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Synopsis of *Cyphonocerus* (Coleoptera: Lampyridae) with the Description of Four New Species and a Key to the Genus

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Jeng Ming-Luen, Ping-Shih Yang, and Masataka Satô (2006) Synopsis of *Cyphonocerus* (Coleoptera: Lampyridae) with the description of four new species and a key to the genus. *Zoological Studies* **45**(2): 157-167. The genus *Cyphonocerus* is defined based on all known species, and 4 new species are described: *C. melanopterus* sp. nov. (China), *C. nigrithorax* sp. nov. (Nepal), *C. sylvicola* sp. nov. (China), and *C. triangulus* sp. nov. (China). *Cyphonocerus harmandi* (Nepal and India) is redescribed, and a lectotype is designated. *Cyphonocerus klapperichi* Pic (China) is demoted to a subspecies of *C. sanguineus*. A key to species worldwide and a checklist are given. http://zoolstud.sinica.edu.tw/Journals/45.2/157.pdf

Key words: New species, Lectotype, New status, Key.

The genus *Cyphonocerus* Kiesenwetter is a diurnal lampyrid group which includes 12 known species from the Oriental realm and Palaearctic Japan. There has been inconsistency in its family-group assignment since its establishment. Kiesenwetter (1879) placed it in the Drilidae and the classification was followed by major drilid catalogues (Olivier 1910, Wittmer 1944). Nakane (1947) diagnosed *Cyphonocerus* as a lampyrid and synonymized it with the Neotropical *Psilocladus* Blanchard, but later (1967) revived the validity of the former. Furthermore, Nakane (1968) assigned the genus to the Amydetinae Psilocladina McDermott, which were comprised of *Psilocladus*, *Ethra* Laporte de Castelnau, and three monotypic genera, *Pollaclasis* Newman, *Scissicauda* McDermott and *Photoctus* McDermott. (McDermott 1964) Crowson (1972) established the Cyphonocerinae to include *Cyphonocerus* and *Pollaclasis*, and this classification was followed by Lawrence and Newton (1995). Nakane (1991) transferred several genera of McDermott's Amydetinae to the other subfamilies in Crowson's system and listed *Cyphonocerus*, *Psilocladius* and *Pollaclasis* in Cyphonocerinae. This led Jeng et al. (1998) to synonymize Cyphonocerinae with Psilocladinae which had priority over the former. Suzuki (1997) showed that *Cyphonocerus* might be the sister group of the traditionally defined Lampyrinae Latreille based on the molecular phylogeny of exemplar Japanese species. Lawrence et al. (2000) synonymized the Psilocladinae/Cyphonocerinae with the Lampyrinae. Branham and Wenzel (2001 2003) revealed the polyphyly of Lampyrinae and found *Pollaclasis* resided basally in Lampyridae, but *Cyphonocerus* was not included in their analysis. Recent examinations on the detailed morphology of *Pollaclasis* and *Psilocladius* species suggest that the former is

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closely allied to *Cyphonocerus* which shares similar morphology of symmetrical aedeagal sheath and male genitalia as well as identical hind wing venation, while *Psilocladius* has asymmetrical aedeagal structures as those in *Lucidota* and *Lucidina* (Jeng, unpublished). It is unclear whether the shared states are derived or ancestral and if the difference represents a transformation series. The systematic position of *Cyphonocerus* and the validity of Cyphonocerinae/ Psilocladinae may only be determined by a comprehensive phylogeny of Lampyridae (Jeng, in preparation).

The genus was partially reviewed by Jeng et al. (1998 1999) at which time 10 species from Taiwan and Japan were examined. In this paper we describe 4 new species from China and Nepal, treat the remaining known species, and thus complete a review of the genus.

MATERIALS AND METHODS

All studied materials were from the Naturhistorisches Museum Basel, Switzerland (NMB), Muséum national d'Histoire naturelle, Paris, France (MNHN), and the authors' personal collections. Illustrations were done with the aid of a drawing tube attached to an Olympus BX50 microscope. Measurement of body parts was made by outlining the shape under a Nikon SMZ10 stereomicroscope then converting it into real values. The body length (BL) is the sum of the pronotal and elytral lengths (BL = PL+EL); body width (BW) is the largest width across the body or elytral width (BW = EW); while PW is the pronotal width. The abbreviations T#, S#, and V# mean the #-th segment of the tergite, sternite, and ventrite, respectively. The aedeagal sheath is composed of a syntergite (T9+10) and sternum S9. Other terms and methods are referenced to (Jeng et al. 1998).

Cyphonocerus Kiesenwetter

Cyphonocerus Kiesenwetter 1879: 312 (Drilidae). - Olivier 1910: 8. - Wittmer 1944: 218. - Nakane 1947: 5 (= *Psilocladus* Blanchard); 1967: 7 (valid genus); 1968: 5 (in Psilocladina, Amydetinae, Lampyridae). - Crowson 1972: 56 (in Cyphonocerinae, Lampyridae). - Lawrence and Newton 1995: 855. - Jeng et al. 1998: 379 (in Psilocladinae).

Type species: *C. ruficollis* Kiesenwetter, 1879 (monotypic).

Description: Median sized, body length 5-12 mm. Elongate, somewhat depressed. Coloration yellowish-brown, orangish-red, red, brown, and black in different combinations. Head hypognathous, either partially exposed or covered by pronotum when retracted. Eyes moderate in size, not different sexually. Frons broad and slightly protruding. Antennae 11-articled; antennomere 2 small; bipectinate in antennomeres 3-10, branches symmetrical in length, arising from base or near apex of the respective antennomere, with short hairs, never lobed. Clypeus and labrum inseparable, not rigidly fused with frons. Mandibles normal, strongly curved, crossing each other, with pointed tips. Maxillary palpus 4-articled and labial one 3-articled, moderately dilated with thick terminal palpomere. Pronotum subtriangular, trapezoidal, or semicircular, opaque; coarsely and densely punctate throughout; central disc highly convex, and pronotal margins weakly reflexed if at all; central sulcus running through central disc; explanate area very narrow; hind angles subrectangular or conspicuous. Scutellum tongue-like. Elytra fully covering abdomen; rugous and coarsely punctate, clothed with short, velvet hairs; many species with 4 noticeable carinae. Epipleura broadened at basal 1/3. Legs slender and long; tarsomere 4 lobed beneath and 1/2 as long as tarsomere 5; tarsal claws simple. Abdomen with 8 ventrites in male (S9 = V8), surface opaque, finely punctate and pubescent. Tergites and ventrites without projecting hind angles; T8 roundly trapezoidal or semicircular. Spiracles on dorsum. V7 without externally recognizable photogenic organs but able to glow in some species. Aedeagal sheath bilaterally symmetrical, with externally visible sternite (S9). Male genitalia bilaterally symmetrical, elongate oval or parallel-sided, median lobe slender in apical 1/2 in most species, but robust in others; parameres bifurcate apically, fused with each other at base on dorsum; basal piece short and symmetrical.

Sexual dimorphism: Females of the genus are known in only a few species. They differ from males in: 1) having shorter antennae and their branches; and 2) having 7 instead of 8 ventrites on the abdomen.

Remarks: The genus resembles *Pollaclasis* from North America and *Psilocladius* from the Neotropical realm. It is differentiable from *Psilocladius* by its very narrow pronotal explanate borders, symmetrical aedeagal sheath, bifurcate apices of parameres, slender median piece and semi-ringed basal piece. The monotypic genus *Pollaclasis*, based on *Lampyris bifaria* Say, agrees well with the general morphology of *Cyphonocerus*

but a little ovate in body shape. The male genitalia of *P. bifaria* differ from those of the known *Cyphonocerus* species by the long basal piece which is about as long as paramere, and the median lobe which is largely exposed in lateral aspect. The origin of *Pollaclasis* is engaging since the genus is monotypic and endemic to the eastern part of the United States. Based on overall and specific similarities of morphology, *Cyphonocerus* seems to be the most allied relative of *Pollaclasis* but can not be sure a priori a phylogenetic analysis. Their relationships need more researches to reveal.

Cyphonocerus melanopterus sp. nov.

Type locality: Mt. Jinfo, Sichuan Prov., China.

Description: Male. BL: 6.3 mm, BW: 2.4 mm. Body (Fig. 1) elongate and subparallel, depressed. Coloration black, pronotum mixed with reddish-brown speckles, ventral surface dark brown to black. Antenna (Fig. 7) not surpassing basal 1/3 of elytra when laid backward; branches of antennomere 3 rising from near apex of antennomere, short and not clearly separate (Fig. 7A); antennomeres 4-9 each angled about 30° with their respective branch; eyes prominent laterally, widely separated from each other. Frons slightly concave between eyes. Clypeus-labrum transverse, arched basally and nearly straight distally; mandibles strongly curved and pointed apically, without a tooth. Pronotum transverse, subtrapezoidal, with densely punctate surface; apical margin weakly and broadly arched; basal angles right-angled, not protruding outwards; anterior and lateral margins bent upward; central disc weakly convex, central suture indistinct. Scutellum tongue-like, punctate sublaterally. Elytra elongate and subparallel, coarsely punctate but very scarcely pubescent if at all, costae obsolete. Mesosternal process long. Abdomen with 8 ventrites (= S2-9), minutely and densely punctate and pubescent. T8 (Fig. 8) transverse and subtrapezoidal. PW/PL 1.6; EL/PL 5.2; EL/EW 2.2.

Figs. 1-6. *Cyphonocerus* species. **1.** *Cyphonocerus melanopterus* sp. nov., holotype male; **2.** *C. nigrithorax* sp. nov., holotype male; **3.** *C. sylvicola* sp. nov., holotype male; **4.** *C. triangulus* sp. nov., holotype male; **5.** *C. harmandi* (Olivier), male; **6.** *C. sanguineus* klapperichi Pic, female.

Aedeagal sheath (Fig. 9) 1.2 mm long, 0.6 mm wide; terga about 1/2 sheath length, T10 weakly notched at apex; S9 broadly and roundly emarginate apically, somewhat pointed at base. Male genitalia (Fig. 10) about 1 mm long, 0.5 mm wide, weakly sinuate at side. Median lobe robust, broadened in basal 1/3. Parameres with broad short apical fingers, subapical cleavage shallow; inner margin of ventral side almost straight. Sclerite of basal piece short.

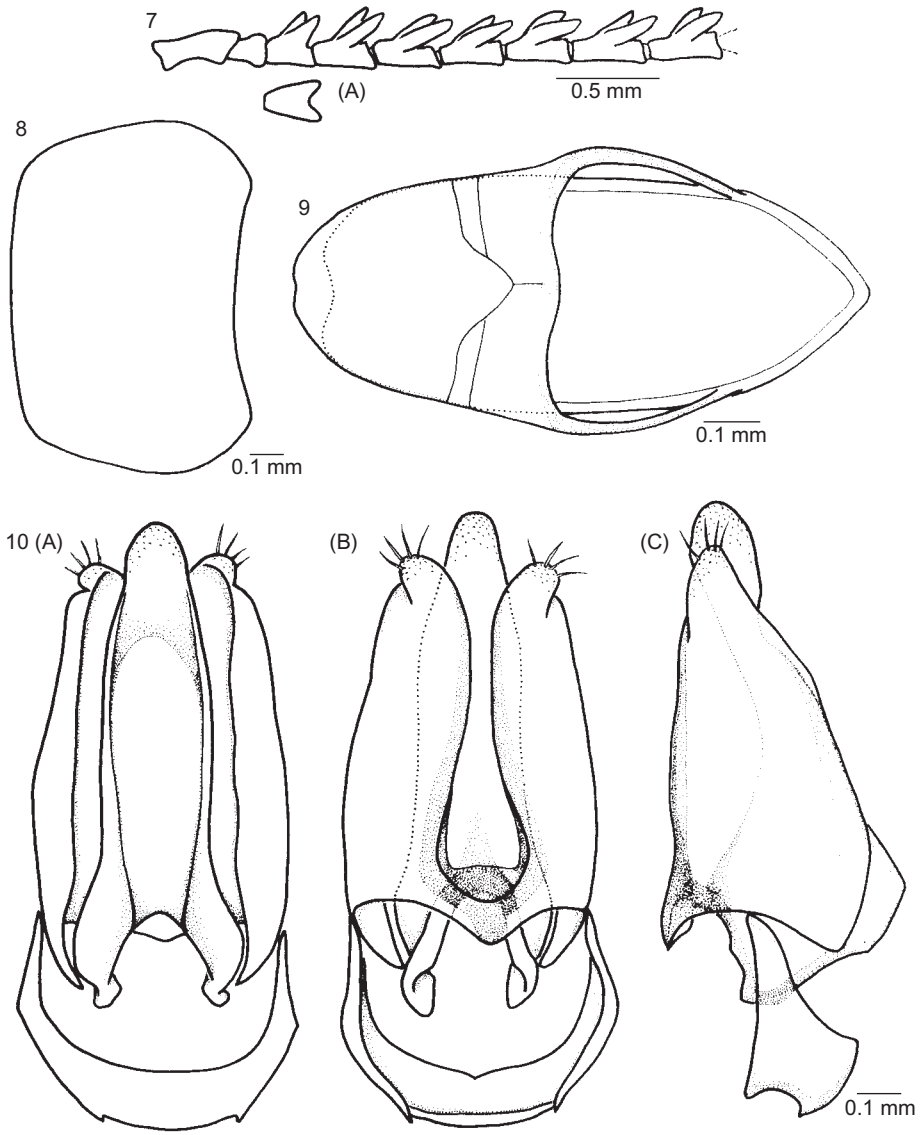
Female: unknown.

Type series: Holotype ♂, "CHINA: SE Sichuan Jinfo Shan, 29°01'N, 107°14'E, 1700-1950 m 24-29.VI.98, J. Farkac" (NMB).

Remarks: This new species is characterized by its short antennae, black coloration, absence of pubescence on the elytra, and a broad median lobe of the male genitalia. *Cyphonocerus watarii* from Japan has similar coloration, but *C. watarii* possesses long antennae and distinct elytral costae. Median lobes of *C. watarii* are slender in apical 1/2, while those of *C. melanopterus* are robust.

Distribution: China (Sichuan Prov.).

Etymology: The specific name (Greek, *melano*-, black and *pterus*, winged) refers to the



Figs. 7-10. *Cyphonocerus melanopterus* sp. nov., male. **7.** Right antenna, (A) branches of antennomere 3 from frontal view; **8.** abdominal tergite 8; **9.** aedeagal sheath, dorsal view; **10.** male genitalia, ventral (A), dorsal (B), and lateral (C) aspects.

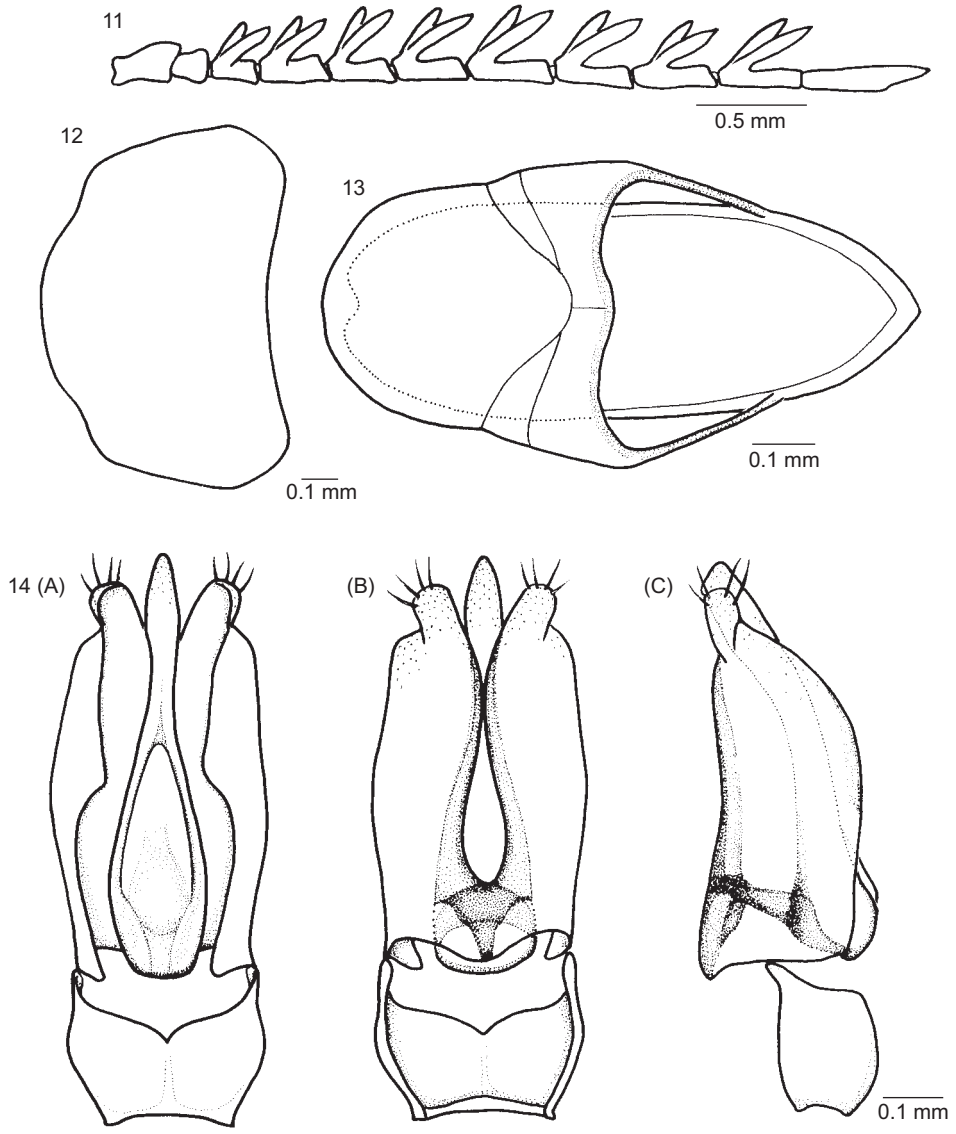
black elytra.

Cyphonocerus nigrithorax sp. nov.

Type locality: Nuwakot, Bagmati, Nepal.

Description: Male. BL: 5.9 mm, BW: 2.3 mm. Body (Fig. 2) elongate and subparallel. Antennae, head, pronotum, scutellum, and ventral side brownish-black, all legs brown, elytra yellowish-brown. Antenna (Fig. 11) reaching elytral 1/3 when laid backward; branches of antennomere 3 widely separated from each other; antennomeres angled about 40°- 45° with their respective branches; all branches slender. Frons not concave between eyes. Clypeus-labrum weakly emarginate apically. Pronotum transverse, subtrapezoidal, with densely punctate surface; apical margin weakly and broadly arched, lateral margins smoothly rounded, basal angles right-angled, weakly protruding to rear; anterior and lateral margins only slightly bent upward; central disc highly convex, with indistinct central suture. Scutellum punctate throughout. Elytra elongate and subparallel-sided, densely punctate and pubescent, with 2 weak costae. T8 (Fig. 12) transverse, broadly and weakly projecting at central apex. PW/PL 1.4; EL/PL 4.5; EL/EW 2.1.

Aedeagal sheath (Fig. 13) 1.0 mm long, 0.5



Figs. 11-14. *Cyphonocerus nigrithorax* sp. nov., male. **11.** Right antenna; **12.** abdominal tergite 8; **13.** aedeagal sheath, dorsal view; **14.** male genitalia, ventral (A), dorsal (B), and lateral (C) aspects.

mm wide; terga about 1/2 as long as sheath. Male genitalia (Fig. 14) 0.9 mm long, 0.4 mm wide. Median lobe slender in apical 1/3, roundly broadened toward base. Parameres with broad apical fingers, subapical cleavage insignificant; inner margins sinuate ventrally. Basal piece about 1/3 of aedeagal length.

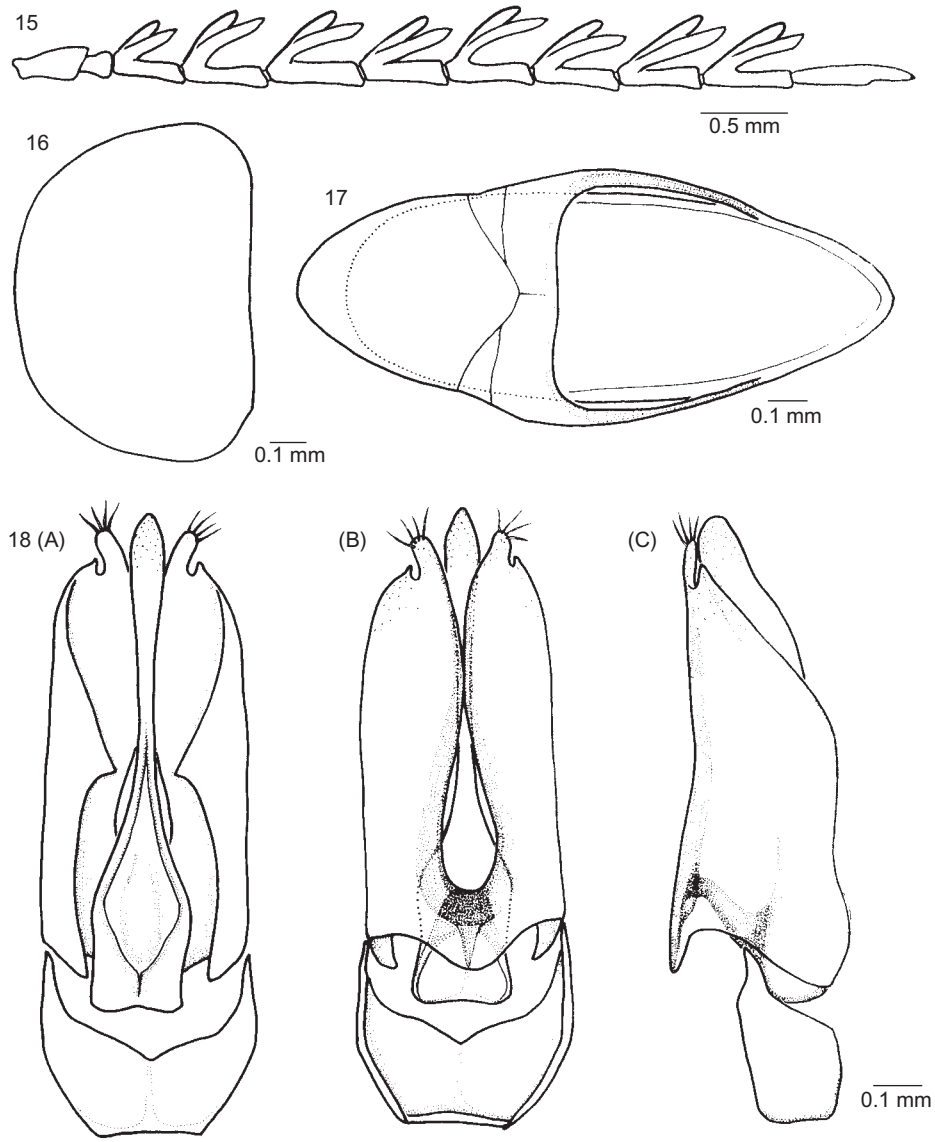
Female: unknown.

Type series: Holotype ♂, "Nepal Bagmati Nuwakot/ Pati Bhanjyang 1900 m 16-18.VI.89 M. Brancucci" (NMB).

Remarks: Three *Cyphonocerus* species, *C. nigrithorax*, *C. taiwanus*, and *C. yayeyamensis*, share similar coloration patterns as described above. The last species can be readily distinguished from the others by its shorter elytra (EL:PL 3.6 vs. 4.0-4.6). *Cyphonocerus taiwanus* is very similar to this new species, but *C. nigrithorax* is a little smaller (BL: 5.9 vs. 6.5-7.5 mm), its black pronotum is totally opaque, and it has smaller male genitalia (0.9 vs. 1.3 mm long), smoothly curved inner ventral margins, and insignificant subapical cleavages of the parameres.

Distribution: Nepal.

Etymology: The name refers to the black pronotum of this species.



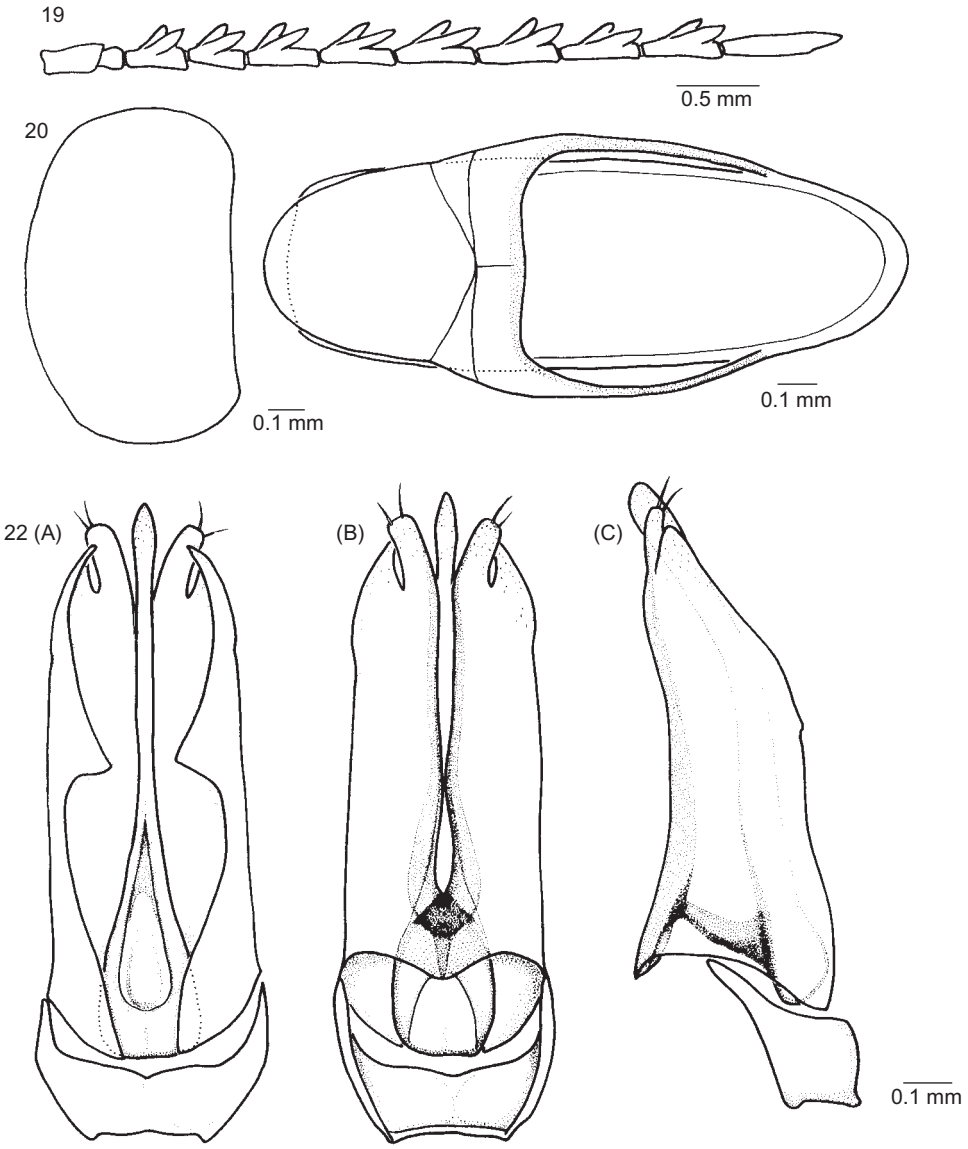
Figs. 15-18. *Cyphonocerus sylvicola* sp. nov., male. **15.** Right antenna; **16.** abdominal tergite 8; **17.** aedeagal sheath, dorsal view; **18.** male genitalia, ventral (A), dorsal (B), and lateral (C) aspects.

***Cyphonocerus sylvicola* sp. nov.**

Type locality: Mt. Emei, Sichuan Prov., China.

Description: Male. BL: 6.7- 8.1 mm, BW: 2.3-2.8 mm. Body (Fig. 3) elongate and subparallel. Coloration yellowish-brown, head, antennae, legs, and venter blackish-brown. Antennae (Fig. 15) reaching elytral apical 1/2 or more when laid backward; antennal branches slender and long, each arising from base of their respective antennomere, angled 40°- 45° with the antennomeres. Frons weakly concave between eyes. Clypeus-labrum broadly roundly emarginate. Pronotum transverse, densely punctate, and pubescent; apical margin broadly arched, lateral margins straight, basal angles prominent; anterior and lateral margins highly bent upward; central disc highly convex, central suture depressed. Scutellum punctate throughout. Elytra long and subparallel-sided, with densely punctate and pubescent surface; costae weak but visible. T8 (Fig. 16) transversely subrectangular. PW/PL 1.5-1.7; EL/PL 4.3-4.7; EL/EW 2.2-2.4.

Aedeagal sheath (Fig. 17) 1.5 mm long, 0.5 mm wide; terga about 2/5 as long as sheath, T10 arched apically; S9 rounded at apex and some-



Figs. 19-22. *Cyphonocerus triangulus* sp. nov., male. **19.** Right antenna; **20.** abdominal tergite 8; **21.** aedeagal sheath, dorsal view; **22.** male genitalia, ventral (A), dorsal (B), and lateral (C) aspects.

what angled at base. Male genitalia (Fig. 18) about 1.3 mm long, 0.4 mm wide, subparallel-sided. Median lobe slender in apical 1/2 and broadened in basal 1/2. Paramere with slender apical fingers, subapical cleavage significant; ventral inner margin sharply curved at apical 1/2. Basal piece about 1/3 of total aedeagal length.

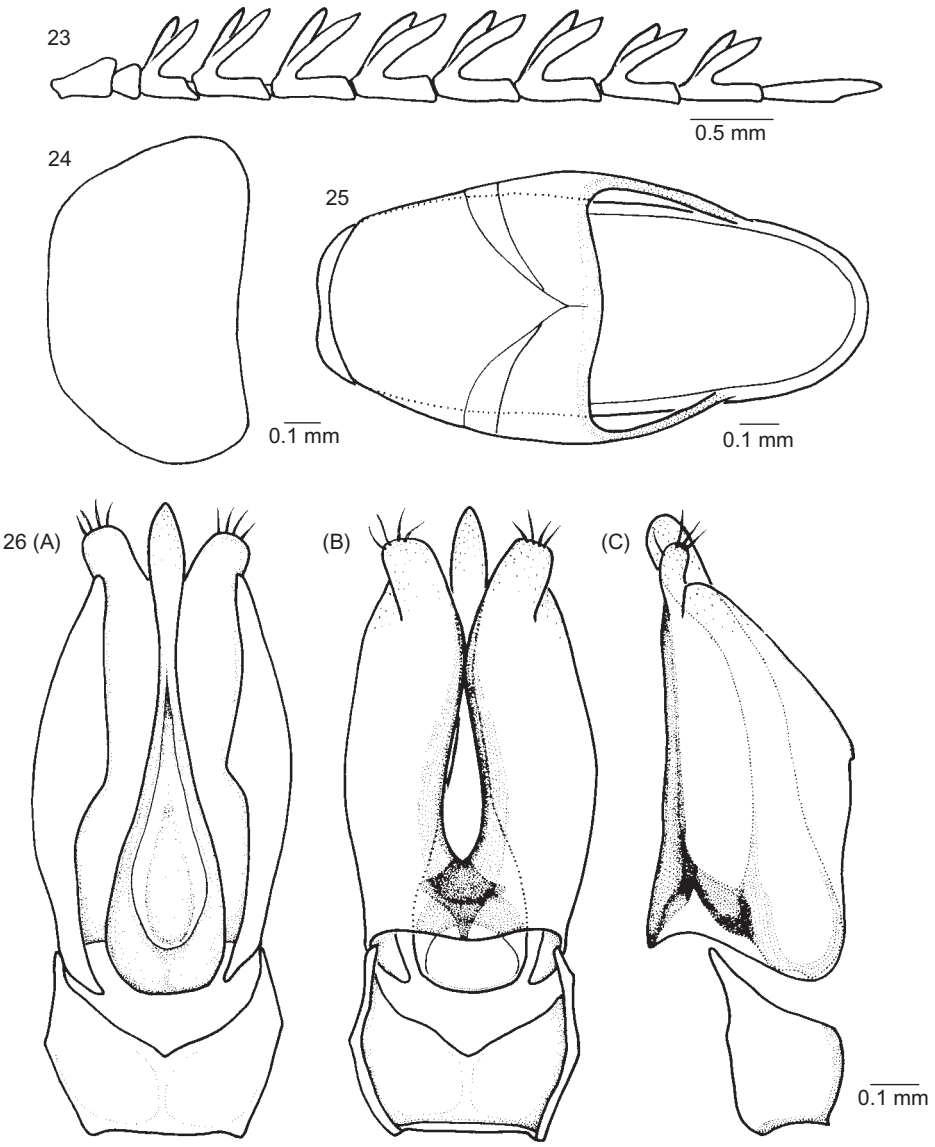
Female: unknown.

Type series: Holotype ♂, "CHINA: Sichuan Mt. EMEI, 600-1050 m 5.-19.5.1989 Lad. Bocak, lgt." . 8 paratype ♂ with same data as holotype, 2 paratype ♂: "CHINA, pr. Sichuan EMEI Mt. 1000 m 4.-20.5.1989" (NMB).

Remarks: The species is somewhat similar to *C. harmandi* (Olivier) from India and Nepal. The antennomere branches of *C. harmandi* are 1.5 times as long as antennomeres, while those of *C. sylvicola* are about as long as its antennomeres. The aedeagal sheath and male genitalia of both species differ in many ways as shown in figures 17 vs. 25 and 18 vs. 26.

Distribution: China (Sichuan Prov.).

Etymology: *Sylvi-* (Latin, of the forest) and *cola* (dweller) refer to the habitat environment of this species.



Figs. 23-26. *Cyphonocerus harmandi* Olivier, male. **23.** Right antenna; **24.** abdominal tergite 8; **25.** aedeagal sheath, dorsal view; **26.** male genitalia, ventral (A), dorsal (B), and lateral (C) aspects.

Cyphonocerus triangulus sp. nov.

Type locality: Mt. Gaoligong, Yunnan Prov., China.

Description: Male. BL: 7.7 mm; BW: 2.8 mm. Body (Fig. 4) elongate and subparallel. Coloration yellowish-brown; antennae, head, all legs, and ventral side dark brown. Antenna (Fig. 19) reaching elytral basal 2/5 when laid backward; antennomeres and their branches thick, angled about 30 ; branches of antennomeres 3, 4, and 8-10 short, rising from near apex of antennomeres; antennomere 11 about 1.5 times longer than preceding article. Pronotum subtriangular, densely punctate and pubescent; apical margin well arched and basal angles prominent; margins weakly bent upward; central disc highly convex in basal 1/4, central suture moderately depressed. Scutellum punctate throughout. Elytra long and subparallel-sided; densely punctate and pubescent, with conspicuous costae. T8 (Fig. 20) transversely oblong. PW/PL 1.3; EL/PL 4.1; EL/EW 2.2.

Aedeagal sheath (Fig. 21) 1.6 mm long, 0.6 mm wide; terga about 2/5 as long as sheath, T10 rounded apically; S9 very weakly arched, rounded at base. Male genitalia (Fig. 22) 1.6 mm long, 0.5 mm wide, elongate, and subparallel-sided. Median lobe slender and broadened toward base from basal 1/3. Parameres with long apical fingers and deep subapical cleavages; inner ventral margin sharply curved in apical 1/2. Basal piece about 1/5 genitalia length.

Female: unknown.

Type series: Holotype ♂, "YUNNAN 2200-2500 m 24°57'N, 98°45'E 8-16/5 GAOLIGONG mts. Vit Kuban leg. 1995" (NMB).

Remarks: The species is characterized by its subtriangular pronotum. For differences from other similar species, see the key below.

Distribution: China (Yunnan Prov.).

Etymology: The name refers to the subtriangular pronotum of this species.

Cyphonocerus harmandi (Olivier)

Psilocladus harmandi Olivier 1903: 19.
Cyphonocerus harmandi (Olivier): Nakane 1967: 9.

Type locality: Darjeeling, India.

Redescription: Male. BL: 7.2 mm; BW: 2.3 mm. Body (Fig. 5) elongate and subparallel-sided. Coloration yellowish-brown, head, antennae, legs, and venter dark brown. Antenna (Fig. 23) reaching elytral basal 1/2 when laid backward; antennal branches slender and long, widely separated from each other, each arising from base of its respective antennomere and angled about 40° - 45° . Clypeus-labrum broadly rounded and emarginate. Pronotum subcircular, densely punctate and pubescent; apical margin moderately bent upward, basal angle not prominently protruding; central disc convex in basal 1/3, with distinct central suture. Scutellum moderately punctate. Elytra long and subparallel-sided, densely punctate and pubescent; costae very weak and insignificant. T8 (Fig. 24) transversely subtrapezoidal. PW/PL 1.4; EL/PL 4.4; EL/EW 2.5.

Aedeagal sheath (Fig. 25) 1.2 mm long, 0.6 mm broad; terga about 1/2 as long as sheath, T10 broadly rounded apically; S9 slightly sinuate apically and rounded basally. Male genitalia (Fig. 26) 1.1 mm long, 0.5 mm wide. Median lobe slender in apical 1/3 and gradually broadening toward base. Paramere with short broad apical fingers, subapical cleavage detectable; inner margins sinuate ventrally. Basal piece about 1/3 of total aedeagal length.

Female: unknown.

Type material examined: Lectotype ♂ (designated here), "MUSEUM PARIS, DARJILING, HARMAND 1890/type/ *Psilocladus Harmandi* types Ern. Oliv."(MNHN); three paralectotype males bear data similar to that of the lectotype.

Additional material examined: ♂, "Godawari 1500 m, 17.V. May 1983/ Nepal, Kathmandu, V. M. Brancucci."

Olivier (1907 1910) listed *Psilocladus harmandi* in his catalogues of the Lampyridae but offered incorrect reference resources for both. McDermott (1966) omitted this species from the catalogue probably because of an inability to locate the original description according to Olivier's reference.

Distribution: India and Nepal.

Cyphonocerus sanguineus klapperichi Pic, stat. nov.

Cyphonocerus sanguineus Pic 1911: 143. - Jeng et al. 1998: 390.

Type locality: Tainan, Taiwan.

Cyphonocerus klapperichi Pic 1955: 25.

Type locality: Guadun (= Kuatun), Fujian Prov., China.

Cyphonocerus klapperichi was described based on materials from Wuyishan, [Fujian Prov., China], whose fauna shares great similarity to that

of Taiwan. It was suspected of being a synonym of *C. sanguineus* in our previous work (Jeng et al. 1998). We examined more specimens from the type locality of *C. klapperichi*. The body size of *C. klapperichi* is generally larger than that of *C. sanguineus* but with some overlap (BL 9.9-11.6 vs. 7.8-11.2 mm). *Cyphonocerus klapperichi* (Fig. 6) has dark markings on the pronotal disc, which is rarely seen in *C. sanguienus*. Neither the morphology nor size of the male genitalia of *C. klapperichi* and *C. sanguineus* are distinguishable. Based on these morphological resemblances and differentiations, we demote *C. klapperichi* to a subspecies of *C. sanguineus*.

Material of C. klapperichi examined: 3 ♂♂ and 1 ♀, Kuatun (Fujian) China 8-26 June 1946 (NMB); 1 ♀, Tam Dao, Vinh Phu Prov., N. Vietnam, 22 Apr. 1995, M Satô leg.

Distribution: China (Fujian Prov.) and Vietnam.

Key to *Cyphonocerus* species worldwide

1. Antennal branches very short, arising from near apex of antennomeres 3-10 ..... *C. inelegans* (Japan: Honshu)
- Antennal branches each arising from base of its own antennomere 2
2. Dorsal coloration orange to sanguineous throughout, some with dark markings on pronotum .. *C. sanguineus* 3
- Dorsal coloration not as above 4
3. Body size generally larger (BL: 9.9-11.6 mm); pronotum with dark markings on central disc ..... *C. sanguineus klapperichi* (China)
- Body smaller (BL: 7.8-11.2 mm); pronotum rarely with dark markings on central disc ..... *C. sanguineus sensu stricto* (Taiwan)
4. Pronotum and elytra with contrasting coloration 5
- Pronotum and elytra with similar or identical coloration 11
5. Pronotum more darkly colored than elytra 6
- Pronotum brighter than elytra 9
6. Elytra sanguineous ..... *C. jenniferae* (Taiwan)
- Elytra yellowish-brown 7
7. Margins of pronotum brown and central disc brownish-black; pronotal basal angles prominently protruding ..... *C. taiwanus* (Taiwan)
- Pronotum opaquely black throughout; pronotal basal angles weakly protruding 8
8. Elytra long, about 4.5-times as long as pronotum ..... *C. nigrithorax* (Nepal)
- Elytra comparatively shorter, about 3.6-times as long as pronotum ..... *C. yayeyamensis* (Japan: Is. Yayeyama)
9. Pronotum red; elytra entirely black ..... *C. ruficollis* (Japan: Honshu, Kyushu)
- Pronotum yellowish-brown; elytra dark brown with paler margins ..... *C. okinawanus* (Japan) 10
10. Scutellum, legs, and elytra brown; abdominal T8 very weakly arched ..... *C. okinawanus sensu stricto* (Japan: Is. Okinawa)
- Scutellum yellowish-brown; legs and elytra brownish-black; abdominal T8 slightly emarginate apically ..... *C. okinawanus amamianus* (Japan: Amami Oshima)
11. Dorsal coloration brownish-black to black 12
- Dorsal coloration yellowish or dark brown 13
12. Elytral carinae visible; branches of antennomere 3 slender and widely separated from each other ..... *C. watarii* (Japan: Kyushu)
- Elytral carinae indistinct; branches of antennomere 3 short and narrowly separated from each other ..... *C. melanopterus* (China: Sichuan)
13. Pronotum subtriangular, with more or less acute apex ..... *C. triangulus* (China: Yunnan)
- Pronotum semi-elliptical or transverse, with broadly rounded apex 14
14. Coloration brown dorsally, with paler pronotal and elytral margins ..... *C. marginatus* (Japan: Shikoku, Kyushu)
- Coloration yellowish-brown throughout 15
15. Central disc of pronotum darker than elytra; elytra as long as 3.7-3.9 times pronotal length ..... *C. hwadongensis* (Taiwan)
- Central disc of pronotum with similar coloration to that of elytra; elytra about 4.3-4.7-times pronotal length 16
16. Branches of antennomere 3 about as long as or slightly longer than its antennomere ..... *C. sylvicola* (China: Sichuan)
- Branches of antennomere 3 about 1.5-times antennomere length ..... *C. harmandi* (India, Nepal)

List of *Cyphonocerus* species worldwide

Type Species: *Cyphonocerus ruficollis* Kiesenwetter 1879.
C. harmandi (Olivier 1903: 13).
C. hwadongensis Jeng, Yang & Satô 1998: 393.
C. inelegans Nakane 1967: 7.
C. jenniferae Jeng & Satô, *In* Jeng et al. 1999: 406;
Jeng 2003: 224 (emendation).
C. melanopterus Jeng, Yang & Satô 2006: 151.
C. marginatus Lewis 1895: 115.
C. nigrithorax Jeng, Yang & Satô 2006: 153.
C. okinawanus Nakane 1983: 142.
ssp. *amamianus* Jeng et al. 1998: 386.
C. ruficollis Kiesenwetter 1879: 312.
C. sanguineus Pic 1911: 143.
ssp. *klapperichi* Pic 1955: 25.
C. sylvicola Jeng, Yang & Satô 2006: 154.
C. taiwanus Nakane 1967: 8.
C. triangulus Jeng, Yang & Satô 2006: 156.
C. watarii Satô 1991: 191.
C. yayeyamensis Satô 1976: 59.

The genus shows high species diversity in Taiwan and Japan (including the Ryukyu Archipelago), while knowledge of the fauna of other areas is limited. Although only five of 15 known species are found in Oriental China, these species show great morphological variation as can mostly be detected in the species from Japan and Taiwan. This implies that the genus might have had a China-centered radiation. Higher species diversity in China is expected.

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