

# Description of four new species of *Chramesus* LECONTE, 1868 from South America (Coleoptera: Curculionidae: Scolytinae)

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## Abstract

Four new species of *Chramesus* LECONTE, 1868 (Coleoptera: Curculionidae: Scolytinae) are described from South America: *C. karavaevi*, *C. longus*, *C. nobilis* and *C. unespi*.

**Key words:** Coleoptera, Curculionidae, Scolytinae, Phloeosinini, *Chramesus*, taxonomy, Brazil, Peru.

## Introduction

The tribe Phloeosinini includes 15 genera: *Asiophilus* JORDAL, 2010, *Carphotoreus* WOOD, 1973, *Catenophorus* NUNBERG, 1956, *Chramesus* LECONTE, 1868, *Cladoctonus* STROHMEYER, 1911, *Cortisinus* WOOD, 2007, *Dendrosinus* CHAPUIS, 1869, *Hyledius* SAMPSON, 1921, *Hyleops* SCHEDL, 1938, *Microditica* JORDAL, 2010, *Phloeocranus* SCHEDL, 1942, *Phloeoditica* SCHEDL, 1962, *Phloeosinopsoides* SCHEDL, 1964, *Phloeosinus* CHAPUIS, 1869 and *Pseudochramesus* BLACKMAN, 1939 (JORDAL 2010, SMITH et al. 2017, WOOD 2007, WOOD & BRIGHT 1992).

Of the 15 known genera worldwide, five are native to South America, *Chramesus*, *Cladoctonus*, *Cortisinus*, *Dendrosinus* and *Pseudochramesus* (WOOD 2007), while one exotic *Phloeosinus* species was introduced into Peru (PETROV 2016, SMITH et al. 2017).

The genus *Chramesus* is distinguished from other genera of Phloeosinini by its entire eye, broad protibia, 5-segmented funicle and a strongly asymmetrical antennal club. This genus is distinguished from the closely allied *Pseudochramesus* by an antennal club unmarked by sutures (WOOD 1982). In South America the genus includes more than 40 species; seven of these have been described from South America and the West Indies in the last decade (BRIGHT 2019, PETROV & MANDELSHTAM 2011).

## Material and methods

All specimens listed below were collected by A.V. Petrov between 2010 and 2019. Specimens are deposited in the following collections:

APP Alexander Petrov private collection, Moscow, Russia  
MEFEIS Museu de Entomologia da FEIS/UNESP, Ilha Solteira, São Paulo State, Brazil  
ZMM Zoological Museum of Moscow State University, Moscow, Russia

Male genitalia were placed in hot 10 % KOH. After 20–30 minutes of soaking the genitalia were washed in 20 % acetic acid to neutralize the KOH and finally washed with water.

Images of beetle species were made with a Canon 50D camera and an MP-e65 mm macro lens. Photos and drawings were made by A.V. Petrov.



Fig. 1: *Chramesus karavaevi*, male; a) dorsal view, b) lateral view, c) frons, d) declivity view.

***Chramesus karavaevi* sp.n.**  
(Figs. 1, 5, 9)

TYPE LOCALITY: Satipo Province, Junín Region, Peru.

TYPE MATERIAL: **Holotype** ♂ (ZMM): P E R U: JUNÍN: 15 km NW Satipo, near Río Venado village, 1300 m a.s.l., 11°11'35.2"S 74°46'07.0"W, 21.X.2015, ex liana, leg. A.V. Petrov. **Paratypes**: 34 ♂♂, 28 ♀♀, same locality as holotype but 22.X.2017 (22 ♂♂, 17 ♀♀) and 5.I.2019 (2 ♂♂, 1 ♀) (APP).

DESCRIPTION: Male: Body length 1.90 mm, 1.63 times as long as wide. Body dark brown to black; antenna and tarsi brown (Fig. 1a–b).

Head dark brown to black, dull. Frons broadly deeply concave from epistoma to vertex, lateral margins elevated with short carina from the base of the antennal insertion to the middle of the eyes (Fig. 1c); surface of frontal concavity glabrous, dull, with very thin, short and sparse pale setae; upper part of frons flat, with longer sparse setae; vertex with sparse fine punctures; eye entire; scape with short fine adjacent pale setae, antennal funicle 5-segmented, club strongly asymmetrical, 2.45 times as long as wide, densely covered with brown setae (Fig. 5).

Pronotum dark brown, dull, wide, 0.65 times as long as wide, its maximum width at its base; lateral sides are visibly narrowed anteriorly; lateral parts of pronotum with sparse very small asperities, pronotal disc with round shallow punctures, without asperities; pronotum completely covered with short, slender scale-like setae, central part of pronotal disc with dark brown scale-like setae only, lateral parts of pronotal base and lateral sides with pale scale-like setae.

Elytra dark brown, dull, 1.12 times as long as wide, 1.83 times as long as pronotum; basal margins of elytra procurved, elevated and armed by marginal crenulations; lateral margins almost subparallel for  $\frac{2}{3}$  length of elytra, apices evenly round; disc with regular striae of deep, large, circular punctures; intervals between punctures smaller than their diameters; interstriae are two times as wide as striae, with central row of long bristles, each bristle in a row about three times as long as wide, surface of interstriae covered by adjacent short, confused scales, each scale as long as wide. Elytral interstriae 1 with rows of recumbent scales, in the inner part (along suture) there is a row of pale hair-like scales and a central row of erect elongated pale bristles. In the outer part there are only dark recumbent scales, interstriae 2–9 with five rows of dark recumbent scales and brown erect bristles. Declivity occupies posterior third of elytral length (Fig. 1d).

Metepisternum and metaventricle with short pale setae. Abdomen dark brown, with numerous uniformly erect pale setae. Legs dark brown, with long pale setae, outer lateral side of protibia with six tubercles, tarsi reddish brown.

Male genitalia: median lobe short, arcuate, apophyses (penis apodemes) 1.15 times as long as median lobe; there are two vertical processes in the upper part of the lobe basis, two lower blades and a long thin curved lower process with a hook at the top (Fig. 9). Tegmen circular. Spicule nearly longer than aedeagus, arcuate with a sharp hook on distal end.

Female: body length 1.9–2.3 mm, similar to male except frons flat with transverse epistomal groove, lateral margin not marked by an elevation, surface glabrous, dull, with adjacent dark brown setae.

Paratypes: length 1.8–2.5 mm, 1.60–1.63 times as long as wide.

**DIFFERENTIAL DIAGNOSIS:** The new species is closely related to *Chramesus vinealis* WOOD, 1971 and *C. orinocensis* WOOD, 1971 but can be distinguished by the sparse very fine setae in the male frons, by the smaller sparse fine asperities in lateral parts of pronotum, by dark scale-like setae on the central part of pronotal disc, dark recumbent scales in the outer part of interstriae 1 and by its larger body size.

**DISTRIBUTION:** Known only from the type locality.

**BIOLOGY:** Monogamous species. Adults attack dying lianas. The galleries are built entirely in the phloem and xylem of the liana. Beetles were collected in transversal biramous egg galleries. Eggs are laid singly in niches on both sides of the gallery.

**ETYMOLOGY:** The new species is named in honor of the entomologist Alexander B. Karavaev (Moscow, Russia).

### *Chramesus longus* sp.n.

(Figs. 2, 6, 10)

**TYPE LOCALITY:** Huánuco Region, Peru.

**TYPE MATERIAL:** **Holotype** ♂ (ZMM): P E R U: HUÁNUCO: 37 km NNE Huánuco, Carpath Pass, 9°41'33.6"S 76°05'06.2"W, 2480 m a.s.l., 9.X.2017, leg. A.V. Petrov. **Paratypes:** same locality as holotype, 2 ♂♂, 4 ♀♀ (APP).

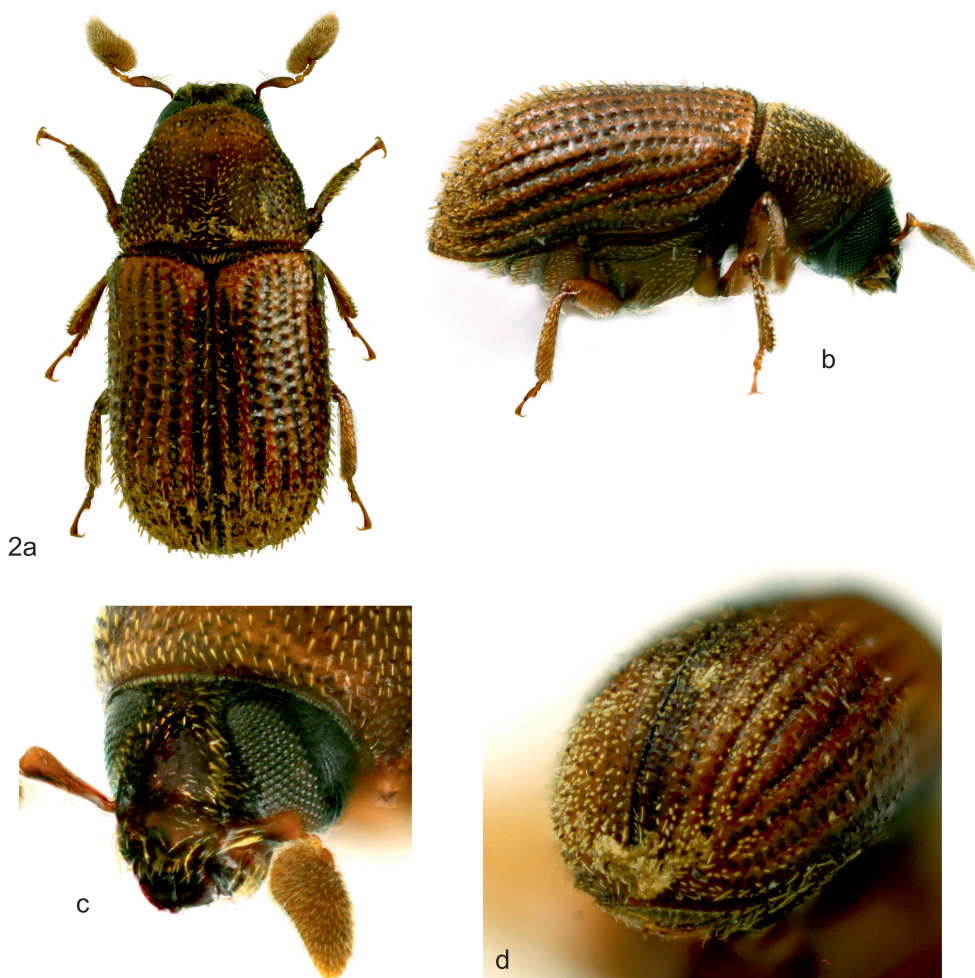


Fig. 2: *Chramesus longus*, male; a) dorsal view, b) lateral view, c) frons, d) declivity view.

DESCRIPTION: Male: Body length 2.9 mm, 2.07 times as long as wide, body color reddish brown. Pronotum and elytra covered with pale short setae (Fig. 2a–b).

Head dark brown to black, epistomal area reddish brown, mandibles black. Frons broadly concave from epistoma to upper level of eyes, lateral margins of concave area acutely elevated below and more strongly above level of antennal insertions, its crest very weakly subserrate, without tubercles, with erect pale setae, epistoma with two long tufts of setae above mandibles (Fig. 2c); vertex with numerous points without setae; lateral margins of epistomal part with longer pale setae.

Antenna reddish brown, scape dark brown with brush of short pale setae, antennal funicle 5-segmented, club strongly asymmetrical, 2.5 times as long as wide, top of the club weakly pointed, surface covered with numerous short pale setae (Fig. 6).



Pronotum reddish brown, dull, 0.86 times as long as wide; widest at its base, sides subparallel in basal half and apex simply rounded; surface strongly reticulated, closely armed by small tubercles; vestiture of short pale numerous setae, uniformly distributed.

Scutellum very small, dark brown, rounded.

Elytra reddish brown, weakly shiny; 1.55 times as long as wide, 2.33 times as long as pronotum; nearly cylindrical, sides subparallel in  $\frac{3}{4}$  of the elytral length and broadly rounded towards apex; elytra coarsely punctate on the disc, striae feebly impressed, punctures large, rounded, subequal width with interstriae; interstriae with a row of fine numerous rounded tubercles, on the base of declivity of elytra tubercles are larger and pointed. Declivity confined to less than posterior  $\frac{1}{3}$ , convex, steep, striae on declivity indicated but punctures smaller than on disc; each interstria with row of pointed small tubercles (Fig. 2d). Vestiture consisting of longer pale interstriae setae from disc to apex and fine short pale hairs on interstriae of declivity; setae shorter on the disc, except setae on the first interstria.

Metepisternum, metaventrite and abdomen reddish brown, dull. Vestiture consisting of fine short pale hairs.

Male genitalia: median lobe narrow, arcuate, apophyses (penis apodemes) 0.85 times as long as median lobe, upper processes of sclerotized structure clearly higher than lobe basis, with two long vertical processes, and two symmetrical lower blades (Fig. 10). Tegmen circular, ventral side elongated. Spicule nearly longer than aedeagus, arcuate with a sharp hook on distal end.

Female: body length 2.7–2.9 mm, similar to male, but frons convex, except semi-rounded flat area at the upper epistoma, central part of frons with a longitudinal raised line and lateral margins weakly elevated. Vestiture consisting of fine short pale hairs, which are longer and more abundant in the flat area and lateral margins of the upper epistoma. Antennal scape without brush of short pale setae.

DIAGNOSIS: The new species is closely related to *Chramesus macrocornis* WOOD, 1971, but can be distinguished by the rows of small tubercles on interstriae of the elytral declivity; by characters of vestiture on disc and declivity of elytra; lateral crest on the male frons without large tubercles; females with semi-roundish flat area in lower part of the frons.

DISTRIBUTION: Known only from the type locality.

HOST TREE: unknown.

BIOLOGY: Adults of *C. longus* are found within galleries in the xylem of trees which have died from fire.

ETYMOLOGY: The epithet, a Latin adjective, refers to the elongated body form.

### *Chramesus nobilis* sp.n.

(Figs. 3, 7, 11)

TYPE LOCALITY: Satipo Province, Junín Region, Peru.

TYPE MATERIAL: **Holotype** ♂ (ZMM): PERU: Junín Region, 15 km SW from Satipo, Río Venado vill., 11°11'47"S 74°46.10"W, 1120 m a.s.l., ex *Inga edulis*, 12.II.2013, leg. A.V. Petrov. **Paratypes**: 4 ♂♂, same locality as in holotype, but 24.III.2013 (APP).

DESCRIPTION: Male: Body length 3.1 mm, 1.63 times as long as wide, body dark brown; antenna and tarsus reddish brown. Pronotum and elytra covered with yellow scale-like setae (Fig. 3a–b).

Head dark brown, dull, lower part of the frons weakly shiny (Fig. 3c). Frons broadly deeply concave from epistoma to vertex, crest of lateral margins elevated from antennal insertion to

upper level of the eyes; surface of frontal concavity dull, except weakly shiny at the lower part of the frons, evenly covered with small sparse points, with very thin, minute and sparse setae, setae in concavity pale, very thin, of moderate length; upper part of frons and vertex without vestiture with thickened apices, lateral parts of epistoma with long numerous setae; eye entire; vertex evenly covered with sparse small points without setae; scape without brush of light setae, with sparse long yellow setae, the top of the scape is very strongly thickened, antennal funicle 5-segmented, club strongly asymmetrical, 2.6 times as long as wide, densely covered with short setae (Fig. 7).

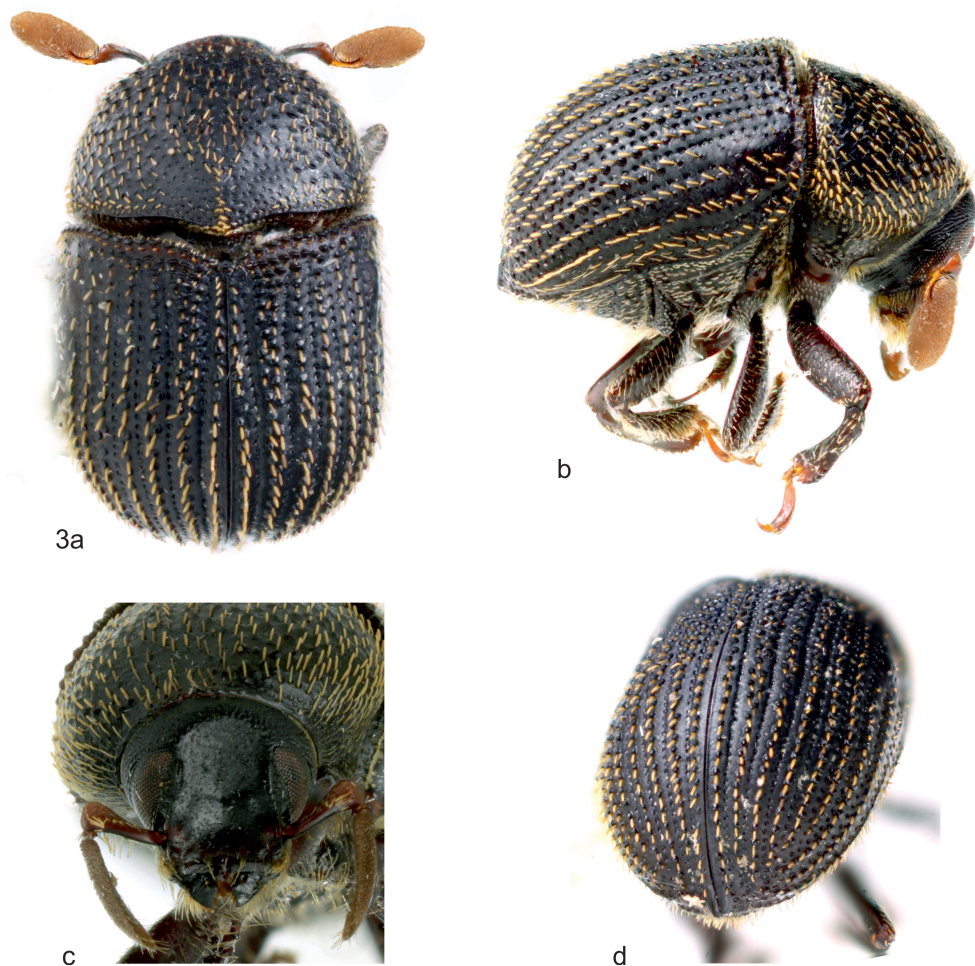


Fig. 3: *Chramesus nobilis*, male; a) dorsal view, b) lateral view, c) frons, d) declivity view.

Pronotum dark brown, dull, wide, 0.6 times as long as wide, its maximum width nearby base;  $\frac{3}{4}$  of the anterior part of pronotum with abundant small asperities (very small in center of pronotal disc), smaller part of pronotal disc without asperities, evenly covered with round points, intervals with microreticulate; vestiture completely covered with long, brown and uniform scale-like setae, apex of setae are directed to the base of pronotum.

Scutellum very small, dark brown, wide, two times as wide as long.

Elytra dark brown, dull, 1.12 times as long as wide, 2.10 times as long as pronotum; basal margins of elytra procurved, elevated and armed by marginal crenulations; lateral margins almost subparallel at  $\frac{2}{3}$  length of elytra, apices evenly rounded; disc with regular striae of deep, large, circular punctures; intervals between punctures smaller than their diameters; interstriae two times wider as width of striae, with central row of round granules, interstriae on disc and declivity with pointed granules, distance between granules equal to the diameter of a point in striae, each interstria from base to apex of elytra with one central row of erect brown scale-like setae.

Metepisternum and metaventricle with short setae. Abdomen dark brown, with numerous uniformly long setae. Legs dark brown, with brown setae of medium length, tarsus reddish brown.

Male genitalia: median lobe arcuate, narrow, 4.1 times as long as wide, apophyses (penis apodemes) as long as median lobe, a sclerotized base structure is present in the lobe basis, with two short symmetrical vertical processes, with two lower blades only (Fig. 11). Tegmen circular, ventral site elongated. Spicule slightly longer than aedeagus, arcuate with a sharp hook on distal end.

Paratypes: length 3.0–3.4 mm, 1.61–1.64 times as long as wide.

Female: unknown.

DIAGNOSIS: The new species is closely related to *Chramesus flechtmanni* PETROV & MANDEL-SHTAM, 2011, but can be distinguished by strongly thickened scape and longer antennal club, by the narrow form of the male genitalia, and larger body.

DISTRIBUTION: Known only from the type locality.

HOST TREE: *Inga edulis* (Fabaceae).

BIOLOGY: *Chramesus nobilis* attacks dead limbs of *Inga edulis*. Galleries were found in forks of branches ranging from 20–25 mm in diameter.

ETYMOLOGY: The name is allusive to the large body size of this species. “Nobilis” (a Latin adjective) means “noble”.

***Chramesus unespi* sp.n.**  
(Figs. 4, 8, 12–13)

TYPE LOCALITY: Brazil, state of Mato Grosso do Sul, Selvíria.

TYPE MATERIAL: **Holotype** ♂ (MEFEIS): BRAZIL: MATO GROSSO DO SUL STATE: SELVÍRIA, UNESP Farm, ex moist twigs of cut *Acacia polyphylla* tree, 20°23'10.1"S 51°24'39.2"W, 337 m a.s.l., 2.II.2011, leg. A.V. Petrov. **Paratypes**: same locality as holotype, but 2.–9.II.2011 (9 ♂♂, 8 ♀♀ in APP, 2 ♂♂, 3 ♀♀ in MEFEIS).

DESCRIPTION: Male: Body length 2.53 mm, 1.93 times as long as wide, body dark brown and elytra reddish brown; antennae and legs reddish brown. Pronotum covered with brown setae, and elytra with yellow scale-like setae (Fig. 4a–b).

Head dark reddish brown, dull. Frons broadly deeply concave from epistoma to vertex, lateral margins elevated and serrate from antennal insertion to middle of the eyes (Fig. 4c); surface of frontal concavity weakly shiny, evenly reticulate, with deep median fossa and very thin, minute and sparse setae, setae in concavity pale, very thin, of moderate length; upper part of frons and vertex with longer and denser setae with thickened apices; eye entire; scape with a small tuft of light setae, antennal funicle 5-segmented, club strongly asymmetrical, 1.9 times as long as wide, densely covered with short light setae.

Pronotum dark reddish brown, weakly shiny, wide, 0.76 times as long as wide, its maximum width around base; sides evenly rounded anteriorly; anterior and lateral parts of pronotum with abundant small asperities, pronotal disc with round shallow punctures, intervals with reticulate microsculpture; vestiture completely covered with long, light and uniform scale-like setae, apex of setae directed to the disc center.

Scutellum small, dark brown, wide, two times as wide as long.

Elytra reddish brown, 1.28 times as long as wide, 1.82 times as long as pronotum; basal margins of elytra procurved, elevated and armed by marginal crenulations; lateral margins slightly wider than the basis, almost parallel for  $\frac{2}{3}$  length of elytra, apices evenly rounded; elytral surface weakly shiny, finely reticulate, disc with regular striae of deep, large, circular punctures; intervals between punctures smaller than their diameters; interstriae are a little wider than striae, with central row of small granules, distance between granules equal to the diameter of a point in striae, each interstria from base to apex of elytra with one central row of erect light scale-like setae.

Abdomen dark reddish brown, with uniformly short pale setae. Legs brown, with yellow setae of medium length.

Male genitalia: median lobe arcuate, apophyses (penis apodemes) as long as median lobe, a sclerotized base structure is present in lobe basis, without vertical processes, with two curved lower blades (Fig. 8). Tegmen circular, ventral site elongated. Spicule slightly shorter than aedeagus, arcuate with a sharp hook at distal end.

Female: body length 1.7–1.81 mm, similar to male, but frons flat, with weakly wide impression in epistomal area, surface of the center finely shagreened, with small shallow punctures sparsely scattered, very fine granular tubercles, covered by abundant and uniform short setae.

DIAGNOSIS: The new species differs from *Chramesus brasiliensis* NUNBERG, 1962 in the scale-like vestiture of the elytral interstriae. Each interstria of *C. unespi* bears one central row of scales (Fig. 13), while in *C. brasiliensis* there are three rows of setae (Fig. 14); from *C. impolitus* WOOD, 1971 it differs in structure of frons and shape of a body. The male of *C. impolitus* has a lower subquadrate lateral elevation at level of antennal insertion and upper part of elevation on upper third just below upper level of eye, body 1.6 times as long as wide (WOOD 2007).

DISTRIBUTION: Known only from the type locality.

HOST TREE: *Acacia polyphylla* (Fabaceae).

BIOLOGY: Adults of *C. unespi* were found within galleries in the xylem of felled trees, which were without leaves, and stem and branches were starting to dry. Galleries were built in forks of branches measuring 5–16 mm in diameter. The entrance hole was round, and equalling a beetle's body diameter. Parental galleries were engraved 2–4 mm into the xylem. There was generally only a couple per gallery, rarely two females in addition to a male beetle. The gallery system followed the usual pattern known for *Chramesus* species (BRUCH 1940, WOOD 2007). In most cases the gallery system was biramous, with a nuptial chamber, a short gallery (10–13 mm long), where the male would be found, and a longer (10–21 mm long) egg gallery, where the female was present. Eggs were deposited in individual niches along the egg gallery. Trees were simultaneously attacked by *Hylocurus retusipennis* BLANDFORD, 1898, *Hypothenemus eruditus* (WESTWOOD, 1834), *Microcorthylyus* sp. and *Sampsonius dampfi* SCHEDL, 1940.

ETYMOLOGY: The epithet is formed by the acronym of the Universidade Estadual Paulista (São Paulo, Brazil) to which the junior author is affiliated. The new species has been collected on one of the compounds of that university. The word *unespi* is used as a noun in the genitive case.



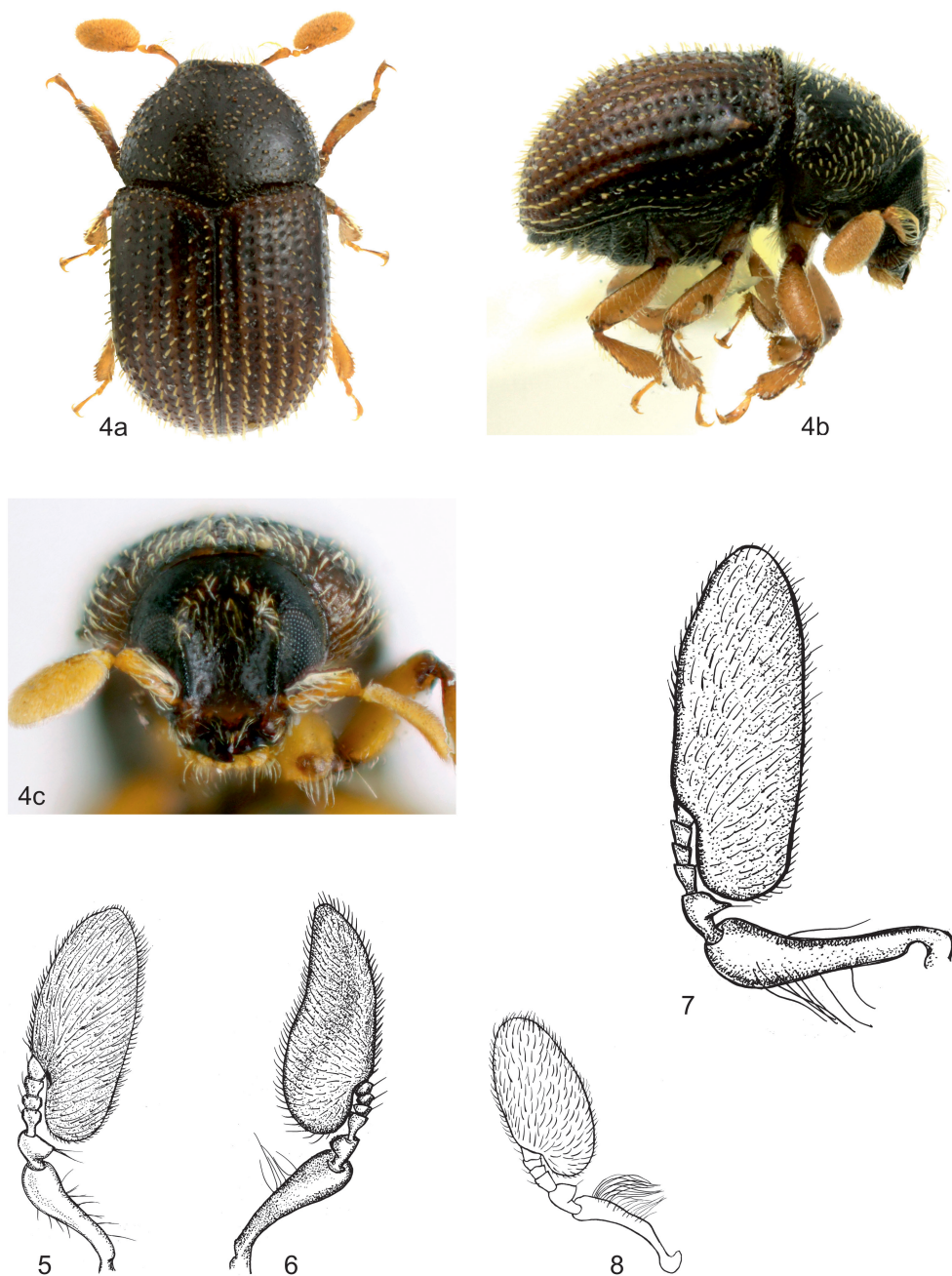
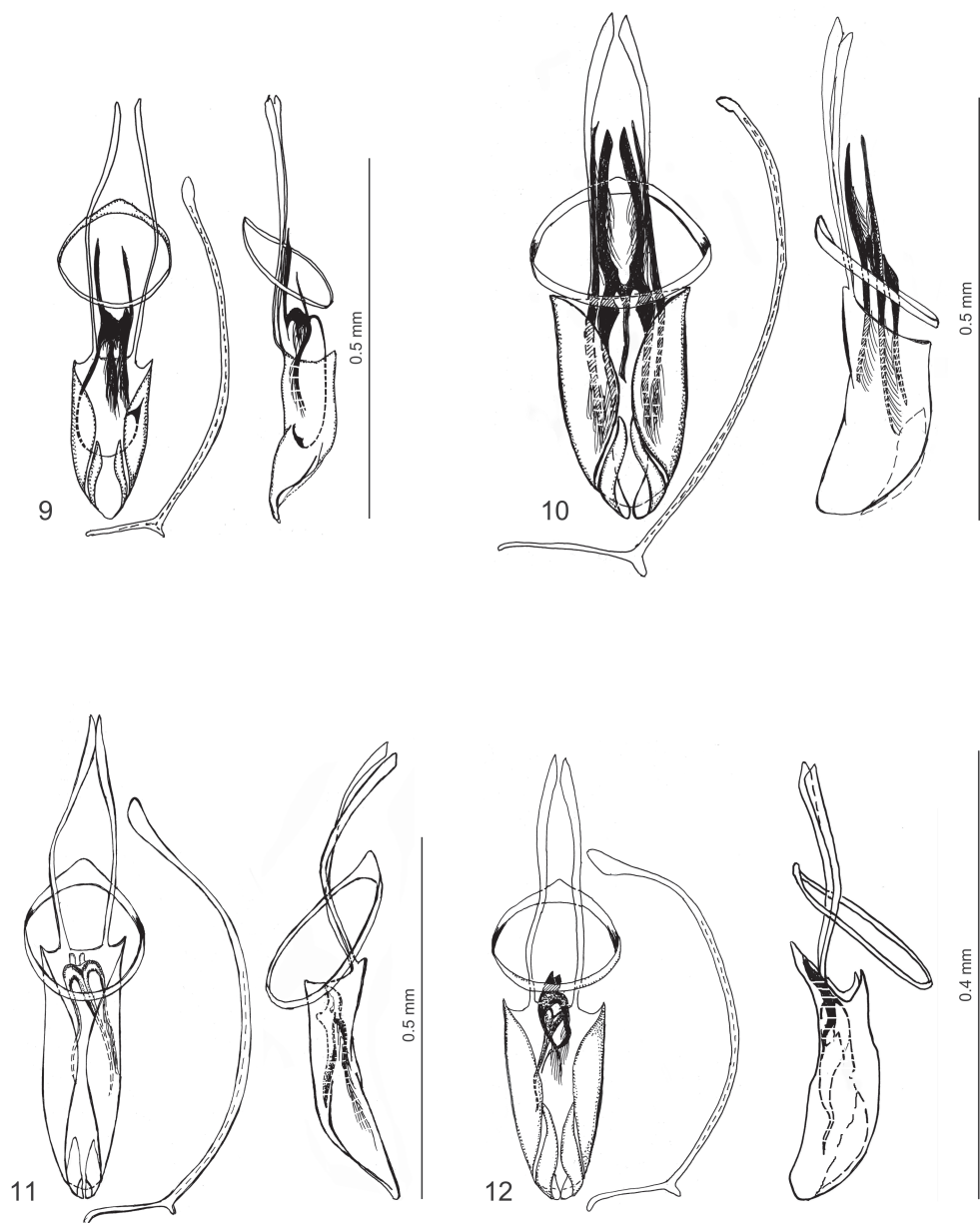


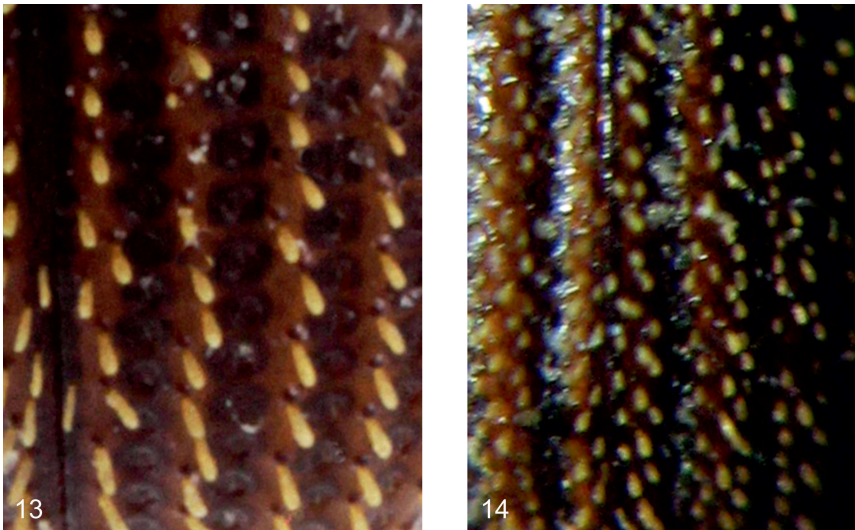
Fig. 4: *Chramesus unespi*, male; a) dorsal view, b) lateral view, c) frons.

Figs. 5–8: Antennae of males of 5) *Chramesus karavaevi*; 6) *C. longus*; 7) *C. nobilis*; 8) *C. unespi*.





Figs. 9–12: Male genitalia (dorsal and lateral views, and spicule) of 9) *Chramesus karavaevi*; 10) *C. longus*; 11) *C. nobilis*; 12) *C. unespi*.



Figs. 13–14: Elytral vestiture of 13) *Chramesus unespi*; 14) *C. brasiliensis*.

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