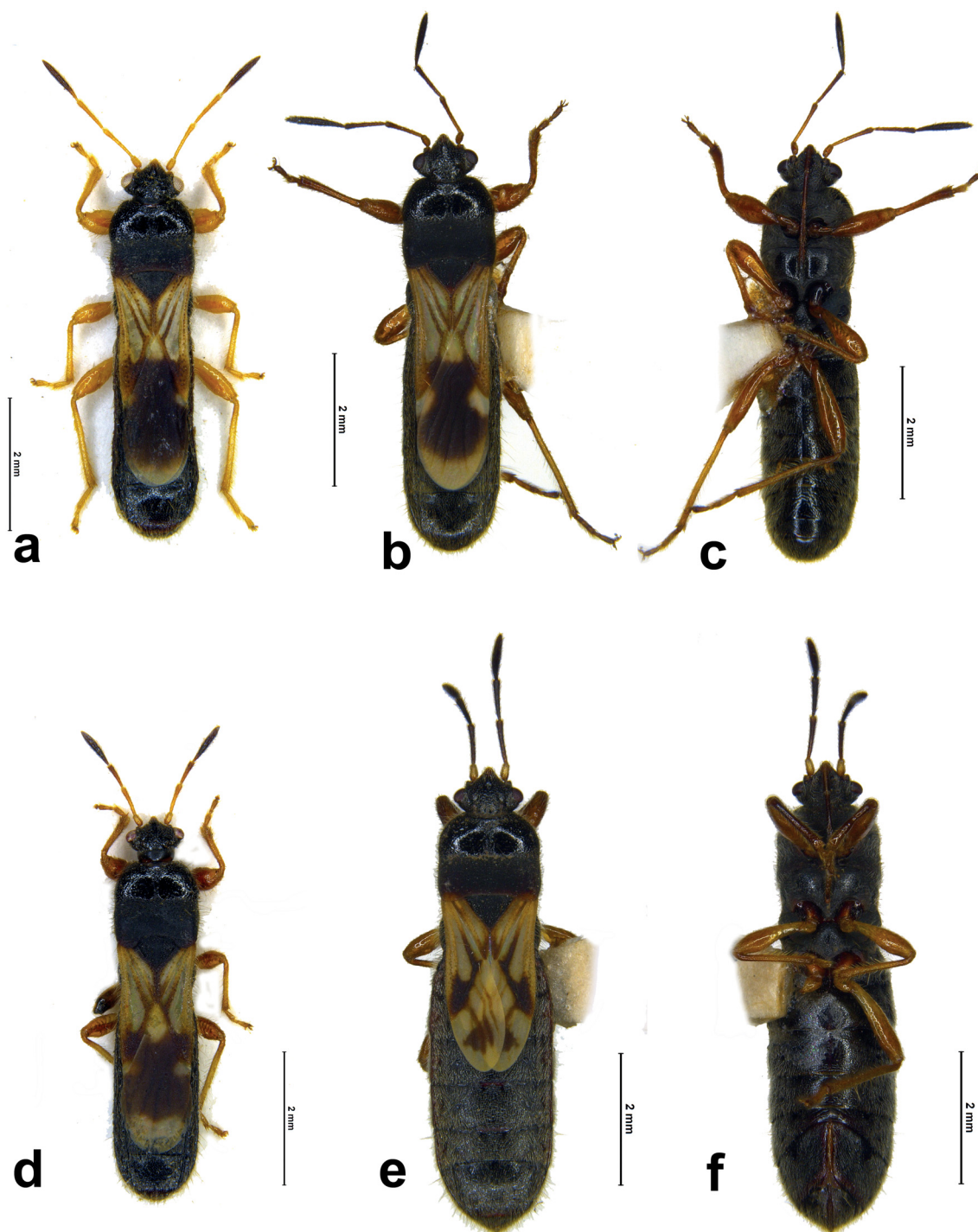


Fig. 1. *Cavalerius* spp. a – *C. antennatus* Slater & Miyamoto, 1963, dorsal view; b–c – *C. tinctus* (Distant, 1903), dorsal and ventral view; d – *C. minor* Slater & Miyamoto, 1963, dorsal view; e–f – *C. saccharivorus* (Okajima, 1922), dorsal and ventral view.

- third of total width of laterotergite II there; inner lobe of paramere rounded on apical surface. 12
11. Body elongate; width of pronotum less than 1.5 times width of head; posterior margin of pronotum slightly concave (Figs 1b; 11). *C. tinctus* (Distant, 1903)
- Body robust; width of pronotum more than 1.5 times width of head; posterior margin of pronotum distinctly concave (Fig. 10). *C. sweeti* Slater & Miyamoto, 1963

12. Membrane in great part white, with a broad brown central area (Fig. 3); spiracles only about one-eighth of total width of laterotergite II there; outer lobe of paramere rounded. *C. excavatus* (Distant, 1901)
- Membrane almost completely brownish black with small yellowish white areas adjacent to apex of corium and apex of membrane (Fig. 13e); spiracles about one-fifth of total width of laterotergite II there; outer lobe of paramere slightly pointed (Figs 16d, e). *C. yunnanensis* sp. nov.

***Cavelerius antennatus* Slater & Miyamoto, 1963**

(Figs 1a; 2)

Cavelerius antennatus Slater & Miyamoto, 1963: 147; SLATER (1979: 79); SLATER & O'DONNELL (1995: 48).

Material examined. INDIA: 2 ♂♂, NE-INDIA. MEGHALAYA STATE / W Garo Hills, Balphakram NP / 22–27.v.1996, 250–550m / GPS N25°11' E90°51'(WGS84) / coll. E Jendek, O Sausa [pr] (NKUM); 3 ♂♂, NE-INDIA. MEGHALAYA STATE / West Garo Hills reg., Tura / 5–7.v.1996, 600–800m / GPS N25°30.7' E90°13.9' (WGS84) / coll. E Jendek, O Sausa [pr] (NKUM).

Redescription. Moderate size. **Colouration.** Head, pronotum, scutellum, and abdomen black. First three antennal

segments bright orange-yellow or yellow, fourth antennal segment brownish black. Hemelytra dark yellow. Inner margins and commissure of clavus brown and vein A1 on clavus (WOOTTON & BETTS 1985) pale yellow to pale brown. Inner corial vein (vein Cu) brown except for about one-third of base that is pale yellow. Apical one-third of corium brownish black. Corial apical margin brown. Large irregularly dull brown spot covering central area of membrane, distinctly joined to apical margin of corium. Base of corium, small areas adjacent to apex of it and apex of membrane dull yellowish white. Legs uniformly orange yellow.

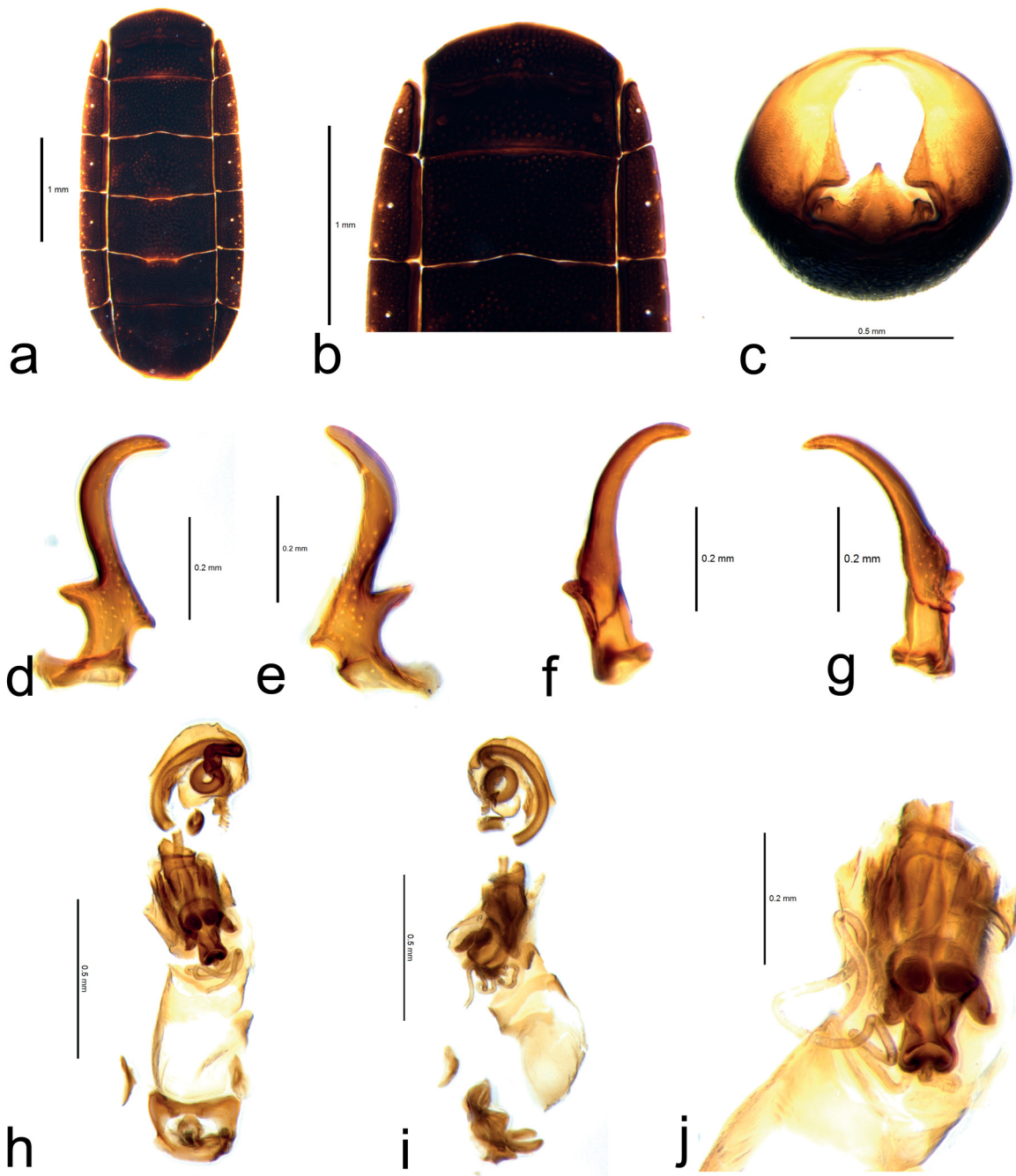


Fig. 2. *Cavelerius antennatus* Slater & Miyamoto, 1963. a – male abdominal dorsum, dorsal view; b – basal part of male abdominal dorsum, enlarged; c – pygophore, posterodorsal view; d–g – left paramere, four different aspects; h–i – phallus, dorsal and lateral view; j – sperm reservoir and adjoining portion of phallus, dorsal view.

Structure. Head broad, tip of clypeus extending forward to apical one-third of first antennal segment. Pronotum with lateral margins slightly sinuate, and anterior lobe as broad or nearly as broad as humeral width. Transverse impression broad and shallow. Punctures on posterior lobe coarse. Postero-lateral lobes of pronotum slightly produced caudad. Posterior margin of pronotum slightly concave, with middle part slightly concave. Membrane extending caudad onto apex of tergite VI or base of tergite VII. Abdomen slightly wider than hemelytra.

Sutures between tergites III–IV slightly curved forward and those between tergites V–VI slightly curved caudad (Fig. 2a). Ostioles of dorso-abdominal scent glands present between terga IV & V and V & VI, the last distinctly wider (Fig. 2a). Spiracles on laterotergite II about one-fifth as large as total width of laterotergite II there (Fig. 2b). Apical part of pygophoral dorsal opening almost oval, distinctly narrower than basal part (Fig. 2c). Paramere with long and pointed outer lobe and short pointed inner lobe; blade of paramere distinctly curved, sickle-shaped, apex pointed (Figs 2d–g). Phallus shown in Figs 2 h–j: wings of sperm reservoir widest near base, about twice as long as wide (Fig. 2j).

Measurements (male, $n = 3$; mm). Body length 5.76–6.23; maximum width 1.30–1.46. Head: length 0.62–0.68; width across eyes 0.92–1.00; interocular space 0.57–0.65; interocellar space 0.32–0.35; eye–ocellus space 0.13–0.19; eye length 0.23–0.25; eye width 0.17–0.18. Length of antennal segments I–IV: I – 0.21–0.24, II – 0.61–0.69, III – 0.59–0.62, IV – 0.81–0.83. Length of labrum 0.58; length of labial segments I–IV: I – 0.48, II – 0.54, III – 0.56, IV – 0.52. Thorax: Pronotum, median length 0.94–1.07; width at anterior margin 1.23–1.37; width at posterior margin

1.25–1.47. Scutellar length 0.55–0.67, width 0.73–0.74. Length of hemelytra 3.24–3.42; length of corium 1.90–1.95; claval commissure 0.47–0.55.

Distribution. Myanmar (SLATER & MIYAMOTO 1963), India: Assam (SLATER 1979), Meghalaya (new record).

Remark. The size of spiracles and the shape of the second outer laterotergite (not the apex of the seventh abdominal connexivum in SLATER & MIYAMOTO (1963, pl. 8, Figs 34–39)) are valuable specific characters in this genus.

Cavelerius excavatus (Distant, 1901)

(Fig. 3)

Macropes excavatus Distant, 1901: 467; SLATER (1964: 495).

Cavelerius excavatus: SLATER & MIYAMOTO (1963: 140, 152); SLATER (1979: 82); SLATER & O'DONNELL (1995: 48).

Type material examined. LECTOTYPE (designated by SLATER & MIYAMOTO (1963)): INDIA: Shillong [hw] // Distant Coll. / 1911-383[pr] // *excavatus* / type Dist. [hw] // *Macropes excavatus* [hw] / Lectotype / J. A. Slater [pr] // *Macropes excavatus* Dist. / Lectotype / J. Pericart, 1997 [hw] (BMNH). We examined the photo (Fig. 3b).

Diagnosis. Head, pronotum, scutellum and abdomen black. First and second antennal segments white to pale yellowish except for brown apical fourth of second segment, third segment brown, fourth segment blackish. Postero-lateral lobes of pronotum slightly produced caudad. Hemelytra from nearly white to very light yellowish. Margins of clavus pale brown. Apical one-third of corium dark brown, inner vein of corium (vein Cu) pale brown. Membrane white except for brown spot covering central area of membrane which is usually adjacent to apical corial margin. Legs uniformly pale yellowish. Body length: 5.82 mm.

Distribution. India: Meghalaya (DISTANT 1901).

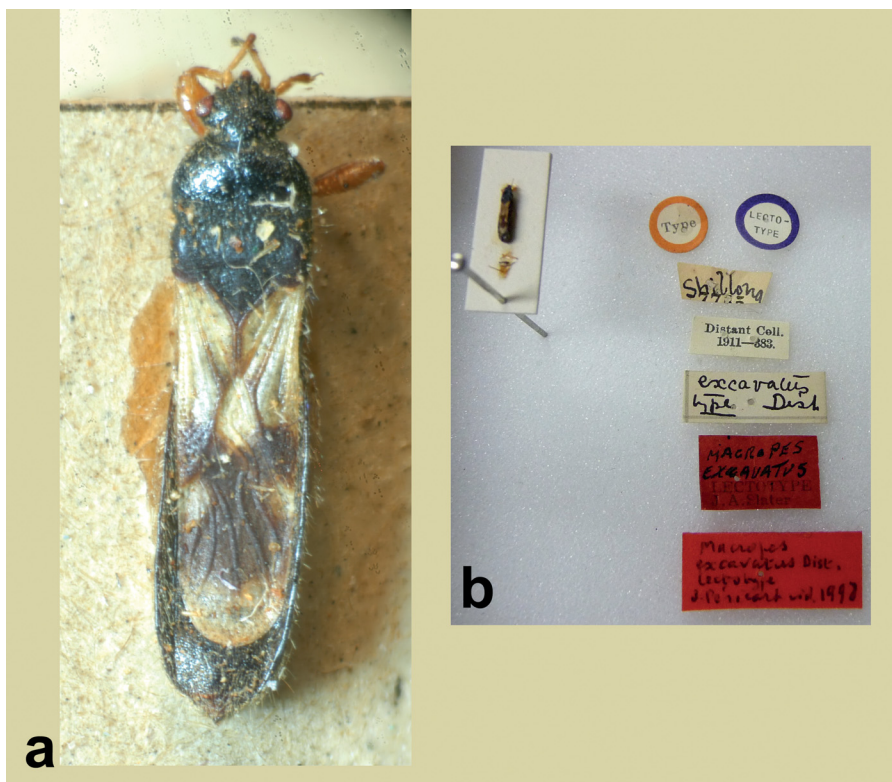


Fig. 3. *Cavelerius excavatus* (Distant, 1901). a – dorsal view (HNHM); b – lectotype, labels (BMNH).



Fig. 4. Paratype of *Cavelerius illustris* Distant, 1903 and labels. a – paratype, dorsal view; b – paratype, ventral view; c – labels (Photographed by Steve Thurston, AMNH).

Cavelerius illustris Distant, 1903

(Fig. 4)

Cavelerius illustris Distant, 1903a: 44; DISTANT (1903b: 24); SLATER & MIYAMOTO (1963: 148); SLATER (1964: 462); SLATER (1979: 79, 80).

Type material examined. PARATYPE: ♂, MYANMAR: Upper Burma / Taunggye [hw] // Distant Coll. / 1911-383 [pr]. // DONATION FROM / J. A. SLATER / COLLECTION [pr] // *Cavelerius illustris* Dist. [hw] / det. R.J. Izzard. 195 [pr] 6 [hw] / PARATYPE [hw] (AMNH). We examined the photos (Fig. 4).

Diagnosis. Head, pronotum, scutellum and abdomen black. First antennal segment bright-yellow, second, third and fourth segments bright reddish brown. Postero-lateral lobes of pronotum distinctly produced caudad and acutely pointed, so posterior margin of pronotum very deeply concave. Clavus dark yellowish and inner margin of clavus infuscated. Corium dark yellowish, apical one-third of corium chocolate except for reddish brown extreme apex and infuscated inner vein of corium (vein Cu). Membrane almost uniformly brown except for small areas adjacent to apex of corium, basal angle and extreme tip that are pale yellowish. Legs bright orange-yellow, sometimes becoming darker on femora. Body length: 6 mm.

SLATER & MIYAMOTO (1963: 147, Fig. 46) recorded two specimens with postero-lateral lobes of pronotum much less strongly developed than the others, produced caudad, much shorter and terminally rounded.

Distribution. Myanmar (DISTANT 1903a), Malaysia (SLATER 1979).

Cavelerius minor Slater & Miyamoto, 1963

(Figs 1d; 5; 6)

Cavelerius minor Slater & Miyamoto, 1963: 151; SLATER & O'DONNELL (1995: 48).

Type material examined. PARATYPE: INDIA: Haldwani Div. [pr] / Kumaon, [pr] / India. H. G. C. [pr] // Champion [pr] / Coll. B. M. [pr] / 1927-409 [pr] // DONATION FROM / J. A. SLATER / COLLECTION [pr] // *Cavelerius* [hw] / *minor* [hw] / PARATYPE [pr] / J. A. Slater [pr] / S. Miyamoto [hw] [red label] (AMNH). We examined the photos (Fig. 5). **Additional material examined.** INDIA: 1 ♂, NE-INDIA. MEGHALAYA STATE / West Garo Hills, Nokrek NP / 9-17.v.1996, 950-1250m / GPS N25°29.6' E90°19.5' (WGS84) / coll. E Jendek, O Sausa [pr] (NKUM); 1 ♀, NE-INDIA. MEGHALAYA STATE / W Garo Hills, Balphakram NP / 22-27.v.1996, 250-550m / GPS N25°11' E90°51' (WGSB4) / coll. E Jendek, O Sausa [pr] (NKUM).

Redescription. Small species, nearly parallel sided. **Colouration.** Head, pronotum, scutellum and abdomen black. First and basal 2/3 of second antennal segment yellow, rest of segment two and segment three brown, fourth antennal segment brownish black. Hemelytra dark yellow. Inner margins and commissure of clavus brown, vein A1 on clavus infuscated toward apex. Apical one-fourth of corium brown. About one-third of vein Cu brown, apical

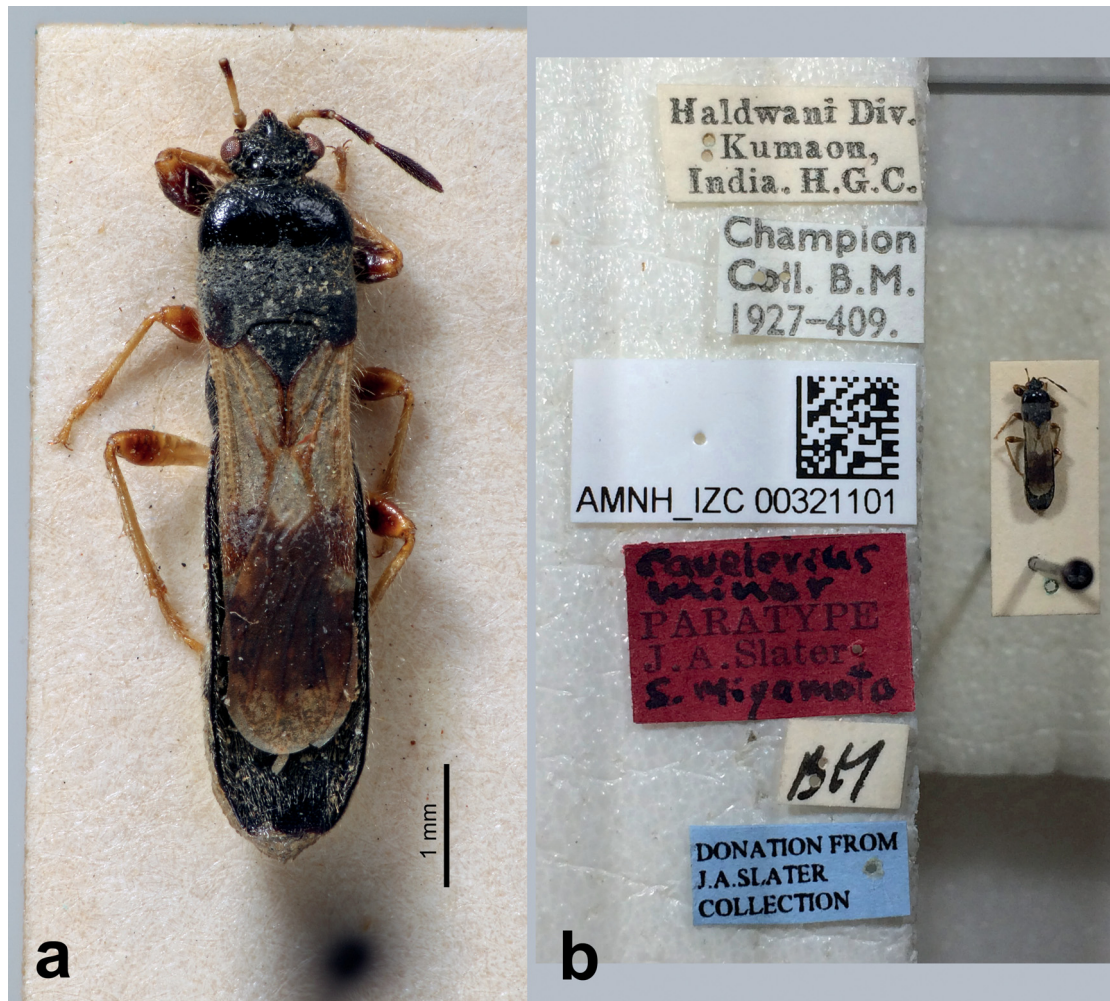


Fig. 5. Paratype of *Cavelerius minor* Slater & Miyamoto, 1963 and labels. a – paratype, dorsal view; b – labels (Photographed by Steve Thurston, AMNH).

margins of corium brown. Membrane largely brown, pale at basal angle, on small patch adjacent to apex of corium and broadly at apex of membrane. Legs yellow, except for brown fore femora.

Structure. Head moderately broad, clypeus extending forward at most to apical one-third of first antennal segment. Pronotum broad and lateral margins almost parallel. Punctures on anterior lobe small and deep, but sparse on posterior lobe and scutellum. Transverse impression sinuate and shallow. Postero-lateral lobes of pronotum strongly produced caudad, lobes terminally rounded, posterior margin of pronotum strongly concave. Membrane extending caudad onto tergites VI or VII. Abdomen slightly wider than hemelytra.

Spiracles on laterotergite II about one-sixth as large as total width of laterotergite II there (Fig. 6b). Apical part of pygophore dorsal opening broad, of almost same width as basal part (Fig. 6c). Paramere with short and obtuse outer lobe and thin pointed inner lobe; blade of paramere slightly curved, apex obtuse (Figs 6d–g). Phallus shown in Figs 6 h–k. Wings of sperm reservoir widest near base, about two and a half times longer than wide (Fig. 6k).

Measurements (n = 3; mm). Body length 5.65–6.22. Head: length 0.50–0.58; width across eyes 0.84–0.90; interocular space 0.52–0.58; interocellar space 0.30–0.32;

eye–ocellus space 0.14–0.18; eye length 0.18–0.20; eye width 0.16–0.17. Length of antennal segments I–IV: I – 0.18, II – 0.44–0.52, III – 0.38–0.44, IV – 0.66–0.77. Length of labrum 0.24; length of labial segments I–IV: I – 0.40, II – 0.44, III – 0.36, IV – 0.34. Thorax: Pronotum, median length 1.02–1.08; width at anterior margin 1.24–1.27; width at posterior margin 1.28–1.29. Scutellar length 0.50–0.55, width 0.60–0.66. Length of hemelytra 3.12–3.28; length of corium 1.80–1.87; claval commissure 0.46–0.47.

Distribution. India: Uttarakhand, Kerala (SLATER & MIYAMOTO 1963).

Differential diagnosis. The examined female specimen has hemelytra yellow, all inner veins and margins are yellow, except for brown apical fourth of corium and membranal spot which is paler than in the male specimen.

Cavelerius minor is similar to *C. illustris* in having similar membranal spot size and large posterolateral lobes of pronotum, but the basal 2/3 of second antennal segment is yellow and concolorous with segment one (vs. second antennal segment unicolorous brown, strongly contrasting with pale first segment in *C. illustris*); the posterolateral lobes are terminally rounded in *C. minor* (vs. acutely pointed or rounded in *C. illustris*); the membranal spot is dark brown in *C. minor* (vs. light brown in *C. illustris*).

***Cavelerius mishmiensis* Slater & Miyamoto, 1963**

(Fig. 7)

Cavelerius mishmiensis Slater & Miyamoto, 1963: 149; SLATER & O'DONNELL (1995: 48).

Type material examined. PARATYPE: ♂, BURMA: / Mishmi Hills. / Chhaglon. / 5,350ft. 1935. / M. Steele. [pr] // Brit. Mus. / 1935-312[pr] // DONATION FROM / J.A. SLATER/ COLLECTION [pr] // *Cavelerius* [hw] / *mishmiensis* [hw] / PARATYPE [pr] / J. A. Slater [pr] & [hw] / S. Miyamoto [hw] [red label] (AMNH). We examined the photos (Fig. 7).

Diagnosis. *Brachypterous form* (Fig. 7). Head, pronotum, scutellum and abdomen completely black. Clypeus extending forward to apical end of first antennal segment. First antennal segment bright orange-yellow; second, third and fourth segments black. Postero-lateral lobes of

pronotum slightly produced caudad. Hemelytra reduced to widely separated narrow pads. Corium and clavus fused but the components recognizable. Membrane reduced to narrow fringe alongside inner margin of corium. Legs uniformly bright orange-yellow. Body length: 6.14 mm (Fig. 7).

Submacropterous form. Clavus dark brownish yellow and all margins dark brown. Corium dark brownish yellow except for dark brown apical fourth and inner vein (vein Cu). Membrane nearly uniformly dark chocolate brown except for small areas adjacent to apex of corium, extreme base and apex that are light. Body length: 6.22 mm (SLATER & MIYAMOTO 1963).

Distribution. India: Tamil Nādu (SLATER & MIYAMOTO 1963), Myanmar (SLATER & MIYAMOTO 1963).

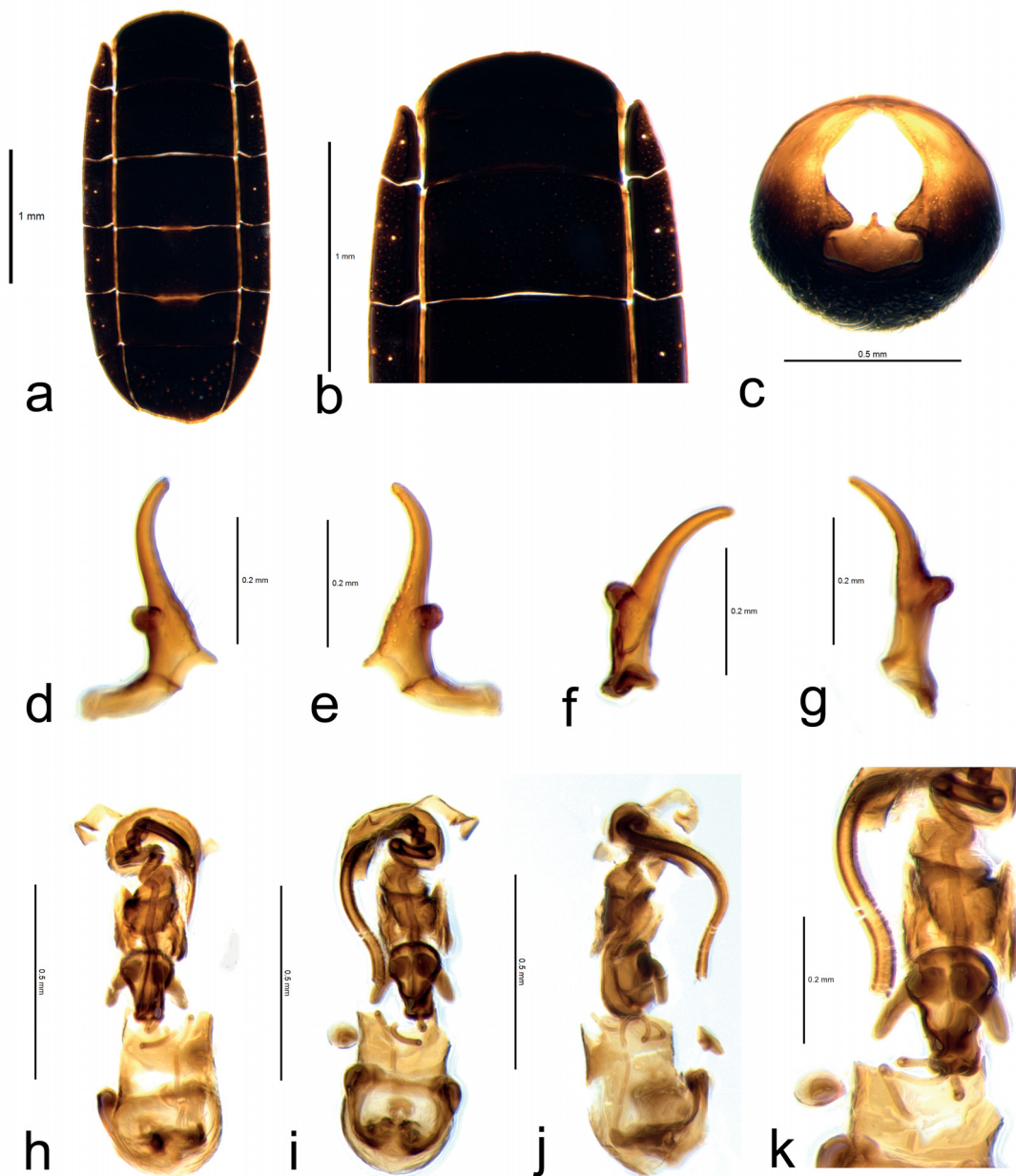


Fig. 6. *Cavelerius minor* Slater & Miyamoto, 1963. a – male abdominal dorsum, dorsal view; b – basal part of male abdominal dorsum, enlarged; c – pygophore, posterodorsal view; d–g – left paramere, four different aspects; h–j – phallus, three different aspects; k – sperm reservoir and adjoining portion of phallus, dorsal view.

***Cavelerius obscuratus* Slater & Miyamoto, 1963**

(Fig. 8)

Cavelerius obscuratus Slater & Miyamoto, 1963: 150; SLATER & O'DONNELL (1995: 48).**Type material examined.** PARATYPE: ♀, NEPAL: MUSEUM PARIS / KURSEONG / R. OBERTHÜR 1899 [pr] // DONATION FROM / J. A. SLATER / COLLECTION [pr] // *Cavelerius* [hw] / *obscuratus* [hw] / PARATYPE [pr] / J. A. Slater [pr] & [hw] / S. Miyamoto [hw, red label] (AMNH). We examined the photos (Fig. 8).**Diagnosis.** Head, pronotum, scutellum and abdomen black. First antennal segment bright yellow; second, third and fourth segments uniformly dark brown. Postero-lateral lobes of pronotum very slightly produced caudad. Corium pale yellow except for dark brown apical one-third and inner vein of corium (vein Cu). All margins of clavus dark brown. Membrane almost uniformly dark brown except for small areas adjacent to apex of corium and extreme base that are pale yellowish. Legs bright yellow. Body length: 6.93 mm (SLATER & MIYAMOTO 1963).**Distribution.** Nepal (SLATER & MIYAMOTO 1963).***Cavelerius saccharivorus* (Okajima, 1922)**

(Figs 1e, f; 9)

Blissus saccharivorus Okajima, 1922: 364–367.*Cavelerius saccharivorus*: SLATER & MIYAMOTO (1963: 142); ZHENG & ZOU (1981: 69); SLATER & O'DONNELL (1995: 48); PÉRICART (2001: 72).**Material examined.** CHINA: 5 ♂♂ 1 ♀, FUJIAN, Xianyou / 21.xii.1974 / host: sugar cane (submacropterous) [all hw] (NKUM); 1 ♂ 2 ♀♀, FUJIAN / 1977 / host: sugar cane (submacropterous) [all hw] (NKUM); 3 ♀♀, JIANGXI, Ji'an (brachypterous) [all hw] (NKUM).**Redescription.** Submacropterous or brachypterous (Fig. 1e).**Submacropterous form.** Large species. Parallel-sided. **Colouration.** Head, pronotum, scutellum and abdomen black. First antennal segment yellow, second antennal segment brown to brownish black, third and fourth segments brownish black to black. Hemelytra pale yellow to dark yellow. Clavus and vein A1 yellow, clavus infuscated toward apex. Vein Cu of corium in apical one-half to two-thirds brownish black, terminal one-fourth of corium except for exocorium brownish black. Corial margin brownish black. Membrane with central irregular brown spot not reaching lateral margins. Veins between membranous spot and distal margin of corium brown. Legs bright orange yellow, except for brown foretibiae.**Structure.** Head distinctly broad, tip of clypeus at most extending forward to apical one-third of first antennal segment. Pronotum with lateral margins slightly sinuate. Punctures of anterior lobe distinct and deep. Width of posterior lobe slightly wider than anterior lobe. Punctures on posterior lobe inconspicuous. Area posterolaterad of scutellum produced only slightly caudad. Membrane usually extending to tergite VI. Abdomen wider than hemelytra.

Fig. 7. Paratype of *Cavelerius mishmiensis* Slater & Miyamoto, 1963 and labels. a – paratype, dorsal view; b – labels (Photographed by Steve Thurston, AMNH).

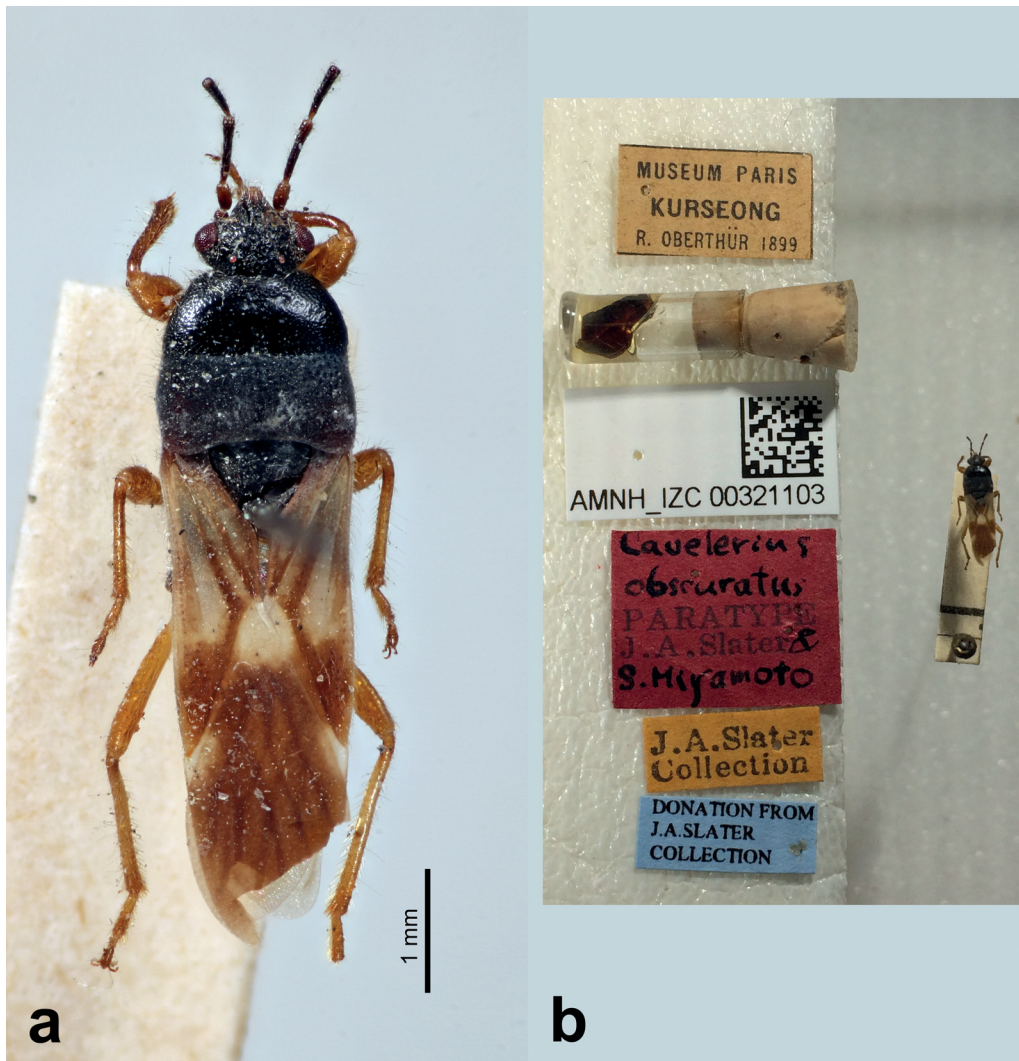


Fig. 8. Paratype of *Cavelerius obscuratus* Slater & Miyamoto, 1963 and labels. a – paratype, dorsal view; b – labels (Photographed by Steve Thurston, AMNH).

Labium elongate, extending to or almost to anterior margin of mesocoxae.

Brachypterous form. Body length shorter than in submacropterous specimens. **Colouration.** Hemelytra yellowish white, short, extending only to tergite IV; ca. terminal one-third of corium blackish brown.

Both forms. Spiracles on laterotergite II large, about one-fourth as large as total width of laterotergite II there (Fig. 9b). Apical part of pygophoral dorsal opening oval, only very slightly narrower than basal part (Fig. 9c). Outer lobe of paramere long and pointed; inner lobe of paramere short; blade of paramere slightly curved, apex obtuse (Figs 9d–g). Phallus shown in Figs 9h–k. Wings of sperm reservoir widest near base, more than three times longer than wide (Fig. 9k).

Measurements (submacropterous (n = 8) / brachypterous (n = 3); mm). Body length 7.00–8.15 / 6.76–6.89; maximum width 1.72–2.16 / 1.76–1.82. Head: length 0.66–0.68 / 0.62–0.71; width across eyes 1.07–1.14 / 1.03–1.05; interocular space 0.74–0.79 / 0.70–0.73; interocellar space 0.42–0.43 / 0.38–0.40; eye–ocellus space 0.17 / 0.18–0.20; eye length 0.20–0.21 / 0.19–0.22; eye width 0.16–0.17 /

0.17. Length of antennal segments I–IV: I – 0.25–0.29 / 0.26–0.27, II – 0.65–0.71 / 0.65, III – 0.64–0.66 / 0.61, IV – 0.98–1.03 / 0.87–0.88. Length of labrum 0.80–1.00 / 0.60–1.16; length of labial segments I–IV: I – 0.47–0.55 / 0.46–0.54, II – 0.59–0.65 / 0.56, III – 0.52–0.63 / 0.59–0.60, IV – 0.53 / 0.50–0.54. Thorax: Pronotum, median length 1.20–1.22 / 1.06–1.09; width at posterior margin 1.65–1.85 / 1.51; width at anterior margin 1.58–1.75 / 1.42–1.49. Scutellar length 0.68–0.86 / 0.54–0.60, width 0.88–1.00 / 0.69–0.80. Length of hemelytra 3.84–4.39 / 2.48–2.61; length of corium 2.35–2.69 / 1.66–1.87; claval commissure 0.57–0.65 / 0.42–0.46.

Distribution. China (Fujian, Guangdong, Jiangxi, Taiwan, Zhejiang) (ZHENG & ZOU 1981); Japan (Ryukyu Islands) (SLATER 1964).

Cavelerius sweeti Slater & Miyamoto, 1963

(Fig. 10)

Cavelerius sweeti Slater & Miyamoto, 1963: 150; SLATER & O'DONNELL (1995: 48).

Type material examined. PARATYPE: INDIA: ♀ [abdomen dissected], Dehra Dun [pr] / Rajpur [pr] // DONATION FROM / J. A. SLATER /

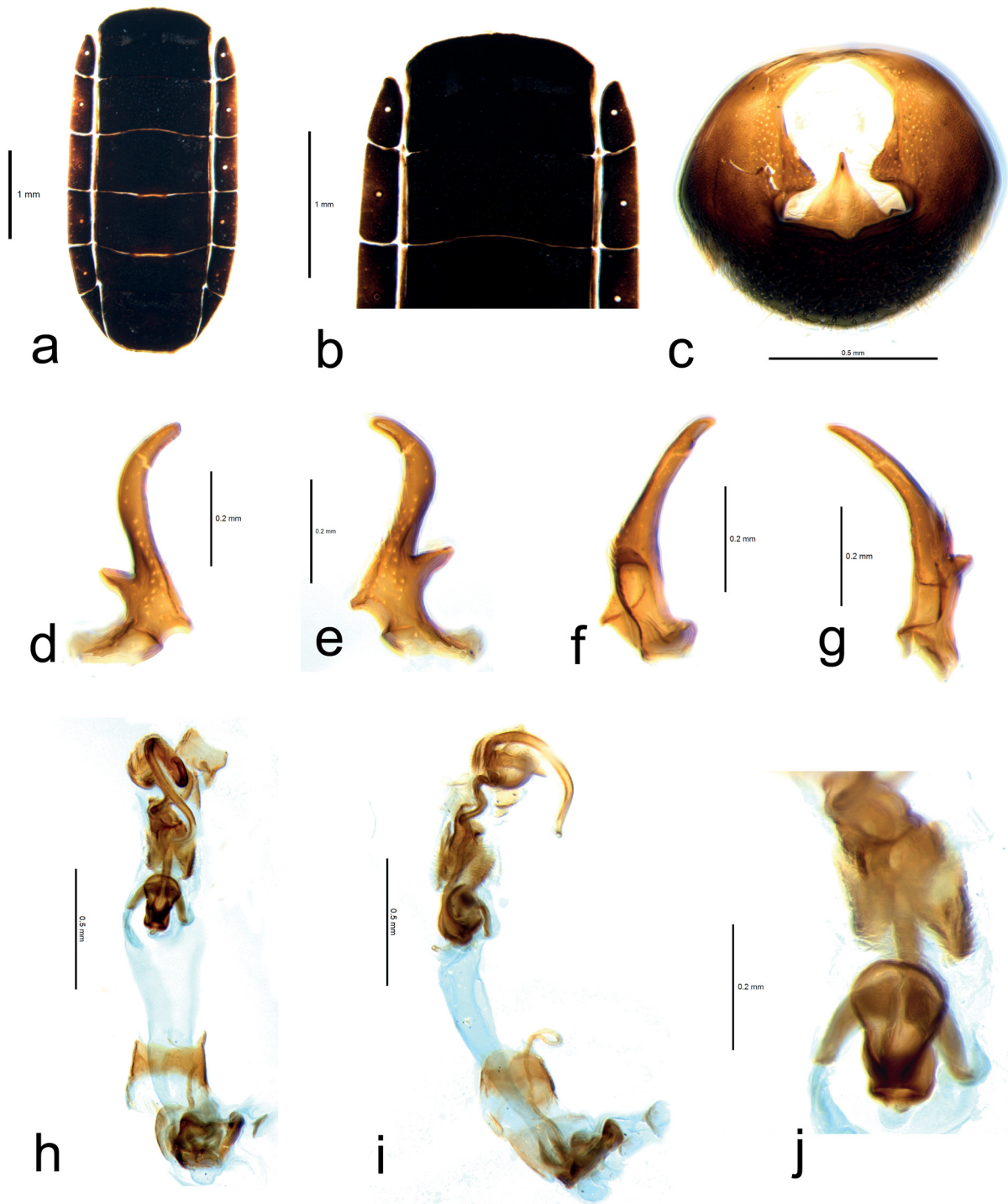


Fig. 9. *Cavalerius saccharivorus* (Okajima, 1922). a – male abdominal dorsum, dorsal view; b – basal part of male abdominal dorsum, enlarged; c – pygophore, posterodorsal view; d–g – left paramere, four different aspects; h–i – phallus, dorsal and lateral view; j – sperm reservoir and adjoining portion of phallus, dorsal view.

COLLECTION [pr] // *Cavalerius* [hw] / *sweeti* [hw] / PARATYPE [pr] / J. A. Slater [pr] & [hw] / S. Miyamoto [hw] [red label] (AMNH). We examined the photos (Fig. 10).

Diagnosis. Head, pronotum and abdomen black. First antennal segment pale yellow, second segment pale yellow except for black apical one-fifth, third and fourth segments black. Posterolateral lobes of pronotum slightly produced caudad. Hemelytra white; inner

vein, corial margins apically and claval commissure light yellowish brown, apical area of corium dark brown. Membrane white except for large central black spot reaching outer lateral margin of membrane and apical margin of corium. Fore femora brown, middle and hind legs light brown.

Distribution. Pakistan (SLATER & MIYAMOTO 1963), India (Uttarakhand) (SLATER & MIYAMOTO 1963).

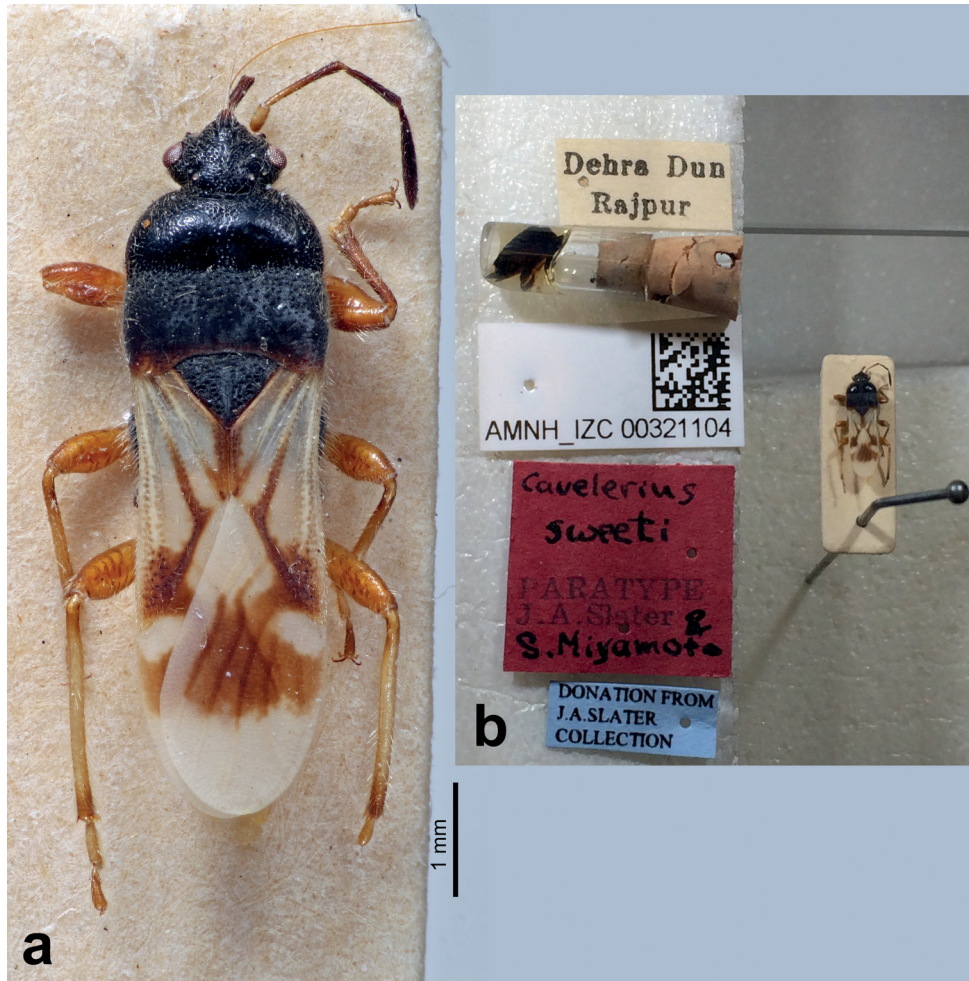


Fig. 10. Paratype of *Cavelerius sweeti* Slater & Miyamoto, 1963 and labels. a – paratype, dorsal view; b – labels (Photographed by Steve Thurston, AMNH).

Cavelerius tinctus (Distant, 1903)

(Figs 1b, c; 11; 12)

Macropes tinctus Distant, 1903b: 26; SLATER (1964: 499).

Cavelerius tinctus: SLATER (1979: 50); SLATER & O'DONNELL (1995: 48).

Type material examined. SYNTYPE: ♀, MYANMAR: Tenasserim / Plapoo / Fea. Apr. 1887 [all pr] // Distant Coll. / 1911-383. [all pr] // *tinctus* / Dist. [hw] // Syntype [red label with blue ring, pr] // Type [red label with red ring, pr] // *Macropes tinctus* / Distant, 1904 [all pr] // BMNH(E) / 1340312 [all pr] // NHMUK 013588110 [all pr]. We examined the photos (Fig. 11).

Additional material examined. CHINA: XIZANG: 6 ♂♂ 2 ♀♀, XIZANG, Motuo, Beibeng county / 780–1100m / 13.viii.2003 / coll. Huaijun Xue, Xinpu Wang [pr] (NKUM). YUNNAN: 1 ♂, YUNNAN, Ruili Rare botanical / Park, 31.vii.2006 / 1200m, coll. Zhonghua Fan [pr] (NKUM); 2 ♀♀, same place and date as above / 1000m, coll. Xu Zhang [pr] (NKUM); 1 ♂, YUNNAN, Longling, Banglazhang / 13.x.2002 / coll. Huaijun Xue, 1300m [pr] (NKUM).

Redescription. Species of moderate size. **Colouration.** Head, pronotum, scutellum and abdomen black. First antennal segment yellow, second antennal segment yellow except for brown to brownish black apex, third segment brown to brownish black, fourth segment black. Hemelytra white to pale yellow. Inner margins and commissure of clavus brown and apical half of vein A1 on clavus brown. Vein Cu brown except for basal one-third pale yellow. Majority of corium yellowish white except for small area at apex

that is brown or pale brown. Corial apical margin brown. Large part of membrane with broad brown area, distinctly contiguous to corial margin, close to or contiguous to membranal lateral margins; base and small areas adjacent to apex of clavus and corium and apex of membrane pale yellow. Legs yellow, hind tibiae paler.

Structure. Head broad, tip of clypeus extending forward to apical one-third of first antennal segment. Pronotum almost quadrangular, with lateral margins slightly sinuate. Punctures of anterior lobe small and deep. Anterior and posterior lobe almost equal in width. Punctures of posterior lobe scattered and inconspicuous. Posterolateral lobes slightly produced caudad. Posterior margin of pronotum slightly concave, with middle part almost straight or slightly concave. Membrane mostly extends caudad onto tergite VI. Abdomen wider than hemelytra; lateral outline of abdomen parallel. Labium extending posteriad onto anterior part of mesosternum.

Spiracles on laterotergite II about one-third as large as total width of laterotergite II there (Fig. 12b). Apical part of pygophoral dorsal opening oval, slightly narrower than basal part (Fig. 12c). Outer lobe of paramere finger-like, long and tip obtuse; inner lobe of paramere broad and flat; blade of paramere distinctly curved, sickle-shaped, apex pointed (Figs 12d–g). Phallus shown in Figs 12h–k. Wings

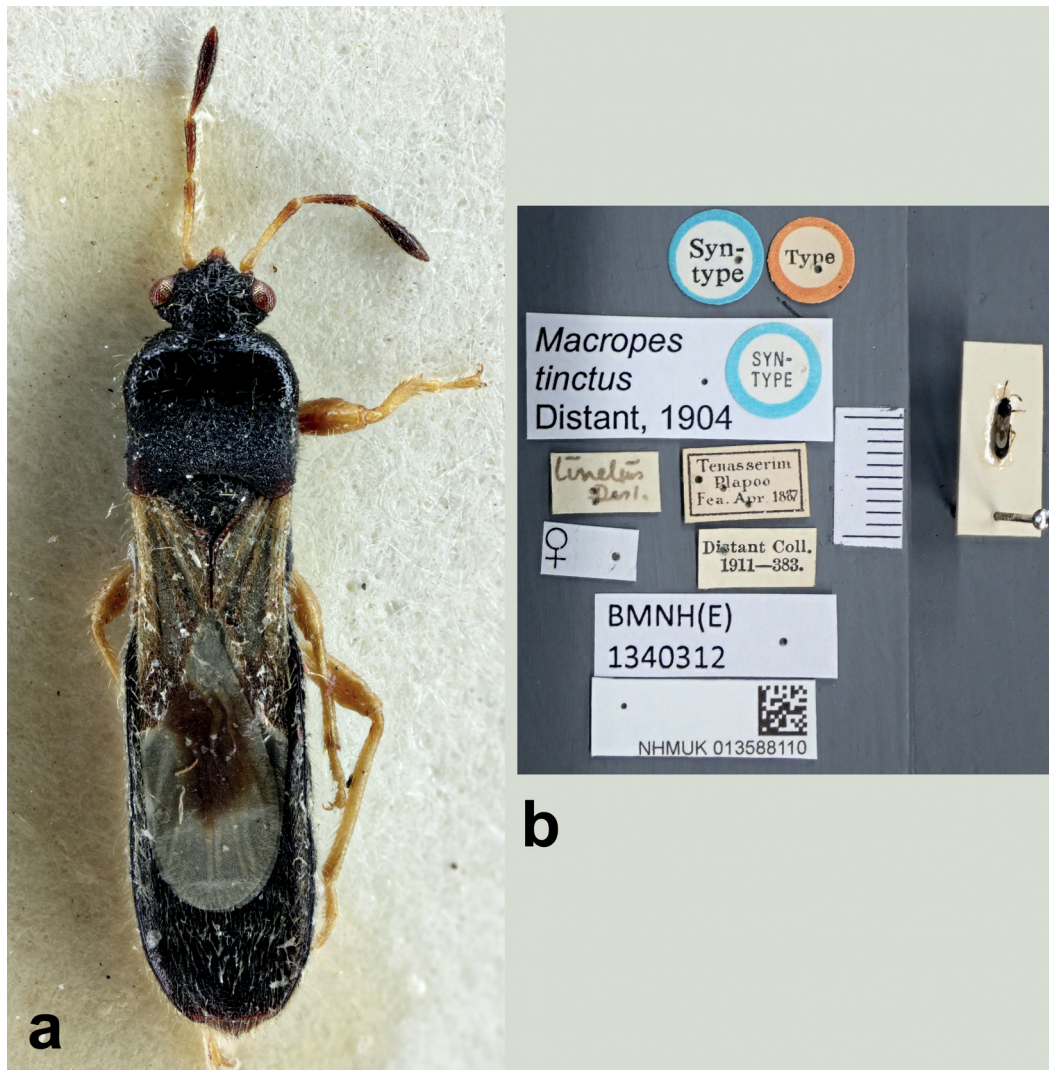


Fig. 11. Syntype of *Cavalerius tinctus* (Distant, 1903) and labels. a – type, dorsal view; b – labels (Photographed by Ken Merrifield, BMNH).

of sperm reservoir widest near base, about two times longer than width (Fig. 12k).

Measurements (n = 8; mm). Body length 5.64–7.72; maximum width 1.33–1.71. Head: length 0.50–0.71; width across eyes 0.90–1.05; interocular space 0.59–0.68; intercellular space 0.31–0.39; eye–ocellus space 0.13–0.18; eye length 0.20–0.24; eye width 0.18. Length of antennal segments I–IV: I – 0.22–0.24, II – 0.61–0.72, III – 0.55–0.68, IV – 0.80–0.89. Length of labrum 0.44; length of labial segments I–IV: I – 0.44–0.52, II – 0.47–0.61, III – 0.50–0.66, IV – 0.41–0.46. Thorax: Pronotum, median length 1.02–1.27; width at anterior margin 1.24–1.47; width at posterior margin 1.28–1.51. Scutellar length 0.55–0.56, width 0.68–0.76. Length of hemelytra 3.17–3.48; length of corium 1.81–2.05; claval commissure 0.45–0.50.

Distribution. China (Xizang, Yunnan) (new country record), Myanmar (Distant 1903b).

Remarks. According to SLATER (1979), *C. antennatus* and *C. tinctus* show the first three antennal segments uniformly bright orange-yellow, but the apex of the second antennal segment and the third segment are brown to brownish black in *C. tinctus* (Fig. 11).

Cavalerius nigrivena sp. nov.

(Figs 13a, b; 14)

Type material. HOLOTYPE: THAILAND: ♂, 16.vii.1997. THAILAND / CHIANG MAI.ca / 3 km. E Samoeng // N 018°51'43.4" / garden area / E 098°42'13.1" // Dr. Wolfgang G / ULLRICH / collection [pr] (NKUM). PARATYPES: 2 ♂♂ 2 ♀♀, same as holotype (NKUM); 4 ♂♂ 5 ♀♀, 18.vi.1995 THAI / CHIANG MAI / Samoeng // Dr. Wolfgang G / ULLRICH / collection [pr] (NKUM). LAOS: 1 ♀, N-LAOS: Prov. Lg. Nam Tha / ca., 20 km NW Lg. Nam Tha / 9.vi.1996. 700m / coll. Schillhammer (17) [pr] (NHMW).

Description. Body robust. **Colouration.** Head, pronotum, scutellum and abdomen black. First antennal segment and approximately basal two-thirds of second segment yellow, posterior part of second and whole third segment dark brown, fourth segment brownish black. Hemelytra pale yellow, membrane slightly yellowish white. Inner margin and commissure of clavus and about apical half of vein A1 on clavus blackish brown. About basal one-third of inner corial vein pale yellow, otherwise black brown. Terminal one-third of corium and whole corial margin blackish brown. Membrane with central irregular blackish brown spot, far from lateral margin of membrane; veins posteriad of blackish brown spot dark and gradually fading to yellow. Legs yellowish brown.

Structure. Head broad, tip of clypeus at most extending forward to apical one-third of first antennal segment. Pronotum with lateral margins only very slightly sinuate, transverse impression weakly developed and slightly concave, maximum width of posterior lobe slightly greater than that of anterior lobe. Posterolateral lobes slightly produced caudad, posterior margin of pronotum slightly concave. Membrane tapering, at most extending onto tergite VI. Abdomen wider than hemelytra. Labium extending onto mesosternum.

Female tergum oval (Fig. 14a). Spiracles on laterotergite II about one-fourth as large as total width of laterotergite II there (Fig. 14b). Apical part of pygophoral dorsal opening oval, distinctly narrower than basal part (Fig. 14c). Outer

lobe of paramere robust, long and pointed; inner lobe of paramere short and oriented to base; tip of blade curved, apex obtuse (Figs 14d–g). Phallus shown in Figs 14 h–k. Wings of sperm reservoir widest near base, more than three times longer than wide (Fig. 14k).

Measurements (n = 10; mm). Body length 7.30–9.00; maximum width 1.91–2.37. Head: length 0.63–0.68; width across eyes 1.14–1.18; interocular space 0.76–0.85; intercellular space 0.36–0.48; eye–ocellus space 0.18; eye length 0.19–0.20; eye width 0.15–0.16. Length of antennal segments I–IV: I – 0.25–0.29, II – 0.74–0.87, III – 0.65–0.74, IV – 0.95–1.05. Length of labrum 0.6; length of labial segments I–IV: I – 0.50, II – 0.60, III – 0.52, IV – 0.50. Thorax: Pronotum, median length 1.38–1.58; width at posterior margin 1.65–1.95; width

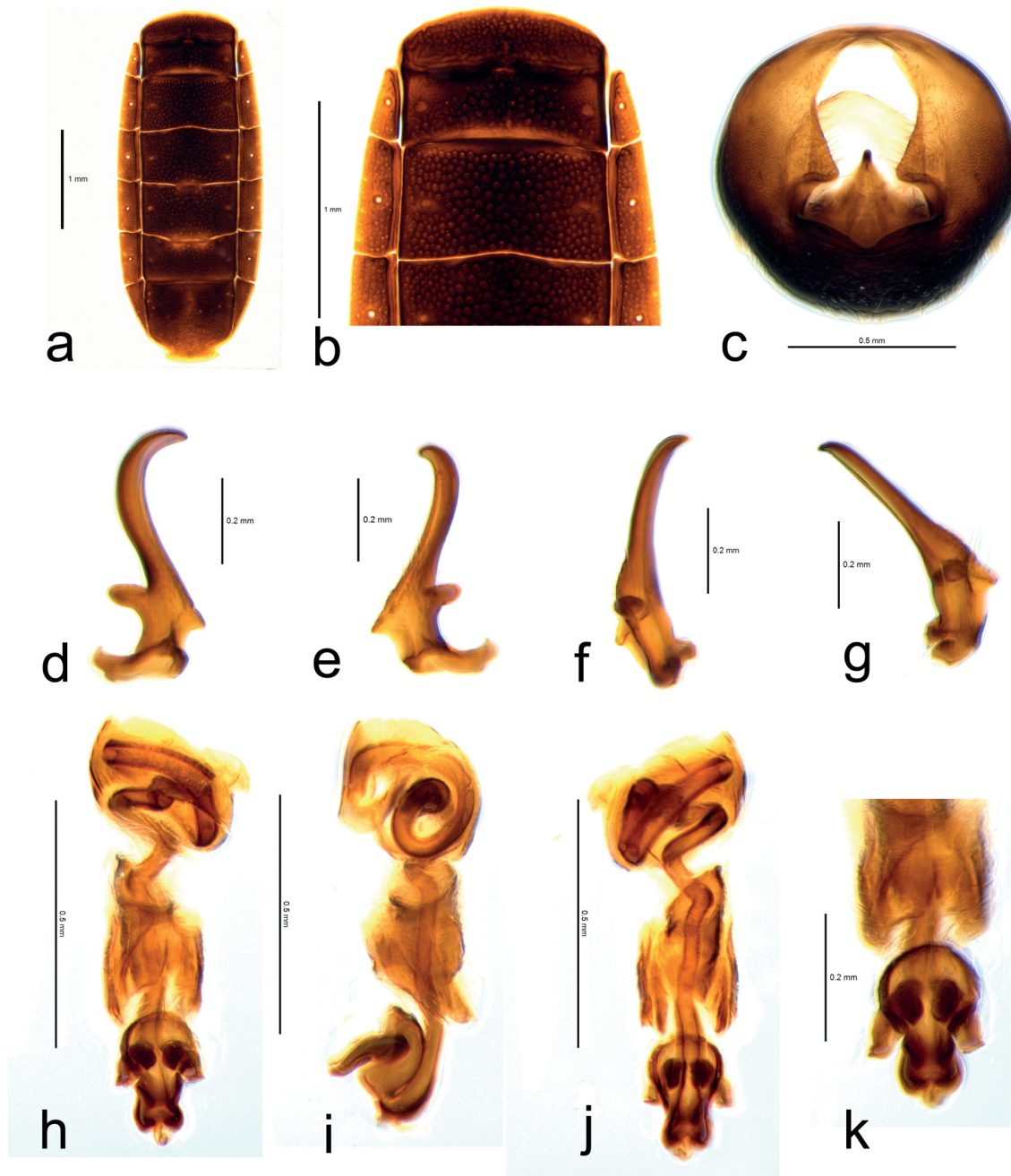


Fig. 12. *Cavelerius tinctus* (Distant, 1903). a – male abdominal dorsum, dorsal view; b – basal part of male abdominal dorsum, enlarged; c – pygophore, posterodorsal view; d–g – left paramere, four different aspects; h–j – phallus, three different aspects; k – sperm reservoir and adjoining portion of phallus, dorsal view.

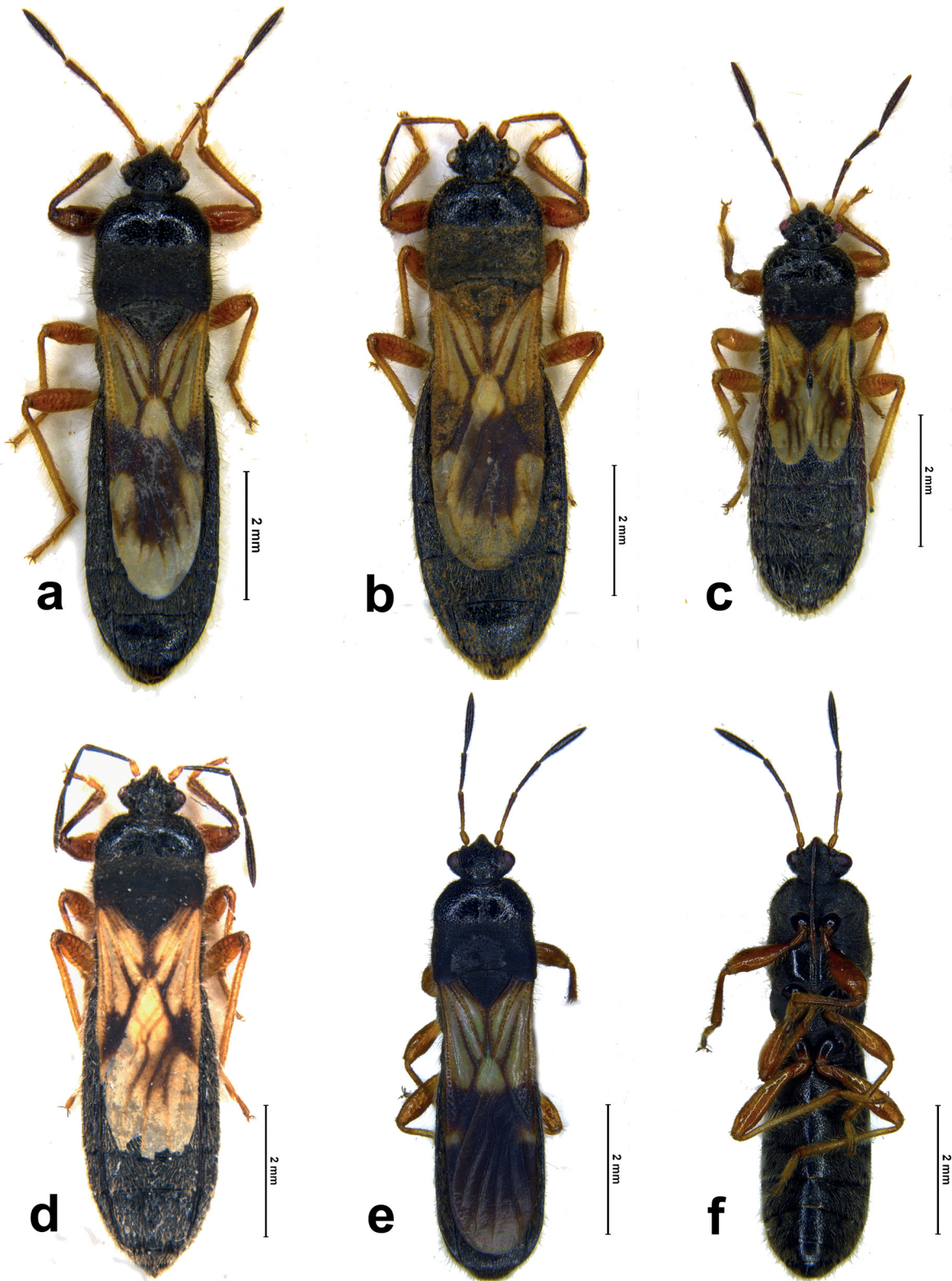


Fig. 13. *Cavalerius* spp. a–b – *C. nigrivena* sp. nov., dorsal view. a – holotype, male; b – paratype, female; c–d – *C. parvimaculatus* sp. nov., dorsal view. c – holotype, male, brachypterous; d – paratype, female, submacropterous; e–f – *C. yunnanensis* sp. nov., holotype, male, dorsal and ventral view.

at anterior margin 1.56–1.86. Scutellar length 0.59–0.72, width 0.88–1.04. Length of hemelytra 4.08–4.55; length of corium 2.49–2.64; claval commissure 0.68–0.79.

Differential diagnosis. According to the key (SLATER & MIYAMOTO 1963), the new species can be traced to *C. sweeti*, but it differs from *C. sweeti* in the following combination of characters: spot not reaching the lateral margin of membrane; veins dark posteriad of the blackish brown spot and gradually fading to yellow; body larger (about 7.3–9.0 mm) (vs. spot reaching the lateral margin of membrane, veins almost concolorous with the background

colour, and body smaller (about 6.32 mm) in *C. sweeti*).

The new species is also similar to *C. tinctus* in having a similar antennal colouration, and a brown spot of membrane, but its body is larger (about 7.30–9.00 mm) (vs. body smaller (about 5.64–7.72 mm) in *C. tinctus*), and the abdominal spiracle size is larger than that in *C. tinctus*.

Etymology. The species epithet, *nigrivena*, derived from Latin, refers to the dark veins posteriad of the blackish brown spot that gradually fade to yellow.

Distribution. Thailand (Chiang Mai), Laos (Luang Nam Tha).

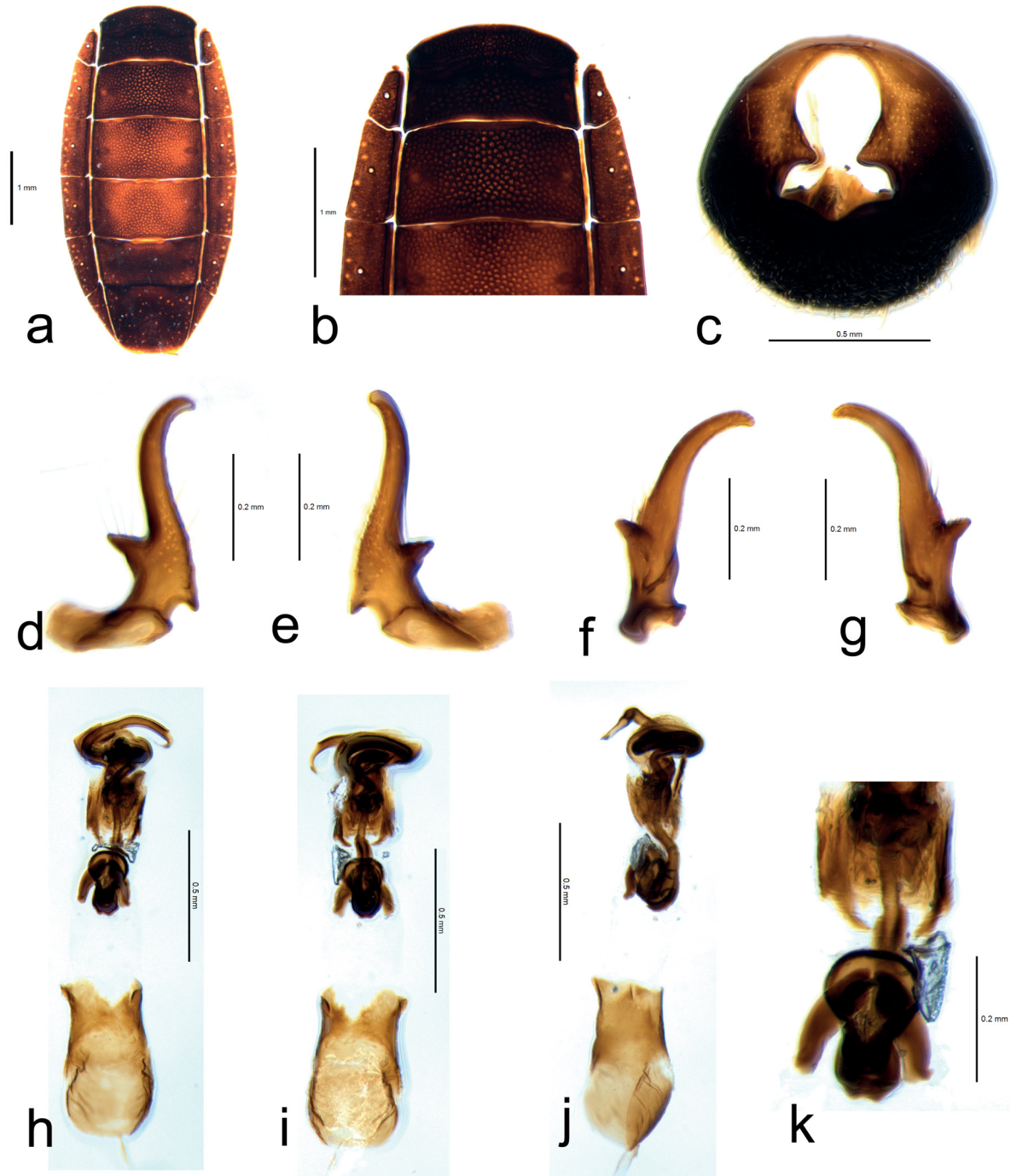


Fig. 14. *Cavelerius nigrivena* sp. nov. a – female abdominal dorsum, dorsal view; b – basal part of female abdominal dorsum, enlarged; c – pygophore, posterodorsal view; d–g – left paramere, four different aspects; h–j – phallus, three different aspects; k – sperm reservoir and adjoining portion of phallus, dorsal view.

Cavelerius parvimaculatus sp. nov.

(Figs 13c, d; 15)

Type material. HOLOTYPE: THAILAND: ♂ (brachypterous), 2.i.1998. THAILD / CHIANG MAI / Samoeng // N 018°51'45.2" / E 098°43'18.7" // Dr. Wolfgang G. / ULLRICH / collection [pr] (NKUM). PARATYPES: 27 ♂♂ 22 ♀♀ (brachypterous), 1 ♂ 2 ♀♀ (submacropterous), same as holotype (NKUM).

Description. Brachypterous or submacropterous.

Brachypterous form. Moderately sized, male slightly smaller than female. **Colouration.** Head, pronotum and scutellum black, abdomen brownish black except for slightly reddish brown connexivum. First antennal segment yellow, second segment light brownish black, third and fourth segments brownish black. Hemelytra pale yellow. Claval commissure and about apical one-third of vein

A1 brownish black, apical corial margin brownish black. About terminal one-fourth of corium except for exocorium brownish black. Membrane pale yellow, very small spot adjacent to distal margin of corium and veins brownish black (Fig. 13c). Legs orange yellow, anterior tibiae darker.

Structure. Head broad, tip of clypeus at most extending forward to apical one-third of first antennal segment. Pronotum with lateral margins slightly sinuate. Anterior lobe slightly wider or equal to width of posterior lobe. Posterolateral lobes slightly produced caudad. Hemelytra divergent. Membrane only overlapping on inner edge. Hemelytra at most extending to posterior half of tergite IV.

Submacropterous form. Width of anterior lobe slightly less than width of posterior lobe. Hemelytra extending to posterior half of tergite VI. Membrane pale yellow, obscure

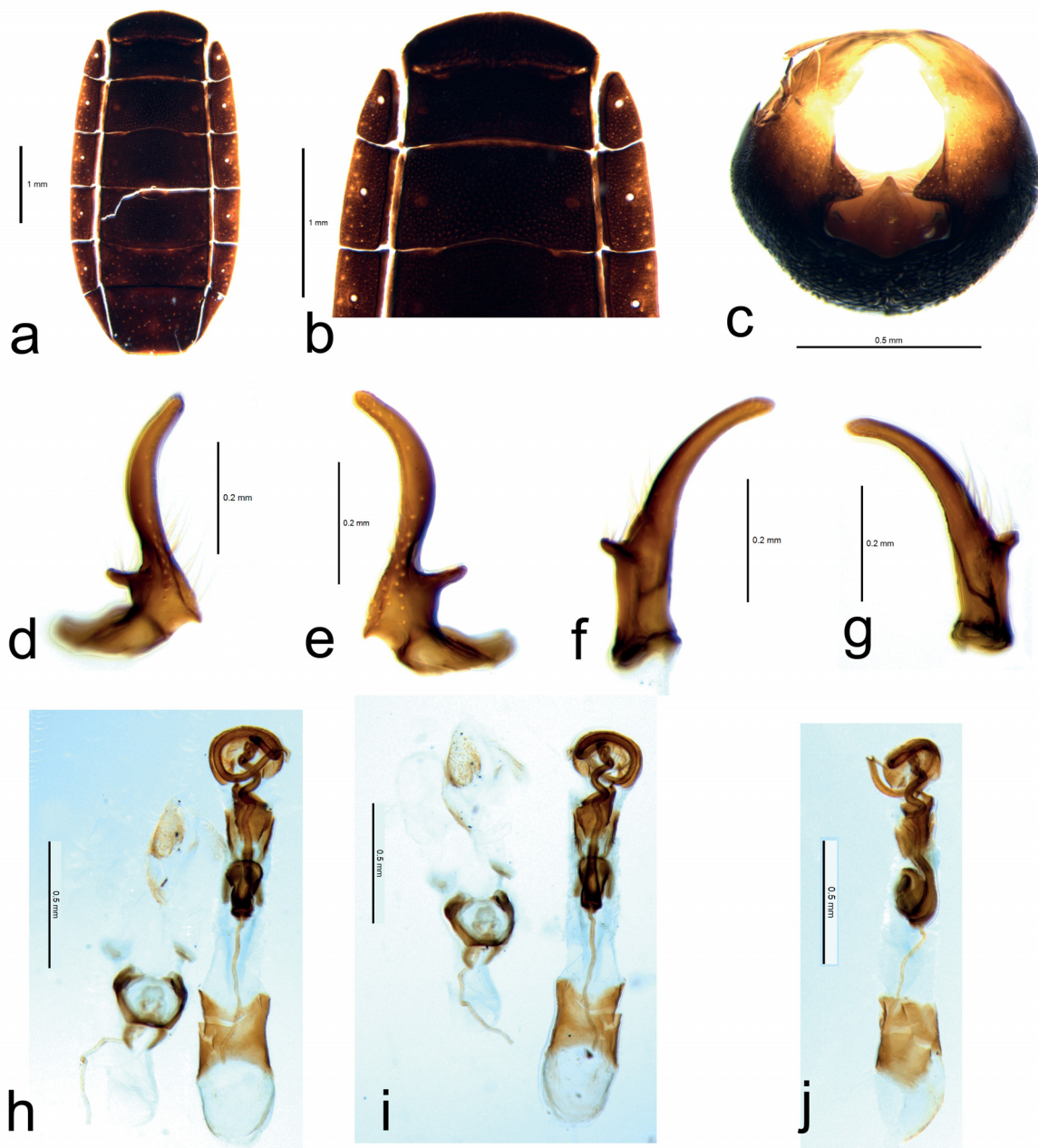


Fig. 15. *Cavelerius parvimaculatus* sp. nov. a – female abdominal dorsum, dorsal view; b – basal part of female abdominal dorsum, enlarged; c – pygophore, posterodorsal view; d–g – left paramere, four different aspects; h–j – phallus, three different aspects.

small middle spot adjacent to distal margin of corium and veins brownish black (Fig. 13d).

Both forms. Spiracles on laterotergite II large, about one-fourth as large as total width of laterotergite II there (Fig. 15b). Apical part of pygophoral dorsal opening hexagonal, slightly narrower than basal part (Fig. 15c). Outer lobe of paramere thin and long; inner lobe of paramere tiny and oriented to base; blade slightly curved, apex obtuse (Figs 15d–g). Phallus shown in Figs 15 h–j. Wings of sperm reservoir widest near base, about three times longer than width (Fig. 15h).

Measurements (submacropterous (n = 3) / brachypterous (n = 10); mm). Body length 6.51–9.04 / 5.94–7.53;

maximum width 1.68–2.18 / 1.60–2.02. Head length 0.76–0.81 / 0.65–0.79; width across eyes 0.95–1.09 / 0.89–1.04; interocular space 0.67–0.77 / 0.66–0.75; interocellar space 0.37–0.43 / 0.36–0.42; eye–ocellus space 0.21–0.23 / 0.17–0.20; eye length 0.18–0.20 / 0.16–0.21; eye width 0.15–0.16 / 0.12–0.14. Length of antennal segments I–IV: I – 0.25–0.29 / 0.22–0.27, II – 0.64–0.77 / 0.61–0.76, III – 0.59–0.69 / 0.57–0.68, IV – 0.97–1.08 / 0.90–1.10. Length of labrum 0.62 / 0.54; length of labial segments I–IV: I – 0.54 / 0.46, II – 0.68 / 0.58, III – 0.58 / 0.50, IV – 0.52 / 0.48. Thorax: Pronotum, median length 1.07–1.24 / 0.96–1.19; width at posterior margin 1.56–1.81 / 1.27–1.60; width at anterior margin 1.48–1.76 / 1.31–1.61.

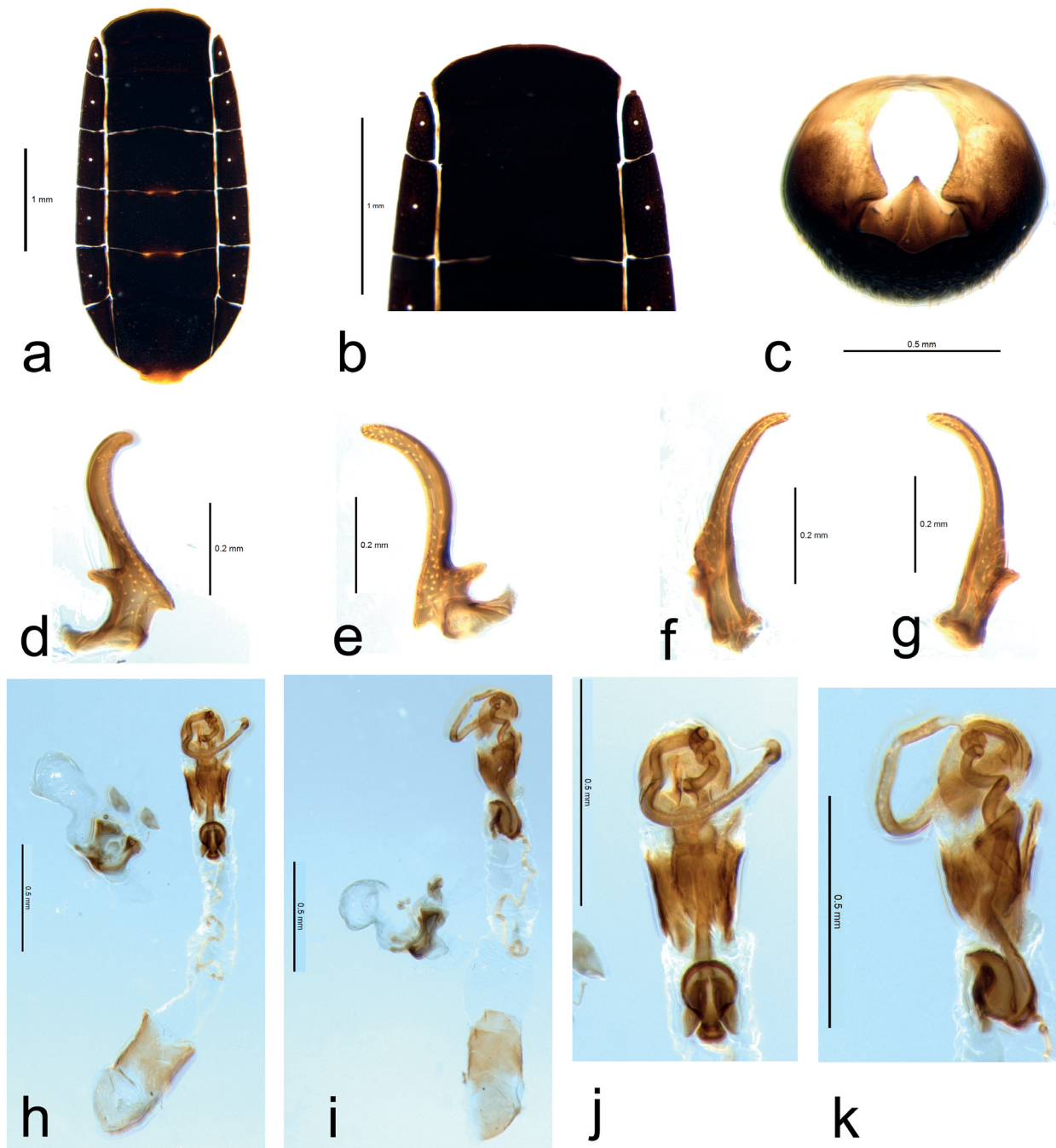


Fig. 16. *Cavalerius yunnanensis* sp. nov. a – male abdominal dorsum, dorsal view; b – basal part of male abdominal dorsum, enlarged; c – pygophore, posterodorsal view; d–g – left paramere, four different aspects; h–i – phallus, dorsal and lateral view; j–k – vesica, dorsal and lateral view.

Scutellar length 0.72–0.89 / 0.40–0.56, width 1.02–1.04 / 0.59–0.74. Length of hemelytra 3.95–3.96 / 1.91–2.62; length of corium 2.06–2.56 / 1.31–1.90; claval commissure 0.52–0.57 / 0.39–0.45.

Differential diagnosis. According to the key (SLATER & MIYAMOTO 1963), it can be traced to *C. illustris* or *C. obscuratus*. It can be separated from *C. illustris* by the posterior margin of pronotum evenly concave and body larger (5.94–9.04 mm) (*vs.* the posterior margin of pronotum very deeply concave and body smaller (5.75 mm) in *C. illustris*). The new species differs from *C. obscuratus* in pale yellow membrane with brownish black veins and a small spot adjacent to corium (*vs.* membrane almost uniformly brown except for a small pale yellowish area at base in *C. obscuratus*).

Cavelerius parvimaclulatus sp. nov. is similar to *C. mishmiensis* in having a similar colouration of antennae and legs, and the swollen anterior lobe, but it can be separated by yellow corium and clavus, the absence of a brown spot on the membrane, and by head shorter than the length of the fourth antennal segment (*vs.* corium and clavus dark brownish yellow, membrane nearly uniformly dark chocolate brown, and head longer than the length of the fourth antennal segment in *C. mishmiensis*).

Cavelerius parvimaclulatus sp. nov. is also similar to *C. saccharivorus* in having a similar colouration of antennae and legs, and corium brown distally, but *C. saccharivorus* shows an irregular brown spot on membrane. In addition, only the inner part of the left membrane covers the right one in brachypterous specimens (Fig. 13c) (*vs.* the left membrane fully covers the right one in brachypterous specimens in *C. saccharivorus* (Fig. 1e)).

Etymology. The specific epithet “*parvimaclulatus*” is a Latin word, referring to the very small spot adjacent to corium on membrane; adjective.

Distribution. Thailand (Chiang Mai).

Cavelerius yunnanensis sp. nov.

(Figs 13e, f; 16)

Cavelerius excavatus (misidentification): ZHENG & ZOU (1981: 70).

Type material. HOLOTYPE: CHINA: ♂, YUNNAN, Yuanjiang county, Mili township / 21.vii.2006 / coll. Xueqin Shi [pr] (NKUM). PARATYPES: CHINA: 9 ♂♂, 21–22.vii.2006, same as holotype (NKUM); 6 ♂♂ 1 ♀, YUNNAN, Yuanjiang county, Mili township / 17–22.vii.2006 / coll. Zhonghua Fan [pr] (NKUM); 1 ♂, same data / 17.vii.2006 / coll. Xueqi Shi, Jimeng Hua [pr]. 19 ♂♂, YUNNAN, Hekou, 80m, 11.vi.1956, coll. Keren Huang et al. (IZAS); 1 ♂, YUNNAN, Xishuangbanna, Jinghong, 910m, 25.vi.1958, coll. Yiran Zhang (IZAS).

Description. Moderately sized. **Colouration.** Head, pronotum, scutellum, and abdomen black. First antennal segment yellow, approximately basal half of second antennal segment yellow; posterior part of second and whole third segment brown, fourth segment blackish brown. Hemelytra white to pale yellow. Inner margins and commissure of clavus pale brown and vein A1 pale yellow to pale brown. Inner corial vein brown except for basal one-third pale yellow. Terminal one-third of corium blackish brown. Apical corial margin blackish brown. Membrane almost completely brownish black with small

yellowish white areas adjacent to apex of corium and apex of membrane. Legs uniformly brownish yellow.

Structure. Head broad, tip of clypeus extending forward to apical one-third of first antennal segment. Pronotum with lateral margins slightly sinuate, narrowest at transverse impression. Punctures on anterior lobe small and deep. Width of posterior lobe slightly broader than that of anterior lobe. Punctures on posterior lobe scattered. Posterior margin of pronotum slightly concave. Membrane extending caudad at most onto tergite VII. Abdomen slightly wider than hemelytra. Labium extending onto mesosternum.

Spiracles on laterotergite II about one-fifth as large as total width of laterotergite II there (Fig. 16b). Apical part of pygophoral dorsal opening oval, slightly narrower than basal part (Fig. 16c). Outer lobe of paramere long and slightly pointed; inner lobe of paramere rounded and oriented to base; blade distinctly curved, apex pointed (Figs 16d–g). Phallus shown in Figs 16h–k. Wings of sperm reservoir widest near middle, about three times longer than wide (Fig. 16h).

Measurements (male, n = 2; mm). Body length 6.57–6.67; maximum width 1.59–1.63. Head: length 0.52–0.71; width across eyes 1.00–1.04; interocular space 0.70–0.71; interocellar space 0.38–0.40; eye–ocellus space 0.16–0.17; eye length 0.19–0.21; eye width 0.17. Length of antennal segments: I – 0.21, II – 0.60–0.66, III – 0.58–0.65, IV – 0.86–0.93. Length of labrum 0.70–0.90; lengths of labial segments: I – 0.47–0.49, II – 0.55–0.57, III – 0.48, IV – 0.34–0.45. Thorax: Pronotum, median length 1.07–1.18; width at posterior margin 1.58–1.66; width at anterior margin 1.47–1.49. Scutellar length 0.59–0.70, width 0.78–0.81. Length of hemelytra 3.70–4.08; length of corium 2.14–2.25; claval commissure 0.60–0.70.

Differential diagnosis. Twenty male specimens from Yunnan (Hekou, Jinghong) were misidentified as *C. excavatus* in ZHENG & ZOU (1981: 70, Figs 226, 240, pl. 11: 101), but can be separated by the colouration of membrane, the size of spiracles and the shape of paramere, which were shown in the key.

The new species is similar to *C. tinctus* in its size, antennal and leg colouration, and shape of pronotum, but the brown spot on membrane is distinctly larger, covering the whole membrane except for small areas at apex and hemelytra extends caudad onto tergite VII (*vs.* brown spot close to or slightly contiguous to lateral membranous margins and hemelytra only extends caudad onto tergite VI in *C. tinctus*).

Cavelerius yunnanensis sp. nov. is also similar to *C. antennatus* in the large brown area on membrane and in leg colouration, but body is larger (6.57–6.67 mm), the posterior lobe is wider than the anterior lobe of pronotum, the inner and outer lobe of paramere is slightly longer (*vs.* body smaller (5.76–6.23 mm), the lateral sides of pronotum almost parallel and the lobes of paramere shorter in *C. antennatus*).

Etymology. The specific name, *yunnanensis*, refers to the locality of the type specimens; adjective.

Distribution. China (Yunnan).

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