

Revision of the genus *Harpasus* Mulsant (Coleoptera, Coccinellidae, Chilocorini)¹

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ABSTRACT. Revision of the genus *Harpasus* Mulsant (Coleoptera, Coccinellidae, Chilocorini). *Harpasus* Mulsant, 1850 was studied based on the morphology of the exoskeleton and genitalia. The type material of *Harpasus aureus* Almeida & Carvalho, 2006, *H. quadrifolium* González, Corrêa & Almeida, 2008 and a homotype of *H. zonatus* (Mulsant, 1850) were examined. The lectotype of *H. evermanni* (Mulsant, 1850) was designated and two new species were described, *Harpasus unifasciatus* **sp. nov.** (Teresópolis, RJ, Brazil) and *Harpasus ferrugineus* **sp. nov.** (Puerto Carreño, Vichada, Colombia). Herein a diagnosis for the genus and its seven species, identification key and information about biological aspects are presented.

KEYWORDS. Key; Neotropical; new species; taxonomy.

RESUMO. Revisão do gênero *Harpasus* Mulsant (Coleoptera, Coccinellidae, Chilocorini). *Harpasus* Mulsant, 1850 foi estudado baseado na morfologia do exoesqueleto e genitália. O material tipo de *Harpasus aureus* Almeida & Carvalho, 2006, *H. quadrifolium* González, Corrêa & Almeida, 2008 e o homótipo de *H. zonatus* (Mulsant, 1850) foram examinados. O lectótipo de *H. evermanni* (Mulsant, 1850) foi designado e duas novas espécies foram descritas, *Harpasus unifasciatus* **sp. nov.** (Teresópolis, RJ, Brasil) e *Harpasus ferrugineus* **sp. nov.** (Puerto Carreño, Vichada, Colômbia). São apresentadas diagnoses detalhadas para o gênero e suas sete espécies, chave de identificação e informação sobre aspectos biológicos.

PALAVRAS-CHAVE. Chave de identificação; espécies novas; Neotropical; taxonomia.

Harpasus belongs to Chilocorini and was described by Mulsant (1850), along with *Curinus*, as a subgenus of *Orcus*. The author also included three new species: *Orcus (Harpasus) pallidilabris*, *O. (Harpasus) evermanni* and *O. (Harpasus) zonatus* and in *Curinus*, only *Orcus (Curinus) coeruleus*.

Curinus was considered as a valid genus and the species of *Harpasus* were placed in that genus (Crotch 1874). In the same revision, the author redescribed briefly five species, *C. coeruleus*, *C. pallidilabris*, *C. evermanni*, *C. zonatus* and *C. peleus* (Mulsant, 1853). In the catalogue of Gemminger & Harold (1876), these species were included following Crotch. In 1924, *Curinus ruizi* was described by Brèthes, increasing to six the number of species of the genus. Korschefsky (1932) synonymized *Harpasus* with *Curinus* and the same interpretation was followed by Blackwelder (1945).

Chapin (1965) reestablished the genus *Harpasus* transferring to it, *Curinus evermanni*, *C. pallidilabris* and *C. zonatus*. Gordon (1987) listed these three species in this genus such as Chazeau *et al.* (1989) and Fürsch (1990, 1996).

Recently, two new species were described, *H. aureus* Almeida & Carvalho, 2006 from Brazil and *H. quadrifolium* González, Corrêa & Almeida, 2008 from Peru. We describe herein two additional species and present a diagnosis for the genus, a key for its seven species and some biological aspects.

MATERIAL AND METHODS

The specimens examined were provided by the following

institutions: Coleção de Entomologia Pe. J. S. Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Paraná, Brazil (DZUP); Coleção Entomológica dos Campos Gerais do Paraná, Universidade Estadual de Ponta Grossa, Ponta Grossa, Paraná, Brazil (CECG); Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil (MCNZ); Museo de La Plata, Universidad Nacional de La Plata, La Plata, Argentina (MLPA); Muséum National d'Histoire Naturelle, Paris, France (MNHN); Museu Nacional do Rio de Janeiro, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil (MNRJ); Museu de Zoologia da Universidade de São Paulo, São Paulo, São Paulo, Brazil (MZSP); Museo de Entomología Klaus Raven Büller, Unidad Nacional Agraria La Molina, Lima, Peru (UNALM); Smithsonian Institution, National Museum of Natural History, Washington, DC, USA (USNM) and Museum für Naturkunde der Humboldt, Berlin, Germany (ZMHB).

Each specimen was sexed and the measurements were made according to Ślipiński & Giorgi (2006): (TL) total length; (PL) pronotal length; (PW) pronotal width; (EL) elytral length and (EW) elytral width. The adopted terminology was based on Almeida & Milléo (2000) and Ślipiński (2007). The micrographs were taken with a Jeol scanning electron microscope (SEM), model JEM 1200 EXII, at the Centro de Microscopia Eletrônica, Universidade Federal do Paraná, using the low-vacuum technique.

The biological data were obtained from the literature and the labels of the specimens.

RESULTS AND DISCUSSION

***Harpasus* Mulsant, 1850**

Orcus (*Harpasus*) Mulsant, 1850: 473.

Curinus (*Harpasus*): Crotch, 1874: 190; Gemminger & Harold, 1876: 3777.

Curinus: Korschevsky, 1932: 252; Blackwelder, 1945: 451.

Harpasus: Chapin, 1965: 235, 239–240; Gordon, 1987: 24; Chazeau *et al.*, 1989: 7; Fürsch, 1990: 5, 11; Fürsch, 1996: 5, 11; Duverger, 2003: 66; González *et al.*, 2008: 42, 43.

Type-species: *Orcus* (*Harpasus*) *pallidilabris* Mulsant, 1850, by subsequent designation of Crotch (1874).

Diagnosis. Body rounded to oval in dorsal view (Fig. 1), convex (Figs. 2, 3), surface glabrous, integument bright golden-brown to bluish-green, with or without maculae or longitudinal bands. Clypeus emarginated (Fig. 4). Antennae short with nine segments (Fig. 9). Labium with trapezoidal mentum; terminal segment of labial palpi rounded (Fig. 5). Labrum subrounded (Fig. 6), partially exposed in frontal view. Last segment of maxillary palpi elongated with parallel sides, apex strongly oblique (Fig. 8). Mandibles slightly asymmetrical (Fig. 7). Pronotum transverse and convex, anteriorly emarginated (Fig. 10), prosternum with a row of short bristles at anterior margin; prosternal process wide with lateral margin strongly grooved, with longitudinal sulcus; hypomera with deep oblique fovea (Fig. 72). Scutellum small and subtriangular. Elytra with humeral callosity, lateral margin deflexed; epipleura broad, foveate to receive the femoral apex of the median and posterior legs (Figs. 11, 73). Median and posterior tibiae with two apical spurs. Tarsal claws short, strongly curved, with large and quadrangular basal tooth (Fig. 12). Abdomen with six visible ventrites in male and five in female, postcoxal line incomplete and slightly arcuate; the fifth and sixth ventrites emarginated in male (Fig. 13, 22, 34, 43, 56) and the fifth rounded in female (Fig. 14, 23, 31, 35, 44, 52, 57).

Male genitalia. Median lobe lanceolate, symmetrical, broad at basal third; parameres strongly constricted at base, broad at median part, with long and dense pubescence, apex strongly bent in lateral view. Trabes large and curved, sometimes with apex slightly twisted. Siphon strongly sclerotized, curved with uniform diameter; siphonal capsule well developed, inner arm elongated and internally inclined; apex of siphon curved, with six to ten spiculae, preputial sac enlarged, twisted and curved (Figs. 15–18).

Female genitalia. Coxites subtriangular, elongated and sharp, rounded at the apex; stylus small with three long setae; spermatheca C-shaped, stout, cornu developed and curved; sperm duct long; bursa copulatrix and infundibulum evident (Figs. 19–21).

Distribution. The species of *Harpasus* are restricted to the Neotropical region, reported for the following countries: Colombia, Venezuela, Peru and Brazil.

Taxonomic discussion. The main diagnostic characters that distinguish *Harpasus* from the other genera of Chilocorini are: antennae 9-segmented; terminal segment of maxillary

palpi elongate with nearly parallel sides; prosternal process with lateral margin strongly grooved, with a longitudinal sulcus; male genitalia with parameres strongly bent.

Harpasus is similar to *Cladis*, *Curinus* and *Zagreus*, with the postcoxal line being incomplete and curved; tibiae simple with two spurs on second and third legs; presence of infundibulum on the base of bursa copulatrix; coxites subtriangular and elongated; spermatheca without appendix. Also the pattern of male genitalia is similar to that of *Cladis* and *Curinus*, with the parameres being compressed on basal third; preputial sac of siphon with a small projection on apex; inner arm of siphonal capsule strongly developed and internally curved.

Key for species of *Harpasus*

1. Elytra with maculae or longitudinal bands 2
Elytra without maculae and longitudinal bands 5
2. Integument light golden-brown to reddish-brown, one or two longitudinal bands on each elytron 3
Integument black or reddish-brown with one or two subtriangular maculae on each elytron 4
3. Integument light golden-brown; brown spot on median region of pronotum; a dark-brown band on each elytron; siphon with eight spiculae on apex (Figs. 43–51, 68)
..... *Harpasus unifasciatus* **sp. nov.**
Integument yellowish or reddish-brown, reddish brown spot at center of pronotum; two longitudinal bands on each elytron, with 10 spiculae on apex (Figs. 34–42, 66, 70) *Harpasus zonatus* (Mulsant, 1850)
4. Integument reddish-brown, pronotum and elytra with blue metallic maculae rounded on the median region; infundibulum elongated, apex and base with similar width (Figs. 31–33, 65)
..... *Harpasus evermanni* (Mulsant, 1850)
Integument black; pronotum and elytra with external margin light brown, with two subtriangular maculae light-brown on each elytron; infundibulum elongated, apex wider than the base (Figs. 56–62, 67, 71)
..... *Harpasus quadrifolium* González, Corrêa & Almeida, 2008
5. Integument bluish-green, lateral margin of pronotum reddish-brown, external margin of elytra with a reddish-brown band; siphon with six spiculae; infundibulum elongated, rounded base (Figs. 1–21, 64, 72, 73)
..... *Harpasus pallidilabris* (Mulsant, 1850)
Integument, pronotum, siphon and infundibulum with different pattern 6
6. Integument ferruginous, thoracic and abdominal ventrites dark ferruginous; infundibulum with spiniform projection at base (Figs. 52–55, 69)
..... *Harpasus ferrugineus* **sp. nov.**
Integument bright golden brown, lateral margin yellowish;

thoracic and abdominal ventrites dark brown; infundibulum with base large and subrounded (Figs. 22–30, 63) *Harpasus aureus* Almeida & Carvalho, 2006

***Harpasus aureus* Almeida & Carvalho, 2006**
(Figs. 22–30, 63)

Harpasus aureus Almeida & Carvalho, 2006: 33; González *et al.*, 2008: 42, 43, 46; Ribeiro-Costa *et al.*, 2010: 12.

Male (mm). TL: 3.17–3.58; PL: 0.75–1.00; PW: 1.67–1.92; EL: 2.50–3.25; EW: 2.92–3.33.

Color of integument bright golden-brownish (Fig. 63). Head golden-brown; antennae, labrum, labium and maxillae, light brown; apex of maxillary palpi dark brown. Pronotum and elytra with a thin dark brown line on the lateral margin. Elytra with raised humeral callosity, lateral margin narrowed, reflexed and yellowish, epipleura bright golden with short bristles. Thoracic and the first three abdominal ventrites dark brown, the other segments and legs light brown.

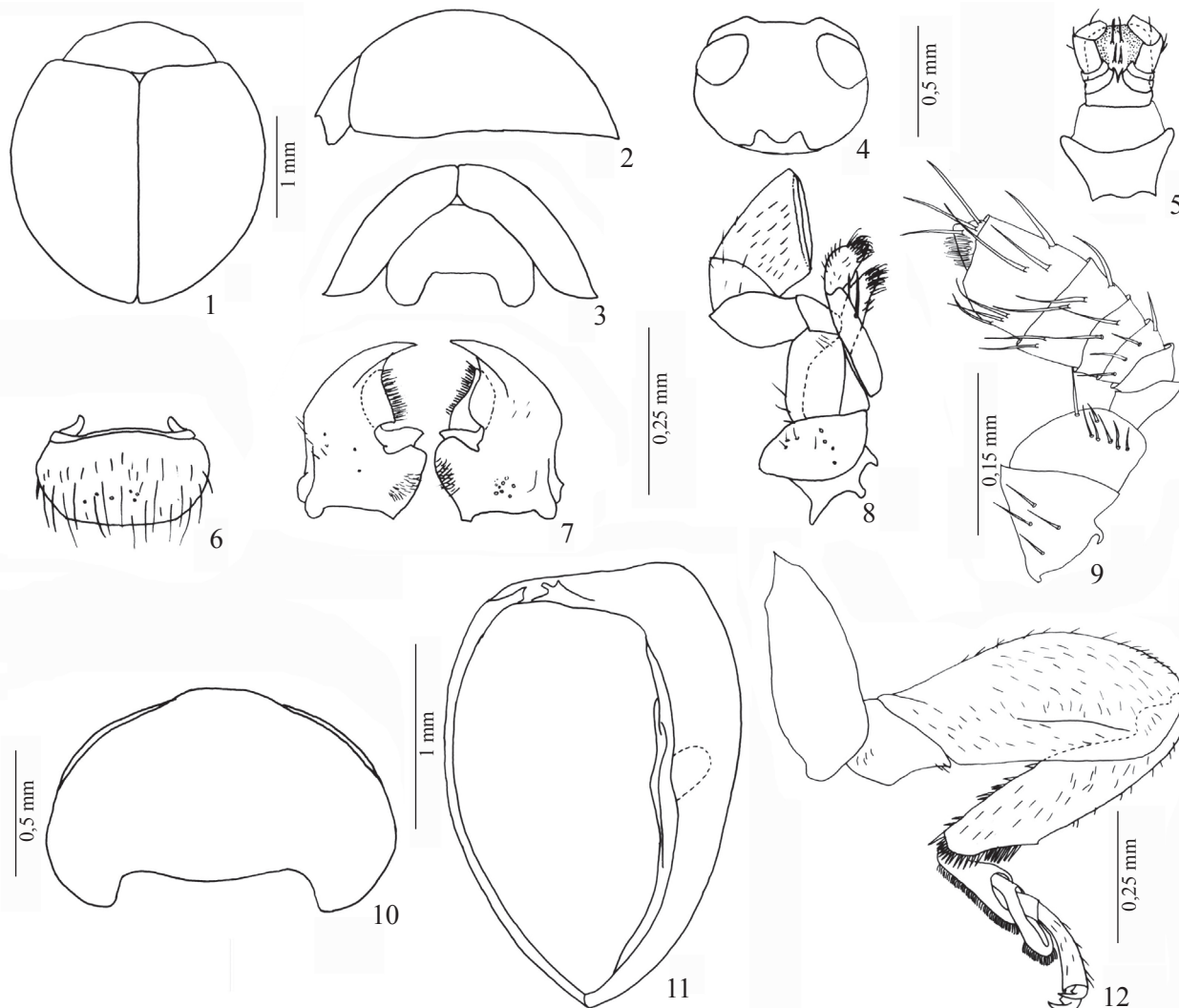
Median lobe broad at base, gradually narrowing at apex; parameres longer than median lobe and shorter than trabes. Siphio with apex slightly wide, curved with seven spiculae in preputial sac (Figs. 24–27).

Female (mm). TL: 3.00–3.83; PL: 0.75–1.00; PW: 1.58–2.00; EL: 2.50–3.25; EW: 2.58–3.33.

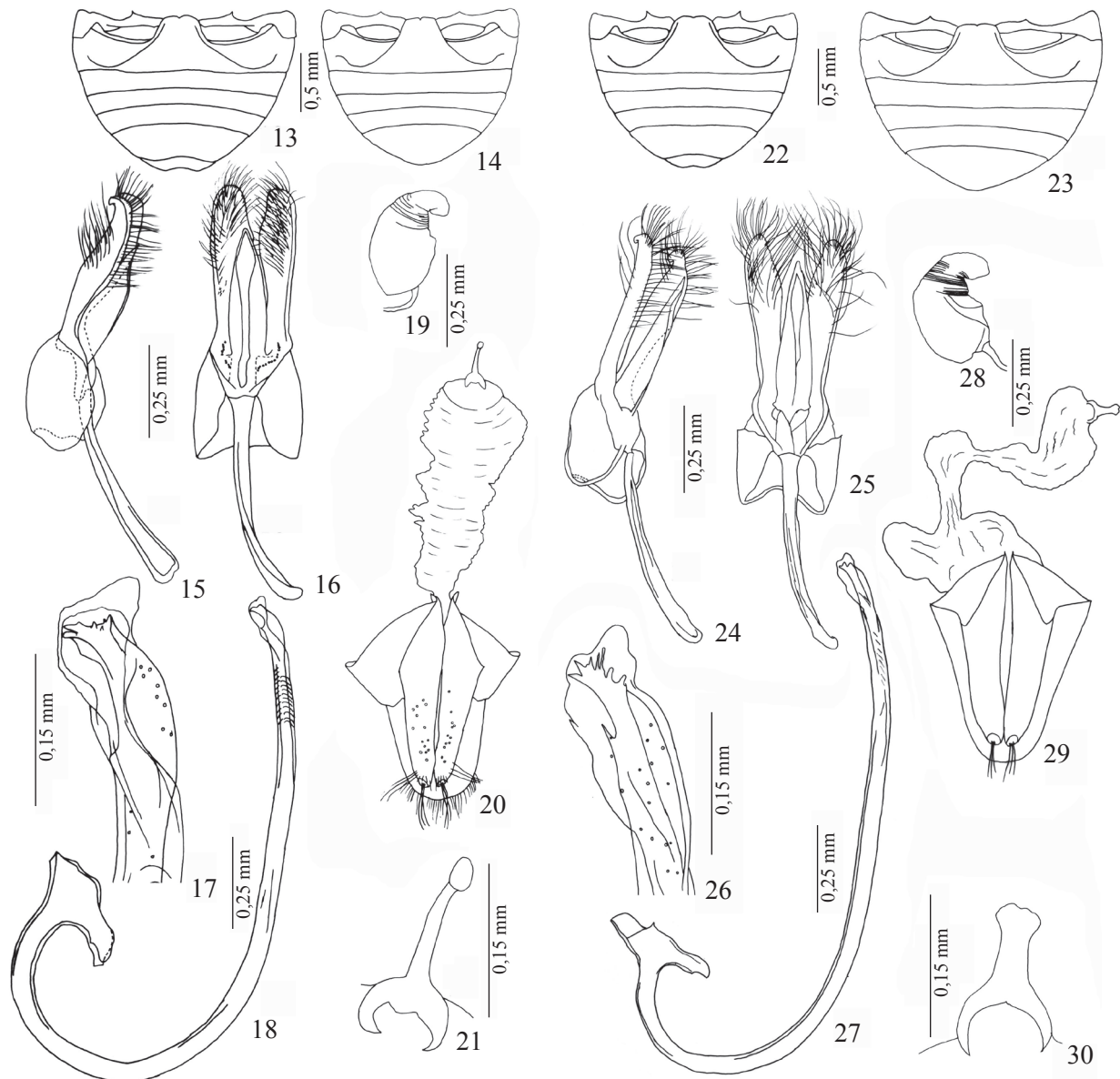
Head and legs, dark reddish-brown. Spermatheca curved, ramus slightly evident; infundibulum with apex divided, base slightly broad (Figs. 28–30).

Distribution. BRAZIL. São Paulo, Paraná.

Type material. The type material was studied: Holotype ♂, label white [Curitiba, PR; CCA/UFPR; 30. IV. 2001; RCZ Carvalho]; white [Predador de *Tinocallis kahawaluokalani* (Hem., Aphididae); praga de *Lagerstroemia indica* L. (Lythraceae)]; red [HOLOTYPE; *Harpasus aureus*; Almeida & Carvalho, 2006]. Paratypes (2♂, 8♀), yellow [PARATYPE; *Harpasus aureus*; Almeida & Carvalho, 2006]. The material is deposited in the Coleção de Entomologia Pe. J. S. Moure,



Figs. 1–12. *Harpasus pallidilabris* (Mulsant, 1850). 1–3, dorsal, lateral and frontal view; 4, head dorsal view; 5, labium; 6, labrum; 7, left and right mandibles ventral view; 8, maxilla; 9, antennae; 10, pronotum dorsal view; 11, epipleura; 12, posterior leg.



Figs. 13–30. 13–21. *Harpasus pallidilabris* (Mulsant, 1850), 22–30. *Harpasus aureus* Almeida & Carvalho, 2006. Abdomen: 13, 22, male; 14, 23, female; male genitalia: 15, 24, tegmen lateral; 16, 25, tegmen frontal; 17, 26, apex of siphus; 18, 27, siphus; female genitalia: 19, 28, spermatheca; 20, 29, coxites, bursa copulatrix and infundibulum; 21, 30, detail of infundibulum.

Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil (DZUP), except 2♀ paratypes at the Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZSP).

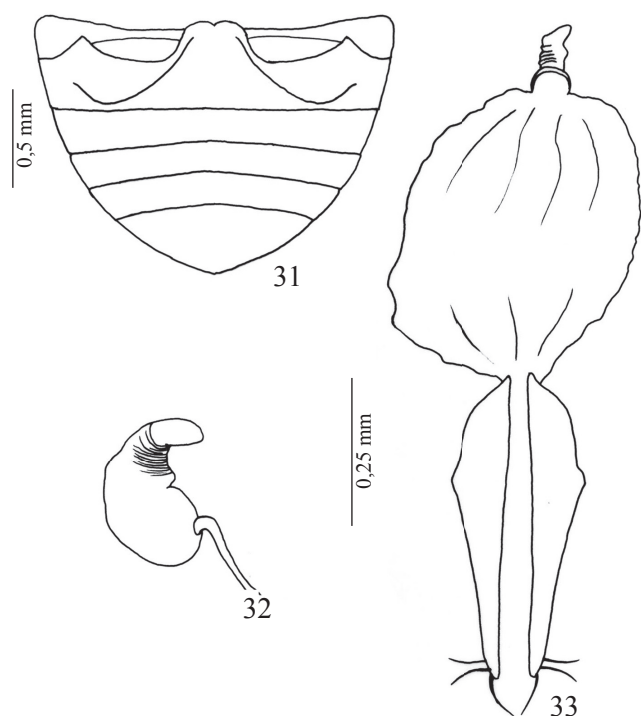
Material examined. BRAZIL. São Paulo. Barueri. 24/IX/1960, K. Lenko col., 1♀ (paratype, MZSP). Paraná. Colombo. Embrapa BR 476, Km20, 25/VIII/1986, Lev. Ent. Profaupar, (2♂, 1♀); Embrapa Sede, 14/X/?, Y. R. Muller, 1♂; 21/X/?, Y. R. Muller, 1♀; 26/X/?, Y. R. Muller, 2♂; 11/XI/?, Y. R. Muller, 1♀. Curitiba. 17/II/2001, R. C. Z. Carvalho, 3♀ (paratypes); 16/III/2001, R. C. Z. Carvalho, 4♀ (paratypes); 30/IV/2001, R. C. Z. Carvalho, (1♂, holotype) and (2♂, 1♀, paratypes) (DZUP); 1♀ (paratype, MZSP). Ponta Grossa. Col. Agrícola, UEPG, 14/VII/2004, 2♀; 22/VII/2004, K. A. Campos, V. Field & J. M. T. Souza col., 1♀; 19/XI/2004, 1♂; 19/XI/2004, K. Campos & J. M. T. Souza col., 1♂; 03/XII/2004, 1♂; 15/XII/2004, 2♀; 29/XII/2004, 1♀; 10/II/2005, 1♀; 23/II/2005, K. A. Campos, V. Field & J. M. T. Souza col., 1♂; 23/II/2005, 1♂; 09/III/2005, K. A. Campos & J. M. T. Souza col., 1♂; 09/III/2005, K. A. Campos, V. Field & J. M. T. Souza col.,

2♀; 19/IV/2005, 1♂; 23/V/2005, 1♂; 01/VII/2005, 1♀; 21/XI/2005, 2 (1♀, 1 indet. sex); 10/I/2006, 1♀; 14/VI/2006, Equipe do lab. M-34, 1♀ (CECG). Vila Velha, XII/1943, 2♀; 13/XI/2000, Marinoni & Ganho, 1♀; 18/IX/2000, Marinoni & Ganho, 1♂; 05/II/2001, Marinoni & Ganho, 1♂ (DZUP).

Taxonomic discussion. *Harpasus aureus* has integument without maculae or longitudinal stripes as in *H. ferrugineus* sp. nov. but differs because of the color, size and pattern of female genitalia.

***Harpasus eversmanni* (Mulsant, 1850)**
(Figs. 31–33, 65)

Orcus (*Harpasus*) *eversmanni* Mulsant, 1850: 474.
Curinus (*Harpasus*) *eversmanni*: Crotch, 1874: 190; Gemminger & Harold, 1876: 3777.
Curinus eversmanni: Korschefsky, 1932: 252; Blackwelder, 1945: 451.



Figs. 31–33. *Harpasmus evermanni* (Mulsant, 1850). 31, female Abdomen; female genitalia: 32, spermatheca; 33, coxites, bursa copulatrix and infundibulum.

Harpasmus evermanni: Gordon, 1987: 24; Almeida & Carvalho, 2006: 32–34; González *et al.*, 2008: 42, 46.

Female (mm). TL: 2.92–3.17; PL: 0.75–0.83; PW: 1.50–1.67; EL: 2.42–2.58; EW: 2.50–2.92.

Color bright reddish-brown with one median area metallic-blue (Fig. 65). Head, antennae and mouth parts dark reddish-brown. Elytra with raised humeral callosity, margin narrowed reflexed with a thin reddish-brown line; lateral margin of disc red, reaching or not the humeral callosity. Epipleura, meso- and metaventrite, median area of the first three abdominal ventrites and legs, reddish-brown.

Spermatheca curved with slender cornu; coxites very slender; infundibulum with oblique base (Figs. 32–33).

Distribution. BRAZIL: São Paulo, Minas Gerais, Goiás.

Type material. The material received from Museum National d'Histoire Naturelle, Paris, France (MNHN) is a ♀ and has the following labels: light green [Museum Paris, Brésil, Minas Geraes à Goyaz, DE CASTELNAU 19-47]; light green (rounded) [19; 47]; yellow [132]; with manuscript label [*Orcus evermanni* Muls. auct. det.], white [LECTOTYPE, *Orcus evermanni* Mulsant, Gordon 1971]. This designation was not published so we now designate this specimen as lectotype.

Material examined. BRAZIL. São Paulo. Monte Alegre. 14-27/X/1942, 2♀. L. Trav F. & Almeida (MZSP) and type material.

Taxonomic discussion. *Harpasmus evermanni* is similar to *H. unifasciatus* sp. nov., by the pattern of coxites and infundibulum, but it differs from this and other species by its color pattern and genitalia.

Harpasmus pallidilabris (Mulsant, 1850)

(Figs. 1–21, 64, 72, 73)

Orcus (*Harpasmus*) *pallidilabris* Mulsant, 1850: 473.

Curinus (*Harpasmus*) *pallidilabris*: Crotch, 1874: 190; Gemminger & Harold, 1876: 3777.

Curinus pallidilabris: Korschevsky, 1932: 252; Blackwelder, 1945: 451.

Harpasmus pallidilabris: Chapin, 1965: 239, 240; Gordon, 1987: 24; Chazeau *et al.*, 1989: 14; Fürsch, 1990: 11; Fürsch, 1996: 11; Duverger, 2003: 66; Almeida & Carvalho, 2006: 32, 34; González *et al.*, 2008: 42, 46.

Male (mm). TL: 3.00–3.42; PL: 0.75–0.92; PW: 1.58–1.75; EL: 2.42–2.92; EW: 2.67–3.08.

Color integument dark bluish-green (Fig. 64). Head with part of frons, clypeus, antennae, labrum, labium and maxillae reddish-brown; apex of maxillary palpi dark brown. Lateral margin of pronotum reddish-brown. Humeral callosity slightly raised; external margin of elytra narrowly reflexed, with a reddish-brown line. Epipleura dark or light reddish-brown with short bristles. Legs stout, brown-yellowish to reddish-brown. Prosternum, meso-, metaventrites and first three abdominal ventrites, dark reddish-brown.

Median lobe wide with obtuse apex, parameres longer than the median lobe and trabes of the same length. Siphon with six spiculae in preputial sac (Figs. 15–18).

Female (mm). TL: 3.08–3.42; PL: 0.83–0.92; PW: 1.58–1.75; EL: 2.50–2.83; EW: 2.75–2.83.

Head dark bluish-green; femora and tibiae dark reddish-brown to black; tarsi yellowish. Meso- and metaventrites black.

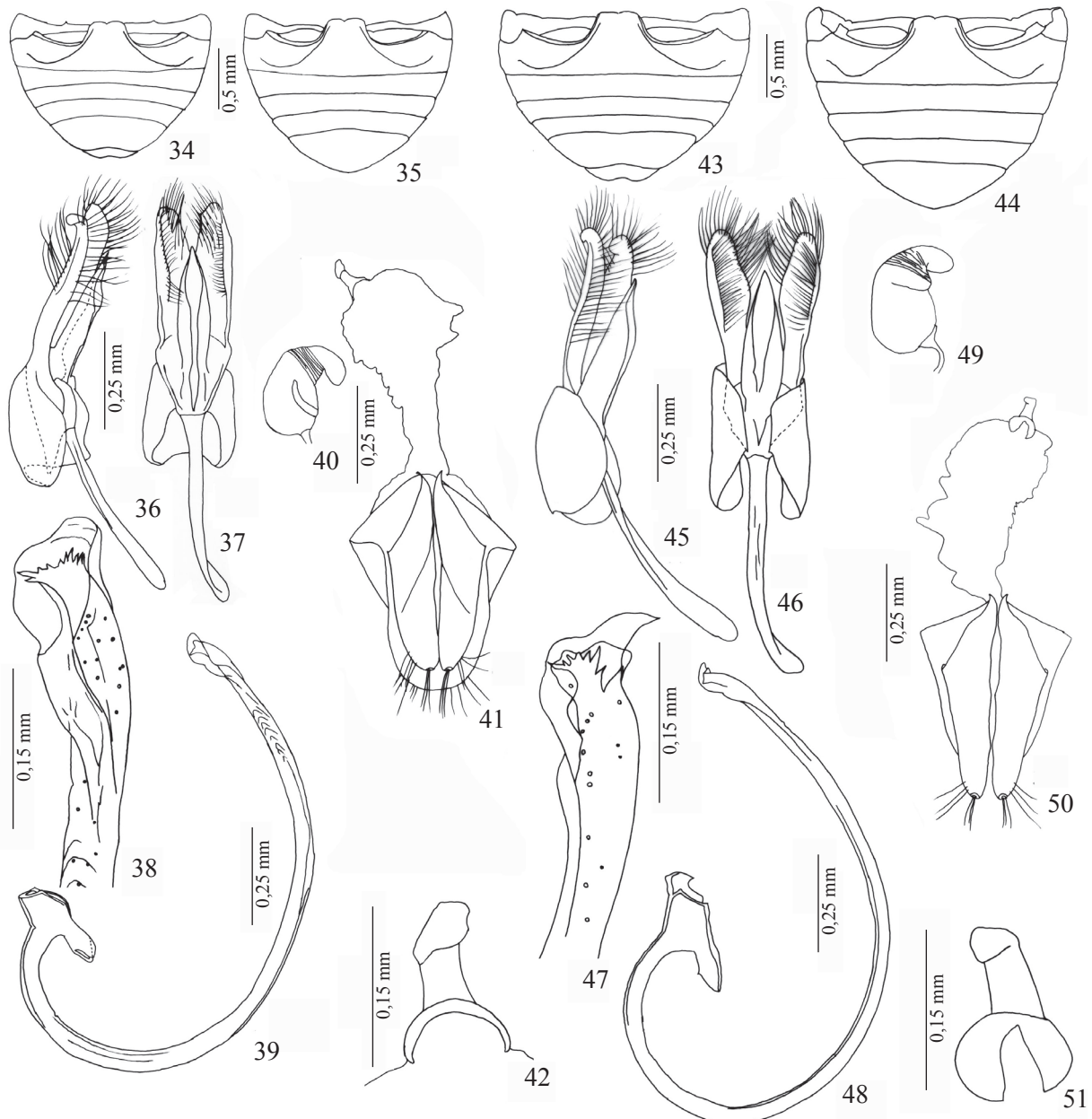
Spermatheca curved with ramus evident. Infundibulum with long rounded base and convergent apex divided (Figs. 19–21).

Distribution. BRAZIL. Bahia, Alagoas, Espírito Santo.

Type material. Mulsant (1850) reported that the material belongs to the Collection Chevrolat. Gordon (1987) indicated that it is at the “Department of Zoology, University of Cambridge”, Cambridge, England (DZUC), but it was not studied.

Material examined. BRAZIL. Alagoas. Maceió. 12/II/1991, 1♂; 18/IV/1991, 1♀; 10/VI/1993, 1♀; 12/VI/1994, 1♂, 1♀; 11/III/1995, 1♂; 03/XI/1997, 2♂, 1♀, I. M. de M. Lima leg. (DZUP). Bahia. GeoCompere Coll., 2♂, 2♀ (USNM); 1♀ (USNM). Cruz das Almas. 01/IX/1998, Ivani, P. S. leg., 1♂, 1♀ (DZUP). Espírito Santo. 1♂ (ZMHB).

Taxonomic discussion. *Harpasmus pallidilabris* differs from the other species by its single bluish-green color. It is similar to *H. zonatus* by the pattern of coxites, but differs by the infundibulum shape, which is slender and longer. Differs from the other species, mainly regarding the siphon and shape of infundibulum.



Figs. 34–51. 34–42. *Harpasus zonatus* (Mulsant, 1850). 43–51. *Harpasus unifasciatus* sp. nov. Abdomen: 34, 43, male; 35, 44, female; male genitalia: 36, 45, tegmen lateral; 37, 46, tegmen frontal; 38, 47, apex of siph; 39, 48, siph; female genitalia: 40, 49, spermatheca; 41, 50, coxites, bursa copulatrix and infundibulum; 42, 51, detail of infundibulum.

Harpasus zonatus (Mulsant, 1850)

(Figs. 34–42, 66, 70)

Orcus (*Harpasus*) *zonatus* Mulsant, 1850: 475, 476.

Curinus (*Harpasus*) *zonatus*: Crotch, 1874: 190; Gemminger & Harold, 1876: 3777.

Curinus zonatus: Korschefsky, 1932: 252; Blackwelder, 1945: 451.

Harpasus zonatus: Chapin, 1965: 239, 240; Gordon, 1987: 24; Almeida & Carvalho, 2006: 32, 34; González *et al.*, 2008: 42, 43, 46.

Male (mm). TL: 2.83–3.67; PL: 0.60–1.00; PW: 1.58–1.92; EL: 2.17–3.00; EW: 2.17–3.50.

Color integument yellowish-brown; head yellowish-brown to reddish-brown; antennae, labium and maxillae, reddish-brown. Pronotum with yellowish-brown lateral

margin; on the median area of the base with a reddish-brown spot, weakly extended until anterior margin; yellowish-brown hypomera. Elytra with dark-brown projected humeral callosity; each elytron with two dark-brown longitudinal bands: one at the elytral suture, slightly wide at the middle; the second parallel with external margin; external margin narrowed, reflexed with a dark reddish-brown line (Figs. 66, 70). Epipleura and legs brown to yellowish-brown. Meso- and metaventrite and median region of first three abdominal ventrites reddish-brown.

Median lobe slender, longer than parameres. Siph with ten spiculae in preputial sac (Figs. 36–39).

Female (mm). TL: 2.52–3.83; PL: 0.72–1.08; PW: 1.50–2.08; EL: 2.25–3.25; EW: 2.42–3.50.

Spermatheca curved, infundibulum divided, wide and with oblique base (Figs. 40–42).

Distribution. BRAZIL: Minas Gerais, Rio de Janeiro, São Paulo, Santa Catarina, Rio Grande do Sul.

Type material. The material studied by Mulsant (1850) belongs to the Collections Dejean, Buquet and Trobert. Gordon (1987) indicated, with doubt, that the type-material should be deposited in the Muséum D'Histoire Naturelle de Lyon (=Musée des Confluences) (MNHL), or in the Natural History Museum, London, England (BMHN). The material was requested from the MNHL, Lyon, France, but it was not found.

Material examined. BRAZIL. 1♀ (DZUP); 1♂ (ZMHB). *Minas Gerais*. Viçosa. 11/XI/1985, T. Henry leg., 1♀ (USNM); 2006, A. A. Semeão leg. 5♂, 5♀ (DZUP). *Rio de Janeiro*. Campo Grande. 31/VII/1957, P. A. Berry Coll., 2♂, 3♀ (USNM). Rio de Janeiro. 1939, Coll. F. C. Camargo, 1♂ (MNRJ); 28/V/1939, Coll. F. C. Camargo, 1♂ (USNM); 14/IV/1949, P. A. Berry leg. 2 1♂, 1♀ (homotype) (USNM); 28/V/1939, Coll. F. C. Camargo, 2 1♂, 1♀ (MLPA). 1905.100, Fry Coll. 1♀ (MNRJ). Botafogo, X/1949, M. Alvarenga leg., Coleção M. Alvarenga, 1♀ (DZUP); I/1952, L. C. Alvarenga, 1♂ (DZUP); IV/1952, L. C. Alvarenga leg., 1♀ (DZUP); 22/IX/1956, L. C. Alvarenga leg., 1♂, 1♀ (MNRJ). Corcovado, 1/VIII/1915, P. G. Russel, 1♀ (USNM); XII/1957, Seabra & Alvarenga leg., 1♀ (DZUP); VIII/1960, Seabra & Alvarenga leg., 1♀ (DZUP); IX/1961, J. S. Moure, Alvarenga & Alvarenga leg., 1♀ (DZUP); X/1961, Seabra & Alvarenga leg., 2♂, 1♀ (DZUP); I/XII/1966, Moure & Seabra leg., 2♀ (DZUP); X/1961, M. Alvarenga leg., ex-coleção M. Alvarenga, 2♀ (DZUP); XI/1961, M. Alvarenga leg., ex-coleção M. Alvarenga, 1♂, 1♀ (DZUP); 15/IX/1961, J. S. Moure, Alvarenga & Seabra leg., 1♂, 2♀ (DZUP); 18/IX/1961, J. S. Moure, Alvarenga & Seabra leg., 3♂, 2♀ (DZUP); X/1957, Alvarenga & Seabra leg., 2♀ (DZUP); IX/1958, 1♂, 2♀; XI/1961, Alvarenga & Seabra leg., 1♂ (MNRJ); VI/1963, Alvarenga & Seabra leg., 1♂, 3♀ (MNRJ); VII/1963, Alvarenga & Seabra leg., 2♂, 1♀ (MNRJ); IX/1966, Alvarenga & Seabra leg., 1♀ (MNRJ); X/1966, Alvarenga & Seabra leg., 1♂ (MNRJ); I/1967, Alvarenga & Seabra leg., Coleção M. Alvarenga, 2♂ (MNRJ); VI/1967, Alvarenga & Seabra leg., Coleção M. Alvarenga, 1♂, 1♀ (MNRJ); VIII/1967, Alvarenga & Seabra leg., Coleção M. Alvarenga, 1♂ (MNRJ); IX/1967, Alvarenga & Seabra leg., Coleção M. Alvarenga, 1♂, 1♀ (MNRJ); X/1967, Alvarenga & Seabra leg., Coleção M. Alvarenga, 3♂, 1♀ (MNRJ); XI/1967, Alvarenga & Seabra leg., Coleção M. Alvarenga, 1♀ (MNRJ); IX/1968, Alvarenga & Seabra leg., Coleção M. Alvarenga, 1♀ (MNRJ); IX/1969, Alvarenga & Seabra leg., Coleção M. Alvarenga, 1♀ (MNRJ). Floresta da Tijuca, VIII/1957, M. Alvarenga, 1♂ (MNRJ); I/1961, C. A. Campos Seabra. Coleção M. Alvarenga, 1♂ (MNRJ); 15/II/1961, F. M. Oliveira leg., 1♀ (DZUP). Guanabara, IV/1952, M. Alvarenga. Ex-coleção M. Alvarenga, 1♀ (MNRJ). Jardim Botânico, 1940, F. C. Camargo, 1♂ (MNRJ); III/1937, (107/FCC–244, 1♀), (113/FCC–250, 1♂); Realengo, 9/X/1949, L. C. Alvarenga, 1♂ (MNRJ). Represa Rio Grande, XI/1960, F. M. Oliveira, Coleção M. Alvarenga, 1♂ (MZSP); XII/1960, F. M. Oliveira, Coleção M. Alvarenga, 1♀ (MZSP). Quinta da Boa Vista, (223/FCC–378) 1♂; 31/VIII/1937, (227/FCC–381), 1♂, (228/FCC–382, indet sex). Teresópolis. XII/1955, B. Pohl, 1♀ (MNRJ). *São Paulo*. 3♂, 5♀ (MLPA). Caraguatuba. (Res. Flor–40 m), 02/IV/1962, Martins, Reichardt & Silva leg., 1♀ (MZSP). São Roque. (170/FCC–320) 1♂; 18/VI/1937, (190/FCC–346), 1♂; VIII/1938, Seabra leg., (749/FCC–1042) 1♂ (MNRJ). *Santa Catarina*. São Bento do Sul. Rio Vermelho, XII/1952, Dirings leg., 2♂ (MZSP). *Rio Grande do Sul*. Deodoro. 13/II/1935, 1♀ (MCNZ).

Taxonomic discussion. *Harpasus zonatus* is similar to *H. unifasciatus* sp. nov., in size, as in the color pattern, but it differs from it by two longitudinal bands on each elytron, while *H. unifasciatus* sp. nov. has only one longitudinal band

next to the elytral suture. In relation to the male genitalia, this species differs from the others by the length of median lobe and the presence of 10 spiculae on the apex of siphon. The female genitalia differ by the shape and size of infundibulum.

Harpasus unifasciatus sp. nov.

(Figs. 43–51, 68)

Male (mm). TL: 3.42–3.67; PL: 0.92–1.00; PW: 1.75–1.92; EL: 2.67–3.17; EW: 3.08–3.25.

Color integument light golden-brown (Fig. 68). Head and mouthparts light golden-brown, apex of maxillary palpi dark brown; antennae light brown. Pronotum with a light brown spot in the middle, weakly extending until anterior margin; prosternum with anterior and posterior margin dark brown. Elytra with raised humeral callosity, light or dark brown; each elytron with a sutural dark brown band; elytral margin with dark brown punctuation; external margin narrowly reflexed with a dark-brown line. Epipleura and legs golden-brown. Meso- and metaventrites and median regions of the first three abdominal ventrites dark brown.

Median lobe shorter than parameres; trapes longer than median lobe. Siphon with eight spiculae in preputial sac (Figs. 45–48).

Female (mm). TL: 3.00–3.92; PL: 0.75–1.00; PW: 1.58–1.92; EL: 2.42–3.17; EW: 2.58–3.17.

Head golden-brown; femora and tibiae reddish-brown; yellowish tarsi. Meso- and metaventrite dark brown.

Spermatheca curved; infundibulum with apex divided and oblique base (Figs. 49–51).

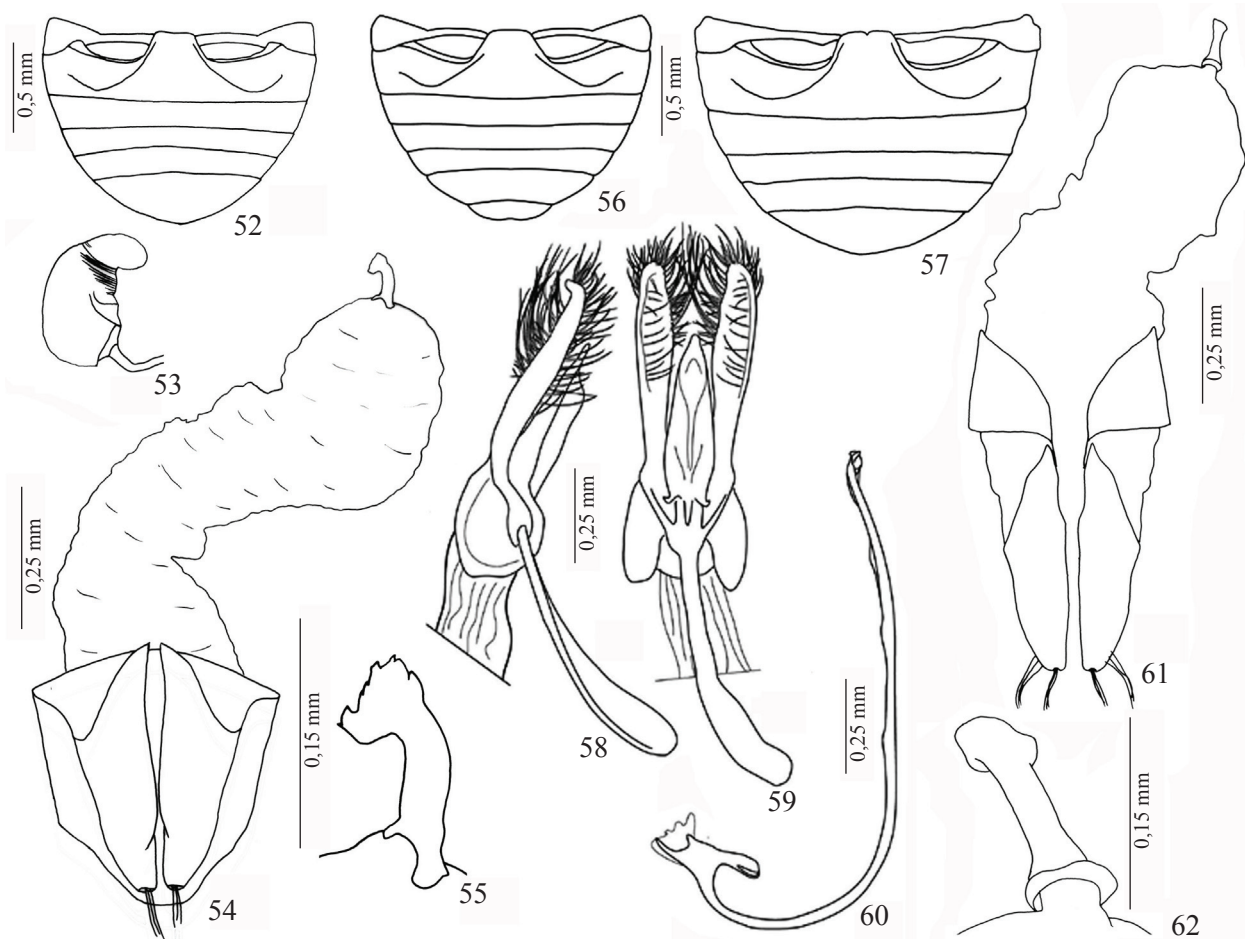
Distribution. BRAZIL. Bahia, Rio de Janeiro, São Paulo, Santa Catarina.

Type material. Holotype and paratypes are deposited in the Coleção de Entomologia Pe. J. S. Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, (DZUP). The holotype has the following label: White [Rio de Janeiro, Teresópolis, XII/1955, B. Pohl leg.], 1♂. Paratypes data indicated in material examined.

Material examined. BRAZIL. *Rio de Janeiro*. Teresópolis, XII/1955, B. Pohl leg. 1♂, holotype (DZUP). *Bahia*. Japú, Ilhéus, Fazenda Sta. Thereza, XI/1958, Dirings Col. 1♀. *Rio de Janeiro*. Teresópolis, XII/1955, B. Pohl leg., 3♂, 2♀. *São Paulo*. Ilha dos Búzios, 16/X–4/XI/1963, Exp. Dep. Zool., 1♀. *Santa Catarina*. São Bento do Sul, (R. Natal), 8/VIII/1981, I. Rank leg., 1♀, paratypes (DZUP).

Taxonomic discussion. *Harpasus unifasciatus* sp. nov. is similar to *H. zonatus*, by the presence of longitudinal bands and the integument color of the elytra, but it differs from the second by one longitudinal band parallel to the elytral suture. It differs also in the shape of infundibulum and slender coxites. It is similar to *H. eversmanni* by the pattern of coxites and infundibulum, but differs by the longitudinal bands and in the shape of median lobe and the apex of siphon.

Etymology. This species is named after the band in the elytral suture, in dorsal view.



Figs. 52–62. 52–55. *Harpasus ferrugineus* sp. nov. 56–62. *Harpasus quadrifolium* González, Corrêa & Almeida, 2008. Abdomen: 56, male; 52, 57, female; male genitalia: 58, tegmen lateral; 59, tegmen frontal; 60, siphio; female genitalia: 53, spermatheca; 54, 61, coxites, bursa copulatrix and infundibulum; 55, 62, detail of infundibulum.

***Harpasus ferrugineus* sp. nov.**

(Figs. 52–55, 69)

Female (mm). TL: 2.75–2.92; PL: 0.75; PW: 1.50; EL: 2.25–2.33; EW: 2.58.

Color integument ferruginous, without maculae or bands on elytra and pronotum (Fig. 69). Head, antennae and mouthparts dark ferruginous. Elytra with slightly raised humeral callosity, lateral margin narrowly reflexed. Epipleura, legs, prosternum, meso-, metaventrite and abdomen dark ferruginous.

Spermatheca curved; infundibulum with large base, curved, with short and large irregular projections. (Figs. 53–55).

Distribution. COLOMBIA. Vichada.

Type material. Holotype and paratype with the following label: White [COLOMBIA. Vichada. Puerto Carreño, 23/VI/1966, bambu] 2 ♀. The type specimens are deposited in the Coleção de Entomologia Pe. J. S. Moure, Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Paraná, Brazil.

Material examined. Same data as type material.

Taxonomic discussion. *Harpasus ferrugineus* sp. nov. is similar to *H. aureus* by the absence of maculae or bands on the elytra. But, it differs from *H. aureus* by the smaller size, the ferruginous integument and wider coxites and from *H. quadrifolium*, by infundibulum slightly curved with spiculae at the base. It differs from the other species mainly by the color pattern, shape of coxites and infundibulum.

Etymology. The name of this species is given by its color pattern.

***Harpasus quadrifolium* González, Corrêa & Almeida, 2008**
(Figs. 56–62, 67, 71)

Harpasus quadrifolium González, Corrêa & Almeida, 2008: 42–46; Ribeiro-Costa *et al.*, 2010: 13.

Male (mm). TL: 3.00; EW: 2.70.

Color integument yellowish-brown; each elytron with two light brown maculae (Figs. 67, 71). Antennae and mouthparts light to dark brown. Pronotum with light brown lateral margin. Elytra with projected humeral callosity, lateral margin slightly reflexed, light brown. Each elytron with light



Figs. 63–71. Habitus. 63–69, dorsal view; 70–71, lateral view: 63, *H. aureus* Almeida & Carvalho, 2006; 64, *H. pallidilabris* (Mulsant, 1850); 65, *H. eversmanni* (Mulsant, 1850); 66, 70, *H. zonatus* (Mulsant, 1850); 67, 71 *H. quadrifolium* González, Corrêa & Almeida, 2008; 68, *Harpasus unifasciatus* sp. nov.; 69, *Harpasus ferrugineus* sp. nov.

brown and black bands. Epipleura and abdominal ventrites light brown. Prosternum, meso-, metaventrites and legs, dark brown.

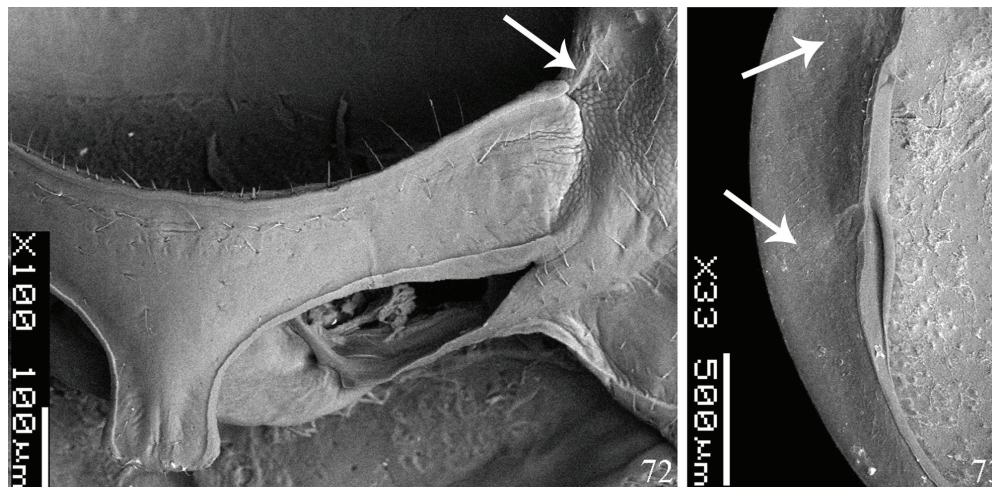
Median lobe shorter than parameres; trabes large, longer than the median lobe and shorter than parameres. Siphon curved, with preputial sac twisted (Figs. 58–60).

Female (mm). TL: 3.25; PL: 0.83; PW: 1.58; EL: 2.33; EW: 2.67.

Spermatheca missing. Infundibulum long, apex larger than the base (Figs. 61, 62).

Distribution. PERU. Junín; VENEZUELA. Aragua, Amazonas (Dr. José Perozo pers. comm.).

Type material. The holotype ♂ has the following labels: White [Chanchamayo, 07/I/1986, Arellano Coll.]; [UA 2005-86]; red [HOLOTYPE; *Harpasus quadrifolium*; González, Corrêa & Almeida, 2008], and is deposited in the Museo de Entomología Klaus Raven Büller, Universidad Nacional Agraria La Molina, Lima, Peru (UNALM). Paratypes: White [Chanchamayo, 07/I/1986; Arellano Coll.; [UA 2005-86]; Yellow [PARATYPE; *Harpasus quadrifolium*; González, Corrêa & Almeida, 2008] 2♀, deposited in the Museo de Entomología Klaus Raven Büller, Universidad Nacional Agraria La Molina, Lima, Peru (UNALM); same date and locality, 1♀, deposited in the Coleção de Entomologia Pe. J. S. Moure, Universidade Federal do Paraná, Curitiba, Paraná, Brazil (DZUP).



Figs. 72–73. *Harpasus pallidilabris* (Mulsant, 1850). 72, prosternum with prosternal process and fovea in hypomeron; 73, epipleuron with foveae.

Material examined. Same data as type material.

Taxonomic discussion. *Harpasus quadrifolium* is similar to *H. ferrugineus* sp. nov. and *H. pallidilabris* based on the wide coxites and the shape of infundibulum, but it differs by its single pattern of light brown maculae on each elytron and the black integument; the pattern of male genitalia differs by the apex of siphon with preputial sac twisted and parameres slender.

Biological aspects. There is little information in the literature about the species of Chilocorini. According to Drea & Gordon (1990) and Hodek & Honek (1996), the host records indicate that these species prey mainly on Diaspididae and Aphididae (Hemiptera). With few exceptions, there are no papers focusing on biological aspects of this genus. Any information about the life cycle and host specificity can help in the possible biological control of aphids, psyllids and coccids, showing the great importance of this genus in future programs of biological control.

Harpasus aureus was collected on *Lagerstroemia indica* (Lythraceae), an exotic ornamental plant, widely used in urban landscaping, mainly in southern Brazil, preying on *Tinocallis kahawaluokalani* (Kirkaldy, 1907) (Aphididae) (Almeida & Carvalho 2006). Milléo *et al.* (2007) reported the species on green pepper, *Capsicum annuum* L. (Solanaceae), however, without comments of possible prey. It was collected also between 2004 and 2006 on *Citrus reticulata* L., *C. sinensis* (L.) Osbeck, and *C. limon* (L.) (Rutaceae), in Ponta Grossa, Paraná, Brazil (Milléo *et al.* 2008), without data on prey, but aphids and coccids are frequently found on this plant.

Harpasus pallidilabris preys on scale insects on *Hibiscus* sp. (Malvaceae) in Maceió, Alagoas State, and also on *Lagerstroemia speciosa*, (Lythraceae), infested with aphids. This species was also collected on cotton (Malvaceae) and *Citrus* sp. (Rutaceae), in Bahia State, without data about possible prey.

Harpasus zonatus was collected on “guava” *Psidium guajava* L. (Myrtaceae), in Viçosa, Minas Gerais, preying

on *Triozioida limbata* (Enderlein, 1918) (Psyllidae) which are considered important guava pests, since they cause plant weakness by the toxic action of the saliva injected during their feeding process (Dalberto *et al.* 2004).

Harpasus ferrugineus sp. nov. was collected on bamboo (Poaceae) with no record of prey.

Harpasus quadrifolium was collected on coconut tree (*Cocos nucifera* L.), feeding on Diaspididae and also on *Citrus sinensis* (L.) Osbeck, feeding on *Toxoptera citricida* (Kirkaldy) (Aphididae) and *Diaphorina citri* Kuwayama (Psyllidae) (Dr. José Perozo pers. comm.).

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