

# AMERICAN MUSEUM *Novitates*

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY  
CENTRAL PARK WEST AT 79TH STREET, NEW YORK, N.Y. 10024  
Number 2765, pp. 1-29, figs. 1-25 August 3, 1983

## The *Ozophora* of Panama, with Descriptions of Thirteen New Species (Hemiptera, Lygaeidae)

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### ABSTRACT

The *Ozophora* fauna of Panama is analyzed. Twenty-one species are discussed of which 13 are described as new (*attagenis*, *baliocoris*, *brunnea*, *englemanni*, *festiva*, *maculosa*, *notabilis*, *parva*, *ro-*

*busta*, *scutellata*, *singularis*, *versicolor* and *villosa*). A key is included to all species. Eight species are illustrated by dorsal views and 17 by anatomical details, chiefly of the male genitalia.

### INTRODUCTION

The Neotropical *Ozophora* fauna is very rich and contains many undescribed species. Panama, lying as it does at the crossroads of South and Central America, has a particularly large number of species. Panama has also been collected more extensively than has any other area of comparable size and diversity in the Neotropics.

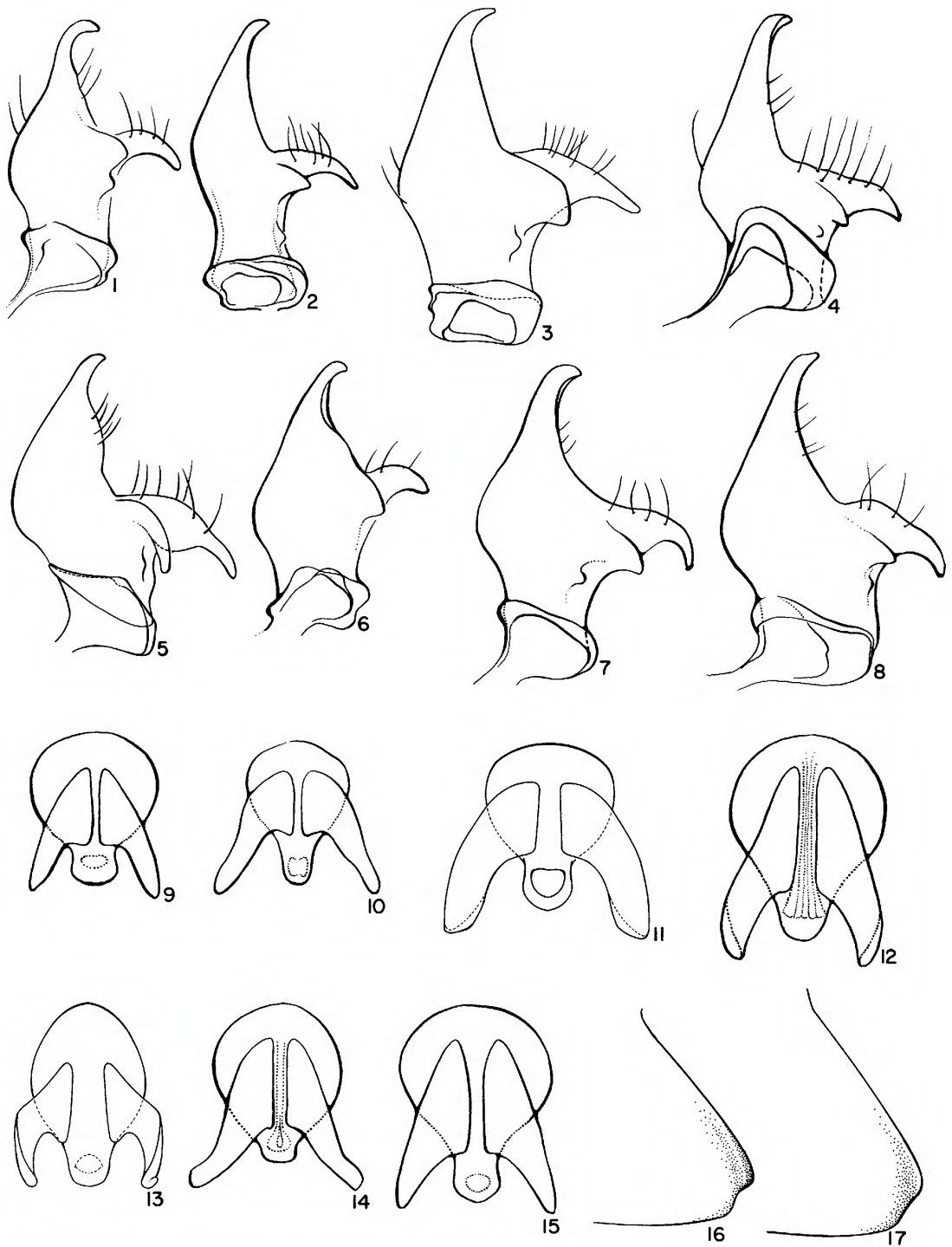
Because of the complexity of the taxon and the inadequacy of material from South America, a complete revision of the genus *Ozophora* will not be finished for some time. This paper is presented to make known a considerable number of previously undescribed species and to provide a means of readily identifying Panamanian specimens. It should be of more general use as it includes most of the species known to occur in Central

America and many of the more common and widely distributed ones from northern South America.

The phylogeny of the genus has not been analyzed and the distributions of most species will remain only partially known. Nevertheless, the extensive collecting in Panama particularly in recent years by Drs. Engleman and Wolda makes it possible to make a few observations on the *Ozophora* fauna.

Of the 21 species of the genus now known from Panama nine (43%) also occur in Central America, five (24%) are known only from Panama and one (5%) occurs in Panama and South America. Of those that are found in Central and South America as well as in Panama most appear to occur only in northern South America. One can hypothesize from

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FIGS. 1-17. *Ozophora parva*, new species. Paramere. 2. *Ozophora scutellata*, new species. Paramere. 3. *Ozophora festiva*, new species. Paramere. 4. *Ozophora notabilis*, new species. Paramere. 5. *Ozophora brunnea*, new species. Paramere. 6. *Ozophora englemani*, new species. Paramere. 7. *Ozophora versicolor*, new species. Paramere. 8. *Ozophora singularis*, new species. Paramere. 9. *Ozophora parva*, new species.

this that the majority of species of *Ozophora* in Panama may have been derived from Central America.

Nothing of significance can be said of the five species known only from Panama as none are known from more than a few specimens.

Perhaps the most striking feature of the Panamanian fauna is its evident segregation into essentially lowland and montane elements. Such species as *festiva*, *notabilis*, *versicolor*, and *singularis* appear to be essentially montane in the Chiriquis. Some are not exclusively so as *versicolor* has been collected in the Canal Zone and Darién, and *singularis* in the Canal Zone. *Ozophora attagenis* is known only from Cerro Campana (as is *maculata*) in Panama. By contrast *baliocoris*, *atropicta*, *englemani*, *consanguinea*, *conca-va*, *parapicta*, *brunnea*, and *scutellata* are known either exclusively from or chiefly from the lowlands.

Very little is known about the biology or even the habitats of Panamanian *Ozophora*. The great majority of specimens studied have been taken at lights. Such species as *parapicta*, *atropicta*, and *consanguinea* are known to feed on fallen seeds of *Ficus* spp.

#### ACKNOWLEDGMENTS

I thank the following individuals and institutions for the loan of material: Drs. P. Arnaud (California Academy of Sciences), P. D. Ashlock (University of Kansas), R. M. Baranowski (University of Florida), R. M. Bohart (University of California, Davis), J. C. M. Carvalho (National Museum, Brazil), D. Engleman (Coco Solo Hospital, Panama), R. C. Froeschner (National Museum of Natural History, Smithsonian Institution, USNM), J. Powell (University of California, Berkeley), J. C. Schaffner (Texas A. & M. University), R. T. Schuh (American Museum of Natural History), P. H. van Doesburg Jr. (Leiden Museum), and R. E. Woodruff (Florida State Collection of Arthropods).

Special thanks are due the following individuals from The University of Connecticut: Ms. Mariane Hassey for extensive aid in dissection and organization of the material, to Mr. Steven Thurston and Ms. Mary Jane Spring for preparation of the illustrations and Mrs. Elizabeth Slater for aid in preparation of the manuscript.

This work was supported by a grant from the National Science Foundation.

#### KEY TO SPECIES OF PANAMA *OZOPHORA*

1. Anterior abdominal sternites with a conspicuous lunate stridulitrum present . . . . .  
     . . . . . *baliocoris*, new species
- 1a. Anterior abdominal sternites lacking a lunate stridulitrum . . . . . 2
2. Dorsal surface of pronotum and hemelytra with numerous upright hairs present (very short in *brunnea*) (view laterally) . . . . . 3
- 2a. Dorsal surface of pronotum and hemelytra nearly glabrous, without numerous up-standing hairs present . . . . . 7
3. Small species only slightly exceeding 5 mm. in length, always less than 5.25 mm. . . . . 4
- 3a. Larger, more robust species, over 5.5 mm. in length . . . . . 5
4. Third antennal segment nearly uniformly dark chocolate brown; distal half of scutellum completely calloused, pale yellow and concolorous with adjacent areas of clavus and corium; corium lacking a broad transverse dark fascia; posterior pronotal lobe with a very broad posteriorly widening chocolate brown median area (fig. 20) . . . . . *maculosa*, new species
- 4a. Third antennal segment chiefly pale yellow with only distal end dark chocolate brown; scutellum reddish brown on distal half contrasting with pale yellow coloration of adjacent clavus; corium with a broad irregular transverse dark fascia; posterior pronotal lobe with a narrow light brown median stipe . . . . . *villosa*, new species
5. Elevated cubital vein on clavus always pale yellow, contrasting with dark brown color of remainder of clavus; hemelytral color-

←

Sperm reservoir dorsal view. 10. *Ozophora scutellata*, new species. Sperm reservoir dorsal view. 11. *Ozophora festiva*, new species. Sperm reservoir dorsal view. 12. *Ozophora notabilis*, new species. Sperm reservoir dorsal view. 13. *Ozophora brunnea*, new species. Sperm reservoir dorsal view. 14. *Ozophora englemani*, new species. Sperm reservoir dorsal view. 15. *Ozophora versicolor*, new species. Sperm reservoir dorsal view. 16. *Ozophora englemani*, new species. Pronotum right side, dorsal view. 17. *Ozophora baliocoris*, new species. Pronotum right side, dorsal view.



- ation strongly contrasting pale yellow and dark brown; scutellum usually with at least a suggestion of a pair of pale spots or oblique stripes present ..... *concava* (Distant)
- 5a. Elevated cubital vein on clavus usually dark brown, concolorous or nearly concolorous with remainder of clavus (if somewhat lighter as in occasional specimens of *brunnea* then scutellum lacking pale yellow spots or stripes), hemelytral coloration chiefly dark red-brown or chocolate brown ..... 6
6. First antennal segment more than one and three-quarter times as long as interocular width ..... *brunnea*, new species
- 6a. First antennal segment less than one and one-half times as long as interocular width (fig. 21) ..... *robusta*, new species
7. Lateral margins of posterior pronotal lobe forming an acute knifelike edge (view laterally) ..... *consanguinea* (Distant)
- 7a. Lateral pronotal margins obtusely thickened, posterior lobe with margin not knifelike edged (view laterally) ..... 8
8. Humeral pronotal angles "notched" or with an acute point (figs. 16, 18) ..... *englemani*, new species
- 8a. Humeral pronotal angles rounded, without a distinct notch or acute point (fig. 17) ..... 9
9. Smaller species at most barely exceeding 5 mm. in length and usually less than 4.75 mm.; fore femora rarely with more than two major ventral spines present .... 10
- 9a. Larger species over 5 mm. in length and frequently more than 5.75 mm.; fore femora usually with three or four major spines present ..... 14
10. Bucculae meeting posteriorly in an elongate, tapering V-shaped groove ..... 11
- 10a. Bucculae meeting posteriorly in a broad rounded U-shaped groove ..... 12
11. Posterior pronotal lobe with a narrow median longitudinal pale stripe present; scutellum with a pair of contrastingly colored pale yellow spots ... *pallescens* (Distant)
- 11a. Posterior pronotal lobe with a broad dark brown median longitudinal stripe; scutellum nearly unicolorous dark red-brown lacking pale yellow spots ..... *parva*, new species
12. Fourth antennal segment with a large conspicuous pale annulus on proximal third ..... *costaricensis* Slater and O'Donnell
- 12a. Fourth antennal segment nearly unicolorous, lacking a conspicuous white annulus (at most proximal area of segment four slightly paler than distal) ..... 13
13. Metathoracic scent gland auricle elongate and very strongly curving posteriorly ..... *maculata* Slater and O'Donnell
- 13a. Metathoracic scent gland auricle relatively short and subtriangular, not elongately tapered and not strongly curving posteriorly ..... *baranowskii* Slater and O'Donnell
14. Scutellum with a pair of yellow spots or oblique stripes that contrast strongly with darker background ..... 15
- 14a. Scutellum lacking yellow spots or stripes, elevated areas of scutellum sometimes paler than adjacent areas but at most a dull red ..... 19
15. Pale areas of scutellum coalescing posteriorly to form an elevated calloused completely pale yellow posterior portion ..... *scutellata*, new species
- 15a. Pale areas of scutellum either spots or stripes but never coalescing posteriorly ..... 16
16. Lateral margins of anterior pronotal lobe reddish brown to dark brown, often paler than area of calli but never a strongly contrasting pale yellow to white ..... 17
- 16a. Lateral margins of anterior pronotal lobe white or very pale yellow, strongly contrasting with dark calli area ..... 18
17. First antennal segment relatively elongate one-third longer than interocular distance; dorsal surface dull, not shining; head and anterior pronotal lobe generally dark chocolate brown (fig. 22) ..... *versicolor*, new species
- 17a. First antennal segment relatively short much less than one-third longer than interocular distance; head and anterior pronotal lobe usually bright reddish brown; dorsal surface usually subshining (particularly in area of calli) ..... *notabilis*, new species
18. Labium at most barely attaining anterior end of metacoxae; second labial segment not exceeding fore coxae; large species usually 7 mm. or more in length (fig. 19) ..... *festiva*, new species
- 18a. Labium extending well between or slightly beyond metacoxae; second labial segment considerably exceeding fore coxae; somewhat smaller species seldom over 6½ mm. (fig. 25) ..... *atropicta* Barber
19. Lateral margins of pronotum pale yellow to nearly white, contrasting with darker coloration of pronotum, particularly that of anterior lobe ..... *parapicta* Slater and Hassey
- 19a. Lateral margins of anterior pronotal lobe red-

- brown or chocolate brown, concolorous with remainder of anterior pronotal lobe . . . . . 20
20. General coloration very dark chocolate brown and dark orange-red; usually cubital vein of clavus entirely dull red or anteriorly reddish, posteriorly chocolate brown; membrane almost black with a median stripe, apex and adjacent veins pale yellow; fore femora not conspicuously spotted (fig. 23) . . . . . *singularis*, new species
- 20a. General coloration extremely variegated with reddish brown, dark brown, pale yellow, and white; cubital vein of clavus with alternating brown and whitish patches; hemelytral membrane irrorate; fore femora yellow with numerous strongly contrasting dark brown spots . . . *attagenis*, new species

#### *Ozophora attagenis*, new species

**DIAGNOSIS:** Recognized by the irrorate membrane, dark rays on the posterior pronotal lobe, reddish center of the darkened corial apex, lack of upstanding hairs on the dorsal surface and relatively inconspicuous white annulus on the fourth antennal segment.

**DESCRIPTION:** Head, anterior pronotal lobe, and scutellum dark red brown. Apex of scutellum white. Posterior pronotal lobe bearing three broad red-brown rays, becoming darker posteriorly and occupying most of surface of posterior lobe. A narrow yellow stripe present on each side midway between meson and margin and lateral margins themselves. Posterior pronotal margin narrowly pale yellow; humeral angles black. Anterior collar yellow with a dark brown median macula. Hemelytra extremely variegated with dark brown, pale testaceous and white in a complex combination of patches and blotches. A prominent white elliptical spot near inner corial angle surrounded by the usual dark brown rectangular patch. Apex of corium with a large bright reddish brown macula with margins darker. A conspicuous white macula immediately anterior to above. Claval vein with alternating white and brown markings. Membrane irrorate, veins paler basally. All femora pale yellow, profusely spotted with dark brown. Proximal and distal ends of tibiae and second and third tarsal segments chocolate

brown. Antennal segments one, two, and proximal one-half to one-third of segment three testaceous; first segment with conspicuous dark brown spots along inner surface; distal half to two-thirds of segment three dark chocolate brown almost black, fourth segment with a narrow proximal white annulus the remainder black to very dark chocolate brown. Head, thorax and abdomen below nearly uniformly reddish brown. Acetabula and caudolateral angle of metapleuron pale testaceous to white. Body lacking elongate upstanding hairs.

Head only slightly declivent anteriorly; tylus extending to middle of first antennal segments, vertex convex. Eyes set well away from anterolateral pronotal angles.<sup>2</sup> Length head 0.78, width 0.98, interocular space 0.50. Pronotum with transverse impression deep and complete, lateral margins sinuate, posterior pronotal lobe considerably elevated above anterior lobe, humeral angles evenly rounded, posterior margin sinuate. Length pronotum 1.10, width 1.66. Length scutellum 0.90, width 0.88. Hemelytra with lateral corial margins conventionally sinuate, narrowest at level of apex of scutellum. Length claval commissure 0.72. Midline distance apex clavus-apex corium 1.30. Midline distance apex corium-apex membrane 1.04. Metathoracic scent gland auricle straight rather finger-like. Forefemora moderately incrassate armed below with four prominent spines. Labium extending well between mesocoxae. Length labial segments I 0.70, II 0.78, III 0.54, IV obscured. Antennal segment III conspicuously clavate on distal half. Length antennal segments I 0.60, II 1.45, III 1.10, IV 1.04. Total length 5.67.

**ETYMOLOGY:** From the Latin word *attagenis* for snipe or grouse to indicate the variegated and mottled yellow and brown coloration.

**HOLOTYPE:** ♀, PANAMA: Cerro Campana, 800 m., district Chame, 2.V.1976 (D. Engleman). In American Museum of Natural History.

Although known only from a single female this is an extremely distinctive species. The irrorate membrane, reddish center to the dark

<sup>2</sup> All measurements are in millimeters.

macula at the apex of the corium, broad dark rays on the pronotum, relatively inconspicuous basal white ring on the fourth antennal segment and the conspicuous bands and spots on the femora are all quite distinct features. This species appears to me to be most closely related to *O. baliocoris* despite the presence of an abdominal stridulitrum in *baliocoris* (see discussion below). In addition to the lack of any indication of a stridulitrum in *attagenis* it may be readily separated from *baliocoris* by the lack of pale scutellar spots, lack of a pale median vitta on the posterior pronotal lobe, irrorate membrane and the much shorter, less contrasting pale annulus on the fourth antennal segment.

***Ozophora baliocoris*, new species**

Figure 17

**DIAGNOSIS:** Recognized by the lunate stridulitrum on the abdominal sterna, carinate lateral margins of the posterior pronotal lobe and pale median stripe on the posterior pronotal lobe and the scutellum.

**DESCRIPTION:** Head, anterior pronotal lobe (including lateral margins), three irregular looplike rays on posterior pronotal lobe, ground color of scutellum dark red brown to chocolate brown becoming paler on tylus. Pronotum with anterior collar yellow on either side of midline. A narrow pale median longitudinal stripe running almost entire length of pronotum but terminating well before posterior margin. Posterior pronotal lobe with a large yellow spot on either side of midline immediately behind transverse impression; posterior margin scalloped yellow and diagonal yellow streaks present posteriorly midway between meson and margin. (Posterior lobe essentially composed of three large dark vittae with pale areas between). Scutellum with a pale median stripe except on proximal fourth, a light testaceous spot present on either side of midline near middle, apex white. Hemelytra chiefly pale testaceous, clavus almost entirely so, corium with dark brown areas as follows: around pale elliptical spot at inner corial angles; a large macula at apex of corium (but with extreme apex pale) and a narrow dark macula along lateral margins at level of distal end of claval commissure. Membrane chiefly dark brown with a pale

apical area, veins pale. Head, thorax and abdomen below bright reddish brown. Area about acetabula and caudolateral angle of posterior lobe of metapleuron white. Femora with numerous dark brown spots. A dark brown band present near proximal and distal ends of tibiae. Second and third tarsal segments dark brown. First and second antennal segments testaceous, first segment with dark spots on inner face, central three-fourths of segment two slightly infuscated. Entire segment three and distal two-thirds of fourth segment uniformly dark chocolate brown, proximal third of fourth segment strongly contrastingly white. Dorsal surface lacking upstanding elongate hairs.

Head slightly declivent anteriorly; tylus extending nearly to middle of first antennal segment; vertex convex; eyes set well away from anterolateral pronotal angles. Length of head 0.78, width 0.92, interocular space 0.44. Pronotum with transverse impression complete but shallow mesally; lateral margins strongly sinuate those of posterior lobe almost acutely carinate, meeting humeri at a distinct angle to form a lateral "notch" (fig. 17). Posterior pronotal margin slightly sinuate, posterior pronotal lobe moderately raised above calli of anterior lobe. Length pronotum 1.10, width 1.68. Length scutellum 0.94, width 0.90. Hemelytra with lateral corial margins conventionally concave at level of distal end of scutellum. Length claval commissure 0.78. Midline distance apex clavus-apex corium 1.32. Midline distance apex corium-apex membrane 0.98. Metathoracic scent gland auricle short, not curving backward. Forefemora moderately incrassate armed below on distal third with three sharp spines. A conspicuous lunate stridulitrum present laterally on sterna two-four. Labium extending well between mesocoxae. Length labial segments I 0.72, II 0.66, III 0.48, IV 0.34. Antennae with third segment becoming moderately clavate on distal half. Length antennal segments I 0.60, II 1.20, III 0.98, IV 1.36. Total length 5.52.

**ETYMOLOGY:** Named for its spotted coloration pattern.

**HOLOTYPE:** ♀, MEXICO: Veracruz, Rio Quezalapan two miles East of Lago Cate-maco, 12.VII-8.VIII.1964 (J. R. Meyer). In Texas A. & M. University collection.



PARATYPES: PANAMA: ♀, Province Chiriquí, Rovira, 8.VII.1964, 2500 feet (mosquito light trap, A. Bruce). ♀, B de T Río Changulnola, 91°17'N, 82°32'W, 24–27.I.1980 (D. Engleman). ♀, Barro Colorado Island 28–30.IV.1964 (W. D. and S. S. Duckworth). MEXICO: *Veracruz*: 2♀♀, Coyame, Lake Catemaco, 10–18.VII.1963 (black light, D. R. Whitehead). ♀, same, 7–9.VII.1963 (black light, R. E. Woodruff). ♂, Cordoba, 14.IV.1908 (Fred K. Knab). ECUADOR: ♂, Pastaza; Cuisimi, on Río Cuisimi, 150 km. SE Puyo, 350 m., 15–31.V.1971 (B. Malkin). HONDURAS: ♀, Dept. Atlantida, San Alejo, United Fruit Company, 4.VI.1964 (black light, R. E. Woodruff). COSTA RICA: ♀ S.S.(?) San Mateo (sp?), 24.VII.1929 (G. R. Wilson). In California Academy of Sciences, American Museum of Natural History, U.S. National Museum of Natural History, Texas A. & M. University, Florida State Collection of Arthropods, D. Engleman and J. A. Slater collections.

There is very little variation in the type series. In several specimens the pale median pronotal stripe is absent or obsolete on the anterior lobe, the entire lobe being a dark red or chocolate brown.

This is a remarkable species and illustrates strikingly some of the difficulties of establishing relationships in Western Hemisphere Ozophorini. The lunate abdominal stridulitrum is the defining character for Scudder's *Lygofuscanellus*, yet the species otherwise is similar to several species of *Ozophora* without a stridulitrum. I must conclude that the stridulitrum has evolved independently several times in the Ozophorini as it has in the Myodochini (Harrington, 1980). *Ozophora baliocoris* also has a sharp carinate margin laterally on the posterior pronotal lobe, a character that has in the past been used to recognize *Peggichisme* Kirkaldy as a distinct genus.

Actually in size, shape, general habitus, spotted legs, variegated markings, and dark coloration of the third antennal segment this species closely resembles *attagenis* which lacks a stridulitrum. The membrane of *attagenis* is distinctly irrorate, whereas the color is uniformly dark with white veins and white apex in *baliocoris*. The lack of pale pronotal and scutellar stripes and pale spots on

the scutellum of *attagenis* is distinctive. The latter has the spotting and mottling on the hemelytra in a quite distinct pattern in which the reddish brown apical spot is bordered by dark brown. In the present species the apical corial macula is uniformly chocolate brown with a white apex. The lateral margins of the posterior pronotal lobe are noticeably more acute in *baliocoris*. The "notched" humeral angles (fig. 17) are not present in *attagenis*.

### *Ozophora englemani*, new species

Figures 6, 14, 16, 18

DIAGNOSIS: Recognized by the pale hemelytra, distinctly notched humeral pronotal angles, and dark chocolate brown third antennal segments.

DESCRIPTION: Head, anterior pronotal lobe (including lateral margins), five more or less distinct stripes on posterior pronotal lobe (including meson), and scutellum uniformly dark red brown. Pronotal collar testaceous. Elevated laevigate areas of scutellum lighter reddish brown, scutellum white only at extreme apex. Hemelytra predominantly pale testaceous suffused with light brown as follows: along claval commissure, a small spot immediately within radial vein at level of apex of scutellum, apical corial macula, corium and narrow lateral marking along corial margins, immediately posterior to level of distal end of claval commissure. Membrane chiefly fumose to dark brown with a broad pale testaceous apex; veins pale proximally. Head and thorax below uniformly red-brown, abdomen a brighter reddish brown. Legs nearly uniformly pale testaceous. Antennal segments one and two uniformly pale testaceous; segment three becoming dark brown on distal one-half to two-thirds; basal one-third to one-half of segment four white, strongly contrasting with dark distal portion. Dorsal surface lacking upstanding hairs.

Head slightly declivent anteriorly; tylus extending anteriorly only to proximal third of first antennal segment. Eyes large, covering most of lateral head surface. Length head 0.72, width 0.86, interocular space 0.36. Pronotum with complete transverse impression, lateral margins deeply sinuate, humeral angles distinctly "notched" (figs. 16, 18) and acutely angled, posterior margin straight. Length

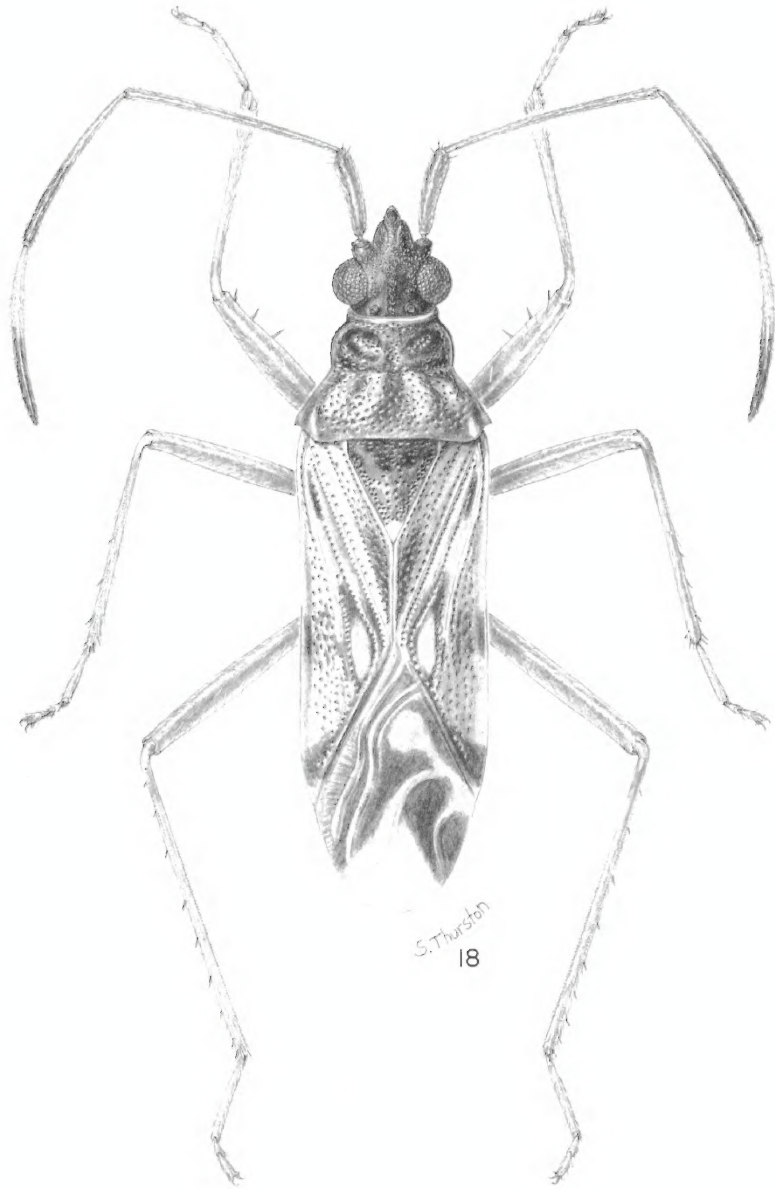


FIG. 18. *Ozophora englemani*, new species. Dorsal view.

pronotum 0.96, width 1.48. Length scutellum 0.76, width 0.70. Hemelytra with lateral corial margins only slightly sinuate. Length claval commissure 0.74. Midline distance apex clavus-apex corium 1.20. Midline distance apex corium-apex membrane 0.86. Metathoracic scent gland auricle very short, straight not tapering or curving posteriorly. Forefemora armed below with three con-

spicuous sharp spines. Labium extending between mesocoxae. Length labial segments I 0.56, II 0.64, III 0.48, IV 0.34. Antennae conventionally terete, third segment slightly thickened distally. Length antennal segments I 0.74, II 1.76, III 1.50, IV 1.42. Total length 5.36.

ETYMOLOGY: Named for Dr. Dodge Engleman of Coco Solo Hospital, Panama.



HOLOTYPE: ♂, PANAMA: Canal Zone, Coco Solo Hospital, 17.V.1973 (at light, P. D. Ashlock). In American Museum of Natural History.

PARATYPES: PANAMA: ♀, Chiru Ride, 10.XI.1952, R. Poll. (?) (F. S. Blanton). ♀, Cano Saddle, Gatun Lake, 8.V.1923 (R. C. Shannon). ♂, Arraijan, 26.III.1952 (F. S. Blanton). ♂, Bella Vista, 6.VII.1924 (N. Banks). 2♂♂, ♀, Las Cumbres, 09°06'N, 79°32'W, 13.XI.1973 (light trap, H. Wolda). ♂, 2♀♀, same, 28.XI.1973. ♂, same, 29.XI.1973. ♀, same, 20.III.1974. ♂, ♀, same, 7.IV.1974. ♂, ♀, same, 4.V.1974. ♂, same, 7.V.1974. ♀, same, 19.V.1974. ♀, same, 21.V.1974. ♀, same, 25.V.1974. ♀, same, 26.V.1974. ♂, same, 27.V.1974. ♀, same, 21.XII.1974. ♂, same locality, 24.V.1975 (light trap, D. Engleman). ♀, same locality, 27.VI.1974 (C. W. and L. O'Brien and Marshall). Canal Zone: ♀, 6.II.1952 (F. S. Blanton). 2♂♂, same, 17.IV.1952. ♂, 2♀♀, same, 25.VI.19—, ♀, "Atl." area Ft. Gulick, 4–6.VI.1965 (at light). ♂, H. Kohle, 3.X.1951 (F. S. Blanton). ♂, Tabernilla. ♂, Coco Solo Hospital, 11.XI.1972 (at light, D. Engleman). ♂, ♀, same, 15.XII.1972. ♀, same, 18.XII.1972. 6♂♂, ♀, same, 19.XII.1972. 7♂♂, 3♀♀, same, 7.V.1973. 4♀♀, same, 8.V.1973. ♂, same, 8.VI.1973. 2♂♂, 4♀♀, same, 15.VI.1973. ♂, same, 11.VII.1973. ♂, 2♀♀, same, 14.V.1975. ♀, same, 21.V.1976. ♂, same, 4.I.1972. ♀, same, 23.V.1972. ♂, 8♀♀, same, 30.VIII.1972. ♂, same, 1.IX.1972. ♂, same, 9.IX.1972. ♂, same locality, 7.V.1973 (at light, P. D. Ashlock). 2♂♂, ♀, same, 14.V.1973. 15♂♂, 14♀♀, same, 15.V.1973. 13♂♂, 11♀♀, same, 16.V.1973. ♀, Barro Colorado Island, VI.1940 (Jas. Zetek), no. 4647, Lot no. 40-8104. ♂, same, V.1941 (at light), no. 4798, Lot no. 41-11389. ♀, same, VII.1941, no. 4852, Lot no. 41-20631. ♀, same, I–III.1944, no. 5122. ♀, same locality, 8.VIII.1961 (L. and C. W. O'Brien). ♂, same, 7.VIII.1967 (at light). ♂, same locality, 23.VI.1924 (N. Banks). ♀, same, 13.VII.1924. ♂, same, 16.VII.1924. ♂, ♀, same locality, 25.IV.1972 (at light, D. Engleman). 2♂♂, same, 26.IV.1972. 3♂♂, 10♀♀, same, 12.VI.1973. 2♂♂, same locality, 10–17.V.1964 (W. D. and S. S. Duckworth). 2♂♂, same, 24–28.V.1964. ♂, same locality, 20.VI.1924, no. 515 (W. M. Wheeler). ♀, same locality, 22.VI.1962 (H. Ruckes). ♂, same locality (Snyder Molinos),

XI.1973 (H. Wolda). ♂, 2♀♀, same locality (Mojinga Swamp), 19.XI.1951 (F. S. Blanton). ♀, same, 1.VII.1952. ♂, same, 9.VII.1952. ♂, 2♀♀, same, 23.VII.1952. 2♂♂, ♀, 1 (?), same, 28.VIII.1951. ♀, Contadora Island, Perlas, 31.XII.1972 (D. Engleman). 3♂♂, 4♀♀, Panamá Province, Cerro Campana, 800 m., 8.V.1973 (P. D. Ashlock). SURINAM: ♂, Paramaribo, Charlesburg Krepi, 3 (?) Kooa, 21.I.1964 (Geijskes). In U.S. National Museum of Natural History, American Museum of Natural History, Rijksmuseum van Natuurlijke historie (Leiden), D. Engleman, P. D. Ashlock and J. A. Slater collections.

This is a common species at lights in the Canal Zone area, but has not been taken in the Panamanian highlands. Despite its abundance in Panama I have seen only a single specimen from any other area (Surinam).

*Ozophora englemanni* is readily recognizable by its pale hemelytral coloration, "notched" subspinose pronotal humeral angles, completely dark anterior pronotal lobe, dark central stripe on the posterior lobe, darkened third antennal segment and extremely short metathoracic scent gland auricle. The "notched" pronotal angles and darkened third antennal segment suggests relationship to *baliocoris*.

There is surprisingly little variation in the long paratype series. The third antennal segment is occasionally almost entirely pale, the humeral "notch" is sometimes reduced (but always present) and a few specimens have a complete, although inconspicuous, transverse fascia across the hemelytra.

Dedicated to Dr. Dodge Engleman of Coco Solo Hospital, Panama for his important contributions to Panamanian hemipterology and for his hospitality.

### *Ozophora festiva*, new species

Figures 3, 11, 19

DIAGNOSIS: Recognized by the nearly uniformly pale posterior pronotal lobe; overall bright coloration, large size and by the broad strongly arched tooth on the paramere.

DESCRIPTION: Large, elongate. Colors vividly contrasting. Head, anterior pronotal lobe, ground color of scutellum, hemelytral maculae, punctures, lateral and ventral surfaces of body reddish brown. Posterior pronotal

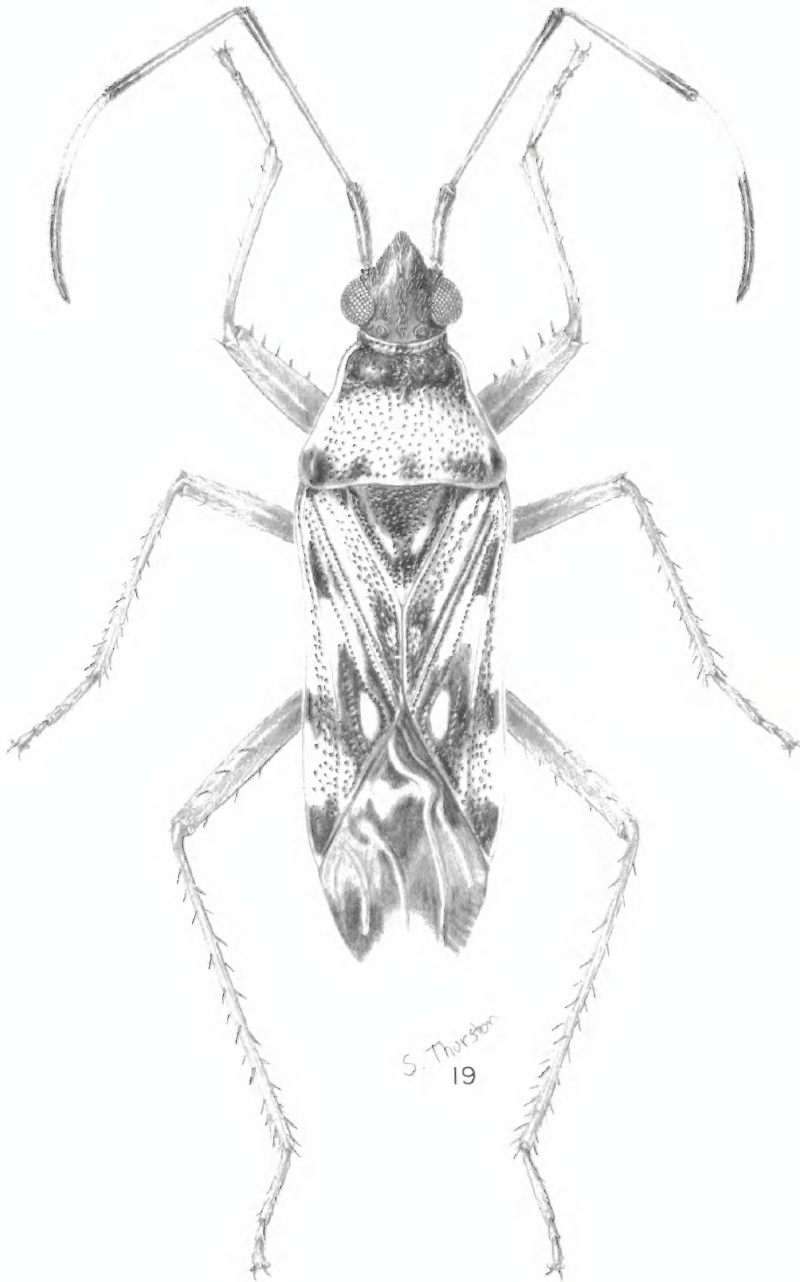


FIG. 19. *Ozophora festiva*, new species. Dorsal view.

lobe, lateral margins of anterior lobe, collar, a pair of oblique scutellar stripes and ground color of hemelytra very light yellow to white. Posterior pronotal lobe suffused with fuscous in area of humeri. Hemelytra with dark brown maculae and vittae as follows: suffused area

distally on clavus adjacent to commissure; elongate macula within costal groove at level of distal-half of scutellum; a complete transverse fascia which is much widened mesally around white inner corial spot and apex of corium. Membrane dark chocolate brown

with veins and a large spot between two outer and inner veins white and a large triangular white apical patch. Legs uniformly pale yellow. Antennae testaceous with distal ends of second and third segments fuscous. Fourth antennal segment with a broad white basal annulus, remainder of segment fuscous or chocolate brown. Without upstanding hairs on dorsal surface.

Tylus slightly declivent before juga, reaching nearly to middle of first antennal segment. Length head 0.90, width 1.12, interocular space 0.44. Pronotum with lateral margins strongly calloused, transverse impression shallow nearly obsolete mesally; posterior margin sinuate. Length pronotum 1.24, width 1.32. Scutellum moderately excavated near middle. Length scutellum 1.10, width 1.04. Hemelytra with lateral corial margins shallowly concave. Length claval commissure 0.94. Midline distance apex clavus-apex corium 1.50. Midline distance apex corium-apex membrane 1.20. Metathoracic scent gland auricle elongate, straight. Forefemora slender armed below with three sharp spines, plus three "hair-spines" proximad of major spines. Labium reaching beyond mesocoxae. Length labial segments I 0.94, II 0.84, III 0.90, IV 0.44. Antennae elongate, slender. Length antennal segments I 0.25, II 0.58, III 0.45, IV 0.65. Total length 7.04.

Paramere (fig. 3) with elongate inner projection; major inner tooth distinctive, very broad, its distal margin strongly arched, terminating in a broad semirounded, wide apex; minor tooth present; distal margin of basal attachment area nearly straight. Sperm reservoir (fig. 11) conventional, bulb ovoid, wings moderately flaring; vesica elongate with approximately nine coils.

ETYMOLOGY: Named for the pleasing coloration of the dorsal surface.

HOLOTYPE: ♂, PANAMA: Chiriquí District, Renacimiento, Station Clara, 20–22.V.1977 (at light, D. Engleman). In American Museum of Natural History.

PARATYPES: PANAMA: 3♀♀, same as holotype. 2♂♂, 3♀♀, same locality, 4000 feet, 28–29.V.1976 (at light, Engleman and Thurman). ♀, Province Chiriquí, Rovira, Elvira Farm, 15.VIII.1964, 2200 feet (blacklight trap, A. B. Broce). MEXICO: Veracruz: ♂, ♀, Lake Catemaco, 10–18.VII.1963 (black light,

D. R. Whitehead). 2♂♂, same, 16.VII.1963. ♀, Fortin de las Flores, Posada Loma Motel, 25.VI.1963 (black light, R. E. Woodruff). ♀, Cordoba, 8.XI.1966 (A. B. Lau). ♀, Sonteco Mapan, 11.IX.1975 (B. Villegas). CHIAPAS: ♀, 13 mi. NW Ocozocoautla, 16.VIII.1967, 3200 feet (H. R. Burke and J. Hafernik). GUATEMALA: 2♂♂, Chiquimula, XII.1930 (J. J. White, J. C. Lutz coll.). ♀, "Cayugo V." (Schaus and Barnes). NICARAGUA: 2♂♂, ♀, Waspuc (Waspuk?), River Musawas, 7–12.X.1955 (B. Malkin). ♂, 2♀♀, Bonanza, 20–30.IX.1955 (B. Malkin). BELIZE: (British Honduras), ♀, Columbia Forest Station (Toledo District), 28.VII.1968 (black light, W. L. Hasse); ♀, same, VIII.1968. COSTA RICA: ♀, Cartago Province, Turrialba, 17–20.VIII.1964 (blacklight trap, R. E. Woodruff). VENEZUELA: ♂, Rancho Grande near Maracay, 12.VI.1946. TRINIDAD: ♂, Cu-repe, Santa Margarita (Circular Road), 20.VIII.1975 (blacklight trap, F. Bennett). In U.S. National Museum of Natural History, Texas A. & M. University, American Museum of Natural History, University of California (Davis and Berkeley), Florida State Collection of Arthropods, Dodge Engleman and J. A. Slater collections.

*Ozophora festiva* is a handsome, brightly colored species. It is readily recognizable by its usually nearly uniformly pale yellow posterior pronotal lobe. This pale posterior lobe is at most infuscated near the posterior margin. Sometimes there is a diffuse dark area near the posterior margin mesally as well as near the humeral angles. The anterior lobe is a strongly contrasting reddish brown with yellow calloused lateral margins.

The paramere is distinctive. It differs from other species chiefly by the very broad strongly arched major tooth (fig. 3).

*Ozophora festiva* appears to be most closely related to *atropicta* agreeing with the latter in having a pale posterior pronotal lobe, a short head with relatively large eyes, similar male genitalia and a dark anterior pronotal lobe with strongly contrasting pale calloused lateral margins.

Although *festiva* has an extensive distribution, from Mexico through Central America and northern South America to Trinidad, in Panama it has thus far been taken only in the Chiriquí Mountains.



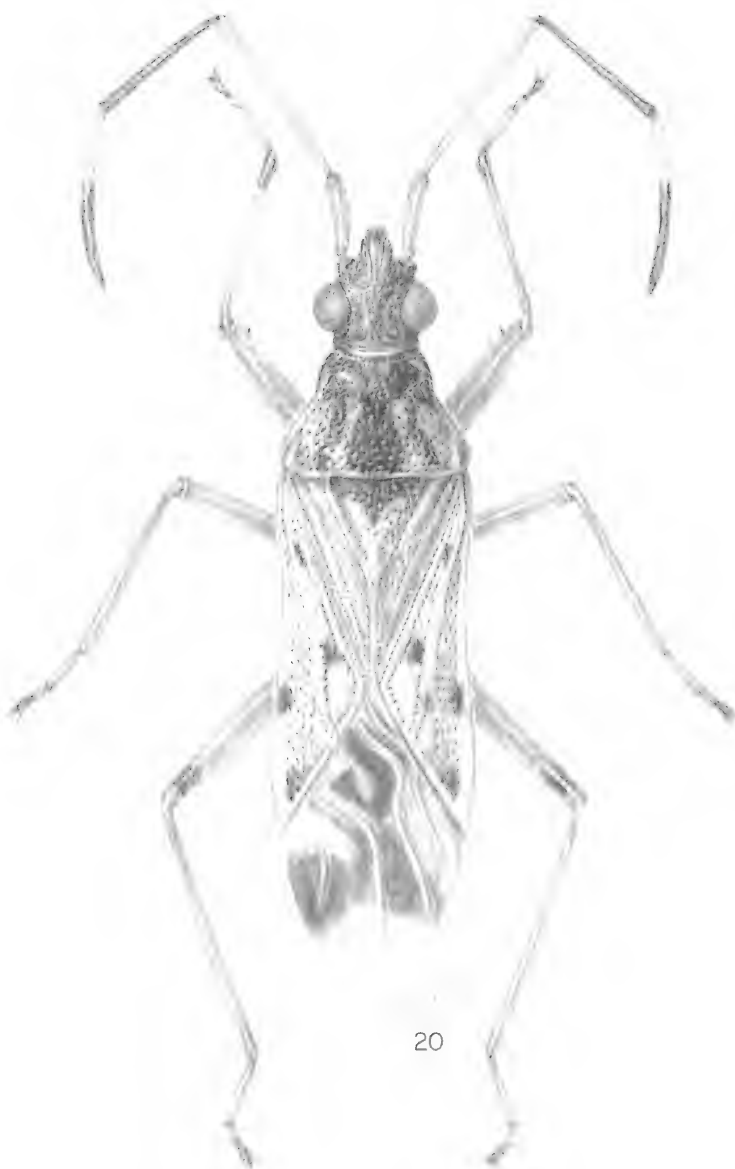


FIG. 20. *Ozophora maculosa*, new species. Dorsal view.

***Ozophora maculosa*, new species**

Figure 20

**DIAGNOSIS:** Recognized by the nearly uniformly pale yellow hemelytra, elongate hairs on the dorsal surface and large dark brown meson of the posterior pronotal lobe.

**DESCRIPTION:** Slender, elongate, nearly parallel sided. General coloration pale testaceous. Head, anterior pronotal lobe (except

for collar but including lateral margins), basal third of scutellum, distal two-thirds of fourth antennal segment and all of third antennal segment dark reddish to chocolate brown. Posterior pronotal lobe with a very large sub-elliptical (posteriorly widening) median chocolate brown macula and a narrow similarly colored vitta on either side midway between meson and lateral margins. Clavus and posterior half of scutellum entirely testa-

ceous. Corium marked with a very small chocolate brown spot in middle of corium at level of distal fourth of scutellum, a second small spot near costal margin just posterior to distal end of claval commissure and a third small spot near apex of corium (otherwise uniformly testaceous). Membrane in large part pale testaceous-hyaline but suffused basally and on distal third on either side of meson with large dark brown irregular patches, distal portion broadly pale. Pleural and ventral surfaces nearly uniformly reddish brown, acetabula lighter yellowish brown. Legs and labium largely pale yellow, an obscure subdistal annulus on hind femora; distal ends of tibiae and third tarsal segments reddish to chocolate brown. Clothed above with conspicuous pale yellow erect or semi-erect hairs.

Head with tylus extending to proximal third of first antennal segment; eyes placed slightly away from anterior margin of pronotum; vertex moderately convex. Length of head 0.62, width 0.80, interocular space 0.38. Pronotum with complete transverse impression; lateral margins sinuate; posterior lobe conspicuously elevated above anterior lobe; humeral angles not toothed or angulate. Length pronotum 0.85, width 1.30. Length scutellum 0.72, width 0.62. Hemelytra with lateral corial margins slightly expanded posterior to level of middle of claval commissure. Length claval commissure 0.70. Midline distance apex clavus-apex corium 1.08. Midline distance apex corium-apex membrane 0.88. Metathoracic scent gland auricle short, not curved posteriorly. Forefemora only very slightly enlarged, a single stout sharp spine present ventrally near distal end, proximad to this a series of five to six elongate slender hairs. Labium reaching between but not beyond mesocoxae, first segment not attaining base of head. Length labial segments I 0.82, II 0.55, III 0.38, IV 0.32 (from paratype). Antennae terete. Length antennal segments I 0.55, II 1.28, III 1.0, IV 1.25. Total length 5.04.

ETYMOLOGY: Named for the large dark marking mesally on the posterior pronotal lobe.

HOLOTYPE: ♀, PANAMA: Las Cumbres, 28.XI.1973, 09°06'N, 79°32'W (light trap, H. Wolda). In American Museum of Natural History.

PARATYPES: 2♀♀, same data as holotype except 13.XI.1973 and 29.XI.1973. In J. A. Slater collection.

The paratypes do not differ in any appreciable way from the holotype other than in having a small dark brown spot near each humeral angle.

This very distinctive species resembles *scutellata*, new species in size, possession of a completely pale laevigate posterior half of the scutellum, very slender forefemora, scent gland auricle shape, dark central macula on the posterior pronotal lobe and dark third antennal segment. However, the conspicuously hirsute dorsal surface and single forefemoral spine readily distinguish it. *Ozophora scutellata* also has a very much longer first antennal segment and the hemelytra have a strongly contrasting dark and light color pattern in contrast to the almost uniformly pale hemelytra of *maculosa*.

*Ozophora maculosa* appears to be a scarce species in Panama for, despite the abundance of light trap material available for study, it is known only from the type locality.

#### ***Ozophora villosa*, new species**

DIAGNOSIS: Recognized by its small size, hirsute dorsal surface and large dark transverse fascia across the hemelytra.

DESCRIPTION: Head, anterior pronotal lobe (except pale yellow anterior collar), basal one-half and mesal area of distal half of scutellum bright reddish brown. Ground color of remainder of dorsal surface bright yellow marked with light to nearly chocolate brown as follows: narrow median stripe through posterior pronotal lobe; macula on humeral angles; an irregular spot on clavus adjacent to apex of scutellum; a small spot on corium at approximately same level lying just within radius; an irregular, mesally broadening, dark brown transverse fascia across central area of corium; a broad subapical corial macula and ground color of membrane (veins of membrane in part pale yellow). Apex of scutellum white. Legs and antennae yellow with distal ends of third antennal segments, a subdistal band on middle and hind femora, proximal and distal bands on tibiae and third tarsal segments brown. Pleural and ventral surfaces of head and thorax dark reddish brown. Ab-

dominal sternum orange-yellow. Dorsal surface bearing numerous elongate upstanding hairs.

Head nondeclivent extending anteriorly only over proximal one-third of first antennal segment. Vertex moderately convex. Length head 0.76, width 0.82, interocular space 0.42. Posterior pronotal lobe prominently elevated above anterior lobe; humeral angles evenly rounded. Length pronotum 0.82, width 1.42. Length scutellum 0.76, width 0.72.

Hemelytra with lateral corial margins conspicuously expanded posterior to level of apex of scutellum. Length claval commissure 0.70. Midline distance apex clavus-apex corium 1.10. Midline distance apex corium-apex membrane 0.90. Metathoracic scent gland auricle short, blunt, not curving posteriorly. Forefemora missing. Labium short extending posteriorly at most to mesocoxae. Length labial segments I 0.54, II 0.54, III 0.40, IV 0.34. Length antennal segments I 0.60, II 1.44, III 1.08, IV missing. Total length 5.04.

ETYMOLOGY: Named for the prominent hairs present on the dorsal surface.

HOLOTYPE: ♂, PANAMA: Fortuna, 21.XI.1976 (D. Engleman). In American Museum of Natural History.

Although described from a single specimen this species appears to be quite different from any of the species of *Ozophora* that has elongate upstanding hairs on the dorsal surface of the body.

In size it most closely resembles *maculosa* new species from which it may be distinguished by the characters given in the preceding key.

### ***Ozophora scutellata*, new species**

Figures 2, 10

DIAGNOSIS: Recognized by the large, calloused, yellow, Y-shaped marking on the scutellum, and the dark first and third antennal segments.

DESCRIPTION: Body slender, elongate. Head, anterior pronotal lobe (including lateral margins), anterior one-half of scutellum, pleural and ventral surfaces, distal one-third of antennal segment two, all of segment three, distal two-thirds of segment four dark red-brown to chocolate brown. Posterior pronotal lobe testaceous with a broad dark (actually meson

pale narrowly on anterior one-half of posterior lobe) median stripe, a narrow stripe midway between meson and lateral margins and a small humeral spot dark brown. Scutellum chocolate brown with distinctive calloused white diagonal stripes in middle which coalesce into a median calloused white area which reaches apex of scutellum. Clavus and corium testaceous with dark brown maculae as in *festiva*. Membrane chocolate brown, veins translucent white with a distinctive lunate transverse hyaline band on membrane from apex of corium to middle of membrane, apex of membrane also broadly white. Abdomen uniformly bright reddish brown. Legs pale testaceous; subdistal femoral bands, extreme distal ends of tibiae and third tarsal segments contrastingly dark brown. First antennal segment reddish brown. No upstanding dorsal hairs on body.

Head slightly declivent anteriorly; tylus reaching over proximal one-third of first antennal segment; eyes set slightly away from anterolateral pronotal margins. Length head 0.68, width 0.84, interocular space 0.30. Pronotum with transverse impression shallow mesally but complete. Length pronotum 0.95, width 1.41. Scutellum flat or slightly excavated basally. Length scutellum 0.80, width 0.72. Hemelytra conventionally concave along lateral margins. Length claval commissure 0.72. Midline distance apex clavus-apex corium 1.18. Midline distance apex corium-apex membrane 0.95. Metathoracic scent gland auricle short, straight, not curving posteriorly. Forefemora slender, armed below distally with two sharp spines. Labium reaching but not exceeding mesocoxae, first segment not attaining base of head. Length labial segments I 0.64, II 0.62, III 0.40, IV 0.38. Antennae terete. Length antennal segments I 0.84, II 2.06, III 1.60, IV 1.52. Total length 5.64.

Paramere relatively slender with apex only slightly twisted, inner projection elongate sharply tapering, acute, finger-like, inner tooth projecting at right angles to longitudinal axis, inner basal margin with a small obtuse tooth present (fig. 2). Vesica short with three distinct coils. Sperm reservoir strongly tapering basally, wings strongly divergent narrow prominently curled under distally (fig. 10).

ETYMOLOGY: Named for the unusual cal-



loused and pale yellow coloration of the posterior half of the scutellum.

HOLOTYPE: ♂, PANAMA: *Canal Zone*, Barro Colorado Island, VII.1941 (Jas. Zetek) no. 4852, Lot no. 41-20631. In U.S. National Museum of Natural History, no. 100053.

PARATYPES: PANAMA: ♀, Cabima, 24.V.1911 (Aug. Busck). ♀, Province Chiriquí, Rovira, 5.VII.1964, 2500 feet (Mosquito light trap, A. Broce). 2♂♂, Las Cumbres, 19.XI.1973, 09°06'N, 79°32'W (light trap, H. Wolda). *Canal Zone*: ♂, Fort Sherman, 09°20'N, 79°58'W, 31.VII.1974 (D. Engleman). ♀, Mojinga Swamp, 12.XII.1951 (F. S. Blanton). ♂, ♀, Coco Solo Hospital, 19.XII.1972 (light trap, D. Engleman). ♂, same, 19.XII.1972. ♂, 2♀♀, Barro Colorado Island, 24-28.V.1964 (W. D. and S. S. Duckworth). ♂, same, 28-30.IV.1964. ♀, same, 7.III.1975 (light trap, Ramirez). ♂, same, VII.1974 (Jas. Zetek), no. 4852, Lot no. 41-20631. HONDURAS: ♀, Lake Yojoa, Agua Azul (Dept. Cortes), 31.V.1964 (blacklight trap, F. S. Blanton, A. B. Broce, R. E. Woodruff). COSTA RICA: ♂, Province Cartago, Turrialba, 17-20.VIII.1964 (blacklight trap, R. E. Woodruff). MEXICO: *Vera Cruz*: ♀, Lake Catemaco, Coyame, 7-9.II.1963, (blacklight trap, R. E. Woodruff). In Florida State Collection of Arthropods, U.S. National Museum of Natural History, D. Engleman and J. A. Slater collections.

This small species is quite distinctive and easily recognized by the dark first antennal segment, the completely dark chocolate brown third antennal segment and the unusual scutellar markings wherein the usual diagonal pale striping is confluent mesally to form a large calloused "Y."

In several of the paratypes the second antennal segment is completely pale yellow and the central stripe on the posterior pronotal lobe is completely dark and widened posteriorly as it is in *maculosa*. There are three forefemoral spines present in several specimens. Frequently the sublateral pronotal stripes meet the humeral spot posteriorly.

#### ***Ozophora notabilis*, new species**

Figures 4, 14

DIAGNOSIS: Recognized by the large head, elongate third antennal segment, lack of up-

standing hairs on the dorsal surface, bright red-brown head and pronotum and very short first antennal segment.

DESCRIPTION: Body robust. General coloration a strongly contrasting bright testaceous and red-brown to chocolate brown. Dark brown coloration as follows: head; anterior pronotal lobe except collar (calli darker); posterior pronotal lobe with five posteriorly enlarging rays including meson, lateral rays coalescing posteriorly to form a "loop"; ground color of scutellum; a pair of elongate rectangular patches on corium just within median groove, one at level of distal half of scutellum, second beginning at level of middle of claval commissure continuing to near apical corial margin latter with a large testaceous spot distally; quadrate patch on lateral corial margin extending inward to radial vein at level slightly posterior to end of claval commissure; a large subapical triangular corial macula; pleural and ventral surfaces of head and thorax; distal end of third antennal segment and distal four-fifths of fourth antennal segment. Scutellum with oblique pale yellowish stripes present but each becoming somewhat reddish brown both basally and distally to leave only a yellow spot on either side of midline; apex of scutellum white. Clavus suffused with reddish brown. Membrane chocolate brown; veins pale yellow basally; apex pale. Acetabula and coxae red-brown, remainder of legs light yellow but with obscure red-brown annulus present distally on each femur. Forefemoral spines dark brown and third tarsal segments contrastingly dark brown to black. Dorsal surface lacking numerous upstanding hairs.

Head large, slightly declivent, eyes set well away from anterolateral pronotal angles. Length head 0.90, width 0.96, interocular space 0.48. Pronotum with transverse impression complete; lateral margins moderately sinuate; posterior margin slightly sinuate, scarcely concave; calli large, smooth, almost impunctate. Length pronotum 1.00, width 1.58. Length scutellum 0.96, width 0.86. Hemelytra with lateral corial margins moderately sinuate. Length claval commissure 0.82. Midline distance apex clavus-apex corium 1.28. Midline distance apex corium-apex membrane 1.00. Metathoracic scent gland auricle very straight not curving pos-

teriorly. Forefemora moderately incassate, armed below with four sharp spines. Labium reaching between metacoxae, first segment attaining base of head. Length labial segments I 0.96, II 0.68, III 0.52, IV 0.42. Antennae terete. Length antennal segments I 0.70, II 1.64, III 1.32, IV 1.78. Total length 5.84.

Paramere broad with inner projection strongly down curved, acute; basal attachment area evenly rounded (fig. 4). Sperm reservoir ovoid, wings not strongly produced laterally, sloping sharply proximad (fig. 12). Vesica elongate with approximately five coils. Posterior margin of genital capsule produced upward and backward, lateral margins of opening with a sharp tooth in addition to the inner directed lobes.

ETYMOLOGY: Named for its striking coloration and overall noteworthy appearance.

HOLOTYPE: ♂, PANAMA: Chiriquí District, Renacimiento, Santa Clara, 20–22.V.1977 (at light, Engleman). In American Museum of Natural History.

PARATYPES: PANAMA: 2♂♂, 2♀♀, same data as holotype. 3♂♂, 2♀♀, 1?, Chiriquí District, Renacimiento, Santa Clara, 4000 feet, 28–29.V.1976 (at light, Engleman and Thurman). 4♀♀, Province Chiriquí, Rovira (blacklight trap), Elvira Farm, 15.VIII.1964 (A. B. Broce). ♂, Cerro Campana, 800 m. (Panamá Province), 6.V.1973 (P. D. Ashlock). 2♂♂ Chiriquí District, Fortuna, 1050 m., 08°44'N, 82°15'W, 4.X.1976 (H. Wolda). ♀, Fortuna, 10.XI.1976 (D. Engleman). ♂, ♀, Volcan de Chiriquí, 2500–4000 feet (Champion) (from "coll. Biol. C. A.") (P. R. Uhler collection). ♀, El Valle, 700 m. (Coclé Province), 16.V.1973 (P. D. Ashlock). COSTA RICA: 4♂♂, Province Puntarenas, 2 mi. SW San Vito de Java, 22–24.VI.1964 (blacklight trap, R. E. Woodruff). MEXICO: ♂, Chiapas, 9 mi. N Ocozocoautla, 18.VII.1973 (at light, Mastro and Schaffner). BELIZE: ♀, San Antonio VI.1931 (J. J. White, J. C. Lutz collection). ECUADOR: ♀, Zamora, II.1965 (F. Pena). In U.S. National Museum of Natural History, Museu Nacional Brazil, Florida State Collection of Arthropods, Dodge Engleman, P. D. Ashlock and J. A. Slater collections.

One of the paratypes from the *Biologia material* in the Uhler collection is labeled "*Davila consanguineus* Distant."

This species is very closely related to *caroli* Slater and Baranowski which thus far is known only from southern Florida. The two species agree in most details of structure and color. *Ozophora notabilis* may be most readily distinguished from *caroli* by its relatively much longer fourth antennal segment. In *notabilis* this segment is considerably more than three times the interocular space, whereas in *caroli* it is less than three times the interocular space.

In the Ashlock collection are two males and a female from Cerro Campana (8.V.1973, P. D. Ashlock) which have the body surface dull rather than subshining, lack dark distal coloration on the second antennal segment and have the posterior pronotal lobe extensively dark reddish brown. These specimens may ultimately prove to represent a distinct species but are provisionally placed with *notabilis* for the present.

#### *Ozophora brunnea*, new species

Figures 5, 13

DIAGNOSIS: Recognized by its nearly uniformly chocolate brown coloration, very short but evident dorsal pubescence and bizarre down curved finger-like projection on the paramere.

DESCRIPTION: Body relatively robust. General coloration chiefly dark chocolate to dull brown, pale areas very much obscured although general *Ozophora* pattern (such as that described for *notabilis* and *festiva*) is discernible. Head, anterior pronotal lobe (excluding testaceous anterior collar but including lateral margins) uniformly dark chocolate brown. Posterior pronotal lobe dark, five darker rays present but obscurely differentiated from remainder of disc surface, meson pale. Apex of scutellum white. Hemelytra with paler areas infuscated except along lateral corial margins, a subdistal spot scarcely attaining radial vein and extreme apex of corium. Membrane completely dark gray with exception of basal portions of three outer veins. Head and thoracic sterna and pleura dark red-brown nearly black. Abdomen brighter red-brown. Legs including last tarsal segment uniformly bright yellow. Femora with an obscure subdistal band. First antennal segment reddish brown, second and third

segments testaceous with distal ends dark brown, fourth segment with a broad conspicuous proximal white annulus, remainder of segment dark chocolate brown. Dorsal surface with a number of very short upright hairs present (easily overlooked). Abdomen mesally with numerous elongate hairs present.

Head slightly declivent anteriorly, eyes set somewhat away from anterolateral pronotal margins. Length head 0.84, width 1.02, interocular space 0.42. Pronotum sinuate laterally; transverse impression complete, but shallow mesally; posterior margin slightly sinuate not notably concave; humeral angles rounded. Length pronotum 1.22, width 1.74. Scutellum slightly excavated mesally at base with a low proximally dividing carina. Length scutellum 1.04, width 0.92. Hemelytra with lateral corial margins slightly concave. Length claval commissure 0.86. Midline distance apex clavus-apex corium 1.42. Midline distance apex corium-apex membrane 1.10. Metathoracic scent gland auricle short, straight, not curved posteriorly. Forefemora elongate, slender, scarcely incrassate, armed below on distal third with two sharp spines followed proximally by four or five hairlike spines. Labium extending well between or slightly exceeding mesocoxae. Length labial segments I 0.86, II 0.78, III 0.56, IV 0.42. Antennae terete. Length antennal segments I 0.82, II 1.76, III 1.48, IV 1.82. Total length 6.08.

Paramere bizarre, with a broad shaft; very elongate finger-like down curved inner projection; inner "tooth" bluntly finger-like and bent at nearly right angles to transverse width of paramere. Basal attachment area produced upward from surface of paramere as a broad flap (fig. 5). Sperm reservoir with cup egg-shaped, wings broad on inner surface, markedly tapering distally, strongly recurved upward on outer margin and recurved at tip. Basal apparatus very faintly sclerotized almost membranous (fig. 13).

ETYMOLOGY: Named for the overall brown coloration of the body.

HOLOTYPE: ♂, PANAMA: *Canal Zone*: Barro Colorado Island, VII.1941 (Jas. Zetek), no. 4852, Lot no. 41-20631. In National Museum of Natural History, no. 100054.

PARATYPES: PANAMA: *Canal Zone*: ♀, same as holotype. 2♂♂, ♀, same, IV.1940 (Jas.

Zetek), no. 4647, Lot no. 40-8104. ♀, same, 1.III.1944 (Jas. Zetek) no. 5122. 2♂♂, same locality, 8.VIII.1967 (L. and C. W. O'Brien). ♂, same locality, VII.1930 (N. S. Scrinshaw). ♀, same locality (Griswold). ♀, same locality, Gatun Lake, VII.1923 (R. C. Shannon). ♂, same locality, Mojinga Swamp, 5.IX.1951 (F. S. Blanton). ♂, 4♀♀, Coco Solo Hospital, 15.VI.1973 (light trap, D. Engleman). ♂, same, 24.I.1974. ♀, same, 11.VII.1973. 7♂♂, ♀, same, 19.XII.1972. ♀, same, 30.VIII.1972. ♀, same, 31.VIII.1972. ♀, same locality, 16.V.1973 (P. D. Ashlock). COSTA RICA: ♀, Puntarenas Province, Osa Peninsula (Tropical Science Center), 5 km. W Rincon de Osa, 26.VII.1971 (blacklight trap, D. J. Pool). In U.S. National Museum of Natural History, American Museum of Natural History, P. D. Ashlock, R. M. Baranowski, D. Engleman and J. A. Slater collections.

This appears to be a rather common species in the Canal Zone of Panama. It is readily separable from most other species of Panama *Ozophora* by the dark coloration. It does have upstanding dorsal pubescence but the hairs are very short and inconspicuous and apparently easily abraded and thus can be readily overlooked. The paramere is quite unique.

*Ozophora robusta* is a similarly colored and probably closely related species, but it is less elongate than *brunnea* and has longer and more densely placed dorsal pubescence than does *brunnea*. *Ozophora brunnea* may also readily be separated from *robusta* by the much longer first antennal segments. In *brunnea* the first antennal segment is more than one and three-fourths times as long as the interocular width, whereas in *robusta* it is less than one and one-half times as long.

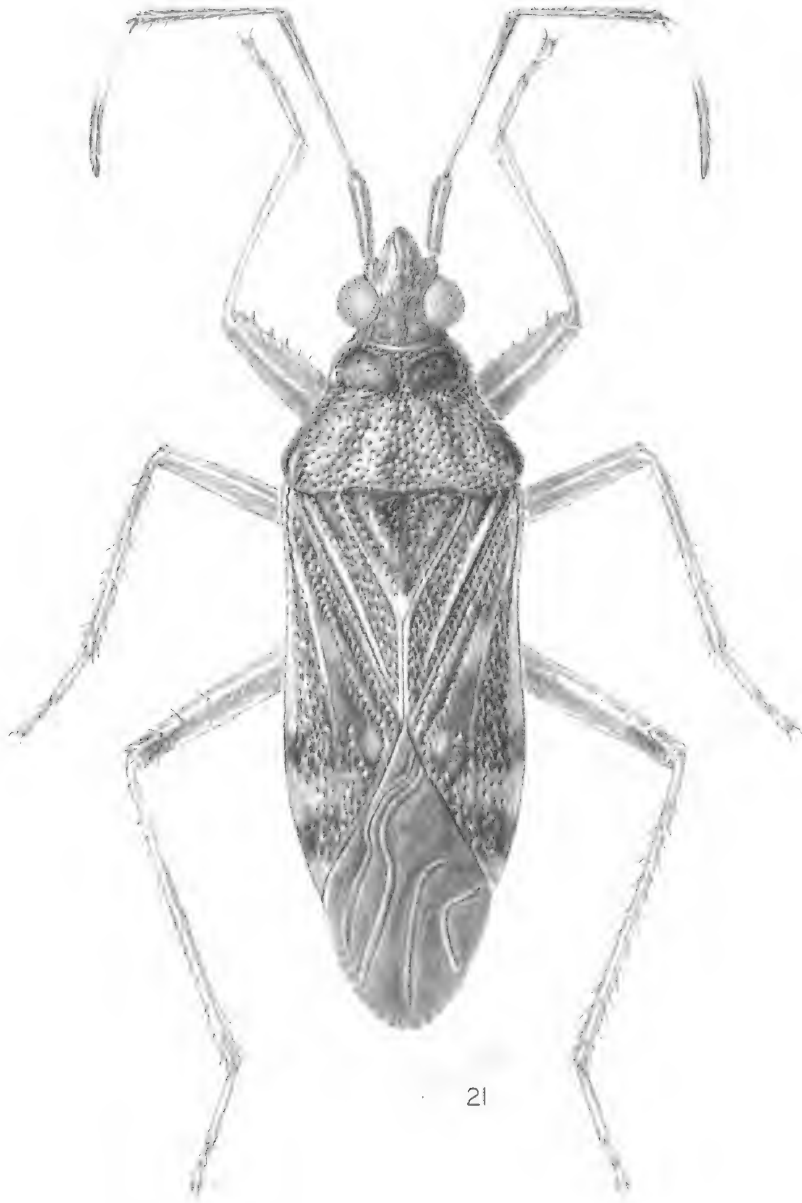
### ***Ozophora robusta*, new species**

Figure 21

DIAGNOSIS: Recognized by the stout body, dark brown coloration, short, dense, dorsal pubescence and relatively short first antennal segment.

DESCRIPTION: Body stout, broad, robust. General coloration as in *festiva*. Clothed above with elongate upstanding testaceous hairs. Dorsal surface appearing "powdery" or subpruinose apparently due to a thick matting of extremely minute short hairs.





21

FIG. 21. *Ozophora robusta*, new species. Dorsal view.

Head short, stout, tylus bluntly rounded reaching to distal end of antennal segment one; vertex nearly flat; eyes very large almost in contact with anterior pronotal margin. Length head 0.75, width 1.02, interocular space 0.48. Pronotum extremely broad, short; transverse impression complete, set well before middle; lateral margins sinuate; posterior margin shallowly concave before base of

scutellum. Length pronotum 1.12, width 1.88. Length scutellum 1.02, width 1.00. Hemelytra with lateral corial margins slightly expanded at level of apex of scutellum, margins narrowly explanate and slightly reflexed. Length claval commissure 0.75. Midline distance apex clavus-apex corium 1.30. Midline distance apex corium-apex membrane 1.00. Metathoracic scent gland auricle short not

strongly curved posteriorly. Hind femora with two elongate sharp spines above on distal end and one below; middle femora mutic; fore-femora relatively strongly incrassate, armed below on distal third with two sharp thick tuberculate spines followed proximally by four to five elongate slender hairs. Labium short extending between and slightly beyond mesocoxae. Length labial segments I 0.78, II 0.70, III 0.50, IV 0.38. Antennae terete. Length antennal segments I 0.68, II 1.40, III 1.20, IV 1.42. Total length 6.24.

ETYMOLOGY: Named for the relatively stout, heavy body form.

HOLOTYPE: ♀, PANAMA: *Canal Zone*: Coco Solo Hospital, 24.I.1974 (light trap, D. Engleman). In American Museum of Natural History.

PARATYPES: PANAMA: ♀, Cerro Campana, 800 m. (Panamá Province), 28.IV.1973 (D. Engleman). COSTA RICA: ♀, Cartago Province, Turrialba, 17–20.VIII.1967 (blacklight trap, R. E. Woodruff). In R. M. Baranowski and J. A. Slater collections.

This must be a very rare species as despite the large number of specimens received from Panama these are the only specimens of *robusta* seen. This species is probably closely related to *brunnea* from which it may be separated by the relatively short first antennal segment and other characters as discussed under the latter.

### ***Ozophora versicolor*, new species**

Figures 7, 15, 22

DIAGNOSIS: Recognized by the variegated pale yellow and dark brown coloration, relatively elongate first antennal segment and dull non-shining nearly glabrous dorsal body surface.

DESCRIPTION: Relatively elongate, slender. General coloration with strongly contrasting testaceous and dark brown markings as in *notabilis*. Lateral margins of anterior pronotal lobe concolorous with disc. Tylus pale testaceous. Clavus distad of scutellum dark chocolate brown mesad of elevated cubital vein. Membrane dark chocolate brown with strongly contrasting yellow veins, a narrow white apical macula and a small irregularly ovoid macula between two inner and two outer veins basally. Legs light yellow with a

very obscure annulus near distal end of each femur. Antennal segments one and two completely testaceous; segment three chocolate brown distally; fourth segment with a broad white basal annulus, distally chocolate brown. Body lacking upstanding hairs on dorsal surface.

Head very slightly declivent anteriorly; tylus reaching only to proximal third of first antennal segment; eyes set well away from anterolateral pronotal angles. Length head 0.90, width 0.98, interocular space 0.44. Pronotum with a deep, complete transverse impression; lateral margins sinuate, humeri rounded, posterior margin slightly concave. Length pronotum 1.08, width 1.64. Length scutellum 0.92, width 0.84. Hemelytra with lateral corial margins moderately concave. Length claval commissure 0.90. Midline distance apex clavus-apex corium 1.42. Midline distance apex corium-apex membrane 1.10. Metathoracic scent gland auricle short. Fore-femora elongate slender, armed below with three sharp spines. Labium reaching or nearly reaching metacoxae. Length labial segments I 0.90, II 0.88, III 0.56, IV 0.44. Antennae terete. Length antennal segments I 0.88, II 2.06, III 1.62, IV 2.04. Total length 6.00.

Paramere with shaft very broad; blade short and relatively thick; inner projection elongate, strongly hooked and down curved; inner tooth broad and prominent (fig. 7). Sperm reservoir with cup elliptical; wings elongate, divergent (fig. 15).

ETYMOLOGY: Named for the variegated coloration of the dorsal surface.

HOLOTYPE: ♂, PANAMA: Chiriquí District, Renacimiento, Santa Clara, 20–22.V.1977 (at light, D. Engleman). In American Museum of Natural History.

PARATYPES: PANAMA: ♂, ♀, same data as holotype. 2♂♂, ♀, Chiriquí District, Renacimiento, Santa Clara, 4000 feet, 28–29.V.1976 (at light, Engleman and Thurman). ♀, same, 4.VII.1976 (Engleman). 2♂♂, 2♀♀, Province Chiriquí, Rovira, 5.VII.1964, 2500 feet (Mosquito light trap, A. Broce). ♀, same, 8.VII.1964. 3♂♂, 2♀♀, Rovira, Elvira Farm, 2200 feet, 15.VIII.1964 (blacklight trap, A. B. Broce). 3♀♀, Darién Province, Santa Fe, 11.IX.1967 (blacklight trap, A. B. Broce). ♀, same, 8.VII.1964 (A. Broce). ♀, Chiriquí, Boquete, 4000 feet, 24.VI.1975 (O'Briens and

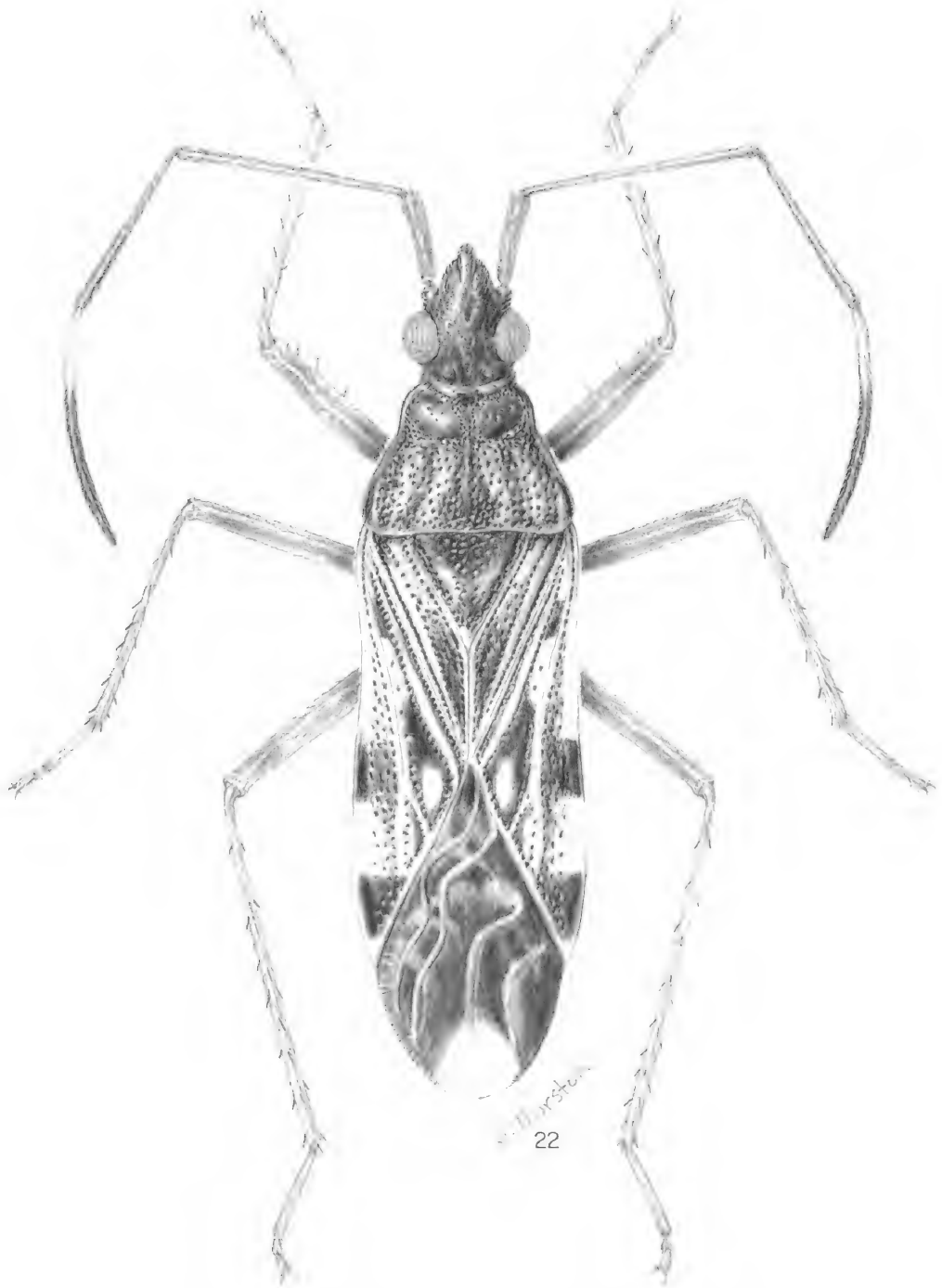


FIG. 22. *Ozophora versicolor*, new species. Dorsal view.

Marshall). 2♂♂, Las Cumbres, 09°06'N, 79°32'W, 25.IV.1974 (light trap, H. Wolda). ♀, Cerro Campana, 800 m. (Panamá Prov-

ince), 8.V.1973 (P. D. Ashlock). Canal Zone: ♀, Barro Colorado Island, 8.VIII.1967 (L. and C. W. O'Brien). BELIZE: 4♂♂, 4♀♀, Toledo

District, Columbia Forest Station, 28.VII.1968 (blacklight trap, W. L. Hasse). NICARAGUA: 2♂♂, ♀, Bonanza, 20–30.IX.1955 (B. Malkin). MEXICO: 2♂♂ “Chis.” near Pijijiapan, 5.VII.1965 (P. J. Spangler). COSTA RICA: ♂ Cartago Province, Turrialba, 21.VI.1974 (C. W. and L. O'Brien). ♀, Puntarenas Province, Osa Peninsula (Tropical Science Center), 5 km. W Rincon de Osa, 26.VIII.1971 (blacklight trap, D. J. Pool). ♂, Puntarenas Province, San Vito, 1200 m., 27–30.VII.1969 (at light, T. Schuh and J. Crane). COLOMBIA: ♀, Tablones, Valle Finca La Florida, 1300 m., 7.I.1959, (J. F. G. Clarke). In U.S. National Museum of Natural History, University of California (Berkeley), Florida State Collection of Arthropods, American Museum of Natural History, P. D. Ashlock, D. Engleman and J. A. Slater collections.

This species which occurs with *notabilis* in the Chiriquis is similarly marked but is dull rather than subshining with a more tapered head and a much longer first antennal segment.

### ***Ozophora singularis*, new species**

Figures 8, 23

**DIAGNOSIS:** Recognized by the extremely dark dorsal surface with strongly contrasting orange markings, membranous sperm reservoir and black hemelytral membrane with a contrasting pale median stripe.

**DESCRIPTION:** Body elongate, linear. General coloration dark chocolate brown with contrasting testaceous and orange markings. Head and anterior pronotal lobe including lateral margins, pleural and ventral surfaces dark brown; posterior pronotal lobe with three broad dark reddish brown rays including a prominent median one. Scutellum dark, the diagonal streaks represented mesally by dull reddish areas, apex white. Clavus other than cubital vein completely dark brown. Corium with area immediately mesad of groove completely dark chocolate brown except at base and as an elliptical yellow mark near inner angle of corium. Corial margins narrowly orange, interrupted by the usual dark fascia at level just beyond apex of claval commissure and near extreme distal end of corium. Membrane dark chocolate brown with two veins

and extreme apex yellow to white. Legs nearly uniformly pale yellow becoming infuscated with reddish brown at distal ends of tibiae and slightly darker on tarsal segments two and three and distal end of one. First antennal segment pale reddish brown; second segment testaceous with distal end fuscous; third segment dark fuscous to reddish brown on distal two-thirds, proximal area testaceous; fourth segment with a broad white basal annulus, remainder of segment chocolate brown. Dorsal surface nearly glabrous. Almost entire dorsal surface appearing pruinose other than in area of calli and in center of disc of posterior pronotal lobe.

Head short, tylus reaching only to basal one-third of first antennal segment. Length head 0.82, width 0.96, interocular space 0.44. Pronotum with complete transverse impression, rounded humeral angles and slightly concave posterior margin. Length pronotum 1.08, width 1.62. Scutellum slightly excavated mesally near base. Length scutellum 0.98, width 0.80. Lateral corial margins very shallowly concave. Length claval commissure 0.86. Midline distance apex clavus-apex corium 1.32. Midline distance apex corium-apex membrane 1.16. Metathoracic scent gland auricle straight not curving backward, moderately elongate. Forefemora slender, armed below with three sharp spines. Labium extending somewhat beyond middle of mesosternum, at most barely reaching mesocoxae. Length labial segments I 0.70, II 0.70, III 0.38, IV 0.32. Antennae terete. Length antennal segments I 0.80, II 1.90, III 1.42, IV 1.90. Total length 6.40.

Paramere (fig. 8) with broad shaft, narrow tapering blade and strongly produced finger-like inner lobe. Sperm reservoir essentially membranous, discernible only as a minute sclerite at base of ejaculatory duct, no wings evident.

**ETYMOLOGY:** Named for its unusual strongly differentiated overall appearance.

**HOLOTYPE:** ♀, PANAMA: Cerro Campana, 800 m., 08°40'N, 79°56'W, 29.VI.1979 (D. Engleman). In American Museum of Natural History.

**PARATYPES:** PANAMA: ♀, same data as holotype. ♀, Cerro Campana, 800 m. (District Chame), 22.II.1975 (D. Engleman). 2♂♂, same, 25.V.1975. ♂, same, 2.V.1976. ♀, Fortuna,



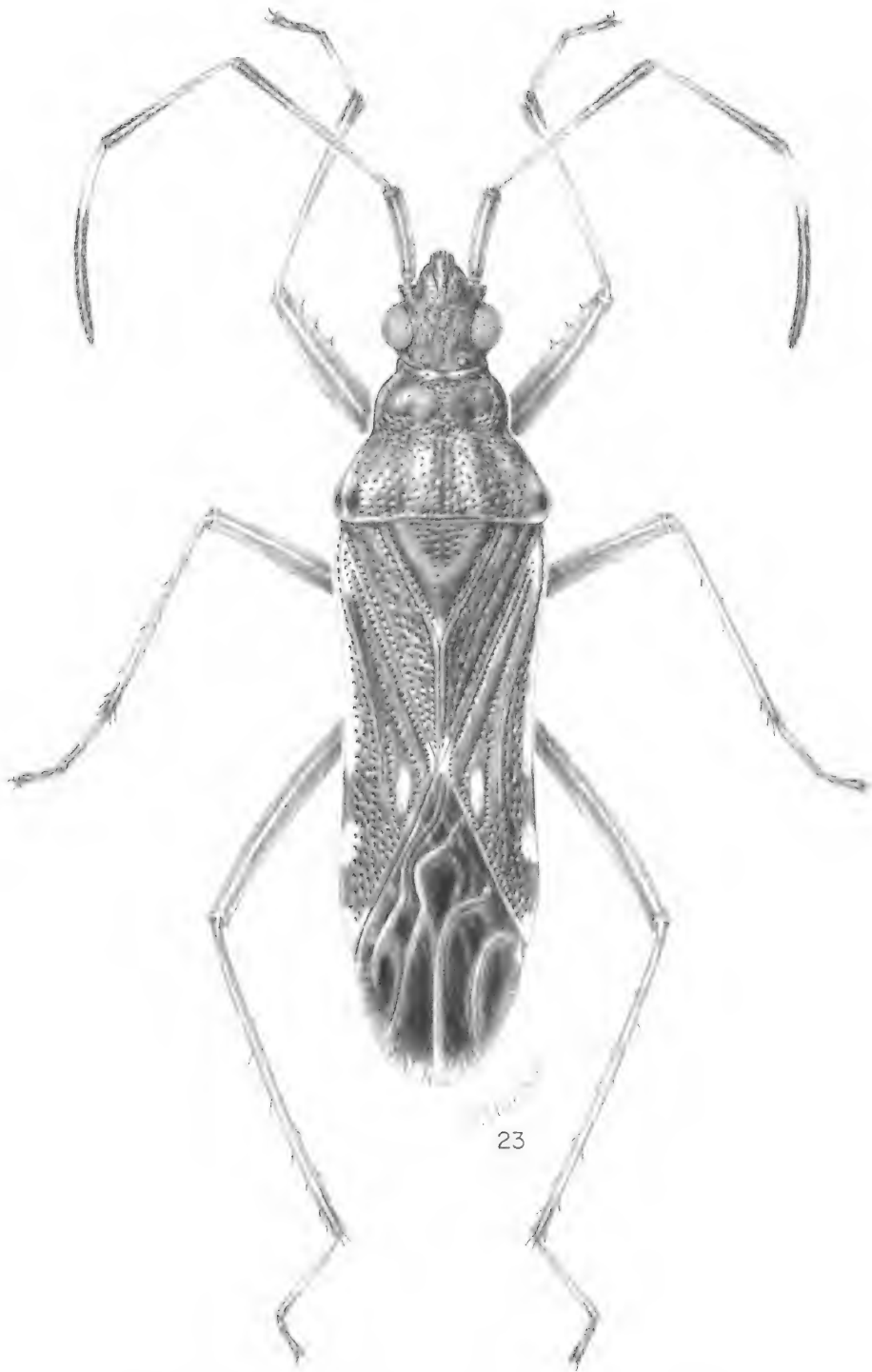


FIG. 23. *Ozophora singularis*, new species. Dorsal view.

21.XI.1976 (D. Engleman). ♀, "C.C." (Cerro Campana?), 28.IV.1973 (H. Hespeneide). ♂,

Volcan de Chiriquí, 2000–3000 ft (Champion) (from "Coll Biol. C. A."). ♀, same, 4000–

6000 feet (P. R. Uhler collection). 2♂♂, Canal Zone, Achote Road, 09°12'N, 79°59'W, 1.III.1975 (D. Engleman). In U.S. National Museum of Natural History, D. Engleman and J. A. Slater collections.

This is a very distinctive species externally as well as in the unusual modification of the male phallus. The dark coloration on some specimens is so extensive as to reduce the light markings to a series of small orange spots. The pruinose surface is quite different from most other species of *Ozophora*.

One of the "Biologia" specimens has a label "*Davilana concava* Dist." probably in Uhler's handwriting.

#### *Ozophora pallescens* (Distant)

*Davila pallescens* Distant, 1893, p. 395.

*Ozophora pallescens* was originally described from Panama from a series taken at Volcan de Chiriquí 2000–6000 feet and from Caldera. The lectotype male (fixed by Scudder 1967) is labeled "Volcan de Chiriqui 2000–3000 feet Champion." It has subsequently been reported from Florida, Mexico and numerous islands of the West Indies. We have not seen authentic material from Mexico and all of the West Indian and Florida records pertain to other species (Baranowski and Slater in press). The species does occur in other countries in both Central and South America.

(See discussion under *Ozophora parva* for distinguishing characteristics.)

ADDITIONAL PANAMA RECORDS: ♀, El Valle de Coclé, 24.IV.1975 (beating at night, D. Engleman). ♂, Coco Solo Hospital (C.Z.), 25.VI.1975 (light trap, D. Engleman). ♀, Cerro Campana (Panamá Province), 8.V.1973 (P. D. Ashlock). 2♂♂, Tres Rios Plantation, Gatun Lake, 1931 (Tozschokko). In California Academy of Sciences, P. D. Ashlock and D. Engleman collections.

#### *Ozophora parva*, new species

Figures 1, 9

DIAGNOSIS: Recognized by the very small size, lack of dorsal pubescence, presence of only two fore femoral spines, and bilobed projections on the inner tooth of the paramere.

DESCRIPTION: Body small, elongate. Head, anterior pronotal lobe (including lateral margins) and five prominent rays on posterior lobe (including meson), pleural and ventral surfaces and scutellum bright reddish brown. Hemelytra chiefly testaceous, marked with red-brown maculae in pattern as in *notabilis* and *versicolor*. Membrane gray-brown with strongly contrasting pale yellow veins; distal end without a prominent white macula. Legs including third tarsal segments uniformly pale yellow. First antennal segment bright reddish brown; second, distal one-third of third and fourth segments dark chocolate brown; proximal portion of fourth segment white.

Head short and stout, slightly declivent anteriorly; eyes not strongly produced, set fairly close to anterior pronotal collar. Length head 0.72, width 0.80, interocular space 0.38. Pronotum short and broad, humeral angles evenly rounded, posterior margin very lightly sinuate. Length pronotum 0.88, width 1.38. Length scutellum 0.80, width 0.80. Hemelytra with lateral corial margins conventionally slightly sinuate. Length claval commissure 0.68. Midline distance apex clavus-apex corium 1.10. Midline distance apex corium-apex membrane 0.94. Metathoracic scent gland auricle short, straight, not curving posteriorly. Forefemora slender, armed below with two elongate sharp spines followed by a slender hair spine. Labium extending well between mesocoxae. Length labial segments I 0.64, II 0.62, III 0.44, IV 0.28. Antennae terete. Length antennal segments I 0.64, II 1.22, III 0.86, IV 1.20. Total length 5.04.

Paramere distinctive, shaft broad tapering strongly to a very narrow curving short distal blade; inner projection elongate, crescentic; inner tooth modified into a broad, bilobed projection (fig. 1). Sperm reservoir nearly circular, wings slender broadly divergent strongly tapering resembling those of *scutellata* (fig. 9).

ETYMOLOGY: Named for its small size.

HOLOTYPE: ♂, PANAMA: Fortuna, 21.XI.1976 (D. Engleman). In American Museum of Natural History.

PARATYPES: ♀, same data as holotype. ♂, same locality as holotype, 23.XI.1976. In D. Engleman and J. A. Slater collections.

This small species is rather inconspicuous externally. However, the paramere is very



FIG. 24. *Ozophora maculata* Slater and O'Donnell. Dorsal view.

distinctive particularly by the modification of the inner "tooth" into a broad bilobed projection. The narrow small blade is also quite distinctive.

The size and presence of only two forefemoral spines indicates that this is a member of the *pallescens* complex. From *pallescens* it may be distinguished by the remarkable paramere. Externally *pallescens* has the median area of the posterior pronotal lobe pale, a pair of divergent oblique yellow stripes on the scutellum, a largely pale yellow membrane and it lacks a conspicuous transverse dark fascia across the corium.

*Ozophora maculata* Slater  
and O'Donnell  
Figure 24

*Ozophora maculata* Slater and O'Donnell, 1979,  
p. 167.

This species was originally described from Mexico, Guatemala and Arizona.

The elongate strongly posteriorly curving metathoracic scent gland auricle is diagnostic. In both the Panamanian specimens listed below the inner apical corial angle has a large pale spot present. The Slater and O'Donnell (1979) illustration shows this area completely

dark and then states this latter condition is most common. I have also examined a very dark specimen from Honduras.

PANAMA SPECIMENS EXAMINED: ♀, Cerro Campana, 800 m. (Panamá Province), 8.V.1973 (from "trash on plants," P. D. Ashlock). ♀, same locality, 08°40'N, 79°56'W, 13.V.1973 (Stockwell). In P. D. Ashlock and D. Engleman collections.

*Ozophora baranowskii* Slater  
and O'Donnell

*Ozophora baranowskii* Slater and O'Donnell, 1979,  
p. 164.

This is a widespread member of the *laticephala* complex. It was originally described from Mexico, Honduras, Venezuela, Peru, Bolivia, and Panama. The Panamanian record was based on a single female from Rovira (Chiriquí Province).

ADDITIONAL PANAMA RECORD: ♀, Altos de Maje (District Chepo), 17.V.1975 (at light, Stockwell and Engleman). In J. A. Slater collection.

The Slater and O'Donnell (1979) key and discussion is somewhat misleading in emphasizing the dark median longitudinal stripe on the posterior pronotal lobe. Although it is true that such a stripe is present in many specimens, it is also frequently obsolete, often absent. The size, lack of a prominent proximal pale annulus on the fourth antennal segment, short metathoracic scent gland auricle, paramere shape and relatively long antennal segments are diagnostic (see Slater and O'Donnell, 1979). Pale specimens of *maculata* are very similar in appearance but may be recognized by the elongate posteriorly curving scent gland auricle.

*Ozophora costaricensis* Slater  
and O'Donnell

*Ozophora costaricensis* Slater and O'Donnell, 1979,  
p. 171.

This species was originally described from Costa Rica.

This species is usually readily recognizable within the "*laticephala*-group" by the conspicuous pale annulus basally on the relatively short fourth antennal segment, the pale

posterior pronotal lobe (small dark macula usually present on humeri) and by the small black longitudinal stripe in the center of the scutellum (see Slater and O'Donnell, 1979).

PANAMA SPECIMENS EXAMINED: ♂, Rovira (Province Chiriquí), 5.VII.1964, 2500 feet (Mosquito light trap, A. Broce). ♀, Cerro Campana, 6.V.1973 (Panamá Province, P. D. Ashlock). ♀, Cerro Campana (District Chame), 25.V.1975 (D. Engleman). ♀, Fortuna, 08°44'N, 82°15'W, 1050 m., 27.II.1978 (H. Wolda). In Florida State Collection of Arthropods, P. D. Ashlock, D. Engleman and J. A. Slater collections.

*Ozophora consanguinea* (Distant)

*Davila consanguinea* Distant, 1893, p. 395.

This species was originally described from Mexico and Guatemala and subsequently reported by Uhler (1894) from Grenada (probably in error). Van Duzee (1916) synonymized *consanguinea* with *picturata* Uhler. It was raised from synonymy by Sweet (1967) and in the same paper he elevated *Peggichisme* Kirkaldy to valid status from synonymy with *Ozophora* and transferred *consanguinea* to *Peggichisme*. Ashlock and Slater (1982) return *Peggichisme* to status as a junior synonym of *Ozophora*.

*Ozophora consanguinea* can be readily distinguished from most other Panama species by the sharply acute knifelike lateral margins of the posterior pronotal lobe. It is a rather large dark species somewhat variable in color with an elongate white fourth antennal annulus, a dark clavus, a complete broad transverse hemelytral fascia and usually a dark scutellum (in a few lighter specimens pale scutellar macula are present).

The distribution is much more extensive than the literature indicates (although it is possible that more than one species is involved). In addition to the Panamanian records listed below I have examined specimens from U.S.A. (Texas), Mexico, Costa Rica, Venezuela, Guyana, Honduras, El Salvador, Belize, Trinidad, Brazil, and Nicaragua.

PANAMA MATERIAL EXAMINED: ♀, Coco Solo Hospital, 11.I.1973 (light trap, D. Engleman). ♂, same, 3.VI.1975. ♂, same, 14.V.1975. ♂, same, 21.V.1976. 5♂♂, 2♀♀, same,



16.V.1973. ♂, ♀, same, 19.XII.1972. 2♂♂, same, 24.I.1974. ♂, Barro Colorado Island, 14.VII.1941 (Jas. Zetek) no. 4852. ♀, same, III.1944, no. 5122. ♂, same locality, 10-17.V.1964 (W. D. and S. S. Duckworth). ♀, Mojina Swamp, 17.VI.1952 (F. S. Blanton). ♀, same, 9.VII.1952. 3♂♂, Porto Bello, 25.II.- (A. Busck). ♂, same, 1.XI.-. ♂, same, 28.II.1911. ♀, same, 21.IV.1912. ♂, same, 19.II.1912. ♂, Renacimiento (Chiriquí District), Santa Clara, 4000 feet, 3-5.VII.1976 (at light, D. Engleman). ♂, same locality, 28-29.V.1976 (at light, Engleman and Thurman). 2♀♀, French Canal, 8.IX.1953 (F. S. Blanton). ♂, Fortuna, 12.XII.1976 (D. Engleman). ♀, Las Cumbres, 09°06'N, 79°32'W, 18.III.1974 (light trap, H. Wolda). ♂, same, 25.III.1974. ♀, same, 27.III.1974. 2♀♀, same, 5.V.1974. ♀, same, 27.III.1974. ♂, same, 12.V.1974. ♂, same, 1.V.1974. ♀, same, 16.V.1974. ♀, same locality, 2.VII.1971 (M. Daykin). ♂, same, 26.VII.1971. ♀, GML Station, Maje (Panamá Province), 16-17.IV.1976 (at light, D. Engleman). ♀, Campinas, 19.IX.1952 (F. S. Blanton). ♀, San José (Pearl Island), 9.VIII.1974 (at light, J. P. E. Morrison). ♂, Cerro Campana, 800 m. (Panamá Province), 28.IV.1973 (at light, D. Engleman).

The Texas records appear to be the first for the United States. They are based upon the following: TEXAS: ♂, Laredo, 29.V.1965 (M. H. Sweet). 2♀♀, Dimmit Co., 4.I.1936 (S. E. Jones). ♀, Winter Haven, 25.X.1933 (S. E. Jones). ♀, Cameron Co., 2.XII.1951 (J. C. Elkins). ♀, Harlingen, 1-30.V.1945 (E. Hardy). In Texas A. & M. University and J. A. Slater collections.

*Ozophora atropicta* Barber

Figure 25

*Ozophora atropicta* Barber, 1939, p. 356.

*Ozophora heydoni* Barber and Ashlock, 1960, p. 119.

This is a very common species in Panama. It is readily recognizable by the (generally) pale posterior pronotal lobe, the dark anterior lobe with strongly contrasting lateral margins, the broad head and the conspicuous pale streaks on the scutellum. It is similar in appearance to *O. parapicta* Slater and Hassey but has a subshining rather than pruinose

dorsal surface and *parapicta* lacks the diagonal pale scutellar streaks.

Slater and Hassey (1981) have discussed the geographic variation in this wide-ranging species. They report it from the Bahamas, Cuba, Hispaniola, Mexico, Honduras, Costa Rica, Venezuela, Trinidad, Brazil, and Panama.

The Panama localities listed by Slater and Hassey (ibid) are as follows: Barro Colorado Island; Coco Solo Hospital; Fort Sherman, Las Cumbres, Rio LasLajas near Coronado Beach; Rio Hato; Cocle; Rovira; Fort Amador and Trinidad River.

Most specimens were taken at light. Slater and Hassey (1981) report an adult under *Ficus* sp. on Barro Colorado Island.

*Ozophora parapicta* Slater and Hassey

*Ozophora parapicta* Slater and Hassey, 1981, p. 257.

This is a large pale testaceous to reddish brown species. It resembles *atropicta* Barber but is more elongate and slender, has a complete dull pruinose dorsal surface and lacks a pair of diagonal pale streaks on the scutellum. This last feature is a readily observable and apparently definitive difference.

Slater and Hassey (1981) reported a breeding population in *Ficus* seed litter on Barro Colorado Island. They described the fifth instar nymph.

The holotype was described from Barro Colorado Island and Panamanian paratypes were from Barro Colorado Island and Coco Solo Hospital.

It is also known from Guatemala, Venezuela, and Trinidad.

*Ozophora concava* (Distant)

*Davila concavus* Distant, 1893, p. 395.

This species was originally described from Panama, Guatemala and Mexico.

It is a large, boldly marked species and readily distinguishable by the numerous long upstanding hairs on the dorsal surface and other characters as given in the preceding key.

Subsequent to the original description it has been reported from Arizona, Florida, Jamaica and Puerto Rico but none of these records actually belong to *concava*. It is, how-

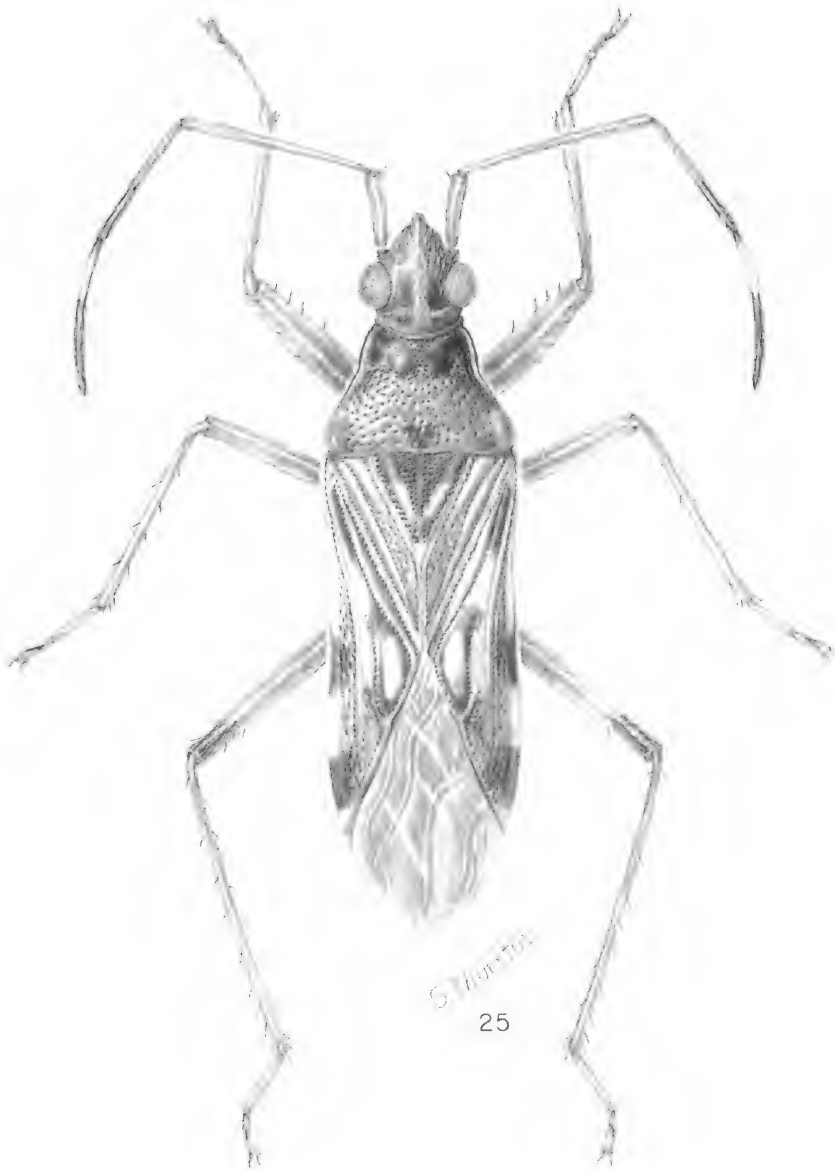


FIG. 25. *Ozophora atropicata* Barber. Dorsal view.

ever, a widely distributed species. I have examined specimens from Colombia, Nicaragua, Venezuela, Trinidad, Bolivia, Brazil, Belize, Surinam, and Costa Rica.

ADDITIONAL PANAMA RECORDS: *Canal Zone*: 31♂♂, 34♀♀, Barro Colorado Island, 10–17.V.1964 (W. D. and S. S. Duckworth). 16♂♂, 19♀♀, same, 24–28.V.1964. 2♂♂, 2♀♀, same, 20–23.V.1964. 3♂♂, 2♀♀, same, 1–9.V.1964. ♀, same, 10–17.V.1964. ♂, same, 18–

28.IV.1964. 7♂♂, 11♀♀, same locality, I–III.1944 (Zetek) no. 5122. 4♀♀, same, IV.1940, no. 4647, Lot no. 40-8104. ♂, ♀, same, IV.1941, no. 4776, Lot. no. 41-7231 (at light). ♀, same, V.1941, no. 4798, Lot no. 41-11389 (at light). 2♂♂, 3♀♀, same, VII.1941, no. 4852, Lot no. 41-20631. 2♂♂, ♀, same, VII–VIII.1942, no. 4985. ♂, 2♀♀, same locality, 23.VI.1948 (J. E. Gtäf). ♂, 2♀♀, same locality, 5.XI.1973 (H. Wolda). 2♂♂, 4♀♀, same local-

ity, 21.IX.1971 (light trap, D. Engleman). 23♂♂, 17♀♀, same, 25.IV.1972 (light trap), 85 feet. 10♂♂, 11♀♀, same, 12.VI.1973. ♂, 3♀♀, same, 26.IV.1972. ♂, same, 5.IX.1973. ♀, same locality, 25.IV.1962 (H. Ruckes). ♂, same, 28.IV.1962. ♂, same, 1.V.1962. ♀, same, 20.VI.1962. ♀, same, 22.VI.1962. ♀, same, 23.VI.1962. ♂, same, 30.VI.1962. ♀, same, 20.VII.1962. ♂, same locality, 19.VI.1924 (N. Banks). ♀, same, 23.VI.1924. ♀, same, 25.VI.1924. ♀, same locality, VI.1926 (N. S. Scrinshaw). ♂, same, VII.1926. ♀, same, VIII.1927. ♂, 2♀♀, same locality, 7.VIII.1967 (at light, C. W. and L. O'Brien). ♂, ♀, same locality (Griswold). ♂, Mojinga Swamp, 1.VII.1952 (F. S. Blanton). ♀, same, 19.XI.1951. ♂, Bella Vista, 8.VIII.1924 (N. Banks). 2♂♂, Fort Sherman, 11.V.1953 (F. S. Blanton). ♂, ♀, same locality, 3.VII.1924 (N. Banks). ♀, Coco Solo Hospital, 11.V.1972 (at light, D. Engleman). ♂, 2♀♀, same, 23.V.1972. ♀, same, 30.VIII.1972. 5♂♂, 4♀♀, same, 19.XII.1972. ♀, same, 7.V.1973. ♀, same, 8.V.1973. ♀, same, 9.V.1973. 4♂♂, 2♀♀, same, 15.V.1973. ♂, 7♀♀, same, 8.VI.1973. 22♂♂, 33♀♀, same, 15.VI.1973. 2♂♂, 3♀♀, same, 11.VII.1973. 2♂♂, 4♀♀, same, 14.V.1975. ♀, same, 15.VI.1973. 7♂♂, 4♀♀, same locality, 14.V.1973 (at light, P. D. Ashlock). 12♂♂, 11♀♀, 1 specimen (no abdomen), same, 15.V.1973. 21♂♂, 54♀♀, same, 16.V.1973. PANAMA: 4♂♂, 1♀, Province Chiriquí Rovira, 5.VII.1964, 2500 feet (Mosquito light trap, A. Broce). 2♀♀, Río Hato, Coclé Province, 9.IX.1952 (F. S. Blanton). ♂, Coclé Province, Pointe Farahon, 9.XI.1952 (F. S. Blanton). ♀, Chepo, 25.IX.1952 (F. S. Blanton). 2♂♂, ♀, French Canal, 8.IX.1953 (F. S. Blanton). ♀, Alhajuelo, 19.IV.1911 (August Busck). ♂, ♀, same, 16.IV.1911. ♂, ♀, Trinidad Rio, 2.V.1911 (August Busck). ♀, same, 19.III.1912. ♀, Porto Bello, 21.IV.1912 (August Busck). ♂, ♀, Cabima, 24.V.1911 (August Busck). ♂, ♀, same, 17.V.1911. ♂, same, 20.V.1911. ♂, Las Cumbres, 09°06'N 79°32'W, 15.XI.1973 (D. Engleman). ♂, same locality, 8.XI.1973 (light trap, H. Wolda). 3♀♀, same, 13.XI.1973. ♂, same, 29.XI.1973. ♀, same, 16.V.1974. ♀, same, 19.V.1974. ♂, 2♀♀, Darien, Rio Tuquesa, 4-6.VII.1975, 500 feet (D. Engleman). ♀, Diablo Heights, 08°58'N, 79°34'W (no collector). ♂, Balboa-Diablo (Pacific), 20.VI.1976 (D. Engleman). ♀, Pipeline

road Gamboa, 23.VII.1972 (D. Engleman). ♀, Madden Forest, 4.V.1972 (light trap, H. Stockwell). ♀, "mi. 2.5," 09°05'N, 79°37'W, 4.V.1973 (H. Stockwell). ♂, "Panama in bananas," intercepted New York, "8-7-34." ♀, "Panama in bananas," intercepted San Francisco, California, "4-2-36."

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