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 majus, curitibae, cobbemi 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, cobbemi, majus 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...
Baranowski & Slater: Ozophora pallescens Complex

sus relaciones en las Antillas. Se describen como nuevas especies Ozophora majas, caribbee, cobleni y helenae. Se asignan al complejo las especies divaricata Barber, subimpieta Barber, miniscula Scudder y pallescens (Distant). Se incluyen discusiones descriptivas, una clave y figuras de las genitalias para todas las especies. Se incluyen ilustraciones de vistas dorsales del helenae, cobleni, majas y subimpieta. Los registros de Barber 1939, de la especie pallescens de Puerto Rico, se refieren a divaricata. Se discuten las implicaciones zoogeográficas, las cuales sugieren la presencia de las componentes de las Antillas Mayores y Antillas Menores.

The present paper treats a complex of small species in the genus Ozophora. These insects are widespread in the West Indies and also occur in southern Florida, Central and South America. This work is confined primarily to the West Indies and members of the complex from other areas are discussed only as necessary to understand the group in the West Indies.

The relationships of these insects are among the most difficult that we have encountered in the genus Ozophora, itself a notoriously difficult genus.

We have called this the “pallescens complex” from the nominal species described many years ago by Distant (1893) from Panama. The complex may be defined as very small to minute species; usually with only 2 (sometimes 3) major spines on the ventral surface of the fore femora; prominent convex calli; a dark anterior pronotal lobe with concolorous lateral margins; and, a smooth, sometimes almost “glossy” surface to the posterior pronotal lobe where the punctures tend to be more widely separated than is the case with many other species of Ozophora. In addition, there are frequently 3 “looped” dark areas on the posterior pronotal lobe, a strongly variegated hemelytral color pattern and pale legs. This definition does not completely exclude a few species that we do not include here. A complete understanding of monophyletic groups within Ozophora must await a reclassification of the entire genus, now underway. We feel reasonably certain that despite some difficulty in definition we are dealing with a very closely related monophyletic group. This is evident by the difficulty of distinguishing species in the complex. The species are very similar, and although with experience it is often possible to recognize individual species on external features of color, shape and relative body proportions, there is so much individual variation and so many minor inter-island differences that few of these external features are actually diagnostic. Fortunately we have had available for study long series from a number of the West Indian islands including a considerable proportion that we have personally collected.

To accurately identify a number of the species in this complex, it is necessary to examine the configuration and details of the male genital capsule. One of the most reliable characters we have found is what Schaefer (1977) calls the cuplike sclerite which is most easily observed when examining the posterior portion of the genital capsule. In Ozophora this sclerite, when viewed posteriorly, appears as a pair of large elongate lobes connected dorsally (Fig. 1; and 2a,d,g,j). The configuration and width of the space between the lobes and the shape of the lobes themselves are diagnostic for species determination. Other features of the genital capsule useful for species determination include the shape of the caudo-dorsal edge of the capsule. This may appear as a narrow, sharply delineated lip (Fig. 1e,h) or
as a relatively broad rolled edge (Fig. 2b). When viewed dorsally the caudo-dorsal edge may be evenly rounded (Fig. 1f) or variously produced (Fig. 1c,d,l; 2c,f,l,l).

The dorsal opening of the genital capsule, as in other lygaeids, has an inward projecting pair of arms. These arms may be either simple (Fig. 1f; 2c,f,l) or bifid (Fig. 1c,j). In some cases the differences are subtle and require some experience. Comparative material is helpful especially for small species such as caribbee n.sp., majas n.sp. and divaricata. In caribbee (Fig. 1e,f) the posterior margin of the capsule curves in a nearly even arc from the venter to the dorso-caudal edge. This edge is narrow and terminates in a definite lip. In divaricata (Fig. 2b,c) the posterior margin of the capsule is distinctly angulate ventrally rather than forming an even arc and the dorso-caudal area is strongly produced and thickened into a heavy rolled margin. The capsule shape of caribbee n.sp. is remarkably constant throughout the West Indies with no evident variation from island to island. In divaricata the Florida population has the posterior dorso-caudal margin strongly produced, but less abruptly angulately so, than specimens from the Bahamas.

Differences in genital capsule shape for the other species are included in the individual species discussions.

Eventually this group will be an excellent subject for an exhaustive island by island statistical analysis as was done for the Anolis lizards.

Ozophora pallescens, subsequent to its original description by Distant (1898) from Panama, has been reported from many islands of the West Indies, Mexico and Florida (Slater 1964). As noted below most of the West Indian and all of the Florida records are referable to other species. Other authors have described species that we consider to be members of the pallescens complex. Barber (1939) described subimpicta from Puerto Rico and Ilispaniola, and Barber (1954) described divaricata from Bimini. His determination labels demonstrate that he was aware that this species also occurred in the Greater Antilles. Scudder (1958) described O. miniisula from the Caymans, and while working on material from the Dutch Islands recognized an undescribed species from Saba, the formal description of which he has allowed us to include in the present paper.

The opportunity to collect on a number of the West Indian islands has enabled us to better understand something of the habitats and host plants of a number of the species. The large amount of material we have amassed has proven to be essential to an understanding of systematic relationships, both in assessing the degree of variability of color and meristic features, and more importantly, in being able to establish the reliability of features of the genital capsule in this complex.

We recognize 8 species in this complex in the West Indies, one that reaches Florida, one that reaches Central America and at least one and probably more that will be found to occur in South America.

The West Indian species may be segregated into 2 groups, the first, consisting of cobbeni n.sp. and majas n.sp., is characterized by the area of the inner margin of the genital capsule opening possessing bifid arms (Fig. 1c,j). The second subgroup consists of caribbee n.sp., divaricata Barber, subimpicta Barber, pallescens Distant, miniisula Scudder and helenae n.sp. In these species the arms consist of a single attenuated rather finger-like process (Fig. 1f; 2c,f,l) that may in some species possess a slight enlargement near the base (Fig. 11, 21).
Ozophora cobbeni n.sp. and majae n.sp. are thus far known only from the Lesser Antilles; cobbeni from Saba south to St. Lucia and majae from Saba, Montserrat and Dominica.

The other group is more widely distributed in the West Indies being known from Florida to Central and South America. The West Indian distribution of some of these species is interesting and, while the implications cannot be fully understood until mainland populations are analyzed, deserves some comment.

Ozophora caribbea n.sp. probably occurs throughout the West Indies. It is common on the “wet” islands of the Lesser Antilles (Grenada north to Guadeloupe) and occurs on all 4 major islands of the Greater Antilles (but is scarce). It occurs sympatrically with cobbeni n.sp. on Dominica and Guadeloupe. We have not yet seen material from the intervening islands. Material from Trinidad differs slightly but will probably prove to be conspecific.

Ozophora subimpecta apparently is confined to the Greater Antilles where it is abundant and widespread. Ozophora helena n.sp. is also thus far known only from the Greater Antilles. Ozophora miniscula remains known only from the Caymans.

Since a large amount of material has been available for study, these distributions, while certainly not definitive, do indicate in general the basic distribution patterns. At least 2 species occur on most islands (4 species are already known from Jamaica and Dominica) and there is a definite segregation into a component that is primarily Lesser Antillean and one that is Greater Antillean. This is a distributional pattern that seems to be present in other groups of West Indian Ozophora and which will be discussed in subsequent contributions.

All measurements are given in mm.

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

Key to Species

1. Total length of antenna greater than 3.75 mm .......... subimpecta
   1’. Total length of antenna less than 3.60 mm ................. 2

2(1’). Scutellum except for apex, dark chocolate brown .......... helena n.sp.
   2’. Scutellum not chocolate brown .................................. 3

3(2’). Elongate lobes of cuplike sclerite in genital capsule touching ventrally; space between lobes, narrow, pointed dorsally; (Fig. 1a) arms projecting from lateral walls of dorsal opening of genital capsule bifid (Fig. 1e) ........................................................... majae n.sp.
   3’. Elongate lobes of cuplike sclerite not touching ventrally, but may be close (Fig. 1g, 2a) arms from lateral walls either bifid or simple ................................................................. 4

4(3’). Caudo-dorsal edge of capsule appearing as a sharply delineated lip (Fig. 1e, 2h) ......................................................... 5
   4’. Caudo-dorsal edge of capsule variously produced but not appearing as a sharply delineated lip. (Fig. 1b, 2k) ....................... 7

5. Arms projecting from lateral walls of dorsal opening of genital capsule bifid (Fig. 1i) ....................................................... cobbeni n.sp.
   5’. Arms projecting from lateral walls of dorsal opening of genital
6(5'). Caudo-dorsal lip of genital capsule restricted to center (Fig. 2i) .......................................................... miniscula

6'. Caudo-dorsal lip of genital capsule apparently extending entire width of capsule (Fig. 1f) ........................................... caribbee n.sp.

7(4'). Caudo-dorsal lip of genital capsule produced into a relatively broad rolled edge (Fig. 2b); arms projecting from lateral walls of genital capsule opening simple (Fig. 2e); lobes of cuplike sclerite rounded at ventral ends (Fig. 2a) ............... divaricata

7'. Caudo-dorsal lip of genital capsule without a broad rolled ridge, only a suggestion of a lip (Fig. 1k); arms projecting from lateral wall of genital capsule opening simple, but with a slight enlargement at base (Fig. 1l); lobes of cuplike sclerite truncate at ventral ends (Fig. 1l) .................................. pallescens

Ozophora moujs Baranowski and Slater, New Species
Fig. 1a,b,c; 3

General coloration brownish. Head, anterior pronotal lobe, thorax laterally and ventrally and abdomen dark brown. Pronotal collar, posterior pronotal lobe except for pale brown vittae that coalesce posteriorly to give the appearance of 3 “loops”, legs and labium yellowish. Antennae yellow-brown with the basal 1/3 of segment IV pale. Scutellum with basal 1/3 dark brown, remaining 2/3 yellowish. Clavus and corium pale yellow with brown punctures. Clavus with a faint brownish spot just posterior to anterior end of claval commissure. Corium with a wide brown band extending from posterior end of claval commissure and narrowing to lateral margins; a pale spot present near wide inner end of dark transverse fascia; apical tip of corium brown. Membrane smoky brown, veins paler.

Head straight, nondecilivent, interocular space slightly convex, tylius almost reaching middle of 1st antennal segment. Head length 0.50, width 0.60, interocular space 0.30. Lateral margins of pronotum sinuate, transverse impression shallow but extending across pronotum, calli elevated, smooth. Pronotum length 0.56, width 0.98. Scutellum length 0.46, width 0.48. Claval commissure length 0.46. Midline distance apex clavus—apex corium 0.80. Forc femora armed below on distal 1/3 with 3 prominent spines. Middle and hind femora unarmed. Antennal segments length I 0.30, II 0.70, III 0.56, IV 0.74. Labium reaching but not extending beyond mesocoxae, 1st labial segment not extending beyond base of head. Labial segments length I 0.36, II 0.40, III 0.28, IV 0.24. Total body length 3.24.


Paratypes: Montserrat: 1 6 same data as holotype; Dominica: 2 6 Pont Casse, 23-VI-1971 (J. A. Slater, R. M. Baranowski, J. E. Harrington); 1 6 June-July (H. W. Fuote), Yale Exp. 1913; 1 6 Pont Casse, 1 mi N., “April 15, 1965” (D. R. Davis); 1 6 Pont Casse, 23-XI-1964 (P. J. Spangler); Saba Island, Netherlands Antilles: 1 6 Mt. Scenery, 800-840 m. “Jan 12-14, 1968” (Borys Malkin). In United States National Museum of Natural History, R. M. Baranowski and J. A. Slater collections.

This species name is formed from that of Mary Jane Spring, staff artist
Fig. 1. Genital capsules, left to right, posterior, lateral and dorsal views; a, b, c, Ozophora majas; d, e, f caribee; g, h, i cobbeni; j, k, l pallescens.
of the University of Connecticut, who has contributed so much to the quality of our work on the Hemiptera.

*Ozophora majas* is extremely similar in general appearance to *caribbee*, but differs markedly in the appearance of the genital capsule, for in addition to having the bifid inner arm of the genital capsule, *majas* lacks the narrow dorso-caudal lip (Fig. 1b). From *cobbeni* with which it shares the bifid arm, the separation between the lobes of the cuplike sclerite is diagnostic (Fig. 1a,g).

**Ozophora caribbee** Baranowski and Slater, **NEW SPECIES**

Fig. 1d,e,f

General coloration brownish, head, anterior pronotal lobe, thorax laterally and ventrally and abdomen dark brown; pronotal collar, irregular spots on posterior pronotal lobe and posterior lateral angles, legs and labium yellowish; antennae slightly darker with basal 1/3 of segment IV pale; scutellum with basal portion dark brown, distally becoming lighter with 2 elongate diagonal yellow spots; clavus and corium pale yellow with brown punctures; margin of clavus bordering scutellum and claval commissure brown, a transverse brown band extending from posterior end of claval commissure to lateral corial margin, a pale spot present in band at inner angle, margin along membrane and apex of corium brown; membrane smoky brown, veins paler.

Head straight, nondeclivent, interocular space slightly convex, tylius not reaching middle of 1st antennal segment. Head length 0.55, width 0.68, interocular space 0.30. Lateral margin of pronotum sinuate, transverse impression shallow, extending across pronotum, calli smooth. Pronotum length 0.60, width 0.88. Scutellum length 0.50, width 0.50. Claval commissure length 0.45. Midline distance apex clavus—apex corium 0.75. Midline distance apex corium-apex membrane 0.50. Fore femora armed below on distal 1/3 with 2 prominent and 1 smaller spine, middle and hind femora unarmed. Antennae slender, antennal segments length I 0.35, II 0.73, III 0.60, IV 0.83. Labium reaching but not extending beyond mesocoxae, 1st segment not extending beyond base of head. Labial segments length I 0.38, II 0.45, III 0.25, IV 0.20. Total body length 3.13.


**PARATYPES**: St. Vincent: 11 ♂, 7 ♀ same data as holotype; 2 ♂, 5 ♀ came, 21 VI-1973 (Baranowski, O'Rourke, Picchi, Slater); 1 ♂, 2 ♀ Charlotte Parish, Montreal, 20-VI-1973 (Baranowski, O'Rourke, Picchi, Slater); 1 ♂ P. R. Uhler collection (no additional data); 1 ♂ P. R. Uhler collection (H. H. Smith). Dominica: 1 ♂ 0.5 mi N. Bagatelle, 1000', 9-III-1965 (J. F. G. & T. M. Clarke) 1 ♂ Pt. Lolo, 0.5 mi W. 25-1-1965, at light (W. W. Worth); 1 ♀ Bagatelle, 9-III-1965 (J. F. G. & T. M. Clarke) Breddin-Archbold-Smithsonian Bio, Surv. Dominica). Guadeloupe: 3 ♂, 3-Riveres, 7-VII-1960 (Piege lx); 1 ♀ Trois Riveres, La Madeleine, 7-VIII-1960, Ire. S.A.; 1 ♀ Duclos, 25-VI-1971, light trap (L. Gruner); Grenada: 17 ♀, 19 ♂ St. Andrews Parish, Lake Grand Etang, 17-VI-1973 (Baranowski, O'Rourke, Picchi; Slater); 1 ♂, 1 ♀ Grand Etang, IX-1910 (Allen & Brues) 3 ♂, 4 ♀ Balthazar, Windward Side, (H. H. Smith) 2 ♂ Grand Etang, 1900 ft
(H. H. Smith). Puerto Rico: 5 ♂, 4 ♀ RiO Grande Co. 5 mi S. Palmer, 30-
III-5-IV-1969 (T. Schuh); 8 ♂, 9 ♀ Maricao fish hatchery, 8-11-VIII-1961
(Flint, Spangler); 2 ♂, 1 ♀ Rio Piedras, 24-VIII-1961, at light (Flint,
Spangler); 6 ♂, 2 ♀ Maricao, VII-1960 (J. Maldonado C.). 1 ♂, 1 ♀ Mayaguez,
XII-1964 (Ricardo Jorge), 1 ♂, 1 ♀ Viequez Is. 28-IV-1930 (M. D.
Leonard); 1 ♂ Puerto Real, Viequez, 10-VII-1930 (M. D. Leonard); 1 ♂
Mayaguez, 22-V-1969, (M. H. Muma); 1 ♂ Penon Collao, Selinas, 5-VIII-
1953 (at light) (J. A. Ramos, J. Maldonado); 1 ♀ Cabo Rojo, 30-XI-1930
(Miguel A. Díaz); 1 ♀ km 22, Yanco-Lares Rd, 18-VII-1958 (J. A. Ramos,
J. Maldonado); 1 ♀ Luquillo, El Verde, 3-III-1953, blacklight trap (R. E.
Brown); 1 ♂, 5 ♀ Luquillo Nat. For. El Junge Rd. Km 20, 5-VII-1977,
blacklight trap (R. E. Woodruff). Cuba: 1 ♂ Mina Carlota, Trinidad Mts.
VII-39 (Parsons); Dominican Republic: 3 ♂ San Francisco Mts., 28-VIII-
1905 (Aug. Busck); 1 ♀ same, 29-VIII-(1905?).

In United States National Museum of Natural History, Florida State
Collection of Arthropods, R. M. Baranowski and J. A. Slater collections.

As previously noted this is a very small species, most closely resembling
cobeni and majas in general appearance but readily separable by the con-
figuration of the genital capsule (Fig. 1d,e,f).

_Ozophora divaricata_ Barber

_Fig. 2a,b,c_

Barber (1954) described _divaricata_ from 2 specimens collected on South
Bimini Island, Bahamas. Barber's original description is very good, but the
pronotal pattern is more variable than described by Barber, some speci-
mens having a yellowish posterior pronotal lobe with the 3 "loops", others
with darker markings (see discussion under _helenae_). The antennae vary
from being uniformly dark brown to light brown with the distal tip of the
3rd segment dark and the basal 1/3 of the 4th whitish. Measurements of
the holotype are: Head length 0.53, width 0.68, interocular space 0.33; Pronotum
length 0.63, width 1.10, Scutellum length 0.46, width 0.66. Claval commissure
length 0.55. Distance along midline apex clavus-apex corium 0.90. Distance
along midline apex corium-apex membrane 0.63. Labial segments length I
0.55, II 0.58, III 0.40, IV 0.25. Antennal segments length I 0.35, II 0.80, III
0.60, IV missing. Total body length 3.80.

In addition to color variation, considerable inter-island differences occur
in shape and size. For example, the total length of antennal segments I-IV
from 5 specimens selected at random from Mayaguana, Bahamas ranged
from 2.8-3.0; from Anguilla & Peter Island, British West Indies 2.58-2.72,
from the Dominican Republic 2.50-2.68, from Cuba 2.42-2.70, and from
Florida 2.58-2.88.

This minute species has been collected on Key Largo, FL in seed litter
under _Pluchea odorata_ Cassini, a marsh fleabane (Compositae, Asteraceae).
We have also collected it in Jamaica under _Gynoxys excava_ (SW) Less and
_Erigeron karvinskianus_ DC (Compositae, Asteraceae).

SPECIMENS EXAMINED: Jamaica: 24 ♂, 23 ♀ Parish of St. Andrew,
Irishtown, 6-VII-1971 (J. A. Slater, R. M. Baranowski, J. E. Harrington);
4 ♂, 5 ♀ same, blacklight trap; 4 ♂, 4 ♀ same, 5-VII-1971; 2 ♂, 5 ♀
Parish of St. Andrew, Kingston, Mona, 15-IX-1971, blacklight trap (R. M.
Baranowski); 8 ♀ same, 16-IX-1971, 2 ♂, 5 ♀ same 17-IX-1971; 2 ♂ same,
Fig. 2. Genital capsules, left to right, posterior, lateral and dorsal views; a, b, c divaricata; d, e, f, helenae g, h, i miniscula; j, k, l osubimpieta.
Fig. 3. *Ozophora mafas* Baranowski and Slater, NEW SPECIES, dorsal view.
18-X-1971; 1 ♂, 7 ♀ same, 19-X-1971; 1 ♂ Parish of St. Andrew, Holywell For. Camp, 4000', 29-VII-1972 (R. M. Baranowski); 1 ♂ Parish of St. Andrew, Strawberry Hill nr. Irishtown, 2750', 15 VII 1972 (R. M. Baranowski); 1 ♂ Parish of St. Andrew, Bamboo Lodge nr. Irishtown, 2500' (R. M. Baranowski); 1 ♂, 1 ♀ same 23-VI-1972, blacklight trap; 14 ♂, 3 ♀ Parish of St. Andrew, Holywell For. Camp, 4000', IX-X-1971, blacklight trap (M. Winegar); 4 ♀ same, 2-V-1972; 1 ♂, 2 ♀ same, 20-VI-1972; 2 ♀ same, 23-XI-1971; 1 ♀ same 26-VI-1972; 1 ♀ same, 29-VII-1971; 1 ♂, 2 ♀ same 11-VIII-1971; 2 ♀ same, 15-II-1972; 1 ♀ same 10-VII-1972; 1 ♀ same 4-VIII-1972; 1 ♀ same, 8-II-1972; 1 ♀ same, 27-I-1972; 1 ♀, 1 ♀ Parish of St. Andrew, Hardwar Gap, Holywell Cabins, 21-V-1969 (R. E. Woodruff); 1 ♀ same 22-V-1969 (R. E. Woodruff, P. C. Drummond); 2 ♀ Parish of St. Andrew, Kingston Dam Rd., 8-V-1969, blacklight trap (R. E. Woodruff); 1 ♂, 5 ♀ Parish of St. Thomas, 5.8 mi N. Bath, Beacon Hill Rd., 19-V-1969, blacklight trap (R. E. Woodruff); 2 ♂, 2 ♀ Parish of Manchester, Mandevelle, 23-VIII-1969, blacklight trap, (J. Howard Frank); 1 ♂, 2 ♀ same, 24-VIII-1969 (R. E. Woodruff); 1 ♀ same, 9-XII-1969. (E. G. Farnworth); 1 ♂, 1 ♀ Parish of Manchester, 3-4 mi. w. Mandevelle, 1-VII-1971 (J. A. Slater, R. M. Baranowski, J. E. Harrington); 1 ♀, 1 ♀ Parish of Manchester, De Carteret College, Mandevelle, 15-V-1969 (R. E. Woodruff); 1 ♀ same, 20-V-1969; 1 ♂, 1 ♀ Parish of Manchester, 3 mi N. Mandevelle, 1-VII-1971, (J. A. Slater, R. M. Baranowski, J. E. Harrington); 1 ♀ Clarendon Parish, Alston, 2000', 9-I-1973, blacklight trap (C. Crickett); 1 ♂, Parish of St. Catherine, Worthy Park Est. 10-V-1969, blacklight trap (R. E. Woodruff); 1 ♀ same 17-V-1969; 1 ♂, 2 ♀ same, 10-VI-1973; 3 ♀ same, 21-XI-1968; 1 ♀ same, 9-XII-1968; 1 ♀ same, 11-XI-1968; 1 ♂, 1 ♀ same, 2.2 mi. N. on Camperdown Rd., 10-V-1969; 1 ♀ Parish of St. Catherine, Linstead, 10-XII-1970 (J. A. Slater, R. M. Baranowski); 1 ♀ same, 4-VII-1971, blacklight trap (J. A. Slater, R. M. Baranowski, J. E. Harrington); 3 ♀ Parish of St. Catherine, Worthy Park Est., 23-V-1970, blacklight trap (E. G. Farnworth); 8 ♂, 13 ♀ Parish of Trelawny, 1.9 mi N. Burnt Hill, 16-V-1969, blacklight trap (R. E. Woodruff); 4 ♀ Parish of St. Elizabeth, Bellevue, 30-VI-1971 (J. A. Slater, R. M. Baranowski, J. E. Harrington); 1 ♂, 1 ♀ St. Anne's, Runaway Bay, 20 VIII 1973 (S. S. Duffey); 1 ♀ Parish of St. Catherine, Caymanas Est., 17-XI-1968, blacklight trap (S. A. Apeji); 2 ♀ Port Antonio, 16-VII-1952, at light (A. M. Laessa); 3 ♀ Westmoreland Parish, 0.5 mi W. Negril, Negrillo Cottages, 200 yds beach, 10-XII-1968, UV light (E. G. Farnworth); 2 ♀ Parish of Portland, nr Milbank along Rio Grande R., 18-V-1969, blacklight trap (R. E. Woodruff); 1 ♀ Kingston, Tip Top Hotel, 7-V-1969, blacklight trap (R. E. Woodruff); 1 ♀ St. Thomas Par., Golden Grove, 26-VII-1960 (C&P Vaurie); 1 ♀ Parish of Trelawny, Tyre, 2 mi N. Troy, 26-VIII-1969 (R. E. Woodruff) 1 ♂ Port Antonio (A. E. Wight); 1 ♀ Mandevelle (A. E. Wight); 1 ♀ Whitefield Hall, Blue Mts, nr 4500 ft, 15-20-VIII (Darlington); 1 ♀ Trelawny, Baron Hill, 16-20-III-1931 (E. L. Bell); 1 ♀ Trelawny, Baron Hill (L. Perkins). Dominican Republic: 15 ♂, 16 ♀ Prov. Attagracia, Nisibon, 9-VI-1976, blacklight trap (R. E. Woodruff); 1 ♂, 6 ♀ same, 8-VI-1976; 2 ♂, 2 ♀ Altatigracia Prov., Nisibon, 8-10-VI-1976, Malaise trap (R. E. Woodruff, E. E. Grissell); 1 ♀ Santiago Prov., La Cumbres, 15-VI-1976, blacklight trap 3000' (R. E. Woodruff); 1 ♀ La Romana Prov. (Higuera); 15-VII-1977, blacklight trap (R. E. Woodruff, E. Folch); 2 ♂, 3 ♀ El Seibo Prov., Pedro Sanchez, Gulf &

Barber (1939) listed pallescens from a number of localities in Puerto Rico including Dorado, 28 May 1950 and Vieques, 28 April 1930. We have examined 1 specimen from Dorado and 2 from Vieques which represent the
Barber material. Although all 3 are ♀’s and partially mutilated they appear to pertain to *divaricata* and the records are referred here.

It seems unlikely that the true *pallescens* occurs in Puerto Rico.

**Ozophora pallescens** (Distant)

Fig. 1j,k,l


General coloration pale straw yellow. Head and anterior pronotal lobe bright reddish brown, apex of tylus yellow. Pronotal collar with a brown median and two lateral spots, area between light yellow. Posterior pronotal lobe chiefly pale yellow but with a faint series of longitudinal brown stripes. Scutellum chiefly red brown, an elongate stripe on either side of midline. Hemelytra with suffused darker marking on distal third of clavus, a large pale spot bordered by dark brown near inner angle of corium, the brown coloration extending anteriorly to level of middle of claval commissure. Apex of corium except extreme margins also dark brown and a faint dark brown spot along lateral margin just posterior to level of claval commissure. Membrane chiefly pale with darker stripes between veins not irrorate. First 3 antennal segments almost uniformly pale yellow, 3rd segment very slightly infuscated at the extreme distal end, 4th segment absent. Legs nearly uniformly pale yellow, a distinct but dull suffused subdistal dark annulation on hind femur. Tylus extending to or almost to middle of 1st antennal segment. Head length 0.60, width 0.68, interocular space 0.32. Distance antenniferous tubercle-apex tylus 0.22; distance anterior margin eye to apex tylus 0.30; distance posterior margin eye to apex tylus 0.56. Pronotum length 0.74, width 1.16. Scutellum length 0.62, width 0.68. Claval commissure length 0.62. Corium length 2.24. Midline distance apex clavus-apex corium 0.98; midline distance apex corium-apex membrane 0.74. Antennal segments length I 0.46, II 1.0, III 0.86, IV missing. Labium apparently extending only between mesocoxae. Labial segment length I 0.48 (others obscured). Total labial length 1.66. Total body length 4.40.

The specimens from the Lesser Antilles differ from the Panamanian population in having the arms of the cuplike selerite more widely separated. However, externally, and in all other features of the genital capsule, there do not appear to be significant differences between the West Indian and mainland specimens. Furthermore, in a specimen from Belize, the distance between the arms is similar to that of West Indian specimens.

While these differences are recognizable, we feel it is premature to recognize the island population as a formal subspecies until the study under way on mainland neotropical specimens is completed. Nevertheless these differences do indicate that a degree of genetic isolation has already been established.

Although apparently common in Central and South America, *pallescens* is relatively rare in the West Indies. We have collected it only on Guadeloupe and additionally have seen 1 specimen from Dominica.

**MATERIAL EXAMINED:** Dominica: 1 ♀ Clarke Hall, 10-11-1965 (J. F. G. & Thelma Clarke) Breddin-Archbold-Smithsonian Bio. Survey Dominica; Guadeloupe: 3 ♀, 2 ♂ Duclos, 25-VI-1971 (J. A. Slater, R. M. Baranowski,
J. E. Harrington); 3 ♂, 5 ♀ Duclos, 25-VI-1971 (L. Gruner); 1 ♂, Crete Village, 26-VI-1971 (J. A. Slater, R. M. Baranowski, J. E. Harrington).

**Ozophora subimpicta** Barber

Fig. 2j,k,l; 4

This species was originally described from Puerto Rico and Hispaniola and has subsequently been reported by Barber (1954) from Cuba.

It is a moderate sized species of *Ozophora* but the largest species of the *pallescens* complex. *Ozophora subimpicta* may be readily recognized by its size, by frequently having a prominent reddish apical corial macula, a pale or irregularly marked posterior pronotal lobe, a predominantly pale corium, and the scutellum dark brown mesally by diagonal pale yellow lateral vittae but the meson distally just before the white apex with a dark streak. The lateral margins of the anterior pronotal lobe are unicolorous with the disc.

Fig. 4. *Ozophora subimpicta* Barber, dorsal view.
Barber's original description is quite good, but there is considerable variation and some of this appears to be geographically significant.

Puerto Rican specimens are usually pale with the dark macula midway along the lateral corial margin small and usually confined to the explanate margin itself. In a random sample from Puerto Rico only 3 of 54 specimens have the corium irregularly infuscated all, or most of the way across. The scutellum is usually as described above but especially pale examples lack the dark sub-distal median streak and sometimes the scutellum is entirely pale. Antennal segments II and III are almost invariably uniformly pale yellow. Occasionally the distal end of the 3rd segment (4 of 46 sampled) is somewhat infuscated. The corial apex varies considerably in color. Frequently it is distinctly reddened. Sometimes the red color is confined to the distal end of the apical corial margin. The distal portion of the corium may lack the red color, be pale centrally with brown lateral margins, or rarely be completely brown. (Possibly the red color may fade with age but not because of preservation in alcohol. Most of the Jamaican material was so collected and the apical corial margin is usually red in these specimens). The posterior pronotal lobe is usually nearly pale yellow (except for the darker punctures) with a median dark mark near the posterior margin and slight darkened areas near the humeral angles.

A series of 13 recently collected specimens from 4 localities on Hispaniola differs considerably from Puerto Rican material. All 13 specimens have the 2nd antennal segment uniformly pale and the 3rd segment strongly infuscated (nearly black) on the distal portion. The corial apex is dark brown in 6 specimens, nearly uniformly pale in one, the outer 1/2 pale and inner 1/2 dark in 2 and conspicuously red in 4. The mid-lateral corial spot is confined to the explanate margin in 10 specimens and continues mesally as an irregular fascia in 3. These specimens usually have irregular dark markings on the posterior pronotal lobe and the hemelytra so that the overall appearance is of a more variegated insect than is true of most Puerto Rican specimens.

In the enormous series available for study from Jamaica only a very few specimens do not have the distal ends of both the 2nd and 3rd antennal segments conspicuously black or chocolate brown and strongly contrasting with the pale yellow of the remainder of the segments. The apical corial macula is usually tinged with red, but most frequently this red color is bordered both laterally and mesally with a dark brown streak. Often it is present as an elliptical area completely encircled with chocolate brown. Occasionally the apical macula is completely dark and sometimes red is replaced with yellow (faded? but most of the Jamaican material is recently collected). The midlateral dark corial spot is occasionally restricted to the area of the explanate margin but more frequently there is a more or less complete transverse irregular dark fascia across the corium and all degrees of variation can be observed. These Jamaican specimens also tend to have the posterior pronotal lobe infuscated. Commonly a well differentiated pale median longitudinal stripe can be distinguished down the middle of the posterior pronotal lobe.

In addition to the material cited below it should be noted that 3 of the paratypes of Osophora quinquemaculata Barber from Hispaniola (1-Sánchez, Dominican Republic; 2-San Lorenzo, Dominican Republic) are actually specimens of subimpecta.
Thus far *subimpicta* is known only from the Greater Antilles where it is a common and widespread species. While it would be possible to recognize geographic subspecies it does not really seem desirable to do so at the present time.

General coloration pale yellow to light brown. Head, anterior pronotal lobe, thorax laterally and ventrally, abdomen and distal 1/2 of 4th antennal segment usually dark brown. Posterior pronotal lobe, legs and labium pale yellowish, darker pronotal vittae frequently present. Scutellum yellowish but median basal area and a small elongate spot near posterior tip brownish. Clavus sometimes with a faint brown spot just posterior to anterior end of claval commissure. A brown macula usually present along lateral corial margin at level of apex of scutellum, Apex of corium brown, reddish or pale with a dark margin. Membrane brown with pale veins.

Head non-decident, moderately convex across vertex, tyulus not reaching middle of 1st antennal segment. Head length 0.73, width 0.80; interocular space 0.33. Lateral margins of pronotum sinuate, slightly explanate anteriorly, transverse impression shallow, extending across pronotum, calli smooth. Pronotum length 0.80, width 1.25. Scutellum length 0.68, width 0.70. Claval commissure length 0.63. Distance along midline apex clavus-apex corium 0.80; distance along middle apex corium-apex membrane 0.75. Fore femora below resting on distal 1/3 with 3 major and 1 minor spine distal of the major spines. Labium reaching mesocoxae, labial segments length I 0.63, II 0.65, III 0.53, IV 0.33. Antennae elongate, slender, typical for genus. Antennal segments length I 0.53, II 1.30, III 1.0, IV 1.28. Total body length 4.40 (Measurements taken from a ♂ from Los Jazmines, Pinar del Rio Province, Cuba).


Both ♂ specimens from Prov. del Rio, Cuba exhibit oligomy and in one the antennae are bilaterally oligomerus. Although oligomy is not uncommon in geophilous Rhyparochrominae, bilateral oligomy is a rare phenomenon. Leston (1952, 1953) reported and figured a case of bilateral
oligomery in Spilotethus pandurus (Scop.) (as Lygaeus) stating that such a phenomenon apparently had not been previously noted. This is not the case. Hussey (1950) reported it in a specimen of Ptochiomera nodosa Say from Lakeland, Florida, and Torre-Bueno (1917) reported it in Scolopostethus atlanticus Horvath from White Plains, NY. Indeed, the generic name, Tritomacera Costa, apparently was based on just such a specimen of Scolopostethus.

The bilaterally oligomerous specimen of O. subimpieta is particularly interesting because the oligomery is not strictly bilaterally symmetrical. The 1st antennal segment is similar on both sides. The right 2nd segment is appreciably longer than the left (1.58 vs 1.32) and has a more normal appearance since the distal end is somewhat thickened; the 2nd segment of the left antenna is evenly cylindrical throughout its entire length. The right terminal segment also has a more “normal” shape, being slenderly fusiform and somewhat curved throughout its length with a narrow white basal annulus. By contrast, the left terminal antennal segment is nearly straight and actually somewhat thickened distally before tapering near the extreme apex. There is a broad white annulus on the basal 1/2 ((but some distance from the infuscated brown basal area). It is evident that whether or not the injuries that presumably led to the oligomery occurred at different periods in the insect's development, the resultant response has been quite different in the 2 antennae.

We have also observed symmetrically bilateral oligomery in a male of dilvareia from Mayaguana Island in the Bahamas and in a specimen of Ozophora levis Slater & Baranowski from the Florida Keys.

Ozophora miniscuia Scudder
Fig. 2g,h,i

This species was described from a single male from Grand Cayman Island and remains known only from the holotype which we have reexamined.

Scudder's original description is very complete. This species is of a richer ferrugineous color than any of the other species and the surface of the posterior pronotal lobe more irregular and the punctures relatively larger and coarser.

O. miniscuia is closely related to the true pallescens, the genital capsules of the 2 differing only in the somewhat more produced posterior rim of pallescens (Fig. 1-k,2-h). The antennal proportions of pallescens and the holotype of miniscuia are identical. Clearly a series of miniscuia is desirable to determine the variability.

Ozophora helenae Baranowski and Slater, New Species
Fig. 2d,e,f; 5

General coloration pale yellow and dark chocolate brown. Dark coloration present as follows: entire head, anterior pronotal lobe including lateral margins and scutellum (extreme apex of latter white); 3 looped areas on posterior pronotal lobe, the median loop broadly dark, completely lacking any indication of a light median line; (lateral looped areas invaded with yellow; humeral angles and a spot along posterior pronotal margins on either side of midline pale); mesal area of clavus; an elongate slash on corium between
Fig. 5. *Ozophora helenae* Baranowski and Slater, New Species, dorsal view.
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radius and medius at level of apex of scutellum; a complete mesally broadening transverse fascia (a pale macula near inner corial angle); subapical corial macula (extreme apex pale yellow); entire lateral corial margin before apex; greater part of membrane, but latter with apex white and veins suffused with pale yellow or dull white. Anterior pronotal collar pale yellow, darkened at midline. Pleural and ventral surfaces dark red brown to chocolate brown. Distal ends of acetabula, legs, labium and first 3 antennal segments pale straw yellow. Antennal segments I and III lacking darker infusions on distal ends. Segment IV dark brown with a short relatively obscure dull yellowish annulus. Dorsal surface lacking numerous upstanding hairs.

Head non-declivent, tylus extending at least to middle of 1st antennal segment. Eyes large, almost in contact with antero-lateral pronotal angles. Head length 0.50, width 0.64; interocular space 0.34. Body shape very similar to that of divericata. Pronotum length 0.55, width 0.38. Scutellum lacking a median elevation. Scutellum length 0.52, width 0.52. Claval commissure length 0.50. Midline distance apex clavus-apex corium 0.78; midline distance apex corium-apex membrane 0.56. Metathoracic scent gland auricle short, straight, not curving posteriorly. Fore femora with 3 short thick dark spines on distal 1/2 of ventral surface. First labial segment remote from base of head, labium extending well between mesocoxae. Labial segments length I 0.40, II 0.40, III 0.28, IV 0.22. Antennal segments length I 0.28, II 0.72, III 0.61, IV 0.88. Total body length 3.32.


This species is very similar to divericata and occurs sympatriqually with it at least on Hispaniola and Jamaica. The definitive difference between the 2 lies in the extremely broad separation between the "arms" of the cuplike colorite in helenea n.sp. (Fig. 2d) as contrasted with the close approximation of these arms in divericata (Fig. 2a).

Ozophora heleneae tends to be a much darker species than is divericata. Where the 2 occur together they can readily be distinguished by the complete dark chocolate brown coloration of the scutellum in helenea. Ozophora divericata always has a pair of pale scutellar maculae. In helenea the mesal area of the posterior pronotal lobe including the midline is always uniformly dark. In divericata there is usually a pale median streak present. In fact, on Jamaica and Hispaniola we have not seen a specimen of divericata that lacks this pale pronotal streak. In the Bahamas (where helenea has not been
females of *divicata* occasionally, and males rarely, lack the pale pronotal streak, but do possess the pale scutellar markings. In most specimens of *divicata* the pale subbasal annulus on antennal segment IV is usually wide, white and conspicuous. In *helenae* it is always relatively obscure and narrow.

We are pleased to name this species for Mrs. Helen Baranowski in recognition of her help and encouragement for many years.

*Ozophora cobbeni* Scudder, NEW SPECIES

Fig. 1g,h,i; 6

Subshining, without upstanding hairs.

Head ferruginous; proximal 3 segments of antenna flavo-ochraceous with distal portion of 3 brownish; 4th antennal segment brown, slightly paler proximally, but without a distinctly differentiated proximal pale annulation. Anterior lobe of pronotum ferruginous; collar flavescant with a median brown mark and shading to brown laterally; posterior lobe of pronotum flavo-ochraceous with ferruginous punctures, a C-shaped brown mark on outer 1/3 near humeral angles and an obsolete brown stripe on either side of pale midline and confluent posteriorly. Scutellum ferruginous with an oblique lateral flavescent dash on either side of meson, extreme apex ochraceous. Hemelytra ochraceous with ferruginous punctures; clavus with a central longitudinal brown streak, this narrowing and fading out well before base; distal 1/2 of corium brown with a distinct irregular pale subapical spot on lateral margin and a pale round or oval spot near inner angle; apical margin of corium with a narrow flavescant area in centre; membrane brownish with veins pale and with a pale spot near apical angle of corium, apex distinctly pale. Venter ferruginous; posterior margin of metapleura ochraceous. Legs ochraceous.

Head impunctate; ocelli large and set on a line joining hind margins of eyes; ocelli removed from eyes by slightly more than the diameter of an ocellus; when viewed laterally extending to just below antennal tubercles, head removed from anterior margin of collar by distance equal to diameter of an ocellus; Head width 0.60, interocular space 0.30; labium attaining middle coxae; antennal measurements 0.27, 0.50, 0.48, 0.70.

Pronotum distinctly punctate on posterior lobe, but except for center, anterior lobe impunctate; hind margin of pronotum slightly impressed before base of scutellum; pronotal width 0.83, pronotal length 0.53; anterior lobe with a distinct collar and slightly more than 1/2 (0.56) as long as posterior lobe. Scutellum distinctly punctate, except pale lateral dashes impunctate; scutellum width 0.55, length 0.40. Hemelytra reaching just beyond end of abdomen; clavus with 3 distinct rows of punctures and about 6 extra punctures between middle row and that nearest scutellum; claval commissure equal to length of scutellum; lateral margin of corium very slightly sinuate, but not greatly upturned. Fore femora with 3 subapical slender spines. Total length 3.0.

**FEMALE.** Structure and color similar to male. Head width 0.73; antennal measurements 0.33, 0.63, 0.57, 0.73; pronotal width 1.22. Pronotal length 0.70. Total length 3.60.

**HOLOTYPE:** ♀ Saba, Netherlands Antilles. Hellsgate, St. Cruz, 17-XII-
Fig. 6. *Ozophora cobbini* Scudder, NEW SPECIES, dorsal view.

Paratypes: Saba: 1 ♀ same data as holotype; 2 ♂, 1 ♀ Rondez-vous, 25-XII-1956 (R. H. Cobben); 1 ♂, 2 ♀ Windward Side, IX-XII-1956 (R. H. Cobben); 1 ♀ Windward side, lamp, XLI-56 (R. H. Cobben).

In G. G. E. Scudder and Laboratory of Entomology, Agricultural University, Wageningen, Netherlands collections.


This species was originally recognized as undescribed by Dr. G. G. E. Scudder while he was engaged in work on the lygaeid fauna of the Netherlands Antilles as part of Dr. Rene Cobben's analysis of the Hemiptera fauna. This new species is to be credited to G. G. E. Scudder.

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