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Revision of the genus *Ambracius* Stål, 1860 (Heteroptera: Miridae: Deraeocorinae: Clivinematini), with descriptions of three new species

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Abstract

The clivinematine genus *Ambracius* Stål is revised and the three new species *Ambracius alineae* from Venezuela, *A. liviae* from the United States (Texas), and *A. rudybuenoi* from Panama are described and illustrated. The previously known species *Ambracius capucinus* (Reuter), *A. dufouri* Stål, *A. mexicanus* Carvalho, *A. pallescens* (Distant), *A. rubricosus* (Distant), and *A. vittatus* Carvalho are redescribed. A key to species is provided to aid in identification.

Key words: Miridae, taxonomy, Deraeocorinae, Clivinematini, *Ambracius*, new species, distributions, hosts, key

Prior to this study, only six species of the clivinematine genus *Ambracius* were recognized. *Ambracius capucinus* (Reuter, 1905) was described from Venezuela; *A. dufouri* Stål, 1860 (type species), from Brazil; *A. mexicanus* Carvalho, 1984, from Mexico; *A. pallescens* (Distant, 1884), from Guatemala; *A. rubricosus* (Distant, 1884), from Guatemala; and *A. vittatus* Carvalho, 1984, from Brazil. The numerous color forms of *A. dufouri* have resulted in four synonyms (Carvalho 1952b, 1954). Subsequently, Carvalho (1955b) transferred *A. harrisi* Carvalho, 1951b to *Clivinema* Reuter and synonymized it with *C. regalis* Knight, 1917; Carvalho (1981) synonymized *Fundanius albomaculatus* Distant, 1884, with *A. pallescens* Distant, 1884; and Ferreira (1996) resurrected *A. rubricosus* from synonymy under *A. dufouri*, based on study of the male genitalia.

Ferreira (1998), in his cladistic analysis of the Clivinematini, provided notes on distribution and feeding habits, and indicated that *Ambracius* and *Guanabarea* Carvalho are sister genera. Ferreira (2000) provided a generic key and Ferreira (2001) diagnosed and redescribed the known genera, including *Ambracius*.

Little information is available on the feeding habits of the species of *Ambracius*. Most Deraeocorinae, including all members of Clivinematini, are considered predatory (Ferreira, 1998; Wheeler, 2000, 2001), feeding on a wide array of arthropods. Although feeding observations for clivinematines are scant, they are thought to be the only Miridae restricted to preying on Ortheziidae, commonly called ensign scales (Wheeler 2001). Knight (1928) reported *Clivinema sericea* Knight feeding on *Orthezia* sp. in New Mexico, and Miller and Schuh (1994) documented adults and nymphs of *C. coalinga* Bliven feeding on *Orthezia annae* Cockerell in California. Ferreira (1998) and Henry (pers. observ., 2000) observed adults and nymphs of *Ambracius dufouri* feeding on ensign scales in Brazil, and Ferreira and Schaffner (in Ferreira, 1998) observed *Hemicerocoris bicolor* Carvalho attacking soft scales on guava and orange in Mexico.

In this paper, we describe and illustrate the new species *Ambracius alineae* from Venezuela, *A. liviae* from the United States (Texas), and *A. rudybuenoi* from the Panama, and diagnose and redescribe *A. capucinus* (Reuter), *A. dufouri* Stål, *A. mexicanus* Carvalho, *A. pallescens* (Distant), *A. rubricosus* (Distant), and *A. vittatus* Carvalho. A key to the nine known species is provided to aid in identification.

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Material and methods

This study is based on adults borrowed from the National Museum of Rio de Janeiro, UFRJ, RJ, Brazil (MNRJ); Texas A& M University, Department of Entomology, College Station, Texas, USA (TAMU); Universidad Nacional Autonoma de Mexico (UNAM); Museu Regional de Entomologia, Federal University of Viçosa, Minas Gerais State, Brazil (UFVB); and National Museum of Natural History (USNM), Smithsonian Institution, Washington DC, USA. Most terminology follows Ferreira (1998, 2001); the use of the term endosoma, rather than vesica, follows Cassis (2008). All measurements are in millimeters.

Taxonomy

Ambracius Stål

Ambracius Stål, 1860: 59 (n. gen.). Type species: *Ambracius dufouri* Stål, 1860 (fixed by Kirkaldy, 1906a: 146). Walker, 1873: 168 (list); Atkinson, 1890: 48 (cat.); Kirkaldy, 1906a: 146 (cat.); Kirkaldy, 1906b: 374 (note); Reuter, 1910: 154 (cat.); Carvalho, 1951a: 132 (list); Carvalho, 1952a: 50 (cat.); Carvalho, 1952b: 9 (note); Carvalho, 1955a: 23 (key); Carvalho, 1957: 37 (cat.); Carvalho and Gomes, 1971: 90 (cat.); Schuh, 1995: 587 (cat.); Ferreira, 1996: 271 (status change); Ferreira, 1998: 56 (cladistics, distr.); Ferreira, 2001: 229 (descr.).

Fundanius Distant, 1884: 291 (n.gen.). Type species: *Fundanius maculatus* Distant, 1884 (fixed by Kirkaldy, 1906a: 135). Atkinson, 1890: 45 (cat.); Kirkaldy, 1906a: 135 (cat.); Reuter, 1910: 154 (cat.). Synonymized by Carvalho, 1948: 191.

Ambrosius: Reuter, 1905: 9 (descr.) (misspelling of *Ambracius* Stål).

Diagnosis: Species of *Ambracius* are distinguished by the strongly declivent head, convex vertex, and antennal fossa located above the maxillary-mandibular (loral-jugal) suture. The shining, more or less convex, and distinctly punctate pronotum, with the lateral margin marginate or angulate, and anterior margin extended over base of head in lateral view; hemelytron and scutellum more or less smooth; embolio-corial suture indistinctly punctate; and the ostiolar peritreme with a well-developed median lobe.

Ferreira's (1998) cladistic analysis indicated that *Ambracius* and *Guanabarea* Carvalho are sister groups that can be distinguished only by the hoodlike anterior margin of the pronotum extending over rear of head in *Ambracius* (versus the anterior margin of pronotum not hoodlike and not extending over base of head in *Guanabarea*).

Ambracius alineae, n. sp.

(Fig. 1)

Diagnosis: Pronotum predominantly pale brown, with two round, black spots on calli. Scutellum and clavus uniformly pale brown. Hemelytral membrane mostly hyaline, with veins dark brown or fuscous.

Description: Holotype female (Fig. 1a): Body length 4.56; width 2.68. Head length 0.70; width 1.02; distance between eyes 0.58; length of antennal segments I 0.40, II 1.40, III 0.62, IV 0.46; labium length 1.48. Pronotum length 1.54; width 1.98; length from anterior margin to transverse suture 0.46. Hind leg lengths: Hind femur 1.76; tibia 2.48; tarsus 0.32. Scutellum length 0.90; width 0.92. Hemelytron: Length 4.60; width 1.34; length from base to cuneal fracture 2.64; length from cuneal fracture to apex of membrane 1.96; cuneal length 0.82; cuneal width 0.66.

General coloration reddish brown, with fuscous to black areas. Head reddish brown with eyes and clypeus fuscous; labium dark brown, becoming darker apically; antennal segments fuscous. Pronotum reddish brown, with two fuscous spots behind the transverse sulcus extending behind calli. Scutellum uniformly reddish brown. Legs pale brown with coxae, trochanters, and bases of femora fuscous. Hemelytron hyaline, uniformly reddish brown; membrane hyaline with veins fuscous. Ventral side of body pale brown, ostiolar peritreme whitish; abdominal sternites brownish. Body covered with semiadpressed and adpressed setae. Labium reaching middle coxae. Pronotum punctate. Scutellum smooth and shiny.

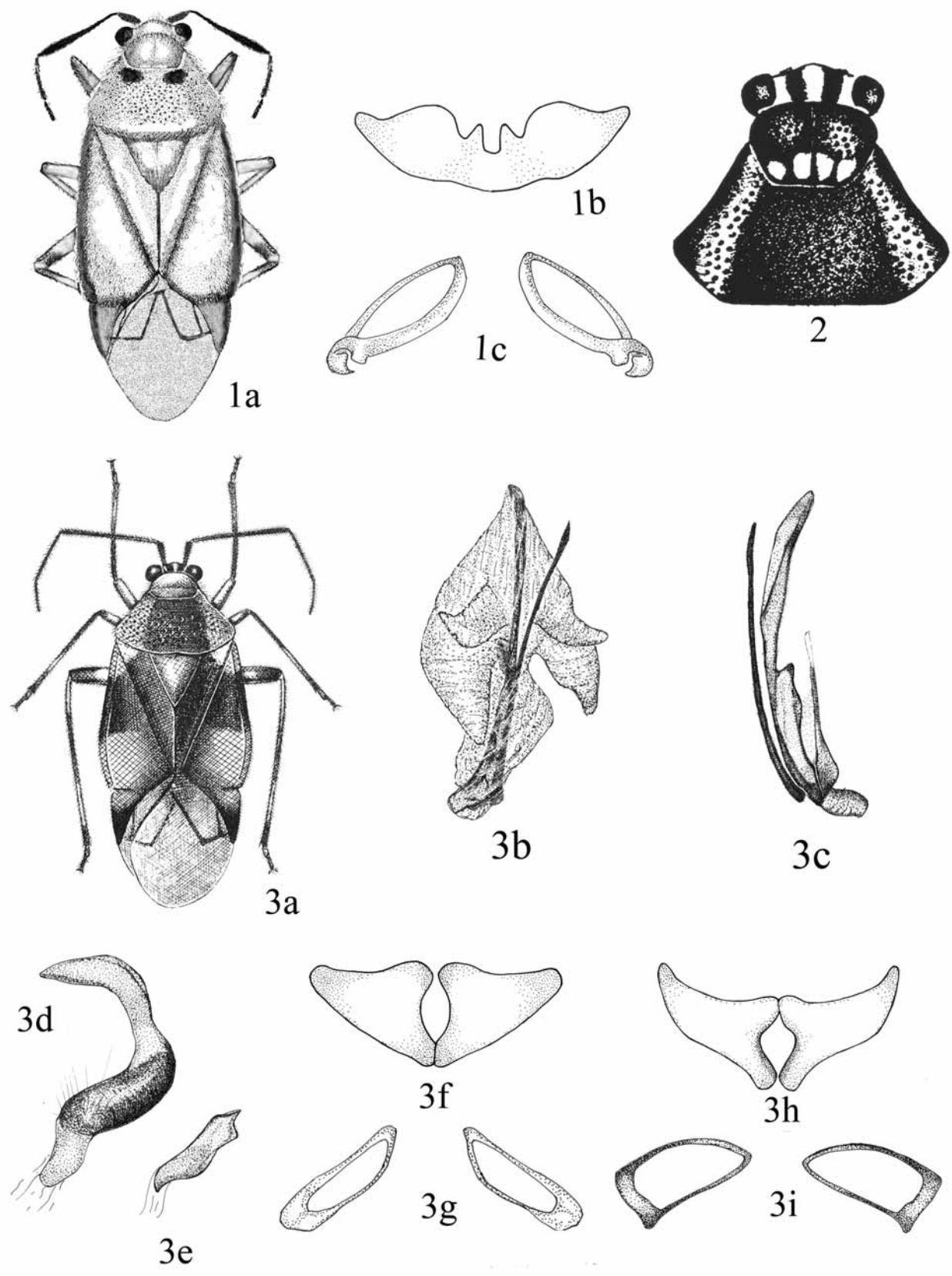

PLATE 1. Figure 1: *Ambracius alineae* **n. sp.** 1a, female holotype; 1b, posterior wall; 1c, sclerotized rings. Figure 2: *Ambracius capucinus* (Reuter) head and pronotum, female holotype (redrawn from Carvalho, 1985). Figure 3: *Ambracius dufouri* Stål. 3a, male habitus (redrawn from Carvalho & Gomes, 1971); 3b, endosoma with large membranous lobes; 3c, gutterlike structure; 3d, left paramere; 3e, right paramere; 3f, h, posterior wall; 3g, i, sclerotized rings.

Genitalia (Figs. 1b–c): Posterior wall (Fig. 1b) not divided into two valves and having sinuous dorsal margin with two round lobes and two more internal acute lobes posteriorly; sclerotized rings (Fig. 1c) simple, not twisted, with lateral margins thickened.

Male: Unknown

Etymology: This species is named after Aline Barcellos Prates dos Santos at the Museu de Ciências Naturais (MCN) da Fudação Zoobotânica do Rio Grande do Sul, RS, Brazil, who has made important contributions to the taxonomy and ecology of Heteroptera (Pentatomomorpha) of Rio Grande do Sul State.

Distribution: Venezuela.

Host: Unknown.

Type material: Holotype ♀: Venezuela: Lara, Agua Viva, 9 June, 1984, W. E. Clark (TAMU).

Ambracius capucinus (Reuter)

(Fig. 2)

Ambracius capucinus Reuter, 1905: 30 (n. sp.); Carvalho, 1957: 38 (cat); Carvalho, 1985: 490 (descr.); Schuh, 1995: 587 (cat.)

Diagnosis: Pronotum dark brown, with two longitudinal, yellowish stripes laterally; pronotum with four yellowish spots on calli.

Redescription: Translated from Carvalho (1984): "Female holotype (Fig. 2): Body length, 4.60; width, 1.70. Head length, 0.10; width, 0.70; distance between eyes, 0.34; length of antennal segment I, 0.20; II, 1.30; III and IV, missing. Pronotum length, 0.80; width, 1.40; cuneal length, 0.80; cuneal width, 0.28. General coloration cinnamon, more or less hyaline with dark and yellowish areas. Head bright yellow, with a circular black spot with yellowish center; eye and antenna dark brown. Pronotum dark brown, with two yellowish longitudinal stripes laterally; calli with four yellowish spots separated from each other by black, narrow stripes. Hemelytron cinnamon, hyaline, claval suture dark brown, external margin of embolium and cuneus fuscous; membrane fuscous with black veins. Ventral side of body brown to dark brown, ostiolar peritreme and labium whitish. Body covered with dense, adpressed setae. Labium reaching the median coxae. Pronotum and scutellum punctate. Hemelytron rough and punctate; cuneus longer than wide; cells and vein of membranes elongated."

Male: Unknown.

Distribution: Venezuela.

Host: Unknown.

Discussion: We have not examined the female holotype of *A. capucinus* from Caracas, Venezuela, deposited in the Zoology Museum of "Universitetsparken," Copenhagen, Denmark. Carvalho (1984) illustrated the dorsal view of head and pronotum of this specimen, reproduced herein, and considered this species to be close to *Ambracius dufouri* Stål. The color pattern of the pronotum as given in the diagnosis will distinguish this species.

Ambracius dufouri Stål

(Fig. 3)

Ambracius dufouri Stål, l860: 59 (n.sp.); Walker, 1873: 168 (cat.); Atkinson, 1890: 48 (cat.) Reuter, 1913: 61 (descr.); Bergroth, 1922: 21 (list); Carvalho, 1952a: 50 (note); Carvalho, 1952b: 9 (syn.); Carvalho, 1954: 424 (syn.); Carvalho, 1957: 38 (cat.); Carvalho and Gomes, 1971: 90 (descr.); Carvalho and Afonso, 1977: 7 (list); Carvalho, 1981: 1 (note); Carvalho and Ferreira, 1986: 183 (list); Schuh, 1995: 587 (cat.); Ferreira, 1996: 271 (note); Ferreira, 1998: 57 (biol., note).

Capsus alternus Walker: 111 (n.sp.). Synonymized by Carvalho, 1954: 424.

Resthenia alternus: Atkinson, 1890: 57 (cat.) (n. comb.).

Fundanius alternus: Distant, 1904: 202 (n. comb.).

Fundanius bicolor Distant, 1888: 82 (n. sp.); Atkinson, 1890: 182 (cat.). Synonymized by Carvalho, 1954: 424.
Fundanius maculatus Distant, 1884: 291 (n. sp.); Atkinson, 1890: 45 (cat.). Synonymized by Carvalho, 1952b: 9.
Fundanius marginatus Distant, 1884: 291 (n.sp.); Atkinson, 1890: 45 (cat.). Synonymized by Carvalho, 1952b:10.

Diagnosis: Distinguished by the pale head, with a fuscous band arising from the margin of each antennal fossa and coalescing posteriorly on the vertex; the pronotum with large, longitudinal, black stripe widening from anterior to posterior margins or with large to small black spots on disc and the calli lacking yellowish spots; the uniformly fuscous scutellum; and the hemelytron with clavus mostly fuscous, the corium with a large basal transverse stripe reaching the embolium, and membrane uniformly hyaline or brown and lacking a stripe.

Redescription: Male (Figs. 3a–e) (measurements taken from seven specimens, mean followed by range in parentheses): Body length 3.92 (3.68–4.16); width 1.91 (1.74–2.04). Head length 0.53 (0.52–0.54); width 0.82 (0.78–0.84); distance between eyes 0.38 (0.34–0.40); length of antennal segments I 0.30 (0.26–0.32), II 1.21 (1.12–1.28), III 0.53 (0.50–0.56), IV 0.39 (0.36–0.42); labium length 1.08 (0.92–1.20). Pronotum length 1.01 (0.84–1.10); width 1.46 (1.36–1.52); length from anterior margin to transverse suture 0.33 (0.30–0.34). Hind leg lengths: Femur 1.33 (1.28–1.40); tibia 1.94 (1.84–1.96); tarsus 0.26 (0.24–0.28). Scutellum length 0.64 (0.62–0.66); width 0.68 (0.62–0.72). Hemelytron length 3.60 (3.44–3.72); width 0.95 (0.86–1.02); length from base to cuneal fracture 2.05 (2.00–2.08); length from cuneal fracture to apex of membrane 1.55 (1.44–1.64); cuneal length 0.68 (0.64–0.70); cuneal width 0.54 (0.50–0.60).

General coloration dark brown to fuscous, with pale brown areas. Head pale brown, with fuscous apical area of clypeus and band arising from margin of each antennal fossa and coalescing posteriorly on vertex; labium brown to fuscous, becoming nearly black apically; antennal segments uniformly fuscous to black. Pronotum pale brown, with a large median fuscous spot or band beginning at calli and extending and widening posteriorly; collar with fuscous spots. Scutellum brown to fuscous, with a large fuscous spot, apex usually with short pale brown stripe. Hemelytron at base, most or all of clavus, and entire embolium fuscous; area of exocorium, usually more or less hyaline; cuneus fuscous; membrane clear to pale brown with veins fuscous. Ventral side of body pale yellowish brown, with fuscous spot anteriorly on mesopleural-sternal region; underside of genital capsule dark brown to fuscous; ostiolar peritreme whitish. Legs pale brown, with apex of hind femur and all of hind tibia and tarsus dark brown to fuscous. Body with short adpressed setae.

Genitalia (Figs. 3b–e): Endosoma (vesica) with large membranous lobes (Fig. 3b); gutterlike structure (Fig. 3c) highly developed with apex slightly enlarged, longer than spine support structure; seminal duct rectangular, bearing at base a peculiar structure with apex long and acute. Left paramere (Fig. 3d) falciform with apex acute; sensory lobe weakly developed, bearing a few erect setae. Right paramere (Fig. 3e) reduced with apex and lateral projection acute.

Female (measurements taken from 10 specimens, mean followed by range in parentheses): Body length 4.41 (4.00–4.96); width 2.14 (2.00–2.24). Head length 0.58 (0.56–0.60); width 0.85 (0.82–0.88); distance between eyes 0.45 (0.42–0.48); length of antennal segments I 0.34 (0.30–0.36), II 1.23 (1.16–1.26), III 0.65 (0.60–0.70), IV 0.39 (0.34–0.42); labium length 1.19 (1.14– 1.30). Pronotum length 1.19 (1.02–1.28); width 1.67 (1.60–1.74); length from anterior margin to transverse suture 0.41 (0.40–0.44). Hind leg lengths: Femur 1.45 (1.40–1.48); tibia 2.03 (1.80–2.12); tarsus 0.29 (0.28–0.32). Scutellum length 0.71 (0.66–0.74); width 0.80 (0.74–0.84). Hemelytron length 3.92 (3.64–4.44); width 1.07 (1.00–1.12); length from base to cuneal fracture 2.24 (2.16–2.32); length from cuneal fracture to apex of membrane 1.64 (1.48–1.80); cuneal length 0.73 (0.64–0.82); cuneal width 0.56 (0.50–0.60).

General coloration highly variable, sometimes entirely orange except for appendages, usually yellowish brown to orange or occasionally red with fuscous to black areas. Head usually pale brown, with apex of clypeus fuscous; labium fuscous, becoming almost black apically; antennal segments uniformly fuscous, segment II occasionally black apically. Pronotum uniformly orange or pale brown, orange or red, with large fuscous spot or more often broad band extending from calli, widening posteriorly, to posterior margin of pronotum. Scutellum ranging from pale brown to red, rarely fuscous laterally. Hemelytron pale brown to red, with clavus (except at base), embolium (except at base and apex) and apical half of cuneus brown to fuscous; corium usually fuscous along clavus, with fuscous sometimes expanding to embolium; membrane clear to

very slightly brown with veins fuscous. Ventral side of body pale brown to reddish, with fuscous anteriorly on mesopleural-sternal area; ostiolar peritreme pale. Legs with coxae and trochanters pale, femora pale brown or orange with bases and apices fuscous, reddish specimens with femora entirely fuscous, front and mid tibiae with basal halves fuscous, hind tibiae entirely fuscous. Other characters similar to males.

Genitalia (Figs. 3f–i): Posterior wall (Figs. 3f, h) divided into two triangular plates; sclerotized rings (Figs. 3g, i) simple, not twisted, with lateral margins thin.

Distribution: Brazil (Espirito Santo, Minas Gerais, Rio de Janeiro, Santa Catarina), Colombia, and Guatemala (Schuh 1995).

Host plant: Unknown.

Material examined: Brazil: Espirito Santo: 1♂, Vitoria, Krauss, VII-1961 (USNM); Minas Gerais: 1 ♀, Viçosa, 45, Carvalho (USNM); 10♂, 9 ♀, Viçosa, 18/IV/79, Ferreira and Rossi (UFVB); 1 ♀, Ouro Preto, IV-54, N. L. H Krauss (USNM); Paraiba: 1♂, 1 ♀, n² 22B, 7, 31-57, Campo Grande, (USNM); Rio de Janeiro: 1♂, 1 ♀, Petropolis, Dec. 1970, Maldonado C. (MNRJ); Santa Catarina: 1 ♀ (compared with type), Nova Teutonia, 27º 11' N, 52º 23' W, May 16, 1966, F. Plaumann (TAMU). Colombia: 1♂, 1 ♀, Guayabetal, 29 June 1965, J. A. Ramon (MNRJ); 1♂, Anolaima, 10 Sept. 1965 (JMC); 1 ♀, Villeta, 28 Aug. 1965 (MNRJ); 1 ♀, Paradilla 1000m., Apr. 1965, J. A. Ramos (MNRJ); 1♂, 2 ♀, Apiay, 14 July 1965, J. A. Ramos (MNRJ).

Discussion: We follow Carvalho's (1952b, 1954) synonymic interpretation for this species, and, in addition, verify the synonymy of the various color forms based on male and female genitalia of specimens borrowed from various collections. We also examined a female from Santa Catarina, Nova Teutonia, Brazil, 27º11"N, 52º23'W, 16 May 1966, that Fritz Plaumann (TAMU) labeled as "compared with type by J. C. M. Carvalho" to further support our concept of this variable species.

***Ambracius liviae*, n. sp.**
(Fig. 4)

Diagnosis: Pronotum (except two round, black spots on calli) and scutellum uniformly colored. Clavus uniformly pale. Membrane of hemelytra fuscous to black, with apex whitish.

Description: Holotype female (Fig. 4a): (two specimens measured; holotype first, paratype second): Body length 4.64, 4.40; width 2.64, 2.52. Head length 0.68, 0.70; width 1.00, 1.00; distance between eyes 0.56, 0.54; length of antennal segment I 0.36, 0.32; II, 1.30, 1.22; III, 0.72, 0.70; IV, 0.46, 0.40; labium length 1.30, 1.30. Pronotum length 1.48, 1.44; width 2.00, 1.90; length from anterior margin to transverse suture 0.44, 0.42. Hind leg lengths: Femur 1.76, 1.60; tibia 2.36, 2.16; tarsus 0.32, 0.32. Scutellum length 0.80, 0.82; width 0.92, 0.86. Hemelytron length 5.68, 4.28; width 1.32, 1.26; length from base to cuneal fracture 2.68, 2.56; length from cuneal fracture to apex of membrane 1.80, 1.72; cuneal length 0.90, 0.84; cuneal width 0.70, 0.60.

General coloration reddish, with fuscous to black areas. Head reddish brown, with apical 2/3 of clypeus and apex of buccula fuscous; labium dark brown, becoming darker apically; antennal segment I brown, other segments uniformly black. Pronotum reddish, with two fuscous spots behind lateral angles of transverse sulcus extending behind calli. Scutellum uniformly reddish. Legs brown, with coxae, trochanters, basal and apical areas of femora, fore and middle tibiae (except extreme base and apical 2/3), posterior tibia (except basal and apical areas) and tarsus fuscous. Hemelytron reddish, with two fuscous spots on anterior margin of exocorium near embolium; membrane fuscous, with inner margin near apex of cuneus whitish. Ventral side of body brown, ostiolar peritreme fuscous; prosternum with two dark spots near inner angle of propleura; abdominal sternites fuscous, becoming brownish laterally. Body covered with semiadpressed and adpressed setae. Labium reaching middle coxae. Pronotum punctate. Scutellum smooth and shiny.

Genitalia (Figs. 4b–c): Posterior wall (Fig. 4b) divided into two rectangular plates, with posterior angle acuminate; sclerotized rings (Fig. 4c) simple, not twisted, with lateral margin thickened and anterior and posterior margins slender.

Male: Unknown.

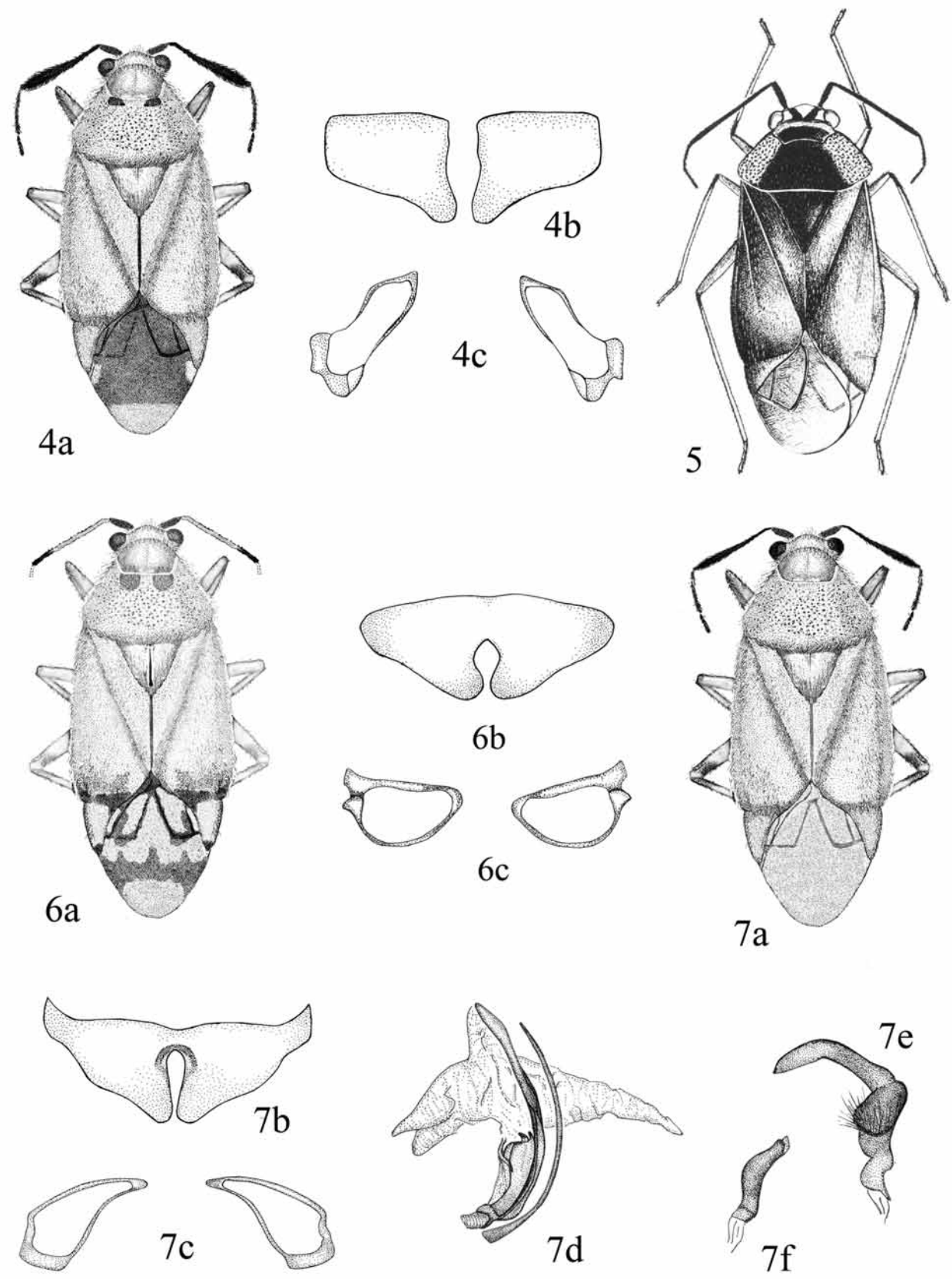

PLATE 2. Figure 4: *Ambracius liviae* **n. sp.** 4a, female holotype; 4b, posterior wall; 4c, sclerotized rings. Figure 5: *Ambracius mexicanus* Carvalho, female holotype (redrawn from Carvalho, 1984). Figure 6: *Ambracius pallescens* (Distant). 6a, female habitus (redrawn from Carvalho, 1984); 6b, posterior wall; 6c, sclerotized rings. Figure 7: *Ambracius rudybuenoi* **n. sp.** 7a, female holotype; 7b, posterior wall; 7c, sclerotized rings; 7d, endosoma; 7e, left paramere; 7f, right paramere.

Etymology: This species is named after Livia Aguiar Coelho, doctoral student at the Federal University of Viçosa, MG, Brazil, who has been conducting research on Neotropical Miridae since her Master´s degree.

Distribution: United States (Texas).

Host plant: Unknown.

Type material: Holotype ♀: United States: Texas. Hidalgo Co., Santa Ana Nat. Wdlf. Refuge, 4 April1987, E. G. Riley & D. A. Rider (TAMU). Paratypes: 2 ♀, with same data as for holotype (1 TAMU, 1 USNM).

Ambracius mexicanus Carvalho

(Fig. 5)

Ambracius mexicanus Carvalho, 1984: 322 (n. sp.); Schuh, 1995: 588 (cat.).

Diagnosis: Head with two longitudinal black stripes on vertex. Pronotum with a large median, black stripe, widening from anterior to posterior margins; lateral margin of pronotum carinate. Scutellum black. Hemelytron with clavus uniformly or predominantly black; corium without a transverse stripe; membrane fuscous.

Redescription: Female holotype (Fig. 5): Body length 4.20; width 1.68. Head length 0.40; width 0.78; distance between eyes 0.38; length of antennal segments I 0.33, II 1.10, III 0.43, IV 0.25. Pronotum length 0.95; width 1.58; cuneal length 0.63; length from anterior margin to transverse suture 0.34. Hind leg lengths: Femur 1.24; tibia 1.86; tarsus 0.30. Scutellum length 0.58; width 0.64. Hemelytron length 2.80 mm; width 1.02; length from base to cuneal fracture 1.84; length from cuneal fracture to apex of membrane 0.96; cuneal length 0.63; cuneal width 0.45.

General coloration brownish orange, with fuscous to black areas. Head yellowish, apex of clypeus and two longitudinal stripes on vertex black; eye reddish brown, antenna black; pronotum brownish orange; calli and large central fascia extending from collar to posterior margin of pronotum black. Scutellum black. Hemelytron brownish orange, with clavus and inner margin of corium dark brown; membrane fuscous. Ventral side reddish brown; femora dark reddish brown, paler on basal thirds or halves; fore tibia yellowish, narrowly darker brown at base, middle and hind tibiae reddish brown on basal half, paler distally. Pronotum punctate, covered with adpressed setae; lateral margins of pronotum carinate; labium [imbedded in glue], reaching to about hind coxae.

Male: Unknown

Distribution: Mexico.

Host plant: Unknown.

Material examined: Holotype ♀: Mexico City, Mexico, 9 July 1933, H. E. Hinton and R. L. Usinger (USNM).

Discussion: Carvalho's (1984) description was based on two females from Mexico City, Mexico. This species is distinguished from other species of the genus by the general body coloration.

Ambracius pallescens (Distant)

(Fig. 6)

Fundanius pallescens Distant, 1884: 291 (n. sp.); Atkinson, 1890: 45 (cat.). Schuh, 1995: 588 (cat.).
Fundanius albomaculatus Distant, 1884: 291 (n. sp.); Atkinson, 1890: 45 (cat.). Synonymized as a male of *A. pallescens* by Carvalho, 1981: 1.
Ambracius albomaculatus: Carvalho, 1952b: 2 (n. comb.); Carvalho, 1957: 38 (cat.); Carvalho, 1981: 1 (note).

Diagnosis: Head uniformly colored, without a stripe or band. Pronotum with two round black spots on calli, anterior lateral margin not carinate. Scutellum pale with a longitudinal, slender, black stripe from base to

apex. Hemelytron with clavus uniformly or predominantly pale; corium without a transverse stripe; hemelytral membrane clear, with an irregular longitudinal fuscous band.

Redescription: Female (Fig. 6a) (measurements taken from two specimens): Body length 3.84–4.40; width 2.08–2.24. Head length 0.66–0.66; width 0.88 (same for both); distance between eyes 0.50 (same for both); length of antennal segments I 0.38–0.40, II 1.30–1.40, III and IV missing; labium length 1.36–1.62. Pronotum length 1.20–1.30; width 1.62–1.84; length from anterior margin to transverse suture 0.40–0.58. Posterior legs missing. Scutellum length 0.70–0.78; width 0.76–0.80. Hemelytron length 3.88–3.96; width 1.04–1.12; length from base to cuneal fracture 2.20– 2.12; length from cuneal fracture to apex of membrane 1.76 (same for both); cuneal length 0.84–0.94; cuneal width 0.60–0.80.

General coloration pale castaneous to reddish, with reddish-brown to fuscous areas. Head pale to dark brown, with base and apical area of clypeus fuscous; labium brown, becoming darker apically; antennal segments pale brown, with base of segment I and apical 2/3 of segment II black. Pronotum yellowish brown to reddish, with two black spots behind calli [absent in one example]. Scutellum pale red to reddish brown, with a slender, black stripe from base to apex. Hemelytron pale reddish to reddish brown, more or less hyaline; apex of embolium, corium near cuneal fracture, fracture and apex of cuneus fuscous; membrane clear, with irregular, brown spots; veins fuscous. Ventral side with coxae, pro-, meso- and metasternum black; central area of abdomen fuscous; ostiolar peritreme whitish. Body with short adpressed pubescence.

Genitalia (Figs. 6b–c): Posterior wall (Fig. 6b) triangular, entire anterior margin moderately notched with medial surfaces rounded; sclerotized rings (Fig. 6c) simple, not twisted, with lateral margins thin.

Male: Unknown.

Distribution: Known only from Guatemala (Carvalho, 1981).

Host: Unknown.

Material examined: 2 ♀, Puerta Parada, Guatemala, 22 June 1985, W. E. Clark (TAMU).

***Ambracius rubricosus* (Distant)**
(Fig. 8)

Fundanius rubricosus Distant, 1884: 291 (n. sp.); Atkinson, 1890: 45 (cat.).
Synonymized by Carvalho, 1952b: 14 with *Ambracius dufouri* Stål; resurrected by Ferreira, 1996: 271.

Diagnosis: Head reddish, without stripe or band. Scutellum uniformly or predominantly pale red**.** Hemelytral membrane fuscous, with apex whitish.

Redescription: Female (Figs. 8a–b) compared with type (four specimens measured, specimen "compared with type by Carvalho" given first, followed in parentheses by mean and range): Body length 4.08 (4.32, 4.08–4.56); width 2.32 (2.42, 2.32–2.52). Head length 0.60 (0.64, 0.60–0.68); width 0.86 (0.99, 0.98–1.00); distance between eyes 0.42 (0.51, 0.42–0.60); length of antennal segment I 0.30 (0.33, 0.30–0.36); II 1.20 (1.27, 1.20–1.34); III 0.60 (0.65, 0.60–0.70); IV 0.40 (0.40, only two examples); labium length 1.24 (1.36, 1.24–1.48). Pronotum length 1.20 (1.33, 1.20–1.46); width 1.66 (1.77, 1.66–1.88); length from anterior margin to transverse suture 0.34 (0.40, 0.34–0.46). Hind leg lengths: Femur 1.40 (1.52, 1.40–1.64); tibia length 1.88 (2.12, 1.88–2.36); tarsus [missing] (0.29, 0.28–0.32). Scutellum length 0.64 (0.75, 0.64–0.86); width 0.76 (0.84, 0.76–0.92). Hemelytron length 3.48 (3.94, 3.48–4.40); width 1.16 (1.22, 1.16–1.26); length from base to cuneal fracture 2.04 (2.30, 2.04–2.56); length from cuneal fracture to apex of membrane 1.44 (1.64, 1.44–1.84); cuneal length 0.64 (0.74, 0.64–0.84); cuneal width 0.70 (0.63, 0.56–0.70).

General coloration red, with brown, fuscous and black areas. Antennal segments, except segment I, eye, apical 2/3 of labium, and all tarsi fuscous. Hemelytral membrane and terminal segments of abdomen fuscous. Ostiolar peritreme pale red.

Genitalia (Figs. 8c–j): Posterior wall variably triangular, entire anterior margin deeply notched (Figs. 8c, e, g, i); sclerotized rings (Figs. 8d, f, h, j) simple, not twisted, with lateral margins very thin.

Male (two specimens measured, the first from Tamaulipas, the second from Veracruz): Body length 3.44–4.48; width 1.96–2.08. Head length 0.60–0.62; width 1.00–1.02; distance between eyes 0.42 (same for both);

length of antennal segment I 0.30–0.34; II 1.08–1.14; III 0.60, missing; IV 0.40, missing; labium length 1.14–1.26. Pronotal length 1.06–1.16; width 1.38–1.46; length from anterior margin to transverse suture 0.28–0.34. Hind leg lengths: Femur 1.32–1.40; tibia 1.76–2.00; tarsus 0.24–0.28. Scutellum length 0.66 (same for both); width 0.68–0.72. Hemelytron length 3.28–3.44; width 0.98–1.04; length from base to cuneal fracture 2.00–2.04; length from cuneal fracture to apex of membrane 1.28–1.40; cuneal length 0.66–0.74; cuneal width 0.60 (same for both).

Similar to female in morphology, color, and vestiture. Antennal segment II not clavate as in females.

Genitalia (Figs. 8k–m): Gutterlike structure (Fig. 8k) highly developed with apex enlarged and longer than spine-support structure. Seminal duct well developed. Left paramere (Fig. 8l) falciform, with apex enlarged and acute; sensory lobe reduced, bearing long erect setae; right paramere (Fig. 8m) reduced, with apex rounded and spiny.

Distribution: Dominican Republic, Guatemala, Mexico, and Peru (Schuh, 1995).

Host: Unknown.

Material examined: Mexico: 1 ♀, Chiapas, 3–5 km N Ocozocoautla, 25 July 1988, Robert W. Jones (TAMU); 1 ♀, 21 km N Ocozocoautla, 2 Aug. 1982, Clark and Cave (TAMU); 1♂, 1 ♀, 5 mi. north Nuevo Tenochtitlan, 3000', 7 Aug. 1990, J. C. Schaffner (TAMU); 1 ♀, Oaxaca, 4 mi. N C. Loxicha, 15 July 1973, Mastro and Schaffner (TAMU); 2 ♀, 5 miles south Candelaria Loxicha, 18–19 July 1974, Clark, Murray, Ashe, Schaffner (TAMU); 1 ♀, 4.4 mi. S San Gabriel, Mixtepec, (Hwy. 131), elev. 2500ft., 10–11 July 1987, Kovarik, Schaffner (TAMU); 1 ♀, Tamaulipas, 4 mi. W Cd. Victoria (Canon del Novillo), 14 Nov. 1985, P. Kovarik, R. Jones and K. Haack (TAMU); 1♂, 82 km east Ciudad Victoria, Hwy. 70, 3 July 1986, Jones, Kovarik, Schaffner (TAMU); 1♂, Veracruz, Catemaco, 6 Sept. 1974, G. Bohart, W. Hanson (TAMU); 1 ♀, 20 mi. S Misantla, 22 Sept. 1976, W. E. Clark, host plant 76–6 (TAMU); 1 ♀, Tecolapa, 9 Sept. 1977, E. Barrera (UNAM); 2 ♀, Est. Biologia Los Tuxtlas, 4 Mar. 1985, A. Ibarra (UNAM); ♀, 8 km S Sontecomapan, 7 Sept. 1982, Clark & Cave (TAMU); ♀, 2 mi. NE Catemaco, July 23, 1966, J. Meyer (TAMU); 1 ♀, 1 mi. S Misantla, 27 Sept. 1976, E. W. Clark (TAMU). Dominican Republic: 1 ♀, Distrito National, St. Domingo 20–9 l, Aug., A. Busck (USNM); 1 ♀ (compared with type by Carvalho), Samana: La Majagua, 16 Aug. 1967, J. C. Schaffner (TAMU).

Discussion: The majority of specimens of this species have a transverse fuscous to black stripe on the basal half of hemelytra that may be reduced in size (present only on the clavus) or absent in others. Some exemplars have a black mark covering most of the pronotal disc (Fig. 8b) that varies in size or is absent. An examination of the male and female genitalia indicates that *A. rubricosus* and *D. dufouri* are distinct species.

***Ambracius rudybuenoi* n. sp.**
(Fig. 7)

Diagnosis: Pronotum, scutellum, and hemelytron uniformly reddish brown; membrane hyaline, with veins brown and apex of large areole fuliginous.

Description: Holotype female (Fig. 7a) (four specimens measured, holotype first, followed in parentheses by mean and range): Body length 4.85 (4.78, 4.4–5.0); width 2.30 (2.28, 2.1–2.5). Head length 0.30 (0.34, 0.30–0.38); width 1.03 (1.0, 0.95–1.03); distance between eyes 0.53 (0.53, 0.50–0.55); length of antennal segments I 0.48 (0.44, 0.43–0.48), II 1.30 (1.31, 1.30–1.33), III 0.65 (0.65, 0.65–0.65), IV [missing]; labium length 1.25 (1.22, 1.15–1.25). Pronotum length 1.43 (1.37, 1.20–1.45); width 1.75 (1.76, 1.58–1.90); length from anterior margin to transverse suture 0.50 (0.45, 0.40–0.50). Hind leg lengths: Femur 1.58 (1.58, 1.43–1.68); tibia length 2.25 (2.23, 2.08–2.38); tarsus length 0.35 (0.37, 0.30–0.50). Scutellum length 0.75 (0.73, 0.58–0.80); width 0.88 (0.87, 0.75–0.95). Hemelytron length 4.00 (3.87, 3.63–4.00); width 1.15 (1.14, 1.05–1.25); length from base to cuneal fracture 2.50 (2.36, 2.18–2.50); length from cuneal fracture to apex of membrane 1.50 (1.52, 1.45–1.60); cuneal length 0.75 (0.75, 0.73–0.80); cuneal width 0.50 (0.49, 0.40–0.53).

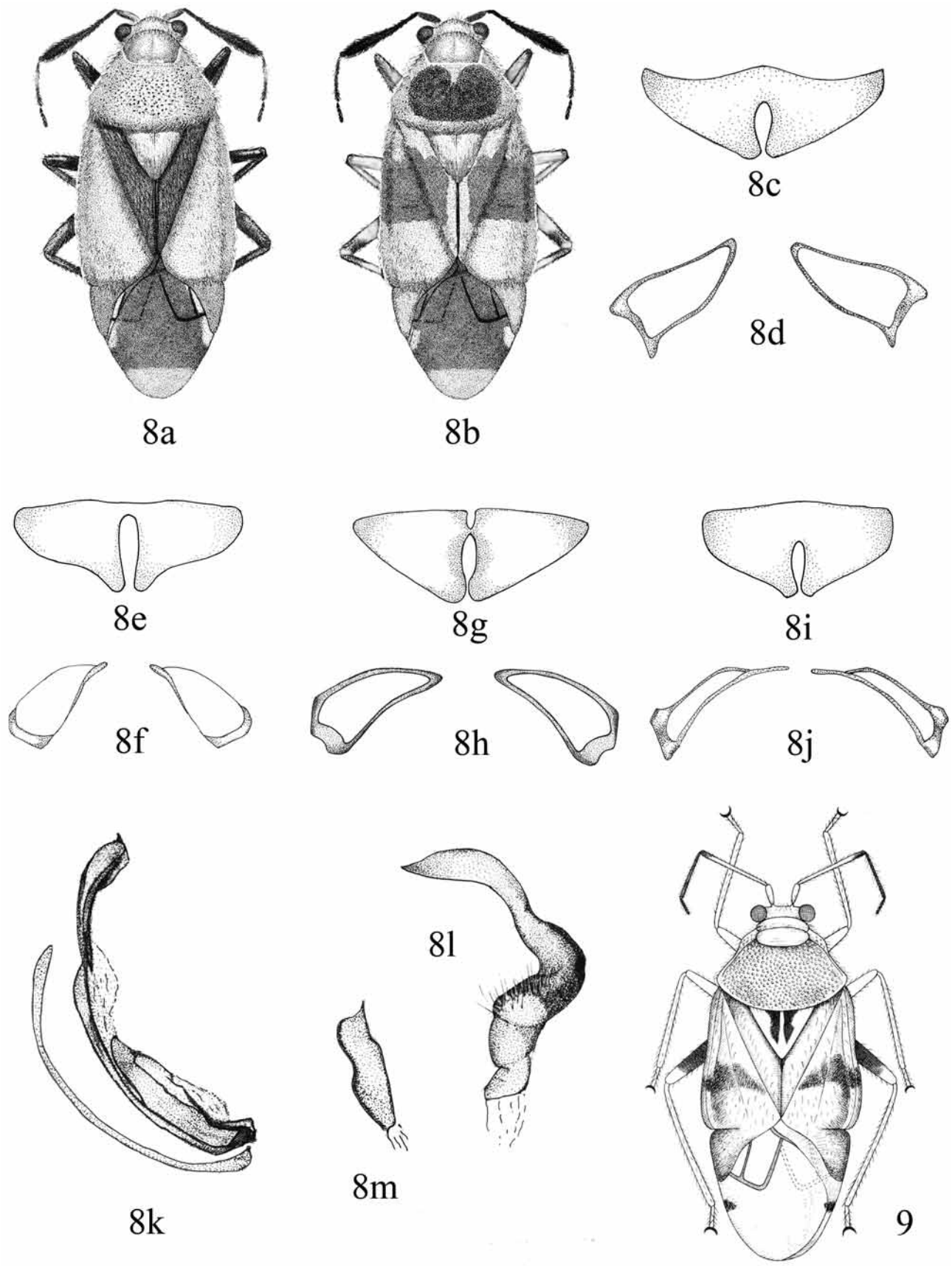

PLATE 3. Figure 8: *Ambracius rubricosus* (Distant). 8a–b, female color forms (redrawn from Ferreira, 2001); 8c, e, g, i, posterior wall; 8d, f, h, j, sclerotized rings; 8k, endosoma; 8l, left paramere, 8m, right paramere. Figure 9: *Ambracius vittatus* Carvalho, female holotype (redrawn from Carvalho, 1984).

General coloration reddish brown, with dark brown to black areas. Eyes and apical 2/3 of antennal segment I black; antennal segments II, III, and IV dark brown. Pronotum, scutellum, and hemelytron uniformly reddish brown; membrane hyaline with veins brown and apex of large areola fuliginous; legs reddish brown, femora with a small area near apex fuscous; tibiae with basal two thirds fuscous; tarsi dark brown. Ventral side reddish, with propleura, middle of mesosternum, and meso- and metapleura dark brown; ostriolar peritreme whitish. Labium reaching middle of mesosternum. Pronotum punctate, covered with short pubescence.

Genitalia (Figs. 7b–c): Posterior wall (Fig. 7b) triangular, entire, anterior margin deeply notched, medial surface elliptical, anterior margins narrowed and produced anteriorly; sclerotized rings simple (Fig. 7c), not twisted, with lateral margins thin.

Male (two specimens measured): Body length 4.00 (same for both); width 1.70–1.90. Head length 0.30 (same for both); width 0.88–0.93; distance between eyes 0.45 (same for both); length of antennal segments I 0.33–0.35, II 1.13 [missing], III 0.58 [missing]; IV [missing]; labium length 1.10–1.13. Pronotum length 1.08–1.15; width 1.38–1.43; length from anterior margin to transverse suture 0.35–0.40. Hind leg lengths: Femur 1.35–1.45; tibia 1.80–1.93; tarsus 0.25–0.30. Scutellum length 0.63–0.68; width 0.65–0.75. Hemelytron length 3.35–3.43; width 0.85–0.95; length from base to cuneal fracture 2.00–2.05; length from cuneal fracture to apex of membrane 1.35–1.38; cuneal length 0.58–0.63; cuneal width 0.33–0.40.

Similar to females in morphology and vestiture. Length shorter than females and general color darker red.

Genitalia (Figs. 7d–f): Endosoma (Fig. 7d) with gutterlike structure well developed, apex slightly enlarged, nearly the same length as spine-support structure. Seminal duct well developed with apex enlarged, bearing two spinelike structures. Left paramere (Fig. 7e) falciform with apex acute; sensory lobe strongly developed, bearing many long, erect setae; right paramere (Fig. 7f) reduced, with apex cleft.

Etymology: This species is named after the first author's good friend, Rudy Bueno, researcher at the Harris County Public Health and Environmental Services Mosquito Control Division, Houston, Texas, who helped and hosted him during his PhD. program at Texas A&M University from 1987 to 1991.

Distribution: Panama.

Host plant: *Citrus* sp. (Sapindales, Rutaceae).

Type material: Holotype ♀, Panama, Canal Zone, Christobal, G 63, on Citrus in Quartermaster's Garden, H. F. Dietz, July 6, 1918 (USNM). Paratypes: 1♂ (very poor condition), 5 ♀, same data as for holotype (5 in TAMU, 1 ♀ in USNM).

Discussion: We have selected a female holotype for this species because of the very poor condition of the only known male. The male and female genitalia, in combination with the dorsal coloration, are distinct for this species.

Ambracius vittatus Carvalho
(Fig. 9)

Ambracius vittatus Carvalho, 1984: 322 (n. sp.); Schuh, 1995: 588 (cat.).

Diagnosis: Anterior lateral margin of pronotum prominently carinate. Scutellum with two, longitudinal, black fasciae not quite reaching the apex. Hemelytral membrane with two small, black spots behind apex of cuneus.

Redescription: Female holotype (Fig. 9): Body length 5.60; width 3.30. Head length 0.20; width 0.80; distance between eyes 0.44; length of antennal segments I 0.20, II 1.00, III 0.40, IV 0.40. Labium length 1.10. Pronotum length 1.20; width, 1.80. Hind leg lengths: Femur 1.20; tibia1.60; tarsus 0.30. Scutellum length 0.70; width 0.90. Hemelytron length 4.2; width 3.30; cuneal length 0.80 mm; cuneal width 0.48.

General coloration reddish brown, with dark castaneous to black areas. Head covered with short, adpressed setae; eye black, with reddish margins; front with two black stripes extending to apex; clypeus pale brown, with short setae; buccula covered with golden, adpressed setae. Labium castaneous, extending to middle of mesosternum. Antenna reddish brown, covered with short setae; segment II enlarging to apex; apical areas of segments I, II, and IV fuscous to black. Pronotum punctate, covered with sparse, golden

pubescence; anterior lateral margin prominently carinate; collar punctate, reaching vertex of head; calli convex, well delimited posteriorly, glabrous, smooth, fused with collar; disc convex, with two irregular, fuscous to black, longitudinal fasciae extending to base. Scutellum yellowish, strongly convex, with two longitudinal, black fasciae not quite reaching apex. Hemeytron reddish brown, somewhat smooth; irregular spots on corium and cuneus from lateral margin to clavo-corial suture fuscous to black; embolium wide; cuneus reddish brown, covered by short, adpressed setae; membrane hyaline, with veins and a small spot posterior to apex of cuneus black. Front and middle legs yellowish, covered with short setae; hind femur brown, with apical third more reddish brown; hind tibia and tarsus reddish brown. Ventral side castaneous, with short adpressed pubescence; propleura and sides of mesosternum, meso- and metapleura yellowish brown; ostriolar peritreme whitish.

Male: Unknown.

Distribution: Brazil (Santa Catarina).

Host plant: Unknown.

Discussion: The original description was based on one female from Brazil (Nova Teutonia City, Santa Catarina State). The holotype is deposited in the Museu Nacional do Rio de Janeiro. This species differs from other species of *Ambracius* by the color of the scutellum and black spot on the membrane.

Key to species of *Ambracius* Stål

1. Pronotal calli with four yellowish spots; pronotum dark brown with two longitudinal yellowish stripes near sides (Fig. 2)..... *A. capucinus* (Reuter)
- Pronotal calli without yellowish spots; pronotum without two longitudinal stripes 2
2. Anterior lateral margin of pronotum prominently carinate; scutellum with two median, longitudinal, black fasciae not reaching the apex; hemelytral membrane with two small black spots posterior to apex of cuneus (Fig. 9) .... *A. vittatus* Carvalho
- Anterior lateral margin of pronotum not carinate; scutellum uniformly colored, without two longitudinal fasciae or with only one slender, longitudinal, black stripe; hemelytral membrane without two small black spots behind apex of cuneus 3
3. Scutellum pale with a slender, longitudinal black stripe from base to apex; hemelytral membrane clear, with an irregular, fuscous, longitudinal band (Fig. 6a) ..... *A. pallescens* (Distant)
- Scutellum uniformly pale or black; hemelytral membrane mostly fuscous with apex whitish or pale brown, without stripes or bands 4
4. Clavus uniformly or predominantly fuscous to black; pronotum with a large longitudinal, black stripe widening from anterior to posterior margin or with a small to large black spot on disc; if stripe or spot absent on pronotum, clavus uniformly or predominantly fuscous to black (female of *A. rubricosus*) 5
- Clavus uniformly or predominantly pale; pronotum uniformly colored or with two round, black spots on calli 7
5. Scutellum uniformly black; corium without a transverse stripe (Fig. 5)..... A. *mexicanus* Carvalho
- Scutellum pale, not black, without stripes or spots; corium without a stripe or if present (Figs. 3a, 8b), scutellum uniformly or predominantly pale 6
6. Head pale, with a fuscous band arising from margin of each antennal fossa and coalescing posteriorly on vertex; hemelytral membrane clear to pale brown, apex not white (Fig. 3a) ..... *A. dufouri* Stål
- Head without a stripe or band; hemelytral membrane fuscous, with the apex whitish (Fig. 8a–b) .... *A. rubricosus* (Distant)
7. Pronotum uniformly reddish brown (Fig. 7a) ..... .*A. rudybuenoi*, **n. sp.**
- Pronotum with two round, black spots on calli 8
8. Hemelytral membrane mostly hyaline or pale brown (Fig.1a) ..... *A. alineae*, **n. sp.**
- Hemelytral membrane fuscous to black, with inner margin bordering cuneus and apex whitish (Fig. 4a) .... *A. liviae*, **n. sp.**

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