

**Two new plant bug species of the genus
Coridromius SIGNORET, 1862 from the Oriental Region
with a new synonymy
(Heteroptera, Miridae, Orthotylinae, Halticini)**

by F. CHÉROT¹, F. KONSTANTINOV² & T. YASUNAGA³

¹ Laboratory of Systematic and Animal Ecology, Free University of Brussels, av. F. D. Roosevelt, 50, B-1050 Brussels, Belgium (e-mail: fcherot@ulb.ac.be).

² Department of Entomology, Faculty of Biology and Soil Sciences, St. Petersburg State University, Universitetskaya emb. 7/9, 199034 St Petersburg, Russia (e-mail: fkonstantinov@hotmail.com).

³ Zoological Laboratory, Department of Science, Faculty of Education, Okayama University, Tsushima, Okayama 700-8530, Japan (e-mail: Yasunaga@cc.okayama-u.ac.jp).

Abstract

Two remarkable halticine plant bug species of the genus *Coridromius* SIGNORET, 1862 from India, Laos, and Vietnam are described. *Coridromius bufo* MIYAMOTO & YASUNAGA, 1999 is proposed as a junior subjective synonym of *C. chinensis* LIU & ZHAO, 1999. A key is provided to distinguish all known species of *Coridromius*.

Keyword: Heteroptera, Miridae, Halticini, *Coridromius* sp. n. and syn. n., genitalia.

Introduction

The genus *Coridromius* SIGNORET, 1862 (Heteroptera, Miridae, Orthotylinae, Halticini) was first proposed by MONTROUZIER (1861: 67) under the name *Ocypus* (junior homonym of *Ocypus* KIRBY, 1819, Coleoptera) to accommodate a single species, *O. variegatus* MONTROUZIER, from New Caledonia. SIGNORET (1862: 5) gave the valid replacement name *Coridromius* for *Ocypus* MONTROUZIER, 1861 *nec* KIRBY, 1819. Subsequently, 9 nominal species were described in the genus, including four species from Papua New Guinea (*C. minusculus* CARVALHO, 1987, *C. neoguineanus* CARVALHO, 1987, *C. nigrus* CARVALHO, 1987 and *C. punctatus* CARVALHO, 1987), two from China (*C. chinensis* LIU & ZHAO, 1999 and *C. testaceous* LIU & ZHAO, 1999), two from

Japan (*C. bufo* MIYAMOTO & YASUNAGA, 1999 and *C. declivipennis* MIYAMOTO & YASUNAGA, 1999) and one from the Ivory Coast (*C. schuhi* LINNAVUORI, 1994).

The present paper reports the discovery of two undescribed *Coridromius* species from India, Laos and Vietnam. External anatomy and genital structures of both sexes – if known – are described. A key to all the species of the genus is also provided.

Material and methods

The terminology of the genital structures follows, with slight modifications CHÉROT, (2002), SLATER (1950), DAVIS (1955), KELTON (1959) and STONEDAHL (1988). The following abbreviations are used: CNC: Canadian National Collection, Ottawa, Canada; NHMW: Naturhistorisches Museum Wien, Austria; NKUM: Department of Biology, Nankai University, Tianjin, China; ULB: Université Libre de Bruxelles, Brussels, Belgium; ZEOU: Zoological Laboratory, Faculty of Education, Okayama University, Okayama, Japan; ZMAS: Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia.

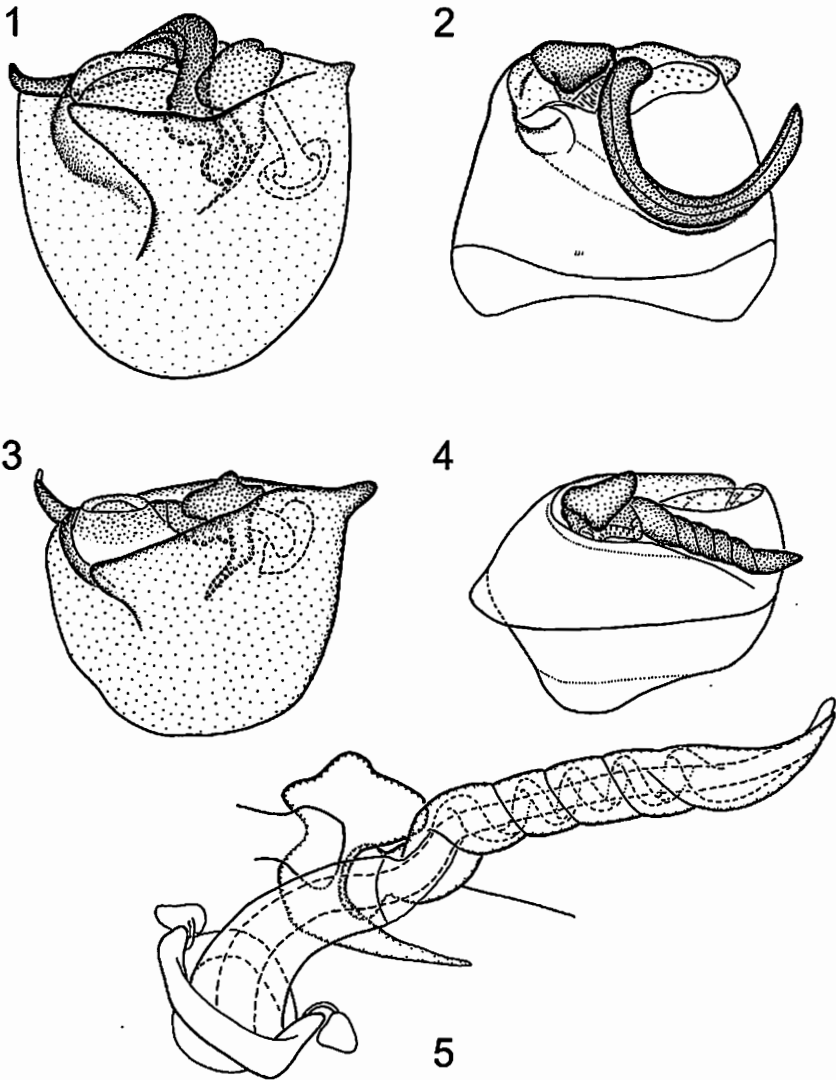
All measurements are in millimetres. The specimens of the new species examined in this study are preserved in the NHMW, ULB and ZEOU.

Taxonomy

Coridromius zetteli sp. n.

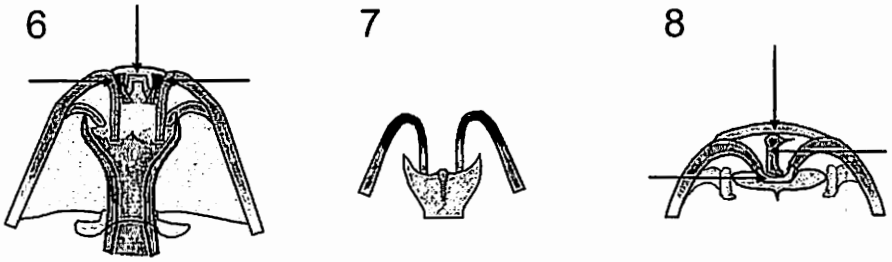
Holotype (♂): South-Laos, Sekong, Bolavens, 29-30.v.1996 (NHMW)

Description: Body coloration variable, fuscous to extensively black, covered with silvery recumbent pubescence and faint punctures. Head pale brown, with yellow pattern along eyes and basal margin; punctures absent. Maxillary and mandibular plates pale, apex of clypeus dark. First antennal segment dark, with pale yellow base and apex. Second antennal segment pale gray, with incrassate, dark apical quarter and median blackish brown ring. Third and fourth segments dark brown, with yellow bases and erect stiff setae. Rostrum yellow, almost reaching metacoxa. Pronotum pale brown to black; collar, edge of lateral and basal margins, basal part of midline yellow. Scutellum pale brown to dark, with yellow border and midline. Pronotum and scutellum densely irrorated with faint punctures. Propleuron, meso- and metapleura brown to dark brown, with yellow margins. Legs almost unicolourous yellow, hind femora ventrally with eight distinct oblique dark brown stripes and large, indistinctly brown spot. Clavus pale to dark brown, noticeably paler apically. Corium pale brown to dark, usually became paler apically. Embolium darker than endocorium, with contrastingly yellow margin and U-shaped callose pattern on lateroapical angle. Punctuation on corium became indistinct apically. Cuneus with obscure punctures, uniformly pale brown to dark brown, outer margin slightly paler. Membrane pale brown, with slightly embrowned apical part. Veins dark, except for pale section closing inner cell from behind.



Figs 1-5. 1-2: *Coridromius nakatanii* sp. n. Male. Pygophore. 3-5: *Coridromius zetteli* sp. n. Male. 3-4: Pygophore. 5: Parameres and aedeagus.

Male genital segment (Fig. 3) trapeziform, its dorsal wall somewhat reduced and ventral wall greatly protruding, with distinct mesal longitudinal suture and ventral apical process. Right paramere (Figs 3, 5) with broadened body and short, rounded apical process. Left paramere (Figs 4-5) strongly sclerotized, large and straight, with curved apex. Body of left paramere coiled along its axis with five revolutions. Aedeagus with weakly sclerotized phallosome and



Figs 6-8. 6: *Coridromius nakatanii* sp. n. Anterior part of female genital structures (the arrows show the three sclerites between the first fibulae). 7: *Coridromius declivipennis* MIYAMOTO & YASUNAGA, 1999. Anterior part of female genital structures. 8: *Coridromius chinensis* LIU & ZHAO, 1999. Anterior part of female genital structures (the arrows show the three sclerites between the first fibulae).

phallobase. Endosoma simple, without armament, coiled in gutter of left paramere, unretractable into phallosheca.

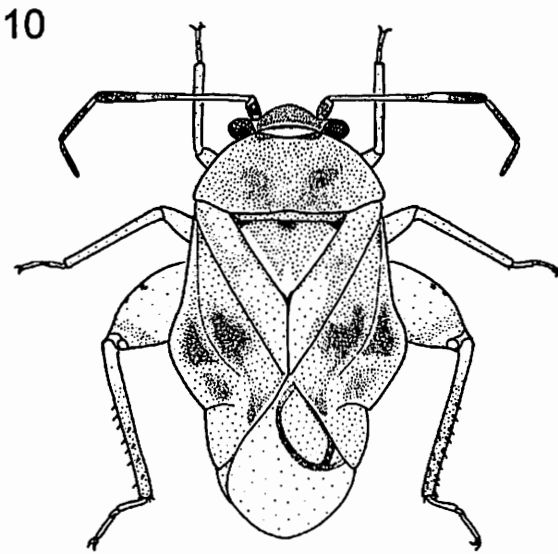
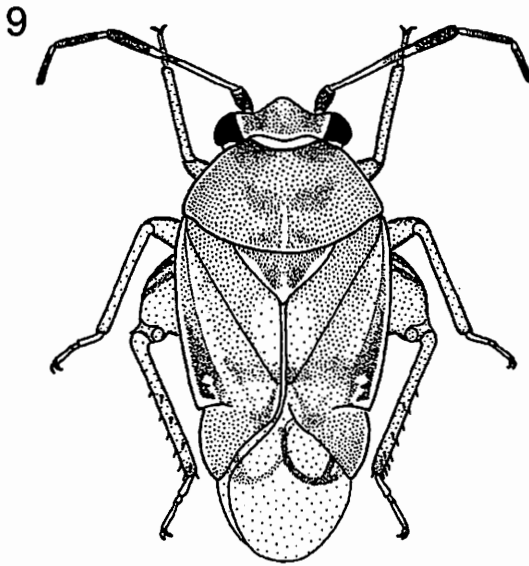
Female unknown.

Measurements. Body length: 2.5-2.6. Lengths of antennal segments: 0.16/0.91/0.2/0.23; head width including eyes: 0.87; vertex width: 0.5; mesal pronotal length: 0.73; basal pronotal width: 1.3; length of hind tarsal segments: 0.18/0.07/0.16.

Etymology: This species is named in honour to Dr H. Zettel, curator of Heteroptera to NHMW and specialist on Gerromorpha.

Examined specimens: Holotype (σ): S(outh)-Laos, Prov(ince) Sekong, Bolavens-Pl, N-slope, ca 10km N. Mg Tha Theng, 29-30.v.1996, 500-700m, leg. Schillhammer (14a) (NHMW). Paratypes (3 $\sigma\sigma$): S(outh)-Laos, Prov(ince) Sekong, Bolavens-Pl, N-slope, ca 10km N. Mg Tha Theng, 29-30.v.1996, 500-700m, leg. Schillhammer (14a) (NHMW). Other specimen examined: 1 σ : [North Vietnam] Tam Dao, alt. 900m., 17-18.vi.1999, Y. Nakatani (ZEOU).

Comparison. The dorsal punctuation of the pronotum and scutellum of *C. zetteli* is reduced, narrow and shallow. Three *Coridromius* species have similar punctuation: *C. declivipennis*, *C. neoguineanus* and *C. nigrus*. *C. declivipennis* is easily separated of *C. zetteli* by its color-pattern, posteriorly enlarged embolium, and by its male genital structures. *C. neoguineanus* and *C. nigrus* have different coloration and, for *C. neoguineanus*, different aedeagus (*C. nigrus* male unknown). The darkened ring in the middle of second antennal segment in *C. zetteli* is close to that of *C. minusculus* or *C. testaceus*, but these species can be distinguished by their body length, strong punctuation, partially dark tibia, and uncoiled left paramere.



Figs 9-10. Dorsal view of *C. zetteli* sp. n. and *C. nakatanii* sp. n. respectively.

Coridromius nakatanii sp. n.

Holotype (♂): South-Laos, Sekong, Bolavens, 29-30.v.1996 (NHMW)

Description: Body pale gray, with brown maculae on dorsal surface, covered with faint punctures and silvery recumbent pubescence. Pubescence short, moderately to densely distributed, setal overlap just reaching or slightly exceeding adjacent seta. Head impunctate, pale brown, with yellow along eyes and basal margins. Central part of frons slightly paler than lateral depressed parts, lacking three dark spots anteromedially and near base of each antenna. Maxillary and mandibular plates pale, clypeus with darkened apex. First antennal segment dark brown, with yellow base and apex. Second antennal segment pale gray, with incrassate, darkened apical one forth and median black brown ring. Second and third segment dark, with yellow bases. Rostrum yellow, almost reaching metacoxa. Pronotum densely irrorated with faint punctures, pale brown, partly and irregularly darkened, with yellow collar and lateral margins. Pronotal coloration variable. Anterior margin of pronotum with two small dark brown spots behind eyes and darkened depression behind collar. Mesoscutum with two large, indistinctly bordered, blackish brown and basally confluent spots. Scutellum densely irrorated with faint punctures, pale brown, with small median darkened spot at base and dark basal angles. Lateral margins and apex of scutellum paler, yellow. Propleuron, meso- and metapleura brown, with yellow margins. Legs yellow. Hind femora ventrally with eight distinct oblique dark brown stripes and large, indistinctly bordered brown spot. Hind femora with brown ring near apex. Hind tibia widely brown, with yellow bases. Tibial spines brown. Hemelytra pale brown, densely covered with faint punctation. Punctures on hemelytra darkened and distributed somewhat more sparsely than on pronotum and scutellum, becoming indistinct on cuneus and apex of corium. Pubescence practically absent on apex of corium and cuneus. Clavus medially with brown indistinctly bordered spot extending along claval commissure. Apex of clavus paler, gray. Corium medially with large somewhat transverse black brown spot and embrowned medioapical angle. Embolium brown dark or paler with sizeable rounded projection near apex. Apex of embolium with a dark brown spot partially surrounded by a yellow stripe always present on the anterior and inner sides of the dark spot, more or less reduced on outer and posterior sides (pattern not present in *C. declivipennis*). Cuneus uniformly pale brown, with obscure punctures. Membrane pale brown, slightly embrowned apically. Veins dark, except for pale section closing inner cell from behind.

Genital segment trapeziform, ventral wall greatly protruding, with distinct mesal longitudinal suture and ventral apical process (unlike *C. declivipennis*). Right paramere with broad body and short, rounded apical process (figs 1-2). Left paramere oblong, gutter-like, strongly sclerotized, C-shaped, curved, slightly twisted along its axis and gradually tapered toward apex. Aedeagus with weakly sclerotized phallosome and phallobase. Endosoma simple, without armament, cannot be retracted into phallosome and passively lays in the gutter of left paramere even in state of repose.

Female genital structures simple ; parieto-vaginal rings lacking ; bulbous base

of second valvulae wide, stout ; lateral oviducts short and wide ; dorsal wall slightly sclerotized. Three sclerites present between first fibulae (fig. 6), the median one bridge-like. Posterior wall membranous, undivided in separated substructures.

Measurements. Body length: 2.7. Lengths of antennal segments: 0.17/1.09/0.36/0.26; head width including eyes: 0.87; vertex width: 0.49; mesial pronotal length: 0.73; basal pronotal width: 1.34; length of hind tarsal segments: 0.21/0.09/0.16.

Etymology: This species is named in honour to Dr Nakatani, National Institute of Agro Environmental Sciences, Tuskuba, Japan, for kindly offering invaluable specimens to the junior author.

Examined specimens: Holotype (σ): S(outh)-Laos, Prov(ince) Sekong, Bolavens-Pl, N-slope, ca 10km N. Mg Tha Theng, 29-30.v.1996, 500-700m, leg. Schillhammer (14a) (NHMW). Paratypes: 1♀: NE-India: Meghalaya state, West Garro Hills, Nokrek NP, 9-17.v.1996, 950-1250 m., GPS N25°29,6', E90°19,5', leg. E. Jendk & O. Sausa (NHMW) ; 5♂♂, 1♀: [North Vietnam] Tam Dao, alt. 900m., 17-18.vi.1999, Y. Nakatani (ZEOU). Other taxa examined for comparison: *Coridromius declivipennis* MIYAMOTO & YASUNAGA, 1999. Paratypes: 3♂♂: [Ishigaki Is.] Mt Banna, 08-v-1993, T. Yasunaga leg. (ULB) ; 3♀♀: [Iriomote Is.]. Fungura, 10.v.1993, T. Yasunaga leg. (ULB) ; 2♂♂, 3♀♀: Ishigaki Is., Mt. Banna, 8.v.1993, T. Yasunaga leg. (ZMAS).

Comparison. Easily distinguished from practically all congeners with fine and shallow pronotal punctation by the sizable lateral projection of embolium (*C. declivipennis*' projection apparently more reduced, slightly rounded). Similar to *C. declivipennis* MIYAMOTO & YASUNAGA, 1999 but separated from it by the absence of three black spots on the frons, by its shorter pubescence (practically absent on apex of corium and cuneus unlike *C. declivipennis*), by its hemelytral and metafemoral patterns, by the pygophoral process (absent in *C. declivipennis*), by the other male genital structures (the left paramere is basally angular in *C. declivipennis*) and by the female genital structures (the three sclerites between first fibulae are lacking in *C. declivipennis*, cf. figs 6-7).

***Coridromius chinensis* LIU & ZHAO, 1999**
= *Coridromius bufo* MIYAMOTO & YASUNAGA, 1999 n. syn.

Based on examination of paratypes of both sexes of *Coridromius chinensis* and *Coridromius bufo*, we consider the two species identical and their names synonyms. External anatomy of all specimens is very similar and conforms to both of the original descriptions of LIU & ZHAO and MIYAMOTO & YASUNAGA. The body is variable in coloration, pale brown to fuscous¹,

¹ It is the case of the specimens illustrated by MIYAMOTO & YASUNAGA (1999, p. 35, Figs 1A, B) and by YASUNAGA, TAKAI & KAWASAWA (2001, plate 6, Figs 22a, b) but not for all paratypes of *C. bufo*.

- however the main pattern is the same on all specimens (particularly the head pattern, the patches anteriorly to pronotal callosities, the patches on embolium, corium and cuneus...). Also the genital structures, notably the right paramere with an elongated apophysis, are very similar.

LIU's & ZHAO's paper which published in *Acta Zootaxonomica Sinica* in January 1999 precedes MIYAMOTO's & YASUNAGA's paper in *Biogeography* on August 17, 1999. Consequently, according the Article 23 of the International Code of Zoological Nomenclature (INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE, 4TH ED., 1999), the valid name for the species is *Coridromius chinensis* LIU & ZHAO, 1999, with *Coridromius bufo* MIYAMOTO & YASUNAGA, 1999 (n. syn.) becoming a junior subjective synonym.

Examined specimens: paratypes of *Coridromius chinensis* LIU & ZHAO, 1999: 1♂, 1♀: *Coridromius chinensis* Liu et Zhao n. sp. paratype / Yangshu Country (24,7° N, 110,4° E), Guangxi Province, 11.ix.1964, Wang Liang-Cheng Leg. (NKUM).

Paratypes of *Coridromius bufo*: 2♂♂, 2♀♀: Paratype Miyam. and Yasu. / Japan, Honshu Mt Takakura, Sanyō T., Okayama, 21.vii.(19)96, T. Yasunaga (ZEOU) ; 1♂, Japan, Shikoku, Hongawa VI, 800-1400 m alt., Kōchi Pref., 23.vii.1996, T. Yasunaga (ZMAS) ; 2♂♂, 1♀: Japan, Honshu Mt. Takakura, Sanyō T., Okayama, 21.vii.1996, T. Yasunaga (ZMAS); 2♀♀: Japan, Ryukus, Ishigaki I. forest, 19.x.1999, S. Belokobylskij (ZMAS).

Other examined specimens: 2♂♂: *Coridromius chinensis* LIU & ZHAO, 1999 det. KONSTANTINOV & CHÉROT, 2003 / S-Laos: Prov. Sekong, Bolavens-Pl., N-slope ca 10km N Mg. Tha Theng 29-30.v.1996, 500-700m, leg. Schillhammer (32) (NHMW) ; 1♀: *Coridromius chinensis* LIU & ZHAO, 1999 det. KONSTANTINOV & CHÉROT, 2003 / N-Laos, Lg. Nam Tha ca. 10km E. Lg Nam Tha, 19.vi.1996, 600m., leg. Schillhammer (32) (NHMW) ; 1♀: *Coridromius chinensis* LIU & ZHAO, 1999 det. KONSTANTINOV & CHÉROT, 2003 / NE-India: Meghalaya State, W. Garo Hills, Balphakram NP, 22-27.v.1996, 250-550m., GPS N25°11' E90°51' (WGSB4) leg. E. Jendk & O. Sausa (NHMW) ; 3♂♂: *Coridromius chinensis* LIU & ZHAO, 1999 det. KONSTANTINOV & CHÉROT, 2003 / *Coridromius bufo* MIYAMOTO & YASUNAGA, 1999 F. CHÉROT Det., 2003 / [North Vietnam] Tam Dao, alt. 900m., 17-18.vi.1999, Y. Nakatani (ZEOU).

Key to species of *Coridromius*

- 1 (2) Punctuation of pronotal disc reduced, narrow and shallow 3
- 2 (1) Punctuation of pronotal disc wide and deep 11
- 3 (4) Coloration practically uniform, black to dark brown, except trochanters and tarsi pale yellow. New Guinea
. *C. nigrus* CARVALHO, 1987
- 4 (3) Coloration not as above 5
- 5 (6) General coloration pale yellow to light brown, with a median irregular dark brown fascia transversely on exocorium, endocorium and apical part

- of clavus, two dark brown patches in the middle of pronotal and scutellar discs and two other on membrane. Right paramere elongated, the apophysis more or less separated of the body, large. New Guinea
 *C. neoguineanus* CARVALHO, 1987
- 6 (5) Coloration not as above. Right paramere stout, globose, club-like, the apophysis reduced or practically absent 7
- 7 (8) Subapex of embolium roundly projected laterally. Left paramere uncoiled. India and Japan 9
- 8 (7) Subapex of embolium not projected laterally. Left paramere coiled (Fig. 4-5). Laos, Vietnam *C. zetteli* sp. n.
- 9 (10) Frons lacking three dark spots. Dorsal pubescence recumbent, silvery, and relatively short, setal overlap reaching or slightly exceeding adjacent seta. Projection of embolium rounded. Apex of embolium with a dark brown spot partially surrounded by a yellow stripe, stripe always present on the anterior and inner sides of the dark spot, more or less reduced on outer and posterior sides. Pygophore with ventral process. Three sclerites present between first fibulae (fig. 6), the median one bridge-like. India, Laos, Vietnam *C. nakatanii* sp. n.
- 10 (9) Frons with three dark spots anteromedially and near base of each antenna. Dorsal pubescence recumbent, silvery, and long, setal overlap practically of the length of a seta. Projection of embolium narrow, slightly rounded. Apex of embolium even in darkened specimens yellow, lacking a dark spot partially surrounded by a yellow stripe. Pygophore lacking a ventral process. No sclerite between first fibulae (fig. 7). Japan *C. declivipennis* MIYAMOTO & YASUNAGA, 1999
- 11 (12) Punctuation of pronotal disc deep and wide, punctuation of scutellar disc shallow and narrow. Second antennal segment with a black ring medially. Hainan Province, China . . *C. testaceus* LIU & ZHAO, 1999
- 12 (11) Punctuation of pronotal and scutellar discs deep and wide 13
- 13 (14) Total length 2 mm. Hemelytra dark brown with pair of subbasal and apical pale spots on embolium, contrasting with light brown pronotum and scutellum. Posterior femora with a large white apical area, including a well marked black prolongation at middle. Anterior and inferior portions of posterior femora dark brown, with three small whitish areas. New Guinea *C. minusculus* CARVALHO, 1987
- 14 (13) Total length equal or larger than 2.25 mm and coloration not as above 15
- 15 (16) Third and fourth antennal segments pale brown or yellow. Pronotal disc light brown, these lateral margins and a subbasal transverse fascia dark. Scutellum dark brown or black, with four white spots, two at basal angles and two subapical. Pygophore bearing a spinelike prolongation. Right paramere globose. Australia, New Caledonia, New Zealand
 *C. variegatus* (MONTROUZIER, 1861)

- 16 (15) Third and fourth antennal segments dark brown or black, with a yellow base 17
- 17 (18) Pronotal disc black. Scutellum black, its apex yellow brown, lacking white spots. Male unknown. Ivory Coast, Cameroon
..... *C. schuhi* LINNAVUORI, 1994
- 18 (17) Coloration not as *C. schuhi*. Right paramere always with an elongated and demarked apophysis, never globose 19
- 19 (20) Elongated body. Total length 3.2 mm. First antennal segment entirely dark brown. Subapex of embolium not projected laterally. New Guinea
..... *C. punctatus* CARVALHO, 1987
- 20 (19) Rounded body. Total length approximately 2.5 mm. First antennal segment yellowish brown with a black medial ring. Subapex of embolium slightly projected laterally. Three sclerites present between first fibulae, the medial hooked-like (Fig. 8). China, Japan, Laos, Vietnam *C. chinensis* LIU & ZHAO, 1999
(= *C. bufo* MIYAMOTO & YASUNAGA, 1999 n. syn.)

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