

THE GENUS *FULVIUS* FROM THE AMERICAS (HEMIPTERA: MIRIDAE)

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RESUMEN

Se presenta una revisión de las 42 especies de *Fulvius* Stål, registradas en América del Norte, del Centro y del Sur. Se incluyen ilustraciones del hábito y los genitales del macho de las nuevas especies, una diagnosis del género y una clave para las especies tratadas.

Palabras clave: *Fulvius*, Miridae, nuevas especies, distribución, Américas.

ABSTRACT

A revision of the 42 species of *Fulvius* Stål, recorded in North, Central and South America is presented. The habitus and male genitalia of the new species are illustrated, and a diagnosis of the genus and a key to the species are included.

Key words: *Fulvius*, Miridae, new species, distribution, Americas.

INTRODUCTION

The genus *Fulvius* (based on *Fulvius anthocorides*) was described by Stål (1862) from a single female collected in Mexico by Salle. In spite of knowing of the Brazilian species described in *Cyllecoris*, this author did not mention them as belonging to the genus, as pointed out by Reuter (1895).

Previously, Say (1884), described the species *Fulvius imbecilis*, placed in the genus *Capsus*. Distant (1884-1893), in his *Biologia Centrali Americana*, recognized the species *albomaculatus*, *atratus* and *fuscans* as belonging to the genus. Reuter (1875),

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mentioned *Teratodella* which was described from France, taken in Senegal as communicated by Puton, which he called *anthocoroides*. The same author in 1878 and 1895 published papers in the group synonymising *Pamerocoris* Uhler (1877) and *Camelocapsus* Reuter. In 1892 he mentioned the species from Venezuela, which he called *atratus* and *simoni*. In 1902 he described *breddini* from Brazil. Uhler (1894), recorded *humilatus* from Grenada Island.

The next paper on the genus was published by Distant (1909), under the name *Silanus* (synonymised by Bergroth (1914). Poppius (1909), pointed out that *albomaculatus* Distant was near *bisbistillatus* (Stål, 1860), and for this reason did not treat Distant species in his key, without stating it clearly. In this paper Poppius described from the Americas *brunneiceps*, *similimus* and *submaculatus*.

Jordan (1944), erected a fossil genus, *Electrocoris*, which was synonymized by Carvalho (1954), as *Jordanofulvius*. The latter author described or made notes (1955, 1988) on some species. Wheeler (1977), erected *slateri* from Canada and the United States.

Schaffner, in a letter to the first author, dated February, 1992 said: "They are too variable for me", meaning the similarity of species. The male genitalia, especially the vesica has proved to be a good character.

The following authors have also published on the genus bringing descriptive data, localities or synonymies:

Atkinson (1890), Barber (1904, 1934), Blatchley (1926), Carvalho & Gagné (1968), Carvalho & Dolling (1976), Carvalho & Hussey (1954), Froeschner (1949), Hussey (1954), Kelton (1985), Knight (1923, 1941), Maldonado-Capriles (1969), Provancher (1872, 1886-1887), Walker (1873) and Wirtner (1904).

The collections having types or specimens are the following: JCMC - Jose Candido de Melo Carvalho, Tijuca, Rio de Janeiro, Brazil; NDSU - North Dakota State University, Fargo, North Dakota, USA; NMNH - United States National Museum of Natural History, Washington, D.C., USA; MNRJ - National Museum of Natural History, São Cristóvão, Rio de Janeiro, Brazil; SEA - Entomological Museum of Nicaragua, Leon; CAS - California Academy of Sciences, San Francisco, Cal., USA; TAM - University of Texas A & M, Austin, Texas, USA; MZU - Zoological Museum of the University of Helsinki, Finland; NR - Museum of Natural History, Stockholm, Sweden; BMNH - Museum of Natural History, London, UK; TMNH - Hungarian Natural History Museum, Department of Entomology, Budapest, Hungary. No museum, academy of sciences or university other than the above were contacted for specimens or types.

All species in the present work are measured in milimeters.

KEY TO THE AMERICAN SPECIES OF *FULVIUS* STÅL

1. *Cuneus unicolor*.....2
- Cuneus* pale or whitish at base.....3

2. Apex of hemelytron and apex of second antennal segment pale or whitish; size larger (Cosmopolitan).....*anthocoroides* (Reuter, 1875)
Apex of hemelytron and apex of second antennal segment black to brown; size smaller (Puerto Rico).....*puertoricensis* n. sp.
3. Head and pronotum brilliant; species small, only 2.0 in length (Grenada and Saint Vincent).....*lunulatus* Uhler, 1894
Head and pronotum opaque; species over 2.0 in length.....4
4. Scutellum with apex pale or whitish.....5
Scutellum totally black or brown.....15
5. Antenna unicolor.....6
Antenna with second segment pale or whitish at apex.....10
6. Large species (over 5.0 in length) (Mexico).....*mexicanus* n. sp.
Smaller species (4.0 or 3.0 in length).....7
7. Pronotum with three fasciae at posterior margin (sometimes only delineate, in this case, see the genitalia (Guatemala, Mexico, Panama).....*fuscans* Distant, 1884
Pronotum without pale fasciae posteriorly.....8
8. Head with side of eyes, frons and a spot at posterior middle of vertex pale or whitish (Brazil, Venezuela)*ornatifrons* Carvalho, 1955
Head unicolorous.....9
9. Species larger (4.0 in length); cuneus (0.40 x 0.30) (Nicaragua).....*nicaraguensis* n. sp.
Species smaller (3.0 in length); cuneus (0.24 x 0.22) (Guadeloupe Island).....*submaculatus* Poppius, 1909
10. Segment II of antenna incrassate to apex.....11
Segment II of antenna not incrassate to apex.....12
11. Coxae II and III pale or whitish (Colombia).....*colombianus* n. sp.
Coxae II and III unicolor with I (Colombia).....*dapensis* n. sp.
12. Vertex with a single pale spot at middle (Panama).....*albonotatus* Carvalho, 1955
Vertex without a pale spot at middle.....13
13. Posterior border of pronotum with a pale or whitish spot (Brazil)*stillatipennis* (Stål, 1860)
Posterior border of pronotum without a pale or whitish spot at middle.....14
14. Scutellum with two lateral pale spots (Canada, USA).....*slateri* Wheeler, 1977

Scutellum without lateral pale spots (Brazil, Panama)	<i>minimus</i> Carvalho, 1988
15 Coxae II and III dark.....	16
Coxae II and III pale or whitish.....	18
16. Segment I of antenna 0.5; whitish mark of corium oblique (Venezuela).....	<i>dubius</i> Reuter, 1895
Segment I of antenna 0.6; whitish mark of corium not oblique, well marked.....	17
17. Hind femur long; species large (4.8); first antennal segment long (0.7) (From Argentina to Mexico).....	<i>breddini</i> Reuter, 1902
Hind femur normal in length. Species smaller (4.3); first antennal segment (0.6) (Panama).....	<i>gamboensis</i> n.sp.
18. Head with the frons and sides of eyes pale.....	19
Head not pale on side of eyes and frons.....	20
19. Head with a reddish brown buccula; calli dark (Brazil,Paraguay)	<i>brunneiceps</i> Poppius, 1909
Head without a reddish brown buccula; calli pale (Brazil).....	<i>ornatifrontoides</i> n.sp.
20. Segment II of antenna pale or whitish only at extreme apex; large species with the coxae brown at base (Bolivia).....	<i>bolivianus</i> n.sp.
Segment II of antenna pale or whitish more extensively at apex; species smaller with the coxae pale or whitish at base.....	21
21. Coxae I pale or whitish.....	22
Coxae I black or brown.....	24
22. Antenna unicolor (Bolivia).....	<i>simillimus</i> Poppius, 1909
Segment II of antenna pale or whitish at apex.....	23
23. Species almost black (Galapagos Islands).....	<i>geniculatus</i> Van Duzee, 1933
Species with a large whitish spot on corium (Argentina to Mexico).....	<i>bisbistillatus</i> (Stål, 1860)
24. Hemelytra almost pale at basal half, brown to black apically; segment II of antenna short (0.5) (Mexico).....	<i>anthocorides</i> Stål, 1862
Hemelytra of different color.....	25
25. Small species, light brown in color (3.4); corium and embolium largely whitish (Paraguay).....	<i>carumbensis</i> n.sp.
Species not light brown, with at least the head black, larger.....	26
26. Segment II of antenna black (pale only at extreme apex) (Ecuador to Mexico).....	<i>abatus</i> Distant, 1884

- Segment II of antenna pale or whitish at apex.....27
27. Species large, almost black.....28
 Species if large, with a definite pale or whitish spot on corium.....29
28. Larger species, black (Panama).....*chiriquinus* n.sp.
 Whitish spot of corium diluted (Mexico).....*thetis* n.sp.
29. Segment I of antenna long (about 0.6 to 0.5).....30
 Segment I of antenna shorter (about 0.4 to 0.45).....33
30. Cuneus about as long as wide at base (Costa Rica to USA)*imbecilis* (Say, 1832)
 Cuneus longer than width at base.....31
31. Species narrower (about 4.0 x 0.9); genitalia as in figures (Brazil).....*amapaensis* n.sp.
 Species wider (about 4.6 to 4.0 x 1.2).....32
32. Left paramere without a lobe near apex (see figure) antenna with segment II pale at base (Peru).....*sabapoensis* n.sp.
 Left paramere with a lobe near apex (see figure); antenna with only apex of segment II whitish (Brazil, Guiana, Venezuela).....*guapimirinus* n.sp.
33. Segment II of antenna with erect hairs, as long as the width of segment (Costa Rica)*costaricensis* n.sp.
 Segment II of antenna with hairs short, not as long as segment.....34
34. Vertex 0.26 a 0.28.....35
 Vertex 0.24 a 0.21.....37
35. Segment II of antenna whitish only at extreme apex; (0.2 in 3.0); whitish spot of corium wide, clavus black (Panama, Venezuela).....*venezuelanus* n.sp.
 Segment II of antenna more widely whitish at apex (0.6 X 2.5 or 0.3 X 2.0).....36
36. Segment II of antenna longer(3.0); clavus whitish at apex (Brazil to Panama)*itabirilensis* n.sp.
 Segment II of antenna shorter (2.0); clavus black at apex (Mexico).....*morelensis* n.p.
37. Whitish portion of segment II of antenna incrassate (Mexico)*matinalcanus* n.sp.
 Whitish portion of segment II of antenna not incrassate38
38. Size smaller (3.2); segment I of antenna 0.4 (Mexico)*tuxtlenensis* n.sp.
 Size larger (3.8 to 4.6).....39

39. Whitish mark of corium small; genitalia as in figure (Mexico) *barrerae* n.sp.
 Whitish mark of corium large; genitalia as in figures 40
40. Body with whitish mark of corium faint; genitalia as in figure (Costa Rica to Mexico) *castaneus* Carvalho, 1955
 Body with whitish mark of corium well defined; genitalia as in figures 41
41. Second antenna shorter: genitalia as in figures 191-196 (Brazil, Paraguay) *quadristillatus* (Stål, 1860)
 Second antenna longer: genitalia as in figure (Paraguay) *chaguenui* n.sp.

FULVIUS Stål, 1862

Fulvius Stål, 1862: 322. Type species *Fulvius anthocorides*. Monotypic.

Teratodella Reuter, 1875: 7. Type species *Teratodella anthocoroides* Reuter. Monotypic. Synonymized by Reuter, 1895: 131.

Pamerocoris Uhler, 1877. Type species *Pamerocoris anthocoroides* Uhler. Monotypic. Synonymized by Reuter, 1895: 131.

Camelocapsus Reuter, 1878: 105. Type species *Camelocapsus oxycarenoides* Reuter. Monotypic. Synonymized by Reuter 1895: 131.

Silanus Distant, 1909. Type species *Silanus praefectus* Distant. Monotypic. Synonymized by Bergroth, 1914: 188.

Oligocoris Jordan, 1944: 8. Type species *Oligocoris bidentata* Jordan. Monotypic. Synonymized by Carvalho, 1954: 188.

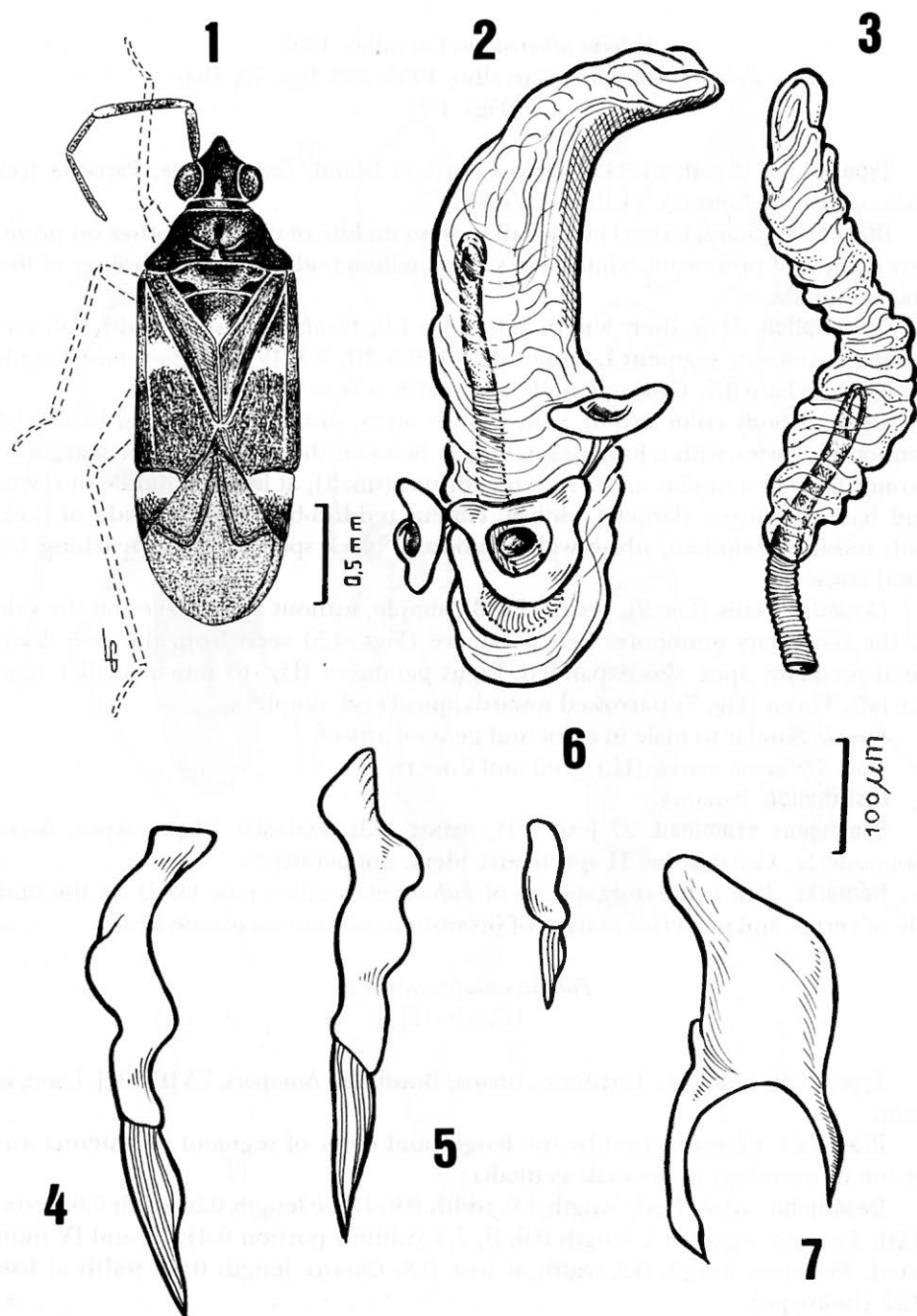
Cylapinae, Fulviini. Body elongate, smooth, subglabrous. Head horizontal, eyes large, contiguous with pronotum, reaching the gula inferiorly, vertex without carina, frons rounded, clypeus prominent, segment I of antenna thicker than others, segment II more slender, covered by dense pubescence, approximately equal to thickness of same segment, III and IV more slender, covered by hairs; rostrum reaching the apex of coxae III or continuing to pygophore.

Pronotum with collar, calli occupying the anterior half of disc, posterior border convex, humeral angles rounded, mesoscutum largely exposed, scutellum flat, acute at apex.

Hemelytra with claval vein prominent, embolium narrow, cuneus with a narrow apex, membrane with a single vein.

Underside of body with femora long, tibiae covered by short pubescence, tarsi elongate.

Differs from other genera of the Fulviini Uhler, 1886, by the collar present; pubescence of eyes absent; cuneus wider than embolium; eyes reaching the gula inferiorly; body elongate; hemelytra with distinct cuneus and embolium (the latter with same width); rostrum reaching the middle of abdomen or pygophore.



Figs. 1-7. *Fulvius albonotatus*. 1. Male, paratype. 2. Penis. 3. Vesica. 4. Left paramere, dorsal view. 5. *Idem*, lateral view. 6. Right paramere. 7. Theca.

Fulvius albonotatus Carvalho, 1955*Fulvius albonotatus* Carvalho, 1955: 229, figs. 73, 75-6.

(Figs. 1-7)

Type. Male, NMNH, 61.943, Barro Colorado Island, Canal Zone, Panama (on *Heliconia mariae* flowers), VI.1948, J. Zetek.

Diagnosis. Characterized by a small spot on middle of vertex, another on posterior margin of pronotum, whitish apex of scutellum and by the morphology of the male genitalia.

Description. *Male.* Body length 2.4, width 1.0, *Head:* length 0.3, width 0.4, vertex 0.21. *Antenna:* segment I, length 0.2; II, 0.5; III, 0.2; IV, 0.4. *Pronotum:* length 0.2 width at base 0.7. *Cuneus:* length 0.28, width at base 0.28 (paratype)

General body color brown, with whitish areas, distinctly darker on head and pronotum; vertex with a longitudinal fascia between the eyes; posterior margin of pronotum with a similar mark, spot on corium (small), at level of middle of clavus and base of cuneus (largely) whitish; cuneus reddish-brown. Underside of body with reddish abdomen, tibiae with a sub-basal black spot. Rostrum reaching beyond coxae III.

Genitalia. Penis (Fig. 2), vesica (Fig.3), simple, without appendages on the side of the secondary gonopore. Left paramere (Figs. 4,5) seen from the side thickened medially, apex also expanded. Right paramere (Fig. 6) much smaller than the left. Theca (Fig. 7) narrowed towards apical end, simple.

Female. Similar to male in color and general aspect.

Host. *Heliconia mariae* (H.), fruit and flowers.

Distribution. Panama.

Specimens examined. 27 JCMC (4), NMNH (23). PANAMA: 12 paratypes, Barro Colorado Is., Canal Zone; 11 specimens, idem, not paratypes.

Remarks. This is the only species of *Fulvius* Stål, with a pale fascia on the middle of vertex and posterior margin of pronotum, without an ornate head.

Fulvius amapaensis n.sp.

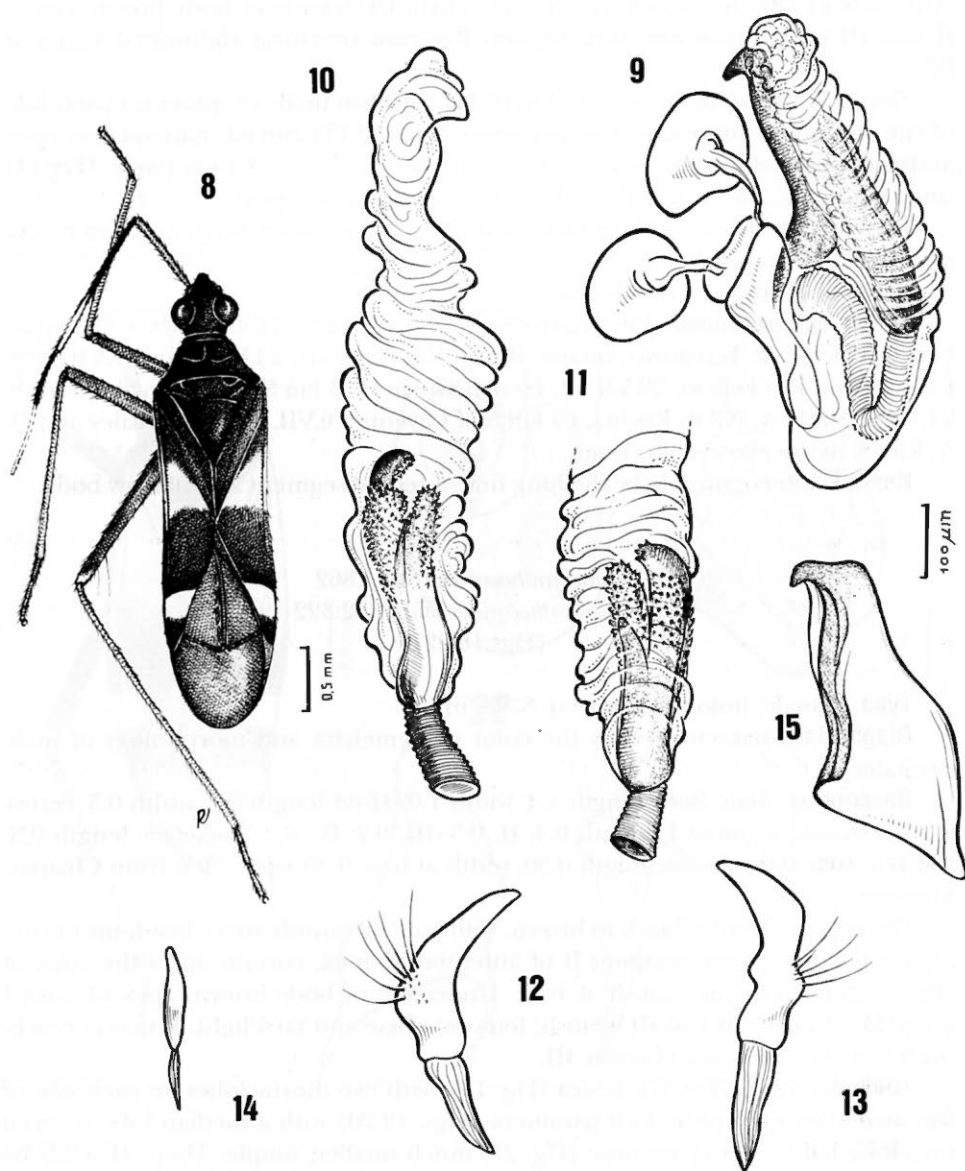
(Figs.8 -15)

Type. Male, holotype, Territorio Amapa, Brazil, Rio Amapari, 7.VIII.59, J. Lane, in NMRJ.

Diagnosis. Characterized by the length and color of segment of antenna and by the morphology of the male genitalia.

Description. *Male.* Body length 4.0, width 0.9. *Head:* length 0.5, width 0.6, vertex 0.20. *Antenna:* segment I, length 0.6; II, 1.4 (whitish portion 0.4); III and IV mutilated. *Pronotum:* length 0.3, width at base 0.8. *Cuneus:* length 0.50, width at base 0.22 (holotype).

General body color brown with whitish areas; segment I of antenna brown, II brown at base, black and whitish at apex, Mesoscutum at sides light; spot on



Figs. 8-15. *Fulvius amapaensis*. 8. Male, holotype. 9. Penis. 10. Vesica. 11. Detail of vesica. 12. Left paramere, side view. 13. *Idem*, side view. 14. Right paramere. 15. Theca.

corium (level with apex of scutellum and reaching the third apical portion of clavus), base of cuneus (about one half) whitish. Underside of body brown, coxae II and III pale, tibiae and tarsi lighter. Rostrum reaching abdominal segment IV.

Genitalia. Penis (fig.9), vesica (Fig.10,11) with two fields of spines on each side of the secondary gonopore. Left paramere (Figs.12,13) curved, narrowed to apex and with slight dilatation covered with hairs at middle. Right paramere (Fig.14) small, elongate. Theca (Fig.15) with a curved and narrow apex.

Female. Identical to male in color and dimensions, vertex 0.22. Rostrum reaching apex of ovopositor.

Distribution. Brazil, French Guiana.

Specimens examined. 180 paratypes, JCMC (6), NDSU (150), NMNH (1), NMRJ (12), collected at Territorio Amapa, Brazil, Rio Amapari, 24.VI.59 and 7.VII.59, J. Lane; idem, Rio Felicio, 29.VII.59; French Guiana, 13 km SSE of Saint Laurent, 8.VI.1986 and Hwy. N2 to Regina, 67 km S of Cayenne, 6.VII.1986, E.G. Riley and D. A. Rider, in the above collections.

Remarks. Recognizable by the long first antennal segment and narrow body.

Fulvius anthocorides Stål, 1862

Fulvius anthocorides Stål, 1862:322

(Figs.16-22)

Type. Female, holotype, Mexico, Salle, in NR.

Diagnosis. Characterized by the color of hemelytra and morphology of male genitalia.

Description. *Male.* Body length 1.4, width 1.0. *Head* length 0.2, width 0.5, vertex 0.20. *Antenna:* segment I, length 0.4; II, 0.5; III, 0.2; IV, 0.2. *Pronotum:* length 0.3, width at base 0.0. *Cuneus:* length 0.30, width at base 0.20 (specimen from Chiapas, Mexico).

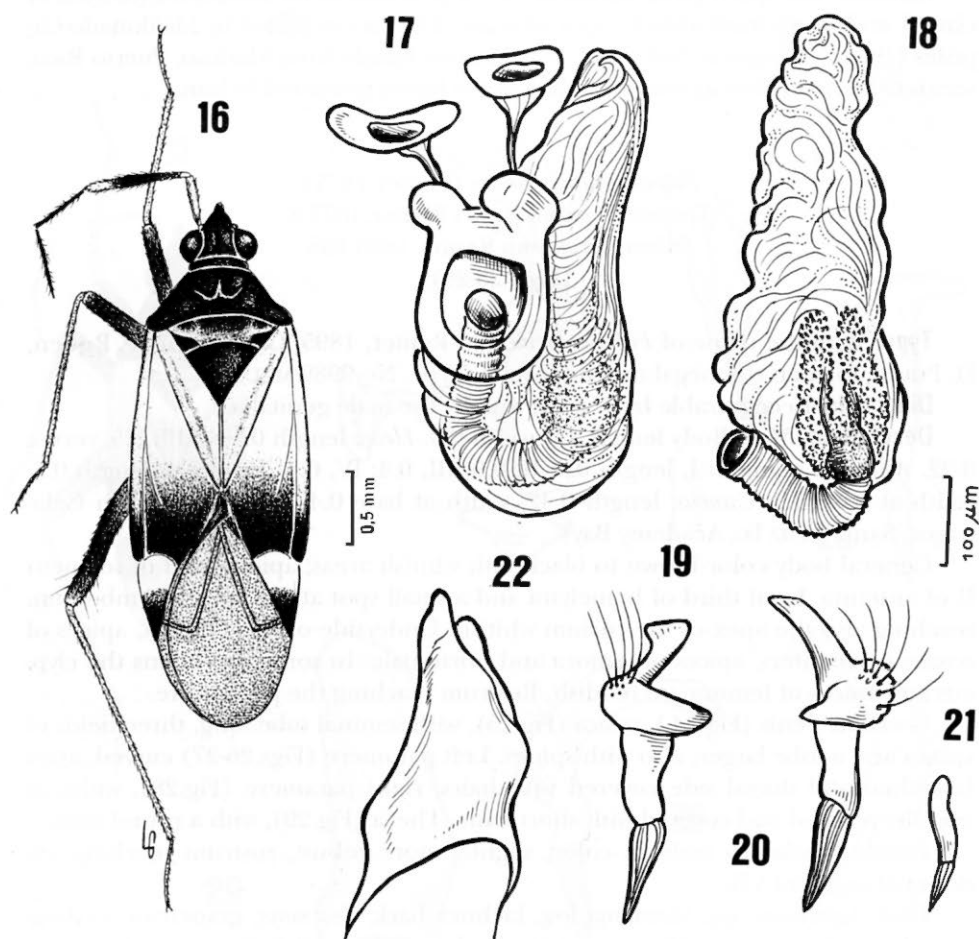
General body color black to brown, with pale or whitish areas; head, pronotum and scutellum darker, segment II of antenna at apex, corium up to the apex of clavus lighter, cuneus whitish at base. Underside of body brown, apex of coxa I (remaining dark); II and III whitish; femora, tibiae and tarsi light. Rostrum reaching a little beyond apex of coxae III.

Genitalia. Penis (Fig. 17), vesica (Fig. 18), with two thorny lobes on each side of the secondary gonopore. Left paramere (Figs. 19,20) with a median lobe covered with long hairs. Right paramere (Fig. 21) much smaller, simple. Theca (Fig.22) biparted at apex.

Female. Slightly wider than male but identical in color, vertex 0.24.

Host. Cycad plants (According to the U.S.D.A., intercepted at Brownsville, Texas).

Distribution. El Salvador, Mexico.



Figs. 16-22. *Fulvius anthoconides*. 16. Male (Chiapas, Mexico). 17. Penis. 18. Vesica. 19. Left paramere, dorsal view. 20. *Idem*, ventral view. 21. Right paramere. 22. Theca.

Specimens examined. 24, JCMC (8), NMNH (2), TAM (14). EL SALVADOR. San Salvador. MEXICO: 9 and 12 mi N Ocozocoautla, Chiapas; 5 mi E Ocampo and 5 mi W Gomez Farias, 4 km Cd. Victoria, Tamaulipas; 4.4 mi E Cuernavaca, Morelos; 2 mi E Lago Catemaco, San Andres Tuxtla, 8 mi NE Catemaco, 4 mi NW Sontecomapan, Veracruz; 3 mi W Xilitla, San Luis Potosi.

Remarks. The species is recognizable by the pale base of the hemelytra (to apex of clavus) and by the dark (black) apex of same. The species called by Maldonado-Capriles (1969) *anthocoroides* Stål, 1862, based in one female from Maricao, Puerto Rico, seems to be not of this species, according to the figure presented by him.

Fulvius anthocoroides (Reuter, 1875)

Teratodella anthocoroides Reuter, 1875:8

Fulvius brevicornis Reuter, 1895:138

(Figs. 23-29)

Type. With the name of *Fulvius brevicornis* Reuter, 1895, Gallia, France, Rouen, D. Puton, forsitan e Senegal navi importata, Type. No.9989 MZU.

Diagnosis. Recognizable by its color and by the male genitalia.

Description. *Male.* Body length 3.0, width 0.9. *Head* length 0.5, width 0.5, vertex 0.22. *Antenna:* segment I, length 0.3; II, 0.5; III, 0.4; IV, 0.4. *Pronotum:* length 0.3, width at base 0.9. *Cuneus:* length 0.42, width at base 0.42 (specimen from Galapagos, Santa Cruz Is., Academy Bay).

General body color brown to black with whitish areas; apical third of segment II of antenna, basal third of hemelytra and a small spot at the apex of embolium, reaching also the apex of the corium whitish. Underside of body brown, apices of coxae; trochanters, apices of femora and tibiae pale. In some specimens the clypeus and apices of femora are reddish. Rostrum reaching the pygophore.

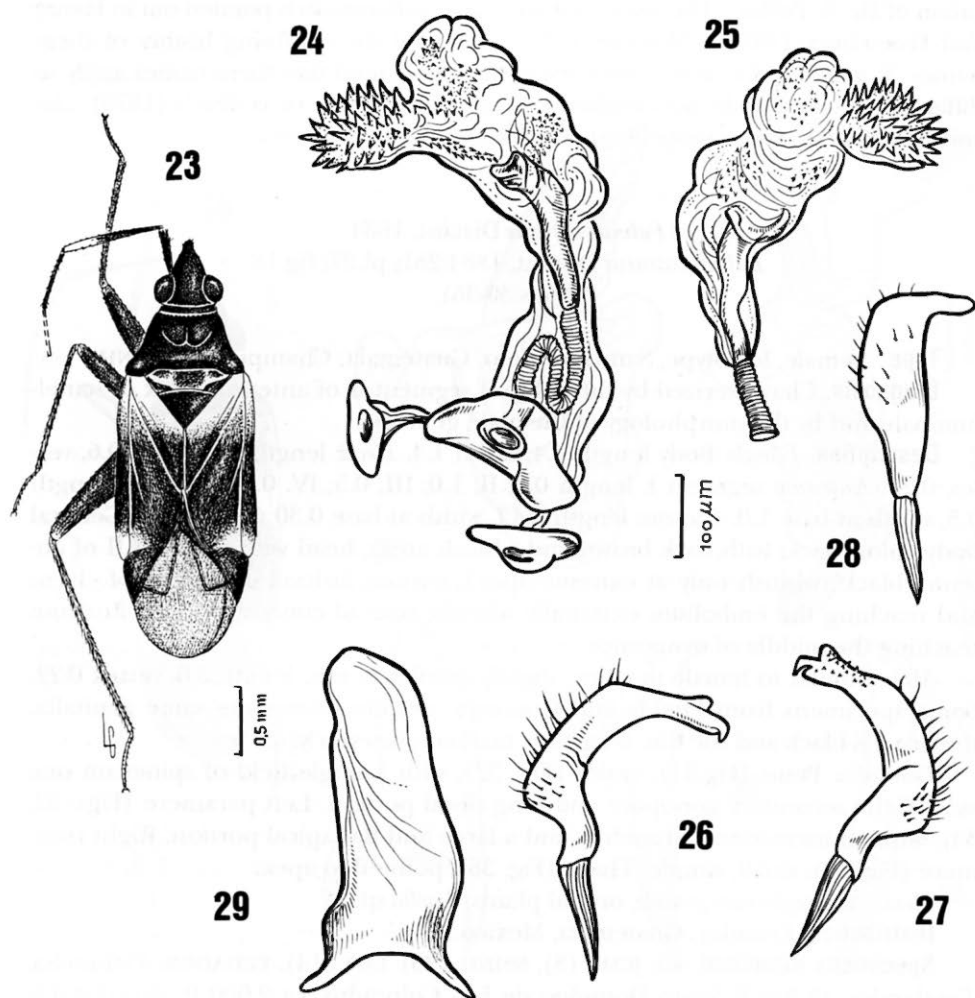
Genitalia. Penis (Fig.24), vesica (Fig.25), with seminal tube long, three fields of spines and a lobe larger, also with spines. Left paramere (Figs.26-27) curved, apex branched and dorsal side covered with hairs, right paramere (Fig.28), wider at middle, pointed end covered with short hairs. Theca (Fig.29), with a round apex.

Female. Similar to male in color, slightly more robust, rostrum reaching abdominal segment VII.

Host. *Aglaenoma* sp., Maracuja log, Iachuca bark, *Zea mays*, grapefruit, mahogany, decayed potato, mulberry root stocks, beans. Since it is a cosmopolitan species it may occurs on different plants. Records were given by the U.S.D.A.

Distribution. Cosmopolitan. In the Americas it occurs in the southern USA, Central America, South America, the Antilles and Galapagos Is.

Specimens examined. 29, JCMC (8), NMNH (21). Most of the specimens were intercepted by the U.S.D.A. and 2 ♀ (compared with the type) from Havana, Cuba. In the Americas the species is found on the Bahamas, Brazil, Chile, Costa Rica, Cuba, Galapagos Islands, Jamaica, Panama, Trinidad and Venezuela.



Figs. 23-29. *Fulvius anthocoroides*. 23. Male (Santa Cruz Island, Galapagos). 24. Penis. 25. Vesica. 26. Left paramere, side view. 27. *Idem*, lateral view. 28. Right paramere. 29. Theca.

Remarks. The species is larger than *Fulvius puertoricensis* n.sp., and is separated from it by having the corium wholly black and also by its size. It was described first by Reuter as *Teratodella anthocoroides* Reuter, 1875 as "probably imported from Senegal, by boat, into France". Later on Reuter (1895), called the same species *Fulvius brevicornis* and said "probably imported from Senegal, according to communication of Dr. A. Puton". The reason for the name *anthocoroides* is pointed out in Henry and Froeschner (1988): "Wheeler (1977)...outlined the confusing history of these names *T. anthocoroides*...and *F. anthocoroides* ... and showed that these names apply to different species and do not conflict in homonymy, despite of Walker's (1873) ...incorrect emendation (or misspelling) of *anthocorides* and *anthocoroides*".

Fulvius atratus Distant, 1884

Fulvius atratus Distant, 1884:281, pl.27, fig.18
(Figs.30-36)

Type. Female, lectotype, San Geronimo, Guatemala, Champion, in BMNH.

Diagnosis. Characterized by the color of segment II of antenna, apex of scutellum pale and by the morphology of the male genitalia.

Description. *Female.* Body length 4.4, width 1.4. *Head:* length 0.3, width 0.6, vertex 0.24. *Antenna:* segment I, length 0.4; II, 1.0; III, 0.5; IV, 0.6. *Pronotum:* length 0.5, width at base 1.0. *Cuneus:* length 0.42, width at base 0.30 (lectotype). General body color black, with dark brown and whitish areas; head with segment II of antenna black (whitish only at extreme apex), corium at level of middle of clavus and reaching the embolium externally whitish, base of cuneus reddish. Rostrum reaching the middle of ovopositor.

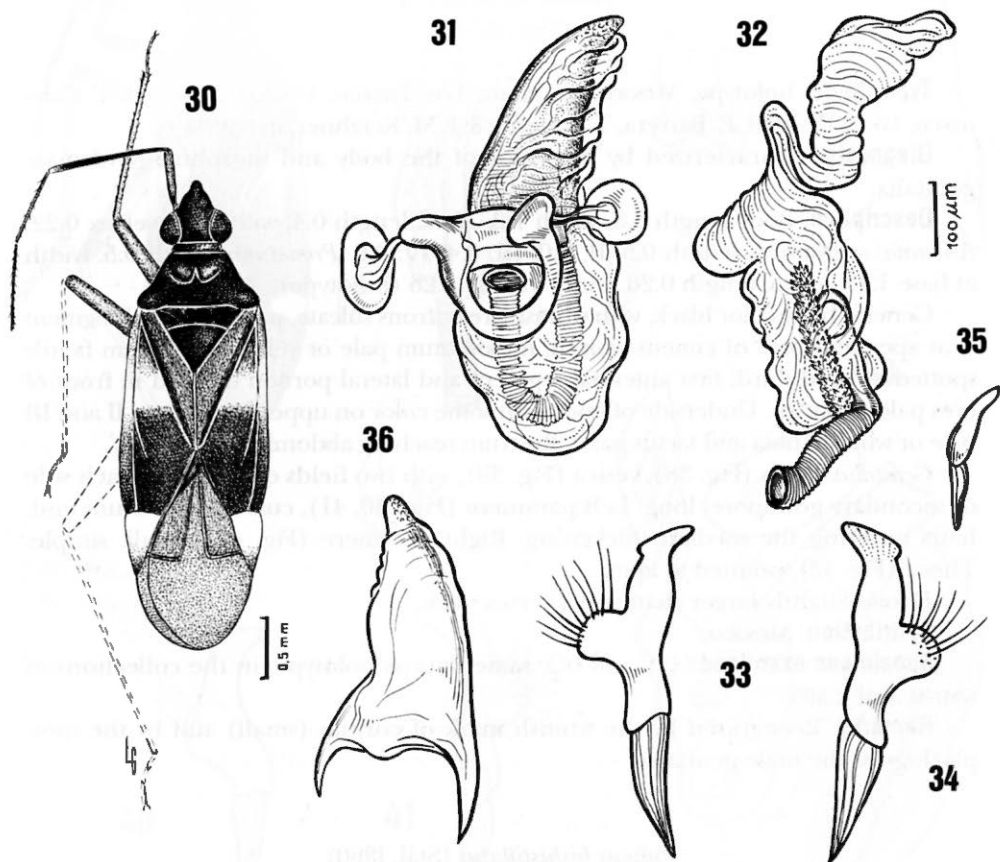
Male. Similar to female in color, slightly smaller in size, length 3.6; vertex 0.22. Some specimens from Puebla and Guerrero, despite having the same genitalia, the head is black and the disc is lightly marked posteriorly.

Genitalia. Penis (Fig.31), vesica (Fig. 32), with a single field of spines on one side of the secondary gonopore and long distal portion. Left paramere (Figs. 33, 34), with an incrustation at middle and a large and flat apical portion. Right paramere (Fig. 35), small, simple. Theca (Fig. 36), pointed to apex.

Host. *Odontoglossum grande*, orchid plants, *Laelia* sp.

Distribution. Ecuador, Guatemala, Mexico.

Specimens examined. 45, JCMC (8), NMNH (23) TAM (14). ECUADOR: Pichincha, Tinalandia, 12 km E Santo Domingo de Los Colorados, ca 2.900 ft. GUATEMALA: San Francisco and Guatemala City. MEXICO: Tamazunchale, San Luis Potosi; 6 mi and 10.5 mi W Tehuantepec, 2.7 mi NW El Camaron, Oaxaca; 17 mi E Acapulco, 3.7 mi E Marquelia, Iguala; 9 mi N Cabo San Lucas, Baja California Sur; 7.2 mi SE Chiapa de Corzo, Chiapas; 5.6 mi NW Ocotito, Guerrero; 3 mi SE San Blas; Tepic, 18 km SW Compostela, Tuxpan; Colima, Colima; Tequesquitengo, Morelos; E Mazatlan, Sinaloa.



Figs. 30-36. *Fulvius atratus*. 30. Female, lectotype. 31. Penis. 32. Vesica. 33. Left paramere, lateral view. 34. *Idem*, ventral view. 35. Right paramere. 36. Theca.

Remarks. This species was described as *Fulvius atratus* Distant, 1893 from Venezuela. Later on Reuter called the species of Distant as *dubius* Reuter. In 1955, Carvalho mentioned the fact that *atratus* Distant had a whitish apex of second antennal segment and placed it (in error) as synonym of *quadristillatus* (Stål, 1860). It is recognizable by the scutellum and segment I of antenna whole black (or whitish only at extreme apex).

Fulvius barrerae n.sp.

(Figs. 37-43)

Type. Male, holotype, Mexico, Veracruz, Los Tuxtlas, UNAM. Biol. Sta. E Cate-maco, 16-19.IX.1989, E. Barrera, T. J. Henry & I. M. Kerzhner, in NMNH.

Diagnosis. Characterized by the color of the body and morphology of male genitalia.

Description. Body length 3.8, width 1.2. *Head:* length 0.4, width 0.6, vertex 0.22. *Antenna:* segment I, length 0.5; II, 1.0, III, 0.4; IV, 0.6. *Pronotum:* length 0.5, width at base 1.1. *Cuneus:* length 0.26, width at base 0.26 (holotype).

General body color black, with whitish areas; frons sulcate, pale, antennal segment II at apex and base of cuneus whitish; mesoscutum pale or yellowish, corium faintly spotted at basal third; first antennal segment and lateral portion of head in front of eyes pale to brown. Underside of body with some color on upper part, coxae II and III pale or whitish, tibia and tarsus paler. Rostrum reaching abdominal segment V.

Genitalia. Penis (Fig. 38), vesica (Fig. 39), with two fields of spines on each side of secondary gonopore, long. Left paramere (Figs. 40, 41), curved, with blunt end, hairs covering the median thickening. Right paramere (Fig. 42), small, simple. Theca (Fig. 43), pointed at apex.

Female. Slightly larger than male, vertex 0.24.

Distribution. Mexico.

Specimens examined. 4♂ and 6♀, same data as holotype, in the collections of NMNH and JCMC.

Remarks. Recognized by the whitish mark of corium (small) and by the morphology of the male genitalia.

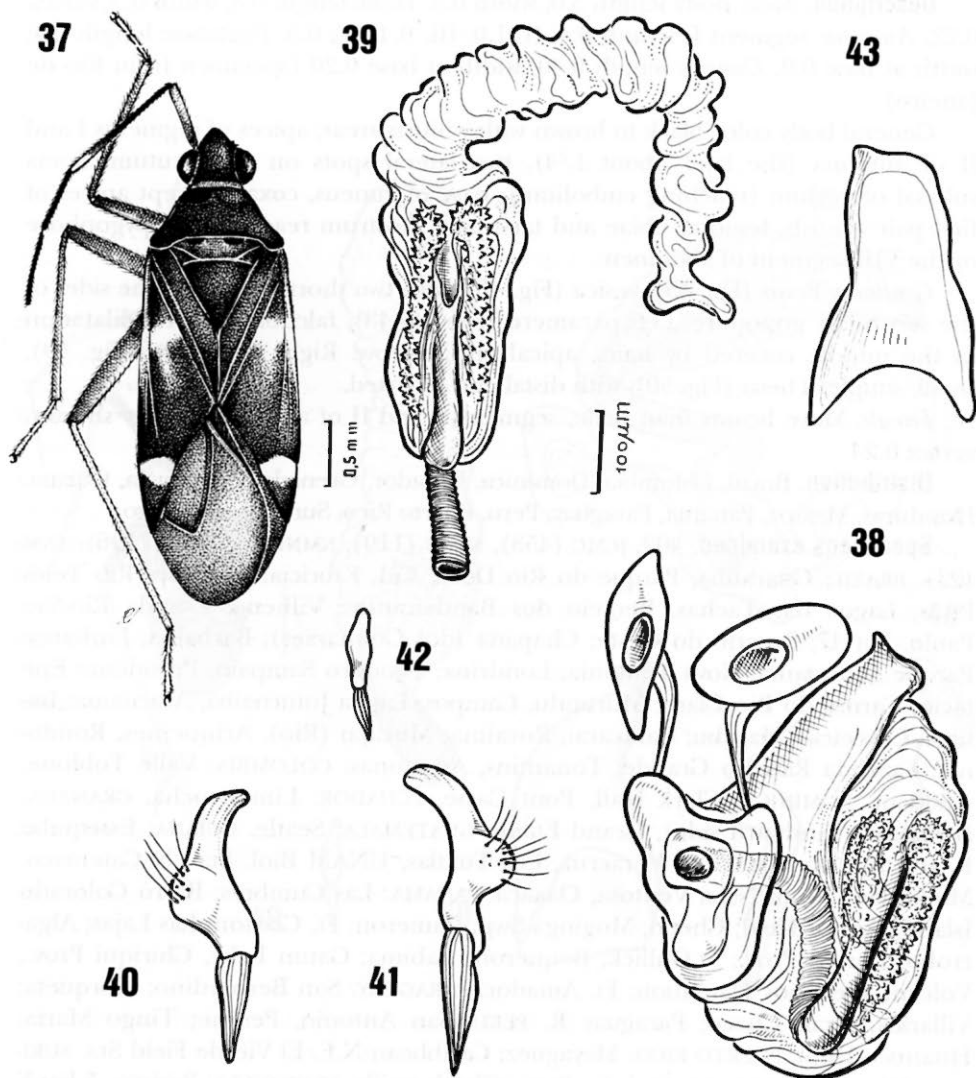
Fulvius bisbistillatus (Stål, 1860)

Fulvius bisbistillatus Stål, 1860:54.

Fulvius albomaculatus Distant, 1884:282, pl.27, fig. 16 (synonymized by Carvalho, 1952:7).

(Figs. 44-50)

Type: Male, holotype, Brazil, F. Sahlberg (mutilated and dissected), in NR. Lectotype of synonym, *Fulvius albomaculatus* Distant, 1884, V. de Chiriqui, 25-4000 ft,



Figs. 37-43. *Fulvius barrerai*. 37. Male, holotype. 38. Penis. 39. Vesica. 40. Left paramere, lateral view. 41. *Idem*, ventral view. 42. Right paramere. 43. Theca.

Champion, in BMNH.

Diagnosis. Characterized by the whitish first coxae, with apex black (or not), length of rostrum and morphology of male genitalia.

Description. *Male.* Body length 3.0, width 0.9. *Head:* length 0.3, width 0.5, vertex 0.22. *Antenna:* segment I, length 0.4; II, 1.0; III, 0.4; IV, 0.5. *Pronotum:* length 0.4; width at base 0.9. *Cuneus:* length 0.40, width at base 0.20 (specimen from Rio de Janeiro).

General body color black to brown with whitish areas; apices of segments I and II of antenna (the later about 1/4), two lateral spots on mesoscutum, fascia subasal of corium (reaching embolium), base of cuneus, coxae, except apices of first pair whitish, femora, tibiae and tarsi pale. Rostrum reaching the pygophore or the VIII segment of abdomen.

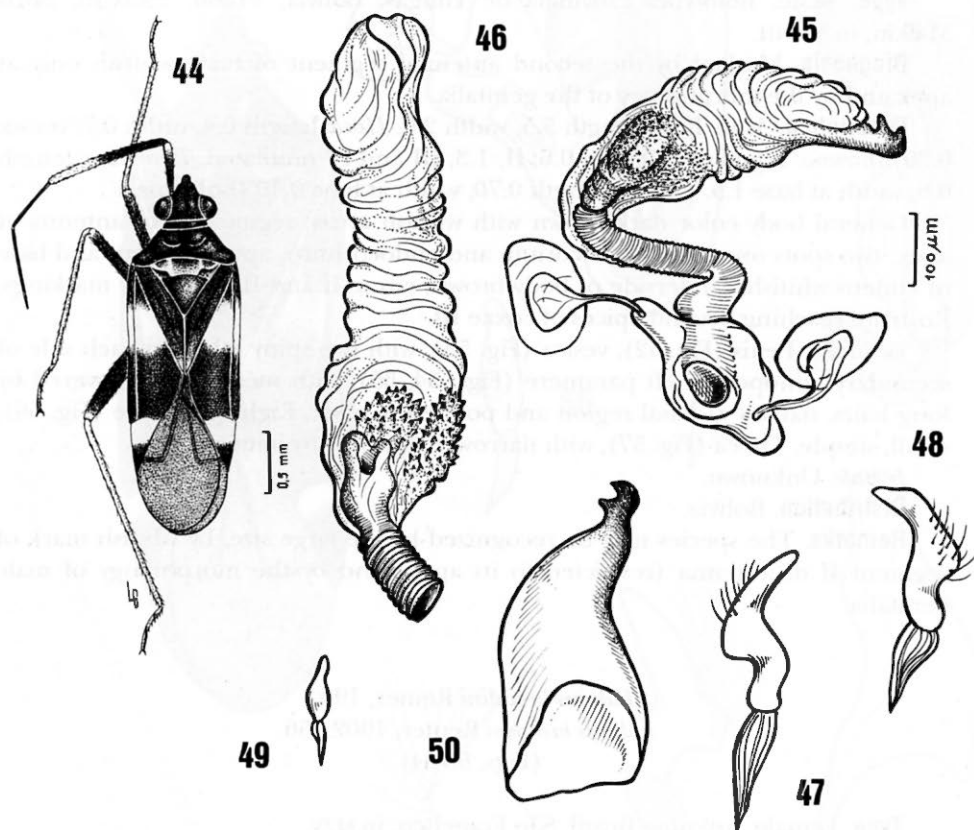
Genitalia. Penis (Fig. 45), vesica (Fig. 46), with two thorny lobes on the sides of the secondary gonopore. Left paramere (Figs. 47,48), falciform, with a dilatation in the middle covered by hairs, apical end narrow. Right paramere (Fig. 49), small, simple. Theca (Fig. 50), with distal end biparted.

Female. More brown than male, segments I and II of antenna slightly shorter, vertex 0.24

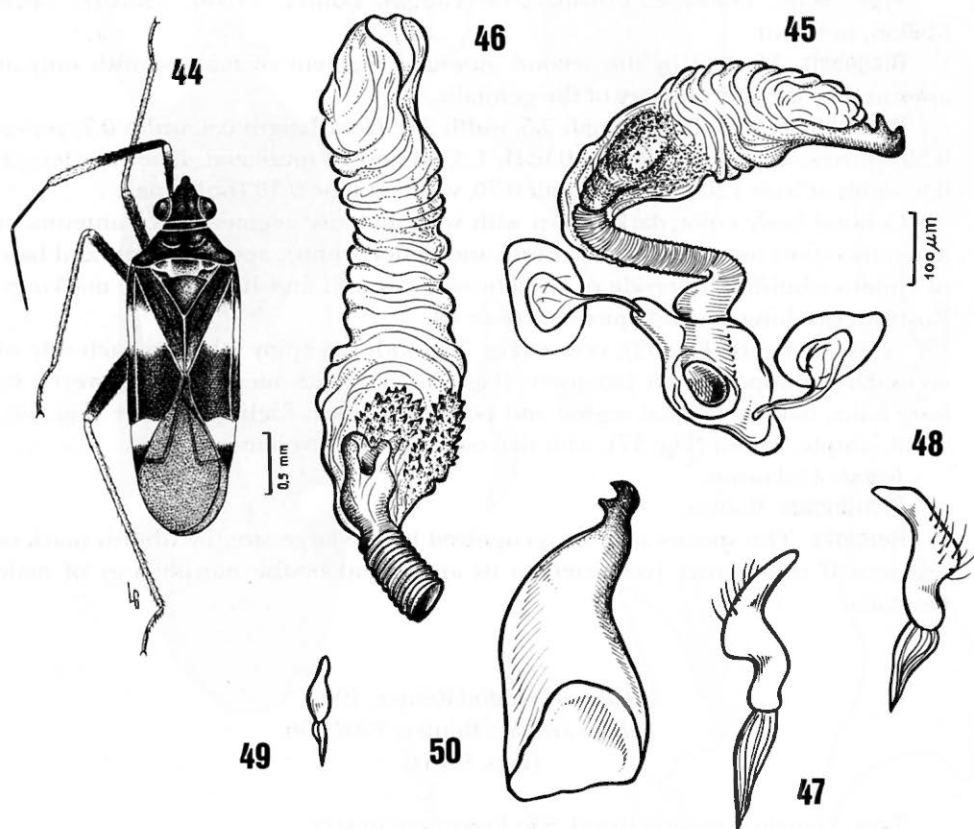
Distribution. Brazil, Colombia, Dominica, Ecuador, Grenada, Guatemala, Guiana, Honduras, Mexico, Panama, Paraguay, Peru, Puerto Rico, Suriname, Tobago.

Specimens examined. 402, JCMC (453), NDSU (119), NMNH (11), MN (196), TAM (23). BRAZIL: Guaratiba; Parque do Rio Doce, Cel. Fabriciano; Sinop, Rio Teles Pires; Lagoa das Tachas, Recreio dos Bandeirantes; Vilhena; Estrada Rio-São Paulo, km 47; Rosario do Oeste; Chapada (dos Guimarães); Barbalha; Linhares; Parque Sooretama; Nova Teutonia; Londrina; Teodoro Sampaio; Presidente Epitácio; Carmo do Rio Claro; Murundu, Campos; Lagoa Juturnaiba, Araruama; Itatiaia; Corceição Macabu; Caracarai, Roraima; Mucajai (Rio), Ariquemes, Rondonia; Fazenda Rancho Grande; Tonantins, Amazonas. COLOMBIA: Valle Toblone, 1,300 m. DOMINICA: Clark Hall, Pont Casse. ECUADOR: Limoncocha. GRANADA: Balthazar (windward side), Grand Etang. GUATEMALA: Seattle. GUIANA: Essequibo R. HONDURAS: ?. MEXICO: Veracruz, Los Tuxtlas, UNAM Biol. Sta., N Catemaco, Minatitlan, 30 mi N La Ventosa, Oaxaca. PANAMA: Las Cumbres; Barro Colorado Island; France Field; Chepo; Modinga Swp; Cameron; Ft. Clayton; Las Lajas; Algarrobo; Darien Prov.; Ft. Gullick; Boqueron; Cabima; Gatun Lake, Chiriqui Prov., Volcan; Tres Rios Plantation; Ft. Amador. PARAGUAY: San Bernardino; Horqueta; Villarica; Gran Chaco; Paraguay R. PERU: San Antonio, Perene; Tingo Maria, Huanuco Dept. PUERTO RICO: Mayaguez; Caribbean N.E. El Verde Field Sta. SURINAM: Warespan. TOBAGO: St. John Prov., Charlotteville. VENEZUELA: Barinas, 5 km E Altamira de Caceres; Amazonas, Departamento Rio Negro, Sija 2 camp, Upper Rio Sijia; Caracas; San Francisco.

Remarks. Species of small size, with whitish anterior coxae (black at apex). Reuter (1895:137), said about this species: "Species mihi ignota praecente vix distincta". Poppius (1909 :29), thinks that this species is identical with *albomacula*



Figs. 44-50. *Fulvius bisbistillatus*. 44. Male (Ariquemes, Rondonia). 45. Penis. 46. Vesica. 47. Left paramere, side view. 48. *Idem*, dorsal view. 49. Right paramere. 50. Theca.



Figs. 44-50. *Fulvius bisbistillatus*. 44. Male (Ariquemes, Rondonia). 45. Penis. 46. Vesica. 47. Left paramere, side view. 48. *Idem*, dorsal view. 49. Right paramere. 50. Theca.

tus Distant, 1884, saying that: "In dieser ubersicht fehlt *Fulvius albomaculatus* Dist., der vielleicht mit *F. bisbistillatus* Stål zusammenfalt:". The final word was given by Carvalho (1952:7), who definitely set the question.

Fulvius bolivianus n.sp.

(Figs. 51-57)

Type. Male, holotype. Provincia de Yungas, Bolivia, VII.60, 2500 m, Boris Malkin, in NMNH.

Diagnosis. Marked by the second antennal segment of male whitish only at apex and by the morphology of the genitalia.

Description. *Male.* Body length 5.5, width 2.0. *Head:* length 0.4, width 0.7, vertex 0.30. *Antenna:* segment I, length 0.6; II, 1.3; III and IV mutilated. *Pronotum:* length 0.6, width at base 1.5. *Cuneus:* length 0.70, width at base 0.40 (holotype).

General body color dark brown with whitish areas; segment II of antenna at apex, two spots on corium (exocorium and endocorium), apex of clavus and base of cuneus whitish. Underside of body brown, coxae II and III with pale markings. Rostrum reaching beyond apices of coxae III.

Genitalia. Penis (Fig. 52), vesica (Fig. 53), with two spiny lobes on each side of secondary gonopore. Left paramere (Figs. 54, 55), with median lobe covered by long hairs, narrow at basal region and pointed to apex. Right paramere (Fig. 56), small, simple. Theca (Fig. 57), with narrowed apical extremity.

Female. Unknown.

Distribution. Bolivia.

Remarks. The species may be recognized by the large size, by whitish mark of segment II of antenna (restricted to its apex) and by the morphology of male genitalia.

Fulvius breddini Reuter, 1902

Fulvius breddini Reuter, 1902:156

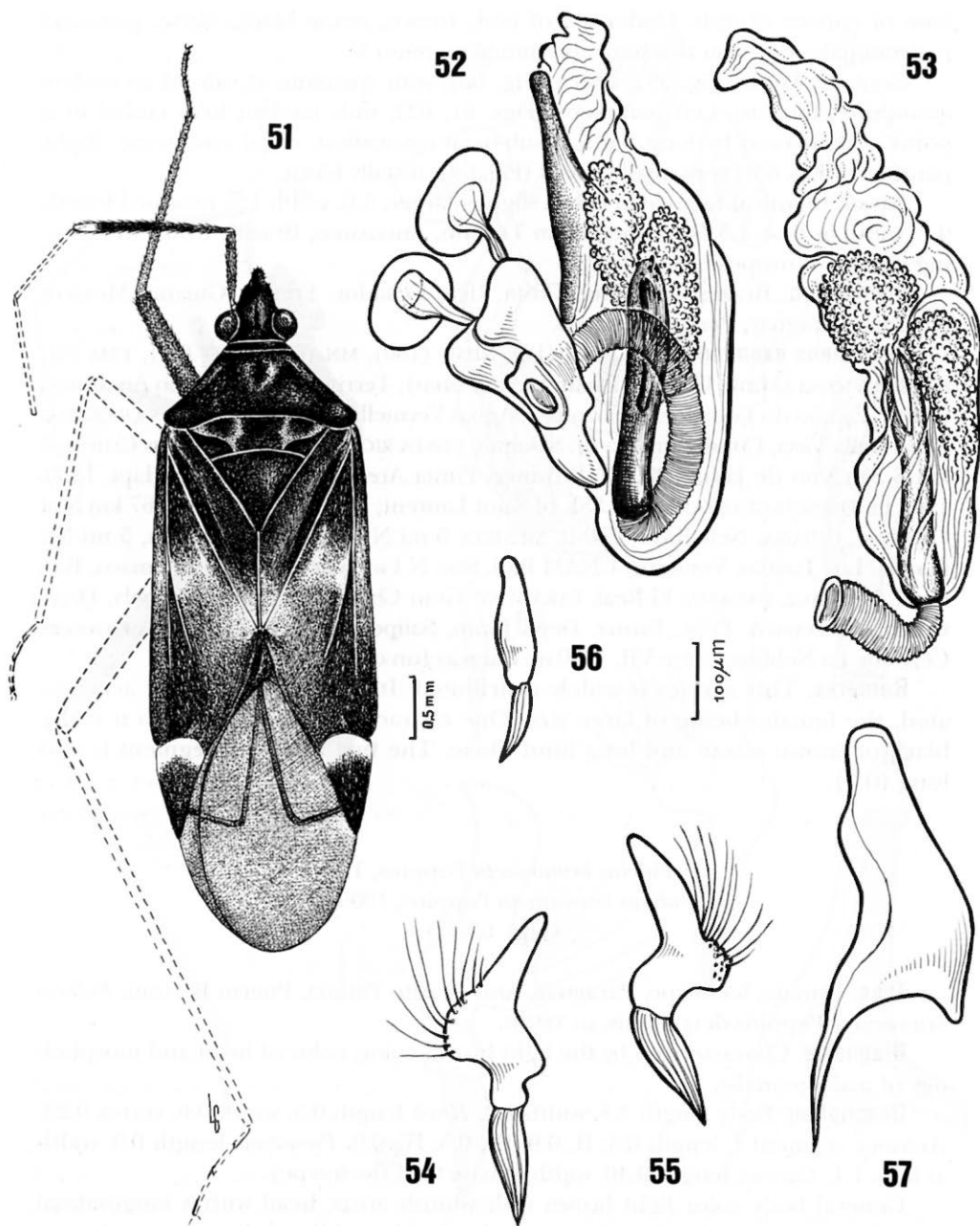
(Figs. 58-64)

Type. Female, holotipe Brazil, São Francisco, in MZV.

Diagnosis. Characterized by the black color of body, dark toxae and morphology of male genitalia.

Description. *Male.* Body length 4.8, width 1.4. *Head:* length 0.6, width 0.7, vertex 0.24. *Antenna:* segment I, length 0.7; II, 1.2; III, 0.5; IV, 0.6. *Pronotum:* length 0.5, width at base 1.3. *Cuneus:* length 0.56, width at base 0.24 (specimen from Viçosa, Minas Gerais).

General body color black to brown, darker at head, pronotum and scutellum with whitish areas; apex of segment II of antenna, sub-basal spot on corium and



Figs. 51-57. *Fulvius bolivianus*. 51. Male, holotype. 52. Penis. 53. Vesica. 54. Left paramere, dorsal view. 55. *Idem*, side view. 56. Right paramere. 57. Theca.

base of cuneus whitish. Underside of body brown, coxae black, tibiae, tarsi and rostrum pale. Rostrum reaching abdominal segment V.

Genitalia. Penis (Fig. 59), vesica (Fig. 60), with spiculum at side of secondary gonopore elongate. Left paramere (Figs. 61, 62), with median lobe ended in a point and covered by long hairs, a sub-basal excavation, distal end acute. Right paramere (Fig. 63), very small. Theca (Fig. 64), distally blunt.

Female. Identical to male in color, slightly larger, 5.6, width 1.7, pronotal length 0.7, width at base 1.5 (specimen from Tucano, Amazonas, Brazil). Rostrum reaching middle of ovopositor.

Distribution. Brazil, Colombia, Costa Rica, Ecuador, French Guiana, Mexico, Panama, Paraguay, Peru, Venezuela.

Specimens examined. 235, JCMC (12), NDSU (150), MN (8), NMNH (57), TAM (8). BRAZIL: Viçosa (Minas Gerais), Tucano (Amazonas), Território Amapá, Rio Amazonas (Para), Estirão do Equador (Amazonas), Aguas Vermelhas (Minas Gerais). COLOMBIA: Finca Bella Vista, Cundinamarca nr. Sasaima. COSTA RICA: San José, Finca las Cruces, 6 km S San Vito de Java, 4,200 ft., Provincia Punta Arenas. ECUADOR: Tandapi, 1330-1500 m. FRENCH GUIANA: 13 km SSE of Saint Laurent; Hwy. N2 to Regina, 67 km S of Cayenne. GUIANA: New River, 750 ft. MEXICO: 5 mi N Huatusco, Teziutlan, 5 mi NE Puebla. Los Tuxtlas, Veracruz, UNAM Biol. Sta., N Catemaco, km 20. Catemaco, Bastonal, Veracruz. PANAMA: El Real. PARAGUAY: Gran Chaco. PERU: Santa Isabela, Dept. Cuzco. Utuacuacu, Prov. Tarma, Dept. Junín, Satipo. VENEZUELA: T. F. Amazonas, Cerro de La Neblina Camp VII, 1850 m. Caracas (on orchid).

Remarks. This species is widely distributed. It has the black color accentuated, the females being of large size. One characteristic pertaining to it is the black or brown coxae and long hind tibiae. The first antennal segment is also long (0.7).

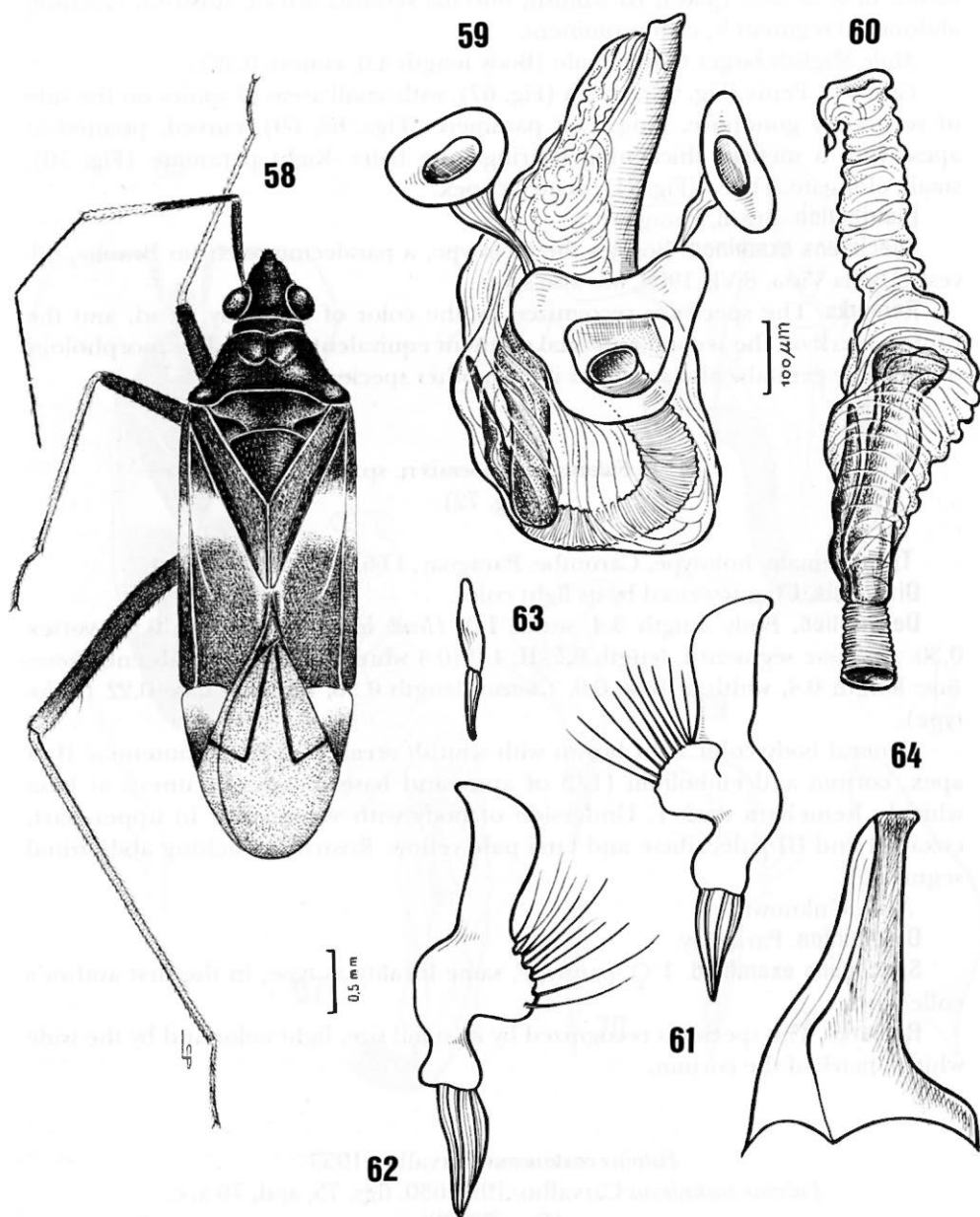
Fulvius brunneiceps Poppius, 1909
Fulvius brunneiceps Poppius, 1909: 39.
(Figs. 65-71)

Type. Female, lectotype, Paraguay, Anisits, Alto Parana, Puerto Bertoní, *Fulvius brunneiceps* Poppius det., Typus, in TMNH.

Diagnosis. Characterized by the light brown color, color of head and morphology of male genitalia.

Description. Body length 3.8, width 1.2. *Head*: length 0.5, width 0.6, vertex 0.28. *Antennae*: segment I, length 0.4; II, 0.9; III, 0.5; IV, 0.9. *Pronotum*: length 0.5, width at base 1.1. *Cuneus*: length 0.40, width at base 0.24 (lectotype).

General body color light brown with whitish areas; head with a longitudinal stripe in frons and sides, base of corium level with middle of clavus, apex of same not reaching embolium and base of cuneus widely whitish, embolium paler. Underside of body reddish brown (abdominal segments reddish), coxae I brown, II



Figs. 58-64. *Fulvius breddini*. 58. Male (Viçosa, Minas Gerais). 59. Penis. 60. Vesica. 61. Left paramere, dorsal view. 62. *Idem*, side view. 63. Right paramere. 64. Theca.

brown only at base (pale), III whitish, buccula reddish brown. Rostrum reaching abdominal segment V, calli prominent.

Male. Slightly larger than female (Body length 4.0, cuneus 0.42).

Genitalia. Penis (Fig. 66), vesica (Fig. 67), with small areas of spines on the side of secondary gonopore, long. Left paramere (Figs. 68, 69), curved, pointed at apex, with a median thickening bearing long hairs. Right paramere (Fig. 70), small, elongate. Theca (Fig. 71), acute at apex.

Distribution. Brazil, Paraguay.

Specimens examined. Besides the lectotype, a paralectotype, from Brasilia, Silvestri, Bella Vista, 8.VII.1908, was also seen.

Remarks. The species is recognized by the color of the body, head, and the whitish mark on the second antennal segment equivalent to 1/3. The morphology of the male genitalia also separates it from other species.

Fulvius carumbensis n. sp.

(Fig. 72)

Type. Female, holotype, Carumbe, Paraguay, I.66, Golbach, in NMNH.

Diagnosis. Characterized by its light color.

Description. Body length 3.4, width 1.0. *Head:* length 0.4, width 0.56, vertex 0.30. *Antenna:* segment I, length 0.5; II, 1.0 (0.4 whitish); III and IV absent. *Pronotum:* length 0.4, width at base 0.9. *Cuneus:* length 0.30, width at base 0.22 (holotype).

General body color light brown with whitish areas; eyes black, antennae II at apex, corium and embolium (1/3 of apex and base of apex), cuneus at base whitish; hemelytra darker. Underside of body with some color in upper part, coxae II and III pale, tibiae and tarsi pale yellow. Rostrum reaching abdominal segment V.

Male. Unknown.

Distribution. Paraguay.

Specimens examined. 1 ♀, paratype, same locality as type, in the first author's collection.

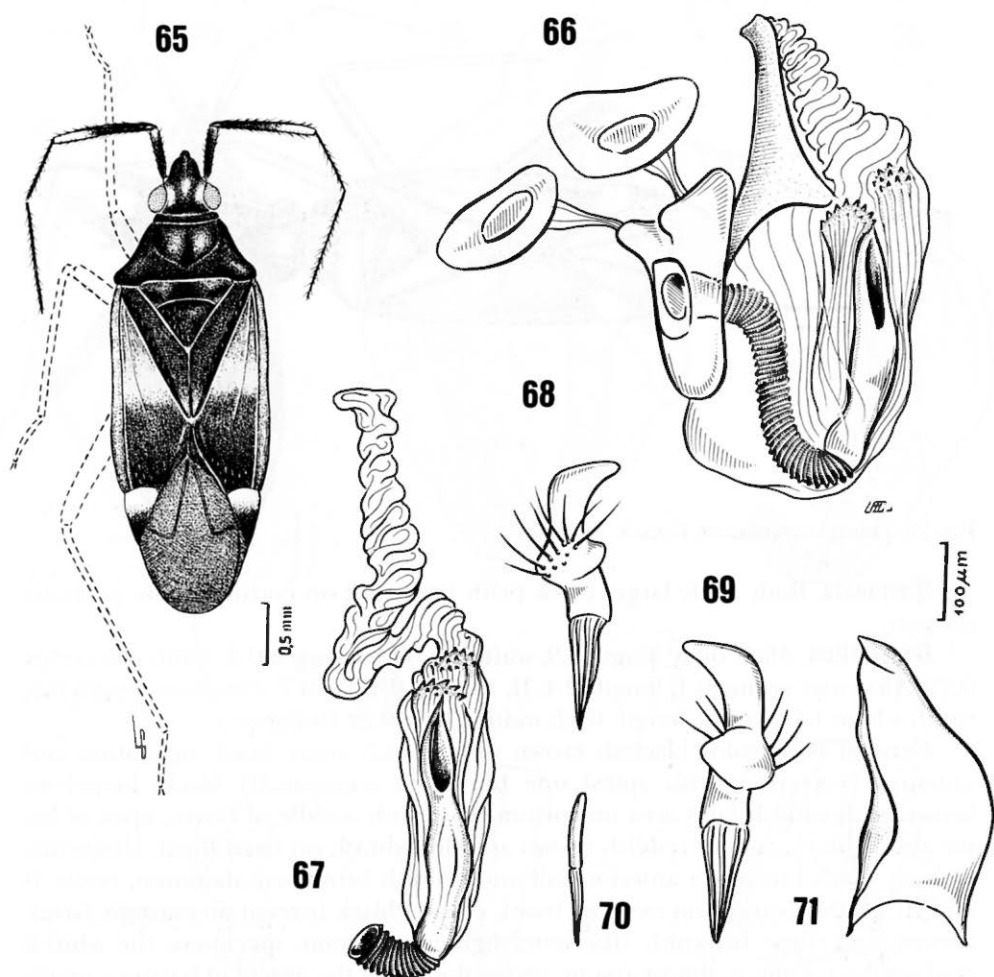
Remarks. The species is recognized by its small size, light color and by the wide whitish mark of the corium.

Fulvius castaneus Carvalho, 1955

Fulvius castaneus Carvalho, 1955:630. figs. 75, a, d, 76 a, c.

(Figs. 73-79)

Type. Male, NMNH 61944, Tingambato, Michoacan, Mexico (on orchid), intercepted at Laredo, Texas, 16.X.1948.



Figs. 65-71. *Fulvius brunneiceps*. 65. Male, paralectotype. 66. Penis. 67. Vesica. 68. Left paramere, dorsal view. 69. *Idem*, ventral view. 70. Right paramere. 71. Theca.

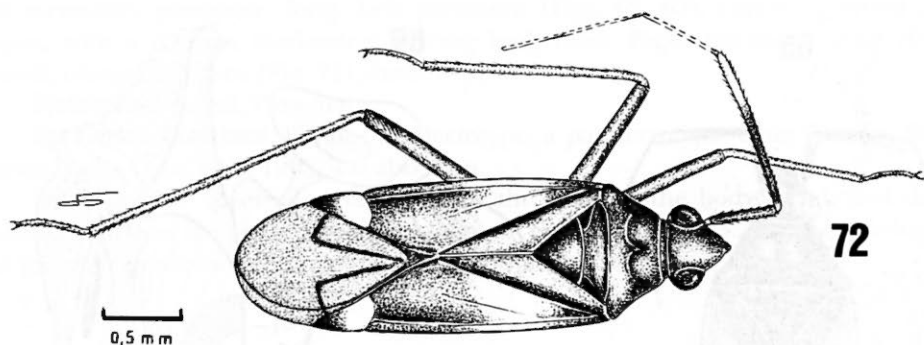


Fig. 72. *Fulvius carumbensis*. Female, holotype.

Diagnosis. Body fairly large, black (with faint spot on corium) male genitalia distinct.

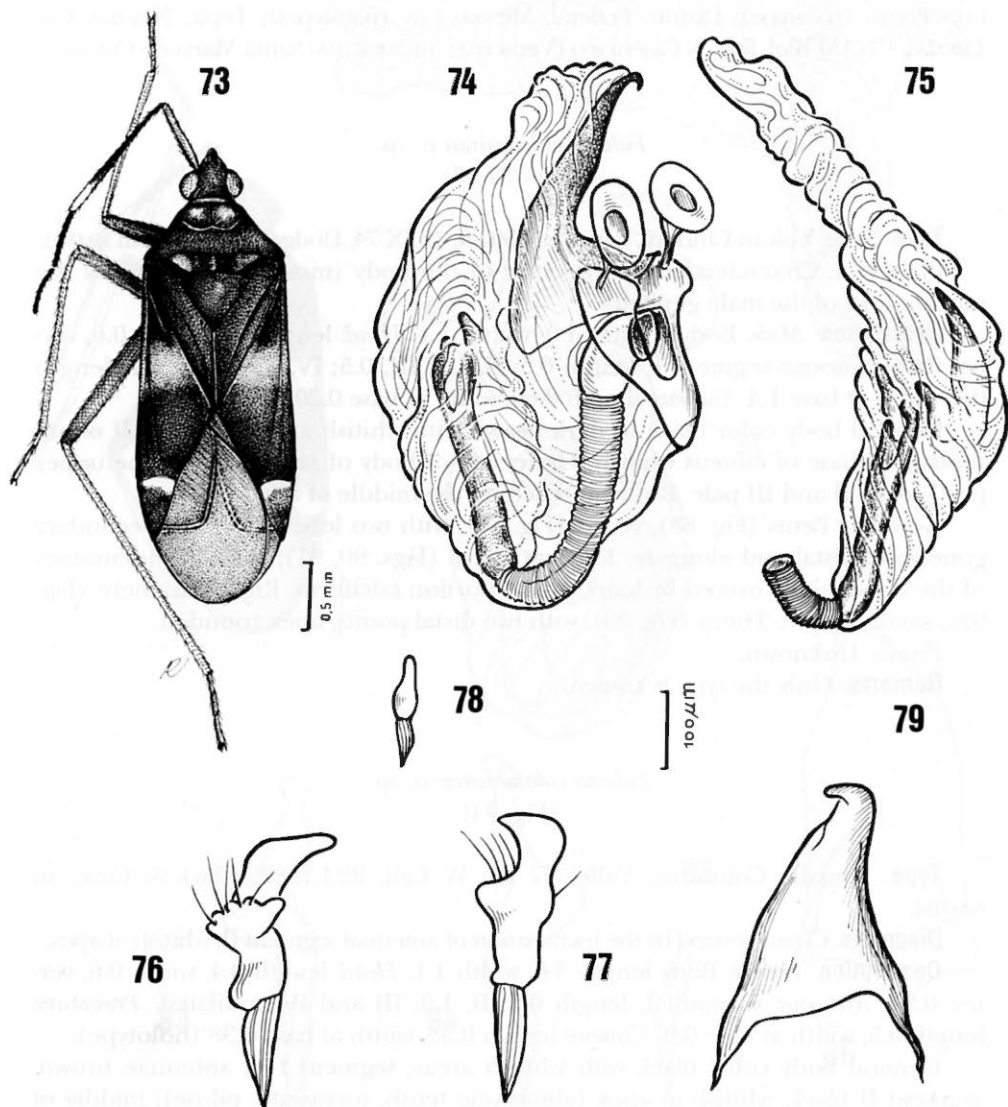
Description. *Male.* Body length 3.9, width 1.5. *Head*: length 0.4, width 0.6, vertex 0.21. *Antennae*: segment I, length 0.4; II, 1.0; III, 0.4; IV, 0.7. *Pronotum*: length 0.5, width a base 1.1. *Cuneus*: length 0.52; width a base 0.22 (holotype).

General body color blackish brown with whitish areas; head, pronotum and antennae (except whitish apical one fourth of segment II) black, hemelytra brown, with whitish faint area on corium (level with middle of clavus, apex of latter also lighter), cuneus reddish brown apically, whitish on basal third. Underside of body black brown on anterior half and reddish brown on abdomen, coxae II and III whitish (except on extreme base), coxae I black (except on extreme base), femora and tibiae brownish (the latter lighter). In some specimens the whitish spot on the corium is almost absent, giving the insect the aspect of having a totally black corium. Rostrum about 2.0 in length.

Genitalia. Penis (Fig. 74), vesica (Fig. 75), with three small spicules; two on the sides of the secondary gonopore and one a bit further. Left paramere (Figs. 76, 77), curved, with an acute lobe laterally, provided with hairs and a dorsal excavation. Right paramere (Fig. 78), very small, simple. Theca (Fig. 79), with the apex curved.

Female. Identical to male in color and general aspect.

Distribution. Costa Rica, Guatemala, Mexico, Nicaragua.



Figs. 73-79. *Fulvius castaneus*. 73. Male, paratype. 74. Penis. 75. Vesica. 76. Left paramere, ventral view. 77. *Idem*, side view. 78. Right paramere. 79. Theca.

Specimens examined. 19, JCMC (3), NMNH (10), TAM (6): COSTA RICA: San Jose, 1135 m. (paratype); Prov. Punta Arenas, Finca las Cruces, 6 km S San Vito de Java. GUATEMALA: On bananas, intercepted by USDA (paratype). MEXICO: Huichuacan, San Luis Potosi (paratype); Distrito Federal, Mexico City (paratypes); Tepic, Nayarit; Los Tuxtlas, UNAM Biol. Sta., N Catemaco (Veracruz). NICARAGUA: Santa Maria de Ostuma.

Fulvius chiriquinus n. sp.

(Figs. 87-93)

Type. Male, Volcan Chiriqui, Panama, 5500 ft, 16.IX.74, Dodge Engleman, in NMNH.

Diagnosis. Characterized by the color of the body (mostly black) and by the morphology of the male genitalia.

Description. *Male.* Body length, 4.0, width, 1.4. *Head:* length 0.4, width 0.6, vertex 0.26. *Antennae:* segment I, length 0.5; II, 1.1; III, 0.5; IV, 0.7. *Pronotum:* length 0.4, width at base 1.4. *Cuneus:* length 0.60, width at base 0.30 (holotype).

General body color black to dark brown with whitish areas, segment II of antenna and base of cuneus whitish. Underside of body of same color as the upper part, coxae II and III pale. Rostrum reaching the middle of abdomen.

Genitalia. Penis (Fig. 88), vesica (Fig. 89), with two lobes above the secondary gonopore, distal end elongate. Left paramere (Figs. 90, 91), with an indentation of the dorsal side covered by hairs, apical portion falciform. Right paramere (Fig. 92), small, simple. Theca (Fig. 93), with two distal points, apex rounded.

Female. Unknown.

Remarks. Only the type is known.

Fulvius colombianus n. sp.

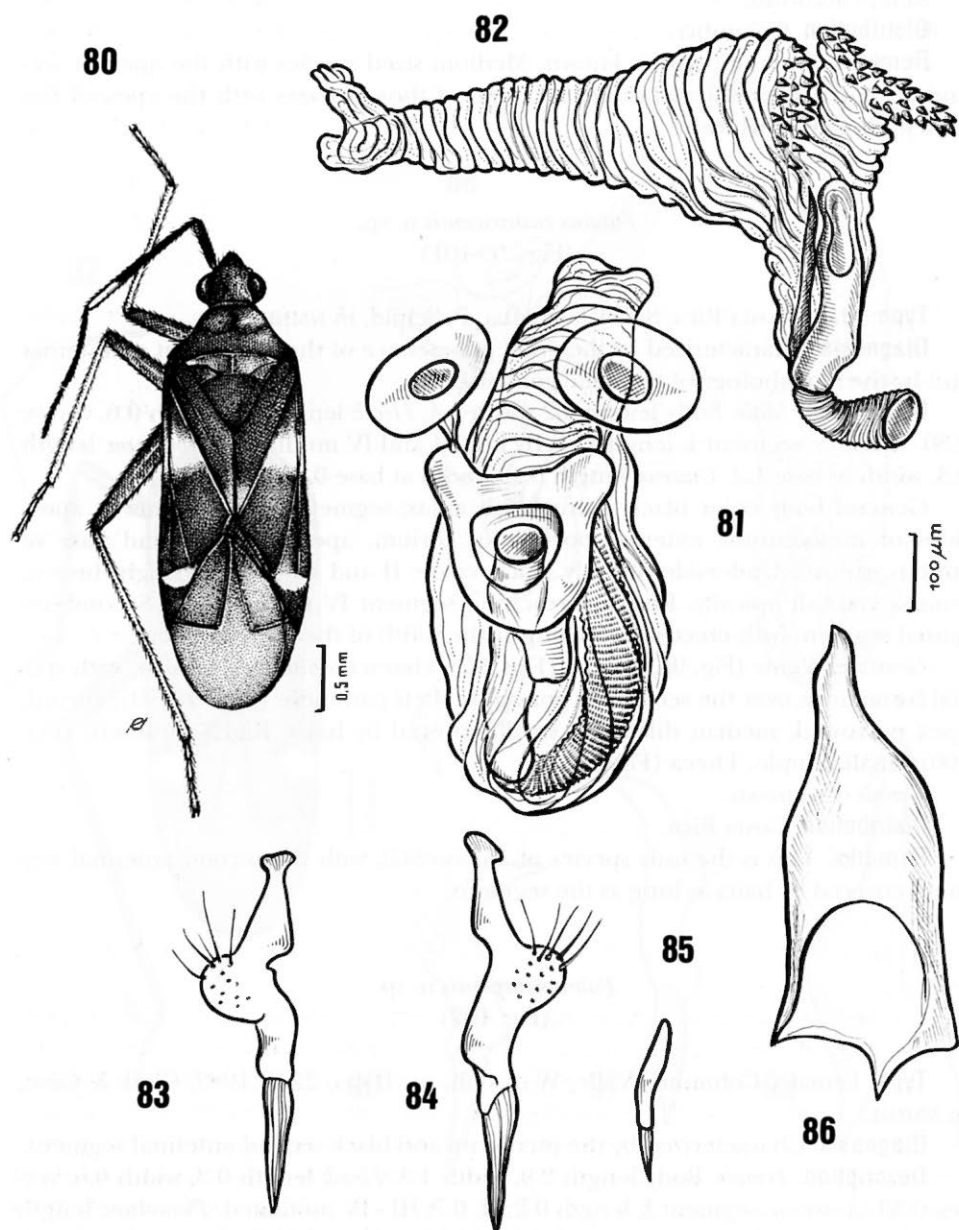
(Fig. 94)

Type. Female, Colombia, Valle, 27 km W Cali, 22.I.1982, Clark & Cave, in NMHM.

Diagnosis. Characterized by the incrustation of antennal segment II, whitish at apex.

Description. *Female.* Body length 3.6, width 1.1. *Head:* length 0.4, width 0.6, vertex 0.24. *Antennae:* segment I, length 0.2; II, 1.0; III and IV mutilated. *Pronotum:* length 0.5, width at base 0.9. *Cuneus:* length 0.38, width at base 0.38 (holotype).

General body color black with whitish areas; segment I of antennae brown, segment II black, whitish at apex (about one tenth, incrustate, pilose); middle of vertex, apex of scutellum, transversal fascia on corium (oblique and narrow, about apical third of clavus), lunule (transversal and narrow) at base of cuneus whitish. Underside of body black, coxae I, II and III whitish, (the first only at base), apex of femora III, tibiae (half), and tarsi (totally), pale, abdomen reddish brown. Rostrum imperfectly seen due to glue (probably going beyond the hind coxae).



Figs. 80-86. *Fulvius chaquenus*. 80. Male, holotype. 81. Penis. 82. Vesica. 83. Left paramere, dorsal view. 84. *Idem*, side view. 85. Right paramere. 86. Theca.

Male. Unknown.

Distribution. Colombia.

Remarks. Only the type is known. Medium sized species with the apex of second antennal segment incrassate. It is one of those species with the apex of the scutellum pale or whitish.

Fulvius costaricensis n. sp.

(Figs. 95-101)

Type: Male, Costa Rica, Suiza Turrialba, P. Schild, in NMNH.

Diagnosis. Characterized by the erect pubescence of the II segment of antenna and by the morphology of the male genitalia.

Description. *Male.* Body length 4.2 width 1.4. *Head:* length 0.4, width 0.6, vertex 0.30. *Antenna:* segment I, length 0.4; II, 1.4, III and IV mutilated. *Pronotum:* length 0.8, width at base 1.2. *Cuneus:* length 0.40, width at base 0.30 (holotype).

General body color black with whitish areas; segment II of antenna at apex, sides of mesoscutum, external portion of corium, apex of clavus and base of cuneus whitish. Underside of body black, coxae II and III pale, legs light brown, femora reddish apically. Rostrum reaching segment IV of abdomen. Second antennal segment with erect setae as long as the width of the same segment.

Genitalia. Penis (Fig. 96), vesica (Figs. 97), characteristic (see figure), with special formations over the secondary gonopore. Left paramere (Figs. 98, 99), curved, apex narrowed, median dilatation small, covered by hairs. Right paramere (Fig. 100), small, simple. Theca (Fig. 101).

Female. Unknown.

Distribution. Costa Rica.

Remarks. This is the only species of *Fulvius* Stål, with the second antennal segment covered by hairs as long as the segment.

Fulvius dapensis n. sp.

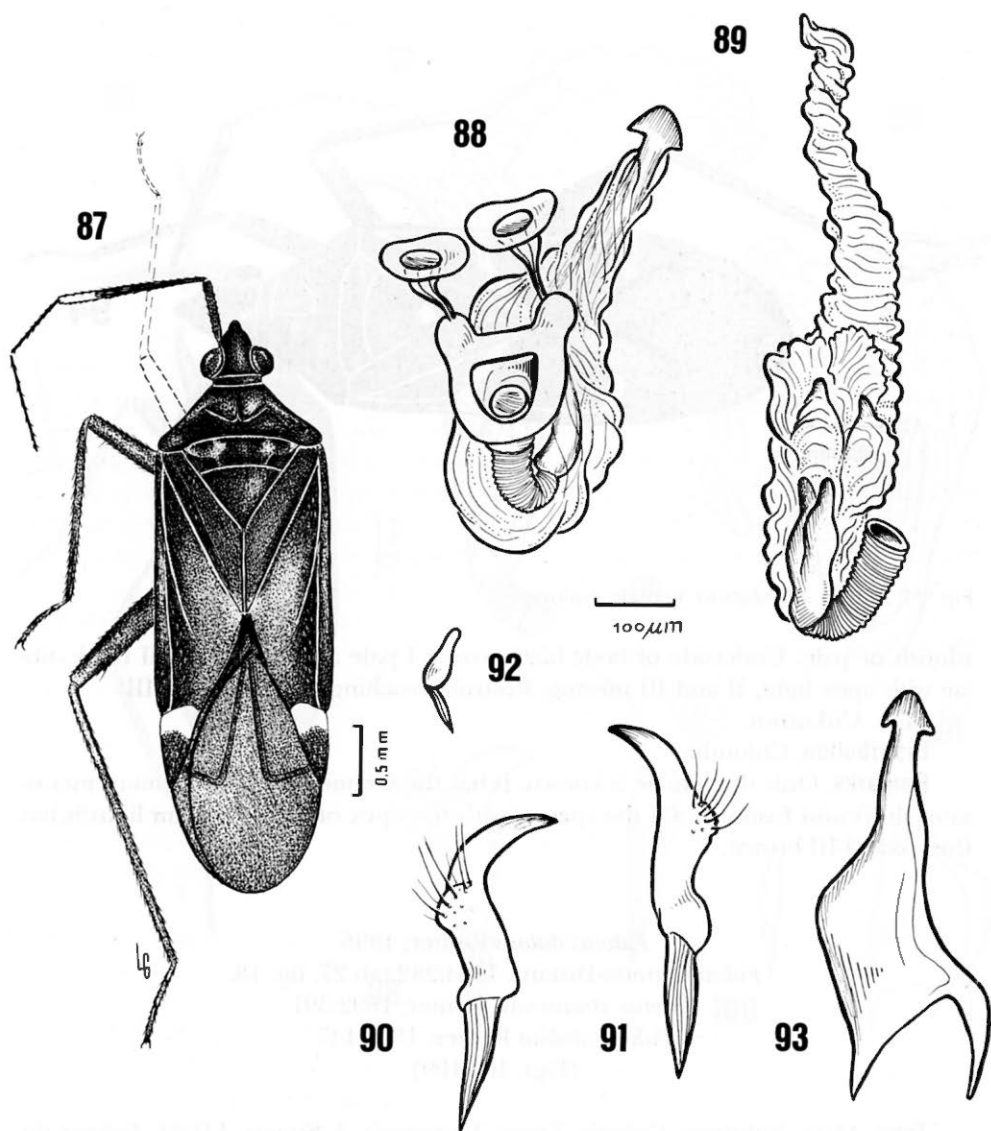
(Fig. 102)

Type: Female, Colombia, Valle, W of Cali, nr. Dapa, 22.VI.1982, Clark & Cave, in NMNH.

Diagnosis. Characterized by the incrassate and black second antennal segment.

Description. *Female.* Body length 2.9, width 1.3. *Head:* length 0.3, width 0.6, vertex 0.30. *Antenna:* segment I, length 0.2; II, 0.7; III - IV mutilated. *Pronotum:* length 0.4, width at base 1.0. *Cuneus:* length 0.30, width at base 0.30 (holotype).

General body color blackish brown with whitish areas; Segment I of antenna brown, II black or brown (with long hairs, incrassate); middle of vertex, apex of scutellum, claval nerve, (two pale spots on corium at claval third of apex), lunule at base of cuneus



Figs. 87-93. *Fulvius chiriquinus*. 87. Male, holotype. 88. Penis. 89. Vesica. 90. Left paramere, dorsal view. 91. *Idem*, side view. 92. Right paramere. 93. Theca.

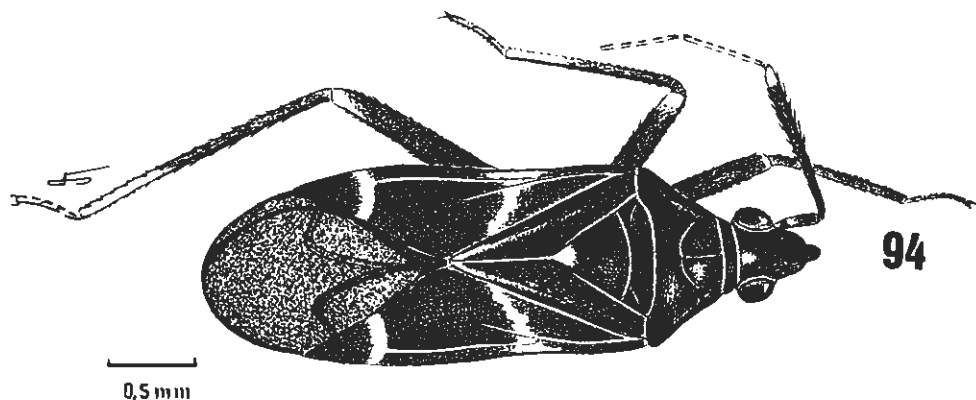


Fig. 94. *Fulvius colombianus*. Female, holotype.

whitish or pale. Underside of body black, coxae I pale at base, II and III black, tibiae with apex light, II and III missing. Rostrum reaching apex of coxae III.

Male. Unknown.

Distribution. Colombia.

Remarks. Only the female is known. It has the second antennal segment incrassate, short and fusiform. Of the species with the apex of the scutellum light it has the coxae I-III brown.

Fulvius dubius Reuter, 1895

Fulvius atratus Distant, 1884:282, tab. 27, fig. 18.

Fulvius atratus var. Reuter, 1892:391

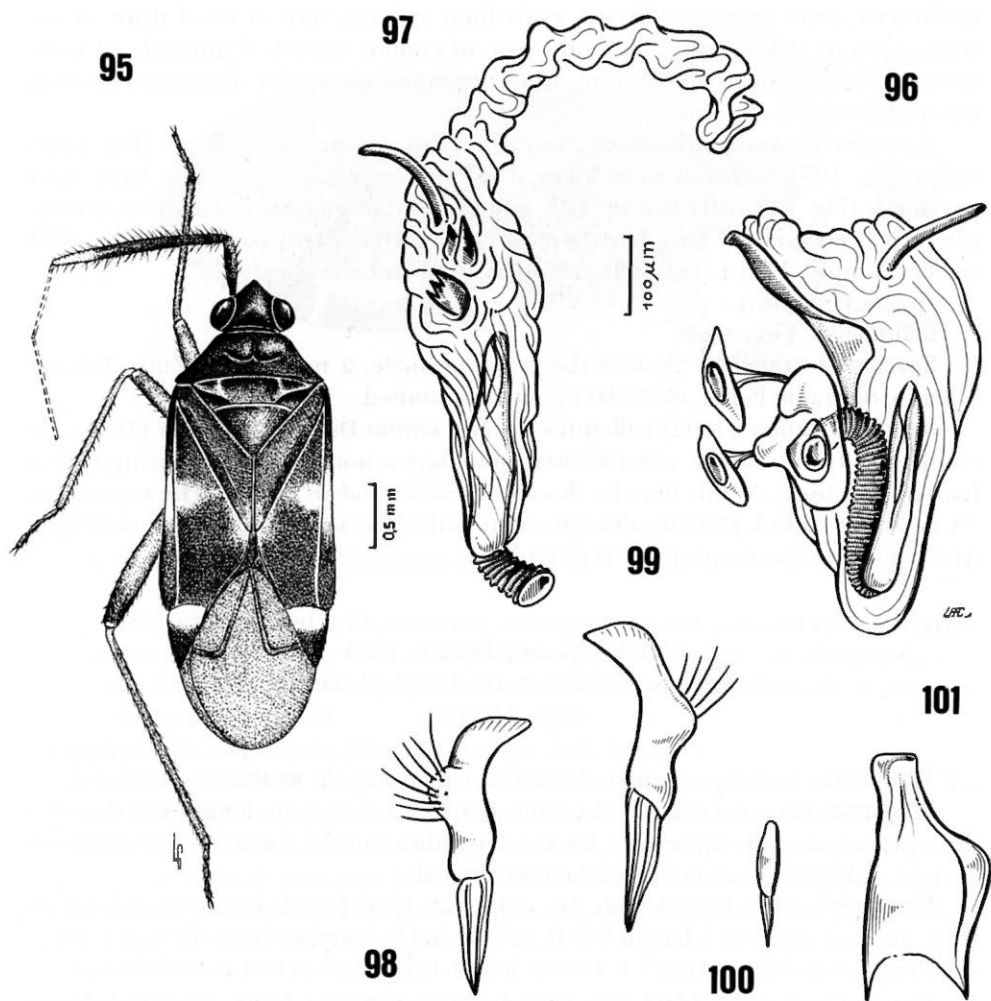
Fulvius dubius Reuter, 1895:147

(Figs. 103-109)

Type. Male, holotype, Colonia Tovar, Venezuela, E Simon, I.II.88, *Fulvius dubius* Reut., Type, N° 9986, ZMU.

Diagnosis. Characterized by its color, coxae unicolor and morphology of the male genitalia.

Description. *Male*. Body length 4.4; width 1.8. *Head* length 0.5; width 0.7; vertex 0.32. *Antennae* measures taken from Carvalho's specimen (in the type the segments



Figs. 95-101. *Fulvius costaricensis*. 95. Male, holotype. 96. Penis. 97. Vesica. 98. Left paramere, dorsal view. 99. *Idem*, side view. 100. Right paramere. 101. Theca.

are missing), segment I, length 0.5; II, 1.0; III and IV mutilated. *Pronotum*: length 0.5, width at base 1.5. *Cuneus*: length 0.46; width at base 0.26 (holotype).

General body color black with whitish areas; antenna II (from Carvalho's specimen), sides of mesosternum, embolium at base, spot at basal third of corium, apex of clavus (narrowly), and base of cuneus whitish. Underside of body brown or black, coxae unicolorous, hind tibiae and tarsi paler. Rostrum reaching the middle of the abdomen.

Genitalia. (From a male from Sierra de Perija, Venezuela). Penis (Fig. 104), vesica (Fig. 105), with two spiny lobes at sides of secondary gonopore, large. Left paramere (Fig. 106, 107) strong, with a sub-basal indentation, enlarged at middle where it is covered by long hairs, apical end narrow. Right paramere (Fig. 108) smaller, simple. Theca (Fig. 109) curved at distal end.

Female. Unknown.

Distribution. Venezuela.

Specimens examined. Besides the holotype male, a male, from Zulia Tekuko Mission, Sierra de Perija, elev. 300 m, was also studied.

Remarks. Reuter (1892) called the species *atratus* Distant. Later on (1895), he compared it with *Fulvius uhleri* Reuter, nowadays a nomen nudum, saying that it had a dark coxae. At this time he described *Fulvius dubius* Reuter. The expression "A descriptione Cel. Distantis divergit colore articuli secundi antennarum cuneique. An varietas vel species propria" is given.

Fulvius fuscans Distant, 1884

Fulvius fuscans Distant, 1884: 282, pl. 27, fig. 17

(Figs. 110-116)

Type. Male, lectotype, Balheu, Veracruz, Champion, in BMNH.

Diagnosis: Characterized by the whitish apex of scutellum, length less than 5.0 mm, pronotum with three pale fasciae (or indications of them) in the posterior margin and by the morphology of the male genitalia.

Description. *Male*. Body length 3.6, width 1.3. *Head*: length 0.5, width 0.5, vertex 0.26. *Antennae*: segment I, length 0.3; II, 0.8; III and IV mutilated (on the type). *Pronotum*: length 0.4, width at base 1.1. *Cuneus*: length 0.42, width at base 0.36 (lectotype).

General body color black with whitish areas; antennae black, head with frons, vertex and spot on side of eyes pale, collar at sides, calli of pronotum and three fasciae on posterior margin, sides of mesoscutum and apex of scutellum whitish, hemelytra and embolium at the height of apical fourth of clavus and cuneus at base, pale to whitish. On specimens from Guerrero and Puebla, Mexico, the color is different, but the male genitalia is the same. Underside of body poorly seen due to specimen glued on card, femora black, tibia and tarsi pale.

Genitalia. Penis (Fig. 111), vesica (Fig. 112), with two fields of thorns near the secondary gonopore, distal portion dilated. Left paramere (Figs. 113, 114), elon-

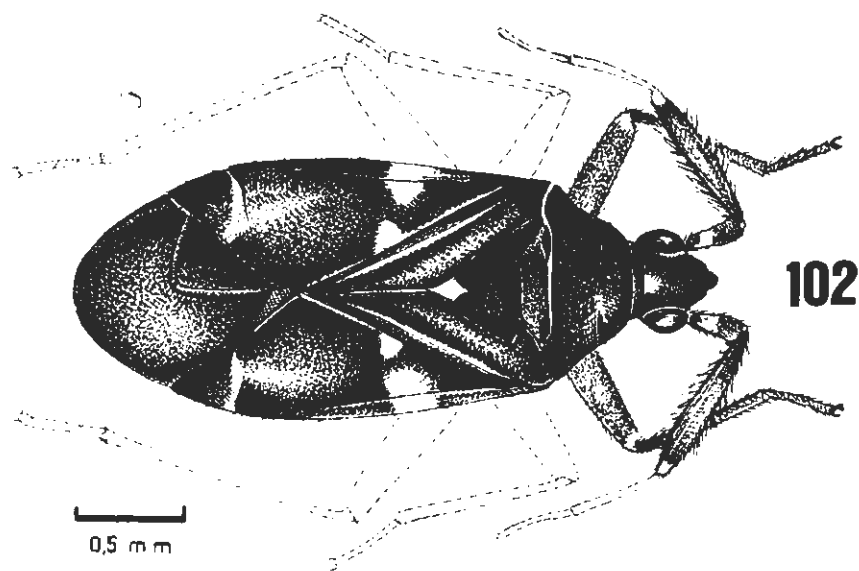


Fig. 102. *Fulvius dapensis*. Female, holotype.

gate, distal end narrowed, with extremity ending in a point, covered with few hairs. Right paramere (Fig. 115), much smaller, simple. Theca (Fig. 116), as illustrated.

Female. The three fasciae on posterior border of pronotum could be seen, in spite of being little evident.

Distribution. Guatemala, Mexico, Panama (fide Distant).

Specimens examined. 12, JCMC (2), NMNH (3), TAM (7): MEXICO: 4.7 mi SW La Cumbre, 5220 ft (Puebla); 6.4 mi SW Filo de Caballo, 9000 ft (Guerrero).

Remarks. It is separated from the species with a white apex of scutellum by the pronotum with three posterior fasciae (or indications of the three fasciae) and by the morphology of the male genitalia. It has also a peculiar head color, and calli.

Fulvius gamboensis n. sp.
(Figs. 117-123)

Type. Male, holotype, Gamboa, C.Z. Panama, Pipeline Rd., VII.1967, W.W. Wirth, light trap, in NMNH.

Diagnosis. Characterized by the long cunens, size of body and morphology of the male genitalia.

Description. Body length 4.3, width 1.2. *Head*: length 0.5, width 0.7, vertex 0.22. *Antenna*: segment I, length 0.6; II, 1.1; III and IV missing. *Pronotum*: length 0.5,

width at base 1.2. *Cuneus*: length 0.50, width at base 0.22 (holotype). General body color black with whitish areas; segment II of antenna largely at apex, sides of mesoscutum, embolium and corium at basal third, base of cuneus whitish. Underside of body with all coxae brown or black, hind tibiae and tarsi paler. Rostrum reaching abdominal segment V.

Genitalia. Penis (Fig. 118), vesica (Fig. 119), with two thorny plates at side of secondary gonopore. Left paramere (Figs. 120, 121), with a strong sub-basal dilatation covered by long hairs. Right paramere ((Fig. 122), small, simple. Theca (Fig. 123) with a characteristic apex.

Female. Unknown.

Distribution. Panama.

Remarks. The brown or black coxae characterize the species besides the morphology of the male genitalia. The pale portion of the antennal segment II will also serve to distinguish it.

Fulvius geniculatus Van Duzee, 1933

Fulvius geniculatus Van Duzee, 1933: 29

(Figs. 124-130)

Type: Male, holotype, Chatham Island, IV.18.1932, No. 3632, CAS.

Diagnosis. Characterized by the whitish coxae and morphology of the male genitalia.

Description. *Male.* Body length 3.2, width 1.0. *Head*: length 0.4, width 0.5, vertex 0.20. *Antenna*: segment I, length 0.5; II, 0.8; III, 0.5; IV, 0.5. *Pronotum*: Length 0.3, width at base 0.8. *Cuneus*: length 0.30, width at base 0.20 (Specimen from Santa Cruz Is., Academy Bay). General body color dark brown with whitish areas; pronotum and head darker, sides of mesoscutum with reddish spot, corium and embolium at basal third, oblique fascia on corium and apex of clavus and lunulate spot on base of cuneus whitish; antenna pale at apex of segment I and II (about 1/4); tibiae lighter. Rostrum reaching abdominal segment VIII.

Genitalia. Penis (Fig. 125), vesica (Fig. 126), with lobes on each side of secondary gonopore. Left paramere (Figs. 127, 128), falciform with widening at middle, covered by long hairs, distal end narrow. Right paramere (Fig. 129), much smaller, simple. Theca (Fig. 130), with distal end pointed and recurved.

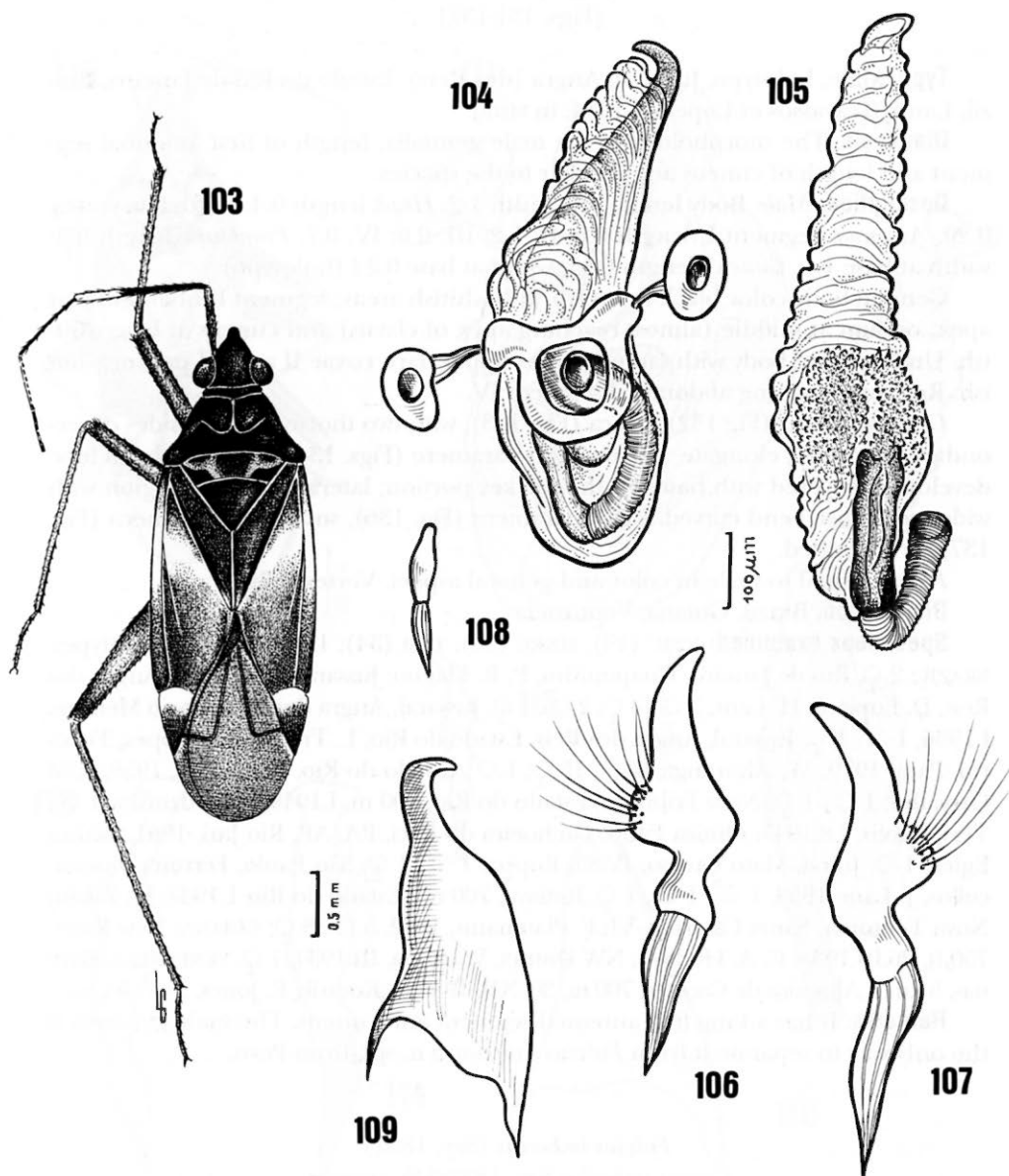
Female. Similar to male in color and size, vertex 0.23.

Host. *Jaegeria hirta* Less.

Distribution. Galapagos Islands.

Specimens examined. JCMC (8), 3 mi N Academy Bay, Santa Cruz Island, grassland, 1800 ft. 18.II.1964; 6 mi N Academy Bay, Bella Vista, 21.II.1964; abandoned garden, 5 mi N Academy Bay, 24.I.1964, Bella Vista, Santa Cruz Is., 220m, 28.I.1964; Isla Santa Cruz, Table Mt., 440 m, 16.IV.1964.

Remarks. It is a black species with whitish coxae (I-III).



Figs. 103-109. *Fulvius dubius*. 103. Male (Sierra de Perija, Venezuela). 104. Penis. 105. Vesica. 106. Left paramere, side view. 107. *Idem*, side view. 108. Right paramere. 109. Theca.

Fulvius guapimirinus n. sp.

(Figs. 131-137)

Type. Male, holotype, Jussaral, Angra (dos Reis), Estado do Rio de Janeiro, Brazil, Lauro Travassos et Lopes, X.1934, in MNRJ.

Diagnosis. The morphology of the male genitalia, length of first antennal segment and length of cuneus are peculiar to the species.

Description. *Male.* Body length 4.6, width 1.2. *Head* length 0.4; width 0.6; vertex 0.20. *Antennae* segment I, length 0.6; II, 1.2; III, 0.6; IV, 0.7. *Pronotum*: length 0.4; width at base 1.1. *Cuneus*: length 0.55, width at base 0.24 (holotype).

General body color black to brown with whitish areas; segment II of antenna at apex, corium at middle (almost reaching apex of clavus) and cuneus at base whitish. Underside of body with same color as upper part, coxae II and III pale or whitish. Rostrum reaching abdominal segment IV.

Genitalia. Penis (Fig. 132), vesica (Fig. 133), with two thorny lobes at sides of secondary gonopore, elongate, narrow. Left paramere (Figs. 134, 135), with basal lobe developed, covered with hairs on the thicker portion; lateral preapical region with wide teeth, distal end curved. Right paramere (Fig. 136), small, simple. Theca (Fig. 137), as illustrated.

Female. Equal to male in color and general aspect. Vertex 0.24.

Distribution. Brazil, Guiana, Venezuela.

Specimens examined: JCMC (14), MNRC (50), TAM (34): 13 ♂ and 25 ♀ paratypes: BRAZIL: 2 ♀, Rio de Janeiro, Guapimirim, P. R. Magno; Jussaral, 26.X.1935, Angra dos Reis, D. Lopes & H. Lent, 3 ♂, 4 ♀; 2 ♂, 1 ♀, Jussaral, Angra dos Reis, Dario Mendes, I.1936; 1 ♂, 1 ♀, Jussaral, Angra dos Reis, Estado do Rio, L. Travassos et Lopes; Tucuruí, Para, 1979, M., Alvarenga, 4 ♂, 15 ♀; 1 ♂, Estado do Rio, Petropolis, 1958, JCM Carvalho; 1 ♂, 1 ♀, Nova Friburgo, Estado do Rio, 900 m, I.1948, Wygodzinsky, 1 ♂, Teresopolis, I.8.1947, Otítica Filho; Cachoeira do Itaci, PA/AP, Rio Jari, 1961, Walter Egler; 1 ♀; Juina, Mato Grosso, IV.85, Roppa, 1 ♂, 1 ♀; São Paulo, Ferreira Vasconcellos, J. Lane 1954, 1 ♂; 1 ♂, 1 ♀, Itatiaia, 700 m., Estado do Rio I.1947, W. Zikan; Nova Teutonia, Santa Catarina, VI; F. Plaumann, 1972, 5 ♂, 8 ♀. GUIANA: New River, 750 ft, 26.III.1938, C. A. Hudson; NW District, Wanaina, III.1934, 1 ♀. VENEZUELA: Barinas, 5 km E Altamira de Caceres, 700 m, 30. XII. 1985, P. Kovarik, R. Jones, 5 ♂, 5 ♀.

Remarks: It has a long first antennal segment and cuneus. The male genitalia is the only way to separate it from *Fulvius satipoensis* n. sp., from Peru.

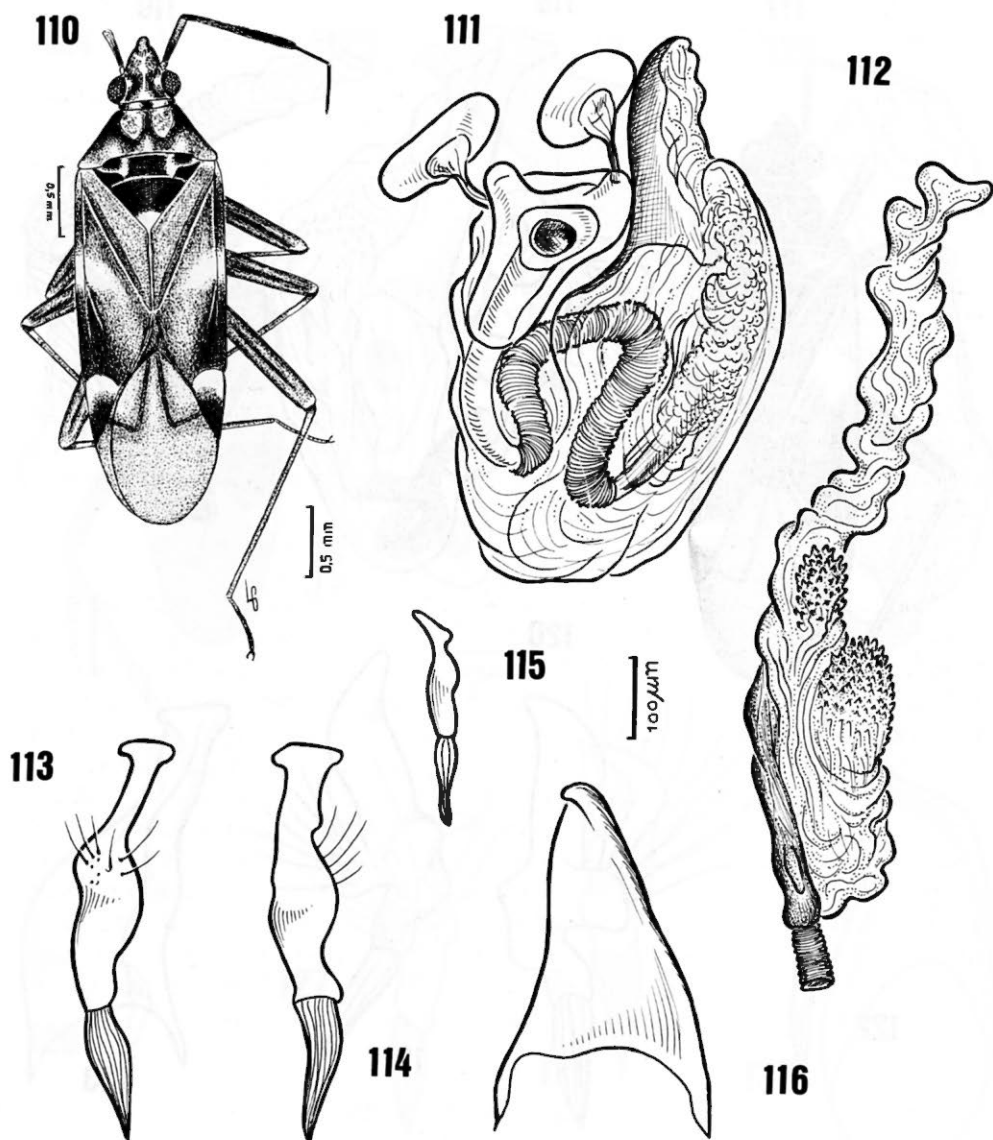
Fulvius imbecilis (Say, 1832)

Capsus imbecilis Say, 1832:345, reprint.

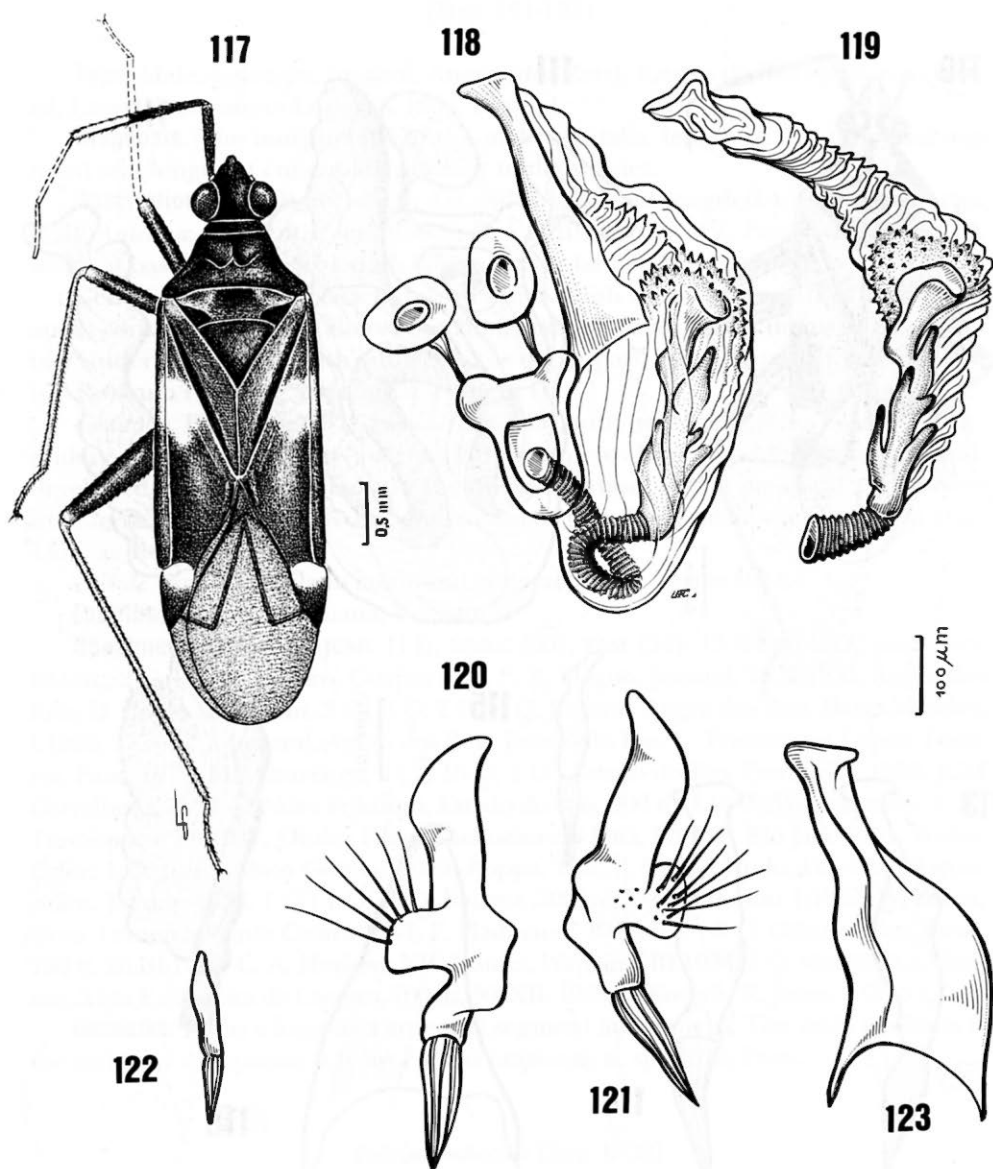
Fulvius heinemanni (sic) Reuter, 1895:142 (synonymized by Van Duzee, 1916).

(Figs. 138-144)

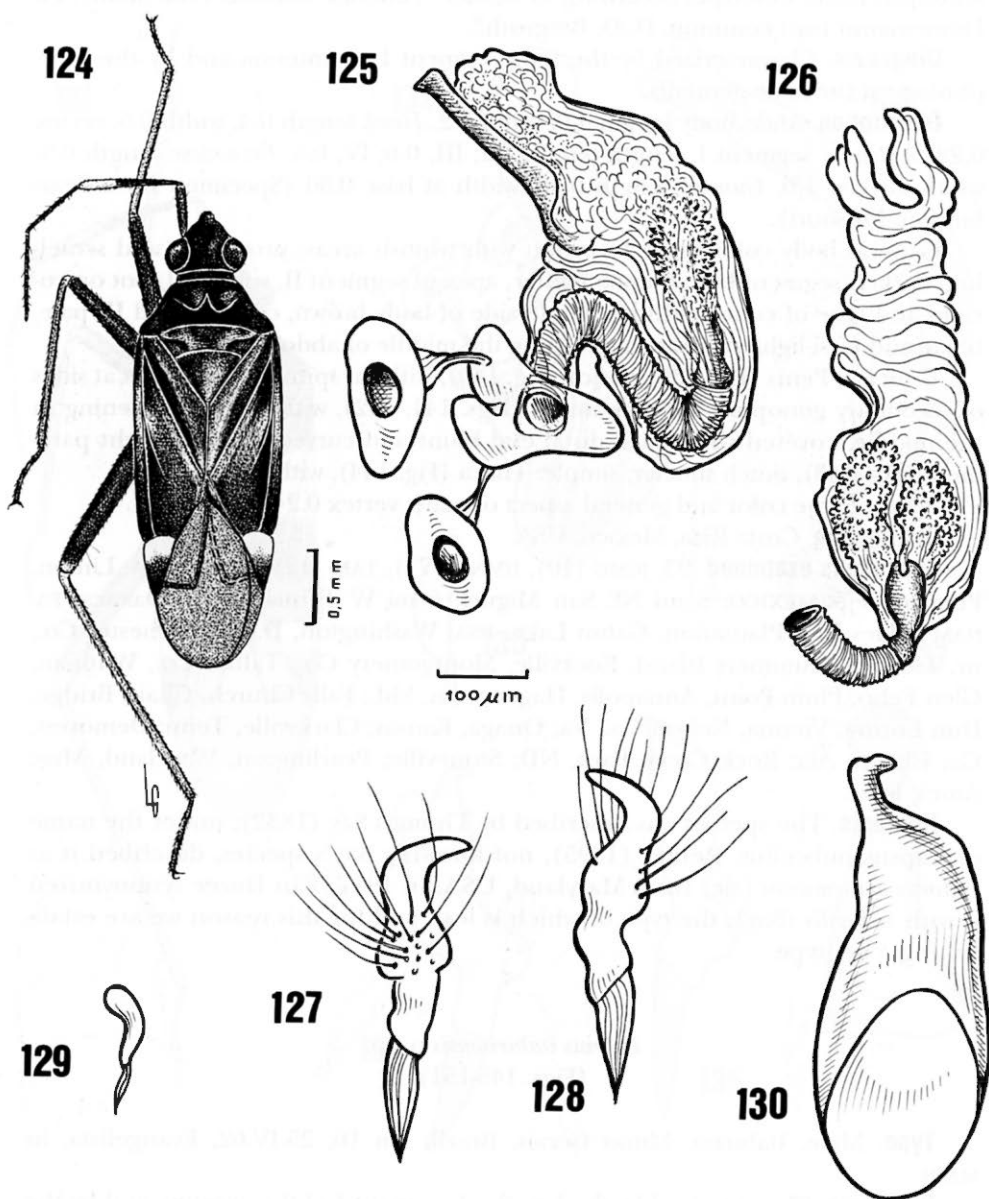
Type. Male, neotype, Beverly Hills, Illinois, VII.07-08, J. W. Gherard, at light,



Figs. 110-116. *Fulvius fuscans*. 110. Male, holotype. 111. Penis. 112. Vesica. 113. Left paramere, dorsal view. 114. *Idem*, side view. 115. Right paramere. 116. Theca.



Figs. 117-123. *Fulvius gamboensis*. 117. Male, holotype. 118. Penis. 119. Vesica. 120. Left paramere, side view. 121. *Idem*, dorsal view. 122. Right paramere. 123. Theca.



Figs. 124-130. *Fulvius geniculatus*. 124. Male (Academy Bay, Galapagos Islands). 125. Penis. 126. Vesica. , 127. Left paramere, dorsal view. 128. *Idem*, side view. 129. Right paramere. 130. Theca.

Fulvius imbecilis (Say) det. H. H. Knight, H. H. Knight collection, 1976. Type of synonym, male, holotype, according to Reuter "America Borealis (Maryland), H. Heinemannii (sic) commun. D. D. Bergroth".

Diagnosis. Characterized by the long segment I of antenna and by the morphology of the male genitalia.

Description. *Male.* Body length 4.0, width 1.2. *Head* length 0.4, width 0.5, vertex 0.22. *Antennae* segment I, length 0.6; II, 1.2; III, 0.6; IV, 0.6. *Pronotum:* length 0.5, width at base 1.0. *Cuneus:* length 0.40, width at base 0.30 (Specimen from Pearlinton, Missouri).

General body color black to brown with whitish areas; pronotum and scutellum darker, segment I of antenna lighter, apex of segment II, sub-basal spot on corium and base of cuneus whitish. Underside of body brown, coxae II and III pale, tibiae and tarsi lighter. Rostrum reaching the middle of abdomen.

Genitalia. Penis (Fig. 139), vesica (Fig. 140), without spines or spiculum at sides of secondary gonopore. Left paramere (Figs. 141, 142), with strong thickening in the middle, covered with hairs; distal end blunt and curved apically. Right paramere (Fig. 143), much smaller, simple. Theca (Fig. 144), with narrow apex.

Female. Same color and general aspect of male, vertex 0.24.

Distribution. Costa Rica, Mexico, USA.

Specimens examined. 93, JCMC (10), NMNH (71), TAM (12): COSTA RICA. Limon, Puerto Viejo. MEXICO: 3 mi NE San Miguel; 6 mi W Tehuantepec, Oaxaca. PANAMA: Tres Rios Plantation, Gatun Lake. USA: Washington, D.C.; Dorchester Co., nr. Lloyd's, Plummers Island, Rockville, Montgomery Co., Talbot Co., Wittman, Glen Echo, Plum Point, Annapolis, Hagerstown, Md.; Falls Church, Chain Bridge, Dun Loring, Vienna, Nelson Co., Va; Onaga, Kansas; Clarksville, Tenn; Demorest, Ga; Clanton, Ala; Rock Creek Park, ND; Stoneville, Pearlinton, Waveland, Miss; Ames, Iowa.

Remarks. The species was described by Thomas Say (1832), under the name of *Capsus imbecilis*. Reuter (1895), not knowing Say's species, described it as *Fulvius heinemanni* (sic) from Maryland, USA. In 1917, Van Duzee synonymized it with *imbecilis* (Say), the type of which is lost, and for this reason we are establishing a neotype.

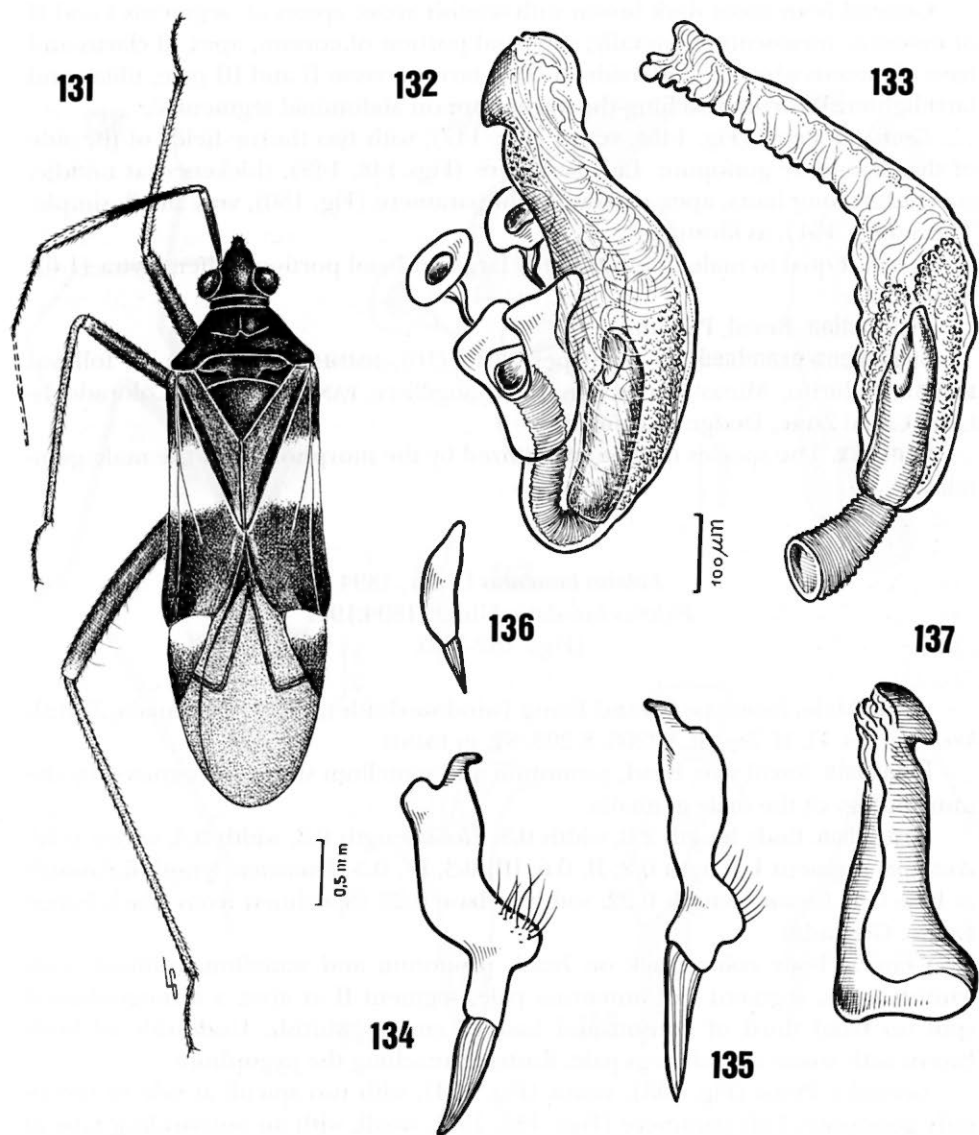
Fulvius itabiritensis n. sp.

(Figs. 145-151)

Type. Male, Itabirito, Minas Gerais, Brazil, km 16, 25.IV.62, Evangelista, in MNRJ.

Diagnosis. Characterized by the length of segment I of the antenna and by the morphology of the male genitalia.

Description. *Male.* Body length 4.4, width 1.4. *Head* length 0.5, width 0.6, vertex 0.26. *Antennae* segment I, length 0.4; II, 1.3; III, 0.5; IV, 0.6. *Pronotum:* length 0.5,



Figs. 131-137. *Fulvius guapimirinus*. 131. Male, paratype. 132. Penis. 133. Vesica. 134. Left paramere, side view. 135. *Idem*, ventral view. 136. Right paramere. 137. Theca.

width at base 1.2. *Cuneus*: length 0.50, width at base 0.30 (Specimen from Itabirito, Minas Gerais, Brazil).

General body color dark brown with whitish areas; apices of segments I and II of antenna, mesoscutum laterally, sub-basal portion of corium, apex of clavus and base of cuneus whitish. Underside of body brown, coxae II and III pale, tibiae and tarsi lighter. Rostrum reaching the pygophore on abdominal segment V.

Genitalia. Penis (Fig. 146), vesica (Fig. 147), with two thorny fields of the side of the secondary gonopore. Left paramere (Figs 148, 149), thickened at middle, covered by long hairs, apex narrow. Right paramere (Fig. 150), very small, simple. Theca (Fig. 151), as illustrated.

Female. Equal to male in size, slightly larger at basal portion of hemelytra (1.6), vertex 0.32.

Distribution. Brazil, Panama.

Specimens examined. 17 paratypes, JCMC (10), NMNH (4), MN (3), as follows: BRAZIL: Itabirito, Minas Gerais, km 16, Evangelista. PANAMA: Barro Colorado Island, Canal Zone, Dodge Engleman.

Remarks. The species may be recognized by the morphology of the male genitalia.

Fulvius lunulatus Uhler, 1894
Fulvius lunulatus Uhler, 1894:192.
(Figs. 152-158)

Type. Male, lectotype, Grand Etang (windward side), 1900 ft, Grenada, British West Indies, H. H. Smith, 92206, S 203, 82, in BMNH.

Diagnosis. Small size; head, pronotum and scutellum shiny. Recognized by the morphology of the male genitalia.

Description. Body length 2.0, width 0.8. *Head*: length 0.3, width 0.4, vertex 0.22. *Antenna*: segment I, length 0.2; II, 0.6; III, 0.3; IV, 0.3. *Pronotum*: length 0.3, width at base 0.7. *Cuneus*: length 0.22, width at base 0.22 (Specimen from Black Forest Estate, Grenada).

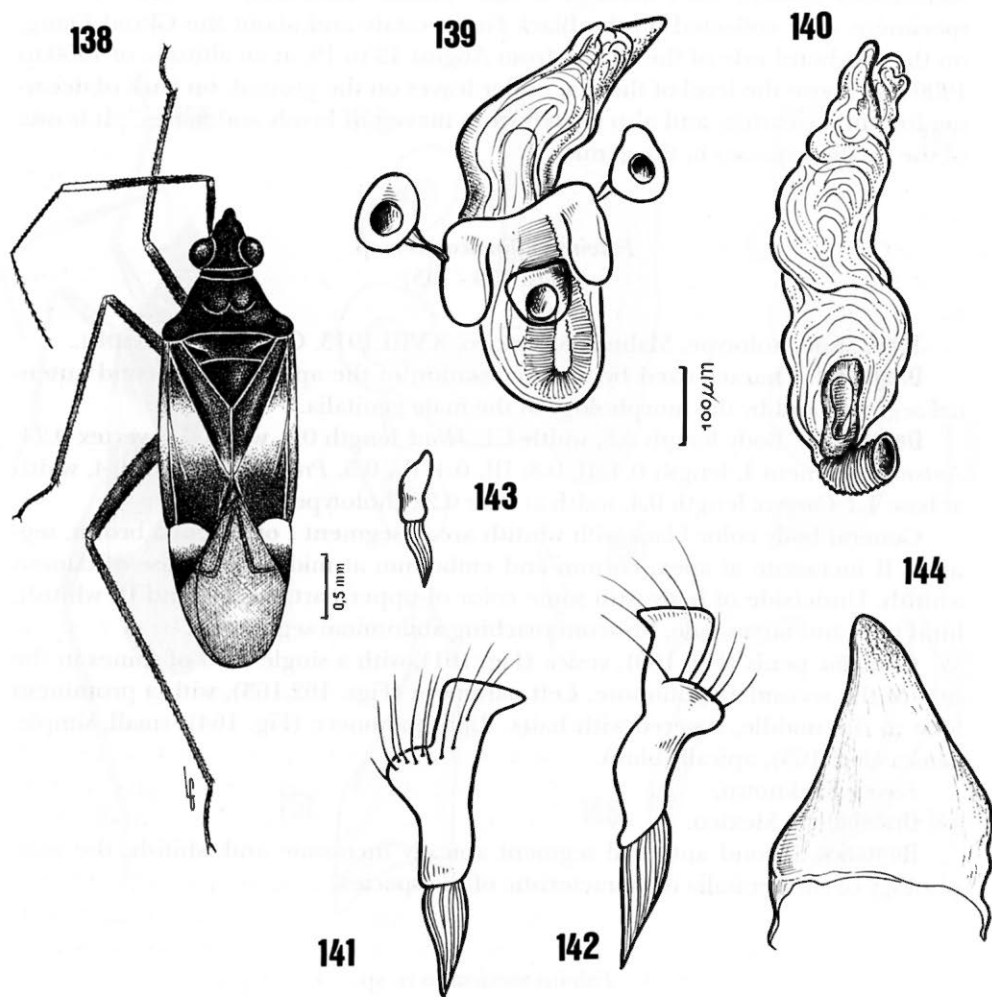
General body color black on head, pronotum and scutellum brilliant, with whitish areas; segment I of antennna pale, segment II at apex a lozenge-shaped spot on basal third of corium and base of cuneus whitish. Underside of body brown with coxae whitish, legs pale. Rostrum reaching the pygophore.

Genitalia. Penis (Fig. 153), vesica (Fig. 154), with two spiculi at side of secondary gonopore. Left paramere (Figs. 155, 156), small, with an outstanding lobe at middle covered by long hairs, apex blunt. Right paramere (Fig. 157), very small, simple. Theca (Fig. 158), terminally acute.

Female. Equal to male in general aspect and color, vertex 0.24

Distribution. Grenada, Saint Vincent.

Specimens examined. 5 paralectotypes, Grand Etang, (windward side), Gre-



Figs. 138-144. *Fulvius imbecilis*. 138. Male (Pearlington, Missouri). 139. Penis. 140. Vesica. 141. Left paramere, side view. 142. *Idem*, dorsal view. 143. Right paramere. 144. Theca.

nada, 1990 ft., H.H. Smith, P.R. Uhler's collection; Black Forest Estate, windward side, Grenada, W.I. H.H. Smith; Balthazar, windward side, Grenada, B.W.I., H.H. Smith; Saint Vicent Island, W.I.

Remarks. The species described by Uhler from Saint Vincent Is., as *Fulvius albomaculatus* Distant, 1884 belongs to this species. According to Uhler "Several specimens were collected on the Black Forest estate and about the Grand Etang, on the windward side of the Island, from August 13 to 19, at an altitude of 1500 to 1900 feet above the level of the sea, under leaves on the ground, on bark of decaying logs in a clearing, and also beaten from masses of brush and leaves". It is one of the smallest species in the genus.

Fulvius malinalcanus n.sp.

(Figs. 159 - 165)

Type. Male, holotype, Malinalco, Mexico, 8.VIII.1913. C. Bolivar, in NMNH.

Diagnosis. Characterized by the incrassation of the apex of the second antennal segment and by the morphology of the male genitalia.

Description. Body length 3.8, width 1.1. *Head:* length 0.5, width 0.6, vertex 0.24. *Antennae:* segment I, length 0.4; II, 0.8; III, 0.4; IV, 0.5. *Pronotum:* length 0.4, width at base 1.1. *Cuneus:* length 0.4, width at base 0.22 (holotype).

General body color black with whitish areas; segment I of antenna brown, segment II incrassate at apex, corium and embolium at middle and base of cuneus whitish. Underside of body with some color of upper part, coxa II and III whitish, hind tibia and tarsus pale. Rostrum reaching abdominal segment V.

Genitalia. penis (Fig. 160), vesica (Fig. 161), with a single field of spines in the side of the secondary gonopore. Left paramere (Figs. 162, 163), with a prominent lobe in the middle, covered with hairs. Right paramere (Fig. 164), small, simple. Theca (Fig. 165), apically blunt.

Female. Unknown.

Distribution. Mexico.

Remarks. Second antennal segment apically incrassate and whitish; the morphology of the genitalia is characteristic of the species.

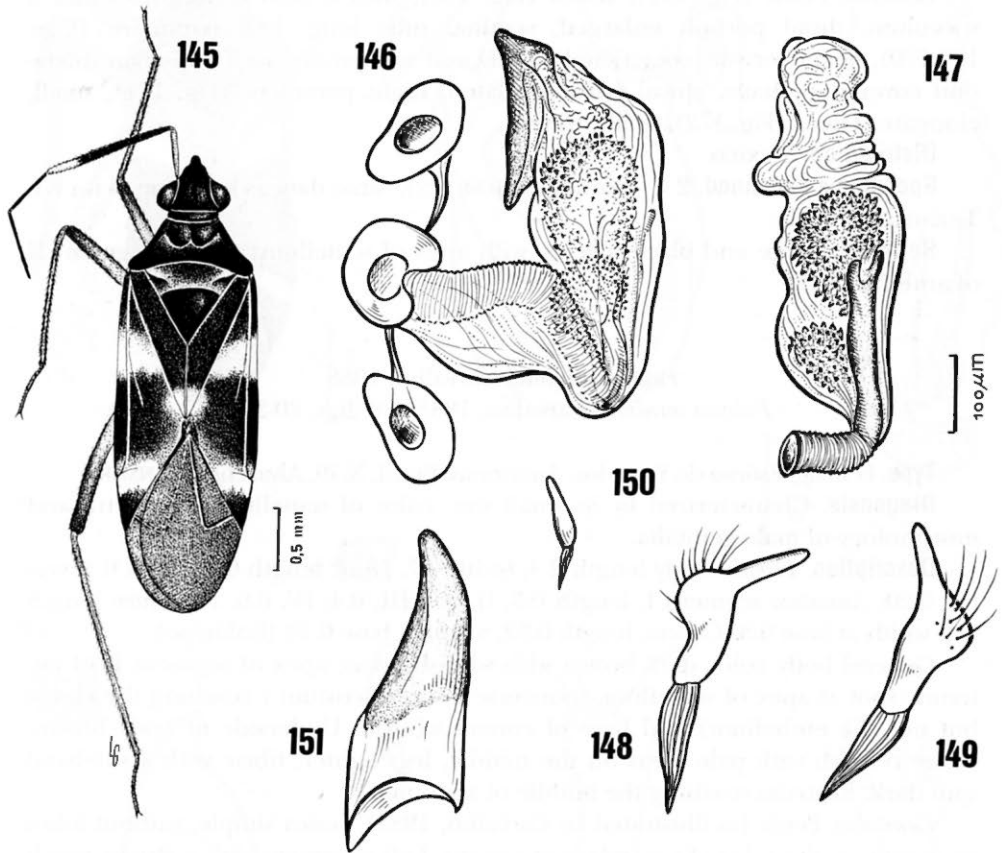
Fulvius mexicanus n. sp.

(Figs. 166-172)

Type. Female, Veracruz, 5 mi N Huatusco, Mexico, 29.VI.1971, taken at light, Clark, Hart, Murray, Schaffner, in NMNH.

Diagnosis: Species of large size (5.4), black and with male genitalia distinct.

Description: *Female.* Body length 5.4, width 1.7. *Head:* length 0.7, width 0.7, vertex 0.36. *Antennae:* Segment I, length 0.6; II, 1.2; III, 0.7, IV, 1.0. *Pronotum:* length



Figs. 145-151. *Fulvius itabiritensis*. 145. Male, holotype. 146. Penis. 147. Vesica. 148. Left paramere, side view. 149. *Idem*, dorsal view. 150. Right paramere. 151. Theca.

0.7, width at base 1.5. *Cuneus*: length 0.56, width at base 0.34 (holotype).

General body color black to dark brown with whitish areas; mesoscutum pale at side, extreme apex of scutellum, corium on two apical thirds and base of cuneus whitish. Underside of body with same color as upper portion, coxae II and III apically pale. Rostrum reaching the ovopositor.

Male. Slightly smaller than the female.

Genitalia. Penis (Fig. 167), vesica (Fig. 168), with a field of denticles and a speculum, distal portion enlarged, seminal tube long. Left paramere (Figs. 169, 170), characteristic, constricted basally and subapically, with a median dilatation covered by hairs, apical portion dilated. Right paramere (Fig. 171), small, elongate. Theca (Fig. 172), as illustrated.

Distribution. Mexico.

Specimens examined. 2 ♂, paratypes. JCMC (2), same data as holotype, 5 mi NE Teziutlan, Puebla.

Remarks. Large and black species, with apex of scutellum whitish, segment II of antenna dark.

Fulvius minimus Carvalho, 1988

Fulvius minimus Carvalho, 1988:880, figs. 20-27.

Type. Female, Estirao do Equador, Amazonas, Brazil, X.79, Alvarenga, in NMJR.

Diagnosis. Characterized by its small size, color of scutellum, hemelytra and morphology of male genitalia.

Description. *Female*. Body length 2.4, width 0.7. *Head*: length 0.3, width 0.4, vertex 0.20. *Antennae*: segment I, length 0.3; II, 0.6; III, 0.4; IV, 0.6. *Pronotum*: length 0.4, width at base 0.8. *Cuneus*: length 0.32, width at base 0.14 (holotype).

General body color dark brown with whitish areas; apex of segment II of antenna, spot at apex of scutellum, transverse fascia of corium (reaching the clavus but not the embolium) and base of cuneus whitish. Underside of body brown, coxae reddish with pale areas on the middle, legs lighter, tibiae with a sub-basal spot dark. Rostrum reaching the middle of abdomen.

Genitalia. Penis (as illustrated by Carvalho, 1988), vesica simple, without lobes or spiculi on the sides of secondary gonopore. Left paramere with a strong notch basally and median dilatation covered with long hairs, ending in a widened point. Right paramere much smaller, simple. Theca with a short point at distal end.

Female. With aspect similar to male, vertex 0.26.

Distribution. Brazil, Panamá.

Specimens examined. 4, JCMC (3), NMNH (1). BRAZIL: Gi-Parana, Ariquemes, Rondonia; Vera, Mato Grosso. PANAMA: Tres Ríos Plantation, Gatún Lake.

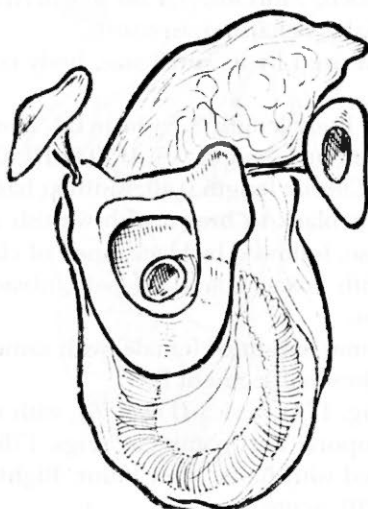
Remarks. The color of the scutellum and that of the hemelytra characterize the species.

152



0.5 mm

153



154



100/117

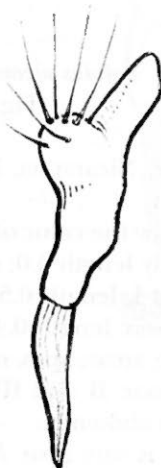
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158



155



156



Figs. 152-158. *Fulvius lunulatus*. 152. Male, (Grenada Island). 153. Penis. 154. Vesica. 155. Left paramere, side view. 156. *Idem*, dorsal view. 157. Right paramere. 158. Theca.

Fulvius morelensis n. sp.

(Figs. 173-179)

Type. Female, Mexico, Morelos, 4.4 mi E Cuernavaca, 6-7.VII.1974, taken at light, Clark, Murray, Ashe, Schaffner, in NMNH.

Diagnosis. Characterized by its small size, body color and morphology of the male genitalia.

Description. *Female.* Body length 3.7 width 1.2. *Head:* length 0.3, width 0.6, vertex 0.28. *Antennae:* segment I, length 0.4; II, 0.8; III, 0.4; IV, 0.5. *Pronotum:* length 0.4, width at base 1.0. *Cuneus:* length 0.40, width at base 0.30 (holotype).

General body color black to brown with whitish areas; segment I of antenna brown, II brown at base, followed by black, apex of clavus, base of cuneus whitish. Underside of body with coxae II and III pale, tibiae and tarsi lighter. Rostrum reaching the ovipositor.

Male. About the same length of female, with same characteristics, vertex 0.24. Rostrum reaching abdominal segment IV.

Genitalia. Penis (Fig. 174), vesica (Fig. 175), with two thorny fields on the side of the secondary gonopore. Left paramere (Figs. 176, 177), with two large dilations at middle covered with hairs, apex blunt. Right paramere (Fig. 178), small, simple. Theca (Fig. 179), acute at apex.

Distribution. Mexico.

Specimens examined. 3 paratypes, JCMC (1), NMNH (1), TAM (2). MEXICO: 4.4 mi E Cuernavaca, Morelos.

Remarks. Small species with second antennal segment short. Recognizable by the morphology of the male genitalia.

Fulvius nicaraguensis n. sp.

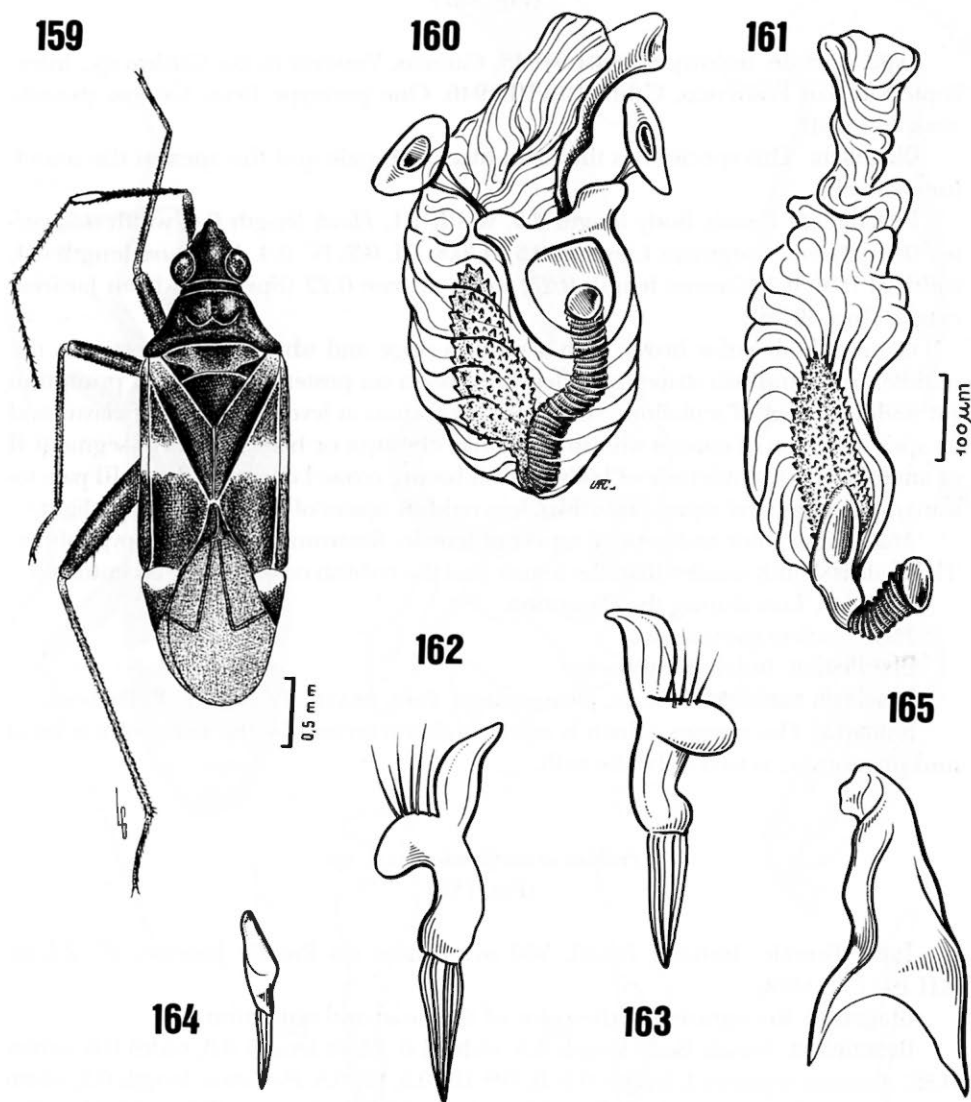
(Fig. 180)

Type. Female, holotype, Nicaragua, 5 km E Jinotega, VII.89. F. Humboldt, in SEA.

Diagnosis. Recognized by the color of the body.

Description. *Female.* Body length 4.0; width 1.4. *Head:* length 0.4; width 0.7; vertex 0.32. *Antennae:* segment I, length 0.5; II, 0.9; III, 0.4; IV, 0.4. *Pronotum:* length 0.6, width at base 1.1. *Cuneus:* length 0.40, width at base 0.30 (holotype). General body color black with pale areas; apex of scutellum and base of cuneus pale. Underside of body black, coxae II and III pale. Rostrum visible but impossible to make comparison with the abdomen.

Remarks. This species is very near *Fulvius submaculatus* Poppius, 1909 but is larger and has a longer cuneus. Both have the apex of the scutellum pale or whitish.



Figs. 159-165. *Fulvius malinalcanus*. 159. Male, holotype. 160. Penis. 161. Vesica. 162. Left paramere, side view. 163. *Idem*, dorsal view. 164. Right paramere. 165. Theca.

Fulvius ornatifrons Carvalho, 1955

Fulvius ornatifrons Carvalho, 1955:631, fig. 75
(Fig. 181)

Type. Female, holotype, USNM 61945, Caracas, Venezuela, on *Cattleya* sp., intercepted at San Francisco, Calif., 10.VIII.1946. One paratype from *Cattleya speciosissima*, in NMNH.

Diagnosis. This species has the head black and pale and the apex of the scutellum whitish.

Description. *Female.* Body length 2.7, width 1.1. *Head:* length 0.4, width 0.5, vertex 0.30. *Antennae:* segment I, length 0.3; II, 0.8; III, 0.2; IV, 0.4. *Pronotum:* length 0.4, width at base 0.4. *Cuneus:* length 0.25, width at base 0.22 (Specimen from Jacareacanga, Para, Brazil).

General body color brown with a reddish tinge and whitish areas; vertex in the middle, frons and two stripes on sides, calli, fascia on posterior margin of pronotum (at middle), apex of scutellum, small spot on corium at level of middle of clavus and its apex and base of cuneus whitish; antennae chestnut or black, apices of segment II of antennae dark. Underside of body reddish brown, coxae I chestnut, II and III pale towards apices (general aspect brownish), legs reddish, apices of femora and tibiae light.

Male. Same color and general aspect of female. Rostrum reaching the pygophore. The male is slightly smaller than the female and the reddish color is more accentuated.

Genitalia. Lost during the dissection.

Host. *Cattleya speciosissima*.

Distribution. Brazil, Venezuela.

Specimen examined. Female, Jacareacanga, Para, BRAZIL, IV.1969, F. R. Barbosa.

Remarks. The species, which is small, is characterized by the color of the head and pronotum, as well as by the calli.

Fulvius ornatifrontoides n. sp.

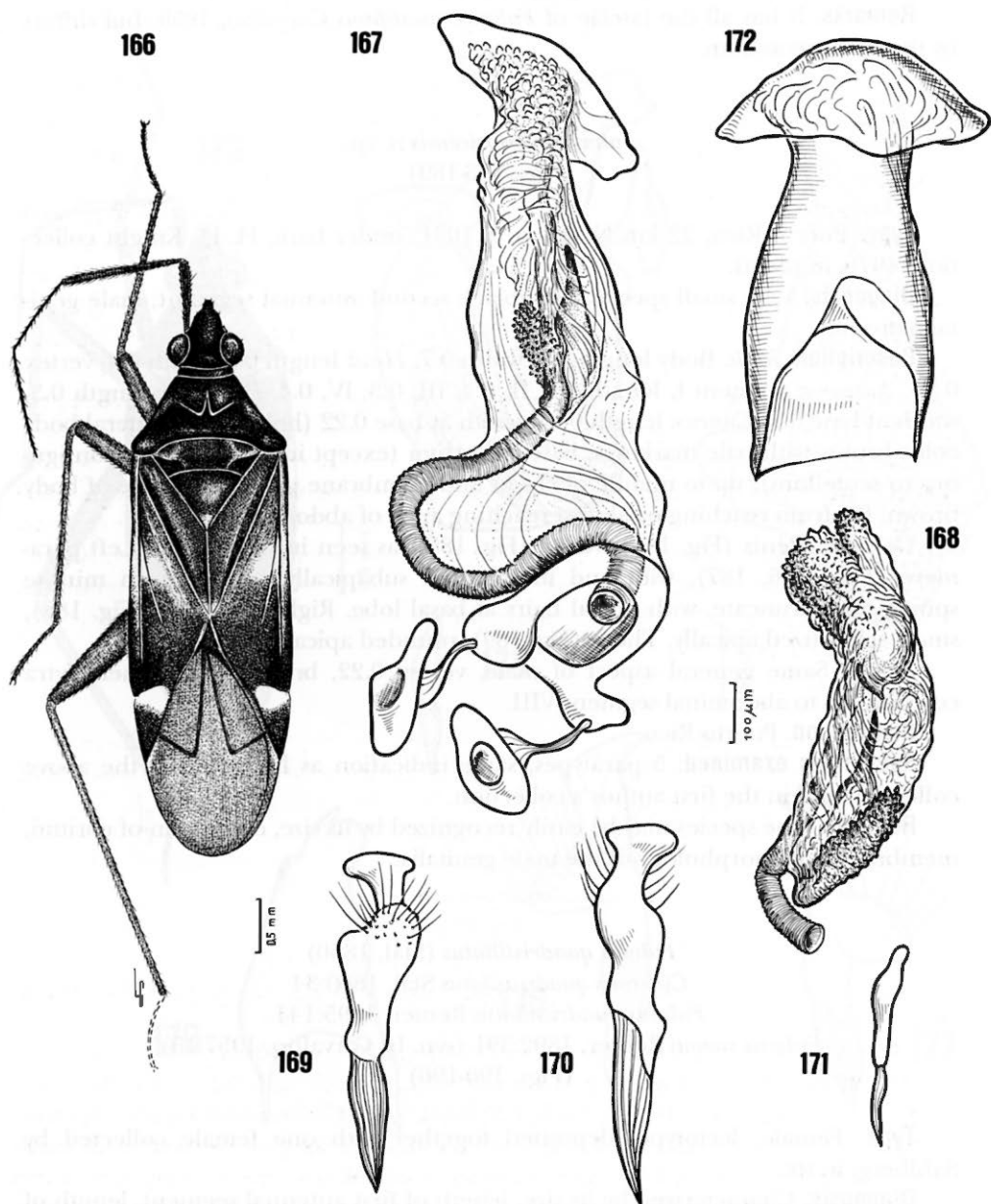
(Fig. 182)

Type. Female, Itatiaya, Brazil, 300 m., Estado do Rio de Janeiro, W. Zikan, XII.1947, in MNRJ.

Diagnosis. Recognized by the color of the head and scutellum.

Description. *Female.* Body length 3.5, width 1.6. *Head:* length 0.3, width 0.6, vertex 0.32. *Antennae:* segment I, length 0.5; II, 0.9; III, 0.5; IV, 0.5. *Pronotum:* length 0.5, width at base 1.1. *Cuneus:* length 0.50, width at base 0.30 (holotype). General body color brown with whitish areas; frons and two spots at side of eyes, apices of segment I and II of antenna, calli (except median fascia), mesoscutum at sides, middle of corium, apex of clavus and base of cuneus whitish. Underside of body brown, coxae II and III pale, tibiae and tarsi lighter. Rostrum reaching the ovipositor.

Male. Unknown.



Figs. 166-172. *Fulvius mexicanus*. 166. Male, paratype. 167. Penis. 168. Vesica. 169. Left paramere, dorsal view. 170. *Idem*, side view. 171. Right paramere. 172. Theca.

Distribution. Brazil.

Remarks. It has all the fasciae of *Fulvius ornatifrons* Carvalho, 1955, but differs by the black scutellum.

Fulvius puertoricensis n. sp.

(Figs. 183-189)

Type. Puerto Rico, 22 km N Yanco, X.1931, under bark, H. H. Knight collection, 1976, in NMNH.

Diagnosis. Very small species, with black second antennal segment; male genitalia distinct.

Description. *Male.* Body length 2.0, width 0.7. *Head* length 0.3, width 0.4, vertex 0.20. *Antennae*: segment I, length 0.2; II, 0.4; III, 0.3; IV, 0.4. *Pronotum*: length 0.3, width at base 0.7. *Cuneus*: length 0.22, width at base 0.22 (holotype). General body color brown with pale markings; base of corium (except internal margin contiguous to scutellum), up to middle of clavus and membrane pale. Underside of body brown. Rostrum reaching or almost reaching apex of abdomen.

Genitalia. Penis (Fig. 184), vesica (Fig. 185), as seen in illustration. Left paramere (Figs. 186, 187), with and indentation subapically covered with minute spines, apex truncate, with dorsal hairs at basal lobe. Right paramere (Fig. 188), small, sclerotized apically. Theca (Fig. 189), rounded apically.

Female. Same general aspect of male, vertex 0.22, brachypterous, hemelytra covering up to abdominal segment VIII.

Distribution. Puerto Rico.

Specimens examined: 5 paratypes, same indication as holotype, in the above collection and in the first author's collection.

Remarks. The species may be easily recognized by its size, coloration of corium, membrane and morphology of the male genitalia.

Fulvius quadristillatus (Stål, 1860)

Cyllecoris quadristillatus Stål, 1860:34

Fulvius quadristillatus Reuter, 1895:144

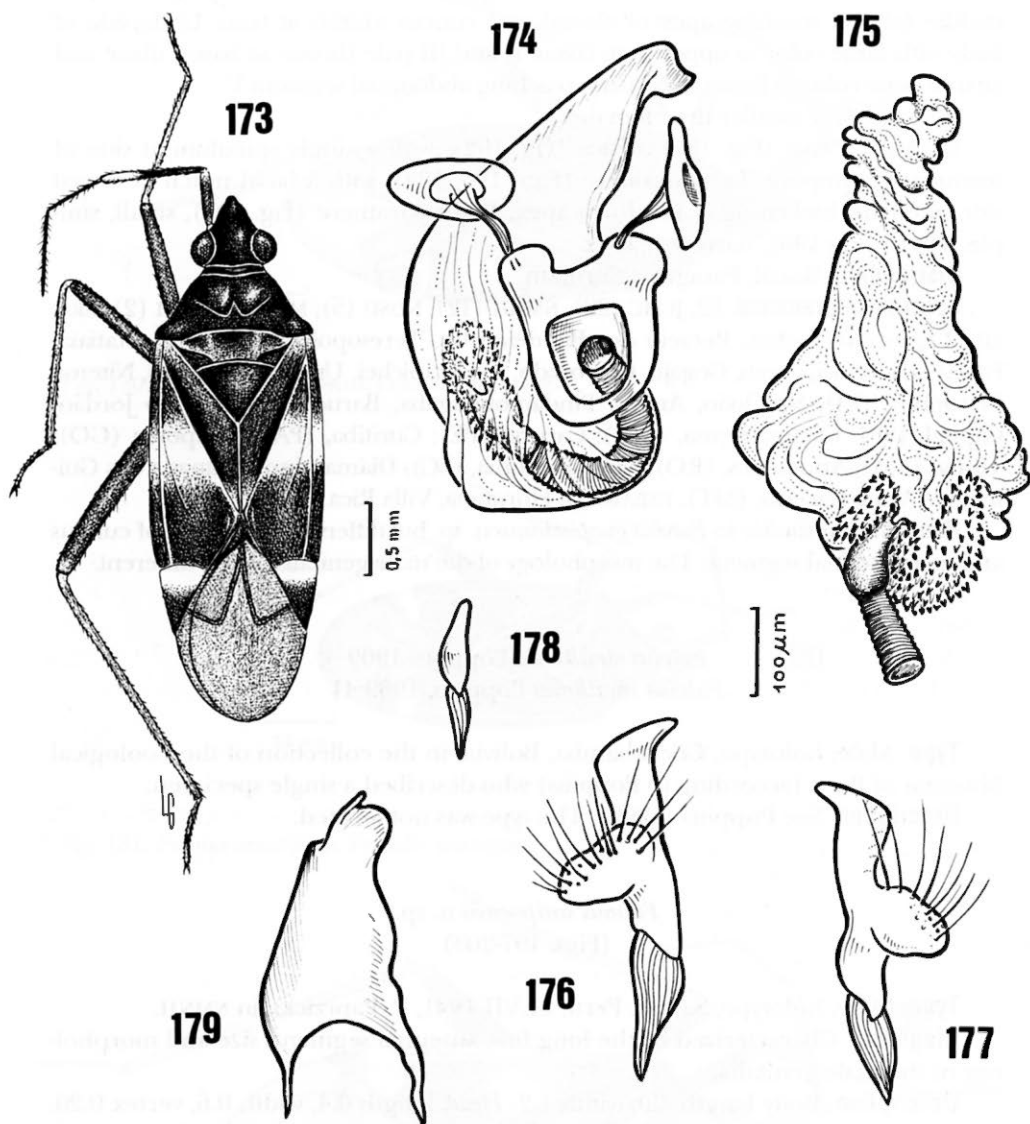
Fulvius simoni Reuter, 1892:391 (syn. by Carvalho, 1957:15)

(Figs. 190-196)

Type. Female, lectotype, deposited together with one female collected by Sahlberg, in NR.

Diagnosis. Characterized by its size, length of first antennal segment, length of cuneus and morphology of the male genitalia.

Description. *Female.* Body length 4.6; width 1.4. *Head* length 0.5; width 0.7, vertex 0.24. *Antennae*: segment I, length 0.5; II, 1.1; III, 0.5; IV, missing. *Pronotum* length 0.5,



Figs. 173-179. *Fulvius morelensis*. 173. Male, paratype. 174. Penis. 175. Vesica. 176. Left paramere, dorsal view. 177. *Idem*, side view. 178. Right paramere. 179. Theca.

width at base 1.2. *Cuneus* length 0.50, width at base 0.30 (lectotype). General body color blackish to brown with whitish areas; segment II of antenna at apex, corium at middle (almost reaching apex of clavus) and cuneus whitish at base. Underside of body with same color as upper part, coxae II and III pale (brown at base), tibiae and tarsi of same color as femora. Rostrum reaching abdominal segment V.

Male. Slightly smaller than female.

Genitalia. Penis (Fig. 191), vesica (Fig. 192), with a single spiculum at side of secondary gonopore. Left paramere (Figs. 193, 194), with a basal notch at dorsal side, median thickening at falciform apex. Right paramere (Fig. 195), small, simple. Theca (Fig. 196), narrow at apex.

Distribution. Brazil, Paraguay, Surinam.

Specimens examined. 82, JCMC (22), NMNH (12), NDSU (5), MN (41), TAM (2). BRAZIL: Lagoa das Tachas, Recreio dos Bandeirantes, Teresopolis, Lagoa Feia, Itatiaia, Foresta da Tijuca, Parati, Grajaju, Corcovado, Rio Trapichei, Umberto Antunes, Niteroi, Petropolis, (RJ); São João, Araras, Pindamonhagaba, Barueri, Campos do Jordão, Capital, (SP); Caetes, Viçosa, (MG); Caruru, (PE); Curitiba, (PA); Caiaponia (GO); Tiquie (AM); Ariquemes, (RO); Nova Teutonia, (SC); Diamantino, Chapada dos Guimarães, Vera, Caceres, (MT). PARAGUAY: Horqueta, Villa Rica.

Remarks. It is similar to *Fulvius guapimirinus* n. sp. but differs by the length of cuneus and first antennal segment. The morphology of the male genitalia also is different.

Fulvius simillimus Poppius, 1909
Fulvius simillimus Poppius, 1909:41

Type. Male, holotype, Cochabamba, Bolivia, in the collection of the Zoological Museum of Paris (according to Poppius) who described a single specimen.

Description. See Poppius (1909). The type was not located.

Fulvius satipoensis n. sp.
(Figs. 197-203)

Type: Male, holotype, Satipo. Peru, 21.VII.1941, P. Paprzicki, in NMNH.

Diagnosis. Characterized by the long first antennal segment, size and morphology of the male genitalia.

Description. Body length 4.0, width 1.2. *Head*: length 0.4, width 0.6, vertex 0.20. *Antennae*: segment I, length 0.6; II, 1.4; III, 0.4; IV, 0.6. *Pronotum*: length 0.4, width at base 1.1. *Cuneus*: length 0.50; width at base 0.22 (holotype).

General body color black with whitish areas; I antennal segment brown, II large at apex and narrow at base, corium (largely, level of cuneus and almost apical portion of calvus), base of cuneus whitish; base of clavus pale. Underside of body of same color as upper part; coxae II and III whitish, hind tibia and tarsus

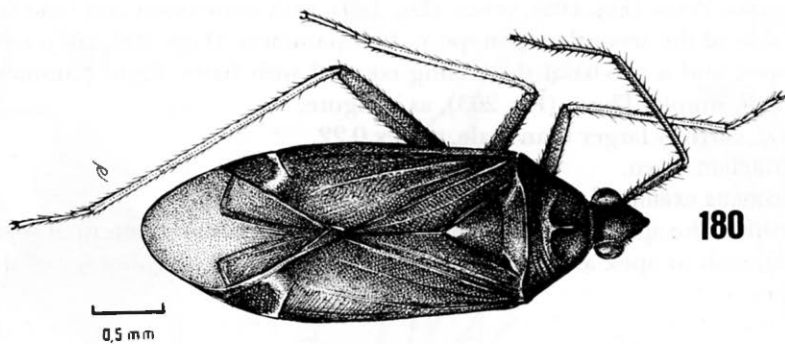


Fig. 180. *Fulvius nicaraguensis*. Female, holotype.

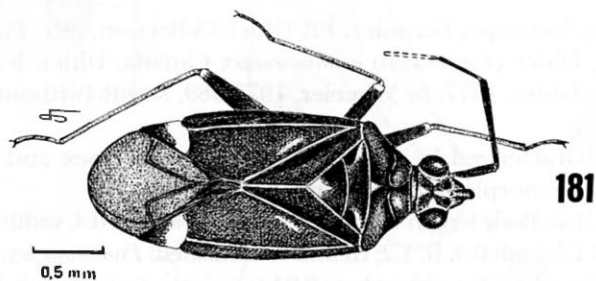


Fig. 181. *Fulvius ornatifrons*. Female, paratype.

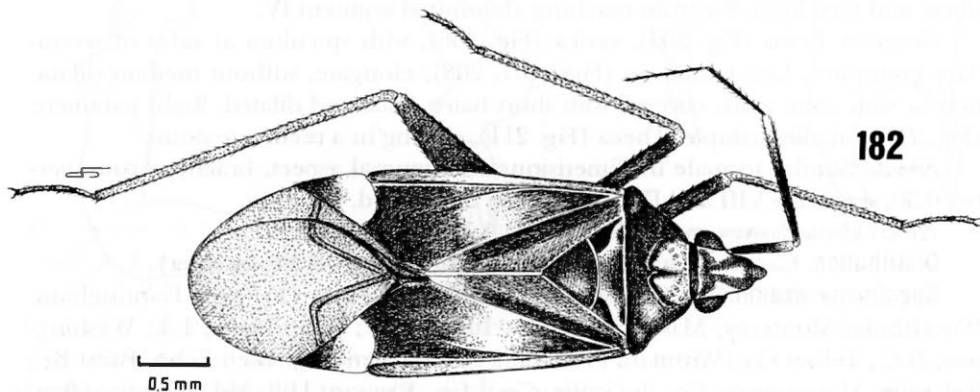


Fig. 182. *Fulvius ornatifrontoides*. Female, holotype.

pale. Rostrum reaching abdominal segment V.

Genitalia. Penis (Fig. 198), vesica (Fig. 199), with a spiculum and field of spines on the side of the secondary gonopore. Left paramere (Figs. 200, 201), with a peculiar apex and a sub-basal thickening covered with hairs. Right paramere (Fig. 202), small, simple. Theca (Fig. 203), as in figure.

Female. Slightly larger than male, vertex 0.22.

Distribution. Peru.

Specimens examined. 8, JCMC (1), NMNH (4).

Remarks. The species is characterized by the long cuneus, antennal segment II largely whitish at apex and narrowly to base, and by the morphology of the male genitalia.

Fulvius slateri Wheeler, 1977

For synonymy see Henry and Froeschner, 1988:272.

(Figs. 204-211)

Type: Female, lectotype, Grinnelz, PR Uhler Collection, 597, *Pamerochoris anthocoroides*, Canada, Uhler (*Pamerochoris anthocoroides*, Canada, Uhler, lectotype *Pamerochoris anthocoroides* Uhler, 1877, by Wheeler, 1977:589, NMNH (without antennae and one hemelytron).

Diagnosis. Characterized by the scutellum with pale apex and two pale spots laterally, and by the morphology of the male genitalia.

Description. *Male.* Body length 3.6, width 1.2. *Head:* length 0.4, width 0.5, vertex 0.24. *Antennae:* segment I, length 0.4; II, 1.2; III and IV mutilated. *Pronotum:* length 0.4, width at base 0.9. *Cuneus:* length 0.50, width at base 0.24 (specimen from Lowell, Massachusetts).

General body color brown, with head and pronotum darker and whitish areas; apex, basal fascia on corium (reaching apex of clavus) light, cuneus whitish at base. Underside of body brown, coxae pale or whitish (except bases of II and III), tibiae and tarsi light. Rostrum reaching abdominal segment IV.

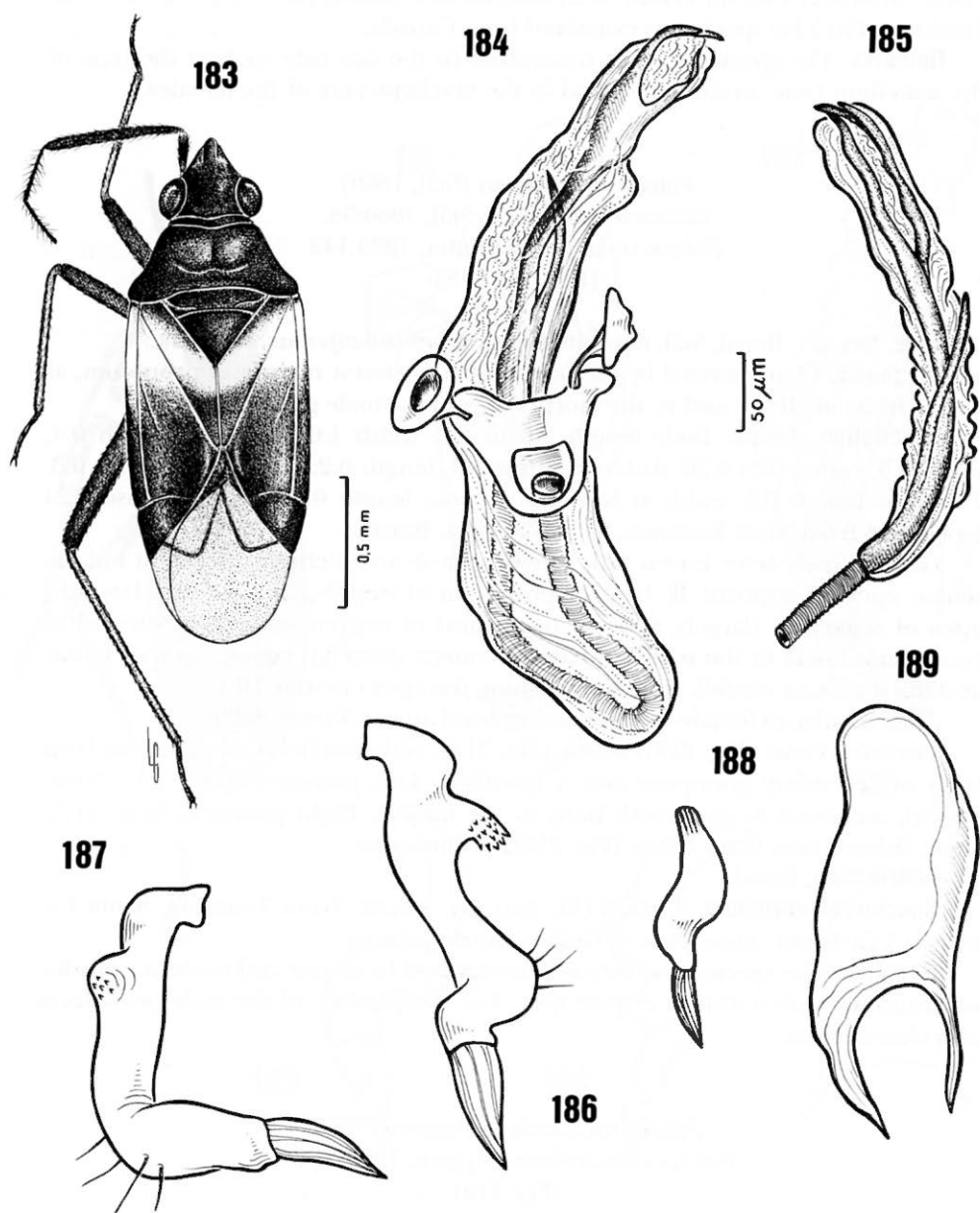
Genitalia. Penis (Fig. 205), vesica (Fig. 206), with spiculum at sides of secondary gonopore. Left paramere (Figs. 207, 208), elongate, without median dilatation or with same weak, covered with short hairs; distal end dilated. Right paramere (Fig. 210), smaller, simple. Theca (Fig. 211), ending in a recurvate point.

Female. Similar to male in dimensions and general aspect, brachypterous, vertex 0.30, segments VIII and IX of abdomen uncovered.

Host. *Odontoglossum grande* (fide U.S.D.A.)

Distribution. Canada, Guatemala, Mexico (fide Henry & Froeschner).

Specimens examined. 39, JCMC (4), NMNH (49), TAM (1). USA: Flamingham, Woodshole, Monterey, Mass.; Sangerties, Ithaca, NY.; Wyandanch, L.I.; Washington, D.C.; Talbot Co., Wittman, Plummers Island, Blandsb, Glen Echo, Paint Br., Beltsville, Montgomery Co, Rockville, Cecil Co., Pleasant Hill, Md.; Vienna. Glen-caryln, Va.; Philadelphia, Pa; Ames, Ia.; Agriculture College, Mich.; Pleas. Val.



Figs. 183-189. *Fulvius puertoricensis*. 183. Male, holotype. 184. Penis. 185. Vesica. 186. Left paramere, side view. 187. *Idem*, dorsal view. 188. Right paramere. 189. Theca.

Plant, Alexander Co., Il.; Tryon, N.C.; GUATEMALA: (intercepted by U.S.D.A. at San Francisco, Cal.) No specimens examined from Canada.

Remarks. The species is easily recognized by the two pale spots at the base of the scutellum (one on each side) and by the brachypterism of the females.

Fulvius stillatipennis (Stål, 1860)
Cyllecoris stillatipennis Stål, 1860:54.
Fulvius stillatipennis Reuter, 1895:142
(Figs. 212-218)

Type. Sex (?), Brazil, Stål, deposited as *Cyllecoris stillatipennis* Stål in NR.

Diagnosis. Characterized by the pale spot at posterior margin of pronotum, as well as by its small size and by the morphology of the male genitalia.

Description. *Female.* Body length 2.6 to 2.8, width 1.0-1.1. *Head:* length 0.4, width 0.5, vertex 0.24-0.26. *Antennae:* segment I, length 0.2; II, 0.5; III, 0.2; IV, 0.3. *Pronotum:* length 0.3, width at base 0.9. *Cuneus:* length 0.30, width at base 0.24 (specimen from Nova Teutonia, Santa Catarina, Brazil).

General body color brown with pale or whitish areas; clypeus, segment I of antenna, apex of segment II, base of pronotum at middle, mesoscutum laterally, apex of scutellum (largely, spot on basal third of corium -sometimes divided in two- with a fascia in the middle), base of cuneus (largely), coxae, apex of femur and tibiae pale or whitish. Rostrum reaching the apex of coxae III.

Male. Similar to female in color and general aspect. Vertex 0.22.

Genitalia. Penis (Fig. 213), vesica (Fig. 214), with two fields of spines on both sides of secondary gonopore and a spiculum. Left paramere (Figs. 215, 216), curved, narrowed to apex, with hairs in the middle. Right paramere (Fig. 217), small, dilated near base. Theca (Fig. 218), as illustrated.

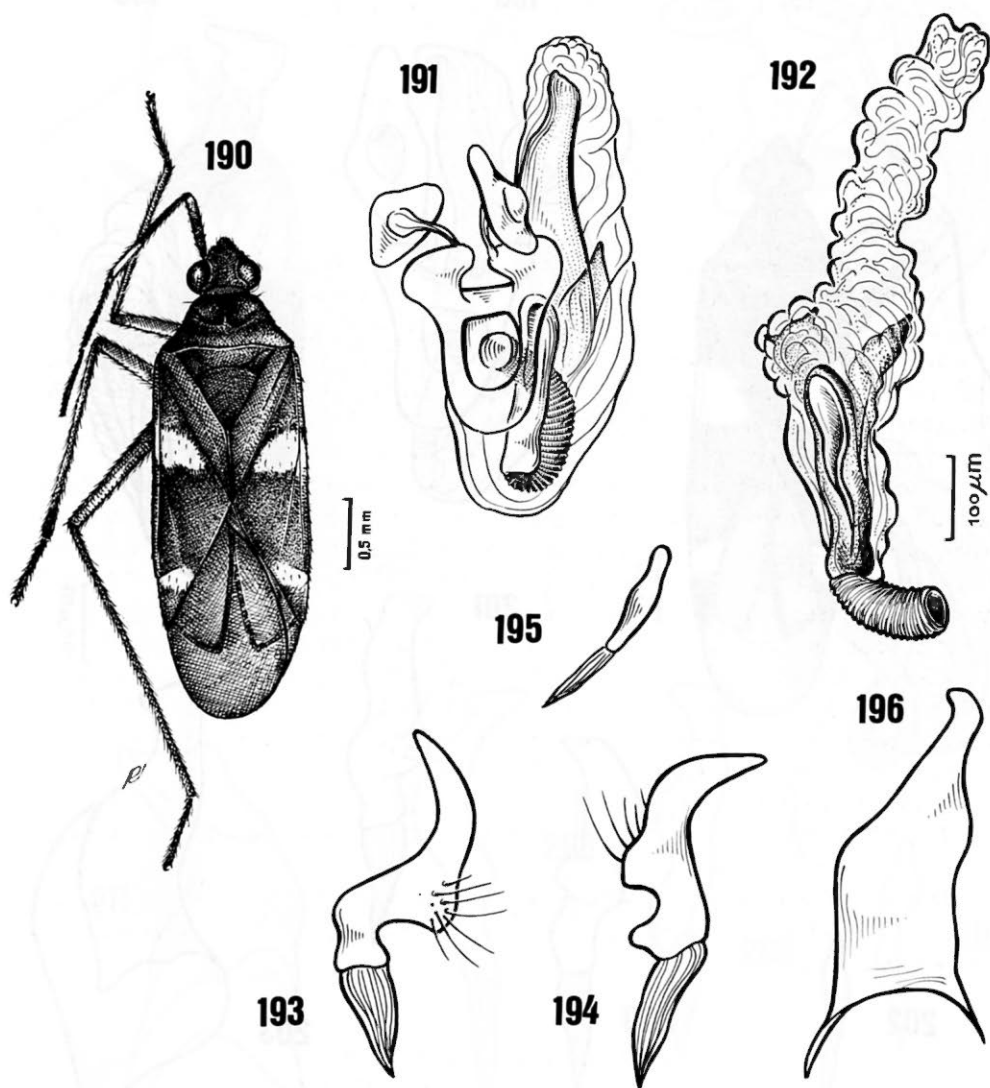
Distribution. Brazil.

Specimens examined. 7, JCMC (6), TAM (1): BRAZIL: Nova Teutonia, Santa Catarina; 3 ♀, BRAZIL: same data; ♀ Grajau, Rio de Janeiro.

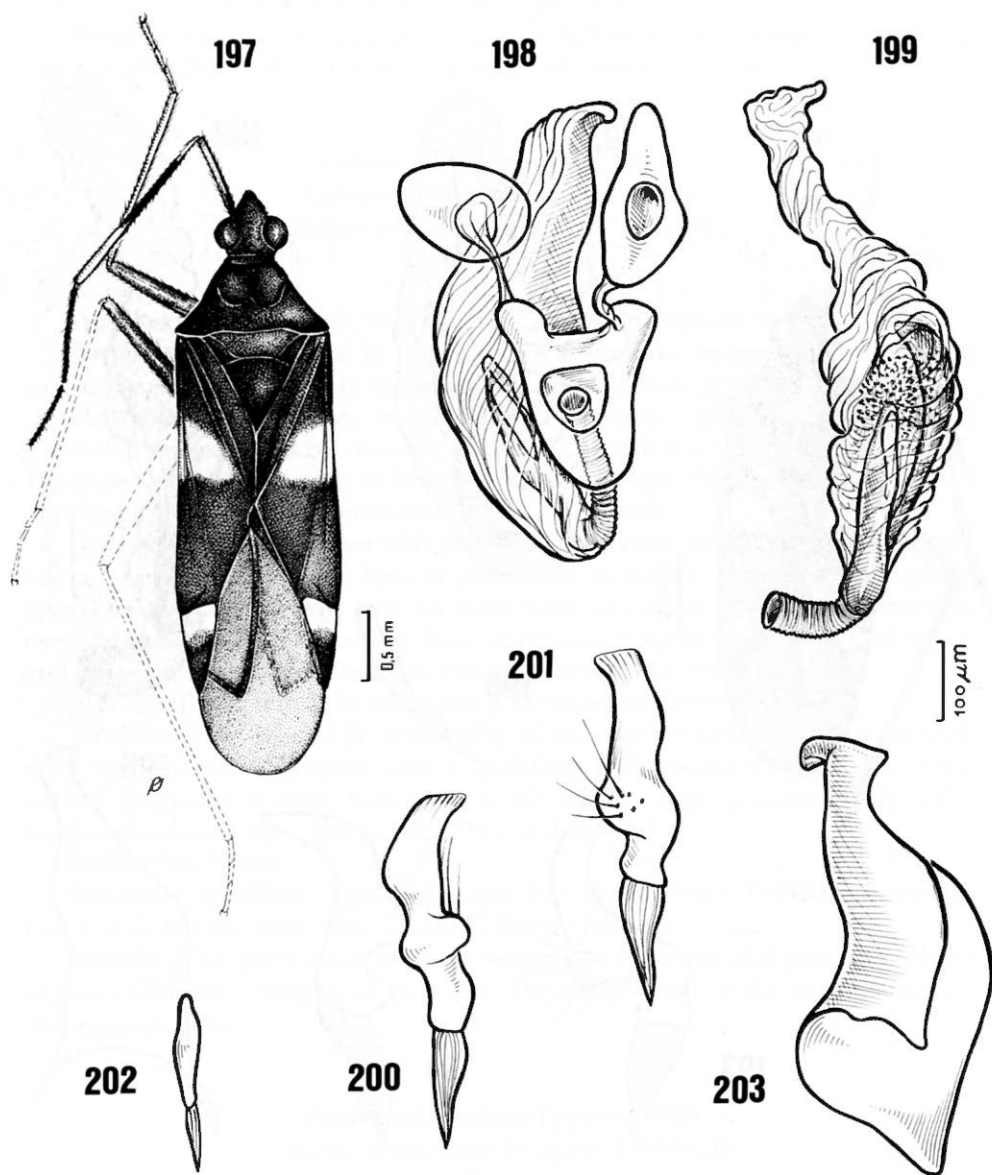
Remarks. The species may be easily recognized by its size and posterior border of pronotum with a whitish or pale spot. The morphology of the male genitalia is also characteristic.

Fulvius submaculatus Poppius, 1909
Fulvius submaculatus Poppius, 1909:31,39
(Fig. 219)

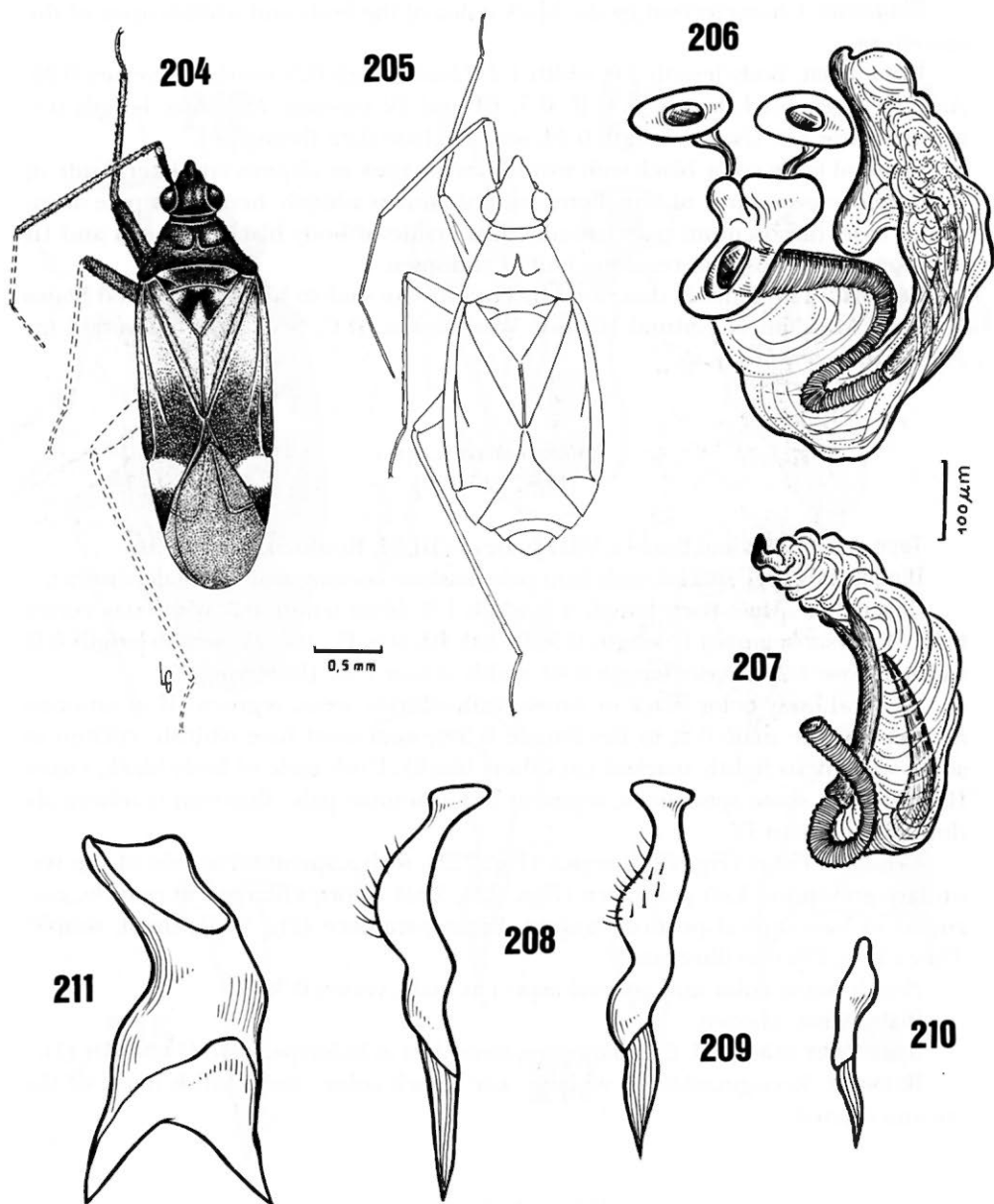
Type. Female, lectotype, Guadeloupe Island, West Indies, No. I263, first label Guadeloupe, second 58, third in Poppius handwriting, *F. submaculatus* n. sp., Spec. Typ., MZU.



Figs. 190-196. *Fulvius quadristillatus*. 190. Male (Rio de Janeiro). 191. Penis. 192. Vesica. 193. Left paramere, dorsal view. 194. *Idem*, side view. 195. Right paramere. 196. Theca.



Figs. 197-203. *Fulvius satipoensis*. 197. Male, holotype. 198. Penis. 199. Vesica. 200. Left paramere, side view. 201. *Idem*, dorsal view. 202. Right paramere. 203. Theca.



Figs. 204-211. *Fulvius slateri*. 204. Male (Lovell, Massachusetts). 205. Female. 206. Penis. 207. Vesica. 208. Left paramere, side view. 209. *Idem*, dorsal view. 210. Right paramere. 211. Theca.

Diagnosis. Characterized by the black color of the body and whitish apex of the scutellum.

Description. Body length 3.0; width 1.2. *Head*: length 0.3; width 0.5; vertex 0.26. *Antenna*: segment I, length 0.4; II, 0.7; III and IV missing. *Pronotum*: length 0.4; width at base 1.0. *Cuneus*: length 0.24; width at base 0.22 (holotype).

General body color black with whitish areas; apex of clypeus and lateral side of head before eyes, apex of scutellum, base of cuneus whitish; hemelytra pale at extreme base; mesoscutum pale laterally. Underside of body black, coxae II and III pale to whitish. Rostrum reaching half of abdomen.

Remarks. The females described by Poppius are said to be in the United States National Museum of Natural History, Washington, D.C. See also what is said for *Fulvius nicaraguensis* n. sp.

Fulvius thetis n. sp.

(Figs. 220-226)

Type. Male, Mexico, Puebla, Villa Juarez, VIII.85, Brailovsky, in NMNH.

Diagnosis. Large species, with faint pale mark on corium; male genitalia distinct.

Description. *Male.* Body length 4.2, width 1.3. *Head*: length 0.3, width 0.6, vertex 0.22. *Antenna*: segment I, length 0.5; II, 1.0; III, 0.6; IV, 0.6. *Pronotum*: length 0.6; width at base 1.2. *Cuneus*: length 0.42, width at base 0.22 (holotype).

General body color black or brown with whitish areas; segment II of antenna at apex (in the male 0.2; in the female 0.30), cuneus at base whitish, corium in some specimens lightly marked (in others black). Underside of body black, coxae II whitish. In some specimens, segment I of antennae pale. Rostrum reaching abdominal segment IV.

Genitalia. Penis (Fig. 221), vesica (Fig. 222), with a spiculum at side of the secondary gonopore. Left paramere (Figs. 223, 224), short, enlarged at middle, narrowed to base, apical portion straight. Right paramere (Fig. 225), small, simple. Theca (Fig. 226), as illustrated.

Female. Same color and general aspect as male, vertex 0.30.

Distribution. Mexico.

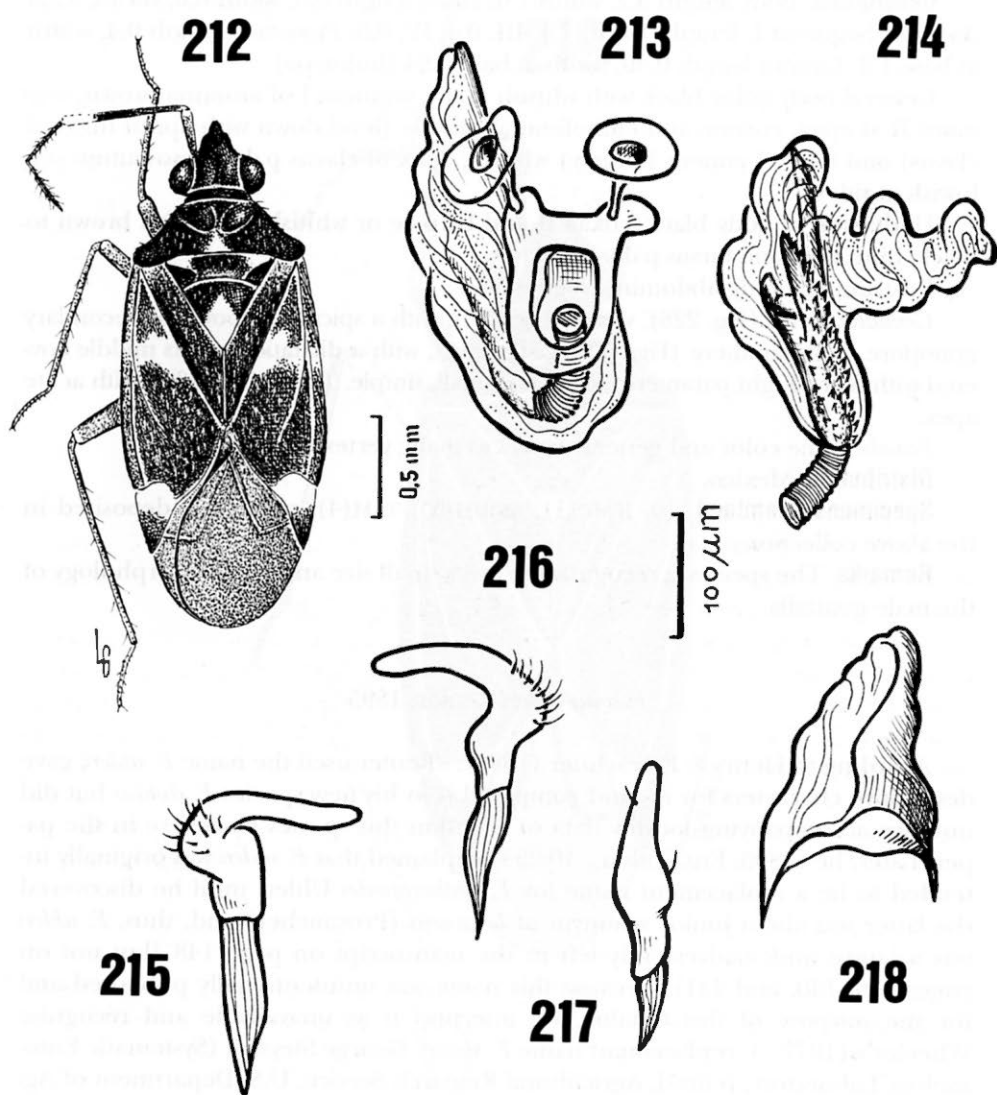
Specimens examined. 2 ♀, paratypes, same data as holotype, JCMC (1), NMNH (1).

Remarks. Recognizable by its large size, black color, and whitish mark of the corium diluted.

Fulvius tuxtliensis n.sp.

(Figs. 227-233)

Type. Male, holotype, Mexico, Veracruz, Los Tuxtlas, UNAM Biol. Sta., E. Cate-maco, 16-19.IX.1989, E. Barrera, T. J. Henry and I. M. Kerzhner, in NMNH.



Figs. 212-218. *Fulvius stillatipennis*. 212. Male (Nova Teutonia, Santa Catarina). 213. Penis. 214. Vesica. 215. Left paramere, dorsal view. 216. *Idem*, side view. 217. Right paramere. 218. Theca.

Diagnosis. Characterized by the color of the body and by the morphology of the male genitalia.

Description. Body length 3.2, width 1.0. *Head:* length 0.3, width 0.6, vertex 0.22. *Antennae:* Segment I, length 0.4; II, 1.1; III, 0.4; IV, 0.5. *Pronotum:* length 0.4, width at base 1.2. *Cuneus:* length 0.40, width at base 0.24 (holotype).

General body color black with whitish areas; segment I of antenna brown, segment II at apex, corium and embolium at middle (level down with apical third of clavus) and base of cuneus (largely) whitish; apex of clavus pale, mesoscutum yellowish at sides.

Underside of body black, coxae II and III pale or whitish, abdomen brown to black, hind tibia and tarsus pale.

Rostrum reaching abdominal segment VI

Genitalia. Penis (Fig. 228), vesica (Fig. 229), with a spiculum above the secondary gonopore. Left paramere (Figs. 230, 231), short, with a dilatation on its middle covered with hairs. Right paramere (Fig. 232), small, simple. Theca (Fig. 233), with acute apex.

Female. Same color and general aspect as male; vertex 0.24.

Distribution. Mexico.

Specimens examined. 10, JCMC(1), NMNH(5), TAM(4), paratypes, deposited in the above collections.

Remarks. The species is recognizable by its small size and by the morphology of the male genitalia.

Fulvius uhleri Reuter, 1895

According to Henry & Froeschner (1988): "Reuter used the name *F. uhleri*, gave descriptive characters for it, and compared it to his new species *F. dubius* but did not give accompanying locality data or mention this species elsewhere in the paper. Later, he (1895, Ent. Tidskr., 10:254) explained that *F. uhleri* was originally intended to be a replacement name for *F. anthocoroides* Uhler. until he discovered the latter was also a junior synonym of *brunneus* (Provancher) and, thus, *F. uhleri* was a lapsus and inadvertently left in the manuscript on page 148 (but not on pages 136, 140, and 141). Because this name was unintentionally published and for the purpose of this Catalog, we interpret it as unavailable and recognise Wheeler's (1977...), replacement name *F. slateri*. George Steyskal (Systematic Entomology Laboratory, retired, Agricultural Research Service, U.S. Department of Agriculture, Whashington, D.C.), recommends that the Commission on Zoological Nomenclature be petitioned to place *F. uhleri* on the Official Index of Rejected and Invalid Names. See Wheeler (1977...) for further clarification of this complicated nomenclatural history. See also *Plagionathus obscurus* Uhler, the senior synonym of *Lygus brunneus* Provancher".

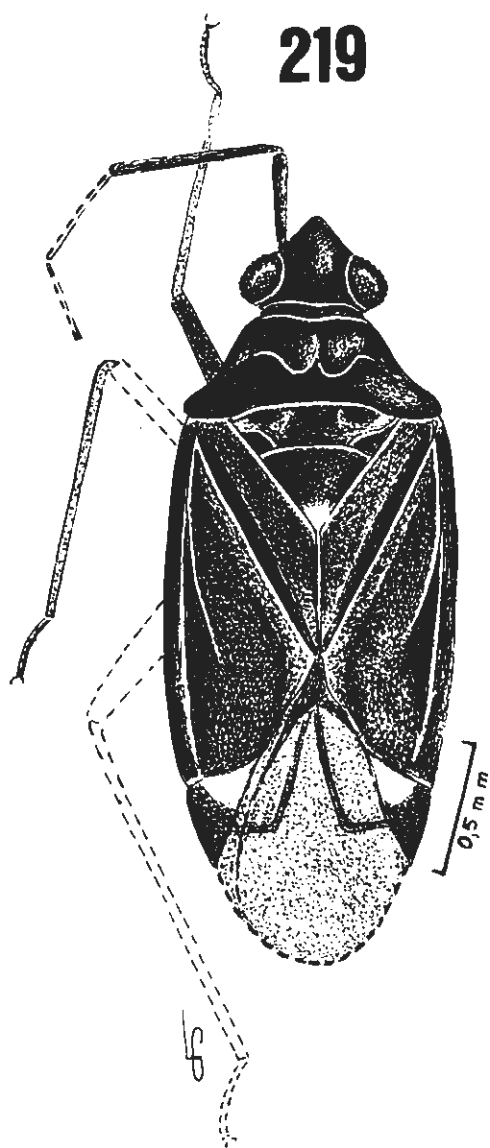
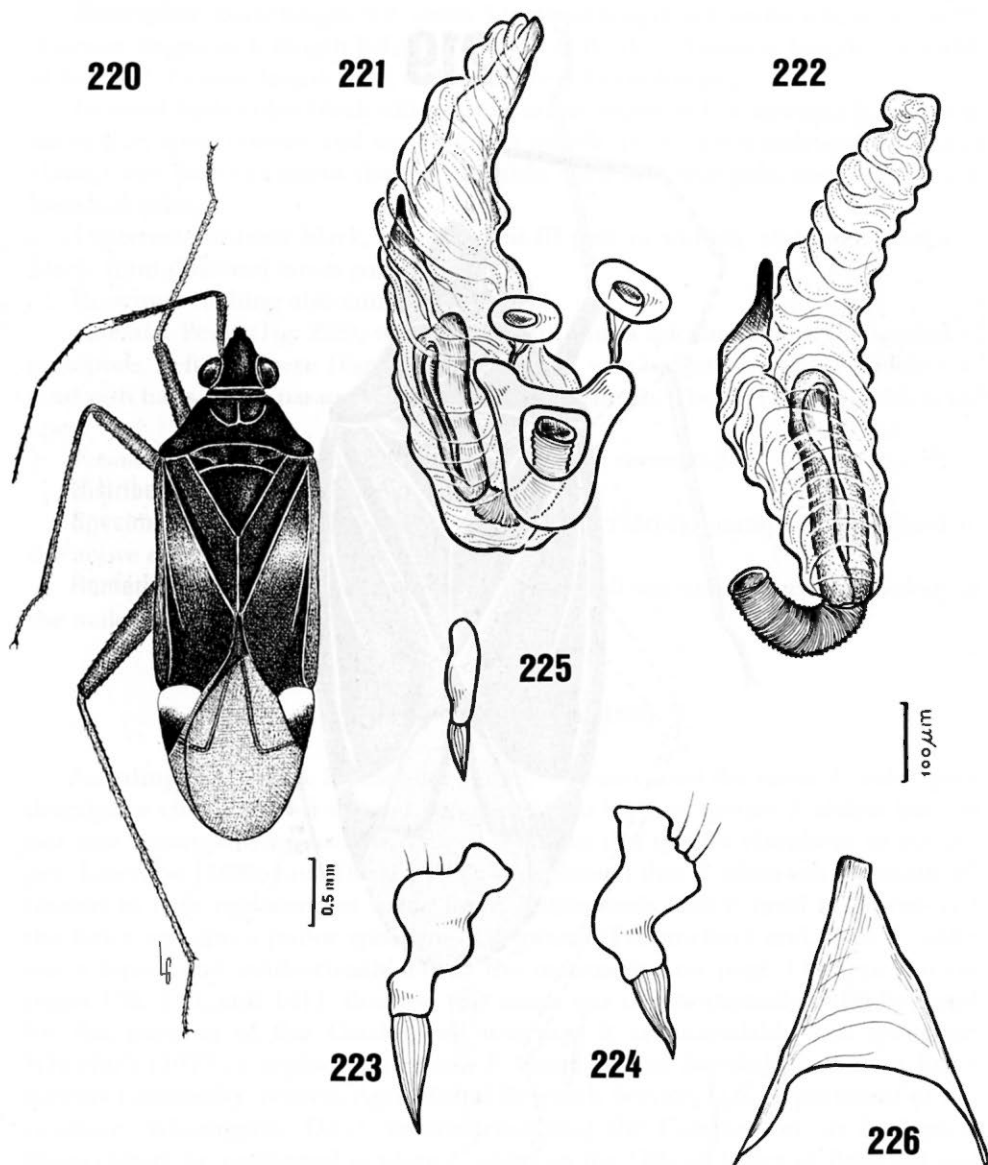
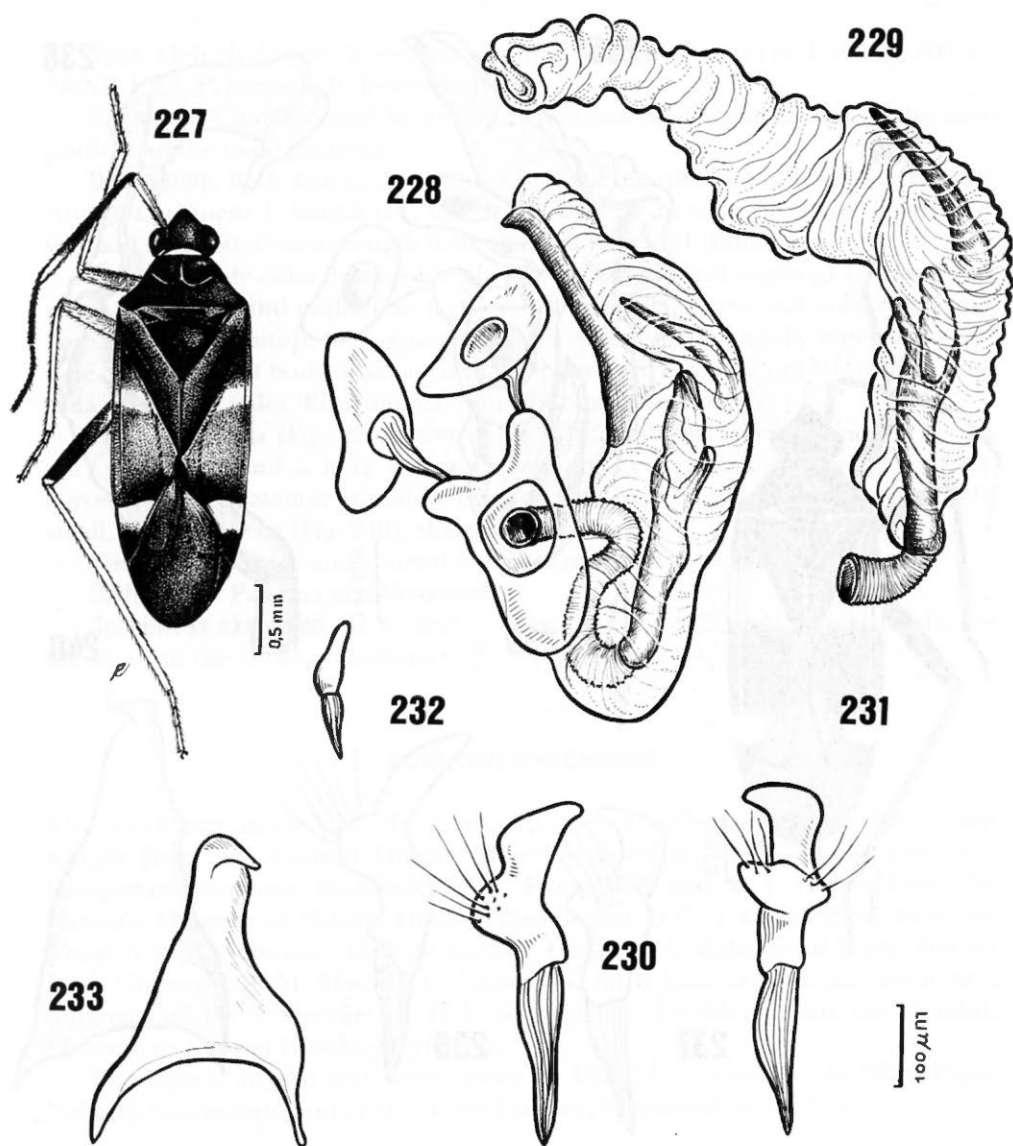


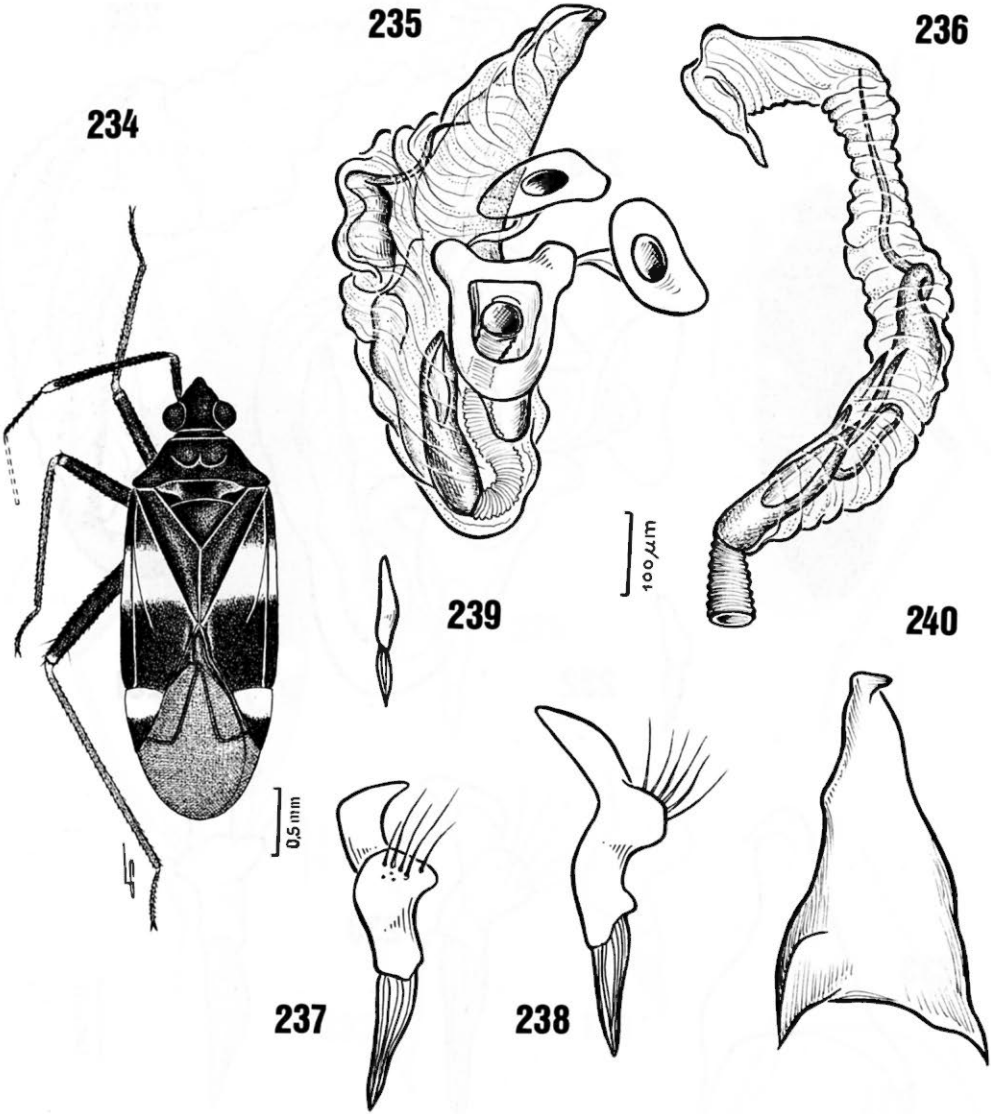
Fig. 219. *Fulvius submaculatus*. Female, holotype.



Figs. 220-226. *Fulvius thetis*. 220. Male, holotype. 221. Penis. 222. Vesica. 223. Left paramere, side view. 224. *Idem*, opposite. 225. Right paramere. 226. Theca.



Figs. 227-233. *Fulvius tuxtlensis*. 227. Male, holotype. 228. Penis. 229. Vesica. 230. Left paramere, dorsal view. 231. *Idem*, side view. 232. Right paramere. 233. Theca.



Figs. 234-240. *Fulvius venezuelanus*. 234. Male, holotype. 235. Penis. 236. Vesica. 237. Left paramere, dorsal view. 238. *Idem*, side view. 239. Right paramere. 240. Theca.

Fulvius venezuelanus n. sp.
(Figs. 234-240)

Type. Male, holotype, Venezuela: Barinas, 5 km E Altamira de Caceres, 700 m., 30.XII.1985, P. Kovarik; R. Jones, in NMNH.

Diagnosis. Characterized by the short first antennal segment and by the morphology of the male genitalia.

Description. Body length 3.4, width 1.2. *Head*: length 0.3, width 0.6, vertex 0.26. *Antenna*: segment I, length 0.4; II, 1.0; III, 0.4; IV missing. *Pronotum*: length 0.4, width at base 1.0. *Cuneus*: length 0.40, width at base 0.24 (holotype).

General body color black with whitish areas; antennal segment I brown, segment II, corium and embolium (at level of apex, scutellum and apex of clavus), base of cuneus whitish, mesoscutum at sides yellow, head laterally anterior to eyes pale. Underside of body of same color as upper part, coxae II and III whitish, hind tibia and tarsus paler. Rostrum reaching abdominal segment V.

Genitalia. Penis (Fig. 235), vesica (Fig. 236), with two spiculi at side of secondary gonopore and a long interior spiculum. Left paramere (Figs. 237, 238), curved, with a dilatation at middle covered with hairs. Right paramere (Fig. 239), small, simple. Theca (Fig. 240), sharp at apex.

Female. Same color and general aspect as male, vertex 0.27.

Distribution. Panama and Venezuela.

Specimens examined. 31 ♂ and ♀. JCMC (4), TAM (22), SEA (5), same data as holotype, in the above collections.

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