

THE GENUS *OZOPHORA* IN FLORIDA
(HEMIPTERA: LYGAEIDAE)

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ABSTRACT

The Florida species of the genus *Ozophora* are keyed and described; distribution, food plants and habitats are discussed. *Ozophora gilva*, *floridana*, and *caroli* from Florida and *levis* from Florida and the Bahamas are described as new. *Ozophora inornata* Barber is synonymized with *reperta* Blatchley; *divaricata* Barber is reported from Florida for the first time; and *concava* (Distant) and *pallesceus* (Distant) are removed from the Florida list. The remaining Florida species are *burmeisteri* (Guerin), *trinotata* Barber, *laticephala* Slater & O'Donnell and *picturata* Uhler.

RESUMEN

Se describen las especies de *Ozophora* de Florida, se presenta una clave, y se discuten la distribución de las especies, sus plantas hospederas, y sus hábitats. Se describen como nuevas especies *Ozophora gilva*, *O. floridana*, y *O. caroli* todos de Florida, y *O. levis* de Florida y las Islas Bahamas. *Ozophora inornata* Barber se considera como un sinónimo de *O. reperta* Blatchley; se registra *O. divaricata* Barber de Florida por primera vez; y se remueven de la lista para Florida *O. concava* (Distant) y *O. pallescens* (Distant). Las restantes especies floridananas son: *O. burmeisteri* (Guerin), *O. trinotata* Barber, *O. laticephala* Slater y O'Donnell, y *O. picturata* Uhler.

The genus *Ozophora* is one of the most complex and taxonomically difficult genera of Western Hemisphere Rhyparochrominae. The distribution is primarily Neotropical where a bewildering number of species of more or less similar size and color pattern occur. Many species occur only in the West Indies where the genus constitutes one of the dominant elements of the rhyparochromine fauna.

The Florida fauna has not been examined carefully since Blatchley's (1926) study. In the present paper we describe 4 new species, report *divaricata* Barber from North America for the first time, remove *concava* (Distant) and *pallesceus* (Distant) from the Florida list, refer Blatchley's (1926) records of *pallesceus* to *gilva* new species, and synonymize *inornata* Barber with *reperta* Blatchley.

Ozophora is the only genus of the tribe Ozophorini to occur in Florida. It may be recognized by the ventral abdominal spiracles, rather porrect head with longitudinal grooves on the vertex, distinct pronotal collar, calloused and ridged (but not sharply carinate) lateral pronotal margins, rather slender fore femora, shining elevated plate-like mesosternum and lack of abdominal inner latero-tergites. Most species are variegated with yellow and brown, or yellow and black and have a conspicuous white annulus proximally on the 4th antennal segment.

While several species of *Ozophora* are common in Florida relatively little is known of their biology. Sweet (1964) has studied *picturata* in Connecticut, but there are only scattered collecting notes for the other species. Most species are associated with woodland habitats or occur in areas of relatively dense shade. They are definitely not associated with annuals and weeds as are so many of the Florida Rhyparochrominae. Only the fortunate fact that most species of *Ozophora* come readily to lights makes it possible to know even the little we do know of the distribution of the Florida fauna. For example, *floridana* n. sp. and *caroli* n. sp. are certainly not rare species within their proper habitat, and a glance at the paratype series will show this. Despite their frequent appearance in light traps operated in hammocks near Homestead, we have been unable to find them in the field.

Adults and nymphs of *Ozophora* are very active. When disturbed in litter they run rapidly and adults fly surprisingly readily for geophilous rhyparochromines.

The distribution of Florida species, while still imperfectly known, is very interesting. Three species, *floridana* n. sp., *gilva* n. sp. and *trinotata* Barb., are endemic. *Ozophora caroli* n. sp. is known outside of Florida only from 2 apparently conspecific specimens from Mexico, and *levis* only from the Keys, upper Bahamas and Mexico. Thus, for the moment at least, 5 of the 10 Florida species appear to be of restricted distribution. Two of these, *caroli* and *floridana* n. spp., are confined to extreme southern Florida where they appear to occur primarily in dense hammock habitats. *Ozophora gilva* and *trinotata* probably occur throughout peninsular Florida and at least the former even further north.

Of the remaining 5 species, 4 are Neotropical elements. These species are largely confined to extreme southern Florida (although *burmeisteri* Guerin has been reported north to Lake Wales).

Thus, only *picturata*, which is widespread over most of the eastern and central United States, is a "northern" element. Its scarcity in Florida also indicates that it can legitimately be considered a northern species that reaches the southern limits of its range in peninsular Florida.

Only 2 papers have dealt in depth with Florida Lygaeidae. Barber (1914) recognized 3 species of *Ozophora*: *burmeisteri*, *picturata* and *trinotata*. All are still recognized as members of the fauna. Blatchley (1926) discussed 6 species. The additions are *concava*, *palleszens* and *reperta*, the last as a new species. His record of *concava* was based on a listing of "Florida" by Van Duzee (1917). Neither Blatchley nor the present authors have been able to discover on what the record was based. *Ozophora concava* is a very distinctive species and nothing resembling it is present in material we have examined. It should be eliminated from the Florida list. The Blatchley record of *palleszens* is referable to *divaricata* Barb.

All measurements are given in mm.

The original references and complete synonymy to all previously described species can be found in Slater (1964).

The following acronyms are used to designate collections in which examined material is located: R.M.B.—R. M. Baranowski collection, J.A.S.—J. A. Slater collection, F.S.C.A.—Florida State Collection of Arthropods, A.M.N.H.—American Museum of Natural History, U.S.N.M.—United States National Museum of Natural History, G.G.S.—G. G. S. Scudder collection and P.D.A.—Peter D. Ashlock collection.

Key to Florida Species of *Ozophora*

1. Pronotum and hemelytra with numerous elongate upstanding hairs present (viewed laterally) 2
- 1'. Pronotum and hemelytra nearly glabrous, at most with very short inconspicuous hairs present 3
- 2(1). Posterior femora bearing several rows of very elongate upright hairs, these as long as or longer than diameter of a femur ... *trinotata*
- 2'. Hairs on posterior femora much shorter, not longer than diameter of a femur *burmeisteri*
- 3(1'). Fore femora armed below with 3 or 4 large spines; body length usually greater than 4.5 mm 4
- 3'. Fore femora usually armed below with only 2 larger spines, or, if 3 "major" spines present then body length not exceeding 4.5 mm 8
- 4(3). General coloration of dorsal surface dark chocolate brown, membrane of fore wing dark throughout, lacking an apical pale area *levis* n. sp.
- 4'. General coloration brownish, orangish or yellowish, never predominately dark chocolate brown; apical area of membrane pale or membrane chiefly pale 5
- 5(4'). Lateral portion of apical corial margin usually at least obscurely tinged with crimson, apical dark macula not extensively invading adjacent apical corial margin. *picturata*
- 5'. Lateral portion of apical corial margin not tinged with crimson (if a slight crimson tinge at extreme apex then dark apical macula extensively invading apical corial margin immediately before extreme apex) 6
- 6(5'). Fourth antennal segment either lacking a white proximal annulus or annulus very narrow, not nearly covering proximal 1/3 of segment; a small post median dark macula present along each lateral corial margin that at most barely extends mesad of explanate margin; corium without a well differentiated large subapical white macula *gilva* n. sp.
- 6'. Fourth antennal segment with a strongly contrasting large white proximal annulus occupying at least proximal 1/3 of segment; each lateral corial margin with a large post median dark macula that usually extends (although irregularly) completely across corium; corium with a well differentiated large white subapical macula 7
- 7(6'). Posterior pronotal lobe extensively marked with dark red brown contrasting strongly with pale yellow posterior margin; anterior 1/3 of corium with an elongate dark patch present *caroli* n. sp.
- 7'. Posterior pronotal lobe nearly uniformly light yellowish tan (at most with slightly darker brown stripes), without a strongly contrasting light posterior margin; anterior 1/3 of corium lacking an elongate dark patch *floridana* n. sp.
- 8(3'). Third antennal segment longer than width of head across eyes *reperta*
- 8'. Width of head across eyes greater than length of third an-

- tenal segment 9
- 9(8'). Head with apex of tylus bluntly truncate, scarcely if at all exceeding juga and bent downward at right angle to long axis of body *laticephala*
- 9'. Head with apex of tylus subacuminate, tapering, curving downward but not bluntly truncate, conspicuously exceeding juga *divaricata*

NYMPHS

Fortunately nymphs are available for 6 of the 10 Florida species. It is possible to separate the species into groups based upon whether or not the abdomen is irrorate (covered with a series of small pale spots) or whether it is variegated with large patches of color. It is interesting that a parallel situation is present in *Dieuches*, a large and complex Eastern Hemisphere genus of the tribe Rhyparochromini. Whether these irrorate-non irrorate conditions in *Ozophora* indicate phylogenetic relationship or parallel developments in response to habitat similarities must await further study.

All *Ozophora* nymphs have 3 dorsal abdominal scent gland openings and a distinct Y-suture present, a combination characteristic of the tribe.

Key to known 5th instar nymphs of Florida *Ozophora*

1. Abdomen irrorate, thickly speckled with small pale spots 2
- 1'. Abdomen not irrorate, at most a very few widely scattered pale spots present 4
- 2(1). Hind femora with numerous elongate hairs present, many longer than diameter of femur *trinotata*
- 2'. Hind femora either nearly glabrous or with hairs shorter than diameter of femur 3
- 3(2'). Fourth antennal segment with a broad white proximal annulus strongly contrasting with dark distal portion of segment; 3rd antennal segment dusky; ratio of length antennal segment III/antennal segment IV greater than 0.85 *picturata*
- 3'. Fourth antennal segment nearly uniformly pale yellow, at most with a narrow obscure pale proximal annulus; 3rd antennal segment pale yellow; ratio of length antennal segment III/antennal segment IV less than 0.80 *gilva* n. sp.
- 4(1'). Dorsal surface clothed with numerous conspicuous upstanding hairs; fore femora each with 4-7 ventral spines present *burmeisteri*
- 4'. Dorsal surface glabrous or nearly so; fore femora each with 2 (occasionally 3) ventral spines present 5
- 5(4'). Third antennal segment brown except for extreme distal end *laticephala*
- 5'. Third antennal segment with only proximal 1/2 brown, the remainder straw-colored *divaricata*

Ozophora burmeisteri (Guerin)

This species is readily distinguishable from all other species of Florida *Ozophora* by the combination of its very dark pronotum and upstanding

dorsal hairs. *Ozophora trinotata* also has upstanding dorsal hairs but it is a larger reddish brown species that can be readily distinguished by the key characters given above. Adults of *burmeisteri* have a nearly uniformly black or dark chocolate brown pronotum. The posterior pronotal lobe has a yellow streak midway between the meson and margin, or a pair of yellow spots in the same area. The corium has an apical dark spot and a conspicuous dark macula along the lateral margin $2/3$ the distance from the base. The 4th antennal segment has a conspicuous white annulus and the 3rd segment is slightly swollen distally and dark chocolate brown on the distal $1/3$.

Ozophora burmeisteri is very common in southern Florida and comes to lights in large numbers. In December, 1974 we took adults and young nymphs among the fallen seeds of *Ficus religiosa* L. and *F. retusa* L. on the grounds of the Agricultural Research and Education Center, Homestead. In the laboratory the insects survived on water and seeds of *Ficus*. Eggs are laid on and in the fruits and adults moved to feed on fresh seeds immediately when the latter were introduced. It thus seems certain that *burmeisteri* can and will breed on seeds of *Ficus*. In May 1979, very large populations were observed breeding in fallen seeds beneath the above mentioned trees. At this time the litter consisted of a large quantity of recently fallen fruit. However, figs almost certainly are not the only host. We have collected beneath *Ficus* trees at many locations on Jamaica. Many species of *Ozophora* have been taken feeding on the seeds of *Ficus*, yet we never collected *burmeisteri* although it occurs there and is frequently collected at lights.

Blatchley (1926) reports it on the foliage of mangrove (surely a sitting record); Wolcott (1936) on *Crotalaria* sp. in Puerto Rico.

Ozophora burmeisteri has been reported from many islands in the West Indies, Texas, Lower California and Mexico as well as from Florida.

Florida records: Reported by Barber (1914) from Everglade and St. Augustine and by Blatchley (1926) from Chokoloskie, Royal Palm Park and Lake Wales.

Additional Florida records: Homestead (R.M.B., J.A.S., F.S.C.A.); Port Sewall (A.M.N.H.); Everglades Nat. Pk.; Loggerhead Key, Dry Tortugas; Kendall; Orchid Jungle Hammock, Newton Rd., Dade Co.; Flamingo Prairie, Everglades Nat. Pk., (J.A.S.); Biscayne Bay; Belleair (A.M.N.H.). LaBelle, Hendry Co. (J.A.S.); Key West; Stock Island, Monroe Co. (R.M.B.).

Fifth instar nymph (in alcohol, Homestead, Florida)

Head and pronotum largely dark chocolate brown. Head behind epicranial arms paler but with a very broad dark band running behind compound eye. Pronotum with a pair of yellow streaks on either side of midline on anterior $1/3$ and posteriorly with a pair of yellow spots midway between meson and margin, the posterior one reaching the posterior margin (these spots sometimes coalesce to form a yellow longitudinal bar midway between meson and margin on posterior lobe). Scutellum marked as in *picturata* but strongly infuscated on antero-lateral angles. Mesothoracic wing pads chiefly dark, distally pale, anteriorly marked as in *picturata*. Abdomen lacking irrorate markings, segment 1 dusky on either side of midline, mesal portion of segment 2 between wing pads dusky gray; this marking continuing over segment 3 but more broadly, extending in a tapering cone nearly to preconnexival margin in middle of segment, posteriorly reaching anterior ab-

dominal scent gland orifice. This gray coloration present on segment 4 as a large ovoid patch between scent gland orifices and more narrowly so on segment 5. Gray markings tinged with reddish laterally on segment 3 and posteriorly on segments 4 and 5. Red markings present along sutures, as in *picturata*. Legs in large part pale yellow; posterior femora with a diffuse but distinct darker annulation distally. Second tarsal segment somewhat infuscated. Antennae with segments I and II pale yellow; segment III becoming reddish brown on distal 1/3; segment IV with a subproximal conspicuous white annulus, otherwise dusky. Body clothed with conspicuous upstanding yellowish hairs over entire dorsal surface.

General form similar to other species of *Ozophora*. Head length 0.63, width 0.75, interocular space 0.40. Pronotum length 0.63, width 0.98. Wing pad length 1.25. Abdomen length 2.60. Fore femora armed below with 5 or 6 dark brown sharp spines. Labial segments length I 0.70, II 0.68, III 0.55, IV 0.35. Antennal segments length I 0.40, II 0.75, III 0.78, IV 0.75. Total body length 4.90.

Fourth instar nymph (in alcohol, Bellevue, St. Elizabeth Parish, Jamaica)

Similar in form and color to instar 5, dark markings on abdominal tergum more reddish brown, covering segment 3 entirely and all of segment 4 except a narrow posterior pale stripe. Reddish markings along sutures of abdomen very conspicuous. Head length 0.55, width 0.73, interocular space 0.40. Pronotum length 0.48, width 0.88. Wing pad length 0.50. Abdomen length 1.30. Labial segments length I 0.55, II 0.53, III 0.45, IV 0.30. Antennal segments length I 0.33, II 0.68, III 0.63, IV 0.85. Total body length 2.90.

Third instar nymph (same as above)

Form and color as in instar 4, but only a single yellow quadrate spot present on mesothoracic wing pads. Yellow streaks of previous instars midway between meson and margin of pronotum present as small spots near posterior margin. Head length 0.43, width 0.50, interocular space 0.33. Pronotum length 0.33, width 0.68. Abdomen length 0.90. Labial segments length I 0.28, II 0.35, III 0.30, IV 0.25. Antennal segments length I 0.25, II 0.45, III 0.45, IV 0.63. Total body length 2.08.

Second instar nymph (same as above)

Form and color as in instar 3, but abdominal terga 2 and 3 completely reddish brown. Posterior half of terga 4 and most of 5 also reddish brown thus forming a transverse pale white band across abdomen at level of second abdominal scent gland orifice. Fourth antennal segment little differentiated in color, lacking a strongly conspicuous white annulus. Pale markings absent on nearly uniformly brown pronotum. Mesonotum with a pale mark on posterior margin adjacent to meson. Head length 0.40, width 0.58; interocular space 0.30. Pronotum length 0.33, width 0.65. Abdomen length 0.80. Labial segments length I 0.40, II 0.38, III 0.30, IV 0.25. Antennal segments length I 0.23, II 0.45, III 0.45, IV 0.58. Total body length 1.75.

First instar (in alcohol, Homestead, Florida)

Head, pronotum, mesonotum and large transversely rectangular patches on metanotum reddish brown strongly contrasting to pale yellow testaceous abdomen; latter with a broad red transverse stripe running across segments 4 and 5. Legs nearly uniformly pale. Third and 4th antennal segments slightly infuscated, the latter lacking a pale subproximal annulus. Head

length 0.28, width 0.38, interocular space 0.23. Pronotum length 0.15, width 0.35. Abdomen length 0.63. Labial segments length I 0.25, II 0.20, III 0.18, IV 0.20. Antennal segments length I 0.13, II 0.23, III 0.23, IV 0.35. Total body length 1.35.

Egg (same as above)

Egg robust, elongately elliptical, thickly clothed with short truncated hairs over entire surface; 4 short thick micropylar processes present anteriorly, grouped closely around meson. Length 1.63, width 0.70.

Ozophora caroli Slater and Baranowski, NEW SPECIES
(Fig. 1)

Body elongate, relatively stout. Head, anterior pronotal lobe and broad rays extending through posterior pronotal lobe dark red brown. Anterior pronotal collar broadly pale yellow on either side of a median red brown spot; entire posterior margin of pronotum broadly, sinuately yellow, strongly contrasting with adjacent reddish brown rays. Scutellum chiefly dark red brown, but with raised elliptical calloused area yellow shading anteriorly to reddish brown. Hemelytra chiefly testaceous, clavus suffused distally with chocolate brown. Corium with an elongate rectangular chocolate brown macula between radius and medius at level of apex of scutellum and with a very large white subapical macula that nearly reaches apical corial margin. Corium dark chocolate brown distad of subapical pale macula and with a broad, transverse, irregular, mesally widening vitta anterior to white macula. A large pale, nearly white spot near each inner corial angle. Membrane largely fumose, apex broadly white, veins pale translucent; a pale spot near center of membrane at level of middle of apical corial margin. Ventral and pleural surfaces of head, thorax and abdomen uniformly red brown. Legs and labium pale testaceous with an obscure subdistal dark band on posterior femora. Antennal coloration much as in *floridana*; segments I, II and III pale yellow with distal end of III, proximal end and distal 3/4th of IV contrasting dark chocolate brown. Body nearly glabrous above, lacking conspicuous upstanding hairs.

Head large, strongly convex across vertex; tylus somewhat declivent extending beyond middle of first antennal segment. Head length 0.78, width 0.95, interocular space 0.48. Pronotum with calli very prominent, shining and differentiated from adjacent pruinose areas of anterior lobe, widely separated mesally, transverse impression deep; lateral pronotal margins strongly sinuate, evenly ridged. Pronotum length 0.95, width 1.48. Scutellum feebly impressed mesally on basal 1/2; calloused lateral areas not strongly raised. Scutellum length 0.88, width 0.78. Claval commissure length 0.75. Corium with lateral margins moderately sinuate, little reflexed. Midline distance apex clavus-apex corium 1.10; midline distance apex corium-apex membrane 0.88. Fore femora moderately incrassate armed below with 3 conspicuous sharp spines on distal 1/2. Posterior femora with a single sharp spine below distally. Labium reaching to but not beyond metacoxae; 1st segment attaining base of head. Labial segments length I 0.85, II 0.75, III 0.50, IV 0.43. Antennae conventionally terete, slender. Antennal segments length I 0.55, II 1.23, III 1.0, IV 1.43. Total body length 5.28.

HOLOTYPE: *Florida*: ♂ Dade County, Ross and Castello Hammock 2-VI-1970 (R. M. Baranowski) (blacklight trap). In U.S.N.M. No. 73798.

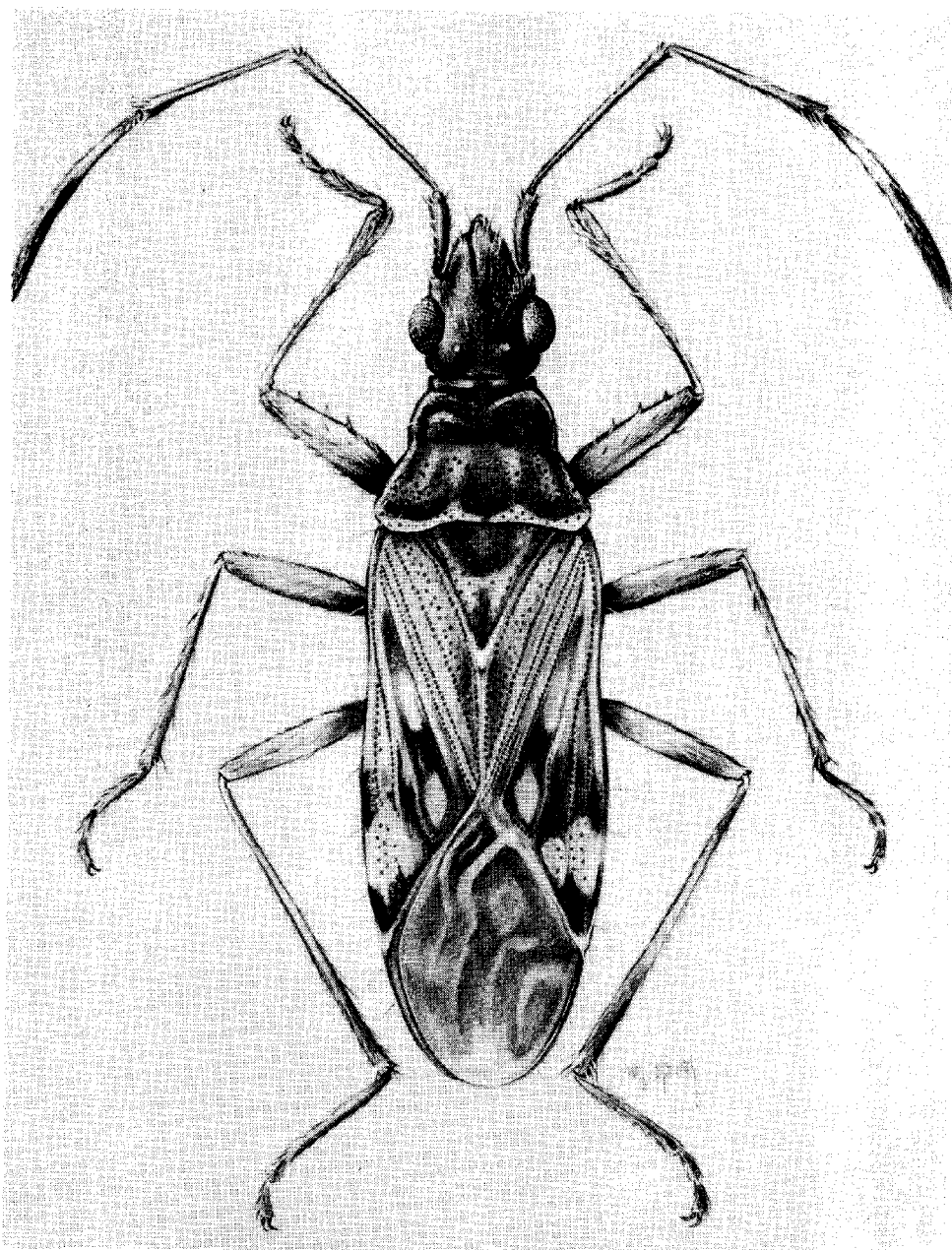


Fig. 1. *Ozophora caroli* Slater & Baranowski, NEW SPECIES, dorsal view.

PARATYPES: *Florida*: 1 ♀ Dade Co., Kendall 19-II-1951 (A. M. Nader); 1 ♂, 1 ♀ Dade Co., Orchid Jungle Hammock, Newton Rd. 12-V-1970 (R. M. Baranowski) (blacklight trap); 1 ♂, 1 ♀ same 20-V-1970; 2 ♀ Dade Co., 26000 S. W. 197 Ave. (R. M. Baranowski) (blacklight trap); 1 ♂, 10 ♀ Dade Co., Ross & Castello Hammock 26-III-1970 (R. M. Baranowski) (blacklight trap); 2 ♂, 4 ♀ same 14-IV-1970; 1 ♂, 4 ♀ same 2-VI-1970; 1 ♀ same 3-VI-1970; 4 ♂, 4 ♀ same 21-VII-1970; 1 ♂, 1 ♀ same 29-III-1976 3 ♀ same 24-III-1977. In A.M.N.H., F.S.C.A., R.M.B., and J.A.S. collections.

This species resembles *floridana*, with which it occurs in the hammocks of southern Florida, in having a conspicuous white apex to the membrane, a large white corial macula, a prominent red brown head, an anterior pronotal lobe with differentiated calli, and 3-spined fore femora. It is, however, quite a different appearing species than *floridana* having a more robust and less elongate appearance. In particular, the head is relatively much larger and more prominent than in *floridana*. The strongly differentiated pale posterior margin of the pronotum and dark chocolate brown markings on the anterior 1/2 of the hemelytra also will serve readily to differentiate the 2 species.

Occasionally a small 4th spine is present on the fore femora.

The type series is all from light traps in hammocks in Dade County but we have examined 2 specimens from Chiapas, Mexico, 9 mi. N. Ocozocoautla, 18 July 1973 (Mastro and Schaffner) (taken at light) that are very closely related to, if not conspecific with, this species. They differ chiefly in having darker antennae.

Ozophora divaricata Barber

This is one of the smallest and one of the most brightly marked of the Florida *Ozophora*. The posterior pronotal lobe has a series of longitudinal chocolate brown markings that coalesce posteriorly to give the appearance of 3 loops. The hemelytra are strongly marked with conspicuous dark chocolate brown patches including an apical corial one. A small dark macula is also present along the lateral hemelytral margin on the distal 1/3 that does not extend mesad to the radial vein. The fore femora usually have only 2 ventral spines. The 4th antennal segment has a pale proximal annulus, but it is short and often dull yellow rather than white.

Ozophora divaricata is part of a complex group of West Indian species whose relationships we discuss in detail elsewhere. *Ozophora divaricata* is abundant in the Bahamas and occurs throughout the Greater Antilles, but has not been taken in the Lesser Antilles although several very closely related species occur there.

We have collected it under *Pluchea odorata* Cassini in Jamaica and on North Key Largo, Florida and under *Gynoxys incana* (SW) Less and *Conyza karuninskianus* DC in Jamaica.

It has not previously been reported from Florida.

Florida records: Hendry Co., LaBelle (JAS); Manatee Co., Bradenton, Perico Is.; Monroe Co., N. Key Largo; Dade Co., Ross & Castello Hammock; Dade Co., Orchid Jungle Hammock, Dade Co., Homestead; Everglades Nat. Pk. (RMB).

The Florida specimens from Key Largo and LaBelle are strongly, contrastingly dark chocolate brown to black and light yellow to white. They closely resemble most specimens from the Bahamas and Greater Antilles. The long series from Perico Island (Bradenton) on the other hand is predominately pale tan and has a quite different general appearance. This series was taken on a tidal flat and thus the pale color may have been selected for strongly. We have been unable to find meristic or genital differences to distinguish the Bradenton population from other Florida specimens of *divaricata*.

Fifth instar nymph (in alcohol, Irishtown, Jamaica)

Head, pronotum, scutellum and mesothoracic wing pads variegated with brown and with testaceous pale markings as follows: on head a median line, a curved spot behind each eye, a small spot anterior to eye and a small narrow bar below each eye; on pronotum a median line and an irregular longitudinal line extending forward from humeral angles almost to anterior margin; on scutellum midline, an elongate streak on anterior margin midway between meson and lateral margins and an elongate "bar" extending along but not in contact with lateral margin; on mesothoracic wing pads, a stripe extending from anterior margin to middle of inner margin at a level posterior to apex of scutellum, an elongate, slender triangular spot adjacent to scutellum and an elongate area slightly caudad of middle of lateral margin of wing pad. Pro-, meso- and metapleura dark brown with an elongate light bar adjacent to but not touching dorsal margin of metapleuron. Abdomen brown with irregularly placed pale markings. Legs uniformly straw-colored. Antennae straw-colored but with proximal 1/2 of segment III darker and basal 1/3 of segment IV white.

Head length 0.64, width 0.76, interocular space 0.64. Pronotum length 0.52, width 1.0. Mesothoracic wing pads length 1.16. Abdomen length 2.20. Labial segments length I 0.56, II 0.52, III 0.32, IV 0.24. Antennal segments length I 0.32, II 0.68, III 0.60, IV 0.80. Total body length 4.40.

Fourth instar nymph (same as above)

Similar in form and color to instar 5; outermost pair of pale lines on pronotum reduced to pale spots at postero-lateral angle. Third antennal segment uniformly brown. Head length 0.56, width 0.60, interocular space 0.36. Pronotum length 0.40, width 0.72. Mesothoracic wing pads length 0.52. Abdomen length 1.68. Labial segments length I 0.40, II 0.40, III 0.24, IV 0.28. Antennal segments length I 0.24, II 0.48, III 0.40, IV 0.60. Total body length 3.12.

Third instar nymph (same as above)

Specimens faded but with faint irregularly placed pale markings present on abdomen. Head length 0.38, width 0.44, interocular space 0.32. Pronotum length 0.22, width 0.88. Abdomen length 0.92. Labial segments length I 0.28, II 0.28, III 0.20, IV 0.20. Antennal segments I 0.19, II 0.30, III 0.30, IV 0.44. Total body length 1.76.

Second instar nymph (same as above)

Specimens also faded; head and pronotum appearing to be uniformly tan. Abdomen yellowish, markings not evident. Head length 0.36, width 0.38, interocular space 0.24. Pronotum length 0.18, width 0.38. Abdomen length 0.70. Labial segments length I 0.24, II 0.20, III 0.14, IV 0.16. Antennal segments length I 0.14, II 0.26, III 0.26, IV 0.40. Total body length 1.40.

First instar nymph (same as above)

Similar in form and color to instar 2. Head length 0.26, width 0.32, interocular space 0.16. Pronotum length 0.18, width 0.34. Abdomen length 0.64. Labial segments length I 0.16, II 0.14, III 0.14, IV 0.14. Antennal segments length I 0.10, II 0.16, III 0.16, IV 0.30. Total body length 1.20.

Egg (same as above)

Elongate oval with opercular end somewhat flattened. Four micropylar

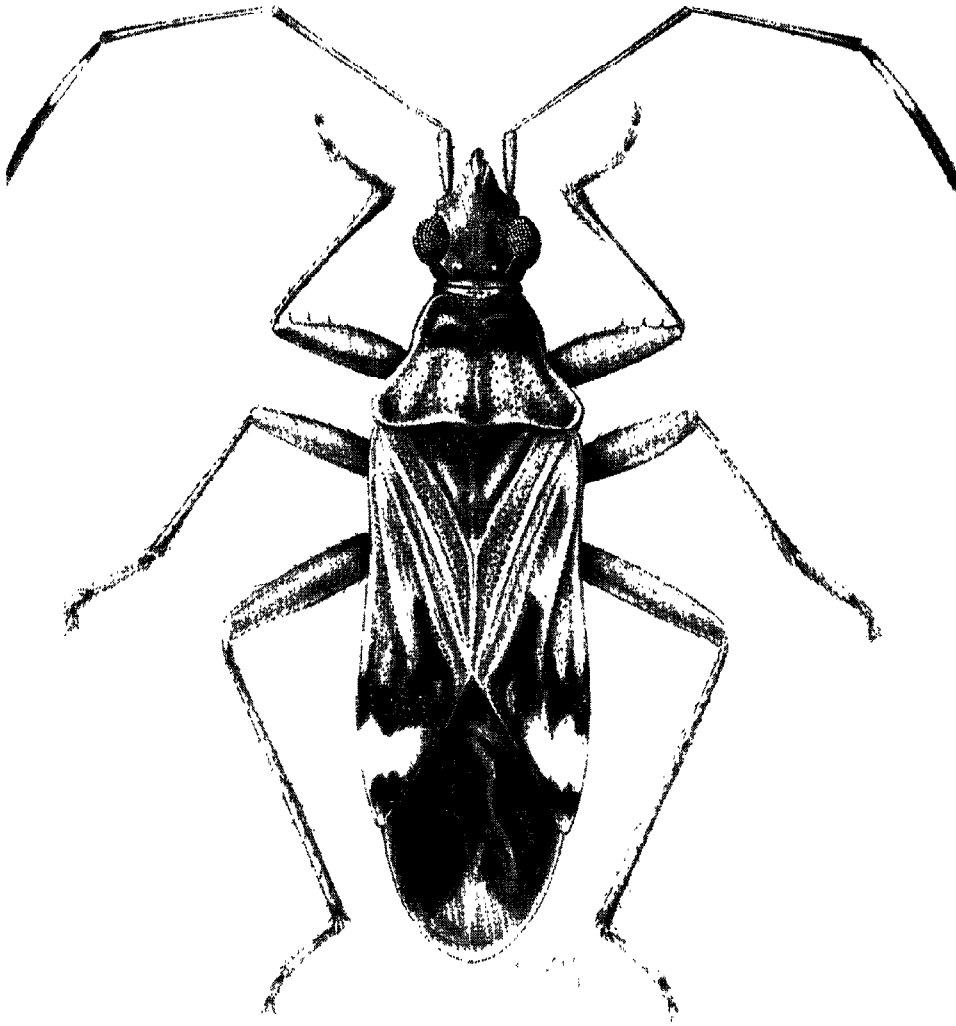


Fig. 2. *Ozophora floridana* Slater & Baranowski, NEW SPECIES, dorsal view.

processes present. Surface covered with minute spines (spicules). Length 0.94, width 0.36.

Ozophora floridana Slater and Baranowski, NEW SPECIES
(Fig. 2) '

Body elongate, nearly parallel sided. Head and anterior pronotal lobe bright reddish brown. Distal end of tylus, anterior pronotal collar, posterior pronotal lobe, clavus and anterior half of corium nearly uniformly pale testaceous, sometimes almost dull orange. Scutellum somewhat darker yellowish tan. Posterior half of corium with a large conspicuous irregular white macula that nearly reaches apical corial margin. Apex of corium and area

anterior to white macula dark chocolate brown, this dark coloration extending between radius and medial veins anteriorly to level of middle of claval commissure. A pale yellow spot present near inner angle of corium. Apical corial margin dark chocolate brown for the most part, becoming yellowish adjacent to white macula and near meson. Membrane chiefly dark fumose with veins slightly paler and with a broad white apex. Ventral and pleural surfaces of head, thorax and abdomen nearly uniformly bright red brown with posterior metapleural lobe dull white. Legs uniformly light yellow, nearly white, without conspicuous dark distal banding on femora although hind femora slightly suffused with pale tan. First, 2nd and 3rd antennal segments light yellow with distal end of antennal segment III, distal 2/3rd of IV contrasting dark chocolate brown. Fourth antennal segment with a broad conspicuous white annulus on proximal 1/3 except extreme base. Body nearly glabrous above, lacking conspicuous elongate hairs.

Head nondeclivent, only slightly convex across vertex; eyes set slightly away from antero-lateral pronotal margins; tylus reaching at least midway to distal end of 1st antennal segment. Head length 0.78, width 0.73; interocular space 0.35. Pronotum with calli large, conspicuous, elliptical, impunctate; otherwise conventional. Pronotum length 0.93, width 1.40, length anterior lobe 0.30, length posterior lobe 0.55. Scutellum with divergent raised calloused areas extending antero-laterally and impunctate but not strongly contrasting in color, apex narrowly white. Scutellum length 0.78, width 0.73. Claval commissure length 0.75. Corium with lateral margins shallowly sinuate and very narrowly explanate, midline distance apex clavus-apex corium 1.23; midline distance apex corium-apex membrane 0.90. Fore femora moderately incrassate, armed below on distal 1/2 with 3 sharp spines, ventral inner face of femora with numerous small brown setae. Hind femora armed below near distal ends with a single sharp spine. Labium elongate, exceeding hind coxae and reaching onto abdominal sternum 3; 1st segment attaining or slightly exceeding base of head. Labial segments length I 0.90, II 0.95, III 0.75, IV 0.40. Antennae slender, terete. Antennal segments length I 0.53, II 1.48, III 1.23, IV 1.53. Total body length 5.90.

HOLOTYPE: ♂ *Florida*: Orchid Jungle Hammock, Newton Road, Dade County 20-V-1970 (R. M. Baranowski) (black light trap). In U.S.N.M., No. 73796.

PARATYPES: *Florida*: 1 ♂ Dade Co., Ross and Castello Hammock 18-XI-1968 (R. M. Baranowski) (blacklight trap); 1 ♂, 2 ♀ same 5-VI-1969; 1 ♀ same 2-X-1969; 1 ♂ same 10-X-1969; 1 ♀ same 23-III-1970; 1 ♀ same 2-VI-1970; 1 ♂ same 3-VI-1970; 2 ♂, 7 ♀ same 18-V-1970; 8 ♂, 6 ♀ same 19-V-1970; 7 ♂, 6 ♀ same 4-X-1970; 1 ♂ same 20-X-1975; 2 ♂ same 24-III-1977; 7 ♂, 8 ♀ Dade Co., Castello Hammock 20-X-1969 (R. M. Baranowski) (blacklight trap); 31 ♂, 29 ♀ same 17-X-1969; 1 ♀ same 9-XI-1972; 1 ♀ same 17-IX-1976; 16 ♂, 15 ♀ same 20-X-1976; 2 ♂, 13 ♀ same 28-X-1976; 2 ♂ same 30-X-1976; 2 ♀ same 9-XI-1976; 1 ♂ Dade Co., Homestead 12-V-1969, (R. M. Baranowski) (blacklight trap); 1 ♂ same 18-V-1969; 6 ♂, 4 ♀ same 22-V-1969; 2 ♀ same 6-X-1969; 1 ♀ same 7-X-1969; 1 ♀ same 10-X-1969; 1 ♂ same 11-X-1969; 1 ♂ same 13-X-1969; 3 ♀ same 24-X-1969; 2 ♂ same 27-III-1970; 1 ♂ same 24-XI-1974 (J. A. Slater); 1 ♂ same 15-XII-1974; 6 ♂, 6 ♀ Dade Co., Orchid Jungle Hammock, Newton Rd 22-V-1969 (R. M. Baranowski) (blacklight trap); 5 ♂, 9 ♀ same 27-V-1969; 4 ♂ same 5-VI-1969; 1 ♂, 1 ♀ same 9-VI-1969; 4 ♀ same 17-VI-1969; 2 ♂, 3 ♀

same 21-VI-1969; 1 ♂, 2 ♀ same 1-X-1969; 3 ♀ same 2-X-1969; 1 ♀ same 9-X-1969; 3 ♀ same 28-X-1969; 1 ♂, 1 ♀ same 18-III-1970; 1 ♀ same 23-III-1970; 2 ♂, 10 ♀ same 26-III-1970; 8 ♂, 8 ♀ same 2-IV-1970; 3 ♀ same 3-IV-1970; 14 ♂, 8 ♀ same 28-IV-1970; 45 ♂, 28 ♀ same 12-V-1970; 3 ♂, 6 ♀ same 19-V-1970; 1 ♂, 1 ♀ same 20-V-1970; 3 ♀ same 6-X-1975; 5 ♂, 2 ♀ same 20-X-1975; 5 ♂, 6 ♀ Dade Co., Agr. Res. & Ed. Ctr., Homestead 14-X-1969 (R. M. Baranowski) (blacklight trap); 1 ♂, 2 ♀ same 21-X-1976; 3 ♀ Dade Co. Agr. Res. & Ed. Ctr. Homestead 17-XI-1982 (H. Glenn) on *Schinus terebinthifolius*; 26 ♂, 33 ♀ Dade Co., 26000 SW 197 Ave. 6-V-1977 (R. M. Baranowski) (blacklight trap); 40 ♂, 90 ♀ same 8-V-1977; 9 ♂, 17 ♀ same 9-V-1977; 4 ♂, 2 ♀ same 19-V-1977; 10 ♂, 5 ♀ same 31-V-1977; 20 ♂, 21 ♀ same 23-V-1977; 6 ♂, 4 ♀ same 6-VI-1977; 12 ♂, 16 ♀ same 24-V-1977; 1 ♀ same 17-IX-1977; 1 ♀ same 23-III-1978. In U.S.N.M., A.M.N.H., F.S.C., P.D.A., J.A.S. and R.M.B. collections.

This is a member of the *quinquemaculata* complex and quite distinct from other Florida species. It may be separated from all other Florida *Ozophora* by the nearly uniformly light orange yellow posterior pronotal lobe, clavus and anterior 1/2 of the corium. In some specimens these areas are almost orange.

It occurs frequently in light traps with *caroli* and the 2 have a somewhat similar appearance by virtue of the white apex to the membrane of the hemelytra and the large white macula distally on the corium. *Ozophora floridana* is however a much more elongate, slender species. The attenuated head has a much less convex vertex, lacks the dark rays on the posterior pronotal lobe and has a longer labium.

The most closely related material that we have examined is a single male from 6 miles southeast of Siguatepeque, Honduras, collected by the O'Brien party in July 1974. This specimen presumably represents a new species and differs from *floridana* in lacking the prominent white apex to the corium, having the pale macula posteriorly on the corium not extending mesad of the radial line and in having distinct infuscations or rays on the posterior pronotal lobe. This Honduran specimen has a rather similar appearance to *reperta* but has 3 forefemoral spines and the general body conformation of *floridana*.

Ozophora floridana can usually be recognized by the pale posterior pronotal lobe. However the typical dark rays found in many species of *Ozophora* are sometimes present. Even when these rays are well developed the uniformly or nearly uniformly pale clavus and anterior part of the corium are diagnostic.

Ozophora floridana appears to be confined primarily to hammocks and pine woods in extreme southern Florida. Recently (17-XI-1982) an adult was taken on *Schinus terebinthifolius* Raddi and 2 adults and several nymphs were taken in the seed litter under the plants. We have examined hundreds of specimens of *Ozophora* from a number of West Indian Islands but have not seen this species other than from southern Florida and believe it to be endemic.

Ozophora gilva Slater and Baranowski, NEW SPECIES

(Fig. 3)

Head and anterior pronotal lobe light red brown, tylus paler. Posterior pronotal lobe and hemelytra in large part very pale testaceous, almost

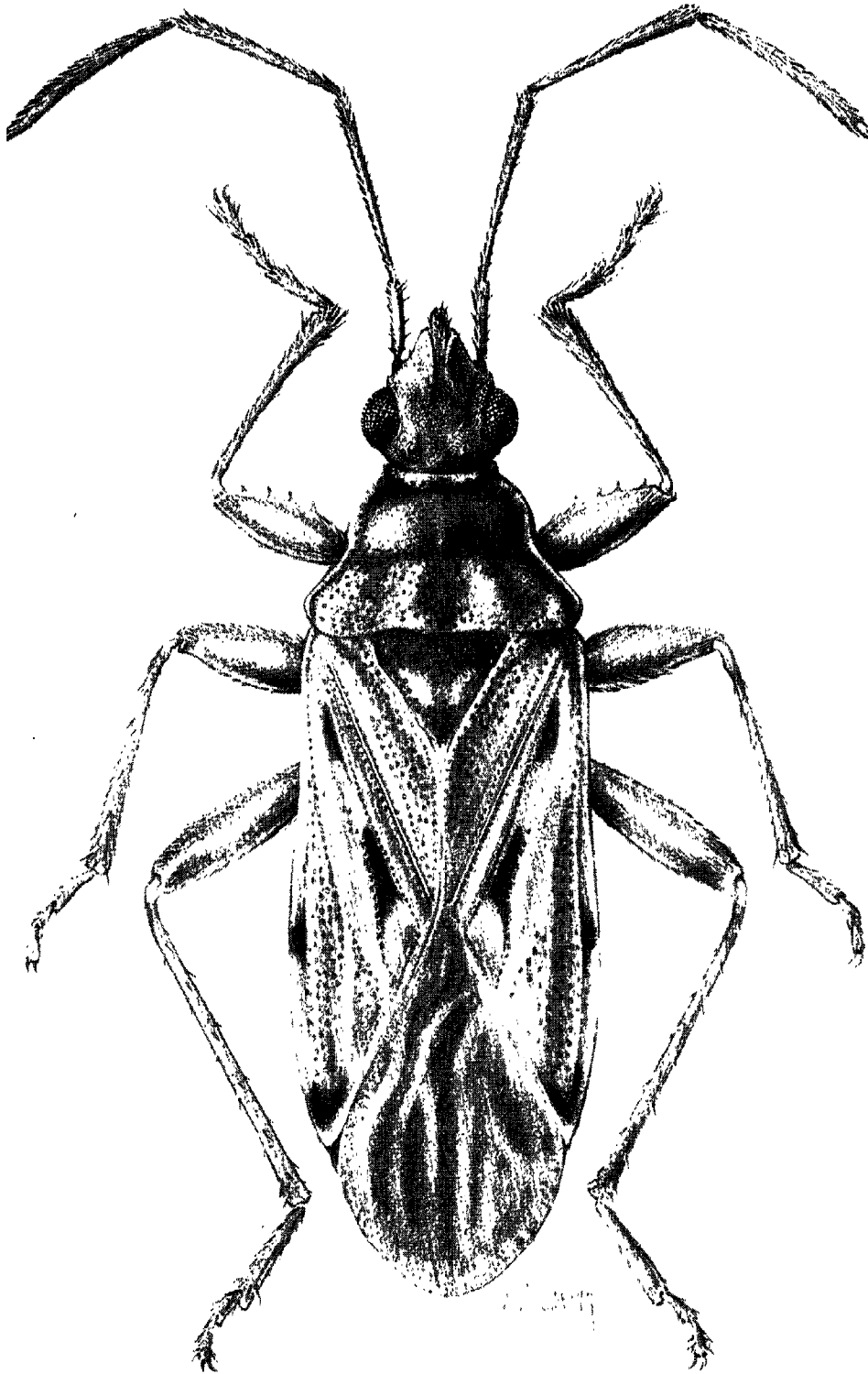


Fig. 3. *Ozophora gilva* Slater & Baranowski, NEW SPECIES, dorsal view.

white; the former with characteristic pale tan vitta. Scutellum olive colored with white apex. Clavus nearly uniformly pale testaceous, very slightly infuscated with tan just posterior to level of apex of scutellum. Corium largely pale testaceous marked with chocolate brown at apical angle, a very small spot along costal margin posterior to level of distal end of claval commissure, a large quadrangular patch near inner angle of corium which encloses a large pale elliptical white spot at its posterior end, and a very small obscure infuscation between radius and medius at level of apex of scutellum. Apical corial margin completely pale. Membrane uniformly very light brown. Ventral and pleural surfaces uniformly reddish brown. Legs, labium and antennae pale testaceous, nearly white. Middle and hind femora with an obscure but definite dark brown annulus present subdistally. Apical segment of labium dark brown. Antennal segments pale testaceous; 4th segment lacking a distinct white subproximal annulus. Punctuation typical for genus. Dorsal surface of body lacking upstanding hairs, nearly glabrous.

Head short, tylus not extending beyond middle of 1st antennal segment; vertex moderately convex; head length 0.65, width 0.80, interocular space 0.38. Pronotum with calli prominent, impunctate, not meeting on midline; transverse impression complete and deep. Pronotum length 0.83, width 1.28. Scutellum length 0.73, width 0.70. Claval commissure length 0.73. Corium with lateral margins slightly sinuate and moderately reflexed; midline distance apex clavus-apex corium 1.08; midline distance apex corium-apex membrane 0.83. Fore femora moderately incrassate, each armed below with 4 dark brown sharp spines on distal half; each hind femur with a single sharp spine distally on ventral surface. Labium reaching to but not beyond hind coxae, 1st segment not exceeding base of head. Labial segment length I 0.63, II 0.65, III 0.48, IV 0.33. Antennae terete. Antennal segments length I 0.48, II 1.13, III 0.88, IV 1.10. Total body length 4.80.

HOLOTYPE: ♂ *Florida*: Edgewater 24-II-1939 (C. A. Frost). In U.S.N.M. No. 73797.

PARATYPES: *Florida*: 2 ♂, 1 ♀ Edgewater 20-II-1939 (C. A. Frost); 1 no abd. same 24-II-1939; 1 ♂, 2 ♀ same 5-III-1939; 2 ♀ same 6-III-1939; 2 ♂ same 14-III-1939; 1 ♀ Dade Co., Orchid Jungle Hammock, Newton Rd 12-V-1970 (R. M. Baranowski) (blacklight trap); 1 ♂ Manatee Co. Bradenton 27-IV-1965; 1 ♀ Citrus Co. Inverness 27-IV-1965; 1 ♂ Hardee Co. Wauchula 13-IV-1965; 1 ♀ Pinellas Co., Largo 27-IV-1965; 1 ♂ Coronado Beach 26-II-1939 (C. A. Frost); 1 ♀ Leon Co., Tallahassee 10-III-1974 (C. W. O'Brien) (uv trap); 2 ♀ Highlands Co., Archbold Biol. Sta. 7-8-VI-1969 (J. Harrington, T. Schuh, J. Slater) (at light); 1 ♀ Alachua Co. 15-V-1950 (E. W. Michelson); 1 ♀ Gainesville 18-VIII-1969 (F. W. Mead) (blacklight trap); 1 ♀ Lake Co., 2 mi S. Tavares, Rt 448 25-IV-1967 (R. E. Woodruff) (blacklight trap); 1 ♂, 1 ♀ Polk Co., Pierce 5-XI-1949 (R. F. Hussey) (taken in Spanish moss); 1 ♀ Lakeland 9-IV-1948 (R. F. Hussey) (at light); 1 ♂, same 5-V-1948; 1 ♀ same 16-III-1948; 1 ♂ same 23-XII-1947 (taken in Spanish moss); 1 ♂, 1 ♀ same 21-XI-1948 (breeding on Spanish moss); 1 ♀ Dunedin 10-I-1930 (W. S. Blatchley); 2 ♂ same 6-II-1926; 1 ♂ same 26-II-1926; 1 ♂ same 10-III?; 1 ♀ same 22-III-1926; 2 ♂ same 23-III-1921. U.S.N.M., F.S.C.A., G.G.S., Purdue Univ. (Blatchley Coll.), R.M.B. and J.A.S. collections.

This is a very distinctive species by virtue of its extremely pale, nearly white, appearance. The light coloration of the clavus and corium obliterates

the posterior white macula so that the corium appears completely pale with the exception of the 3 contrasting dark chocolate brown markings indicated above. An additional distinctive feature of this pale species is the lack of a distinctly contrasting white annulus on the 4th antennal segment. In some specimens an annulus is present but very short and not strongly contrasting as it is in most species of *Ozophora*. In the most vividly colored specimens there are some dark brown spots on the middle and fore femora. The posterior margin of the pronotum is white and the raised calloused divergent lateral areas of the scutellum may have a white differentiated area toward their posterior portions. In some specimens there is also a dark chocolate brown spot on the membrane adjacent to the middle of the apical corial margin and the apex of the membrane may appear white, as in many other species of the genus. There is also a slight variation in the spination of the fore femora. The most proximal spine is always small and sometimes is lost so that in many specimens 3 spines rather than 4 are present on a fore femur.

This is the species reported as *pallescent* (Distant) from Dunedin by Blatchley (1926). Blatchley's specimens were taken from the leaf axils of a thistle on Hog Island, and by beating Spanish moss and sweeping ferns in dense hammocks on the mainland.

Fifth instar nymph (dry, Edgewater, Fla.)

General coloration pale testaceous, marked with dark brown as follows: head, a broad irregular stripe on pronotum on either side of midline adjacent to narrow pale meson, a broad even stripe midway between meson and lateral margin and a lateral stripe just within explanate lateral flange, this latter becoming obsolete posteriorly, broadening anteriorly and coalescing with next stripe. Scutellum marked with dark brown on either side of midline narrowing posteriorly along prescutellum and metanotum; inner 1/2 of mesothoracic wing pads (invaded anteriorly by an elongate yellow quadrate mark); posterior 1/2 of wing pads except for a broadly pale apex, the dark brown area extending anteriorly as a stripe through middle of wing pads and along lateral margins within explanate flanges. Abdomen strongly irrorate, darker anteriorly, 1st segment nearly white dorsally; sclerotized areas around abdominal scent gland openings narrowly elliptical. Legs, antennae and labium pale yellow, femora and tibiae obscurely spotted with darker brown; 2nd tarsal segment and apex of labium infuscated. Antennae with 4th segment slightly infuscated, very slightly paler at proximal end and lacking a distinctly differentiated white annulus. Ventral and pleural surfaces of head and thorax dark red brown. Abdomen irrorate below becoming nearly uniformly fumose on segment 2, progressively less so through 3 and 4. Segment 4 with a white macula near anterior margin on either side of midline. All abdominal segments uniformly pale laterally. Dorsal surface without upstanding hairs.

Head length 0.63, width 0.75, interocular space 0.43. Pronotum length 0.58, width 1.05. Wing pads length 1.18. Abdomen length 1.88. Labial segments length I 0.58, II 0.55, III 0.40, IV 0.28. Labium extending posteriorly between metacoxae. Antennal segments length I 0.38, II 0.85, III 0.68, IV 0.88. Fore and hind femora armed as in adults. Total body length 3.84.

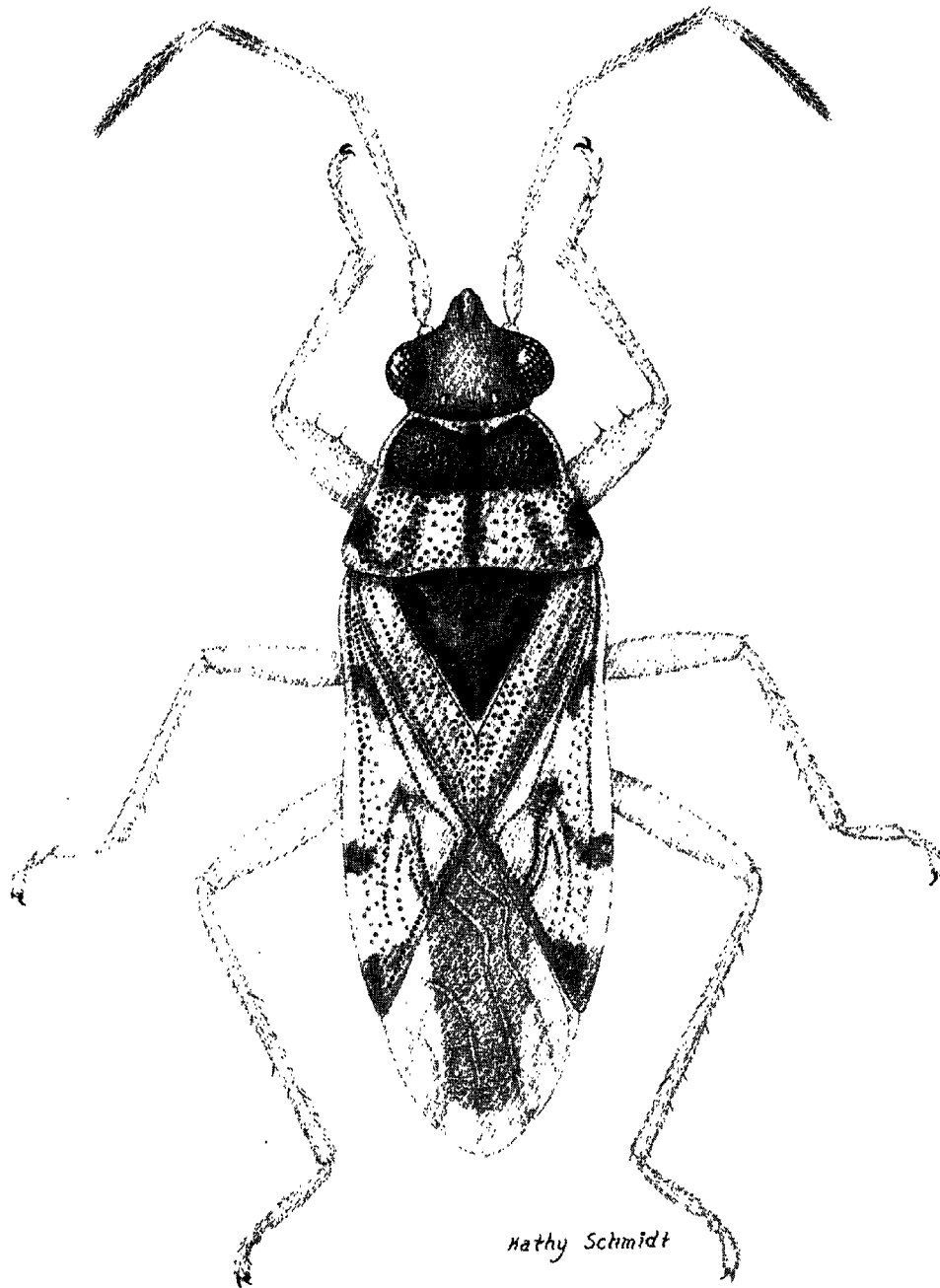


Fig. 4. *Ozophora laticephala* Slater & O'Donnell.

Ozophora laticephala Slater & O'Donnell
(Fig. 4)

Slater & O'Donnell 1979, J. Kansas Ent. Soc. 52: 161.

This recently described species is, together with *divaricata* one of the smallest of the Florida *Ozophora*. It is readily recognizable by its relatively

stout body, pale white lateral pronotal margins, lack of a strongly contrasting white annulus proximally on the 4th antennal segment and especially by the broad head with its short strongly truncate down-turned tylus.

In Jamaica *laticephala* is often present in large numbers feeding upon *Ficus* seeds on the ground. This is the species that Slater (1972) notes as occurring in a population estimated at over 1/4 million individuals feeding on fallen seeds of a single tree of *Ficus trigonata* L. on Jamaica.

In early March, 1982 we collected a large series of adults and nymphs in seed litter under a large *Ficus microcarpa* L. (f) growing at the Univ. of Florida Agricultural Research and Education Center, Homestead. A large population of *Cligenes distinctus* (Distant) and a few individuals of *Ozophora burmeisteri* were also present. This particular tree had been under observation for many years. *Cligenes distinctus*, *Ozophora burmeisteri* and *Neopamera neotropicalis* (Kirkaldy) have been collected in moderate numbers but prior to 1982 not a single specimen of *Ozophora laticephala* had been taken. It seems entirely possible that in view of the extensive collecting by the junior author and others, including light trap collecting, that this West Indian species is a recent introduction in southern Florida. It may well be restricted to *Ficus* sp. as a breeding host.

It is primarily a West Indian species that occurs in the Bahamas, is widespread in the Greater Antilles but not yet known to occur in the Lesser Antilles.

Slater & O'Donnell (1979) reported *laticephala* from Florida for the first time based upon a series taken at Stock Island (Key West). They describe the nymphs and figure the 5th instar.

Ozophora levis Slater and Baranowski, NEW SPECIES

General coloration predominately dark reddish brown, marked with contrasting pale yellow as follows: anterior pronotal collar; humeral pronotal angles; a pair of narrow vittae on posterior pronotal lobe, each midway between meson and lateral margins; a small macula near middle of elevated "Y" on scutellum; elevated claval vein; a diffuse area on corium immediately within lateral explanate flange at level of middle of claval commissure; legs; antennae and labium. Lateral explanate flange of corium white, interrupted near apex where only extreme lateral margin is narrowly yellow. Coxae yellowish brown. Apical 1/2 of 4th labial segment, clavus and suffuse areas on 1st antennal segment brown. Fourth antennal segment light brown, somewhat paler basally but lacking a strongly differentiated white annulus. Dorsal surface lacking conspicuous upstanding hairs. Head and anterior pronotal lobe nearly impunctate; posterior pronotal lobe, scutellum and clavus prominently punctate, punctures separated from one another by a distance greater than diameter of a puncture.

Head elongate, extending anteriorly nearly to middle of 1st antennal segment, tylus only slightly declivent. Head length 1.0, width 1.0, interocular space 0.44. Pronotum with well developed anterior collar; lateral margins obtusely ridged, deeply sinuate; humeri evenly rounded; transverse impression complete; posterior margin shallowly concave before scutellum. Pronotum length 0.92, width 1.56. Scutellum with prominent Y-shaped elevation, length 0.90, width 0.82. Hemelytra with lateral corial margins very shallowly sinuate; length claval commissure 0.80. Midline distance apex

clavus-apex corium 1.40. Midline distance apex corium-apex membrane 0.92. Metathoracic scent gland auricle straight, not curving posteriorly. Fore femora armed below on distal 1/2 with 4 large dark brown spines and an additional small spine near distal end. Hind femora with 4 small ventral spines present on distal 1/2. Labium reaching metacoxae. Labial segments length I 0.94, II 0.90, III 0.70, IV 0.46. Antennal segments length I 0.64, II 1.68, III 1.36, IV 1.70. Total body length 5.84.

HOLOTYPE: ♂ *Florida*: Key Largo 25-II-1956 (at light) (R. A. Morse). In U.S.N.M. No. 100055.

PARATYPES: *Florida*: 2 ♂, 4 ♀ same as holotype. 1 ♀ Key Largo 25-II-1956 (H. V. Weems, Jr.). 1 ♂ Plantation Key 3-V-1957 (at light) F. W. Mead). 4 ♂, 1 ♀ Big Pine Key 26-III-1973 (C. W. & L. B. O'Brien); 2 ♂, 1? (abdomen missing) Key West 25-IV-1969, (F. A. Buchanan) blacklight trap. In A.M.N.H., F.S.C.A., R.M.B. and J.A.S. collections.

This species is readily recognizable by its predominately dark reddish brown (sometimes almost chocolate brown) coloration. The only other very dark colored species of *Ozophora* in Florida are *burmeisteri* and *trinotata* both of which have conspicuous upstanding dorsal pubescence present.

Some specimens of *levis* have the corium darker colored than does the holotype described above. In such cases the pale areas are strongly contrasting and appear as distinct yellow maculae laterally at the level of the middle of the claval commissure, near the inner-apical corial margin, as a large pale area on the lateral corial margin (at the level of the middle of the apical corial margin) and at the extreme apex of the corium. Although most specimens have the 2nd and 3rd antennal segments almost uniformly pale, occasionally the distal ends of both segments are infuscated. The number of fore femoral spines appears to be almost constant, but the number of hind femoral spines varies from 3 to 6.

In addition to the type series there are several additional specimens that we consider to be conspecific. The most important of these are 3 specimens from Quintana Roo, Mexico (1 ♂, 1 ♀ Allen Point 17-IV-1960 (J. F. G. Clarke) 1 ♀ Tukum 20-IV-1960 (J. F. G. Clarke) in the U.S.N.M. These 3 specimens appear to be similar to the type series in all respects.

Two specimens from the Bahamas are perhaps conspecific but do differ in some respects. Both of these specimens (1 without abdomen from Andros Island, Fresh Creek 23-IV-1953, the other a male from Great Abaco Isl., Marsh Harbour 6-V-1953, both collected by E. V. Hayden & L. Giovannoli at light during the Van Voast-A.M.N.H. Bahamas Isls. Exped.) differ from all of the paratypes and the Mexican specimens in having the ridged lateral pronotal margins pale and strongly contrasting with the anterior pronotal lobe. The posterior pronotal lobe has the commonly found looped pattern of alternating dark and light vittae with the dark vittae coalescing posteriorly to form the so called loop. The 2 specimens are considerably lighter than the type material and the Andros Island specimen has a distinct well defined although white annulus on the 4th segment.

The male from Great Abaco Island is remarkable in having bilaterally symmetrical 3-segmented oligomeric antennae. Oligomery is not uncommon in *Ozophora* but bilateral oligomery in Lygaeidae is a very rare phenomenon. These Bahamian specimens may represent an undescribed species but clarification must await additional material.

Ozophora levis is part of a difficult West Indian complex whose clarifica-

tion is beyond the scope of this paper. From Mayaguana Island in the Bahamas we have examined an enormous series that is very similar in external appearance to *levis*. However, *levis* has 6 coils to the vesica (as does the male from Great Abaco Island), an evenly curving flange on the basal attachment area of the paramere and non-flaring sperm reservoir "wings". Specimens from Mayaguana by contrast have a 10-coiled vesica, a rather truncated or rectangular basal attachment paramere area and widely flaring sperm reservoir wings. The latter type of genitalic structures are very similar to the condition found in material from the Turks and Caicos Islands, Hispaniola and Jamaica. However, specimens from the Greater Antilles probably are at least subspecifically distinct from those from the Bahamas as the latter have quite differently colored hemelytra, a somewhat more elongate head, a less densely punctate posterior pronotal lobe and a more elongate prominently white 4th antennal segment annulus. *Ozophora pallidofemora* Scudder from the Caymans is also probably a member of this complex but is readily distinguishable from any of the above populations as it has a "notched" humeral pronotal area.

Ozophora picturata Uhler

This is a large species with a relatively porrect head and anteriorly tapering pronotum. The easiest recognition feature for Florida specimens is the presence of a distinct crimson streak along the posterior portion of each apical corial margin. In very pale specimens this color is almost lost but still evident in all specimens we have examined. *Ozophora picturata* is usually a vividly marked species with a prominent broad subproximal white annulus on the 4th antennal segment, and the pale subapical corial macula only a little differentiated from the pale areas of the anterior half of the corium.

Sweet (1964) has studied the biology of *picturata* in Connecticut where it "is strictly an inhabitant of forest floors, ranging from oak-hickory forests to shrubby consolidation seres". He found it to be the only seed feeding lygaeid found in the climax-oak hickory community that covers so much of the northeastern United States. The habitat in Florida is not known, but it surely will prove to be a woodland speices.

Ozophora picturata has the most northern distribution of any species of *Ozophora*. It is known to occur from New England west at least to Iowa and south to Texas and Florida. Some Caribbean, Central American and California records may be correct but need verification.

Florida records: Reported by Barber (1914) from Biscayne Bay and Kissimmee and by Blatchley (1926) from Dunedin, Lakeland and Royal Palm Park.

Additional Florida records: Lakeland, Polk Co.; Davis, I.; Hillsborough (G. G. S.); Tall Timbers Res. Sta., Leon Co., Woodyard Hammock; Tallahassee; Wakulla Springs; Spring Creek, Wakulla Co. (J. A. S.); Winter Park; Lake Placid (A.M.N.H.); Bowling Green; Gainesville; Orchid Jungle Hammock, Newton Road, Dade Co.; Volusia Co.; Homestead; Monticello (R. M. B.). Lakeland; Liberty Co.; Camp Terreya; Jackson Co.; Cottdondale (Univ. Mich.).

Fifth instar nymph (in alcohol, Storrs, Connecticut)

General coloration and markings similar to *gilva* but coloration darker.

Dark stripes on pronotum wider on either side of pale midline but midlateral stripe much more slender; dark markings on scutellum tapering evenly posteriorly in rather a cone shaped manner. Abdominal markings quite different from those of *gilva*, irrorate spots rather obsolete, absent posterior to segment 4. Abdomen conspicuously marked with red along sutures, these red markings splitting laterally to form a "Y". Midway along margin the anterior arm of the "Y" leaving the suture and extending to the middle of the segment, that on terga VI extending antero mesad to reach lateral edges of abdominal scent gland opening between terga 5 and 6; area between the Y-shaped arms infuscated with dusky gray, becoming paler posteriorly. Legs nearly uniformly pale, third tarsal segment infuscated. First and 2nd antennal segments light yellow, 3rd segment dark chocolate brown somewhat paler toward proximal end, 4th segment with an extremely conspicuous white annulus occupying entire proximal 1/2 of segment, distal 1/2 of segment IV dusky brown. A broad reddish brown longitudinal stripe occupying greater portion of lateral thoracic surface which is ventrally pale yellow. Abdomen below slightly irrorate, dusky gray with reddish bands along anterior margins of sutures separating sterna 5, 6, 7 and 8; infuscated with reddish on lateral portions of segments 2 and 3.

Armed below on fore and hind femora as in adult. Labium elongate extending well onto 3rd abdominal sternum. Head length 0.78, width 0.88, interocular space 0.48. Pronotum length 0.73, width 1.20. Mesothoracic wing pads length 1.48. Abdomen length 2.23. Labial segments length I 0.93, II 0.95, III 0.78, IV 0.43. Antennal segments length I 0.63, II 1.30, III 1.03, IV 1.23. Total body length 4.70.

Fourth instar nymph (same as above)

Similar in form and color to instar 5. Striping on head, pronotum and scutellum more regular and even. Abdominal segment 2 almost completely dark gray; segment 3 dark gray anteriorly; this color tapering posteriorly in middle to reach lateral angles of abdominal scent gland opening between terga 3 and 4 but with a central yellow transverse macula in this tapered portion.

Head length 0.68, width 0.73, interocular space 0.43. Pronotum length 0.55, width 0.85. Mesothoracic wing pad length 0.63. Abdomen length 1.75. Labial segments length I 0.73, II 0.70, III 0.53, IV 0.28. Antennal segments length I 0.50, II 1.00, III 0.85, IV 0.93. Total body length 3.70.

Ozophora reperta Blatchley, NEW SYNONYMY

1954. *Ozophora inornata* Barber, American Mus. Novit. N. 1682 p. 5-6.

This is a small dull brown species, without a strongly contrasting white macula present on the distal portion of the corium. It is conspecific with *inornata* Barber from the Bahamas. In most of the Bahamian specimens we have examined the explanate flange of the lateral edge of the corium is pale except for the apical dark spot, whereas in all Florida specimens there is a conspicuous although often small dark chocolate spot 1/3 the distance from the apex. Florida specimens are also usually more vividly colored on the posterior pronotal lobe. The fore femora usually have only 2 ventral spines distally but occasionally 3 are present. The calli are usually conspicuously elevated above the pronotal surface. The 3rd antennal segment is darkened at the distal end and the 4th segment has a broad proximal white annulus.

This is apparently a scarce species as, despite intensive light trap collecting for a number of years at the localities listed below, only 10 specimens has been taken.

In addition to the southern Florida records, *reperta* is known only from the Bahamas and the Dominican Republic. Barber (1954) originally described *inornata* from South Bimini Island and Barber & Ashlock (1960) listed it from Allans Cay (Abaco Cays), New Providence I., Mayaguana I. and from a Cay 3.5 miles S.W. of North Caicos I. We have also examined material from Cat Island and Andros I. It apparently occurs throughout the Bahamas. We have also examined 5 specimens from the Dominican Republic ("Prov. E. Seibo Miches 9-VI-1976 (R. E. Woodruff) blacklight trap.

Florida records: Originally described by Blatchley (1926) from 6 specimens "swept from weeds along the margins of everglades", Royal Palm Park. Blatchley (1930) designated as type (Lectotype) a ♀ from Royal Palm Park, 4 April 1925. We have examined 3 ♂'s (part of the same series) from the above locality 20-III-1924 and have attached paratype labels.

Additional Florida records: Orchid Jungle Hammock, Newton Rd., Dade Co. and Naranja (R. M. B.); Homestead (R.M.B., J.A.S.).

Ozophora trinotata Barber

This is a large reddish brown species, recognizable by the upstanding dorsal pubescence, unusually long hind femoral hairs and completely dusky hemelytral membrane. The corium has a narrow but conspicuous distally placed pale macula and a broad chocolate fascia immediately anterior to it, which extends entirely across the wing. There is no pale spot present near the inner angle of the corium. As with a number of the darker species of *Ozophora* there is considerable variation in color. In very dark specimens the characteristic longitudinal rays are conspicuously present on the posterior pronotal lobe, whereas in pale reddish brown specimens these rays are indistinct or absent.

Little is known of the biology. Blatchley (1926) reported it from ferns, certainly not a host plant. It is commonly taken in blacklight traps in hammocks in the Homestead area. We have taken breeding populations in dense vegetation in the Florida Keys and on 4 March 1982 numerous nymphs and a few adults were taken on Long Key feeding on the fallen seeds of *Conocarpus erecta* L. in a relatively damp shaded depression.

Florida records: Originally described by Barber (1914) from Marco; Everglade: Ft. Myers, Ormond; Biscayne Bay and Belleair. Reported by Blatchley (1926) from Dunedin and Royal Palm Park and by Torre-Bueno (1931) from Royal Palm Park as *binatata* (*sic.*).

Additional Florida records: Wauchula (R.M.B. & G.G.S.); Cortez (G.G.S.); Key Biscayne; Ocala Nat. Forest, Zay Prairie, 3 mi. N. Hwy. 40; Manatee Co.; Gumbo Limbo Trail, Everglades Nat. Pk.; Archbold Biol. Sta.; Big Pine Key; Silver Springs (J.A.S.); Gainesville (R.M.B. Schuh, J.A.S.); Boca Grande, Lee Co.; Ozello, Citrus Co.; St. Johns; St. Augustine; Punta Rassa, Lee Co.; Bradenton, Manatee Co.; Shove Acres, Pinellas Co.; Largo, Pinellas Co.; Captiva, Lee Co.; South Bch., St. Lucie; Siesta Keys, Sarasota; Sanibel, Lee Co.; Beruliarend (sp?), Lee Co.; Vero Beach, Indian River (G.G.S.); St. Pk., Key Largo; Long Key (R.M.B., J.A.S.) Highlands Hammock St. Pk.; Edgewater; Paradise Key (P.D.A.); Homestead; Orchid

Jungle Hammock, Newton Road, Dade Co.; Key Largo; Hog Bay, Desoto Co.; Ft. Green; Ross & Castello Hammock, Dade Co.; Flamingo Prairie, Everglades Nat. Pk.; Naranja, Venice, Manatee Co.; Bowling Green, Stock Island, Monroe Co.; 9 mi SSW Ocala, Marion Co. (R.M.B.); Lake Placid; Winter Park; Sebring and Sebastian (A.M.N.H.), Labelle, Hendry Co. (J.A.S.). Marion Co., Ocala Nat'l. For.; Marion Co. Micanopy; Lake Co.; Pinellas Co., 2.4 mi E. Tarpon Spr. Putnam Co., 1.7 mi. N. Satsuma (Univ. Mich).

Fifth instar nymph (in alcohol Key Largo, Florida)

Body elongate, elliptical, strongly tapering anteriorly from abdomen. Head reddish brown with darker markings behind eye and laterally on vertex. Pronotum also dark reddish brown, a pale yellow mark on anterior collar area midway between meson and margin and an irregular pale spot on posterior margin midway between meson and margin, this faintly indicated as a stripe anteriorly. Mesothoracic wing pads strongly striped and variegated with dark brown and pale yellow. Abdomen conspicuously irrorate, segments 2 and 3 marked with gray as in *burmeisteri*; sutures usually narrowly margined with pink or red (sometimes abdomen strongly suffused with red laterally and mesally). Legs uniformly pale yellow, posterior femora lacking a subdistal dark annulus. Antennae pale yellow, 4th segment with proximal 1/2 to 1/3 white but much less strongly differentiated from distal coloration than in many species of *Ozophora*. Thickly clothed above with upstanding yellow and dark brown hairs. Hairs on posterior femora elongate, as long as or longer than diameter of femur, as in adult. Fore femora armed below with 3 conspicuous spines, sometimes a tiny spine distad of these and with a series of 4 or 5 elongate hairs proximad. Labium reaching abdomen. Head length 0.80, width 1.0, interocular space 0.50. Pronotum length 0.78, width 1.35, Mesothoracic wing pad length 1.53. Abdomen length 3.40. Labial segments length I 0.80, II 0.85, III 0.70, IV 0.38. Antennal segments length I 0.53, II 1.35, III 1.20, IV 1.48. Total body length 5.60.

Fourth instar nymph (in alcohol, Long Key, Florida)

Similar in form and color to instar 5. Darkened area across segments 2 and 3 more strongly suffused with red. Posterior portion of tergum 3 and anterior portion of tergum 4 white, together forming a distinct pale transverse fascia across center of abdomen interrupted only by dark area around anterior abdominal scent gland openings. Hind femora with rather elongate hairs but these not as long as diameter of femur. Head length 0.68, width 0.78; interocular space 0.43. Pronotum length 0.55, width 0.90. Mesothoracic wing pads length 0.50. Abdomen length 1.48. Labial segments length I 0.63, II 0.60, III 0.48, IV 0.33. Antennal segments length I 0.40, II 0.95, III 0.93, IV 1.13. Total body length 3.20.

Third instar nymph (same as above)

Similar in form to instar 4. Abdomen in large part pale yellow, a conspicuous transverse red fascia across abdomen covering segment 2 and anterior portion of segment 3. Abdominal segments 4 through 7 with irregular scattered red markings. These particularly prominent laterad. Broad white annulus proximally on 4th antennal segment still clearly evident. Head length 0.50, width 0.60; interocular space 0.33. Pronotum length 0.28,

width 0.60. Abdomen length 1.65. Labial segments length I 0.33, II 0.35, III 0.30, IV 0.23. Antennal segments length I 0.23, II 0.53, III 0.50, IV 0.68. Total body length 2.90.

Second instar nymph (same as above)

General coloration similar to instar 3 but red markings on abdomen forming 2 distinctly separated transverse fascia, the anterior one on segments 2 and 3, the posterior one on segments 4 and 5. Posterior to 2nd red fascia conspicuous red markings present laterally along sutures of segments 6 and 7. Head length 0.30, width 0.38, interocular space 0.23. Pronotum length 0.15, width 0.37. Abdomen length 0.78. Labial segments length I 0.30, II 0.23, III 0.25, IV 0.23. Antennal segments length I 0.15, II 0.28, III 0.28, IV 0.43. Total body length 1.50.

First instar (same as above)

Head, pronotum, mesonotum and large transverse areas on metanotum dull yellow brown, strongly contrasting with nearly white abdomen; latter with a single transverse broad red fascia running across tergum 5 and adjacent areas of terga 4 and 6. Red fascia continued around body well onto sternum but not meeting at midline ventrally. Fourth antennal segment uniformly pale, nearly white. Head length 0.28, width 0.38; interocular space 0.25. Pronotum length 0.15, width 0.43, Abdomen length 0.58. Labial segments length I 0.30, II 0.25, III 0.20, IV 0.23. Antennal segments length I 0.15, II 0.25, III 0.25, IV 0.43. Total body length 1.15.

Egg (same as above)

Similar to that of *burmeisteri* in shape and having the surface thickly covered with a short coat of truncate hairs. Five short thick micropylar processes present around anterior pole. Length 1.0, width 0.45.

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THE *OZOPHORA PALLESCENS* COMPLEX IN THE WEST INDIES WITH THE DESCRIPTION OF FOUR NEW SPECIES (HEMIPTERA: LYGAEIDAE)

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ABSTRACT

The *Ozophora pallescens* complex is defined and its distribution and relationships in the West Indies discussed. *Ozophora majas*, *caribbee*, *cobbeni* and *helenae* are described as new. *Ozophora divaricata* Barber, *subimpicta* Barber, *miniscula* Scudder and *pallescens* (Distant) are assigned to the complex. Descriptive discussions, a key and genital capsule figures are included for all species. Dorsal view illustrations are included for *helenae*, *cobbeni*, *majas* and *subimpicta*. Barber's 1939 records of *pallescens* from Puerto Rico are referred to *divaricata*. Zoogeographic implications suggesting the presence of a Greater Antillean and a Lesser Antillean component are discussed.

RESUMEN

Se define el complejo del género *Ozophora* y se discute su distribución y

