## New Chlorophorus species from Palaearctic, Oriental and Australian Region (Coleoptera, Cerambycidae, Cerambycinae, Clytini)

#### Petr VIKTORA

Trebišovská 605, CZ-28401 Kutná Hora, Czech Republic e-mail: viktora\_print@centrum.cz

Taxonomy, new species, new synonyms, Coleoptera, Cerambycidae, Clytini, *Chlorophorus*, Palaearctic Region, Oriental Region, Australian Region

**Abstract.** Chlorophorus arfakensis sp. nov. from Indonesia (West Papua), Chlorophorus audax sp. nov. and Chlorophorus drouini sp. nov. from Malaysia (Sabah), Chlorophorus belum sp. nov. and Chlorophorus fictus sp. nov. from Malaysia (Pahang, Perak), Chlorophorus dominator sp. nov. from Indonesia (Seram), Chlorophorus exploratus sp. nov. from Philippines (Luzon), Chlorophorus hubenyi sp. nov. from Indonesia (Sulawesi), Chlorophorus hubenyi sp. nov. from Kyrgyzstan, Chlorophorus latens sp. nov. from Indonesia (Sumatra), Chlorophorus optabilis sp. nov. and Chlorophorus ringleticus sp. nov. from Malaysia (Pahang), Chlorophorus procus sp. nov. from Indonesia (Java) and Chlorophorus sollicitus sp. nov. from Malaysia (Palawan) are described. All the habitus and male genitalia are illustrated. Chlorophorus semiruber Pic, 1925 is treated as a junior synonym of Chlorophorus dimidiatus Aurivillius, 1922. Demonax x-signatus Pic, 1943 is treated as a junior synonym of Chlorophorus interneconnexus Pic, 1925.

### INTRODUCTION

The genus *Chlorophorus* was established by Chevrolat (1863) with type species *Chlorophorus* annularis (Fabricius, 1787), originally described as *Callidium annulare*. Genus currently contains approximately 270 valid species and subspecies with the greatest species richness in Asia.

In the present paper, I describe new species of the genus Chlorophorus from materials which were recently collected in Kyrgyzstan, Indonesia, Malaysia and Philippines. Descriptions of fourteen new species of Chlorophorus is given as follows: Chlorophorus arfakensis sp. nov. from Indonesia (West Papua), Chlorophorus audax sp. nov. and Chlorophorus drouini sp. nov. from Malaysia (Sabah), Chlorophorus belum sp. nov. and Chlorophorus fictus sp. nov. from Malaysia (Pahang, Perak), Chlorophorus dominator sp. nov. from Indonesia (Seram), Chlorophorus exploratus sp. nov. from Philippines (Luzon), Chlorophorus hariolus sp. nov. from Indonesia (Sulawesi), Chlorophorus hubenyi sp. nov. from Kyrgyzstan, Chlorophorus latens sp. nov. from Indonesia (Sumatra), Chlorophorus optabilis sp. nov. and Chlorophorus ringleticus sp. nov. from Malaysia (Pahang), Chlorophorus procus sp. nov. from Indonesia (Java) and Chlorophorus sollicitus sp. nov. from Philippines (Palawan) are described and illustrated. The new species are compared to the congeners (Chlorophorus adelii Holzschuh, 1974, Chlorophorus assimilis (Hope, 1831), Chlorophorus aurantiacus Aurivillius, 1911, Chlorophorus austerus (Chevrolat, 1863), Chlorophorus circularis Holzschuh, 2003, Chlorophorus dohertii (Gahan, 1906), Chlorophorus eximius Aurivillius, 1911, Chlorophorus externenotatus Pic, 1925, Chlorophorus hefferni Dauber, 2002, Chlorophorus interneconnexus Pic, 1925, Chlorophorus javanus Pic, 1943, Chlorophorus Iuxatus (Pascoe, 1869), Chlorophorus marginalis (Chevrolat, 1863), Chlorophorus muscifluvis Gressitt, 1951, Chlorophorus praetextus (Pascoe, 1869), Chlorophorus pseudoswatensis Holzschuh, 1983, Chlorophorus rufimembris Gressitt & Rondon, 1970, Chlorophorus scenicus (Pascoe, 1869), Chlorophorus seclusus (Pascoe, 1869), Chlorophorus signatipennis Gahan, 1907, Chlorophorus sumatrensis (Castelnau & Gory,

1841), Chlorophorus sumbavae Aurivillius, 1911, Chlorophorus swatensis Holzschuh, 1974, Chlorophorus torquilla (Pascoe, 1869) and Chlorophorus vicinus Dauber, 2002).

Based on the study of the type material, new synonyms are also published: *Chlorophorus semiruber* Pic, 1925 is treated as a junior synonym of *Chlorophorus dimidiatus* Aurivillius, 1922; *Demonax x-signatus* Pic, 1943 is treated as a junior synonym of *Chlorophorus interneconnexus* Pic, 1925.

#### MATERIAL AND METHODS

Observation and photography. The habitus of all specimens were taken by the Canon EOS 350D digital camera with the Sigma 105 mm macro lens. Composite images were created using the software Image Stacking Software Combine ZP. Microstructures of dissected parts were observed under the DNT DigiMicro Profi USB microscope. The genitalia photographs were taken with a Canon MP-E 65mm/2.8 1-5× Macrolens on bellows attached to a Canon EOS 550D camera. Each photograph was taken as several partially focused images and afterwards composed in the Helicon Focus 3.20.2 Pro software. The photographs were modified using Adobe Photoshop CC.

Specimens examined including type materials are deposited in the following collections:

BMNH British Museum of Natural History, London, United Kingdom;

CAW collection of Andreas Weigel, Wernburg, Germany;

CGD collection of Gontran Drouin, Sainte Hénédine, Québec, Canada;

CPV collection of Petr Viktora, Kutná Hora, Czech Republic; CTT collection of Tomáš Tichý, Opava, Czech Republic; MNHN Muséum National d'Histoire Naturelle, Paris, France;

MINHIN Museum National a Histoire Naturelle, Paris, France NHRS Naturhistoriska Riksmuseet, Stockholm, Sweden;

SIW Smithsonian Institution, Washington, U.S.A.

Slash (/) separates data in different lines on locality and determination labels.

#### **TAXONOMY**

## Tribe Clytini Mulsant, 1839

# Genus Chlorophorus Chevrolat, 1863

**Type species.** Callidium annulare Fabricius, 1787.

# Chlorophorus arfakensis sp. nov.

(Figs. 1-2)

Type locality. Indonesia, West Papua, Arfak Mountains, Manokwari reg., Maibri vill. env.

**Type material.** Holotype  $\{\vec{\sigma}\}$ : 'INDONESIA, West Papua prov.' / 'ARFAK MTS., 1670 m alt.' / 'Maibri vill. env., Manokwari reg.' / 'x. 2013, local collector leg.', (CPV); Paratypes:  $\{3 \ \subsetneq \ \varphi\}$ : same data as holotype, (CPV);  $\{3 \ \varphi \ \varphi\}$ : 'INDONESIA, West Papua prov.' / 'ARFAK MTS., 200 - 400 m alt.' / 'Manokwari reg., Nenei vill. env.' / 'vii. - viii. 2018, local collector leg.', (CPV).

The types are provided with a printed red label: 'Chlorophorus arfakensis sp. nov.' / 'HOLOTYPUS [respective PARATYPUS]' / 'P. Viktora det., 2019'.

Description. Habitus of male holotype as in Fig. 1a. Body from dark brown to black, elongate,

punctuate, with pubescence. Body length from head to elytral apex 9.2 mm, widest in humeral part of elytra (2.34 mm), approximately 3.9 times longer than wide.

Head from blackish brown (anterior part) to black, narrow, widest through the eyes, distinctly narrower than pronotum. Vertex punctured by granulated punctuation, frons punctured by relatively sparse punctuation, head with narrow longitudinal furrow between eyes. Head covered by yellowish pubescence, in anterior margin with long pale setation. Eyes large, dark brown, excised. Clypeus blackish with pale brown anterior margin, shiny, punctured by small-sized punctuation, with sparse long yellowish pubescence. Labrum pale brown, shiny, covered by dense pale setation. Mandibles blackish brown with black top, shiny, with yellowish pubescence and pale setation in edges.

Maxillary palpus pale brown with short pale setation. Palpomeres short, ultimate palpomere longest, axe shaped, widened apically.

Antennae filiform, reaching to half elytral length. Antennomeres blackish brown, punctured by dense punctuation. Antennomeres 1-5 covered by longer yellowish pubescence, rest of antennomeres covered by shorter and dense pale pubescence. Antennomeres 3-6 with long pale setation in inner side. Antennomeres without spines. Antennomere 2 shortest, antennomere 1 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 1.09:0.44:1.00:0.96:0.80:0.67:0.77:0.78:0.81:0.87:1.03.

Pronotum black, semicircular with arcuate lateral margins, anterior margin and base almost straight. Pronotum narrower than elytra at widest place, 1.37 times longer than wide at base and 1.05 times longer than wide at widest point (before middle from base to apex). Dorsal surface punctured by dense punctuation (punctures near base larger than in middle), covered by black, yellowish and gray pubescence (as in Fig. 1a). Pronotum in basal half with long pale erected setation.

Scutellum black, wide, semielliptical, covered by dense white pubescence, sparser in base.

Elytra 5.88 mm long and 2.34 mm wide (2.51 times longer than wide); slightly narrowing apically, black with blackish brown apical part, covered by black and pale gray pubescence (as in Fig. 1a). Elytra completely punctured by small-sized punctuation. Elytral apex undulate, each elytron with short spine in sutural and lateral angle.

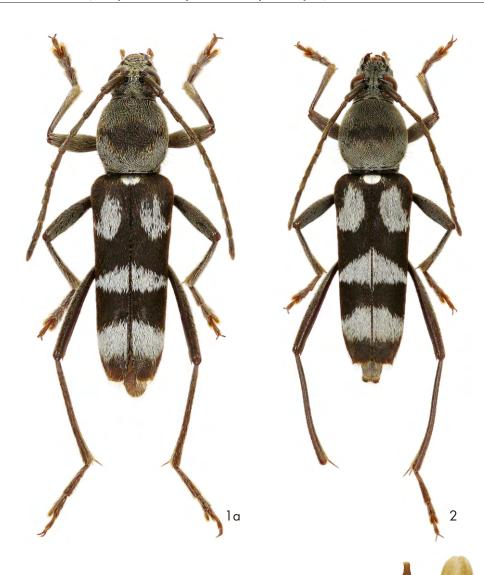
Pygidium brown, punctured, covered by yellowish pubescence.

Legs long and narrow, from blackish brown to black, punctured, covered by yellowish pubescence. Pubescence in profemora denser than in meso- and metafemora. Meso- and metafemora with longer pale setation. Tibiae with denser pubescence and pale setation in apical part. Tarsi relatively short, tarsomeres 3 and claws paler than tarsomeres 1-2. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.36 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, mesepisternum with distinct punctuation and dense white pubescence in apical half. Metepisternum almost completely covered by dense white pubescence, metasternum covered by long sparse pale gray pubescence, ventrites 1-2 almost completely covered by dense pale gray pubescence, ventrites 3-5 covered by long yellowish pubescence and pale setation. Elytral epipleura black, covered by pale pubescence.

Genitalia as in Fig. 1b.

**Female.** Habitus of female paratype as in Fig. 2. Body length from head to elytral apex (female paratypes) from 10.9 to 12.3 mm. Colour of female the same as in male. Female without distinct differences, body more robust, pronotum wider than in male.



 $Fig.\ 1.\ Chlorophorus\ arfakens is\ sp.\ nov.:\ a-male\ holotype\ (dorsal\ view);\ b-male\ genitalia.$ 

Fig. 2. Chlorophorus arfakensis sp. nov.: female paratype (dorsal view).



**Differential diagnosis.** Chlorophorus arfakensis sp. nov. is relatively an unique species of the genus Chlorophorus Chevrolat, 1863, no similar species (elytra with large almost oval pale gray spots in humeri) from Papua Region. Chlorophorus arfakensis sp. nov. distinctly differs from all known Chlorophorus species from New Guinea by elytral apex covered by black pubescence; while other species from the region (for example Chlorophorus aurantiacus Aurivillius, 1911, Chlorophorus austerus (Chevrolat, 1863), Chlorophorus luxatus (Pascoe, 1869), Chlorophorus muscifluvis Gressitt, 1951 and Chlorophorus praetextus (Pascoe, 1869)) have elytral apex covered by pale pubescence. The most similarly coloured species is Chlorophorus circularis Holzschuh, 2003, described from south India. Chlorophorus arfakensis sp. nov. distinctly differs from Ch. circularis also by elytral apex covered by black pubescence; while Ch. circularis has elytral apex covered by pale pubescence.

**Etymology.** Named after the type locality, Arfak Mountains in West Papua.

**Distribution.** Indonesia (West Papua).

### Chlorophorus audax sp. nov.

(Figs. 3-4)

**Type locality.** Malaysia, N Borneo, Sabah, Trus Madi.

Type material. Holotype (3): label 1: 'MALAYSIA, North Borneo' / 'Sabah, Trus Madi' / '07. 2005, F. bin Eying', label 2: 'Chlorophorus' / 'eximius AURIV.1911' / 'det. D. Dauber', (CPV); Paratypes:  $(2 \circ \circ)$ : same data as holotype, (CAW, CPV);  $(1 \circ)$ : 'Malaysia, Borneo' / 'Sipitang' / 'iii. 2003' / 'Dinon leg.', (CPV);  $(1 \circ)$ : 'Borneo' / 'Sarawak' / '1-iv-2002' / 'local collector', (CGD);  $(1 \circ)$ : 'Borneo' / 'Sabah' / 'Tenom' / '13-iii-2004' / 'local collector', (CGD);  $(1 \circ)$ : 'Borneo' / 'Sabah' / 'Sipitang' / '1-iii-2003' / 'local collector', (CGD).

The types are provided with a printed red label: 'Chlorophorus audax sp. nov.' / 'HOLOTYPUS [respective PARATYPUS]' / 'P. Viktora det., 2019'.

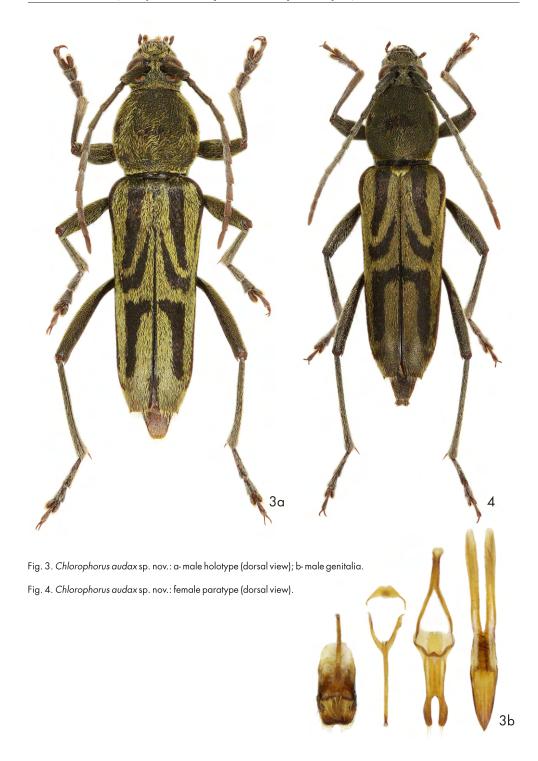
**Description.** Habitus of male holotype as in Fig. 3a. Body from dark brown to black, widely elongate, slightly narrowing apically, punctuate, with pubescence. Body length from head to elytral apex 11.84 mm (male paratypes from 10.35 to 11.75 mm), widest in humeral part of elytra (3.06 mm), 3.87 times longer than wide.

Head black, narrow, widest through the eyes, distinctly narrower than pronotum, punctured by granulated punctuation, in anterior part near clypeus with distinct punctuation. Head covered by yellowish green pubescence, in margins with long pale erected setation. Head with narrow longitudinal furrow between eyes. Eyes large, dark brown, excised. Clypeus brown, shiny, with pale setation. Mandibles blackish brown, shiny, with yellowish setation in edges.

Maxillary palpus dark brown with blackish margins, covered by sparse indistinct pale setation. Palpomeres short, ultimate palpomere longest, broadest apically with rounded apex.

Antennae filiform, reaching to two fifths elytral length. Antennaeres 1-5 blackish brown, antennaeres 6-11 slightly paler. Antennae punctured, covered by yellowish pubescence, pubescence in antennameres 1-5 longer than in antennameres 6-11. Antennameres 6-10 slightly serrate with long pale setation in apex. Antennameres without spines, antennameres 2-5 with long pale setation in inner side. Antennamere 2 shortest, antennamere 1 longest. Ratios of relative lengths of antennameres 1-11 equal to: 1.12: 0.34: 1.00: 0.90: 0.90: 0.77: 0.77: 0.70: 0.65: 0.58: 0.80.

Pronotum black, with distinctly arcuate lateral margins, anterior margin and base almost straight. Pronotum slightly narrower than elytra at humeri, 1.37 times longer than wide at base



and as long as wide at widest point (before middle from base to apex). Dorsal surface with dense punctuation, punctures relatively small, with microgranulation. Pronotum covered by yellowish green pubescence and spots of black pubescence (as in Fig. 3a). Lateral margins in basal half of pronotum with long pale erected setation.

Scutellum black, semielliptical, covered by yellowish green pubescence.

Elytra 7.61 mm long and 3.06 mm wide (2.48 times longer than wide); slightly narrowing apically, black, in apex blackish brown. Elytra covered by black and yellowish green pubescence (as in Fig. 3a). Elytra completely punctured by dense punctuation. Elytral apex slightly undulate, each elytron with short spine in sutural angle and distinctly longer spine in lateral angle.

Pygidium brown, punctured, covered by sparse yellowish pubescence.

Legs long and relatively narrow, from blackish brown to black, punctured, covered by long yellowish green pubescence, in tibiae pubescence paler and denser. Metafemora without pubescence in inner side. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.07 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, partly covered by sparser yellowish pubescence, partly by dense yellowish pubescence. Ventrites 1-4 covered by sparse yellowish pubescence with narrow stripes of dense yellowish pubescence in apex.

Genitalia as in Fig. 3b.

**Female.** Habitus of female paratype as in Fig. 4. Body length from head to elytral apex (female paratypes) from 12.5 to 14.3 mm. Colour of female the same as in male. Female without distinct differences, body more robust.

**Differential diagnosis.** The most similar species are *Chlorophorus drouini* sp. nov. (Figs. 10-11) from Borneo and *Chlorophorus eximius* Aurivillius, 1911 (Figs. 30-31), described from Borneo.

Chlorophorus audax sp. nov. distinctly differs from similar species Chlorophorus drouini sp. nov. by larger body (from 11.84 to 14.3 mm), by dorsal surface covered by yellowish green pubescence, by ventral surface covered by yellowish pubescence, by wider protarsomeres, by elytra near apex without (or just indistinct) black transverse stripe, by narrower pronotum and by different shape of male genitalia, especially shape of tegmen, which is distinctly longer than in Chlorophorus drouini sp. nov. (as in Figs. 3b and 10b); while Chlorophorus drouini sp. nov. has smaller body (from 9.0 to 11.8 mm), dorsal and ventral surface covered by grayish pubescence, elytra near apex with distinct black transverse stripe, wider pronotum and narrower protarsomeres than in Chlorophorus audax sp. nov.

Chlorophorus audax sp. nov. distinctly differs from similar species Ch. eximius mainly by dorsal surface covered by yellowish green pubescence, by elytra near apex without (or just indistinct) black transverse stripe, by scutellum with pubescence of same color as in elytra, by narrower antennae with sparser pubescence than in Ch. eximius, by distinctly narrower pronotum with indistinct black spots and by different shape of male genitalia, especially shape of tegmen, which is distinctly longer than in Ch. eximius sp. nov. (as in Figs. 3b and 30b); while Ch. eximius has dorsal surface covered by yellow pubescence, elytra near apex with distinct black transverse stripe, wider pronotum with distinct black spots (large spot of the shape of inverted heart in middle), scutellum with distinctly paler pubescence than in elytra and wider antennae with distinctly denser pubescence.

**Etymology.** From Latin *audax* (it means "daring").

**Distribution.** Malaysia (Sabah).

### Chlorophorus belum sp. nov.

(Figs. 5-6)

Type locality. Malaysia, Perak, Belum Forest Reserve, 84 km E of Gerik.

**Description.** Habitus of male holotype as in Fig. 5a. Body from dark brown to black, elongate, punctuate, with pubescence. Body length from head to elytral apex 9.48 mm (male paratypes from 8.3 to 10.4 mm), widest in humeral part of elytra (2.27 mm), 4.17 times longer than wide.

Head from blackish brown (anterior part) to black, narrow, widest through the eyes, distinctly narrower than pronotum, distinctly punctured, punctures in vertex larger. Head with narrow longitudinal furrow between eyes, covered by yellow pubescence, in anterior and lateral margins with long pale setation. Eyes large, goldenish brown, excised. Clypeus ochre yellow, shiny. Labrum ochre yellow, shiny, covered by yellowish setation. Mandibles dark brown with black apex, shiny, with yellow pubescence and pale setation in edges.

Maxillary palpus brown with very short pale setation, palpomeres short. Ultimate palpomere longest, widened apically.

Antennae filiform, reaching to half elytral length. Antennameres blackish brown, punctured. Antennameres 1-5 covered by longer sparse yellowish pubescence, antennameres 6-8 covered by dense distinct gray pubescence, antennameres 9-11 covered by very short indistinct pale pubescence. Antennameres 2-5 with long pale setation in inner side, antennameres 6-10 with pale setation in inner side of apex. Antennameres without spines. Antennamere 2 shortest, antennamere 3 longest. Ratios of relative lengths of antennameres 1-11 equal to: 0.90: 0.32: 1.00: 0.81: 0.75: 0.73: 0.78: 0.65: 0.63: 0.52: 0.73.

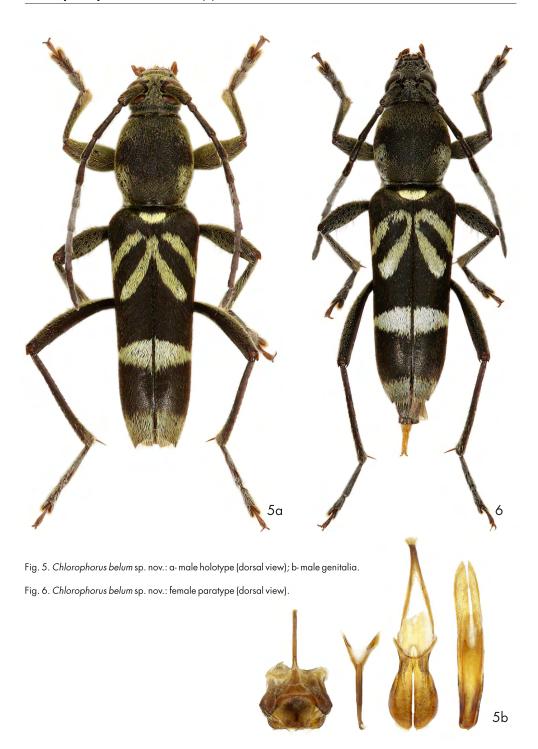
Pronotum black, elongate with slightly arcuate lateral margins, anterior margin indistinctly excised, base almost straight. Pronotum narrower than elytra at humeri, 1.52 times longer than wide at base and 1.17 times longer than wide at widest point (before middle from base to apex). Dorsal surface distinctly irregularly punctured, punctures with microgranulation, some punctures larger than rest. Pronotum covered by blackish and yellowish sparse pubescence (as in Fig. 5a), yellowish pubescence denser in basal angles. Lateral margins with long pale erected setae.

Scutellum black, wide, semielliptical, punctured, covered by dense yellowish pubescence in apical half.

Elytra 6.00 mm long and 2.27 mm wide (2.64 times longer than wide); distinctly narrowing apically, black with blackish brown apical part, covered by yellowish, whitish, and black shiny pubescence (as in Fig. 5a). Elytra completely punctured by dense small-sized punctuation, elytral apex with long yellowish setation. Each elytral apex cut, elytron in sutural angle distinctly shorter than in lateral angle. Elytra in lateral angles prolonged to distinct spines.

Pygidium brown, punctured, covered by yellowish pubescence.

Legs long and narrow, blackish brown, punctured, covered by yellowish pubescence. Mesoand metafemora with long pale setation. Tibiae with dense pale setation in apical part. Tarsi relatively short, with dense punctuation, claws brown. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.46 times longer than metatarsomeres 2 and 3 together.



Ventral side of body black, ventrites blackish brown. Mesepisternum black, punctured, with dense yellowish pubescence, metepisternum almost completely covered by dense recumbent yellowish pubescence, ventrites 1-2 covered by dense yellowish pubescence, ventrites 3-5 covered by long sparse yellowish pubescence and setation. Metasternum with long sparse yellowish pubescence, pubescence darker than pubescence in mesepisternum and metepisternum. Elytral epipleura black, punctured, covered by dark pubescence.

Genitalia as in Fig. 5b.

**Female.** Habitus of female paratype as in Fig. 6. Body length from head to elytral apex (female paratypes) from 7.9 to 12.0 mm. Colour of female the same as in male, body more robust, pronotum distinctly wider than in male, antennae wider than in male. Pronotum punctured by dense regular small-sized punctuation (unlike a male), punctures with microgranulation.

**Differential diagnosis.** The most similar species are *Chlorophorus interneconnexus* Pic, 1925 (Figs. 27-28), described from Borneo, *Chlorophorus sollicitus* sp. nov. (Figs. 23-24) from Palawan and *Chlorophorus sumatrensis* (Castelnau & Gory, 1841) (Figs. 25-26), described from Sumatra. *Chlorophorus belum* sp. nov. distinctly differs from similar species *Ch. interneconnexus* mainly by more elongate body, by elongate pronotum (almost symmetrical in *Ch. interneconnexus*), by different shape of stripes of pale pubescence in basal half of elytra and by distinctly different shape of sternite 8 and tegmen (as in Figs. 5b and 27b).

Chlorophorus belum sp. nov. distinctly differs from similar species Chlorophorus sollicitus sp. nov. mainly by different shape of stripes of pale pubescence in basal half of elytra, by protarsi and metatarsi distinctly longer than in Chlorophorus sollicitus sp. nov. and by distinctly different shape of sternite 8 and tegmen (as in Figs. 5b and 23b).

Chlorophorus belum sp. nov. differs from similar species Ch. sumatrensis mainly by more elongate body, by narrower pronotum, by wider stripe of pale pubescence in elytral apex, by distinctly narrower and longer legs than in Ch. sumatrensis and by distinctly different shape of tegmen and median lobe (as in Figs. 5b and 25b).

**Etymology.** The new species name is derived from the type locality, Belum Forest of Perak State, Malaysia.

**Distribution.** Malaysia (Pahang, Perak).

# Chlorophorus dimidiatus Aurivillius, 1922

(Fig. 7)

Chlorophorus dimidiatus Aurivillius, 1922: 5 [409]. Chlorophorus dimidiatus: Lingafelter at al, 2014: 53, fig. 56 w (holotype). Chlorophorus semiruber Pic, 1925: 22. **syn. nov.** 

Type locality. Malaysia, Borneo, Sandakan.

**Material examined.** holotype of *Chlorophorus dimidiatus* Aurivillius, 1922, (SIW); holotype of *Chlorophorus semiruber* Pic, 1925 from Borneo, (MNHN); (1  $\,$ \times): 'S Borneo' / 'Mt. Bayutawar' / 'xii. 2008' / 'local collector', (CPV); (1  $\,$ \times): 'W Kalimantan' / 'Mt. Bawang' / 'vi. 2017' / 'local collector', (CPV); (1  $\,$ \times): 'S Kalimantan' / 'Mt. Halau Halau', (CPV).

**Remark.** Based on the comparison of description and holotype of *Chlorophorus semiruber* Pic, 1925 with description and holotype of *Chlorophorus dimidiatus* Aurivillius, 1922, it is clear that it

is the same species. *Chlorophorus semiruber* Pic, 1925 is treated as a junior synonym of *Ch. dimidiatus* Aurivillius, 1922.

**Distribution.** Malaysia (Sabah), Indonesia (Kalimantan).



Fig. 7. Chlorophorus dimidiatus Aurivillius, 1922: female from Mt. Halau-Halau (Indonesia, Kalimantan, CPV), dorsal view.

# Chlorophorus dominator sp. nov.

(Figs. 8-9)

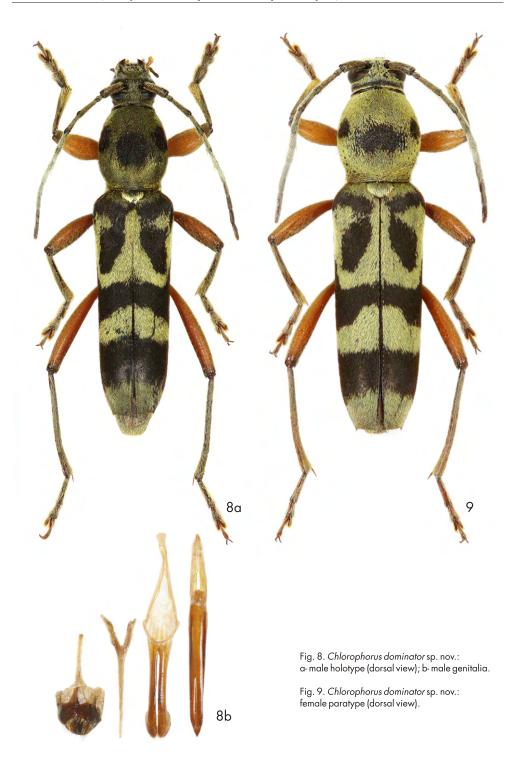
Type locality. Indonesia, Seram Island, Saleman village.

**Type material.** Holotype (3): 'N-Seram' / 'Saleman vill.' / 'xii/2015', (CPV); Paratype: (1  $\S$ ): 'Nov. 2016, Indon.' / 'Ceram' / 'Saleman', (CTT).

The types are provided with a printed red label: 'Chlorophorus dominator sp. nov.' / 'HOLOTYPUS [respective PARATYPUS]' / 'P. Viktora det., 2019'.

**Description.** Habitus of male holotype as in Fig. 8a. Body from reddish brown to black, elongate, almost parallel, punctuate, with pubescence. Body length from head to elytral apex 13.96 mm, widest in humeral part of elytra (3.23 mm), 4.32 times longer than wide.

Head from blackish brown to black, narrow, widest through the eyes, distinctly narrower than pronotum. Head punctured (in posterior part by coarse granulated punctuation, in anterior part by dense small-sized punctuation), between eyes with narrow longitudinal furrow, divided into two branches in upper part of frons, which continue to bases of mandibles. Head covered by yellow pubescence. Eyes large, blackish brown, excised. Clypeus blackish brown, shiny.



Mandibles blackish brown, shiny, with yellow pubescence in edges.

Maxillary palpus brown with darker margins, covered by sparse yellowish setation. Palpomeres short, ultimate palpomere longest, only slightly widened apically, with rounded apex.

Antennae filiform, reaching to one third elytral length. Antennomeres dark brown with blackish brown apex, punctured. Antennomeres 1-4 covered by yellow, relatively sparse pubescence, antennomeres 5-10 covered by dense yellowish pubescence, antennomere 11 covered by short sparse pale pubescence and distinctly darker than antennomeres 5-10. Antennomeres without spines, antennomeres 3-9 with dense pale setation in inner side. Antennomere 2 shortest, antennomere 1 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 1.07:0.32: 1.00:0.90:0.80:0.73:0.66:0.54:0.62:0.59:0.76.

Pronotum black, elongate, narrowest in anterior margin, with arcuate lateral margins, anterior margin indistinctly undulate, base straight. Pronotum narrower than elytra at humeri, 1.55 times longer than wide at base and 1.21 times longer than wide at widest point (before middle from base to apex). Dorsal surface with dense granulated small-sized punctuation, covered by yellow and black pubescence (as in Fig. 8a). Yellow pubescence denser in basal angles. Lateral margins in basal half with erected pale setae.

Scutellum black, wide, covered by yellowish pubescence, pubescence denser in apical margin. Elytra 8.95 mm long and 3.23 mm wide (2.77 times longer than wide); slightly narrowing apically, black with black and yellow pubescence (as in Fig. 8a). Elytra completely punctured by dense small-sized punctuation. Elytral apex slightly undulate, each elytron with short spine in lateral angle of apex.

Pygidium dark brown, punctured, covered by yellow pubescence.

Legs long and narrow, punctured. Tibiae and tarsi blackish brown, femora reddish brown. Femora covered by sparse short yellow pubescence and long pale setation, tibiae and tarsi covered by dense long yellowish pubescence and pale setation. Profemora wider than meso- and metafemora. Metatibiae and metafemora longer than pro- and mesofibiae and pro- and mesofemora. Metatarsomere 1 1.18 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black with brown coxae, punctured, covered by spots of yellow pubescence, ventrites covered by dense yellow pubescence and very long pale setation, apex of ventrites narrowly without pubescence. Elytral epipleura black, covered by black pubescence.

Genitalia as in Fig. 8b.

**Female.** Habitus of female paratype as in Fig. 9. Body length from head to elytral apex 11.7 mm. Colour of female the same as in male. Female with shorter elytra, pronotum and antennae, femora and tarsi distinctly narrower than in male.

**Differential diagnosis.** Chlorophorus dominator sp. nov. is relatively an unique species of the genus Chlorophorus Chevrolat, 1863, no similar species (elytra with black and yellow pubescence, femora reddish brown) in this genus is known from Indonesia and adjacent countries. The most similarly coloured species is Chlorophorus rufimembris Gressitt & Rondon, 1970, described from Laos. Chlorophorus dominator sp. nov. distinctly differs from Ch. rufimembris by larger body (approx twice as large as Ch. rufimembris), by different shape of black spots on elytra and by distinctly different shape of black spots on pronotum.

**Etymology.** From Latin *dominator* (it means "the ruler of the world").

**Distribution.** Indonesia (Seram).

## Chlorophorus drouini sp. nov.

(Figs. 10-11)

Type locality. Malaysia, N Borneo, Sabah, Sipitang.

Type material. Holotype (3): 'Sipitang' / 'Sabah, 2-2005' / 'BORNEO' / 'local collector leg.' / 'Col. E. Jiroux, Magellanes', (CPV); Paratypes: (1  $\,^\circ$ ): label 1: 'BORNEO, Sabah' / 'Crocker Range' / '12 March 2003' / 'local coll. Johan', label 2: 'Chlorophorus' / 'eximius Aur.1911' / 'det. D. Dauber', (CPV); (1  $\,^\circ$ ): label 1: 'Malaysia, Sabah, Mt.' / 'Trus Madi, 16-v-2005' / 'Cope Collection', label 2: 'Chlorophorus' / 'eximius' / 'Aurivillius' / 'det. J. Cope', (CAW); (2  $\,^\circ$ 3): 'Borneo' / 'Sabah' / 'Mt. Trus Madi' / '6-iv-2003' / 'local collector', (CGD); (1  $\,^\circ$ 3, 1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Mt. Trus Madi' / '25-iii-2003' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Mt. Trus Madi' / '25-iii-2003' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Kanau' / '18-iii-2004' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD); (1  $\,^\circ$ 9): 'Borneo' / 'Sabah' / 'Crocker Range' / '14-iv-2007' / 'local collector', (CGD);

The types are provided with a printed red label: 'Chlorophorus drouini sp. nov.' / 'HOLOTYPUS [respective PARATYPUS]' / 'P. Viktora det., 2019'.

**Description.** Habitus of male holotype as in Fig. 10a. Body from dark brown to black, widely elongate, slightly narrowing apically, punctuate, with pubescence. Body length from head to elytral apex 9.00 mm (male paratypes from 9.6 to 10.8 mm), widest in humeral part of elytra (2.17 mm), 4.14 times longer than wide.

Head from blackish brown to black, narrow, widest through the eyes, distinctly narrower than pronotum, punctured by granulated punctuation in posterior part and by distinct sparse punctuation in anterior part. Head covered by grayish pubescence, in margins with long pale erected setation. Head with narrow longitudinal furrow between eyes. Eyes large, dark brown, excised. Clypeus brown, shiny, with pale setation. Mandibles blackish brown, shiny, with pale setation in edges.

Maxillary palpus brown with short pale setation. Palpomeres short, ultimate palpomere longest, broadest apically with rounded apex.

Antennae filiform, reaching to two fifths elytral length. Antennameres 1-4 blackish brown, antennameres 5-11 dark brown. Antennae punctured, covered by grayish pubescence, pubescence in antennameres 1-5 longer than in antennameres 6-11. Antennameres 7-9 slightly serrate. Antennameres without spines, antennameres with indistinct pale setation in apex. Antennamere 2 shortest, antennamere 1 longest. Ratios of relative lengths of antennameres 1-11 equal to: 1.02:0.40:1.00:0.82:0.70:0.63:0.63:0.55:0.55:0.82:0.70.

Pronotum black, wide, slightly wider than long, semicircular with arcuate lateral margins, anterior margin and base straight. Pronotum only slightly narrower than elytra at humeri, 1.47 times longer than wide at base and 1.03 times wider than long at widest point (before middle from base to apex). Dorsal surface with dense punctuation, punctures relatively small, with microgranulation. Pronotum covered by double pubescence - short black and longer grayish pubescence (as in Fig. 10a). Lateral margins in basal half of pronotum with long pale erected setation.

Scutellum black, triangular with rounded apex, covered by long grayish pubescence.

Elytra 5.85 mm long and 2.17 mm wide (2.69 times longer than wide); slightly narrowing apically, black, in apex blackish brown. Elytra covered by black and grayish pubescence (as in Fig. 10a). Elytra completely punctured by dense small-sized punctuation. Elytral apex slightly undulate, each elytron with spine in sutural and lateral angle, spine in lateral angle longer than in sutural angle.

Pygidium brown, distinctly punctured, partly shiny, with long grayish pubescence.

Legs long and relatively narrow, from dark brown to blackish brown, punctured, covered by



long grayish pubescence and partly by long pale setation. Metafemora without pubescence in inner side. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.05 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, almost completely covered by dense grayish pubescence and longer pale setation. Elytral epipleura black with pale pubescence.

Genitalia as in Fig. 10b.

**Female.** Habitus of female paratype as in Fig. 11. Body length from head to elytral apex (female paratypes) from 11.7 to 12.9 mm. Colour of female the same as in male. Female without distinct differences, body more robust.

**Differential diagnosis.** The most similar species are *Chlorophorus audax* sp. nov. (Figs. 3-4) and *Chlorophorus eximius* Aurivillius, 1911, described from Borneo (Figs. 30-31).

Chlorophorus drouini sp. nov. distinctly differs from similar species Chlorophorus audax sp. nov. by smaller body (from 9.0 to 11.8 mm), by dorsal and ventral surface covered by grayish pubescence, by narrower protarsomeres, by elytra near apex with distinct black tranverse stripe, by wider pronotum and by different shape of male genitalia, especially shape of tegmen, which is distinctly shorter than in Chlorophorus audax sp. nov. (as in Figs. 3b and 10b); while Chlorophorus audax sp. nov. has larger body (from 11.84 to 14.3 mm), dorsal surface covered by yellowish green pubescence, ventral surface covered by yellowish pubescence, elytra near apex without (or just indistinct) black tranverse stripe, narrower pronotum and wider protarsomeres than in Chlorophorus drouini sp. nov.

Chlorophorus drouini sp. nov. distinctly differs from similar species Ch. eximius mainly by dorsal and ventral surface covered by grayish pubescence, by scutellum with pubescence of same color as in elytra, by narrower antennae with sparser pubescence than in Ch. eximius and by different shape of male genitalia, especially shape of tegmen, which is distinctly longer than in Ch. eximius sp. nov. (as in Figs. 10b and 30b); while Ch. eximius has dorsal surface covered by yellow pubescence, scutellum with distinctly paler pubescence than in elytra and wider antennae with distinctly denser pubescence.

**Etymology.** This new species is dedicated to Gontran Drouin (Sainte Hénédine, Québec, Canada), my friend and a specialist in beetles family Cerambycidae.

**Distribution.** Malaysia (Sabah).

## Chlorophorus exploratus sp. nov.

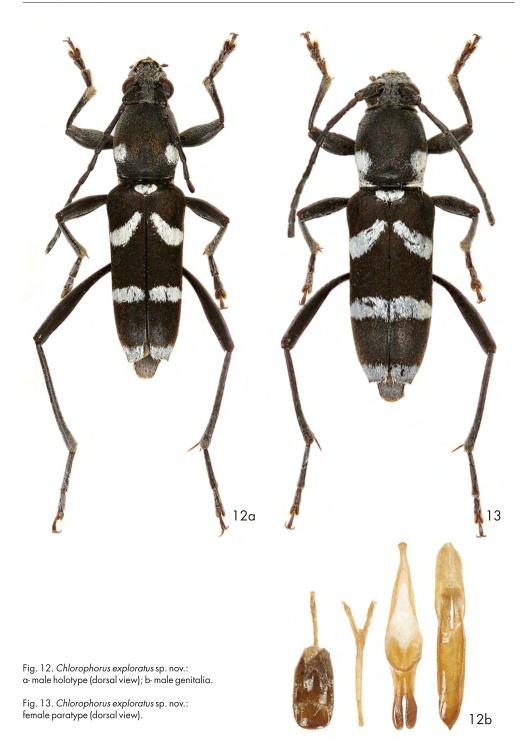
(Figs. 12-13)

**Type locality.** Philippines, Luzon, Cagayan, St. Ana.

**Type material.** Holotype [♂]: ´Luzon´ / ´MAY 2014, Philippines´ / ´Nagtipunan´ / ´Sierra Madre´, (CPV); Paratype: (1 ♀): ´Luzon´ / `NOV. 2015, Philipp.´ / ´Cagayan´ / ´St. Ana´, (CTT).

The types are provided with a printed red label: ´Chlorophorus exploratus sp. nov.´ / ´HOLOTYPUS [respective PARATYPUS]´ / ´P. Viktora det., 2019´.

**Description.** Habitus of male holotype as in Fig. 12a. Body from blackish brown to black, widely elongate, punctuate, with pubescence. Body length from head to elytral apex 8.9 mm, widest in humeral part of elytra (2.35 mm), 3.78 times longer than wide.



Head from blackish brown (anterior part) to black, narrow, distinctly narrower than pronotum, widest through the eyes. Head distinctly punctured by dense punctuation, between eyes with narrow longitudinal furrow. Head covered by long whitish pubescence. Eyes large, dark brown, excised. Clypeus blackish brown, labrum from pale brown to brown, covered by pale setation. Mandibles blackish brown with black top, shiny, with whitish pubescence and pale setation in edges.

Maxillary palpus brown with very short pale setation. Palpomeres short, ultimate palpomere longest, widened apically.

Antennae filiform, reaching to half elytral length. Antennomeres blackish brown, punctured by dense punctuation, antennomeres covered by whitish pubescence, pubescence in antennomeres 6-11 denser and shorter than in antennomeres 1-5. Antennomeres with pale setation in inner side of apex. Antennomeres without spines. Antennomere 2 shortest, antennomere 3 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 0.82: 0.33: 1.00: 0.76: 0.63: 0.62: 0.57: 0.48: 0.46: 0.57: 0.71.

Pronotum black (in anterior and posterior margin blackish brown), elongate with slightly arcuate lateral margins, anterior margin and base almost straight. Pronotum narrower than elytra at humeri, 1.35 times longer than wide at base and 1.15 times longer than wide at widest point (before middle from base to apex). Dorsal surface granulated, granulation irregular, disc in the middle in basal third with small-sized granulation, in basal angles with coarse granulation. Pronotum covered by white and dark shiny pubescence (as in Fig. 12a). Lateral margins near base with a few pale setae.

Scutellum black, widely triangular, distinctly elevated, covered by dense white pubescence, basal margin without pubescence.

Elytra 5.3 mm long and 2.35 mm wide (2.25 times longer than wide); distinctly narrowing apically, black, covered by white and blackish pubescence (as in Fig. 12a). Elytra completely punctured by very dense small-sized punctuation. Elytral apex cut, elytron in sutural angle distinctly shorter than in lateral angle. Apex in lateral and sutural angles with short spine.

Pygidium dark brown, punctured by dense punctuation, covered by long whitish pubescence.

Legs long and narrow, from blackish brown to black, punctured by dense punctuation, covered by whitish and darker pubescence. Profemora with denser pubescence, metafemora with short indistinct pubescence. Tibiae with denser pubescence and setation in apical part. Tarsi blackish brown, claws brown. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.48 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, mesepisternum with distinct punctuation, in apex with dense white pubescence. Metepisternum completely covered by dense white pubescence, metasternum and prosternum covered by white pubescence (sparser than in metepisternum), ventrites 1-2 almost completely covered by dense white pubescence, ventrites 3-5 with only sparse pubescence.

Genitalia as in Fig. 12b.

**Female.** Habitus of female paratype as in Fig. 13. Body length from head to elytral apex 7.6 mm. Colour of female the same as in male. Female without distinct differences, legs narrower and protarsi shorter than in male.

**Differential diagnosis.** The most similar species are *Chlorophorus torquilla* (Pascoe, 1869), described from Sulawesi (Fig. 32) and *Chlorophorus seclusus* (Pascoe, 1869), described from Borneo.

Chlorophorus exploratus sp. nov. distinctly differs from similar species *Ch. torquilla* by wider pronotum, by distinctly wider scutellum than in *Ch. torquilla*, by wider transverse curved white stripe in basal third not reaching to suture, by different shape of genitalia, especially shape of tegmen (as in Figs. 12b and 32c), and by different shape of tergite 8, which has almost straight apical margin (as in Fig. 12b); while *Ch. torquilla* has narrower pronotum, distinctly narrower scutellum than in *Chlorophorus exploratus* sp. nov., narrower transverse curved white stripe in basal third, which reaching suture, tergite 8 has rounded apical margin (as in Fig. 32c).

Chlorophorus exploratus sp. nov. distinctly differs from similar species Ch. seclusus by more robust body, by wider pronotum, by distinctly wider transverse curved white stripe in basal third, which not reaching suture, by different shape of tergite 8, which is distinctly longer than in Ch. seclusus and by different shape of male genitalia, especially shape of tegmen and median lobe, which are distinctly longer than in Ch. seclusus; while Ch. seclusus has less robust body, narrower pronotum and distinctly narrower transverse curved white stripe in basal third reaching to suture.

**Etymology.** From Latin *exploratus* (it means "proven").

**Distribution.** Philippines (Luzon).

## Chlorophorus fictus sp. nov.

(Figs. 14-15)

**Type locality.** Malaysia, Perak, Belum Forest Reserve, 84 km E of Gerik.

**Type material.** Holotype (3): 'MALAYSIA - Perak, Belum Forest' / '84km E of Gerik, alt. 950m' / '05°32′53′′N, 101°36′28′′E' / '25. iii. - 2. iv. 2014' / 'P. Viktora lgt.', (CPV); Paratypes: (6 33, 1 9): 'W MALAYSIA' / 'Cameron Highlands, Ringlet' / 'iv. 2014' / 'local collector leg.', (CPV); (4 33): 'MALAYSIA - Pahang' / 'Cameron Highlands' / 'Ringlet' / '9. iv. - 16. iv. 2014' / 'P. Viktora lgt.', (CPV).

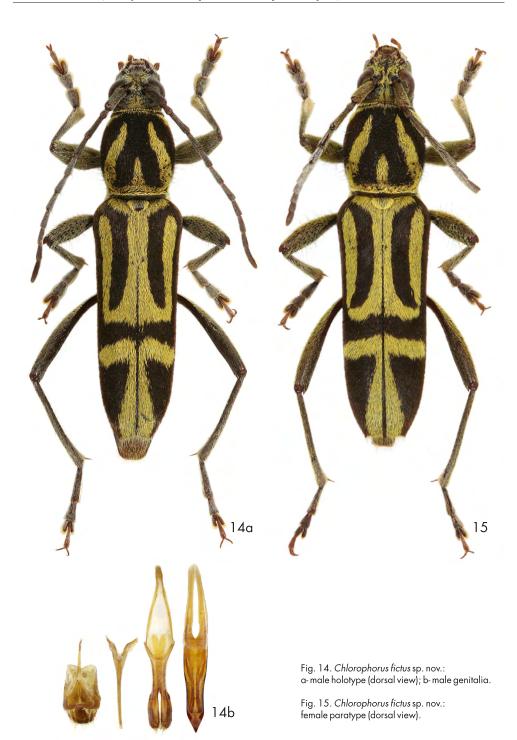
The types are provided with a printed red label: 'Chlorophorus fictus sp. nov.' / 'HOLOTYPUS [respective PARATYPUS]' / 'P. Viktora det., 2019'.

**Description.** Habitus of male holotype as in Fig. 14a. Body from dark brown to black, elongate, narrowing apically, punctuate, with pubescence. Body length from head to elytral apex 11.0 mm (male paratypes from 9.5 to 12.1 mm), widest in humeral part of elytra (2.64 mm), 4.16 times longer than wide.

Head black (blackish brown in anterior part), narrow, widest through the eyes, slightly narrower than pronotum. Vertex punctured by coarse granulated punctuation, frons punctured by shallow punctuation, head between eyes with narrow longitudinal furrow and distinct thorns near antennal insertions. Head covered by yellow pubescence (pubescence in anterior part paler yellowish, head with long pale setation in lateral margins. Eyes large, dark brown, excised. Clypeus brown, shiny, with distinct punctuation and sparse yellowish pubescence. Labrum pale brown, shiny, covered by yellowish setation. Mandibles brown with black top, shiny, with yellowish pubescence and pale setation in edges.

Maxillary palpus brown with short pale setation. Palpomeres short, ultimate palpomere longest, axe-shaped with rounded apex, apical margin paler.

Antennae filiform, reaching to two fifths elytral length. Antennomeres dark brown with distinct dense punctuation. Antennomeres 1-4 covered by yellowish pubescence, antennomeres 5-10 covered by shorter whitish pubescence, antennomere 11 dark with very short pale pubescence.



Antennomeres without spines, antennomeres 2-6 with pale setation in inner side. Antennomere 2 shortest, antennomere 3 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 0.93: 0.38: 1.00: 0.79: 0.71: 0.79: 0.71: 0.67: 0.63: 0.54: 0.90.

Pronotum black, slightly elongate with only finely arcuate lateral margins, anterior margin and base almost straight. Pronotum narrower than elytra at widest place, 1.46 times longer than wide at base and 1.17 times longer than wide at widest point (near middle). Dorsal surface punctured by dense granulated punctuation, covered by black and yellow pubescence (as in Fig. 14a). Pronotum with long pale setation in basal half and lateral margins.

Scutellum black, widely triangular with rounded apex, punctured, covered by yellow pubescence.

Elytra 7.09 mm long and 2.64 mm wide (2.68 times longer than wide); narrowing apically, black, covered by black and yellow pubescence (as in Fig. 14a). Elytra completely punctured by dense small-sized punctuation. Elytral apex narrow, slightly undulate, each elytron with indistinct spine in sutural and lateral angle. Apical margin with dense pale setation.

Pygidium brown with distinct punctuation, covered by sparse yellow pubescence.

Legs long and relatively narrow, from brown to blackish brown, punctured, covered by yellowish pubescence, metafemora without pubescence in inner side. Profemora with denser pubescence than in meso- and metafemora. Femora with longer pale setation. Tibiae with denser pale pubescence and pale setation, in apical part pubescence longer. Tarsi dark brown, wide, tarsomeres 3 and claws paler than tarsomeres 1-2. Metatibiae and metafemora longer than proand mesotibiae and pro- and mesofemora. Metatarsomere 1 1.25 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, almost completely covered by dense yellow pubescence, pubescence in metasternum, metepisternum and ventrites paler than in dorsal surface. Mesepisternum with coarse punctuation, covered by dense yellow pubescence only in apical half. Elytral epipleura blackish brown, covered by black pubescence.

Genitalia as in Fig. 14b.

**Female.** Habitus of female paratype as in Fig. 15. Body length 12.1 mm. Colour of female the same as in male. Female with body more robust, pronotum wider than in male, antennae shorter, wider, with distinctly shorter antennomeres than in male.

**Differential diagnosis.** The most similar species are *Chlorophorus externenotatus* Pic, 1925 (Figs. 36-37), described from Borneo, *Chlorophorus hefferni* Dauber, 2002 (Figs. 34-35), described from Borneo, *Chlorophorus javanus* Pic, 1943, described from Java, *Chlorophorus ringleticus* sp. nov. (Fig. 22) from West Malaysia, and *Chlorophorus scenicus* (Pascoe, 1869) (Fig. 29), described from Borneo.

Chlorophorus fictus sp. nov. distinctly differs from similar species *Ch. externenotatus* mainly by shorter pronotum with distinctly differ spots of black pubescence, by antennomeres narrow with relatively sparse pubescence, by different shape of black spots on elytra and by elytral apex with indistinct spine in sutural and lateral angle; while *Ch. externenotatus* has more elongate pronotum, antennomeres wide with dense pale pubescence and elytral apex with long spines in angles (as in Figs. 36-37).

Chlorophorus fictus sp. nov. distinctly differs from similar species *Ch. hefferni* mainly by less robust body, by narrower tarsomeres than in *Ch. hefferni*, by different shape of black spots on elytra, especially in apical third (as in Figs. 14-15 and 34-35) and by elytral apex with indistinct spine in sutural and lateral angle; while *Ch. hefferni* has elytral apex with long spines in angles.

Chlorophorus fictus sp. nov. distinctly differs from similar species Ch. javanus mainly by elytra distinctly narrowing apically (elytra almost parallel in Ch. javanus), by different shape of black spots on elytra, especially in apical half (longer black stripes longitudinally in Ch. javanus), and by different shape of tegmen and median lobe.

Chlorophorus fictus sp. nov. differs from similar species Chlorophorus ringleticus sp. nov. mainly by more robust body, by wider pronotum (as in Figs. 14-15 and 22), by elytra black, and by different shape of male genitalia, especially shape of tegmen (as in Figs. 14b and 22b); while Chlorophorus ringleticus sp. nov. has more narrow body with distinctly narrower pronotum than in Chlorophorus fictus sp. nov. and elytra brown.

Chlorophorus fictus sp. nov. distinctly differs from similar species *Ch. scenicus* mainly by shorter pronotum than in *Ch. scenicus*, by more elongate elytra than in *Ch. scenicus*, by distinctly longer antennae, by different shape of black spots in apical third of elytra and by different shape of male genitalia, especially shape of tegmen (as in Figs. 14b and 29b).

**Etymology.** From Latin *fictus* (it means "ostensible").

**Distribution.** Malaysia (Perak, Pahang).

### Chlorophorus hariolus sp. nov.

(Figs. 16-17)

Type locality. Indonesia, Sulawesi, Mt. Sampuraga.

**Type material.** Holotype (3): 'South CELEBES' / 'Sampuraga' / '4. xi. 1985' / 'Sinji Nagai leg.', (CPV); Paratypes: (1 \( \gamma\): 'Indonesia' / 'Sulawesi' / 'Palolo Palu' / 'iv. 2017', (CPV); (1 \( \gamma\): 'DEC. 2013' / 'Kamarora' / 'Palolo, C' / 'local col', (CTT).

The types are provided with a printed red label: 'Chlorophorus hariolus sp. nov.' / 'HOLOTYPUS [respective PARATYPUS]' / 'P. Viktora det., 2019'.

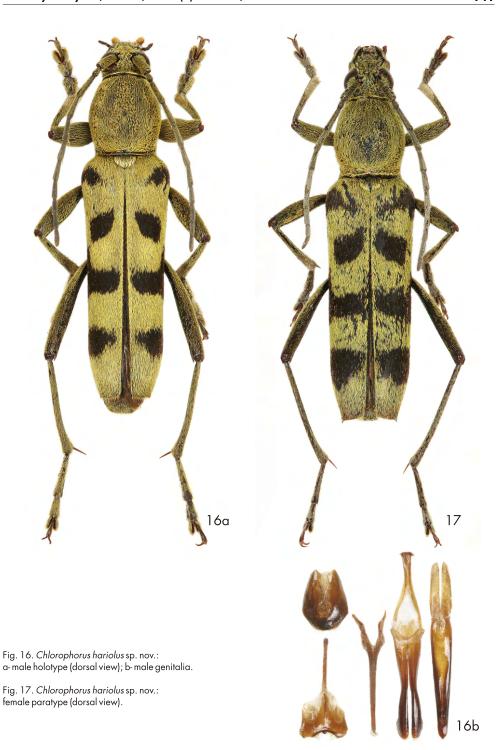
**Description.** Habitus of male holotype as in Fig. 16a. Body from blackish brown to black, elongate, almost parallel, punctuate, with pubescence. Body length from head to elytral apex 13.96 mm, widest in humeral part of elytra (3.48 mm), 4 times longer than wide.

Head from blackish brown to black, narrow, widest through the eyes, distinctly narrower than pronotum. Head with granulated punctuation (in posterior part punctuation coarser than in anterior part), covered by relatively dense yellow pubescence, in lateral margins and anterior part with long erected pale setae. Eyes large, dark brown, excised. Clypeus blackish with ochre yellow margins, covered by yellowish setation. Mandibles black with yellow pubescence in edges.

Maxillary palpus blackish brown with sparse pale setation. Palpomeres short, wide, ultimate palpomere longest, widened apically, axe-shaped with rounded apex.

Antennae filiform, reaching to two fifths elytral length. Antennomeres blackish brown, punctured. Antennomeres 1-5 covered by longer yellow pubescence, antennomeres 6-11 covered by short and dense yellowish gray pubescence. Antennomeres without spines, antennomeres 2-5 with yellowish setation in inner side, antennomeres 6-10 with yellowish setation in inner side of apex. Antennomere 2 shortest, antennomere 3 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 0.84: 0.33: 1.00: 0.96: 0.92: 0.81: 0.81: 0.67: 0.68: 0.56: 0.66.

Pronotum black, slightly elongate with arcuate lateral margins, anterior margin and base straight. Pronotum narrower than elytra at humeri, 1.35 times longer than wide at base and 1.11



times longer than wide at widest point (before middle from base to apex). Dorsal surface with granulated small-sized punctuation. Pronotum completely covered by yellow pubescence (as in Fig. 16a). Lateral margins near base with a few pale setae.

Scutellum black, wide, semielliptical, completely covered by yellow pubescence.

Elytra 9.58 mm long and 3.48 mm wide (2.75 times longer than wide); almost parallel, black with black and yellow pubescence (as in Fig. 16a). Elytra completely punctured by dense small-sized punctuation. Elytral apex slightly undulate, each elytron with short spine in lateral angle of apex.

Pygidium dark brown, punctured by dense granulated punctuation, covered by yellow pubescence.

Legs long, relatively robust, blackish brown, punctured, covered by yellow pubescence, pubescence in tibiae denser than in femora. Metafemora almost without pubescence in inner side. Meso- and metafemora with long pale erected setation. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Tarsi wide, with dense punctuation, covered by dense yellow pubescence. Metatarsomere 1 1.35 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, almost completely covered by dense yellow pubescence, ventrites with long pale erected setation. Elytral epipleura black, covered by yellow pubescence.

Genitalia as in Fig. 16b.

**Female.** Habitus of female paratype as in Fig. 17. Body length from head to elytral apex (female paratypes) from 14.2 to 14.3 mm. Colour of female the same as in male. Female with distinctly narrower femora, tibiae and tarsi than in male.

**Differential diagnosis.** The most similarly coloured species from Indonesia and adjacent regions are *Chlorophorus aurantiacus* Aurivillius, 1911, described from Papua New Guinea, *Chlorophorus marginalis* (Chevrolat, 1863), described from Bacan Island and *Chlorophorus sumbavae* Aurivillius, 1911, described from Sumbawa Island. *Chlorophorus hariolus* sp. nov. distinctly differs from *Ch. aurantiacus* by more elongate body, by longer and almost parallel elytra (shorter and distinctly narrowing apically elytra in *Ch. aurantiacus*), and by different shape of black spots on elytra.

Chlorophorus hariolus sp. nov. distinctly differs from Ch. marginalis mainly by narrower scutellum than in Ch. marginalis, by pronotum without black spots (large black spots on pronotum in Ch. marginalis), and by different shape of spots on elytra.

Chlorophorus hariolus sp. nov. distinctly differs from Ch. sumbavae by different shape of black spots on elytra and by pronotum without black spots (distinctive typical black spots on dorsal surface of pronotum in Ch. sumbavae).

The most similar species are probably *Chlorophorus assimilis* (Hope, 1831), described from Nepal and *Chlorophorus dohertii* (Gahan, 1906), described from Myanmar.

Chlorophorus hariolus sp. nov. distinctly differs from similar species Ch. assimilis and Ch. dohertii mainly by more elongate body, by elytra distinctly longer, narrower and almost parallel; while Ch. assimilis and Ch. dohertii have shorter and wider elytra, Ch. assimilis has black spots on pronotum, which are missing in Chlorophorus hariolus sp. nov.

**Etymology.** From Latin hariolus (it means "prophet").

**Distribution.** Indonesia (Sulawesi).

### Chlorophorus hubenyi sp. nov.

(Fig. 18)

**Type locality.** Kyrgyzstan, Chauvay.

**Type material.** Holotype (?): 'Kyrgyzstan, Chauvay' / '40.135°N 72.183°E +/-100m' / 'P. Hubený lgt. ex larva 2017', (CPV).

The type is provided with a printed red label: 'Chlorophorus hubenyi sp. nov.' / 'HOLOTYPUS' / 'P. Viktora det., 2019'.

**Description.** Habitus of male holotype as in Fig. 18a. Body from reddish brown to black, robust, widely elongate, punctuate, with pubescence. Body length from head to elytral apex 10.94 mm, widest in humeral part of elytra (3.33 mm), 3.28 times longer than wide.

Head blackish brown, in middle of vertex reddish brown, widest through the eyes, narrower than pronotum. Head punctured, in vertex punctuation irregular with dense relatively small-sized punctuation and large punctures near eyes. Frons with dense small-sized punctuation. Head with narrow longitudinal furrow between eyes and distinct thorns in inner side of antennal insertions. Clypeus blackish brown with reddish brown apical margin, labrum pale brown, shiny, with a few yellowish setae. Head covered by whitish pubescence, pubescence denser in anterior part. Eyes large, goldenish black, excised. Mandibles brown with darker margins and black top, shiny, with yellowish setation in edges.

Maxillary palpus brown with darker margins, covered by sparse yellowish setation. Palpomeres short, ultimate palpomere longest, broadest apically, with distinct curved longitudinal furrow in middle.

Antennae filiform, reaching to four ninths elytral length. Antennomeres brown, punctured by dense punctuation, covered by yellowish pubescence. Antennomeres 3-6 with relatively long yellowish setation in inner side. Antennomeres 2-10 distinctly widened apically, antennomeres 6-10 serrate in outer side of apex. Antennomeres without spines. Antennomere 2 shortest, antennomere 3 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 0.82:0.40: 1.00:0.94:0.98:0.91:0.75:0.69:0.59:0.52:0.70.

Pronotum reddish brown with some darker places (as in Fig. 18a) and blackish from ventral side (as in Fig. 18b). Pronotum robust, convex, with distinctly arcuate lateral margins. Anterior margin and base almost straight, indistinctly undulate. Pronotum slightly narrower than elytra at humeri, as long as wide, 1.32 times longer than wide at base and 1.02 times longer than wide at widest point (before middle from base to apex). Dorsal surface granulated, granulation dense, relatively small-sized. Pronotum covered by sparse black and yellowish pubescence, in lateral margins near base and near anterior margin from ventral side with long erected pale setation.

Scutellum black, widely triangular, covered by dense whitish recumbent pubescence.

Elytra 7.26 mm long and 3.33 mm wide (2.18 times longer than wide); black, completely punctured by dense small-sized punctuation. Elytra covered by black and spots of whitish pubescence (as in Fig. 18a). Elytral apex with long pale setation. Elytral apex slightly undulate, lateral angles sharp with indistinct spines.

Pygidium black with distinct shallow punctuation and sparse pale pubescence.

Legs long and narrow, from reddish to blackish brown, punctured, covered by whitish pubescence. Femora distinctly darker than tibiae and tarsi. Tibiae with dense pale setation in apical part. Meso- and metafemora with long pale setation from ventral side. Tarsi relatively short, covered by yellowish setation. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.46 times longer than metatarsomeres 2 and 3 together.

Ventral side of body as in Fig. 18b, almost black with brown coxae and apical margins of

ventrites. Mesepisternum, metepisternum and ventrites distinctly punctured, partly covered by dense whitish pubescence. Ventral side of body with dense long pale setation. Elytral epipleura black, punctured, covered by dark pubescence.



Fig. 18. Chlorophorus hubenyi sp. nov., female holotype: a-dorsal view; b-lateral view.

Male. Unknown.

**Differential diagnosis.** Chlorophorus hubenyi sp. nov. distinctly differs from similar species Chlorophorus sexguttatus (Lucas, 1849) from Algeria, Morocco and Libya mainly by narrower stripes of pale pubescence in basal part of elytra (oval yellow spots in Ch. sexguttatus) and by short widely triangular scutellum with white pubescence (large semicircular scutellum with distinctly rounded apex and yellowish pubescence in Ch. sexguttatus).

Chlorophorus hubenyi sp. nov. distinctly differs from relatively similar species Chlorophorus ruficornis (Olivier, 1790) mainly by more robust body, by distinctly wider pronotum and different shapes of stripes of pubescence on elytra (wider, less transverse stripes of pale pubescence in Ch. ruficornis).

Chlorophorus hubenyi sp. nov. distinctly differs from other West Palaearctic Chlorophorus species with reddish pronotum (Chlorophorus aegyptiacus (Fabricius, 1775), Chlorophorus convexifrons Holzschuh, 1981, Chlorophorus cursor Rapuzzi & Sama, 1999, Chlorophorus hungaricus Seidlitz, 1891, Chlorophorus niehuisi Adlbauer, 1992, Chlorophorus oezdikmeni Sama et Rapuzzi, 2011, Chlorophorus robustior (Pic, 1900) and Chlorophorus trifasciatus (Fabricius, 1781)) mainly by different shape of spots of pale pubescence on elytra, especially in basal third with less curved white stripe, not reaching scutellum (strongly curved stripes of pale pubescence, reaching scutellum in similar species).

Chlorophorus hubenyi sp. nov. distinctly differs from similar species Chlorophorus adelii Holzschuh, 1974 and Chlorophorus grosseri Sama et Rapuzzi, 2011 by black elytra, by shorter scutellum and by different shape of stripe of pale pubescence in basal third of elytra, not distinctly reaching to scutellum; while Ch. adelii and Ch. grosseri have elytra from reddish brown to black, longer scutellum, and curved stripe of pale pubescence in basal third of elytra almost reaching scutellum.

The most similar species are probably *Chlorophorus swatensis* Holzschuh, 1974 and *Chlorophorus pseudoswatensis* Holzschuh, 1983, described from Northern Pakistan. *Chlorophorus hubenyi* sp. nov. differs from similar species *Ch. swatensis* and *Ch. pseudoswatensis* mainly by shorter scutellum, by different shape of pale pubescence in basal third of elytra (less curved stripes in *Chlorophorus hubenyi* sp. nov.), by whitish transverse stripe of pubescence in two thirds elytral length from base to apex reaching to suture (transverse stripe not reaching suture in *Ch. swatensis* and *Ch. pseudoswatensis*).

**Etymology.** This new species is dedicated to Pavel Hubený (Tišice, Czech Republic), my friend and a collector of this unique species.

**Distribution.** Kyrgyzstan.

## Chlorophorus interneconnexus Pic, 1925

(Figs. 27-28)

Chlorophorus interneconnexus Pic, 1925: 22. Demonax x-signatus Pic, 1943: 2. syn. nov.

Type locality. Borneo.

Material examined. holotype of *Chlorophorus interneconnexus* Pic, 1925 from Borneo, (MNHN); holotype of *Demonax x-signatus* Pic, 1943 from Borneo, (MNHN); (2 ♂♂): 'INDONESIA, Kalimantan Barat Pr.' / 'SW Kalimantan, 1000 - 1500 m alt.' / 'Singkawang region, v. 2018' / 'MT. BAWANG, Madi vill. env.' / 'local collector leg.', (CPV); (1 ♂, 1 ♀): same data, but vi. 2018, (CPV); (1 ♂): 'S BORNEO' / 'Mt. Bayutawar' / 'x. 2008', (CPV).

**Remark.** Based on the comparison of description and holotype of *Demonax x-signatus* Pic, 1943 with description and holotype of *Chlorophorus interneconnexus* Pic, 1925, it is clear, that it is the same species. *Demonax x-signatus* Pic, 1943 does not belong to the genus *Demonax* Thomson, 1861 and is treated as a junior synonym of *Ch. interneconnexus* Pic, 1925.

**Distribution.** Indonesia (Kalimantan).

### Chlorophorus latens sp. nov.

(Fig. 19)

Type locality. Indonesia, W Sumatra, Landai vill. env., Mt. Sanggul.

**Type material.** Holotype (3): 'Indonesia, West Sumatra' / 'MT. SANGGUL, 1250 m alt.' / 'Landai vill. env., vi. 2013' / 'St. Jákl lgt.', (CPV).

The type is provided with a printed red label: 'Chlorophorus latens sp. nov.' / 'HOLOTYPUS' / 'P. Viktora det., 2019'.

**Description.** Habitus of male holotype as in Fig. 19a. Body from dark brown to black, widely elongate, narrowing apically, punctuate, with pubescence. Body length from head to elytral apex 10.59 mm, widest in humeral part of elytra (2.57 mm), 4.12 times longer than wide.

Head from dark brown to black, narrow, widest through the eyes, distinctly narrower than pronotum. Head with yellow pubescence, in margins with long pale setation. Head punctured by coarse punctuation, in posterior part punctures larger than in anterior part, in the middle with distinct longitudinal furrow from posterior margin continues between eyes to anterior part. Eyes large, dark brown, excised. Clypeus from pale brown to black, shiny. Mandibles blackish brown with yellowish setation in edges.

Maxillary palpus brown with short yellowish setation. Palpomeres short, ultimate palpomere broadest, axe-shaped with rounded apex.

Antennae filiform, relatively short, reaching to four ninths elytral length. Antennomeres 6-9 finely serrate. Antennomeres 1-4 blackish brown, shiny, antennomeres 5-6 brown, antennomeres 7-11 pale brown, matte. Antennae punctured, punctures in antennomeres 1-4 distinctly larger than in antennomeres 5-11. Antennae covered by yellowish pubescence, pubescence in antennomeres 1-5 longer and sparser than short and dense pubescence in antennomeres 6-11. Antennomeres without spines, with pale setation in apex of antennomeres 1-10. Antennomere 2 shortest, antennomere 1 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 1.12: 0.34: 1.00: 0.95: 0.74: 0.74: 0.67: 0.67: 0.67: 0.69: 0.63: 0.89.

Pronotum black, slightly elongate, distinctly narrower than elytra at humeri, with arcuate lateral margins, anterior margin finely arcuate, base straight. Pronotum 1.5 times longer than wide at base and 1.17 times longer than wide at widest point (middle of pronotum). Dorsal surface with distinct punctuation, punctures relatively large with microgranulation. Pronotum covered by double pubescence - shorter black and longer yellow pubescence (as in Fig. 19a). Lateral margins in basal half of pronotum with long pale setation.

Scutellum black, widely semicircular, covered by dense yellow pubescence.

Elytra 6.54 mm long and 2.57 mm wide (2.54 times longer than wide); distinctly narrowing apically, black with black and yellow pubescence (as in Fig. 19a). Elytra completely punctured by dense regular punctuation. Elytral apex slightly undulate, each elytron with short spine in lateral angle of apex. Apical edge with long white setation.

Pygidium brown, covered by sparse yellowish pubescence.

Legs long and narrow, blackish brown, punctured by distinct punctuation, covered by long,

relatively sparse yellowish pubescence. Metafemora without pubescence in inner side. Pubescence in tibiae denser than in femora. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.1 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, with stripes of dense yellow pubescence and sparser pale setation. Ventrites almost completely covered by dense yellow pubescence and long pale erect setation. Yellow pubescence in ventral side distinctly paler than in dorsal side. Elytral epipleura black with sparse pale pubescence.

Genitalia as in Fig. 19b.

Female. Unknown.

**Differential diagnosis.** The most similar species are *Chlorophorus javanus* Pic, 1925, described from Java, *Chlorophorus optabilis* sp. nov. (Fig. 20) from West Malaysia, and *Chlorophorus vicinus* Dauber, 2002 (Fig. 33), described from Borneo.

Chlorophorus latens sp. nov. distinctly differs from similar species *Ch. javanus* mainly by elytra distinctly narrowing apically (almost parallel in *Ch. javanus*), by different shape of black spots on pronotum, by distinctly wider antennomeres 8-11 than in *Ch. javanus*, by longer legs and by distinctly different shape of sternite 8, tergite 8, tegmen and median lobe.

Chlorophorus latens sp. nov. distinctly differs from similar species Chlorophorus optabilis sp. nov. mainly by less robust body, by distinctly narrower pronotum, by narrower tarsi, by antennomeres 1-4 blackish brown, antennomeres 5-6 brown, antennomeres 7-11 pale brown (antennomeres 1-11 blackish brown in Chlorophorus optabilis sp. nov.), by antennomeres covered by short indistinct pubescence (longer and denser pubescence in Chlorophorus optabilis sp. nov.), by antennomeres 9-10 distinctly shorter than in Chlorophorus optabilis sp. nov., and by different shape of tergite 8, tegmen and median lobe (as in Figs. 19b and 20b).

Chlorophorus latens sp. nov. distinctly differs from similar species Ch. vicinus by more robust body (elongate and narrow in Ch. vicinus), by wider pronotum with different shape of black spots and by different shape of tergite 8, tegmen and median lobe (as in Figs. 19b and 33b).

**Etymology.** From Latin *latens* (it means "hidden").

**Distribution.** Indonesia (Sumatra).

# Chlorophorus optabilis sp. nov.

(Fig. 20)

Type locality. Malaysia, Pahang, Cameron Highlands, Tanah Rata.

Type material. Holotype (♂): 'MALAYSIA - Pahang' / 'Cameron Highlands' / 'Tanah Rata' / '9. iv. - 16. iv. 2014' / 'P. Viktora lgt.', (CPV).

The type is provided with a printed red label: 'Chlorophorus optabilis sp. nov.' / 'HOLOTYPUS' / 'P. Viktora det., 2019'.

**Description.** Habitus of male holotype as in Fig. 20a. Body from dark brown to black, widely elongate, slightly narrowing apically, punctuate, with pubescence. Body length from head to elytral apex 12.88 mm, widest in humeral part of elytra (3.39 mm), 3.8 times longer than wide.

Head from blackish brown to black, relatively narrow, widest through the eyes, distinctly narrower than pronotum. Head with distinct punctuation, in posterior part punctuation coarse

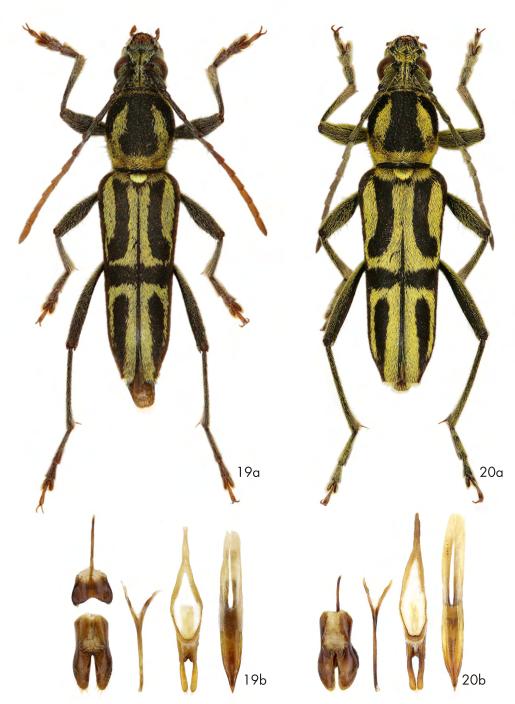


Fig. 19. Chlorophorus latens sp. nov.: a-male holotype (dorsal view); b-male genitalia. Fig. 20. Chlorophorus optabilis sp. nov.: a-male holotype (dorsal view); b-male genitalia.

with larger punctures than in anterior part, in the middle with narrow longitudinal furrow from posterior margin continues between eyes to anterior part. Eyes large, dark brown, excised. Head covered by long yellow pubescence, in margins with a few long pale setae. Clypeus from pale brown to dark brown, shiny. Mandibles blackish brown with yellow setation in edges.

Maxillary palpus brown with distinct dense punctuation and long pale setation. Palpomeres short, ultimate palpomere longest and broadest apically with rounded apex, base of ultimate palpomere narrow.

Antennae filiform, reaching to two fifths elytral length. Antennomeres blackish brown, punctured, punctures in antennomeres 1-4 larger than in antennomeres 5-11. Antennomeres 1-3 covered by long sparse yellow pubescence, antennomeres 4-11 covered by dense yellowish gray pubescence. Antennomeres without spines (only scape with short spine in inner side of apex), with pale setation in inner side. Antennomere 2 shortest, antennomeres 1 and 4 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 1.10: 0.44: 1.00: 1.12: 0.74: 0.61: 0.57: 0.57: 0.59: 0.61: 0.84.

Pronotum black, robust, narrower than elytra at humeri, with arcuate lateral margins, anterior margin only slightly arcuate, base almost straight. Pronotum 1.32 times longer than wide at base and 1.1 times longer than wide at widest point (before middle from base to apex). Dorsal surface with coarse punctuation, punctures relatively large, some punctures larger than rest, punctures with microgranulation. Pronotum covered by shorter black and longer yellow pubescence (as in Fig. 20a). Lateral margins in basal half with long pale setation.

Scutellum black, semicircular, covered by dense yellow pubescence.

Elytra 8.21 mm long and 3.39 mm wide (2.42 times longer than wide); narrowing apically, black with black and yellow pubescence (as in Fig. 20a). Elytra completely punctured by dense punctuation. Elytral apex slightly undulate, each elytron with short spine in sutural and lateral angle of apex. Apical edge with long pale setation.

Pygidium dark brown, partly covered by yellow pubescence.

Legs long and narrow, blackish brown, punctured by distinct punctuation, covered by long yellow pubescence. Metafemora without punctuation and pubescence in inner side. Tarsi covered by long yellow pubescence and pale setation. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.14 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, almost completely covered by dense yellow pubescence and long pale setation. Elytral epipleura black, covered by yellowish pubescence.

Genitalia as in Fig. 20b.

### Female. Unknown.

**Differential diagnosis.** The most similar species are *Chlorophorus javanus* Pic, 1925, described from Java, *Chlorophorus latens* sp. nov. (Fig. 19) from Sumatra, and *Chlorophorus vicinus* Dauber, 2002 (Fig. 33), described from Borneo.

Chlorophorus optabilis sp. nov. distinctly differs from similar species *Ch. javanus* mainly by more robust body, by elytra distinctly narrowing apically (almost parallel in *Ch. javanus*), by different shape of black spots on pronotum, by distinctly wider antennomeres than in *Ch. javanus*, and by different shape of sternite 8, tergite 8, tegmen and median lobe.

Chlorophorus optabilis sp. nov. distinctly differs from similar species Chlorophorus latens sp. nov. mainly by more robust body, by distinctly wider pronotum, by wider tarsi, by antennomeres 1-11

blackish brown (antennomeres 1-4 blackish brown, antennomeres 5-6 brown, antennomeres 7-11 pale brown in *Chlorophorus latens* sp. nov.), by antennomeres covered by longer and denser pubescence than in *Chlorophorus latens* sp. nov., by antennomeres 9-10 distinctly longer than in *Chlorophorus latens* sp. nov., and by different shape of tergite 8, tegmen and median lobe (as in Figs. 19b and 20b).

Chlorophorus optabilis sp. nov. distinctly differs from similar species *Ch. vicinus* by more robust body (elongate and narrow in *Ch. vicinus*), by wider pronotum with different shape of black spots and by different shape of tergite 8, tegmen and median lobe (as in Figs. 20b and 33b).

**Etymology.** From Latin optabilis (it means "desirable").

Distribution. Malaysia (Pahang).

## Chlorophorus procus sp. nov.

(Fig. 21)

**Type locality.** Indonesia, E Java, Mt. Semeru.

**Type material.** Holotype (3): 'INDONESIA' / 'East Java' / 'Semeru Mt.' / 'xii. 2007' / 'local collector', (CPV). The type is provided with a printed red label: 'Chlorophorus procus sp. nov.' / 'HOLOTYPUS' / 'P. Viktora det., 2019'.

**Description.** Habitus of male holotype as in Fig. 21a. Body from blackish brown to black, elongate, slightly narrowing apically, punctuate, with pubescence. Body length from head to elytral apex 11.6 mm, widest in humeral part of elytra (2.65 mm), 4.37 times longer than wide.

Head black, narrow, widest through the eyes, distinctly narrower than pronotum. Head with distinct punctuation, covered by relatively long yellow pubescence, in margins with long pale erect setation. Frons with narrow longitudinal furrow in the middle. Eyes large, dark brown, excised. Clypeus blackish brown, covered by yellowish setation. Mandibles black with blackish brown margins, with yellow pubescence in edges.

Maxillary palpus brown with very short pale setation. Palpomeres short, ultimate palpomere broadest, axe-shaped with rounded apex.

Antennae filiform, reaching to two fifths elytral length. Antennomeres blackish brown with dense punctuation. Antennomeres covered by yellowish pubescence, pubescence in antennomeres 1-4 longer and sparser than short and dense pubescence in antennomeres 5-11. Antennomeres without spines, antennomeres 1-9 with pale setation in inner side. Antennomere 2 shortest, antennomere 3 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 0.90: 0.33: 1.00: 0.77: 0.73: 0.66: 0.67: 0.59: 0.59: 0.49: 0.65.

Pronotum black, semicircular with arcuate lateral margins, anterior margin and base straight. Pronotum only slightly narrower than elytra at widest place, 1.46 times longer than wide at base and 1.11 times longer than wide at widest point (before middle from base to apex). Dorsal surface with dense granulated small-sized punctuation. Pronotum covered by double pubescence - shorter black and longer yellow pubescence (as in Fig. 21a). Lateral margins in basal half of pronotum with long pale setation.

Scutellum black, wide, completely covered by yellow pubescence, pubescence paler than those in elytra or pronotum.

Elytra 7.67 mm long and 2.65 mm wide (2.89 times longer than wide); slightly narrowing apically, black with black and yellow pubescence (as in Fig. 21a). Elytra completely punctured by dense small-sized punctuation. Elytral apex slightly undulate, each elytron with short spine in

sutural and lateral angle of apex.

Pygidium brown, covered by long yellow pubescence.

Legs long and narrow, blackish brown, punctured by distinct punctuation, covered by relatively long yellow pubescence. Metafemora without pubescence in inner side. Mesofemora with long pale erected setation. Pubescence in tibiae denser than in femora. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.32 times longer than metatarsomeres 2 and 3 together.

Ventral side of body black, almost completely covered by dense yellow pubescence, ventrites 2 and 3 with stripe without yellow pubescence in base, only with pale setation. Yellow pubescence in ventral side distinctly paler than in dorsal side. Elytral epipleura black with black pubescence.

Genitalia as in Fig. 21b.

Female. Unknown.

**Differential diagnosis.** The most similar species is *Chlorophorus signatipennis* Gahan, 1907, described from Sumatra.

Chlorophorus procus sp. nov. distinctly differs from similar species *Ch. signatipennis* by wider pronotum (only slightly narrower than elytra at widest place), by pronotum with three distinct black spots and by longitudinally interrupted black spot on each elytron in apical third, which not reaching suture; while *Ch. signatipennis* has narrower pronotum (distinctly narrower than elytra), pronotum without distinct black spots and not interrupted black spot on each elytron in apical third reaching to suture.

**Etymology.** From Latin *procus* (it means "philanderer").

**Distribution.** Indonesia (Java).

# Chlorophorus ringleticus sp. nov.

(Fig. 22)

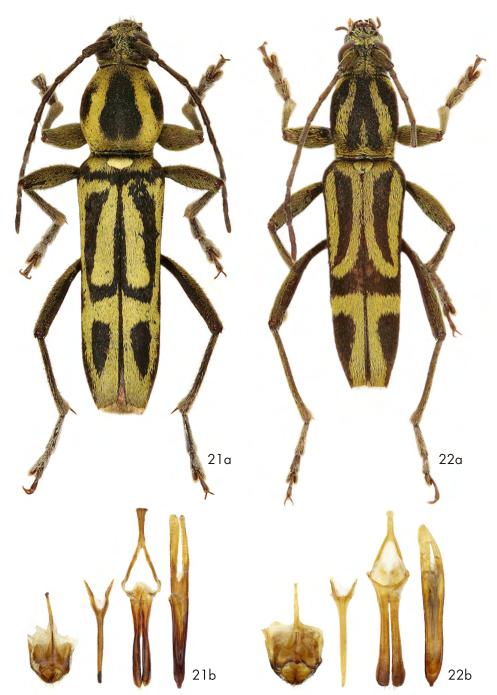
Type locality. Malaysia, Pahang, Cameron Highlands, Ringlet.

**Type material.** Holotype [3]: 'Malaysia NW' / 'Cameron Highlands' / 'Ringlet' / 'v. 2005' / 'local collector', (CPV); Paratypes: (5 33): 'MALAYSIA - Pahang' / 'Cameron Highlands' / 'Ringlet' / '9. iv. - 16. iv. 2014' / 'P. Viktora lgt.', (CPV). The types are provided with a printed red label: 'Chlorophorus ringleticus sp. nov.' / 'HOLOTYPUS [respective PARATYPUS]' / 'P. Viktora det., 2019'.

**Description.** Habitus of male holotype as in Fig. 22a. Body from brown to black, elongate, punctuate, with pubescence. Body length from head to elytral apex 9.48 mm (male paratypes from 9.5 to 10.7 mm), widest in humeral part of elytra (2.21 mm), 4.28 times longer than wide.

Head black (anterior part blackish brown), narrow, widest through the eyes, slightly narrower than pronotum. Head punctured by coarse granulated punctuation in posterior part and sparse punctuation in anterior part, between eyes with narrow longitudinal furrow. Head covered by yellow pubescence and pale setation in anterior part. Eyes large, dark brown, excised. Clypeus brown, shiny, with pale setation. Mandibles blackish brown with black top, with yellowish pubescence in edges.

Maxillary palpus brown with short pale setation. Palpomeres short, ultimate palpomere longest. Antennae filiform, reaching to half elytral length. Antennameres dark brown with indistinct



 $\label{eq:continuity} Fig.~21. \textit{Chlorophorus procus sp. nov.: a-male holotype (dorsal view); b-male genitalia.} Fig.~22. \textit{Chlorophorus ringleticus sp. nov.: a-male holotype (dorsal view); b-male genitalia.}$ 

punctuation. Antennomeres 1-5 covered by longer yellowish pubescence, antennomeres 6-9 covered by denser and shorter whitish pubescence, antennomeres 10-11 darker, with very short pale pubescence. Antennomeres without spines, antennomeres 3-9 with pale setation in inner side. Antennomere 2 shortest, antennomere 3 longest. Ratios of relative lengths of antennomeres 1-11 equal to: 0.91: 0.28: 1.00: 0.84: 0.87: 0.78: 0.81: 0.62: 0.77: 0.61: 0.79.

Pronotum black, elongate, with only slightly arcuate lateral margins, anterior margin and base straight. Pronotum narrower than elytra at widest place, 1.43 times longer than wide at base and 1.23 times longer than wide at widest point (middle of pronotum). Dorsal surface punctured by dense small-sized granulated punctuation, covered by double pubescence - longer yellow and shorter black pubescence (as in Fig. 22a). Pronotum near base with long erected pale setation.

Scutellum black, punctured, covered by yellow pubescence.

Elytra 6.02 mm long and 2.21 mm wide (2.72 times longer than wide); narrowing apically, brown, covered by black and yellow pubescence (as in Fig. 22a). Elytra completely punctured by dense small-sized punctuation. Elytral apex slightly undulate, each elytron with short spine in sutural and lateral angle.

Legs long and relatively narrow, from brown to blackish brown, punctured, covered by long yellow pubescence, metafemora without pubescence in inner side. Femora with pale erected setation, pubescence of tibiae and tarsi denser than in femora. Tarsi wide. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.12 times longer than metatarsomeres 2 and 3 together.

Ventral side of body dark brown, almost completely covered by dense yellow pubescence, pubescence paler than in dorsal surface. Ventrites with a few long pale erected setae. Elytral epipleura brown, covered by sparse black pubescence.

Genitalia as in Fig. 22b.

#### Female. Unknown.

**Differential diagnosis.** The most similar species are *Chlorophorus externenotatus* Pic, 1925 (Figs. 36-37), described from Borneo, *Chlorophorus fictus* sp. nov. (Figs. 14-15) from West Malaysia, *Chlorophorus hefferni* Dauber, 2002 (Figs. 34-35), described from Borneo, *Chlorophorus javanus* Pic, 1943, described from Java and *Chlorophorus scenicus* (Pascoe, 1869) (Fig. 29), described from Borneo.

Chlorophorus ringleticus sp. nov. distinctly differs from similar species *Ch. externenotatus* mainly by narrower body, by distinctly narrower pronotum with different black spots on dorsal surface of pronotum and by different shape of black spots on elytra (as in Figs. 22 and 36-37) and by elytral apex with indistinct spine in sutural and lateral angle; while *Ch. externenotatus* has elytral apex with long spines in angles (as in Figs. 36-37).

Chlorophorus ringleticus sp. nov. differs from similar species Chlorophorus fictus sp. nov. mainly by less robust body, by narrower pronotum (as in Figs. 14-15 and 22), by elytra brown, and by different shape of male genitalia, especially shape of tegmen (as in Figs. 14b and 22b); while Chlorophorus fictus sp. nov. has more wider body with distinctly wider pronotum than in Chlorophorus ringleticus sp. nov. and elytra black.

Chlorophorus ringleticus sp. nov. distinctly differs from similar species *Ch. hefferni* mainly by less robust body, by narrower tarsomeres than in *Ch. hefferni*, by different shape of black spots on elytra, especially in apical third (as in Figs. 22 and 34-35) and by elytral apex with indistinct spine in sutural and lateral angle; while *Ch. hefferni* has elytral apex with long spines in angles.

Chlorophorus ringleticus sp. nov. distinctly differs from similar species Ch. javanus mainly by

more elongate body with distinctly narrower pronotum, elytra distinctly narrowing apically (elytra almost parallel in *Ch. javanus*), by different shape of black spots on elytra, especially in apical half (longer black stripes longitudinally in *Ch. javanus*), and by different shape of tegmen and median lobe.

Chlorophorus ringleticus sp. nov. distinctly differs from similar species *Ch. scenicus* mainly by narrower pronotum than in *Ch. scenicus*, by more elongate elytra than in *Ch. scenicus*, by distinctly longer antennae, by different shape of black spots in apical third of elytra and by different shape of male genitalia (as in Figs. 22b and 29b).

**Etymology.** Named after the type locality, town Ringlet.

**Distribution.** Malaysia (Pahang).

## Chlorophorus sollicitus sp. nov.

(Figs. 23-24)

Type locality. Philippines, Palawan, Roxas.

**Type material.** Holotype [3]: 'Philippines' / 'Palawan' / 'Roxas' / 'i. 2019' / 'local collector', (CPV); Paratypes:  $\{1\ 3\}$ : 'Philippines' / 'Palawan' / 'Rizal' / 'i. 2019' / 'local collector', (CPV);  $\{1\ 3\}$ : label 1: 'N. Palawan' / 'Bacuit' / 'Dezemb. 1913' / 'leg.G.Boettcher' / 'local collector', label 2: '1', label 3: '5278' / 'E92 +', label 4: 'NHRS-JLKB' / '000027452', (NHRS);  $\{1\ 9\}$ : 'Philippines, PALAVAN centr.' / 'above San Rafael, ca 300 m,' / 'degraded forest on slope,' / '4. xii. 1995, J. Kodada leg.', (CPV).

The types are provided with a printed red label: 'Chlorophorus sollicitus sp. nov.' / 'HOLOTYPUS [respective PARATYPUS]' / 'P. Viktora det., 2019'.

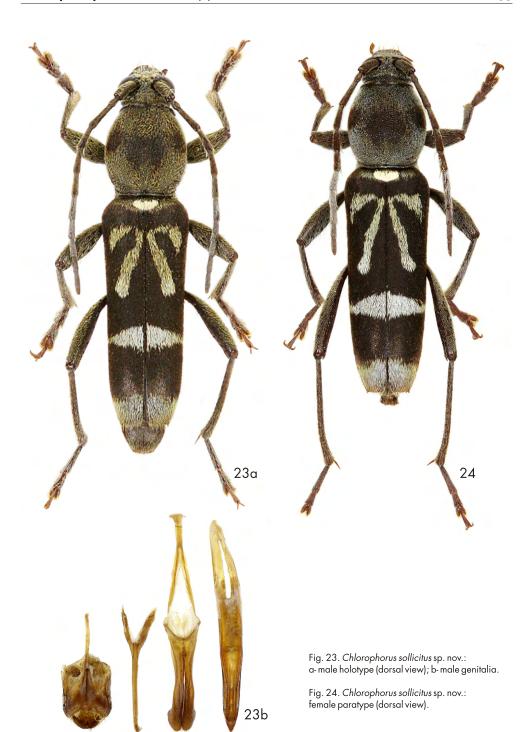
**Description.** Habitus of male holotype as in Fig. 23a. Body from dark brown to black, elongate, parallel, punctuate, with pubescence. Body length from head to elytral apex 8.7 mm (male paratypes from 8.1 to 10.4 mm), widest in humeral part of elytra (2.12 mm), 4.1 times longer than wide.

Head black, narrow, widest through the eyes, distinctly narrower than pronotum. Head punctured by coarse granulated punctuation (in vertex punctures larger), with narrow longitudinal furrow between eyes. Head covered by yellowish pubescence, in anterior part with long pale setae. Eyes large, goldenish brown, excised. Clypeus blackish brown with paler anterior margin, labrum brown with yellowish setation. Mandibles black with yellow pubescence and pale setation in edges.

Maxillary palpus dark brown with very short pale setation. Palpomeres short, ultimate palpomere longest, widened apically with rounded apex, matte.

Antennae filiform, reaching to four ninths elytral length. Antennameres blackish brown, punctured. Antennameres 1-4 covered by longer sparse yellowish pubescence, antennameres 5-9 covered by denser shorter whitish pubescence, antennameres 10-11 covered by very short pale pubescence. Antennameres without spines, only scape with short spine in inner margin of apex. Antennameres 3-8 with long pale setation in inner side. Antennamere 2 shortest, antennamere 3 longest. Ratios of relative lengths of antennameres 1-11 equal to: 0.85:0.34:1.00:0.87:0.79:0.77:0.83:0.65:0.62:0.53:0.74.

Pronotum black, slightly elongate with arcuate lateral margins, anterior margin and base almost straight. Pronotum slightly narrower than elytra at humeri, 1.5 times longer than wide at base and 1.12 times longer than wide at widest point (near middle of pronotum). Dorsal surface distinctly irregularly punctured, punctures with microgranulation. Pronotum covered by blackish and



yellowish pubescence (as in Fig. 23a), in lateral margins near base with a few pale setae.

Scutellum black, wide, semielliptical, punctured, almost completely covered by dense recumbent yellowish white pubescence, near base narrowly without pubescence.

Elytra 5.56 mm long and 2.12 mm wide (2.62 times longer than wide); only slightly narrowing apically, black with brown apex, covered by yellowish, whitish, and black shiny pubescence (as in Fig. 23a). Elytra completely punctured by dense small-sized punctuation, elytral apex with long yellowish setation. Elytral apex cut, indistinctly undulate, lateral angle prolonged to distinct spine.

Pygidium black with shallow punctuation, covered by sparse yellowish pubescence.

Legs long and relatively narrow, blackish brown, punctured, covered by yellowish pubescence. Meso- and metafemora with long pale setation. Tibiae with dense yellowish setation in apical part. Tarsi dark brown, punctured by dense small-sized punctuation, relatively short, wide, covered by long whitish pubescence and pale setation, claws brown. Metatibiae and metafemora longer than pro- and mesotibiae and pro- and mesofemora. Metatarsomere 1 1.13 times longer than metatarsomeres 2 and 3 together.

Ventral side of body from dark brown to black. Mesepisternum black, in apical third covered by dense recumbent whitish pubescence. Metepisternum completely covered by dense recumbent whitish pubescence. Ventrites 1-2 almost completely covered by dense recumbent whitish pubescence, ventrites 3-5 with only sparse whitish pubescence. Ventrites with long pale erected setation. Metasternum covered by whitish pubescence, pubescence distinctly sparser than in metepisternum. Elytral epipleura black, punctured, covered by blackish pubescence.

Genitalia as in Fig. 23b.

**Female.** Habitus of female paratype as in Fig. 24. Body length from head to elytral apex 10.3 mm. Colour of female the same as in male. Female without distinct differences, antennae slightly shorter and wider than in male.

**Differential diagnosis.** The most similar species are *Chlorophorus belum* sp. nov. (Figs. 5-6) from West Malaysia, *Chlorophorus interneconnexus* Pic, 1925 (Figs. 27-28), described from Borneo, and *Chlorophorus sumatrensis* (Castelnau & Gory, 1841) (Figs. 25-26), described from Sumatra.

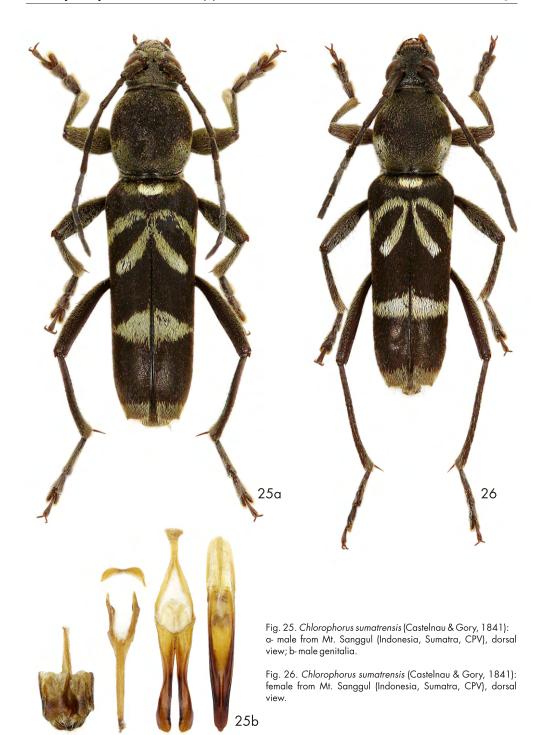
Chlorophorus sollicitus sp. nov. distinctly differs from similar species Chlorophorus belum sp. nov. mainly by different shape of stripes of pale pubescence in basal half of elytra, by protarsi and metatarsi distinctly shorter than in Chlorophorus belum sp. nov. and by distinctly different shape of sternite 8 and tegmen (as in Figs. 5b and 23b).

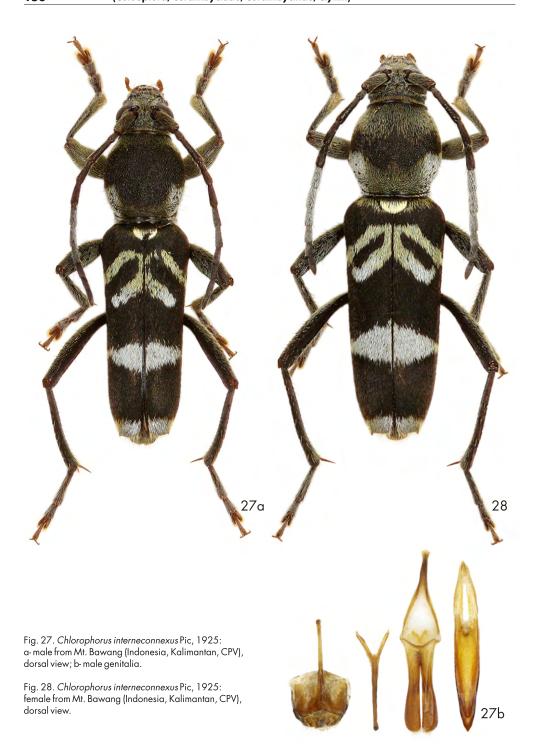
Chlorophorus sollicitus sp. nov. distinctly differs from similar species *Ch. interneconnexus* mainly by more elongate body, by elongate pronotum (almost symmetrical in *Ch. interneconnexus*), by different shape of stripes of pale pubescence in basal half of elytra and by distinctly different shape of tegmen and median lobe (as in Figs. 23b and 27b).

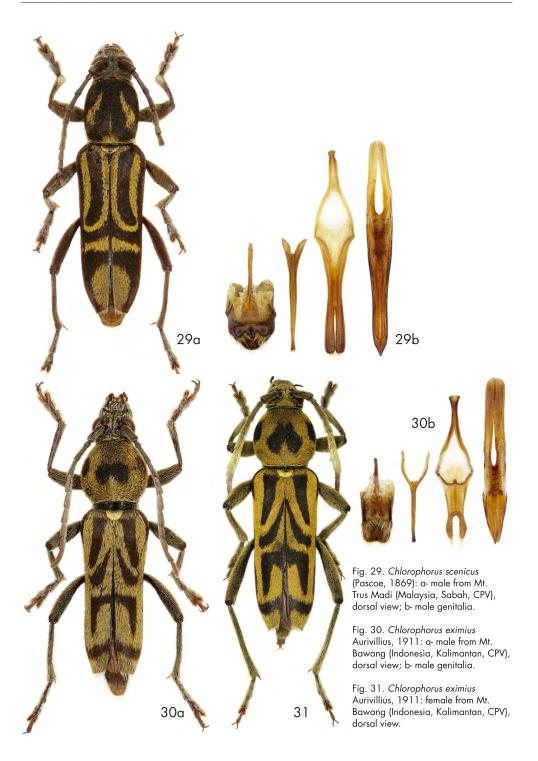
Chlorophorus sollicitus sp. nov. differs from similar species Ch. sumatrensis mainly by different shape of stripes of pale pubescence in basal half of elytra, by shorter and narrower tarsi than in Ch. sumatrensis and by distinctly different shape of tegmen and median lobe (as in Figs. 23b and 25b).

**Etymology.** From Latin sollicitus (it means "choppy").

**Distribution.** Philippines (Palawan).







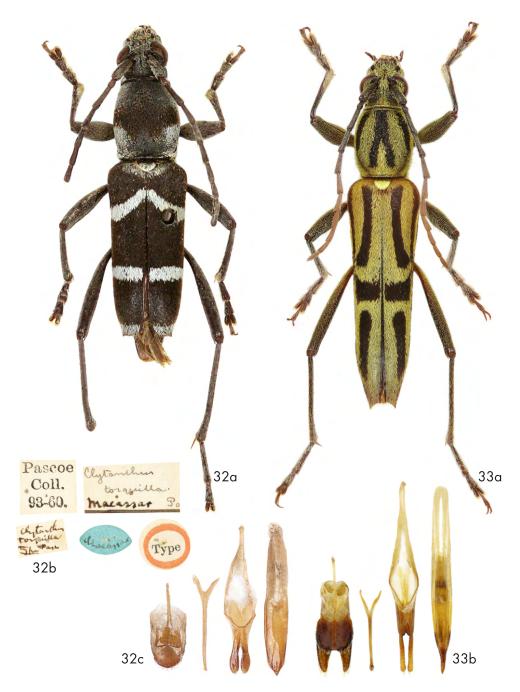


Fig. 32. Chlorophorus torquilla (Pascoe, 1869): a-type specimen (male) from Sulawesi, (BMNH); b-labels; c-male genitalia. Fig. 33. Chlorophorus vicinus Dauber, 2002: a- male from Mt. Trus Madi (Malaysia, Sabah, CPV), dorsal view; b- male genitalia.

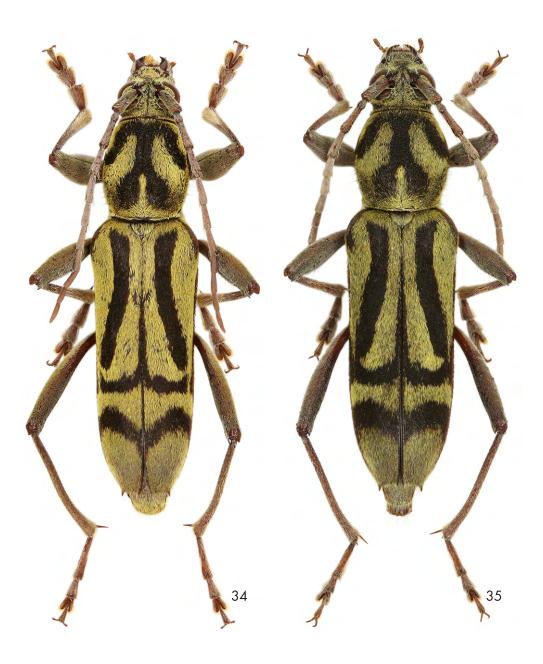


Fig. 34. Chlorophorus hefferni Dauber, 2002: male from Tawau (Malaysia, Sabah, CPV), dorsal view.

 $Fig.\ 35.\ Chlorophorus\ hefferni\ Dauber,\ 2002: female\ from\ Kuamut\ (Malaysia,\ Sabah,\ CPV),\ dorsal\ view.$ 

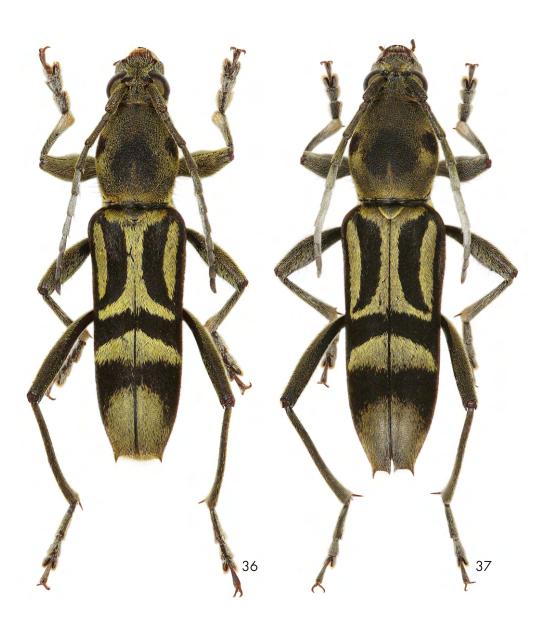


Fig. 36. Chlorophorus externenotatus Pic, 1925: male from Tanah Rata (Malaysia, Pahang, CPV), dorsal view.

 $Fig.\ 37.\ Chlorophorus\ externenotatus\ Pic,\ 1925: female\ from\ Belum\ Forest\ (Malaysia,\ Perak,\ CPV),\ dorsal\ view.$ 

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