

SYSTEMATICS, MORPHOLOGY AND PHYSIOLOGY

Larva of *Seticeros aquilus* (Thomson) (Coleoptera: Cerambycidae: Prioninae: Callipogonini)

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ABSTRACT - The larva of *Seticeros aquilus* (Thomson), collected in *Quercus humboldtii* (Fagaceae) in Colombia, is described and illustrated. Biological notes and a comparison with the larva of *Chorenta reticulata* described by Duffy (1960) and with the descriptions of the other South American Callipogonini species are presented.

KEY WORDS: Colombia, immature stage, taxonomy

Prioninae is a relatively small subfamily of Cerambycidae if compared, mainly, with Cerambycinae and Lamiinae. Approximately 1000 species are described all over the world, and 344 are known from the American continent. Although the number of American species represents one third of the total, just larva of 21 species were described: Callipogonini - *Callipogon* (*Callipogon*) *barbatum* (Fabricius), *Callipogon* (*Orthomegas*) *cinnamomeus* (L.) [= *Orthomegas cinnamomeus*], *Stictosomus* (*Anacanthus*) *reticulatus* (Dalman) [= *Chorenta reticulata*], *Ctenoscelis* (*Ctenoscelis*) *atra* (Olivier) [= *Ctenoscelis ater*], by Duffy (1960), and *Ergates* *spiculatus* (LeConte) [= *Ergates spiculatus spiculatus*], by Craighead (1915); Macrodonitini - *Ancistrotus* (*Acanthinodera*) *cumingi* (Hope) [= *Acanthinodera cumingii*] and *Macrodonitia cervicornis* (L.), by Duffy (1960); Macrodonitini - *Strongylaspis* (*Chiasmestes*) *limae* (Guérin-Méneville) [= *Chiasmestes limae*], *Mallodon spinibarbis* (L.), by Heller (1904), *Stenodontes* (*Nothopleurus*) *maxillosus* (Drury) [= *Nothopleurus maxillosus*], *Stenodontes* (*Stenodontes*) *chevrolati* Gahan [= *Stenodontes chevrolati*] and *Stenodontes* (*Stenodontes*) *damicornis* (L.) [= *Stenodontes damicornis*], by Duffy (1960), and *Mallodon angustatum* Thomson [= *Mallodon dasystemus dasystemus* (Say)], by Dugès (1884); Mallaspini - *Pyrodes* (*Esmeralda*) *auratus* (L.) [= *Hileolaspis auratus*] and *Pyrodes* (*Pyrodes*) *nitidus* (Fabricius) [= *Pyrodes nitidus*], by Duffy (1960); Meroscelisini - *Microplophorus magellanicus* Blanchard by Duffy (1960), *Polyzoa lacordairei* Audinet-Serville by Heller (1904), and *Trichoderes pini* Chevrolat by Candèze (1861); Prionini - *Psalidognathus* (*Prionocalus*) *atys* White [= *Prionocalus atys*], by Duffy (1960), *Prionus californicus* Motschulsky [= *Prionus* (*Prionus*) *californicus*], by Craighead (1915) and *Psalidognathus modestus* Fries, by Lameere (1885).

Immature stages of the Prioninae usually are found in

dead wood, but there are some species that attack living trees. Among the known larvae, there are no species with subcortical habits. In some groups, larvae develop almost exclusively underground; sometimes, may wander through the soil from one host to another, as occur in *P. californicus* (Linsley 1961).

Larvae of the Prioninae differ from those of other subfamilies of Cerambycidae by the epistoma projecting over clypeus, by the frons projecting over epistoma, dentate or carinate, and by the tentorial cross-arm in the same plane as the hypostoma and forming a bridge behind it (Böving & Craighead 1930).

Audinet-Serville (1832) established *Anacanthus* for a new species *A. costatus* (= *Prionus reticulatus* Dalman). Gistel (1848) observed that *Anacanthus* Gray was a valid generic name in Pisces, and proposed *Chorenta* as replaced name of *Anacanthus* Audinet-Serville. The homonymy and the replaced name remained forgotten until Monné (2006). Four species are recognized in *Chorenta*: *C. aquilus* (Thomson); *C. biramiguelus* (Santos-Silva); *C. espiritosantensis* (Seabra); and *C. reticulata* (Dalman). Only the larva of *C. reticulata* is known. Perger & Santos-Silva (2010) established the genus *Seticeros* to include *Chorenta aquilus* (from Colombia and Bolivia) and a new species, *S. tunupai* (from Bolivia).

Material and Methods

The material studied includes two larvae and four adults collected by hand inside a standing dead tree on 10 July 2008, by J. C. Neita. This material was found in "Bosque de *Quercus humboldtii* (Fagaceae)" (oak from cold climate), in Arcabuco, Vereda Piedras Blancas, Boyacá, Colombia, at 2550 m of altitude (N 5° 45' W 73° 26') and is housed at Museo Entomológico, Facultad de Agronomía Universidad Nacional

de Colombia, Santafé de Bogotá, Colombia (UNAB).

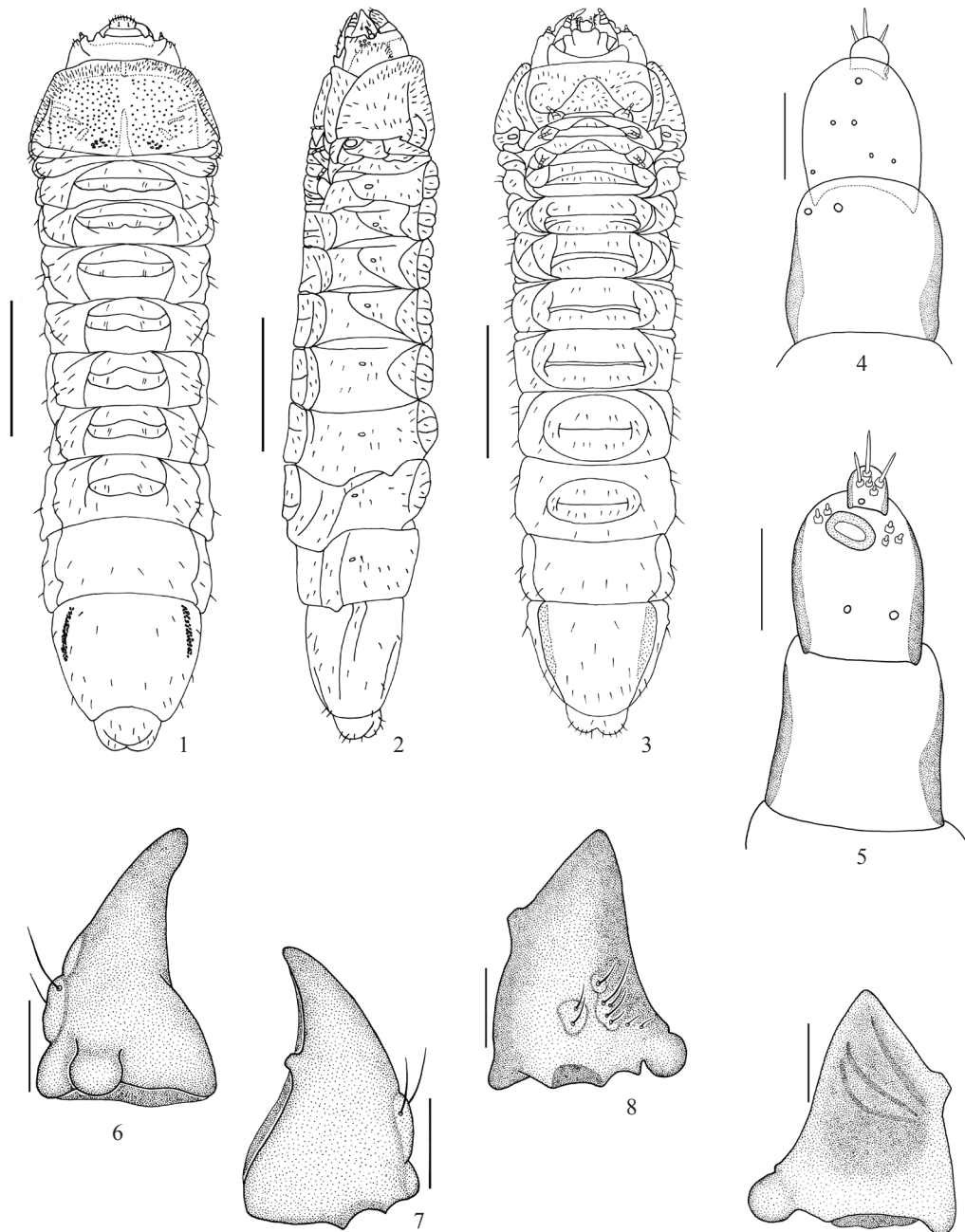
The nomenclature follows especially Duffy (1960) and Lawrence (1991).

***Seticeros aquilus* (Thomson) (Figs 1-23)**

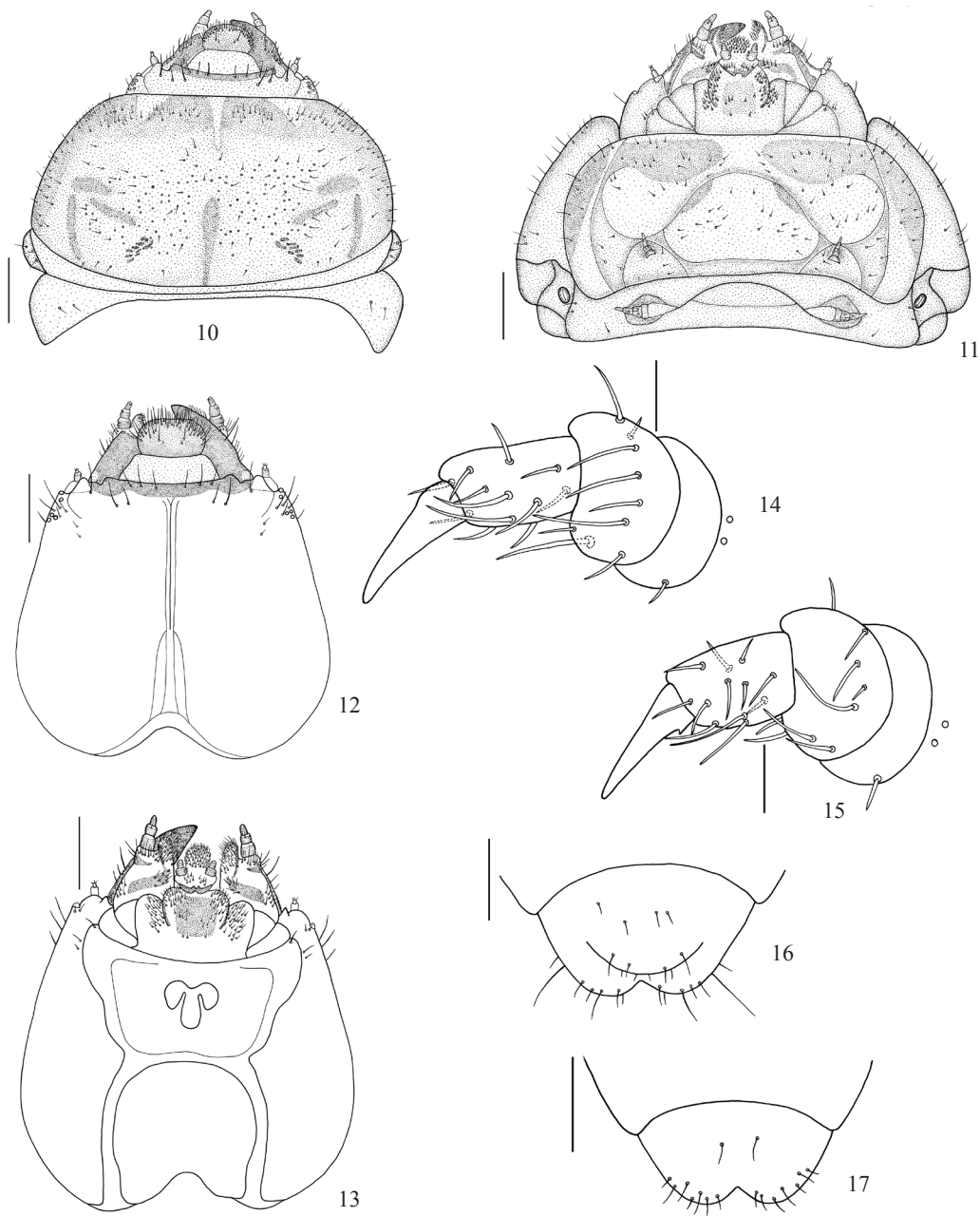
Length (mm): 20.06, 27.07; width of prothorax: 6.69, 6.85; width of head: 3.74, 4.15 mm.

Body elongate, cylindrical, slightly flattened and slightly narrowed near middle (Figs 1-3). Surfaces smooth; vestiture

of scattered simple short setae. Body, after fixation, yellowish-white. Head yellow with frontal margin from brownish to black; mandibles black; basal region of labrum, antennae, labial and maxillary palpi, basal region of prementum and transverse band on stipes brownish; distal half of labrum and mentum yellow. Prothorax whitish; yellowish on anterior and lateral bands of pronotum and lateral margins, two large patches transverse anterior and two median smaller inclined on propleura; cream slightly darker, on one longitudinal median basal, three elongate and a group of nine smaller patches on each of side pronotum. Legs partially yellow, especially



Figs 1-9 Larva of *Seticeros aquilus*: 1-3 habitus (dorsal, lateral, ventral); 4, 5) right antenna (dorsal, ventral); 6-9) mandible (ventral, dorsal, external, mesal). Bars = 5 mm, except figs 4, 5 = 1 mm.

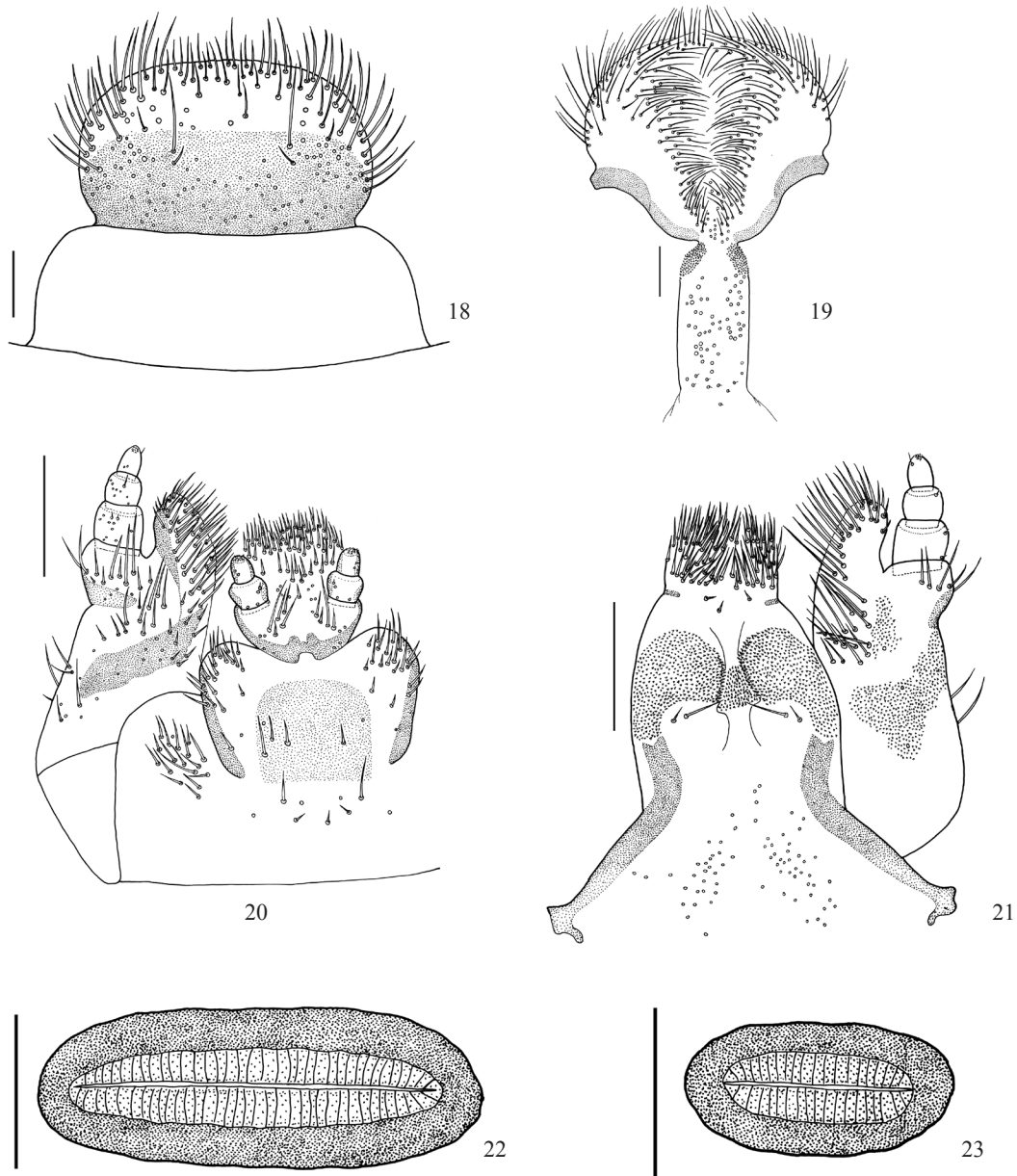


Figs 10-17 Larva of *Seticeros aquilus*: 10) head, pro-, meso- and metathorax (dorsal); 11) head, pro- and mesothorax (ventral); 12, 13) head (dorsal, ventral), 14) mesothoracic leg (lateroexternal); 15) prothoracic leg (dorsal); 16, 17) segment X (dorsal, ventral). Bars = 1 mm, except figs 12, 13 = 0.7 mm.

prothoracic. Pubescence short, ferrugineous and bristling. Pronotum with setae of varied length, inserted in brownish punctures, sparse on discal area and denser in an irregular band near anterior margin and laterally. Ventral prothoracic pubescence slightly longer and denser than discal area.

Head (Figs 10-13) extensible, deeply retracted into prothorax; retracted portion less pigmented and glabrous; prognathous, moderately flattened; occipital foramen very large, divided into two portions by tentorial bridge. Occipital foramen: pars minor trilobed-like and pars major almost as long as wide with basal margin notched. Head capsule

dorsally composed by two epicranial halves. Median suture long, in furrow, continuing with endocarina almost reaching frontoclypeal suture; postcondylar carina shallow; frontal suture indistinct, visible only in small area below antenna; five stemmata on each side. Frons margin almost straight with a rounded tooth each side; strongly sclerotized, bearing three setae each side, near frontoclypeal suture; three setae each side behind postcondylar carina. Each epicranial half with two short setae near distinct area of frontal suture and five setae among stemmata. Ventrally, head capsule with well developed tentorial bridge; limit between gula,



Figs 18-23 Larva of *Seticeros aquilus*: 18) labrum; 19) epipharynx; 20, 21) maxilla and labium (ventral, dorsal); 22, 23) spiracle (thoracic, abdominal). Bars = 2 mm, except figs 20, 21 = 5 mm.

hypostoma and tentorial bridge indistinct; hypostomal sutures converging posteriorly; hypostomal sclerite well visible, triangular, narrowed forward to occipital foramen pars major; each side with two short setae below stemma, one on hypostomal sclerite below cardo and two externally to hypostomal sclerite. Antennae (Figs 4, 5) short, with three antennomeres: first and second elongate; first bearing dorsally two campaniform sensilla anteriorly near lateral internal margin; second antennomere slightly longer than wide, with rounded apex; dorsally with six campaniform sensilla; ventrally with two campaniform sensilla near base, a membranous sensorial elliptical flat area near apex and five short and wide setae, inserted in small tubercle: two lateroexternal to sensorium and three laterointernally; distal

antennomere very short, one-third of basal antennomere width, bearing dorsally one very short lateroexternal seta at base and ventrally, one campaniform sensillum near base; at apex, three long setae and two very short setae all inserted in small tubercles. Clypeus (Fig 18) glabrous, transverse, band-like with fore angles rounded; slightly wider at base. Labrum (Fig 18) transverse, elliptical, bearing irregular band of long setae near margins, except basal fourth of lateral margins; each side with one very long and one short seta near middle; many campaniform sensilla distributed in basal half. Epipharynx (Fig 19) with anterior half wide, constricted near middle; basal half narrow; anterior half with very long setae near anterior margin and two irregular median bands with setae medially directed; tormae slightly

sinuous, more sclerotized at distal half; distal narrow part with microspicules laterally near base and campaniform sensilla distributed by whole length and microsetae at base. Right mandible (Figs 6-9): strongly sclerotized, triangular in mesal view; apex narrow; dorsal internal edge with a tooth at middle, with truncated apex; with nine setae lateroexternally near base; transversal grooves on distal half of mesal area. Left mandible broken. Maxillae (Figs 20, 21): cardo triangular and glabrous, covered partially by maxillary articulating area, which bears long setae at middle; stipes ventrally with sclerotized transverse and inclined band and several setae of varied sizes (some broken and only insertions are represented); stipes dorsally with microspicules and three campaniform sensilla; maxillary lobe with apex somewhat narrowed and rounded with many long setae ventrally and dorsally; ventrally with a longitudinal sclerotized area lateroexternal. Palpifer membranous, sclerotized ventrally near base, with long setae more concentrated ventrally. Maxillary palpi with three palpomeres: basal and median palpomeres almost as long as wide; distal longer than wide; basal palpomere bearing ventrally nine campaniform sensilla and two short setae and dorsally, two very short setae lateroexternally: one near base and other near apex; median palpomere bearing ventrally eight campaniform sensilla and one moderately long setae and dorsally, one short seta lateroexternal near apex; distal palpomere bearing ventrally two campaniform sensilla near base, dorsally one moderately long seta laterointernal near apex and apically several small peg-like sensilla. Labium (Figs 20, 21): mentum and submentum fused; area of mentum wider frontally, with lateral margins rounded and longitudinal sclerite; fore angles prominent and widely rounded; with long setae, more concentrated near fore angles; pre-mentum membranous, sclerotized in narrow basal band; with long setae and several campaniform sensilla: two on each side of basal sclerite and two on membranous area near sclerotized margin and several between palpi; long setae especially below palpi; ligula densely covered by long setae dorsal and ventrally. Labial palpi with two palpomeres: basal wider than long, bearing ventrally two campaniform sensilla and laterointernally, one short seta and one campaniform sensilla; palpomere distal elongate bearing two campaniform sensilla lateroexternal and many small peg-like sensilla at apex. Hypopharynx: partially covered with microspicules bearing, each side, one long and one moderately long seta near middle. Hypopharyngeal sclerome present. Abundant campaniform sensilla between hypopharyngeal sclerome.

Prothorax wider than head; pronotum longer than meso- and metanotum together. Meso- and metathorax dorsally very short and band-like, distinctly narrowed medially; ventrally slightly longer than dorsally (Figs 10, 11). Mesothorax with well-developed anterolateral bilabial spiracle (Fig 22). Legs (Figs 14, 15) with four distinct segments: coxa band-like with one lateroexternal short seta; femur wider than long with nine setae of varied size; tibiotarsus elongate with 12 setae of varied sizes, longer concentrated ventrally; claws elongate, as long as tibiotarsus with one small tooth at base only in prothoracic legs (Fig 15). Spiracles: peritreme elliptical, bilabiate (Figs 22, 23).

Abdomen: segments increasing in length gradually to

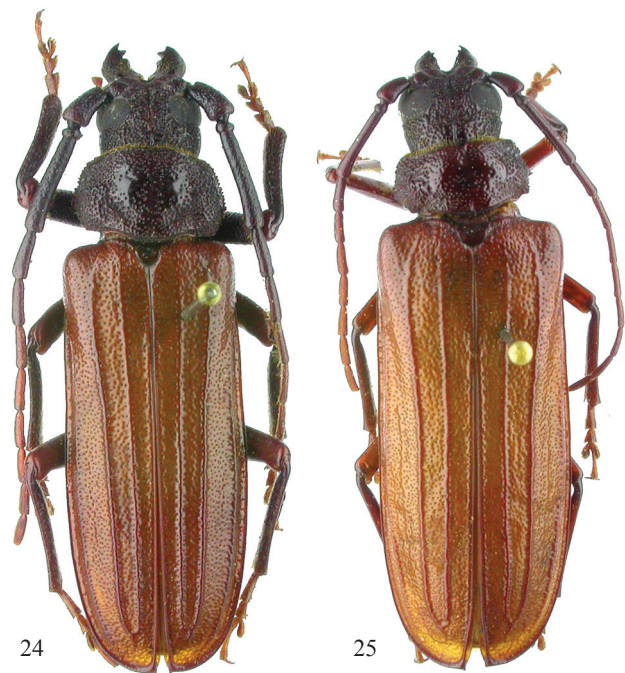
apex. Segments 1-8 with lateral bilabial spiracles, smaller than mesothoracic (Fig 23); segments 1-7 each with one bilobed ampulla dorsal and one ventral; segment eight annular, segment nine elongate, tapered to apex; segment 10 (Figs 16, 17) smaller, distal with trilobated apex.

Biological Notes and Discussion

Larvae and adults (Figs 24, 25) of *Seticeros aquilus* were collected inside a dead tree, standing and rotted. The larvae and the adults were in different galleries. Pupae were observed, but not collected, in a separate gallery.

Duffy (1960) described briefly a mutilated larva of *Chorenta reticulata* as "*Stictosomus* (s.g. *Anachantus*) *reticulatus* (Dalman) (= *costatus* Serville)". Comparing the described structures of *C. reticulata* with *S. aquilus*, the following differences were observed: the host plant for *S. aquilus* is *Q. humboldtii* (for *C. reticulata*, the host is *Dalbergia nigra* Papilionaceae); the lateral teeth of the frontal margin of the pronotum are rounded in *S. aquilus* (acute in *C. reticulata*); the antenna have three antennomeres in *S. aquilus* (two antennomeres in *C. reticulata*); the mesal margin of mandible with one dorsal tooth in *S. aquilus* (tooth not cited in mandible description of *C. reticulata*); prothorax: smooth in *S. aquilus* (pronotum and prosternum bearing asperities in *C. reticulata*). Both species present post condylar carina shallow, five pairs of stemmata, labrum transversely oval, spiracles with peritreme oval and frontal margin almost straight with lateral tooth.

Comparing the larvae of *S. aquilus* and *C. reticulata* with the other South American Callipogonini described (*C.*



Figs 24-25 Adult habitus of *Seticeros aquilus*: 24) male (36.5 mm); 25) female (36.3 mm).

barbatum, *C. ater*, *E. spiculatus* and *O. cinnamomeus*), all species present: antennae with two antennomeres (except *S. aquilus*; not cited in *C. reticulata*); clypeus glabrous; mandible without tooth at internal edge (except *S. aquilus*); spiracle with peritreme oval; abdomen with dorsal and ventral ampullae on segments 1-7. The number of stemmata is variable: five pairs in *S. aquilus*, *C. reticulata* and *O. cinnamomeus* and three pairs in the other species. The labrum is cordate in *C. barbatum* and *E. spiculatus* and transversely oval in the others. The frons margin has two teeth in *S. aquilus* and *C. reticulata*, with a pair of paramedian lobes in *C. ater*, four teeth in *E. spiculatus*, and six teeth in *C. barbatum* and *O. cinnamomeus*.

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