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Biodiversity of Heteroptera in Puerto Rico: Part I A Conspectus of Pentatomomorpha: Pentatomoidea^{1,2}

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ABSTRACT

Pentatomoidea fauna for Puerto Rico and its adjacent islands is documented as part of a revised account of Heteroptera on these islands. There are 71 species in six families of Pentatomoidea known from Puerto Rico: Cydnidae (11); Pentatomidae (48) including Asopinae (8), Pentatominae (37), Discocephalinae (1), and Edessinae (2); Tessaratomidae (1); Scutelleridae (8); Megarididae (1); and Corimelaenidae (2). Of this total, seven represent new state records for Puerto Rico. Taxonomic accounts include synonymies, known distribution, lists of hosts, and a listing of specimens examined. Regional taxonomical keys are provided for the identification of taxa included. Color plates for most species are also included.

Key words: biodiversity, Pentatomoidea fauna, insect, Heteroptera, taxa

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RESUMEN

La biodiversidad de Heterópteros en Puerto Rico: Parte I
Un resumen de Pentatomomorpha: Pentatomoidea

La fauna de Pentatomoidea de Puerto Rico y de sus islas adyacentes se presenta como parte de una revisión de los Heterópteros de estas islas. Se presentan 71 especies en seis familias de Pentatomoidea conocidas de Puerto Rico: Cydnidae (11); Pentatomidae (48); Asopinae (8), Pentatominae (37), Discocephalinae (1); Edessinae (2); Tessaratomidae (1); Scutelleridae (8); Megarididae (1); y Corimelaenidae (2). Siete especies representan récords nuevos para Puerto Rico. Para cada récord de las especies presentadas se incluyen sus sinonimias, su distribución conocida, sus hospederos, y una lista de los especímenes examinados. También se incluyen claves taxonómicas y fotos a color para identificar la mayoría de las especies discutidas.

Palabras claves: Heteroptera, Pentatomoidea, biodiversidad, taxones

INTRODUCTION

Geography, Geology and Biota

Puerto Rico is the smallest island among the 'Greater Antilles' in the West Indies, which include the larger islands of Cuba, Jamaica, and Hispaniola. The area of Puerto Rico, including all associated landmasses in its archipelago, is approximately 9,100 sq. km. Puerto Rico is located in the Caribbean Basin east of Hispaniola and west of the U.S. Virgin Islands just below the Tropic of Cancer, between latitudes 17° 55' and 18° 32' north and longitudes 65° 12' and 67° 58' west (Figure 1). The largest islands that form part of Puerto Rico are: Vieques (135 sq. km), Culebra (28 sq. km), Mona Island (22 sq. km), Caja de Muerto (1.5 sq. km), and Desecheo (1.5 sq. km). Puerto Rico has great physiographic variability in its terrain, which is anchored by an East-West mountain range known as the Cordillera Central, punctuated by the highest elevation at Cerro Punta (1,330 m), and bordered by more than 500 km of coastline. This variability creates a multiplicity of geographic and terrain features consistent with a wide range of climates supporting diverse and contrasting life zones that simultaneously include subtropical dry forests and rain forests.

Ancient land connections help explain significant patterns of endemism and extinction of insect species observed in Puerto Rico. As with other Greater Antilles, current day Puerto Rico was formed by independent terranes that were joined until the Miocene epoch (5 to 23 million years ago). Looking beyond its insular coastal boundaries, Puerto Rico is part of a larger geological platform called the Puerto Rican Bank, created by volcanism during the Cretaceous period, emerging largely through tectonic movements in the lower Eocene between 35 and 40

million years ago. Today, the continuity of the original mountain axis of the Puerto Rican Bank is interrupted on the eastern end of Puerto Rico and reaches lower elevations through the islands of Culebra, Vieques, St. Thomas, St. John, Tortola, Virgin Gorda, Guana, Jost Van Dike, Saba, and Anegada. Furthermore, from the Miocene through the Pliocene epochs, Cuba, the Puerto Rican Bank, and eastern and central Hispaniola were part of the same microplate, and thus share many animal and plant taxa. According to Acevedo-Rodríguez and Strong (2012) the flora of the Puerto Rican Bank includes 3,243 plant species of which an estimated 13.6% appear to be endemic. Maldonado-Capriles (1996) found 5,066 insect species reported from Puerto Rico, and according to this author, the insect fauna of Puerto Rico is much better known than that of other Antillean islands.

A General Account of Heteroptera

Among insects with incomplete metamorphosis, true bugs (Hemiptera: Heteroptera) are the largest and most diverse group. Heteropterans show a remarkable ability to exploit food sources including plants, animals, and fungi, often in direct competition with humans. Heteropterans differ from other hemipteran suborders (i.e., Auchenorrhyncha, Coleorrhyncha, and Sternorrhyncha) because their front wings are partly leathery and partly membranous (i.e., hence the name of “hemi-elytron”), and because their hind wings are wholly membranous. (Schaefer and Panizzi, 2000). These insects also differ from other sister suborders because of their well-developed scutellum, which is a shield-shaped modification to the thoracic dorsum, and for having abdominal and thoracic scent glands. Finally, although all other non-heteropteran groups are herbivorous, several heteropteran lines have evolved to feed on animal sources, even on warm-blooded vertebrates.

Heteropterans are characterized by their elongate, straw-like mouthparts designed for piercing plant and/or animal tissues, and for sucking up their fluids for nourishment. While most species appear to be plant feeders, large numbers are animal feeders, some even feeding on humans (e.g., Reduviidae and Cimicidae). Another important difference with other suborders is the way plant-feeding heteropterans obtain their food. While members of other suborders feed either within plant cells, or within phloem or xylem vessels, heteropterans (especially Pentatomomorpha) prefer to feed on reproductive plant parts: flowers, ovules, ovaries, and seeds. Other heteropterans, like the Cimicomorpha (i.e., Tingidae and the Miridae), damage non-reproductive plant parts. Thus, their feeding causes the plant to mobilize large quantities of nitrogen to make repairs (Schaefer and Panizzi, 2000). Both heter-

opteran feeding-site preferences result in lower crop yields, and almost inevitably make many species important human competitors.

Seven infraorders are recognized within the Heteroptera: Enicocephalomorpha, Gerromorpha, Nepomorpha, Dipsocoromorpha, Lep-topodomorpha, Cimicomorpha, and Pentatomomorpha. They are all represented in the Puerto Rican fauna (See Schuh and Slater, 1995 for thorough descriptions of these taxa).

Infraorder Pentatomomorpha

Insects belonging to infraorder Pentatomomorpha are all terrestrial and the majority are plant feeders, consuming the fluids of many plant parts, especially flowers, seeds, and fruit. Except for the Aradoidea, all other Pentatomomorpha are characterized by the presence of *trichobothria*: specialized slender sensory setae arising from spots and tubercles or pits on the abdominal venter (segments III-VII). Five superfamilies are currently recognized inside Pentatomomorpha (after Schuh and Slater, 1995), and all occur in Puerto Rico: Aradoidea (e.g., flat bugs), Pentatomoidea (e.g., stink bugs), Lygaeoidea (e.g., stilt, and seed bugs), Pyrrhocoridea (e.g., cotton stainers, and bordered plant bugs), and Coreoidea (e.g., leaf-footed bugs).

Pentatomoidea

According to an important study by Grazia et al. (2008), the Pentatomoidea is most likely a monophyletic group within Pentatomomorpha. Four key morphological characters distinguish this group of insects: (1) their scutellum reaches or surpasses an imaginary line crossing the connexivum at apical angles of 3rd abdominal segment; (2) the claval commissure is obsolete, with apices close together but not contiguous; (3) their abdominal trichobothria positioned laterally on urosternites II-VII; and (4) tergite VIII covering tergite IX in females. Sixteen families are recognized within Pentatomoidea (*sensu* Schuh and Slater, 1995; and Grazia et al., 2008): Urostylidae, Saileriolidae, Plataspidae, Phoeidae, Parastrachiidae, Thaumastellidae, Dinidoridae, Canopidae, Lestoniidae, Acanthosomatidae, Corimelaenidae, Cydnidae, Tessaratomidae, Megarididae, Scutelleridae, and Pentatomidae. The latter six families present in Puerto Rico.

Superfamily Pentatomoidea comprises a large group (ca. 7,000 species) of mostly phytophagous, elongate-ovoid insects. Morphologically, their antennae have 3-5 segments, with the terminal two segments usually cylindrical. Their mouthparts, adapted for piercing and sucking, have a 4-segmented labium with a well-developed and strong first segment. Their scutellum is generally enlarged, sometimes covering the entire abdomen (e.g., Scutelleridae, Megarididae, and Corimelae-

nidae). Their forewings are always in the form of a hemelytron, with a coriaceous anterior portion and an apical membranous region. In addition, each abdominal sternite has two lateral trichobothria from the third to the seventh. As in most Pentatomomorpha, metathoracic scent glands and channels are always present, leading to a peritreme that is surrounded by an evaporatory area (i.e., evaporatorium). The later structure (i.e., also known as “repugnatorium”) is responsible for the dual function of providing an efficient surface area, and of restricting the area for the evaporation of “stink compounds.” These semiochemical compounds, which are present in most Pentatomoidea families, are thought to have primarily alarm and defensive functions (Gilby and Waterhouse, 1967; Lockwood and Story, 1985; Moraes et al., 2008). They are also responsible for the use of “stink bugs,” “chinchas apestasas” or “hiedevivos” as common names for pentatomids.

Taxonomic Synopsys of Heteroptera Study in Puerto Rico

According to the last published Heteroptera species accounting by Maldonado-Capriles (1996), there were 339 species reported from Puerto Rico. The last major taxonomical studies of this group were published during the first half of the 20th century by Barber (1923, 1939), later compiled by Wolcott (1936, 1948), and supplemented by Maldonado (1996) (See Figure 2). To date, the best and most useful source for identifying Puerto Rican Heteroptera is still found in Barber (1939). All taxonomical studies over the past 75 years since Barber (1939) have been characterized by a limited number of works, focused mostly on descriptions of single taxa.

Key studies by infraorder include works by Kritsky (1977 and 1979), which can be used to study local Enicocephalomorpha (Enicocephalidae), brightly colored, reddish-orange insects that live in bromeliads at high altitudes, and which include the two species known from Puerto Rico, namely the endemic species *Enicocephalus semirufus* Barber (1939) and *Enicocephalus usingeri* Maldonado (1948). The Dipsocoromorpha are discussed by Usinger (1946), to which the author added and described *Ceratocombus yunquensis* Usinger, found “...beneath leaf mold and numerous small fruits of a fallen sierra palm,” along with the other locally occurring species, *Ceratocombus vagans* McAtee and Malloch. Knowledge of local Gerromorpha, Nepomorpha, and Lep-topodomorpha was expanded in Drake and Maldonado (1954) and in Spangler et al. (1985). Finally, treatises increasing our understanding of local Cimicomorpha can be found in: Maldonado-Capriles (1969 and 1991) (Miridae), Maldonado-Capriles (1976, 1986, and 1990) and Hart (1987) (Reduviidae); Kerzhner (2007) (Nabidae); Drake and Ruhoff (1965), Medina-Gaud (1963) and Medina-Gaud et al. (1991) (Tingidae).

Works on Pentatomomorpha, other than Pentatomoidea, include those by Drake and Maldonado (1955) and Kormilev (1968) (Aradidae); Slater (1964), and Baranowski and Slater (2005) (Lygaeidae); Shaefer and Stelík (2013) (Pyrrhocoridae and Largidae).

Nevertheless, significant voids of scientific information still exist in our knowledge of Pentatomomorpha in Puerto Rico. For instance, the most complete taxonomic accounts of this infraorder from Puerto Rico (i.e., Barber, 1939; Wolcott, 1948) date from almost 70 years ago. Further, the discovery of new species and the surge of invasive pest species (due to market globalization) have made it an urgent and a necessary task to update existing information about the biodiversity and taxonomy of this economically important group. Critically, for most species, there is a lack of basic knowledge about their life histories and distribution, or the scant information available is dispersed among dozens of published works. The need for a single, comprehensive, local conspectus of Heteroptera, the lack of complete identification keys for local taxa, and the potential threat posed by yet unrecorded invasive species has prompted us to re-examine and publish our work about this large and important insect group.

This work represents the first of several publications revising and annotating all known Heteroptera species from Puerto Rico, including the islands under its jurisdiction. Thus, the principal thrust of these publications arises from the need for an updated and comprehensive regional treatise. Research and information presented here are partly the product of on-going curatorial efforts related to the historical collection of the “*Museo de Entomología y Biodiversidad Tropical*” (MEBT) of the University of Puerto Rico’s Agricultural Experiment Station, and from research work designed to identify new potential hemipteran pests and vectors of diseases in palms and other tropical crops.

MATERIALS AND METHODS

Specimens were identified using existing taxonomical works, keys, and from original descriptions. Insects were examined using an Olympus SZX-12 stereomicroscope (magnification 7–90x) and an Olympus BX41 phase contrast compound microscope (magnification 50–400x). Female genital plates and male pygophores were examined and compared to existing keys to ascertain identifications. Examination of male genitalia included maceration of dissected abdomens in 10% KOH. Genitalia were placed on glass slides with glycerin for examination, and photographed using a Canon Vixia HSF21. Electron microscopy images were produced with a JEOL 5410LV scanning electron microscope. Digital images were processed using Adobe Photoshop®/Lightroom

and Zerene Stacker® software. Body length was taken from head to tip abdomen without the membranous area using an ocular micrometer. Biological materials examined belong to the historical collection of the University of Puerto Rico Museum of Entomology and Tropical Biodiversity (MEBT), the Invertebrate Collection of the University of Puerto Rico-Mayagüez, Biology Department (INV-COL) and the private collection of the late José A. Ramos (JAR). Species accounts presented below include: basic information on taxonomical synonymy, known geographical and local distribution (with detailed information on Caribbean localities), host plant collection data, a short account of relevant biological, historical or economic information, and a list of preserved material examined and housed at MEBT that includes collection label information and sex for each insect (in brackets). Sex was not determined for Cydnidae nor Corimelaenidae. Host plant records for Puerto Rico are those presented in Martorell (1976), unless specified.

New state records, host plant collections, or Caribbean island records are indicated by an asterisk (*), and species that we were not able to examine are indicated by a spade (†) following the taxon's binomen.

Taxonomic Accounts of Pentatomoidea in Puerto Rico

The record of published taxonomic works about the Pentatomoidea in Puerto Rico began with French naturalist André Pierre Ledru's 1797 expedition to the Caribbean, including Puerto Rico (Ledru, 1810). This early work vaguely documents the collection of seven types of unidentified "punaise" or Pentatomidae from the island. Later the Cuban-German naturalist Juan Gundlach (1893) published the first comprehensive listing of Pentatomoidea from Puerto Rico based on his earlier expeditions to the island, and from specimens in Dr. Agustín Stahl's insect collection cabinets (since lost). Gundlach listed 14 Pentatomoidea species, including: four scutellerids [i.e., *Pachycoris fabricii* L., *Augocoris illustris* (F.), *Symphylus caribbeanus* Kirkaldy, and *Sphyracoris obliquus* (Germar)]; one cydnid [i.e., *Amnestus pusio* Stål]; and nine pentatomids [i.e., *Acrosternum (Chinavia) marginata* (Palisot de Beauvois), *Thyanta perditor* (F.), *Oebalus pugnax* (F.), *Proxys victor* (F.), *Arvelius albopunctatus* (De Geer), *Loxa viridis* (Palisot de Beauvois), *Edessa bifida* (Say), *Alcaeorrhynchus phymatophorus* (Palisot de Beauvois) and *Podisus sagitta* (F.)]. Later, works by Barber (1923, 1939) and by Wolcott (1936, 1948) increased the number of taxa adding one megaridid, one tessaratomid, two corymelaenids, eight cydnids, seven scutellerids, and 34 pentatomids. Since then, other authors (see below for individual authors) have added one cydnid, one scutellerid, and 15 pentatomids thus increasing the numbers of Pentatomoidea reported from Puerto Rico to 71 species.

Key to Families of Pentatomoidea Leach in Puerto Rico

- 1. Scutellum shorter than corium, sub-triangular 2
- Scutellum large, U-shaped longer than corium 3
- 2(1). Body nearly as long as wide; dorsal surface steeply convex; small 1.6 mm; rare. Megarididae.
- Body longer than wide; larger 2-20 mm. 4
- 3(1). Tibiae each with 2 or more rows of strong spines; color shiny black Corimelaenidae
- Tibia without strong spines; color variable, not shiny. . Scutelleridae
- 4(1). Tibia with strong spines; dark colors, shiny dark Cydnidae
- Tibia unarmed; variable coloration. 5
- 5(4). Metasternum produced to prosternum, keel-like anteriorly and not bifid; rostrum barely surpassing procoxae; large body > 15 mm Tessaratomidae
- If metasternum produced anteriorly, bifid (Edessinae) otherwise not produced; Rostrum to mesosternum or longer; body 4-20 mm Pentatomidae

FAMILY PENTATOMIDAE

Members of this family are commonly known as stink bugs or hie-devivos. According to Schuh and Slater (1995) most species are moderate to large, ranging from 4-20 mm, and generally ovoid or broadly elliptical (see Figure 3 for important external structures). Some are, however, elongate and slender (e.g., *Mecidea* and *Oebalus*), with many of these species associated with grasses. Antennae are usually 5-segmented. Scutellum is large, usually triangular. Abdominal trichobothria are arranged transversely behind spiracles on the spiracular line. Pentatomids are also distinguished from other Pentatomomorpha by the form of the spermatheca, which is invaginated proximal to the pump with a sclerotized medial wall (Schuh and Slater, 1995). The 5-segmented antenna is also generally diagnostic. Another interesting feature is the presence of stridulatory structures in the abdomen.

Most pentatomids are plant feeders, with a clear preference for immature fruit and seeds, but also feed on mature fruit, flowers and, the vascular system of plants. Many pentatomids appear to gain nourishment from extracting sap directly from phloem vessels, and producing a feeding cone or "stylet-sheath" from salivary secretions. Worldwide, stink bugs are major pests of crops like rice, legumes, and vegetables. Members of subfamily Asopinae are the exception to strict phytophagy because they are predaceous and feed on insects and other arthropods. While many species generate losses through their piercing-sucking

feeding, a few others are important vectors of plant diseases, and some are insect predators. Members of subfamily Asopinae are key natural enemies of important pests. Many pentatomids (also scutellerids) are also known for their maternal instincts in which females actively protect eggs by warding off attacks from parasitoids and predators.

Pentatomid classification is still subject to frequent changes, especially at the subfamily and generic levels. Depending on the authors, 8 to 11 subfamilies are recognized. Four subfamilies are represented in Puerto Rico: Edessinae, Asopinae, Discocephalinae, and Pentatominae. There are approximately 760 genera and 4,100 described species, constituting the fourth largest family in Heteroptera (Schuh and Slater, 1995). Taxonomically, Caribbean pentatomids are fairly well studied. For example, recent studies by Pérez-Gelabert and Thomas (2005), and by De los Santos and Bastardo (2013) have advanced the understanding of the group in Hispaniola, reporting 77 species in 36 genera. Currently, there are 48 species (in 34 genera) of pentatomids reported from Puerto Rico (see Wolcott, 1948; Sailer, 1952; Rolston and McDonald, 1984; Rolston, 1986; Rider, 1987, 1988 and 1992; Franqui et al., 1988; Thomas, 1990 and 1992; Segarra et al., 2015).

Key to Subfamilies of Pentatomidae Leach in Puerto Rico

- 1. Metasternum produced to abdomen, bifid anteriorly; rostrum reaching mesocoxa Edessinae
- Metasternum not produced anteriorly 2
- 2(1). First labial segment stout, extending well beyond bucculae Asopinae
- First labial segment lying within the bucculae or slightly projecting, but not stout or engrossed 3
- 3(2). Labium arising beyond imaginary line traversing head at anterior limit of eyes; dull brown; body rounded Discocephalinae
- Labium arising before imaginary line and/or abdominal venter with mesial tubercule and/or metasternum produced posteriorly Pentatominae

SUBFAMILY Asopinae

This subfamily contains important predators of insect pests (McPherson, 1982). Asopines are distinguished from other pentatomids by the rostrum, which has a free and engrossed first segment (“crassate rostrum”) directed away from the head (Figure 4). Members of this subfamily are set apart from other pentatomine subfamilies essentially for their unique feeding habits as predators. According to De Clercq (2000), first instars do not attack prey; instead, they survive by sucking plant juices for sustenance. Later instars

need animal food in order to survive and to fully develop, but may obtain moisture from sucking plants. Few species of the group have been studied in detail, but its members appear to be generalist feeders of slow moving, soft-bodied insects, primarily larvae of Lepidoptera and Coleoptera. Asopines are distributed throughout the world, where close to 300 species are recognized, and the subfamily seems most abundantly represented in the New World (De Clercq, 2000). Eight species are recorded from Puerto Rico, including two endemics. The most common member of the subfamily appears to be *Podisus sagitta* (F.), which has been reported from Puerto Rico and Mona Island. Wolcott (1948) reports *P. sagitta* as an insect predator of Lepidoptera in cotton fields. Synonymies presented here follow Thomas (1992).

Key to Asopinae in Puerto Rico

1. Ostiole of scent gland without elevated ruga; profemur with stout ventral preapical spine; buccula strongly elevated, lower margins rounded; humeri produced, bidentate; large species, 15-18mm
 *Alcaeorrhynchus phymatophorus* (Palisot de Beauvois)
- Ostiole of scent gland with ruga surrounded by evaporatorium. . . . 2
- 2(1). Second visible abdominal segment may be prominent; Humeral angles spinous, with post-apical tooth; anterolateral margins dentate; outer edge of corium with pale band. *Andrallus spinidens* (F.)
- Second visible abdominal segment with tubercle or forwardly directed spinous process 3
- 3(2). Spine or tubercle on base of abdomen long, reaching middle of mesocoxae; humeral angles short, simple, and rounded; 7-9mm
 *Tyrannocoris rideri* Thomas.
- Abdominal spine reaching metacoxae; humeral angles acute. 4
- 4(3). Humeral angles strongly directed forward. 5
- Humeral angles directed laterad and slightly upward 6
- 5(4). Posterior tibiae terete (rounded); stramineous head, thorax and coria; small, 7 mm *Tylospilus acutissimus* (Stål).
- Posterior tibia sulcate; body darker with dorsal surface of head densely and darkly punctate; larger, 9-12mm
 *Conquistator mucronatus* (Uhler).
- 6(5). Humeral angles elongate produced, slender
 *Podisus borinquensis* Barber[†]
- Humeral angles produced, acuminate, bifid. . . . *Podisus sagitta* (F.)

Alcaeorrhynchus phymatophorus (Palisot de Beauvois, 1812: 112)
[Plate I, Fig. 1]

Pentatoma phymatophora Palisot de Beauvois
Canthecona phymatophora Amyot & Serville
Mutya phymatophora Walker
Alcaeorrhynchus phymatophora Schouteden

DISTRIBUTION.

Puerto Rico, Hispaniola, Jamaica, Cuba, and Florida Keys.

REMARKS.

First listed in Puerto Rico by Gundlach (1893) as *Mutya phymatophora* Walker. This large species (17-19 mm) is readily identified by the absence of the scent gland's ostiolar ruga, and by a stout ventral pre-apical spine in the profemur. Individuals are testaceous brown with reddish legs, and coarsely punctate prothorax and scutellum. The genus contains only two species, both native to the New World: *A. grandis* (Dallas), which is the largest asopine known, a predator of papilionid and nymphalid larvae, and known to occur from the United States to Argentina (Thomas, 1992); and *A. phymatophorus*. The latter is also a large species endemic only to the Caribbean islands, and originally described from Hispaniola. According to Thomas (1992) it differs from *A. grandis* by the form of the humeral angles that project laterally rather than forward.

MATERIAL EXAMINED.

PUERTO RICO. *Aguadilla*: Apr. 1976 (♀, JAR); *Aibonito*: 10 Oct. 1948. S. Rodríguez (♀, JAR); *Añasco*: 15 Mar. 1976. E Pérez (♂, JAR); *Corozal*: 3 Sept. 1976. *Ex.* UV light. (♀); *Mayagüez*: 22 Dec. 1939. Diaz (♂, JAR); 10 May 1940. Rojas Puccini (♀, JAR); Jun. 1943. Y. Hernández (♂, JAR); Mar. 1958. L. Rivera (♂, JAR); 11 Nov. 1975. J.A. Ramos (♀, JAR).

Andrallus spinidens (Fabricius, 1787: 285) [Plate I, Figure 3]

Cimex spinidens F. (Tranquebariae = India?)
Asopus geometricus Burmeister (Java)
Pentatoma aliena Westwood ("Nova Holland" Australia?)
Arma geometrica Dallas
Picromerus spinidens Dallas
Acanthidium cinctum Montrouzier (New Guinea)
Audinetia aculeata Ellenreider (Sumatra)
Arma spinidens Vollenhoven
Cimex spinidens Stål
Audinetia spinidens Distant

Acanthidium spinidens Lethierry & Severin
Andrallus spinidens Schouteden

DISTRIBUTION.

Puerto Rico, Hispaniola, United States, Mexico, Guatemala, El Salvador, Honduras, Costa Rica, Panama, Brazil, Bolivia, and Ecuador.

REMARKS.

This Oriental species was first reported by Wolcott (1948) from a specimen caught by Martorell flying over a sugarcane field in Guánica. According to Pérez Gelabert and Thomas (2005), it is a cosmopolitan predator associated with rice fields. This large (10-14 mm), pale brown species is easily recognized by pale ivory colored stripes on the midline of the scutellum, between humeral spines, and the sides of the corium. Manley (1982) describes its life history. In Florida, it was reported preying on larvae of *Mocis latipes* (Guenée), a common pest of sugarcane and other crops (Mead and Eger, 1992). Clavis and Jaiswal (2013) document its importance as a predator of Lepidoptera, which attacks rice, and found that its populations increase towards rice heading, and rapidly decline afterwards.

MATERIAL EXAMINED.

PUERTO RICO. *Aguada*: 6 Sept. 2014. Morales, O. (♀); *Arecibo*: 17 Aug. 1986. Franqui, R. A. *Ex.* Rice. PRAccNo. 419-86. (♀); *Corozal*: 21 Aug. 1964. Pérez, M. *Ex.* Pangola grasses. (♂); *Juana Díaz*: 4. Apr. 1985. Saliva, J. (♂); *Mayagüez*: 24 Jun. 1980. (♀, JAR), 31 Oct. 2014. Santiago, J. (♀); *Ponce*: Fortuna (sic) 10 Oct. 1974. R.A. Blandón (♀, JAR). NO DATA (♀).

Tylospilus acutissimus (Stål) (1870: 53). [Plate I, Fig. 5]

Podisus acutissimus Stål
Tylospilus acutissimus Uhler

DISTRIBUTION.

Puerto Rico, Hispaniola, United States, Mexico, Honduras, Nicaragua, and Colombia.

REMARKS.

This is another asopine only recently collected in Puerto Rico, and reported by Segarra et al. (2015). The specimen is 7 mm long, straw colored, with dark eyes, prominent humeral spines, and contrasting red dorsal markings. According to Thomas (1992), the species has varied coloration. Pérez-Gelabert and Thomas (2005) report this species as often found on mesquite (*Prosopis* sp., Leguminosae). Natural prey is unknown, but has been laboratory-reared on lepidopterous larvae. Stoner et al.

(1974) found that this species also feeds on plant tissues when its prey is absent.

MATERIAL EXAMINED.

PUERTO RICO. *Orocovis*: 19 Nov. 2008. A. A. (♀); *San Germán*: 1 Nov. 2008. Olivera, V. (♀); and Santiago, L. (No coll date). (♀).

Tyrannocoris rideri Thomas (1992: 125) [vPlate I, Fig. 4]

DISTRIBUTION.

Endemic to Puerto Rico.

REMARKS.

This species has only been collected from Puerto Rico, and until recently, known only for its holotype (male), which is housed at the American Museum of Natural History. According to Thomas (1992) this specimen is labeled: "PUERTO RICO: Hwy 52, 1.5m E. Hwy 153, 3 mi N. St. Isabel, 27-V-86. E. Riley & D. Rider". Little is known about its biology, but given recent collections, it appears to be uncommon yet distributed on the island.

MATERIAL EXAMINED.

PUERTO RICO. *Mayagüez*: 1 Apr. 2009. Díaz, P. (♂); *Utuado*: 21 Feb. 2009. Valentín, J. (♀).

Podisus borinquensis Barber (1939: 305)† (not examined)

DISTRIBUTION.

This species may also be endemic to Puerto Rico.

REMARKS.

Barber (1939) described this species from a male collected by R.G. Oakley (USDA) in Ponce on 7 Aug. 1933. A male paratype was collected by R.T. Cotton in Río Piedras, 7 Nov. 1917. The latter specimen from the MEBT collection appears lost. According to Barber (1939), the holotype is 9 mm long, and should be easily recognizable from the more common *Podisus sagitta* (F.) by its elongated humeral angle spines and distinctive male genitalia.

MATERIAL EXAMINED.

No specimens were found in MEBT, JAR, or INV-COL collections.

Podisus sagitta (Fabricius, 1794: 99) [Plate I, Fig. 6; Figure 4A]

Cimex sagitta Fabricius ("Insulae America Meridionalis")

Pentatoma didyma Palisot de Beauvois

Arma didyma Amyot & Serville

Telepta didyma Stål
Podisus (Podisus) didyma Stål
Arma monospila Walker
Podisus (Podisus) sagitta Stål
Podisus monospila Uhler
Apateticus (Eupodisus) sagitta Schouteden
Podisus sagitta Van Duzee

DISTRIBUTION.

Puerto Rico, Mona Island, Hispaniola, Bahamas, Cuba, Curacao, Jamaica, Trinidad, Virgin Islands, St. Lucia, Grenada, Barbados, Antigua, United States (Texas, Florida), Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, and Venezuela.

REMARKS.

First listed in Puerto Rico by Gundlach (1893), this asopine species is widely distributed throughout Central America and the Caribbean. Barber (1923) also lists this predator from Puerto Rico. Specimens are brown, with the humeral angle clearly bifid, and its anterior prong, the longest and directed outwards. This appears to be the most common asopine in Puerto Rico, where Wolcott (1936) reports it attacking the cotton leafworm (*Alabama argillacea* Hübner) in cotton fields. In Trinidad, Callan (1948) reports *P. sagitta* feeding on larvae of the common yellow butterfly *Ascia monuste* (L.). Specimen labels in the MEBT collection indicate captures of this predator on pumpkin *Cucurbita moschata* (Duch.) Duchesne & Poir, eggplant, and rice, probably indicating associations with lepidopteran pests of these crops.

MATERIAL EXAMINED.

MONA ISLAND. 11-31 Aug. 1944. H.A. Beatty (♂); **PUERTO RICO.** *Adjuntas:* 9 Jun. 2008. L. Santiago. (♀); *Aguadilla:* Oct. 1991. Mejía, G.; 20 Jul. 2008. Padín, D. (♀); *Cabo Rojo:* 14 Aug. 2010. Ortiz, R. (♀); 29 Oct. 2013. Negrón, C. (♀); *Añasco:* 7 Apr. 1976 (♀); *Caguas:* 2 Jan. 1938. A.E. Alvarez (♀); *Coamo:* 21 Aug. 1990. Medina-Gaud, S. *Ex.* Avocado leaf. PRAccNo. 217-90. (♀); *Corozal:* 18 Oct. 1976. *Ex.* UV light. (♀); 20 Sept. 2013. Padilla, A. (♀). *Guánica:* 18 Sept. 1988. Rivera, A. (♀); 20 Nov. 2011. Mercado, D. (♀); *Gurabo:* 4 Nov. 1968. (♀); *Isabela:* Dec. 1938. A. López (♂); *Juana Díaz:* 16 Jun. 1986. Medina-Gaud, S. & Segarra, A. *Ex.* pumpkin. PRAccNo. 303-86. (5 ♀ 7 ♂), and PRAccNo. 308-86 (2 ♀); 21 Nov. 1989. Medina-Gaud, S. & Segarra, A. PRAccNo. 122-89 (2 ♀); 21 Jun. 1990. Medina-Gaud, S. *Ex.* eggplant. PRAccNo. 102-90. (♀ ♂); *Lajas:* 19 May 1986. Medina-Gaud, S. Pantoja A.

Ex. Rice. PRAccNo. 193-86 (♂); 8 Jul. 1986. Medina, S., Pantoja, A. & Franqui R., *Ex. Rice*. PRAccNo. 336-86. (♂); 5 Sept. 2008. Paoli, P. (♀); 27 Oct. 2008. Rosario, C. (♂); *Lares*: 20 Feb. 1987. Román, I. (♂); *Manatí*: 2 Apr. 1986. Medina-Gaud, S. & Pantoja A., PRAccNo. 133-86 (♂); *Maricao*: 25 Mar. 2006. McPhail, R. (♀); *Mayagüez*: 17 Mar. 2011. Díaz, D. (♂); 3 May. 2013. Enriquez, S. (♀); 2 Sept. 2003. Delgado, A. (♀); 6 Sept. 2008. Rodríguez, G. (♂); 12 Aug. 2013. Quiñones, Y. (♀); 15 Aug. 2013. González, A. (♀); *Moca*: 3 Sept. 2013. Cordero, J., *Ex. avocado*. (♂); *Orocovis*: 19 Nov. 2008. A. A. (♀); *Ponce*: 28 Jun. 1932. J.B. Diaz (♀). *San Germán*: 28. Nov. 1999. Ramos, O. (♀); *San Juan*: Río Piedras. PRAccNo. 832-14. 10 Aug. 1914. Jones, T. H. (♂); 25 Nov. 1988. Medina, F. (♀); *San Sebastián*: 25 Aug. 2009. Santiago, J. (♂); *Vega Baja*: 3 Aug. 2008. Collazo, E. (♂); *Yauco*: 1923. Wolcott, G. N., PRAccNo. 329-23 (♀).

Conquistator mucronatus† (Uhler, 1897: 386) (not examined)

Podisus mucronatus Uhler (Cuba)

Apateticus mucronatus Schouteden

Conquistator mucronatus Gapon.

DISTRIBUTION.

Puerto Rico, Cuba, United States (Florida).

REMARKS.

This predator appears to be an uncommon species in Puerto Rico. Barber (1939) reports it from a single specimen collected in Guánica by Dozier in 1925. Wolcott (1948) reports collections of this species from sugarcane fields near the defunct Coloso sugar refinery in Aguada. Thomas (1992) writes of examining a specimen from Puerto Rico in which the humeral angles were short and apically obtuse. According to Barber (1939) this is a large ferruginous species, normally with conspicuous, calloused, yellow spots as follows: two on the anterior disk of the pronotum, the basal angles, and the apex, and frequently smaller discal spots on the scutellum. The pronotum has the humeral angle drawn out into an acute, anteriorly directed spine; the lateral margin is calloused, pale yellow and with a few blunt teeth or serrations. The membrane is hyaline, sometimes slightly tinted, not vittate with brown. Formerly in genus *Podisus* Herrich-Schäffer, *mucronatus* has been transferred as the species type for the new genus *Conquistator* Gapon (2009) based on substantial differences in male genitallic structure. Costello et al. (2002) provides a brief description of immature stages and life history.

MATERIAL EXAMINED.

No specimens were found in MEBT, JAR, or INV-COL collections.

SUBFAMILY **Discocephalinae**

Most members of this subfamily were previously placed in the pentatomine tribe Halyini. According to Rolston (1992) discocephalines are “exceedingly dull in appearance, being largely of funereal hues.” Until recently, these insects have received little attention from taxonomists, thus their classification is largely undeveloped. The most abundant group of species belongs to the Ochlerini tribe from the Western Hemisphere’s tropics and subtropics. Little is known of their life histories. Most species are generally considered phytophagous, apparently inhabiting forest canopies, and are commonly collected only at light (McPherson, 1982; Rolston, 1992). This is the first record for discocephalines in Puerto Rico.

Alitocoris brunneus Sailer (1950: 74) [Plate I, Fig. 7]

DISTRIBUTION.

Puerto Rico, Mexico, Guatemala, and El Salvador.

HOST PLANTS:

No host plant records exist.

REMARKS.

The holotype was collected and described from imported Honduran orchids intercepted in the port of New Orleans in 1941 (Sailer, 1950). There are no collection records for this species from Puerto Rico before 1999, when an entomology student in Mayagüez collected a female specimen. Recent collection records indicate that the species is now common and widely distributed in Puerto Rico. The species is dull brown, 8-10 mm in length. As with other ochlerines, this species is frequently collected at light (Garbelotto et al., 2011), with several of the local collection records supporting this observation. Little is known about the species’ biology and, until recently, the taxon had received little attention. Currently, the taxonomical placing of the species is uncertain. Recent systematic treatment by Garbelotto et al. (2013) has established the paraphyletic nature of *Alitocoris* Sailer, and these authors have proposed the placement of *A. brunneus* Sailer into a new but yet undescribed discocephaline genus (Rider 2013, Personal Communication).

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 14 Oct. 2011. Crespo, J. (♀); *Aguada*: 18°20.95N 67°13.09W. 4-6 Nov. 2011. Valentín, N. *Ex.* UV light. (2♀); *Aguadilla*: 18 Oct. 2010. Santiago, C. (2♂); *Areci-*

bo: 12 Mar. 2010. Faria, O. (♂); 17 Feb. 2013. Acevedo, L. (♀); *Barranquitas*: 2 Mar. 2010. Berríos, M. (♂); 30 Mar. 2010. Berríos, M. (♀); *Cabo Rojo*: 15 Mar. 2009. Jesús, A. (♂); Boquerón. 18°00.65N 67°10.96W. 6 Oct. 2011. Segarra, A. *Ex.* UV light. (1 ♀ 3 ♂); 24 Sept. 2011. Pérez, C. (♀); El Faro. 2 Nov. 2011. Vigo, J. (♀); Boquerón. 28 Apr. 2012. Segarra, A. *Ex.* UV light. (♀); 21 Apr. 2013. De Jesús, D.R. (♂); *Ciales*: Sector La Grama. 14 Mar. 2010. Rodríguez, A. (♂); 14 May 2011. Miranda M. (♀); *Coamo*: Urb. Villa Madrid. 15 Oct. 2011. Morales, K. (♂); *Guayama*: 13 Apr. 2013. Delgado, C. (♂); *Guayanilla*: 12 Mar. 2009. Rodríguez, R. (♂); 2 Aug. 2013. Matos, G. (♂); *Hormigueros*: 17 Mar. 2011. Rodríguez E.Y. (♀); Rivera, K. No date. (1 ♂ 1 ♀); *Isabela*: 8 Apr. 2013. De Jesús, D.R. (♂); *Lajas*: 27 Aug. 2011. Caraballo, A. (♂); *Las Marías*: 8 Feb. 2007. Ramos, M. (♂); *Maricao*: 6 Mar. 2011. Zayas J.R. (♀); *Mayagüez*: 5 Sep. 1999. R. Tamayo (♀); 6 Sept. 2008. Alvarez, A. (♂); 11 Nov. 2008. Bo. Leguizamo. Echevarría, N. (♂); 13 Apr. 2011. Rodríguez, E.Y Jan. (♂); 3 Mar. 2012. Piscina RUM. Miranda, M. (♂); 26 Apr. 2013. Edif. Piñero, RUM. Maldonado, A. (♀); 12 Apr. 2013. De Jesús, D.R. (♂); 10 Oct. 2013. Mitchell, M. (♂); *Moca*: 14 Feb. 2006. Ezequiel (♀); 23 Apr. 2011. Quintana, E. (1 ♂ 1 ♀); *Sabana Grande*: 8 Oct. 2013. Torres, A. (♂); *Ponce*: 2 Oct. 2011. Rodríguez, R. (♀); 30 Aug. 2013. Negrón, C.A. (♂); *San Sebastián*: 19 Apr. 2009. Santiago, M. (♂); 18 Mar. 2011. Santiago M. (1 ♂ 1 ♀); 27 Apr. 2011. Torres N.M. (♀); 1 Mar. 2012. Rodríguez, Y. (♀); 22 Sept. 2013. Matos, K. (♂); *Utua*: 9 Apr. 2009. Valentín J. (♂); 29 Apr. 2009. Feliciano, N. (♀); *Vega Baja*: 6 Apr. 2009. De Jesús, L. (♀); *Villalba*: 16 May 2010. Vega M. (1 ♂ 1 ♀); *Yauco*: 3 May 2009. Torres, T. (2 ♂); 13 Apr. 2010. Feliciano, J. (♀).

SUBFAMILY Edessinae

Edessines are smooth and shiny dorsally, with a strong forwardly produced metasternum, which is anteriorly bifid, and a rostrum reaching the mesocoxae. The subfamily is Neotropical, with five genera and approximately 270 known species. In general, edessines feed on Solanaceae, and can be minor pests in tomato (Panizzi et al., 2000). Two species are known to occur in Puerto Rico, and both were considered minor pests by Wolcott (1948).

Edessa bifida (Say, 1832: 7) [Plate I, Fig. 8]

Pentatoma bifida Say

Edessa albirenis Herrich-Schäffer

Aceratodes albirenis Dallas

Aceratodes bifida Lethierry

Edessa bifida Uhler

Edessa cornuta Burmeister (Barber 1939; Wolcott 1948)

DISTRIBUTION.

Puerto Rico, Hispaniola, United States, Mexico, Central America, Colombia, and northern Brazil.

HOST PLANTS.

First listed from Puerto Rico by Gundlach (1893). In Puerto Rico, nymphs and adults have been reported feeding on tender shoots of "bejuco de puerco," *Ipomoea setifera* Poir (Convolvulaceae) (Wolcott, 1948). Other records in Puerto Rico include: Siamese cassia (*Senna siamea* (Lam) Irwin & Barneby) (Leguminosae) and *Citrus* sp., but these records may likely reflect collections of resting or non-feeding insects.

REMARKS.

This species is widely distributed in Puerto Rico. Medium-sized (11-12 mm), it is easily identified by its convex anterolateral pronotal margins, green-colored oval-shaped body, and distinctive heart-shaped white spot on the tip of the scutellum. It is common wherever its host plant, bejuco de puerco, occurs and especially at coastal and mid elevations.

MATERIAL EXAMINED.

PUERTO RICO. *Aguada*: 18°20.96N 67°13.09W. 26 Dec. 2011. Valentín, N. *Ex.* UV light. (♀ ♂); *Aguadilla*: 25 Sept. 1987. Inglés, R. (♂); 26 Aug. 2003. Garmos, H. (♂); 13 Oct. 2013. Santiago, C. (♀); *Arecibo*: PRAccNo. 286-47. Nov. 1947. Martorell, L. F. (♂); *Corozal*: 18 Oct. 1978. *Ex.* UV light. (♀); *Hatillo*: 1918. PRAccNo. 510-18. (♂); *Isabela*: Guajataca. 16 Jan. 1945. Wolcott, G. N., PRAccNo. 16-45. (♀); 12 Nov. 1987. Inglés, R. (♂); *Las Marías*: 7 May 1979. Rodríguez, G. (♀); *Las Piedras*: 15 Apr. 2012. Carrasquillo, C. (♀ ♂); *Mayagüez*: Oct-Nov. 1964. Jorge, R.; Apr. 1987. González, R. (♀); 8 Feb. 2012. Díaz, J. (♀); *Naguaibo*: 9 Mar. 1914. Jones, T.H. (♀); *Río Grande*: Nov. 1964. Medina-Gaud, S. PRAccNo. 728-1914. (2♂); *San Juan*: Río Piedras. 27 Oct. 1912. Navarrete, A. N., PRAccNo. 758-1912. (♀); 11 May 1917. Cotton, R.T., PRAccNo. 412-17. (♀); 24 Jan. 1965. Medina, E. (♀); 21 Oct. 1968. *Ex.* malaise trap. (♂); 26 Apr. 1969. García, J. (♀); 22 Apr. 1988. Félix, C. (♂); 30 Oct. 1988. Rivera, A. (♂); *San Sebastián*: 8 Nov. 1968. Nuñez, P. (♂); 8 Nov. 1986. Gordian, L. (♀); *Vega Baja*: 25 Apr. 1988. A. F. (♂); 9 Apr. 1988. Santiago, R. (♀).

Paraedessa paravinula (Barber, 1935:2) [Plate I, Fig. 9]

Edessa affinis Dallas (Wolcott, 1936)

Paraedessa paravinula Da Silva et al. (2013)

DISTRIBUTION.

Endemic to Puerto Rico.

HOST PLANTS.

This species has been collected in Puerto Rico from crookneck squash or calabaza (*Cucurbita moschata** Duchesne (Cucurbitaceae); Barbados cherry (*Malpighia emarginata** Sessé & Moc. ex DC.) (Malpighiaceae); sour orange (*Citrus x aurantium* L.) (Rutaceae); turkey berry (*Solanum torvum* SW) and potato (*Solanum tuberosum* L.) (Solanaceae).

REMARKS.

Barber (1935) described this species from Puerto Rico. It was first reported by Wolcott (1924) under the name *Edessa affinis* Dallas, as injurious to the tender shoots of the coffee plant. The holotype is a male collected in Aibonito in 1915 by Lutz and Mutchler. This species is quite distinctive: medium-sized (9-10 mm), dark green, with iridescent brown wings and corium veins outlined in ivory white or cream. Even when this species has been collected from several plant species, there appears to be no certainty as to which of these are true host plants, as there are no records for collection of immature stages.

MATERIAL EXAMINED.

PUERTO RICO. *Aibonito*: 24 Oct. 1988. Rivera, J. (♂); *Arecibo*: 12 Mar. 2010. Faria, O. (♀ ♂); *Barranquitas*: Feb. 1987. Torres, G. (♀); *Cayey*: 24 Oct. 1921. Seín, F. & Wolcott, G. N. PRAccNo. 309-1921. (♂); 31 Aug. 1986. Nuñez, P. (♀); *Dorado*: 27 Sept. 1986. López, I. (♀); *Lares*: 28 Oct. 1921. Seín, F. PRAccNo. 390-1921. (♀ paratype); 7 Mar. 1922. Seín, F. PRAccNo. 110-1922. (♀); 24 Aug. 1922. Seín, F. PRAccNo. 262-1922 (paratype); 10 Apr. 1987. Román, I. *Ex.* pumpkin. (♂); *Naranjito*: 1 Jul. 1990. Nieves, A. *Ex.* *Malpighia emarginata*. PRAccNo. 129-90. (4 ♀ 3 ♂); *Río Grande*: 25 Apr. 2009. Pacheco, S. (♀); *San Juan*: Río Piedras. 24 Jan. 1965. Medina, E. (♀); *Utua*: 10 Apr. 2009. Pagán, I. (♀ ♂); *Vega Baja*: 16 Feb. 1986. Pantoja, A. PRAccNo. 49-86. (♀); 27 Mar. 1988. A. F. (♀); *Yauco*: 16 Jun. 1921. F. Seín. PRAccNo. 145-1921 (♀); 9 Mar. 1922. Seín, F. & Wolcott, G. N. PRAccNo. 114-1922 (♀); 24 Aug. 1922. Seín, F., Wolcott G. N. PRAccNo. 235-1922.

SUBFAMILY Pentatominae

Pentatomine species are varied in shape and color, but are usually ovoid, often with prominent humeral angles in the form of spines.

The scutellum never reaches the tip of the abdomen. This subfamily can be distinguished from other pentatomids occurring in Puerto Rico by their labium arising before an imaginary line traversing the head at the anterior limit of their eyes, and/or their abdominal venter having projecting tubercles. This is the largest subfamily of Pentatomidae and the most speciose in Puerto Rico. Schuh and Slater (1995) recognized eight tribes, but tribal taxonomy is still unsettled. This group also includes the family's most economically important members. The best sources for genus and species keys are found in a series of three conspectuses of the western hemisphere Pentatominae published by Rolston et al. (1980a), and Rolston and McDonald (1980b and 1984). Finally, while most species have green or brown coloration, several of the species occurring in Puerto Rico are aposematically colored with combinations of black, orange, violet or red (e.g., *Arocera placens*, *Pharypia pulchella*, *Vulsirea violacea*, and *Runibia caribea*). The biological significance of such coloration has not been explored in these species, but aposematism has been associated with anti-predator mechanisms in other Heteroptera (Aldrich et al., 1996; Gamberale-Stille et al., 2010).

Key to Pentatominae in Puerto Rico

1. Stridulatory areas on first three sternites, each side of middle; body elongate, length four times greatest width . . . *Mecidea longula* Stål
- Stridulatory areas absent from first three sternites; length no more than three times greatest width 2
- 2(1). Metasternum projecting ventrad with posterior margin in apposition to median tubercle on base of abdominal venter 3
- Base of abdominal venter smooth medially, not produced; or with spine unopposed by posterior margin metasternum 6
- 3(2). Jugal surpassing tylus, acute apically; color stramineous, black punctures on prothorax, scutellum, white on coria; 9-12 mm.
. *Arvelius albopunctatus* (De Geer).
- Tylus longer than juga; humeral angles rounded 4
- 4(3). Distal end of first rostral segment clearly exceeding bucculae; body red, with dark metallic blue/green hues; large 13-18 mm.
. *Pharypia pulchella* (Drury)
- First rostral segment entirely within bucculae; green 5
- 5(4). Humeri prominent, laterally produced; strongly marked supra-antenniferal vitta present; length 8-9 mm
. *Banasa humeralis* Barber
- Humeri barely wider than adjacent abdomen; supra-antenniferal vitta faint or absent; body length 7 mm *Banasa herbacea* (Stål)

6(3).	Median tubercle or spine at base of abdominal venter unopposed by posterior margin of metasternum.	7
—	Base of abdominal venter smooth medially, not produced	14
7(6).	Distal end of first antennal segment clearly exceeding apex of head; body dark violaceous with bright red marks. . . <i>Vulsirea violacea</i> (F.)	
—	Distal end of first antennal segment shorter	8
8 (7).	Buccula lobed posteriorly in lateral view; ostiolar canal extending less than halfway to lateral margin of metapleuron	
 <i>Brepholoxa rotundifrons</i> Barber	
—	Bucculae evanescent posteriorly.	9
9(8).	Mesosternal carina compressed anteriorly forming a thin blade between procoxae. <i>Piezodorus guildinii</i> (Westwood)	
—	Mesosternal carina nearly uniform in shape	10
10(9).	Ostiolar sulcus short, length about twice diameter of orifice; abdominal tubercle reaching only to posterior limit of metacoxae	
 <i>Nezara viridula</i> (L.)	
—	Ostiolar sulcus longer reaching about halfway or more	11
11(10).	Tibia asulcate or weakly sulcate distally . . . <i>Grazia tinctoria</i> (Distant) [†]	
—	Tibia clearly sulcate	12
12(11).	Supra-antenniferal vitta absent; connexival spots on basal segments usually expanding to laterotergites	
 <i>Acrosternum marginatum</i> (Palisot de Beauvois)	
—	Supra-antenniferal vitta present; connexival spots on basal segments rarely expanding to laterotergites	13
13(12).	Abdominal tubercle barely reaching posterior limit of metacoxae; spiracles black <i>Acrosternum ubicum</i> Rolston	
—	Connexival spots confined to edge of sternites; spiracles light brown attended by distinct yellow spot . <i>Acrosternum wygodzinski</i> Rolston.	
14(6).	Superior apical angle of femora armed with spine	15
—	Superior angle of femora without spine	18
15(14).	Juga distinctly longer than tylus by at least 1x diameter of 1 st antennal segment; body large >15 mm	16
—	Juga slightly longer or sub-equal to tylus	17
16(15).	Posterior margins of coria broadly rounded.	
 <i>Loxa pallida</i> Van Duzee	
—	Posterior margins of coria strongly sinuous.	
 <i>Loxa viridis</i> (Pallisot de Beauvois)	

- 17(15). Tylus slightly but distinctly longer than juga; body small 5mm, brown; humeral spines prominent angling ventrad at apex
 *Menudo femoralis* Thomas
- Tylus sub-equal to juga; body > 12 mm, color variable from green to reddish yellow *Fecelia minor* (Vollenhoven)
- 18(14). Ostiolar ruga extending less than 2/5 distance from mesial margin of ostiole to lateral margin of metapleuron, usually auriculate in form. 19
- Ostiolar ruga extending more than 2/5 distance from mesial margin of ostiole to lateral margin of metapleuron, usually forming an elongated sulcus 31
- 19(18). Eyes separated from pronotum by about 1/2 diameter, their base striated between base and pronotum *Proxys victor* (F.)
- Eyes usually contiguous with pronotum, their base smooth. 20
- 20(19). Superior surface of tibia rounded for most of its length 21
- Superior surface of tibia sulcate for most of its length 26
- 21(20). Apex of first rostral segment projecting beyond bucculae 22
- Apex of first rostral segment lying entirely within bucculae 24
- 22(21). Abdominal venter entirely dark brown or black, except for pale lateral margins and small sub-spiracular spots.
 *Mormidea cubrosa* (Dallas)
- Abdominal venter pale, or at most, with small dark spots at base 23
- 23(22). Dark spot at distal end of supra-coxal clefts, that above mesocoxae larger; antennae nearly uniform in color
 *Mormidea angustata* Stål
- No dark supra-coxal spots; antennae brown, paler bases on 4th and 5th segments. *Mormidea ypsilon* (L.)
- 24(22). Second antennal segment shorter than first, fused with 3rd
 *Oebalus ypsilon* (De Geer)
- Second antennal segment longer than first not fused 25
- 25(24). Humeral angle spinose directed anterad *Oebalus pugnax* (F.)
- Humeral spines not directed anterad *Oebalus ornatus* (Sailer)
- 26(20). Both juga and tylus apically acute *Berecynthus hastator* (F.)
- Either juga or tylus or both apically obtuse 27
- 27(28). Jugal apices acute projecting beyond obtuse tylus; connexiva marked with black spot; humeral angles spinose; large >15 mm
 *Chlorocoris tau* Spinola

—	Jugal apices not as above	28
28(27).	Humeral angles obtuse; costal angle of coria produced; bicolored, orange and black markings; large >15 mm <i>Runibia caribearia</i> Zwetsch & Grazia	
—	Humeral angles spinose; thoracic pleura with small black spot at base of each sub-coxa.	29
29(28).	Humeral spines well developed, black; pronotum punctuation dark on posterior half; thoracic cicatrices outlined with black <i>Euschistus acuminatus</i> Walker	
—	Humeral spines not as well developed; or pronotal punctation nearly uniform in color; or cicatrices not outlined with black	30
30(31).	Humeral spines directed slightly backward apically, black; denticles of anterolateral margin of pronotum closely spaced, distance between denticles usually equal or smaller than width of denticles <i>Euschistus crenator</i> (F.)	
—	Humeral spines directed slightly forward apically, black; denticles of anterolateral margin of pronotum widely spaced, distance between denticles usually equal or greater than width of denticles <i>Euschistus bifibulus</i> (Palisot de Beauvois)	
31(18).	Anterolateral margins of pronotum strongly reflexed and rimmed; bicolored body red and black. <i>Arocera placens</i> (Walker)	
—	Anterolateral margins of pronotum neither reflexed nor rimmed	32
32(33).	Anterolateral margins of pronotum vertically rounded; costal angle of coria reaching last connexival segment.	33
—	Anterolateral margin of pronotum carinate, at least near humeri; costal angle of coria reaching penultimate connexival segment.	34
33(34).	Male pygophore with mesial emargination of inferior ridge relatively broad, sides parallel; rostrum at most reaching anterior margin of third (second visible) abdominal sternite <i>Caribo maculatus</i> Rider †	
—	Male pygophore with mesial emargination of inferior ridge relatively narrow, sides sinuous; rostrum reaching to and usually past posterior margin of third (second visible) abdominal sternites. <i>Caribo fasciatus</i> Rolston	
34 (32).	General coloration brown; large size > 15mm; connexiva exposed; humeral angles blunt to rounded; tylus and juga sub-equal <i>Halyomorpha halys</i> (Stal)	
—	General coloration green; size < 12 mm	35

- 35(34). Parameres bi-lobed with fine denticulations between 2 of lobes; length usually < 8.5 mm 36
- Parameres simple, acute apically; length usually > 8.5 mm. 37
- 36(35). Basal plates tumescent (swollen); from lateral view disc protruding beyond mesial margin of plates at base (*females*); ventral margin of parameres not expanded (*males* *Cyptocephala antiguensis* (Westwood)
- Basal plates convex but not tumescent, disc not protruding beyond mesial margin of plates at base (*females*); ventral margin of parameres foliate (*males* *Cyptocephala bimini* (Ruckes)
- 37(35). Complete trans-humeral reddish band nearly always present; humeral angles spinose; Body length > 8.5 mm *Thyanta perditor* (F.)
- Trans-humeral reddish band generally absent; humeral angles obtuse; body length < 8.5 mm *Thyanta obsoleta* (Dallas)

Berecynthus hastator (Fabricius, 1798: 532) [Plate IV, Fig. 34]

Berecynthus delirator Fabricius.

DISTRIBUTION.

Puerto Rico, Mexico, Nicaragua, Panama, Colombia, Costa Rica, Venezuela, Suriname, French Guyana, and Brazil.

HOST PLANTS.

Informed as a possible vector of “hartrot”, a lethal disease of coconut palms (Segeren, 1982); also reported on itchgrass, *Rottboellia cochinchinensis* (Lour.) W.D. Clayton (Poaceae) in Guyana (Haywood et al., 1994).

REMARKS.

This species was described by Fabricius from Guyana (“*Cajennae*”), and first reported from Puerto Rico by Segarra et al. (2015). This is a medium-sized (7-8 mm), dark brown species, with a distinctive elongated and acute tylus, extending well beyond the juga, reminiscent of its close and more abundant relatives in the genus *Proxys* Spinola. Taxonomy for this species is complicated by the fact that Fabricius described this species under several different names (Rider and Rolston, 1995). Accordingly, most literature accounts refer to this species by its junior synonym of *B. delirator*.

MATERIAL EXAMINED.

PUERTO RICO. *Cabo Rojo*: 12 Nov. 2008. Luciano, P. (♀); *Combate Beach*. 22 Mar. 2010. Rodríguez, M. (♀); *Hormigueros*: 17

Mar. 2011. Rodríguez, Y. I. (♀). **NEVIS ISLAND.** Charlestown.
7 Mar. 1931. (♀, JAR).

Mecidea longula Stål (1854: 233) [Plate II, Fig. 10]

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Antigua, and St. Bartholomew
(type locality).

HOST PLANTS.

No host plant records existed for Puerto Rico. Elsewhere, this species is known to feed on various wild Poaceae, such as “six weeks threeawn”, *Aristida adscensionis* L. in Hispaniola (Pérez-Gelabert and Thomas, 2005), and from radiate fingergrass, *Chloris radiata* (L.) Sw. (Sailer, 1952). The senior author has found adults and immatures feeding on limestone grass, *Uniola virgata** (Poir.) Griseb.

REMARKS.

This species was first reported from Puerto Rico by Sailer (1952). All collections of this insect have been done from southwestern Puerto Rico, including records by Sailer (1952) who reports a specimen from Ponce. This is a long-bodied, medium-sized (10 mm), straw-colored pale stink bug associated with grasses. Most specimens in MEBT were repeatedly collected from a relatively small area surrounding the Cabo Rojo lighthouse. In recent collections, we have identified limestone grass as a possible host plant at the Cabo Rojo lighthouse site on the southwestern tip of the island.

MATERIAL EXAMINED.

PUERTO RICO. *Cabo Rojo*: 24 Oct. 1987. Inglés, R. (2♀ 2♂); El Faro. 19 Oct. 1991. González, V. (4♀); El Faro. Oct. 1991. Mejía, G. (2♀ ♂); 9 Jul. 2003. Delgado, A. (4♀ ♂); 15 Oct. 2003. Garmos, H. (4♀ 2♂); *Guánica*: Oct. 1991. Mejía, G. (2♀ ♂); *Mayagüez*: 10. Dec. 1999. Tamayo, R. (2♀).

Acrosternum (Chinavia) marginatum (Palisot de Beauvois, 1817: 147) [Plate III, Fig. 19]

Pentatoma marginata Palisot de Beauvois
Nezara marginata Amyot and Serville
Rhaphigaster spirans Dallas
Nezara juriosa Stål
Acrosternum marginatum Bergroth

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Jamaica, Mona Island, Guadeloupe, Grenada, Southern United States, Mexico, Central America, Colombia, Venezuela and Ecuador.

HOST PLANTS.

This species has been collected on several hosts of economic importance in Puerto Rico, including: limabean, *Phaseolus lunatus* L., and soybean, *Glycine max* (L.) Merr.* (Leguminosae); Sea Island cotton, *Gossypium barbadense* L. (Malvaceae); tomato, *Lycopersicon esculentum* Mill., tobacco, *Nicotiana tabacum* L., and eggplant, *Solanum melongena* L.* In Hispaniola, Pérez-Gelabert and Thomas (2005) report collections on brakenferns, *Pteridium* sp. (Polypodiaceae), burbank, *Triumfetta semitriloba* Jacq. (Tiliaceae), *Senna* sp. and *Calliandra* sp. (Leguminosae); and jack-in-the-bush, *Chromolaena odorata* (L.) R.M. King & H. Rob. (Asteraceae). It is likely that, at least in the case of Puerto Rico, some early records may actually belong to other *Acrosternum* spp., or to *Nezara viridula*, a closely resembling species.

REMARKS.

First listed in Puerto Rico by Gundlach (1893) as *Nezara marginata* (Palisot de Beauvois). This is the most common *Acrosternum* species in Central America, and like other members of this genus, it is a common secondary pest of soybeans (Panizzi et al., 2000). Adults are green, medium- to large-sized (11-15 mm), with some specimens having coria densely mottled with pale yellow. In examining MEBT specimens used by Wolcott (1948), we have correctly identified that both MEBT specimens collected from Mona Island by Martorell in 1939 [P.R.AccNo. 118-39 (1♀ 1♂)] as *Acrosternum wygodzinskyi* Rolston. These specimens were used by Wolcott (1948) to indicate the presence on *A. marginatum* on Mona Island. Therefore, the presence of this stink bug on Mona Island is now uncertain.

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 3 Oct. 2008. Collazo, E. (♀); *Aguada*: 3 Sept. 2010. (♂); *Aguadilla*: 25 Sept. 1987. Inglés, R. (♀ ♂); 6 Mar. 2006. Vera, V. (♀); *Arecibo*: PRAccNo. 395-86. 6 Aug. 1986. Medina-Gaud, S. & Franqui R. (♀); 22 Aug. 2008. González, L. (♀); *Añasco*: 16 Oct. 2009. Rodríguez, D. (♀); Oct. 2006 Rodríguez, Y. (♂); *Cabo Rojo*: Boquerón. 18°02.64N 67°10.96W. 22 Jan. 2012. Segarra, A. *Ex.* UV light. (♀); *Camuy*: 27 Nov. 1998. Estrella, R. (♂); 15 Oct. 2013, Colón, G. (♂); *Corozal*: PRAccNo. 149-75. 26 Sept. 1975. Medina-Gaud, S., Inglés, R. and González, P. *Ex.* soy-

bean. (♀); 17 Apr. 2009. Rosado, P. (♀); *Dorado*: PRAccNo. 604-86. 4 Sept. 1986. Pantoja, A. & Segarra, A. (♀); 3 May 2010. Monclova, C. (♀); *Florida*: 18 Apr. 2010. Faría, O. (♀); *Guánica*: 15 Feb. 2010. Toro, B. (♂); *Guayanilla*: 12 Mar. 2009. Rodríguez, R. (♂); 19 Mar. 2006. González, M. (♂); *Gurabo*: 18 Apr. 1987. (♀); *Isabela*: Mar. 1980. Altreche, W. (♀); *Juana Díaz*: 13 Sept. 2008. Santiago, L. (♀); *Lajas*: 28 Mar. 2009. Rullán, L. (♂); 7 Jun. 2010. Rodríguez, V. (♀); *Manatí*: 10 Aug. 1983. Gaud, M. *Ex. Crotalaria* sp. PRAccNo. 27-83. (♀); *Mayagüez*: 2 Sept. 2003. Delgado, A. (♂); Apr. 2006. Güisao, S. (♀); 25 Oct. 2008. Morales, D. (♀); 25 Oct. 2008. Rodríguez, G. (♀); 22 Mar. 2009. Silva, S. (♂); 28 Apr. 2009. Pacheco, S. (♀); *Moca*: 15 Nov. 2008. Sánchez. (♂); *Quebradillas*: 15 Jan. 2007. Vázquez, D. (♀); 21 Sept. 2011. Abreu, C. (♀); *Rincón*: 1 Feb. 2009. Luz, E. (♂); 19 Apr. 2009. Martínez, L. (♀); *San Juan*: Río Piedras. 31 May 1916. Cotton, R. T. (♂); *Toa Alta*: 21 Sept. 2013. Matos, K. (♂); *Utua*: 13 Nov. 2008. Fret, J. (♀); 29 Aug. 2009. Jiménez, J. (♂); 27 Mar. 2011. Santiago, G. (♂); 7 Jan. 2012. Vale, J. (♂); *Vega Baja*: 16 Feb. 1986. Pantoja, A. PRAccNo. 48-86 (2♀); 18 Mar. 1987. Flías, A. (♀); 27 Mar. 1988. A. F. (♂); *Yauco*: 23 Ago.1997. Correa, E. (♂).

Acrosternum (Chinavia) ubicum Rolston (1983: 135) [Plate III, Fig. 20]

DISTRIBUTION.

Puerto Rico, Hispaniola, Colombia, Guyana, Ecuador, Bolivia, Brazil, and Galapagos Islands (Rolston, 1983).

HOST PLANTS.

Collection labels from MEBT specimens record this species on flowers of rattlebox, *Crotalaria* sp.* (Leguminosae), and on rice, *Oryza sativa* L.* (Poaceae). Elsewhere, host plant records indicate a preference for legumes. Schwertner et al. (2002) reports the following Leguminosae as host plants: soybean, *Glycine max* (L.) Merrill; baybean, *Canavalia rosea* (Sw.); pigeon pea, *Cajanus cajan* (L.) Mill sp.; black-eyed peas, *Vigna unguiculata*; common bean, *Phaseolus vulgaris* L.; shakeshake, *Crotalaria incana* L.; and smooth rattlebox, *Crotalaria pallida* Aiton.

REMARKS.

The holotype for *A. ubicum* was collected from Bolivia. It is first reported from Puerto Rico by Segarra et al. (2015). In 1983, Medina-Gaud collected the first known specimen of this Neotropical species in Puerto Rico. Adults are all dull green, medium- to large-sized (12-15 mm). This stink bug is an important pest of soybeans

in Brazil (Schwertener et al., 2002). *Acrosternum ubicum* can be readily distinguished from other *Acrosternum* spp. in Puerto Rico by several characters: (1) the distinctive shape of the male's pygophore; (2) a dull, pale green color; (3) a short abdominal process that barely reaches base of coxae; and (4) black abdominal spiracles. From the relative paucity in collections, it appears to be the least common *Acrosternum* spp. on the island.

MATERIAL EXAMINED.

PUERTO RICO. *Aguada*: Valle Coloso. 3 Sept. 2010. Acevedo, A. (♂); *Arecibo*: 6 Aug. 1986. Medina, S. & Franqui, R. Ex. "weeds in rice fields." PRAceNo. 395-86 (♀); *Guánica*: 15 Feb. 2010. Toro, B. 20 Apr. 2010 (♂); 20 Apr. 2010. Soto, M. (♂); *Gurabo*: 18 Apr. 1987. No Info. (♀); *Manatí*: 10 Aug. 1983. "Finca experimental de piña" Ex: *Crotalaria* flowers. Medina-Gaud, S. (♀); *Jayuya*: 19 Feb. 2009. Costales, E. J. (♀); *Rincón*: 19 Apr. 2009. Martínez, L. (♀).

Acrosternum (Chinavia) wygodzinski Rolston (1983: 142) [Plate III, Fig 21; Figures 4B & 5A]

DISTRIBUTION.

Puerto Rico, Mona Island*, Hispaniola, St. Thomas and St. John (USVI).

HOST PLANTS.

Collection labels from specimens in the MEBT record this species on rice, *Oryza sativa* L.* (Poaceae) and on eggplant *Solanum melongena* L.* (Solanaceae). Pérez-Gelabert and Thomas (2005) report this stink bug on rattlebox, *Crotalaria* sp. (Leguminosae) from Hispaniola.

REMARKS.

Acrosternum wygodzinski appears to be the most commonly collected species of its genus in Puerto Rico, and it is apparently endemic to Hispaniola and the Puerto Rican Bank. Apparently the species is restricted to the Central Caribbean, where it was described by Rolston (1983) from the Virgin Islands (St. Thomas, St. John), and first reported from Puerto Rico. Adults are all green, medium- to large-sized (11-15 mm), with many specimens having coria sparsely mottled with pale yellow. This species is very similar in coloration to *A. marginatum*, making it likely that *A. marginatum* was mistakenly identified as *A. wygodzinskyi* in early records for that species. *A. marginatum* can be identified by the presence of a supra-antenniferal vitta, connexival spots confined to the edge of sternites and by light brown spiracles each attended by a distinct

yellow spot. There is little information on the life history of this endemic insect.

MATERIAL EXAMINED.

MONA ISLAND. Aug. 1939. Martorell, L. F., PRAccNo. 118-39 (♀ ♂); 18°03.7N 67°54.21W. 6 Sept. 2013. *Ex.* UV light. Segarra, A. (2♀ ♂); 18°03.7N 67°54.21W. 7 Sept. 2013. *Ex.* UV & Hg Vap. Segarra, Collazo, González, Feliciano. (♂); **PUERTO RICO.** *Adjuntas:* 18°10.41N 66°47.78W. 18 May. 2012. Segarra, A. & Pérez, H. *Ex.* UV light. (♂); *Arecibo:* 8 Feb. 2012. Vale, J. (♂); *Cabo Rojo:* Boquerón. 18°02.38N 67°10.59W. 5 Jun. 2006. Segarra, A. *Ex.* light (3♂); 7 Oct. 2008. Álvarez, A. (♀); 18 Oct. 2008. Serrano, A. (♂); 8 Aug. 2009. Rodríguez, F. (♂); Boquerón. 18°00.65N 67°10.96W. *Ex.* UV light. Dates: 6 Oct. 2011. (4♀ 2♂); 5-6 Nov. 2011. (3♀); 6 Dec. 2011. (♀); 22 Jan. 2012. (♂); 28 Apr. 2012 (♂); *Corozal:* 29 Aug. 1976. *Ex.* UV light. (♂); 20 Sept. 2013. Padilla, A. (♂); *Guánica:* 2 Oct. 1913. Smith, E. G. PRAccNo. 1071-13 (♀); 21 Mar. 2009 Martínez, G. (♀); 13 Feb. 2010. Rodríguez, M. (♂); 20 Apr. 2010. Soto, M. (♂); 18°27.95N 67°03.15W. 25 Aug. 2014. *Ex.* Mg Vapor lamp. Segarra, A. (♀); *Jayuya:* 28 Apr. 2006. Vélez, E. (♂); *Lajas:* 15 Nov. 2008. De León, A. (♀); 19 Mar. 2010. Rodríguez, E. (♀); *Lares:* 29 Mar. 2010. Vélez, J. (♀); *Las Marías:* 10 Mar. 2009. Jesús, A. (♂); *Manatí:* 12 Sept. 1981. Figueroa, O. (♀); *Mayagüez:* 5 May 1970. Joly, L. T. (♀); Nov. 1975. Vázquez, M. (♂); 11 Apr. 1979. Colón, M. (♀); 16 Nov. 1982. Ríos L. (♂); Mar. 2006. Güisao, S. (♀); 16 Sept. 2009. Aponte, M (♀); 8 Nov. 2013. (♂); *Naguabo:* 12 Oct. 1986. Rivera, A. (♂); *Sabana Grande:* 8 Sept. 2008. Irizarry, R. (♀); 19 Oct. 2008. Irizarry, R. (♀); *San Germán:* 27 Sept. 2008. Olivera, V. (♂); *San Sebastián:* 22 May. 2010. Morales, M. (♀); 3 Dec. 2011. Silva, N. (♂); *Vega Baja:* 16 Feb. 1986. Pantoja, A. PRAccNo. 98-86 (♂).

Arocera placens (Walker, 1867: 316) [Plate V, Fig. 40]

Strachia placens Walker

Arocera protea Distant

Arocera affinis Distant

Arocera altivola Distant

Arocera patibulata Distant

Arocera chiriquensis Distant

Arocera jalapensis Distant

Arocera (Euopta) placens Kirkaldy

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Jamaica, St. Lucia, Trinidad, Mexico, Guatemala, Honduras, Costa Rica, Panama, Venezuela, Colombia, French Guiana, Ecuador, Peru, Brazil, Paraguay, and Argentina.

HOST PLANTS.

No host plant collection records exist for this species in Puerto Rico. In general, little is known about the host plants used by this genus. Callan (1948) references a collection of *A. placens* on soybean, *Glycine max* (L.) Merr. (Leguminosae) from Trinidad.

REMARKS.

This species was described from Hispaniola; Rider (1992) reports its presence from Puerto Rico. This is likely to be a rare species in Puerto Rico, with only two specimens deposited in MEBT. Otherwise, it is a widely distributed stink bug in the Neotropics, known for its variable coloration (Rider, 1992). Specimens at MEBT are 8 mm long, aposematically colored with shiny black heads, prothorax black with a large central orange-red spot, and the coria mostly orange, with its basal area black. The genus *Arocera* Spinola is strictly Neotropical, having 11 known species, with *A. placens* being the only species reported from the Caribbean.

MATERIAL EXAMINED.

PUERTO RICO. *Mayagüez*. 15 Aug. 1981. Cerro Las Mesas. R. Inglés. (♀). Another specimen, unlabeled, is deposited at MEBT (♂).

Arvelius albopunctatus (De Geer, 1773: 331) [Plate II, Fig. 11]

Cimex albo-punctatus DeGeer

Cimex gladiator F.

Cimex leucostictos Gmelin

Pentatoma gladiator Palisot de Beauvois

Acanthosoma gladiator Burmeister

Arvelius gladiator Spinola

Acanthosoma luteicornis Westwood

Arvelius albopunctatus Amyot & Serville

DISTRIBUTION.

Puerto Rico, Mona Island, Antigua, Bahamas, Barbados, Cuba, Grenada, Hispaniola, Jamaica, Montserrat, St. Vincent, Trinidad, U.S. Virgin Islands, southwestern United States, Mexico, El Salvador, Guatemala, Honduras, Panama, Nicaragua, Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Surinam, Uruguay, and Venezuela.

HOST PLANTS.

Collection records in Puerto Rico include common bean, *Phaseolus vulgaris* L (Leguminosae); grapefruit, *Citrus paradisi* Macfayden (Rutaceae); and peppers, *Capsicum frutescens* L., tomato, *Lycoper-*

sicon esculentum Mill., eggplant, *Solanum melongena* L. and turkey berry, *Solanum torvum* Sw. (Solanaceae).

REMARKS.

This species, widely distributed throughout the Neotropical region, was first reported from Puerto Rico by Gundlach (1893). It has been called the “tomato stink bug” by Panizzi et al. (2000) and has been reported as an important pest of many Solanaceae in Brazil. This is a medium-sized (10-13 mm), dull greenish yellow stink bug, mottled with black spots on the pronotum and scutellum, and whitish spots on the coria. Martínez and Folcia (1999) describe its immature stages and life cycle in Argentina. Campos et al. (2007) describe three immature color morphs occurring in Brazil, noting a red morph, a green morph and orange morph in the 4th and 5th instars. Wolcott (1948) considers this a minor pest of tomatoes, eggplant and peppers in Puerto Rico.

MATERIAL EXAMINED.

MONA ISLAND. PRAccNo. 95-39. Aug. 1939. Martorell L.F. (♂).
PUERTO RICO. *Cabo Rojo*: 18°02.64N 67°10.96W. Boquerón. 22 Jan. 2012. Segarra A. *Ex.* UV light. (♂); *Ciales*: 13 Nov. 1987. Inglés, R. ; *Corozal*: PRAccNo. 380-22. Bo. Mameyes. Wolcott, G. N. (♀); 5 Sept. 1976. (♀); *Isabela*: 15-16 Oct. 1987. Cruz R. (♀); *Juana Díaz*: PRAccNo. 118-89. 2 Nov. 1989. Medina-Gaud, S. *Ex.* Eggplant. (♀); PRAccNo. 118-89. 29 Nov. 1989. Medina-Gaud, S. & Segarra A. *Ex.* Eggplant foliage. (♀ 2♂); PRAccNo. 118-89. 7 Dec. 1989. Medina-Gaud, S. & Segarra A. *Ex.* Eggplant foliage. (3♀ 2♂); *Mayagüez*: 28. Oct. 2014. Davila, R. (♀); *Río Grande*: Nov. 1964. Medina-Gaud, S. (♀); *San Juan*: Río Piedras. PRAccNo. 187-16. 31 May 1916. R.T.P. (♂); *Toa Alta*: PRAccNo. 13-24. Wolcott, G. N. (♀).

Pharypia pulchella (Drury, 1782: 67) [Plate II, Fig. 12]

Cimex pulchellus Drury
Cimex concentricus Burm.
Vulsirea pulchella Dallas
Vulsirea formosa Dallas
Pharypia pulchella Stål

DISTRIBUTION.

Puerto Rico, Mexico, Costa Rica, Venezuela, Colombia, and Brazil.

HOST PLANTS.

Collected in Puerto Rico from jagua, *Genipa americana* L. (Rubiaceae). Other members of this genus are associated with indigo berry, *Randia* sp. (Rubiaceae). In addition, a list of hosts from Costa

Rica by Nielsen et al. (2004) includes: *Tetracera volubilis* L. (Dileniaceae); copperleaf, *Acalypha diversifolia* Jaq. (Euphorbiaceae); mameyuelo, *Mouriri myrtilloides* (Swartz) (Melastomataceae); *Genipa americana*, and *Randia subcordata* (Standl.) Standl. (Rubiaceae), and bitterbush, *Picramnia* sp. (Simaroubaceae).

REMARKS.

This beautiful and aposematically colored stink bug is probably associated with Rubiaceae. It is a large species (14-18 mm), with reddish-orange head and areas of the same color on the abdomen, humeral angles, base and tip of scutellum, the connexivum, and mid coria. The rest of the dorsum is metallic black with tinges of blue, green or purple. De los Santos and Bastardo (2013) found only one unlabeled specimen at the Santo Domingo National History Museum in the Dominican Republic, indicating that the species may also occur in Hispaniola. Wolcott (1948) notes that this species was “quite often collected in the western part of Puerto Rico,” but collections are also recorded from other regions. Paredo (2013) has studied the life cycle and distribution of congener *Pharypia nitidiventris* (Stål).

MATERIAL EXAMINED.

PUERTO RICO. *Mayagüez*: 3 Mar. 1939. R. Otero Duran (♀); 1941. Z. (2♀ 2♂) (JAR); Castro; 4 Dec. 1947. F. Rios (♀) (JAR); *San Germán*: 29 Feb. 1992. Rivera, A. (♀); 12 Jan. 2011. Lugo, Y. (♀); *San Juan*: Río Piedras. PRAccNo. 150-87. 24 Apr. 1987. Vega, J. *Ex. Genipa americana*. (♀ ♂); PRAccNo. 91-24. 29 Oct. 1924. Seín, F. (♀); *Vega Alta*: PRAccNo. 100-87. 28 Mar. 1987. Virkkii, N. (♂ 4♀).

Banasa herbacea (Stål, 1872: 44) [Plate II, Fig. 14]

Piezodorus herbaceus Stål

Banasa herbacea Barber (1939)

DISTRIBUTION.

Puerto Rico, Vieques Island, Hispaniola, St. Thomas (USVI), South Bimini (Bahamas), Bermuda, and Florida (USA).

HOST PLANTS.

No host plant records existed for Puerto Rico. The senior author has collected adults and immatures feeding on blacktorch fruits, *Erithalis fruticosa* L. (Rubiaceae), which is a common shrub near beaches, sandy soils and limestone forests in Puerto Rico. Elsewhere, Henry and Hilburn (1990) report collections on Bermuda cedar, *Juniperus bermudiana* L. (Cupresaceae).

REMARKS.

This species was first listed by Barber (1939) from Puerto Rico. Coloration is green with paler and darker forms, and 7-8 mm in length. According to Thomas and Yonke (1988), this species is easily distinguished from its congener *Banasa humeralis* Barber because its humeri are barely wider than adjacent abdomen, and by the absence of a supra-antenniferal vitta. We have found specimens with a very pale vitta, that otherwise key with this species. Stål (1872) described this species from St. Thomas, and Wolcott (1948) writes about collections on Vieques Island.

MATERIAL EXAMINED.

PUERTO RICO. *Cabo Rojo*: 18°00'65"N 67°10'96"W. 5 Nov. 2011. Segarra, A. *Ex.* UV light. (♂); 17°57.24N 67°11.96W. 24. Dec. 2014. *Ex. Erithalis fructicosa*. Segarra, A. (4♂ 2♀); *Guánica*: PRAccNo. 1072-13. 2 Oct. 1913. E.G.S. (♀); *Mayagüez*: 11 Jun. 2009. Lamourt, A. (♂). **DOMINICAN REPUBLIC.** *Santo Domingo*: 1920. Wolcott, G. N. (2♀ ♂).

Banasa humeralis Barber (1939: 297) [Plate II, Fig. 13]

DISTRIBUTION.

Puerto Rico and Cuba.

HOST PLANTS.

No host plant records exist for Puerto Rico. There is a collection from Corozal on plantain leaves (*Musa x paradisiaca* L.) in MEBT, but this may only be a transient visitation record.

REMARKS.

This species was described by Barber (1939) from a male collected in San Germán in 1930. *Banasa humeralis* is slightly larger (8-10 mm) and more conspicuous than its congener *B. herbacea*. It is distinguished by more prominent and laterally produced humeri, and by the presence of a small supra-antenniferal vitta. According to Thomas and Yonke (1988), this species is similar to *Banasa dominica* Thomas, the largest member in genus *Banasa*, and native to Dominica in the Lesser Antilles.

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 18°10'22"N 66°47'72"W. 18 May. 2012. Segarra, A. & Pérez, H. *Ex.* Merc Vapor-UV light. (2♂); *Are-cibo*: 18°19'88"N 66°42'40"W. 21 Oct. 2011. Segarra, A. & Pérez H. *Ex.* At light. (♂); *Cabo Rojo*: 18°00'66"N 67°10'96"W. 28 Apr. 2012. Segarra A. *Ex.* UV light. (♂); 18°00'65"N 67°10'96"W. 5 Nov. 2011. Segarra, A. *Ex.* UV light. (♂); 18°02'38"N 67°10'59"W.

5 Jun. 2006. Segarra, A. *Ex.* at light. (♀); *Cayey*: 15 Aug. 1969. Bonilla, R. *Ex.* UV light. (♀ ♂); *Corozal*: 30 Aug. 1976. B. L. (♂); 3 Oct. 1976. B.L.T. (♀); 26 Aug. 1977. Inglés, R. *Ex.* Plantain. (♂); *Guaynabo*: 24 Mar. 1988. García, A. (♀); 28 Aug. 1969. Bonilla, R. *Ex.* UV light. (♀); *Las Marías*: 28 Feb. 2013. Martell, D. (♀); *Luquillo*: 10 Jul. 1969. Bonilla, R. *Ex.* UV light. (♂); *Maricao*: 4 Mar. 2013. Medina, G. (♀).

Caribo fasciatus Rolston (1984: 83) [Plate V, Fig. 41]

DISTRIBUTION.

Puerto Rico, Jamaica, St John, St. Croix, and Hispaniola

HOST PLANTS. Unknown.

REMARKS.

The species was described from Jamaica in 1984 by Rolston (Rolston and McDonald, 1984). *Caribo* Rolston was erected to contain pentatomine species having distinctly rounded anterolateral margins in the pronotum, and with the costal angle of coria reaching the last connexival segment (Rolston and McDonald, 1984). All species are endemic to central Caribbean and to the Bahamas. This species is small (6-7 mm), and differs from *Caribo maculatus* Rider by the shape of the pygophore and its longer rostrum. The specimen at MEBT is light brown, with a prominent broad straw-colored line running between humeral angles.

MATERIAL EXAMINED.

PUERTO RICO. *Guánica*: Guánica State Forest. 30 Jun. 1955. *Ex. At light.* Ramos & Maldonado (♀, JAR).

Caribo maculatus Rider (1988: 9)†

DISTRIBUTION.

Endemic to Puerto Rico.

HOST PLANTS. Unknown.

REMARKS.

Like other members of the genus, this species inhabits coastal dry forest habitats. Collections by Rider (1988) were done using ultraviolet light and mercury vapor traps. Both *C. fasciatus* and *C. maculatus* have been collected only from Guánica Biosphere Reserve, a dry forest in southwestern Puerto Rico. This species stands out from its congeners by its mottled appearance and shorter rostrum (Rider, 1988).

MATERIAL EXAMINED.

No specimens were found in MEBT, JAR, or INV-COL collections.

Chlorocoris tau Spinola (1837: 289) [Plate IV, Fig. 35]

DISTRIBUTION.

Puerto Rico and Brazil.

HOST PLANTS. Unknown.

REMARKS.

The sole specimen collected in Puerto Rico came from the old Borinquen Airfield in Aguadilla (currently Rafael Hernández Airport) by Dr. Stuart J. Ramos in 1978, and reported by Segarra et al. (2015). The species has not been collected since, and the possibility that this individual was the product of a sole introduction from Brazil, through a military or civilian flight to Puerto Rico cannot be discarded. The genus *Chlorocoris* Spinola is strictly of New World in distribution (Thomas, 1985). They are large, pale green, conspicuous, and flat-bodied stink bugs. The specimen held at MEBT is pale green female, and 16 mm in length. Members of this genus resemble members of the genus *Loxa* Amyot & Serville and *Fecelia* Stål, but lack the spine on the superior apex of femora. The genus contains 24 species, mostly from South America, Mexico, southern USA, and at least one species from Jamaica.

MATERIAL EXAMINED:

PUERTO RICO. *Aguadilla*: Aeropuerto Borinquen. 6 Nov. 1978. Ramos, S. J. (♀).

Cyptocephala antiguensis (Westwood, 1837: 36) [Plate V, Fig. 42]

Pentatoma antiguensis Westwood

Pentatoma taeniola Dallas

Thyanta taeniola Stål

Crato urbicus Distant

Thyanta antiguensis Distant

Thyanta picturata Ruckes

Cyptocephala antiguensis Rolston and McDonald (Rolston, 1986).

DISTRIBUTION.

Puerto Rico, Caja de Muerto Island, Culebra Island, Mona Island, Hispaniola, Southern USA, and South America (Rolston, 1986).

HOST PLANTS.

Host plant collection records in Puerto Rico include: pigweed, *Amaranthus* sp.* (Amaranthaceae); crookneck squash, *Cucurbita mos-*

chata (Duch.) Duchesne & Poir* (Cucurbitaceae); common beans, *Phaseolus vulgaris* L. (Leguminosae); rice, *Oryza sativa* L., sugarcane, *Saccharum officinarum* L. *, and sorghum, *Sorghum bicolor* (L.)* (Poaceae); eggplant, *Solanum melongena* L.* and *Solanum* sp.* (Solanaceae). Other Caribbean records include collections on silver cock's comb, *Celosia argentea* L. var. *cristata* (L.) Kuntze (Amaranthaceae) from Trinidad (Callan, 1948).

REMARKS.

This small stink bug was described from the island of Antigua, hence its species name. The species was first recorded from Puerto Rico by Barber (1923) from specimens collected in Coamo Springs and Ponce in 1914. This is a small colorful species, green with red and white markings on the pronotum. According to Wolcott (1948) it was abundant in rice fields and on the coastal lowlands of Canovanas, Puerto Rico, perhaps implying that it may have been feeding on other host plants.

MATERIAL EXAMINED.

CAJA DE MUERTO ISLAND. PRAccNo. 269-47. Nov. 1947. Martorell, L. F (4♂, 2♀); **CULEBRA ISLAND.** 31 Nov. 1986. Colón, E. (♀); **MONA ISLAND.** 11-31 Aug. 1944 Beatty, H.A. (♀, JAR); **PUERTO RICO.** *Arecibo:* PRAccNo. 401-86. 6 Aug. 1986. Medina-Gaud, S. & Franqui R. *Ex.* Rice, grasses, weed. (♀); *Cabo Rojo:* Dec. 1997. Torres, W. O. (♀); 29 Oct. 2013. Negrón, C. (♀); *Camuy:* 27 Oct. 1998. Estrella, N. (♀); *Canóvanas:* PRAccNo. 190-16. 6 Jan. 1916. G. N. W. (♀); *Guánica:* PRAccNo. 503-13. 28 May. 1913. E. G. S. (♂); PRAccNo. 1107-13. 30 Sept. 1913. E. G. S. (♀); *Guayama:* Nov. 2013. Martínez, E. (♀); *Gurabo:* 20 Sept. 1986. (♀); *Juana Díaz:* PRAccNo. 302-86. 16 Jun. 1986. Medina-Gaud, S. Segarra, A. *Ex.* Pumpkin leaf. (♀); P.R.Acc.No. 121-89; 21 Nov. 1989. Segarra, A. Medina-Gaud, S. *Ex.* Eggplant foliage. (2♀); PRAccNo. 205-90. 1 Aug. 1990. Nieves, A. & Vargas, E. *Ex.* Sweeping. (♀); *Lajas:* Feb. 1981. Navedo. (♀); PRAccNo. 195-86. 19 May. 1986. Medina-Gaud, S. & Pantoja A. *Ex.* Rice plant. (♀); 18°01'49"N 67°04'28"W. 30 May. 2006. Segarra, A. *Ex.* Sweeping; 18°02'08"N 67°04'54"W. 22 Feb. 2008. Segarra, A. *Ex.* Sorghum; 12 Nov. 2008. Mercado, Z. (♀); *Las Marias:* 24 Feb. 2008. Martínez, M. (♀); *Maricao:* 6 Mar. 2008. Martínez, M. (♂); *Río Piedras.* PRAccNo. 411-17. 11 May 1917. Cotton, R. T. (♀); *Santa Isabel:* 17. Ago. 1982. Rodríguez, V. (♀); *Yabucoa:* PRAccNo. 162-84. 17 Sept. 1984. Virkki, N. *Ex.* *Amaranthus* sp. (4♀).

Cyptocephala bimini (Ruckes, 1952b: 65) [Plate V, Fig. 43]

Thyanta bimini Ruckes

Cyptocephala bimini Rolston and McDonald

DISTRIBUTION.

Puerto Rico, Caja de Muertos Island*, Bahamas (Cat, Long, Grand Bahama, Mayaguana, New Providence, Rum Cay, and South Bimini Islands), Cuba, Hispaniola, Jamaica, Grenada*, Marie-Galante*, and Florida (USA).

HOST PLANTS.

No host plants have been recorded from Puerto Rico. The senior author has repeatedly collected this species on jackswitch, *Corchorus hirsutus* L. (Malvaceae) in Guánica and Cabo Rojo. A closely related species, *Cyptocephala pallida* Rolston, has been reported on limestone grass, *Uniola virgata* (Poir.) Griseb (Poaceae) in Hispaniola (Pérez-Gelabert and Thomas, 2005).

REMARKS.

This stink bug was described and recorded by Ruckes (1952a,b) from the Bahamas, and was first reported from Puerto Rico by Rolston (1986). This species is a small (6.5-7.5 mm), pale yellowish green stink bug. Little is known of its habits, but its collections suggest that it inhabits coastal to mid elevations.

MATERIAL EXAMINED.

CAJA DE MUERTO ISLAND. 22 Mar. 1935. R. Bonilla (♀, JAR); 18-19 Sept. 1976. S.J. Ramos (♀, JAR); **PUERTO RICO.** *Cabo Rojo:* Lighthouse. 17°56.2N 67°11.7W. *Ex. Sweeping.* 24 Oct. 2014. A. Segarra (♂ ♀); 17°57.24N 67°11.96W. 24. Oct. 2014. *Ex. Corchorus hirsutus.* Coll. Segarra, A. (4♂ ♀); 17°57.2N 67°11.9W. 16. Feb. 2015. *Ex. Sweeping.* Coll. Segarra, A. (2♂ ♀); *Guánica:* State Forest. 6 Jul. 1953. J.A. Ramos and J. Maldonado. (♂, JAR); 17°57.3N 66°51.7W *Ex. UV/MgVap lamps.* A. Segarra (♂ ♀); *Las Marias:* 7 Nov. 2008. Méndez, N. (♀); *Moca:* 5 Nov. 2008. Sánchez, R. (♂); *Ponce:* 5 Aug. 1953. J.A. Ramos and J. Maldonado. (♂, JAR). **GRENADA.** St. Georges 6 May 1937. S. Danforth (JAR). **MARIE-GALANTE.** 19. Jul. 1937. S. Danforth (JAR).

Euschistus acuminatus Walker (1867:246). [Plate V, Fig. 37]

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, St. Lucia, and Florida (USA).

HOST PLANTS.

Wolcott (1948) lists tobacco, *Nicotiana tabacum* L. (Solanaceae) as a host for *Euschistus* spp., and Martorell (1976) re-lists tobacco as

a host for *E. acuminatus* based on Wolcott's writings. Elsewhere, the sole host plant record is for day jessamine, *Cestrum diurnum* L. (Solanaceae) from Florida (Baranowski et al., 1983).

REMARKS.

This appears to be a very rare species in Puerto Rico. This species was described from Hispaniola, and Barber (1939) records only one specimen collected by R.G. Oakley from Ponce on August 10, 1933. This is a medium-sized species (10 mm), slightly larger than congeners in Puerto Rico, and easily identified by its long and well-developed dark humeral spines, dark punctuation in the posterior half pronotum, and by the thoracic cicatrices clearly outlined in black.

MATERIAL EXAMINED.

No specimens were found in MEBT or INV-COL collections. There is one female specimen in JAR, collected from Caibarién, Cuba collected by Dr. Stuart Danforth, 19 June 1943, which was used to illustrate the species (Plate V, Fig. 37).

Euschistus bifibulus (Palisot de Beauvois, 1817: 148) [Plate V, Fig. 39]

Pentatoma bifibula Palisot de Beauvois

Euschistus pallipes Dallas

Euschistus bifubulus Stål

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Jamaica, St. Vincent, Mexico, Central America, and northern South America (Pérez-Gelabert and Thomas, 2005).

HOST PLANTS.

Host plants recorded in Puerto Rico are: spiny spiderflower, *Cleome spinosa* L. (Cleomaceae); limabeans, *Phaseolus lunatus* L.; common beans, *Phaseolus vulgaris* L. (Leguminosae); asparagus fern, *Asparagus setaceus* (Kunth) Jessop (Liliaceae); rice, *Oryza sativa* L.* (Poaceae); *Citrus paradisi* Macfayden (Rutaceae); tomato, *Lycopersicon esculentum* Mill., tobacco, *Nicotiana tabacum* L., cutleaf groundcherry, *Physalis angulata* L., American nightshade, *Solanum americanum* Jacq., and eggplant, *Solanum melongena* L. (Solanaceae). Other collection records include: pepperweed, *Lepidium virginicum* L. (Brassicaceae) (Pérez-Gelabert & Thomas, 2005), and soybean, *Glycine max* (L.) Merr. (Leguminosae) (Maes, 1994).

REMARKS.

Palisot de Beauvois (1817) described this species from Hispaniola. This is a very common and sometimes abundant brown stink bug in Puerto Rico, first reported by Wolcott (1936). Specimens of this

species are among the oldest at MEBT, collected in 1912, during the first few months of the collection's existence by entomologist T.H. Jones. This species is a medium-sized insect (8-10 mm), easily distinguished from its congeners by the slightly forwardly directed black humeral spines, and by the widely spaced denticles in the anterolateral margin of the pronotum. Wolcott (1948), considers this brown and mid-sized stink bug to be minor pest of beans, tomatoes, tobacco, and other cultivated Solanaceae.

MATERIAL EXAMINED.

PUERTO RICO. *Aguada*: Cerro Gordo. 7 Sept. 1987. Inglés. (♀); 12 Apr. 2009. Soto, M. (♀); *Añasco*: 23 Apr. 2009. Marín, L. (♀); PRAccNo. 24-86. *Arecibo*: 10 Feb. 1986. Pantoja, A. & Medina-Gaud, S. *Ex.* Rice panicle. (♀); 4 Oct. 2008. González, L. (♀); *Cabo Rojo*: 2 Apr. 2012. Arocho, C. (♂); *Camuy*: 24 Nov. 1998. Estrella, R. (♂); *Camuy*: 21 Apr. 2011. Burgos, T. (♂); PRAccNo. 61-49. *Cayey*: 8 Jul. 1949. Wolcott, G. H. (4♀, 5♂); 7 Apr. 2009. González, S. (♀); *Corozal*: 18 Oct. 1976. B. L. T. (♂); *Guánica*: P.R. Acc.No. 1030-13. 23 Sept. 1913. E. G. S. (♂); 2 May 2009. Soto, M. (♂); *Guayanilla*: 25 Sept. 1987. Ingles I & II & III. Mogote Rd 2. (♀); *Gurabo*: PRAccNo. 122-86. 13 Apr. 1986. Lozano, S. *Ex.* Rice plant. (6♀); PRAccNo. 1-63. 13 Apr. 1986. Amy, A. *Ex.* Tobacco. (4♀, ♂); *Isabela*: 3 Apr. 1981. Sanabria, J. (♂); May 1987. González, R. *Ex.* Papaya (♀); 22 Apr. 1987. Dones, B. *Ex.* Pigeon peas. (♂); *Juana Díaz*: 21 Nov. 1989. Segarra, A. & Medina-Gaud, S. *Ex.* Eggplant foliage (♂); 21 Jun. 1990. Medina-Gaud, S. *Ex.* Eggplant. (♂); Feb. 1991. Mejía, G. (♀); 13 Sept. 2008. Santiago, L. (♀); *Las Marías*: 10 Sept. 2011. Jorge, K. (♂); *Manatí*: PRAccNo. 199-84. Mar. 1984. Toledo & Olmeda. *Ex.* Rice spike. (♂); PRAccNo. 134-86. 2 Apr. 1986. Medina-Gaud, S. Pantoja, A. *Ex.* Weed at Rice field. (♂); PRAccNo. 135-86. 2 Apr. 1985. Medina-Gaud, S. & Pantoja, A. *Ex.* Weed at Rice field. (♂); *Mayagüez*: 12 Mar. 1979. Ronda, P. V. *Ex.* Bean (♀); 5 Oct. 1979. (♀); 23 Oct. 2008. Rodríguez. (♀); 2 Sept. 2003. Delgado, A. (♂); 19 Nov. 2008. Rodríguez, G. (♀); 14 Apr. 2013. De Jesús, D. (♀); *Moca*: 5 Nov. 2008. Sánchez, R. (♂); *Rio Piedras*: P.R. Acc.501-12. 17 Jan. 1912. Jones, T. H. (♀); PRAccNo. 61-1912. 17 Jan. 1912. Jones, T. H. (2♀); PRAccNo. 388-12. 2 May. 1912. Jones, T. H. (2♂); PRAccNo. 184-16. 31 May 1916. Cotton, R. T. (♀ 2♂); PRAccNo. 342-14. 3 Feb. 1917. Cotton, R. (♀); iii. 1987. Ruíz, F. (♂); *San Sebastián*: 11 Oct. 2011. Abreu, C. (♂); 21 Jan. 2012. Serrano, M. (♂); *Trujillo Alto*: 17 Apr. 1987. Elias, A. (♂); *Utuado*: 21 Feb. 2009. Valentín, J. (♀); 6 May. 2009. Valentín, J. (♂); Bo. Caonillas. 26 Mar. 2010. Rosado, Y. (♀); PRAccNo. 104-17.

Vega Alta: 27 Jan. 1917. Cotton, R. T. (♀); *Vega Baja*: PRAccNo. 50-86. 16 Feb. 1986. Pantoja, A. (3 ♀); 23 Apr. 1988. Quiñones, J.(♀); 25. Sept. 2008. Collazo, E. M. (♀); 23 Apr. 1988. Quiñones, J.(♀); *Yauco*: 6 Sep. 1997. Correa, E. (♀).

Euschistus crenator (Fabricius, 1794: 101) [Plate V, Fig. 38]

Cimex crenator Fabricius

Euschistus crenator Van Duzee

DISTRIBUTION.

Puerto Rico, Culebra Island, Caja de Muerto Island*, Mona Island*, St. Croix, St. Thomas, Hispaniola, Jamaica, Grenada, Antigua, Barbados, Grenada, Trinidad, Mexico, Central and South America.

HOST PLANTS.

Host plant collection records in Puerto Rico include: common beans, *Phaseolus vulgaris* L. (Leguminosae); peppers, *Capsicum frutescens* L. and tobacco, *Nicotiana tabacum* L. (Solanaceae); and guinea grass, *Urochloa maxima* (Jacq.) R. Webster (Poaceae).

REMARKS.

According to Pérez-Gelabert and Thomas (2005), this species was described by Fabricius (1794) from Virgin Island specimens, and it was first reported in Puerto Rico by Barber (1923). This is also a brown, medium-sized (7-9 mm) stink bug that differs from congeners in Puerto Rico for their backwardly directed humeral spines, and the closely spaced denticles in the anterolateral margin of the pronotum.

MATERIAL EXAMINED.

CAJA DE MUERTO. PRAccNo. 155-59. 24 Jun. 1959. Martorell, L. F. (♀). **MONA ISLAND.** PRAccNo. 53-84. 8 Mar. 1984. Escudero, J. *Ex*. Sweeping vegetation. (♀); Martorell, L. F. (♀). **PUERTO RICO.** *Aguadilla*: 25 Sept. 1987. Inglés I-IX. (♀); 19 Oct. 2013. Santiago C. (♀); *Cabo Rojo*: Dec. 1997. Torres, W. (♀ ♂); 29 Oct. 2013. Negrón C. (♀); *Camuy*: 21 Apr. 2011. Burgos, T. (♀); *Coamo*: 4 Mar. 2006. Cruz, A. (♀); *Guánica*: 30 Mar. 2012. Pérez, E. (♀); *Guayama*: 9 Feb. 2013. Delgado, C. (♀ ♂); *Arecibo*: 4 Oct. 2008. González, L. (♂); *Guayanilla*: 25 Sept. 1987. Inglés II & III. (♀); *Isabela*: 25 Feb. 2011. Burgos, T. (♂); *Lajas*: 14 Sept. 1991. González. (♀); 18°01'49"N 67°04'28"W. 30 May 2006. Segarra A. *Ex*. Sweeping. (♀ ♂); *Manatí*: 10 Oct. 1989. Virkki, N. (♀); *Mayagüez*: 10 Aug. 2008. Paoli, P. (♂); 19 Apr. 2009. Báez, D. (♂); 12 May 2011. Ortiz, J. (♀); 10 Sept 2013. Méndez, Z. (♀); 10 Nov. 2013. Matos, K. (♂);

Orocovis: 19 Nov. 2008. (♀); *Ponce*: 13. Oct. 2014. Rodríguez, L. (♀);
Vega Baja: 30 Aug. 2008. Collazo, E. (♀); *Yauco*: 8 Feb. 2013. (♂).

Fecelia minor (Vollenhoven, 1868: 179) [Plate III, Fig. 25]

Loxa minor Vollenhoven

Fecelia minor Stål

DISTRIBUTION.

Endemic to Puerto Rico.

HOST PLANTS.

Records from Puerto Rico include: coffee, *Coffea* sp.* (Rubiaceae); *Citrus aurantium* L. and *Citrus paradisi* Macfayden. (Rutaceae). Martorell (1976) notes that *F. minor* frequents sour or sweet oranges, based on fruit feeding observations and numerous collections from these hosts.

REMARKS.

This species was described and first reported from Puerto Rico by its author Samuel Constantinus Snellen van Vollenhoven in 1868 as a member of genus *Loxa* Amyot & Serville. Vollenhoven's (1868) type was deposited in Amsterdam's Rijksmuseum from a scantily documented collection of West Indian specimens that just mentions "Porto Rico" as the collection site. Most specimens in MEBT are dark green, yet some, as Barber (1939) remarks, have reddish yellow coria. All specimens have pale white spots on scutellum and coria, and white on the very tip of the scutellum. This species varies in size (9-13 mm) and differs morphologically from members of its closely allied genus *Menudo* Thomas by the tylus being sub-equal to the juga and by its larger size and color, as the latter is colored brown and much smaller than *Fecelia*.

MATERIAL EXAMINED.

PUERTO RICO. *Aguada*: 3 Sept. 2010. Acevedo, A. (♂); *Aibonito*: 19 Feb. 2010. Benitez, J. (♂); *Adjuntas*: 31 Mar. 2013. Mercado. (♀); *Cabo Rojo*: 12 Sept. 2013. Rodríguez, G. (♀); Nov. 2011. Aponte, C. (♀); *Ciales*: 14 Mar. 2011. Rodríguez, A. (♀); *Hatillo*: 28 Nov. 2009. Espinosa, J. (♂); *Maricao*: 20 Mar. 2013. Medina, G. (♀); *Mayagüez*: 30 Nov. 2008. Valentín, E. (♂); 18°11'02"N; 67°03'13"W. 2009. Claz, C. (♂); 10 May 2011. Torres, N. (♂); 13 May 2011. Quintana, E. (♀); 18 Aug. 2013. Suarez, Z. (♀); *Lares*: 8 Feb. 1962. Pérez, M. *Ex. Coffee*. (♂); *Sabana Grande*: 23 Oct. 2013. Torres, A. (♂); *San Sebastián*: 6 Feb. 2010. Morales, M. (♂); 8 Sept. 2009. Santiago, J. (♀); *Utado*: 5 May 2010. Rosado, Y. (2♀).

Grazia tinctoria† (Distant, 1890: 341)*Piezodorus tinctorius* Distant*Grazia tinctoria* Rolston

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, United States (Texas), Mexico, Panama, Venezuela, Ecuador, Brazil, and Paraguay.

HOST PLANTS.

No host plant records exist in Puerto Rico. Wild tamarind, *Cajuput arborea* (L.) Britton & Rose, (formerly *Pithecellobium arboreum*) (Leguminosae) was listed as host from Cuba by Barber & Bruner (1932).

REMARKS.

This very rare species was first listed from Puerto Rico by Barber (1923). The only specimen known from the island was collected in Aibonito, Puerto Rico, by Barber on July 14 1914, and deposited at the American Museum of Natural History (Barber, 1939). *Grazia tinctoria* is designated as the type species for this monotypic genus (Rolston and McDonald, 1980b). The genus differs from *Piezodorus* Fieber by a weak mesosternal carina that does not protrude between the procoxae and the absence of a medial projection on the posterior surface of the pygophore.

MATERIAL EXAMINED.

No specimens were found in MEBT, JAR, or INV-COL collections.

Loxa pallida Van Duzee (1907: 9) [Plate III, Fig. 22]*Loxa pallida* Van Duzee*Loxa planifrons* Barber and Bruner*Loxa pallida* Eger

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Bahamas, and Jamaica.

HOST PLANTS.

The only host plant collection record in Puerto Rico is for sea island cotton, *Gossypium barbadense* L. (Malvaceae).

REMARKS.

This was first described and reported from Puerto Rico under a junior synonym (*L. planifrons*) by Barber and Bruner (1932). A recent taxonomical revision of this genus can be found in Eger (1978). This species is among the largest of Puerto Rican pentatomids (16-18 mm), and can be readily identified from its congeners by its broadly-rounded, posterior margins of coria, smaller size, and pale

green coloration. According to Wolcott (1948) *L. pallida* "... is the coastal species, *viridis* (sic *pilipes*) the mountainous one." From examination of collection localities, one cannot clearly support that conclusion. Little is known about its life cycle or its host plants.

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 3 Apr. 2012. Lope, M. (♀); *Aguada*: Aug. 1987. Inglés, R. (♀); 12 Oct. 1987. Inglés III. (♂); *Cabo Rojo*: 29 Apr. 2010. Pérez, F. (♂); *Cataño*: 29 Aug. 1986. Rodríguez, M. (♂); *Guayama*: 5 Feb. 2012. Cardona, R. (♀); *Hormigueros*: 27 May. 2009. Pérez, F. (♂); *Isabela*: 30 Mar. 2012. Ramos, C. (♂); *Lajas*: 14 Sept. 1991. González, V. (♂); *Mayagüez*: Oct. 1979. Armstrong, A. (♀); *Moca*: 25 Aug. 2008. Mercado, Z. (♀); *Ponce*: 10 Mar. 2012. Alicea, L. (♀); *San Germán*: 8 Aug. 1945. G.N. Wolcott (JAR); *San Juan*: Río Piedras. PRAccNo. 69-55. 28 Jul. 1955. (♂); *Toa Alta*: 11 Oct. 1986. García, V. (♀); *Villalba*: 13 Mar. 1982. (♂).

Loxa viridis (Palisot de Beauvois, 1812: 111) [Plate III, Fig. 23]

Pentatoma viridis Palisot de Beauvois

Loxa viridis Dallas

Loxa flavicollis Gundlach

Loxa picticornis Horvath

Loxa pilipes Horvath

Loxa viridis Eger

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Southern Texas and Florida (USA) south to Argentina.

HOST PLANTS.

No host plant collection records exist for this species in Puerto Rico. In Hispaniola, Pérez-Gelabert and Thomas (2005) report collections on jack-in-the-bush, *Chromolaena odorata* (L.) R.M. King & H. Rob. (Asteraceae). In Mexico, this insect has been reported feeding on a variety of plant hosts including: senna, *Senna papillosa* (Britton & Rose) (Leguminosae); lunania, *Lunania mexicana* Brandegees (Flacourtiaceae); passionvine, *Passiflora helleri* Peyr (Passifloraceae); and higuillo, *Piper aduncum* L. (Piperaceae) (Brailovsky et al., 1992).

REMARKS.

The species was first reported from Puerto Rico by Gundlach (1893) as *Loxa flavicollis* Drury. This is likely the largest pentatomid in Puerto Rico, with some MEBT specimens up to 22 mm. Individuals are regularly collected at light. This species can be distinguished from *L. pallida* by its strongly sinuous posterior margins of coria, darker green color, and larger size.

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 30 Jan. 2009. Cruz, A. (♀); 3 Apr. 2012. Díaz, J. (♀); *Aguada*: 26 Mar. 1982. Galloza, E. (♀); 3 Sept. 2010. Acevedo, A. (♀ ♂); *Aguadilla*: 26 Aug. 006. Garmos, H. (♂); *Añasco*: 25 Sept. 2011. Silva, N. (♂); *Cabo Rojo*: Boquerón. 18°02'38"N 67°10'59"W. 5 Jun. 2006. Segarra, A. (♂); Boquerón. 18°2.64N 67°10.96W. 22 Jan. 2012. Segarra, A. *Ex.* UV light. (3♂); 2 Mar. 2012. López, M. (♂); 12 Mar. 2012. Aponte, A. (♂); Boquerón. 18°00.66N 67°10.96W. 28 Apr. 2012. Segarra, A. *Ex.* UV light. (♂); *Cataño*. 28 Nov. 1986. Rivera A. (♀); *Coamo*: 21 Mar. 2009. Cruz, A. (2♀); 3 May. 2010. Guzmán, G. (♀); *Guánica*: 15 Feb. 2009. Albino M. (♂); *Hormigueros*: 3 Apr. 2012. Martínez, J. (♀); *Humacao*: Jul. 1937. J. Carrión (JAR); *Isabela*: 30 Jan. 1982. Olivieri, L. (♀); 8 Nov. 1987. Inglés & Medina. (♀); 19 Apr. 2009. Jiménez, A. (♀); *Jayuya*: 20 Feb. 2009. Galarza, E. (2♀); *Juana Díaz*: 5 Apr. 2012. Martínez J. (♂); *Lajas*: 13 Apr. 2006. ASC. *Ex.* UV light. (♀); *Las Marias*: 20 Aug. 2008. Díaz I. (♀); *Mayagüez*: 7 Apr. 1970. Jaly, L. (♂); 20 Mar. 1976. Aquino, M. (♀); Apr. 1981. Pérez, L. (♀); 18 Aug. 1983. Larión, M. (♂); 12 Feb. 2009. Villahermosa, L. (♀); 16 Apr. 2010. Vélez, E. (♀); 31 Jan. 2012. Jiménez, C. (♂); 12 Feb. 2012. Mercado, H. (♀); 23 Feb. 2012. Padilla, E. (♂); *Moca*: 3 Dec. 1981. Ruiz, R. (♂); 25 Oct. 1982. Córdova, F. (♂); *Quebradillas*: 11 Jan. 2009. Soto, N. (♀); *Rincón*: Mar. 1982. Bonet, S. (♂); 19 Feb. 2006. Rivera, J. (♂); 15 Dec. 2011. Vargas, M. (♀); 22 Apr. 2012. Vargas, M. (2♀); *San Juan*: Río Piedras. PRAccNo. 1045-16. 28 Oct. 1916. Smyth, E. (♂); 24 Mar. 1988. García, A. (♂); *San Sebastián*: 4 Dec. 1982. Ramos, E. (♀); 8 Nov. 1986. Gordian, L. (♀); 7 Apr. 1992. Velázquez. (♀); 24 Apr. 2010. Morales, M. (♀ ♂); 3 Dec. 2011. Silva, N. (♀); *Santa Isabel*: 29 Nov. 2008. De Jesús, H. (♂); *Utua*: 5 May. 2010. Rosado, Y. (♀); *Vega Baja*: PRAccNo. 46-86. 16 Feb. 1986. Pantoja, A. (♀); 6 Apr. 2009. Jesús, L. (♀).

Menudo femoralis Thomas (1990: 427) [Plate III, Fig. 24]

DISTRIBUTION.

Puerto Rico and Hispaniola.

HOST PLANTS.

No host plant collection records exist for this species in Puerto Rico.

REMARKS.

This is an uncommon, small (5.5-6 mm), dark brown stink bug. Thomas (1990) designated as its holotype a male labeled "*Maricao PR Fish Hatchery, VIII-11-61. Coll by Flint, Spangler,*" deposited at the U.S. National Museum. A female allotype with the same information, and

other paratypes are also deposited at the USNM. In the keys provided by Rolston and McDonald (1984), *Menudo* falls within a large group of pentatomid genera characterized by lacking a spine or tubercle at the base of the abdomen. Like *Loxa* Amyot & Serville, this species is part of a smaller group of genera armed with a spine on the superior apex of femora. Nothing is known about the life history or host plants of this little endemic species. Thomas (1990) named the genus *Menudo* after a famous Puerto Rican musical band of the late 20th century. Collection records indicate a widespread distribution that includes coastal as well as mountain locations in Puerto Rico.

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 10 Apr. 2009. Pagán, I. (♀ ♂); *Cabo Rojo*: 15. Nov. 2014. Vélez, L. (♀); *Carolina*: 28 Nov. 2008. Ortiz, G. (♀); *Lajas*: 24 Sept. 2011. Sánchez, J. (♀); *Mayagüez*: 3 Mar. 2010. (♀); 22 Feb. 2012. Miranda, M. (♀); 19 Nov. 2013. Martínez, H. (♀); *Utua*: 18 Feb. 2007. Romañach, G. (♀); *Yauco*: 14 Sept. 2013. Rodríguez, J. R.

Mormidea angustata Stål (1862: 102) [Plate IV, Fig. 28]

Mormidea pulchella Walker (Syn. Rolston, 1978).

Mormidea lemoulti Bergroth (Syn. Rolston, 1978).

DISTRIBUTION.

Puerto Rico, Mona Island, Hispaniola, Cuba, and Central and South America.

HOST PLANTS.

Host plant collection records in Puerto Rico include: yam, *Dioscorea* spp. (Dioscoreaceae); peas, *Pisum sativum* L. and rattlebox, *Crotalaria* sp. (Leguminosae); rice, *Oryza sativa* L.*, and sugarcane, *Saccharum officinarum* L.* (Poaceae).

REMARKS.

This species appears, by far, to be the most abundant member of its genus in Puerto Rico. It is small to medium-sized (6-8.5 mm), pale brown and elongate. Franqui et al. (1988) report this species as a pest of rice in Puerto Rico, frequently in the company of *Oebalus* spp. *Mormidea angustata* can be separated from its congeners in Puerto Rico by a dark spot at the distal end of the supracoxal clefts in meso- and meta-thorax, and the spot above the mesocoxae being the larger of the two. Antennal segments in this species are nearly uniform in color.

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 24 Sept. 2003. Garmos, H. (♀); *Añasco*: Oct. 1997. Torres, W. (♀); *Arecibo*: PRAccNo. 23-86. 10 Feb. 1986. Pantoja,

A. & Medina-Gaud, S. *Ex. Rice*. (5 ♀ 8 ♂); 15 Nov. 1986. García, V. (♂); PRAccNo. 85-86. Mar. 1986. Medina-Gaud, S. & Pantoja, A. *Ex. Rice*. (2 ♀ 5 ♂); *Bayamón*: 27 Jun. 1965. Medina, E. *Ex. Mixed vegetation*. (6 ♀ 4 ♂); *Carolina*: 16 Apr. 1986. Santos, R. (2 ♀); 15 Feb. 1987. Ríos, M. (♀); 1 May. 1988. Solís, J. (♀); 8 Oct. 1997. Colón, S. M. (♀); *Cayey*: PRAccNo. 31-83. 15 Aug. 1983. Virkkii, N. (3 ♀ 3 ♂); *Ciales*: 17 Mar. Pérez, F. (♂); *Dorado*: PRAccNo. 51-54. 16 Sept. 1954. (♀); *Lajas*: PRAccNo. 10-80. 27 Aug. 1980. Inglés, R. *Ex. Rice*. (♀ ♂); PRAccNo. 194-86. 19 May. 1986. Pantoja, A. & Medina-Gaud, S. *Ex. rice*. (♀); *Isabela*: PRAccNo. 155-86. 24 Apr. 1986. Pantoja, A. & Segarra, A. (♂); 30 Aug. 1991. González, V. (♀); *Lajas*: 22 Jan. 1987. Christian, K. *Ex. sugarcane*. (♀); *Manatí*: PRAccNo. 137-86. 2 Apr. 1986. Pantoja, A. & Medina-Gaud, S. *Ex. Rice*. (2 ♀); PRAccNo. 102-86. 2 Apr. 1986. Medina-Gaud, S. & Pantoja, A. *Ex. Rice*. (♂); *Mayagüez*: 3 May 1979. (♀); 21 Feb. 986. González. (♀); 13 Oct. 1887. Inglés, R. (♀); 2 Sept. 2003. Delgado, A. (♀); 7 Oct. 1988. Bermúdez, F. (♂); *San Juan*: Hato Rey: 1 May. 1988. Irizarry, M. (♀); Río Piedras. 11 Jul. 1997. Fernández, C. (♀); 7 Nov. 1997. Bauza, J. (♀); 20 Nov. 1988. Medina, F. (♀); 15 Feb. 1988. Medina, F. (♀); Santurce. 18 Nov. 1988. Nieves, L. (♀); *Utua*: 30 Mar. 1982. Ivan. (♀); *Vega Baja*: PRAccNo. 107-83. Oct. 1983. Toledo. *Ex. Rice*. (6 ♂ 2 ♀); PRAccNo. 315-86. 3 Jun. 1986. Pantoja, A. *Ex. Rice*. (3 ♂, 23 ♀); PRAccNo. 278-86. 19 May. 1986. Pantoja, A. *Ex. Rice*. (♀); PRAccNo. 380-86. 9 Jun. 1986. Pantoja, A. *Ex. Rice*. (♂); PRAccNo. 53-86. 26 Aug. 1986. Medina-Gaud, S. *Ex. Rice*. (♂); PRAccNo. 276-86. 19 May. 1986. Medina-Gaud, S. & Pantoja, A. *Ex. Rice*. (♀); PRAccNo. 278-86. 21 May. 1986. Pantoja, A. *Ex. Rice*. (♂); 8 Mar. 1987. Vázquez, V. (♀); 18 Mar. 1987. Elías, A. (♀).

Mormidea cubrosa (Dallas, 1851: 247) [Plate III, Fig. 27]

Pentatoma cubrosa Dallas

Mormidea cubrosa Walker

Mormidea sordidula Stål (Barber and Bruner, 1932; Wolcott, 1936)

Mormidea punctifer Distant

DISTRIBUTION.

Puerto Rico, Caja de Muerto Island*, Vieques Island*, Hispaniola, Cuba, Lesser Antilles, and southwestern USA to south to Colombia.

HOST PLANTS.

Host plant collection records in Puerto Rico include: Sea Island cotton, *Gossypium barbadense* L. (Malvaceae) and fireman, *Tragia volubilis* L.* (Euphorbiaceae); rice, *Oryza sativa* L.*, and sorghum, *Sorghum bicolor* (L.) Moench* (Poaceae). In Nicaragua, Maes (1994) reports it collected on cucumber, *Cucumis* sp. (Cucurbitaceae).

REMARKS.

This is a dark brown stink bug, and the smallest (5-5.5 mm) member of the genus in Puerto Rico. Its abdominal venter is entirely dark brown or black, except for pale lateral margins and small subspiracular spots, easily differentiating this species from others in Puerto Rico.

MATERIAL EXAMINED.

CAJA DE MUERTO. 18-19 Sep. 1976. Ramos, S.J. (♀ ♂); **VIEQUES ISLAND.** AccNo. 240-47. Oct. 1947. Martorell L. F & Caldwell. (2♀). (JAR); **PUERTO RICO.** *Arecibo:* PRAccNo. 399-86. 6 Aug. 1986. Medina-Gaud, S. & Franqui R. *Ex. Rice.* (2♂); AccNo. 314-86. 3 Jun. 1986. Pantoja, A. *Ex. Rice.* (2♀ 5♂); *Cabo Rojo:* 10 Nov. 1991. González, V. (♀); Dec. 1997. Torres, W. O. (♀); Boquerón. 18°02.38N 67°10.59W. 16 Jul. 2006. *Ex. UV light.* Segarra, A. (3♀ ♂); *Dorado:* 15 Sept. 1983. Virkki, N. *Ex. Tragia volubilis.* (♀); *Juana Díaz:* 18°01.31N 66°31.34W. 5 Jun. 2006. Segarra, A. *Ex. sweeping mixed vegetation.* (♀); *Lajas:* PRAccNo. 333-86. 8 Jul. 1986. Medina-Gaud, S. & Pantoja A. & Franqui R. *Ex. Rice.* (♂); 18°02.08N 67°04.54W. 22 Feb. 2008. Segarra, A. *Ex. Sorghum.* (♂); 18°00.39N 67°06.10W. 11 May. 2011. Segarra, A. *Ex. UV light.* (2♀); *Mayagüez:* Aug. 1991. Mejía, G. (♀); 11 Feb. 2010. Vélez, E. (♀); 20 Apr. 2013. Torres, L. (♂); *San Sebastián:* 21 Jan. 2012. Serrano, M. (♀); *Vega Baja:* 23 Apr. 1988. Félix, C. (♂).

Mormidea ypsilon Linnaeus (1758: 443) [Plate IV, Fig. 29]

Cimex ypsilon Linnaeus.

Cimex ypsilon-aenus De Geer.

Pentatoma ypsilon Le Peltier & Serville

Pentatoma scutellata Westwood

Mormidea ypsilon Amyot & Serville

DISTRIBUTION.

Widespread. This species has been reported from Mexico in the north to Argentina in the south.

HOST PLANTS.

No host plant collection records exist for this species in Puerto Rico. Elsewhere, most reported host plants are grasses (Poaceae) such as: sorghum, *Sorghum* sp., cockspur grass, *Echinochloa* sp., rice, *Oryza sativa* (Maes, 1994); guinea grass, *Panicum maximum* Jacq., hilograss, *Paspalum conjugatum* Bergius, setaria, *Setaria poiretiana* (Schult.), smallcane, *Lasiacis divaricata* L. (Brailovsky et al., 1992). Other host plant records include: *Guiliema* sp. (Are-

caceae), pineapple, *Ananas* sp. (Bromeliaceae), cassava, *Manihot* sp. (Euphorbiaceae), and coffee, *Coffea* sp. (Rubiaceae) (Maes, 1994).

REMARKS.

According to Rolston (1978), this is the most widely distributed species of the genus. However, accounts about the presence of this species in Puerto Rico appear conflicting. Wolcott (1936) first reports this species from specimens collected in 1917 in Guaynabo (PRAcc.No. 724-17), and from specimens kept in JAR's collection ("AMC" in Wolcott's account) that were collected from Luquillo in 1932. Wolcott (1948) wrote that Barber had "re-determined" that the specimens were really *Mormidea angustata*, presumably referring to those specimens from Guaynabo belonging to the Agricultural Experiment Station Insect Collection at Río Piedras (now MEBT). No specimens bearing that accession number remain in the MEBT collection, but specimens in the JAR collection key to, and clearly belong to *M. ypsilon*. Apparently, there are no additional collections of this species in Puerto Rico.

MATERIAL EXAMINED.

PUERTO RICO. *Luquillo*: 10 Jul. 1932. J. Blanch (♀ ♂, JAR).

Nezara viridula (Linnaeus. 1758: 444). [Plate II, Fig. 18; Figure 5B]

Cimex viridulus Linnaeus.

Pentatoma flavicollis Palisot de Beauvois.

Nezara viridula Stål.

DISTRIBUTION.

Puerto Rico, Mona Island, Vieques Island, St. Kitts, and Hispaniola. Cosmopolitan in the tropics and subtropics.

HOST PLANTS.

Described from India. Collection records in Puerto Rico include host plants in several families: papaya, *Carica papaya* L. (Caricaceae); spiny spiderflower, *Cleome spinosa* L. (Cleomaceae); crook-neck squash, *Cucurbita moschata* (Duch.) Duchesne & Poir. (Cucurbitaceae); cassava, *Manihot esculenta* Crantz (Euphorbiaceae); okra, *Abelmoschus esculentus* (L.), Sea Island cotton, *Gossypium barbadense* (L.) Moench (Malvaceae); rattlebox, *Crotalaria* sp.*, pigeon pea, *Cajanus cajan* (L.) Millsp., limabean *Phaseolus lunatus* L., common bean, *Phaseolus vulgaris* L., cowpea, *Vigna unguiculata* (L.) Walp. (Leguminosae); rice, *Oryza sativa* L.* and sorghum, *Sorghum bicolor* (L.)* Moench (Poaceae); coffee, *Coffea arabica* L. (Rubiaceae); peppers, *Capsicum frutescens* L., tomato, *Lycopersi-*

con esculentum Mill., tobacco, *Nicotiana tabacum* L., eggplant, *Solanum melongena* L. and potato, *Solanum tuberosum* L. (Solana-ceae). It is probable that at least some local records may belong to *Acrosternum* spp. due to their superficial resemblance.

REMARKS.

This is a common, green-colored, and medium- to large-sized (10-15 mm) stink bug. *Nezara viridula* is a highly polyphagous species, commonly known as the "southern green stink bug." This stink bug is considered an important pest of legumes, including common beans and soybeans. Yield and quality reductions are well documented in soybean, corn, tobacco, and nut crops (Panizzi et al., 2000). Behavior information, such as the presence of male sex pheromones, mating nymphal aggregation, and defense are reviewed by Panizzi et al. (2000). *Nezara viridula* can be distinguished from the species in the genus *Acrosternum*, to which it superficially resembles, by its short ostiolar sulcus in the scent gland ruga, about twice the diameter of the orifice (see Figure 5 for comparison with *Acrosternum wygodzinski*).

MATERIAL EXAMINED.

MONA ISLAND. PRAccNo. 313-13. 20 Dec. 1913. (♀). **VIEQUES ISLAND.** 20 Dec. 1919. (♀); PRAccNo. 9-83. 11 Jul. 1983. Virkki N. (2♂); PRAccNo. 27-83. 10 Aug. 1983. Medina-Gaud, S. (♀). **PUERTO RICO.** *Aguada:* 4 Feb. 1987. Inglés, R. (♂); *Aguadilla:* 26 Aug. 2003. Garmos, H. (♂); *Aibonito:* 24 Oct. 1988. Rivera, F. (♀); *Añasco:* PRAccNo. 1031-13. 8 Oct. 1913. Smith E.G. (♂); 5 Sept. 1981. Inglés, R. (♂); *Bayamón:* 17 Oct. 1988. Bermudez, F. (♂); *Cabo Rojo:* 7. May 1999. Martínez, E. (♀); *Carolina:* 15 Feb. 1987. Ríos, M. (♂); 9 Mar. 1988. Jiménez, J. (♀); 7 Oct. 1997. Colón, J. (♀); *Guánica:* Mar. 1991. Mejía, G. (♀ ♂); *Isabela:* 15 Mar. 1979. Mendoza, J. B. *Ex.* Soy. (♂); PRAccNo. 153-86. 24 Apr. 1986. Pantoja, A. & Segarra, A. *Ex.* sorghum. (♀ 4♂); *Gurabo:* 19 Apr. 1988. Medina, F. (♂); *Isabela:* Mar. 1991. Mejía, G. (2♂); *Juana Díaz:* PRAccNo. 117-89. 2 Nov. 1989. Segarra, A. & Medina-Gaud, S. *Ex.* Eggplant. (♀ 3♂); PRAccNo. 117-89. 7 Dec. 1989. Segarra, A. & Medina-Gaud, S. *Ex.* Eggplant. (♀ ♂); *Lajas:* 8 Mar. 1979. Cotte, O. (♂); 18°01.49N 67°04.28W. 30 May. 2006. Segarra, A. (♀); *Lares:* 10 Apr. 1987. Román, I. *Ex.* Pumpkin. (♂); Feb. 1991. Mejía G. (3♂); *Manatí:* PRAccNo. 92-84. 4 Apr. 1984. Medina-Gaud, S. *Ex.* *Crotalaria* pod. (2♀); PRAccNo. 131-86. 2 Apr. 1986. Medina-Gaud, S. Pantoja A. *Ex.* weeds at rice field. (2♀ ♂); PRAccNo. 92-89. 4 Apr. 1989. Medina-Gaud, S. (♂); *Mayagüez:* 9 Apr. 1987. González, V. (♀); 15 May. 1979. Armstrong, A. (♂); May 1979. (♀); Mar. 1991.

(♂); *Ponce*: PRAccNo. 135-57. 8-9 Jul. 1957. Medina-Gaud, S. (2♂); 27 Mar. 1987. Enrique. (♀); *San Juan*: PRAccNo. 91-1912. 30 Jan. 1912. Jones, T. H. (4♂); PRAccNo. 500-1912. 7 Jun. 1912. Jones, T. H. (2♂ 2♀); PRAccNo. 785-1914. 31 Jul. 1914. Jones, T. H. (2♀ ♂); Río Piedras. PRAccNo. 2-43. 20 Jan. 1943. Wolcott, G. N. (2♀ ♂); 11 Jul. 1997. Fernández, C. (♂); 7 Nov. 1997. Bauza, J. (♀); Hato Rey. 1 May. 1981. Irizarry, I. (♀); *San Lorenzo*: PRAccNo. 11-1921. 5 Feb. 1921. López. *Ex. Tobacco*. (♀); *Vega Baja*: PRAccNo. 47-86. 16 Feb. 1986. Pantoja, A. (♀); PRAccNo. 48-86. 16 Feb. 1986. Pantoja, A. (♀ ♂); 9 Apr. 1988. Felix, C. (♂); 9 Apr. 1988. Quiñones, J. (♂); 25 Apr. 1988. A. F. (♂); Apr. 1987. Pérez, F. (♀). **ST. KITTS**. PRAccNo. 581-22. 19 Oct. 1922. More, J. D. (♀).

Oebalus ypsilongriseus (De Geer, 1773: 333) [Plate IV, Fig. 30]

Cimex ypsilon-griseus De Geer

Cimex litteratus Gmelin

Cimex inscriptus Fabricius

Oebalus ypsilon griseus Stål

Oebalus ypsilon-griseus Lethiery and Severin

Solubea ypsilon-griseus Kirkaldy

Solubea ypsilon-griseus Sailer

Solubea grisescens Sailer

Oebalus grisescens Sailer

Oebalus ypsilon-griseus Sailer

Oebalus ypsilongriseus Del Vecchio

DISTRIBUTION.

Puerto Rico, Hispaniola, Florida (USA), and throughout South America.

HOST PLANTS.

This species has been reported on rice, *Oryza sativa* L.*, in Puerto Rico. Due to the close resemblance to other *Oebalus* spp. it is likely that other host plants exist, especially in the Poaceae. Host plant records for this species come primarily from surveys in the subtropical southern Brazilian state of Rio Grande do Sul (Link and Grazia, 1987). As with other members of the genus, most host plants are grasses (Poaceae); they feed on maturing seed grains. Elsewhere, collections are recorded on: oats, *Avena sativa* L., Bermuda grass, *Cynodon dactylon* (L.) Pers. hairy crabgrass, *Digitaria sanguinalis* (L.) Scop., barnyardgrass, *Echinochloa crus-galli* (L.) Beauv., common velvetgrass, *Holcus lanatus* L., barley, *Hordeum vulgare* L., perennial ryegrass, *Lolium perenne* L., rice, *Oryza sativa* L. (also Pérez-Gelabert & Thomas, 2005), panicgrass, *Panicum*

grumosum Nees, *Panicum maximum* L., bahiagrass, *Paspalum notatum* Flügge, *Paspalum urvillei* Steud., rye, *Secale cereale* L., wheat, *Triticum aestivum* L., and signalgrass, *Urochloa plantaginea* (Link) R. D. Webster. Other grass records include sorghum, *Sorghum bicolor* (L.) Moench (Quintanilla et al., 1976). Collections records outside the Poaceae include: quinoa, *Chenopodium quinoa* Willd. (Chenopodiaceae), peanut, *Arachis hypogaea* L. and soybean, *Glycine max* (L.) Merr. (Leguminosae) (Link and Grazia, 1987; Quintanilla et al., 1976).

REMARKS.

Oebalus ypsilon is a medium-sized (8-9 mm), pale brown stink bug that feeds mainly on Poaceae. Franqui et al. (1988) provides the first record of this important rice pest in Puerto Rico. These authors also recorded *Oebalus grisescens* (Sailer), now a junior of *O. ypsilon*, then believed to be a South American species also having the second antennal segment shorter than the first, but differing in that its humeral angles are rounded, not spinose. However, Del Vecchio et al. (1994) demonstrated that *O. ypsilon* was really a dimorphic species, and that *O. grisescens* represented its short photoperiod (i.e., winter) morph. This made *O. grisescens* a junior synonym of *O. ypsilon* by the principle of priority. This species is considered an important pest of rice in South America (Pantoja et al., 1995; Panizzi et al., 2000). In Brazil, this species is studied as the key pest of rice (Link and Grazia, 1987). Similar to other *Oebalus*, both nymphs and adults feed on the developing grains. According to Panizzi et al., (2000), the nature and extent of damages depend on the stage of grain development at the time of attack. Attacks during the early endosperm formation stage result in empty glumes or atrophied grains (e.g. "grano vaneado" or "vaneamiento"). Feeding on later grain ripening stages (dough and hard phases) results in chalky discolorations at feeding sites (i.e., "pecky rice"). Pecky rice grains are structurally weakened, resulting in grain breakage under the mechanical stress of milling, thus lowering its price.

MATERIAL EXAMINED.

PUERTO RICO. *Arecibo*: PRAccNo. 85-86. 20 Mar. 1986. Pantoja, A. & Medina-Gaud, S. *Ex. Rice.* (2 ♀); *Lajas*: 18°01.49N 67°04.28W. 31 May. 2006. Segarra, A. *Ex. Sweeping.* (♀); PRAccNo. 334-86. 8 Jun. 1986. Pantoja, A. & Medina-Gaud, S. & Franqui, R. *Ex. Rice.* (♀); 3 Mar. 2006. Segarra, A. *Ex. Rice* (7 ♀ 14 ♂); *Mayagüez*: 22 Nov. 1991. González, V. (♂); 14 Sept. 2013. Ortiz, P. (2 ♀); *Vega Baja*: PRAccNo. 275-86. 19 May 1986. Pantoja, A. *Ex. Rice.* (2 ♀); PRAcc-

No. 278-86, 21 May 1986. Pantoja, A. *Ex. Rice.* (25 ♀ 16 ♂); PRAccNo. 317-86, 3 Jun. 1986. Pantoja, A. *Ex. Rice.* (152 ♀ 114 ♂); PRAccNo. 380-86, 9 Jul. 1986. Pantoja, A. *Ex. Rice.* (♀ 13 ♂); PRAccNo. 514-86, 21 Aug. 1986. *Ex. Light.* Pantoja A. (♀). [As *O. grisescens*: *Lajas*: 3 Mar. 2006. Segarra, A. *Ex. rice.* (♀); *Vega Baja*: PRAccNo. 277-86 21 May 1986. Pantoja, A. *Ex. rice* (♀ 2 ♂); PRAccNo. 312-86, 3 Jun. 1986. Pantoja, A. *Ex. rice.* (15 ♀ 2 ♂)].

Oebalus pugnax (Fabricius, 1775: 704) [Plate IV, Fig. 32]

Cimex pugnax Fabricius

Cimex typhoeus Fabricius

Pentatoma orthocantha Palisot de Beauvois

Pentatoma augur Say

Mormidea typhoeus Dallas

Oebalus typhoeus Stål

Oebalus pugnax Stål

Pentatoma (Mormidea) typhoeus Gundlach (1893).

Solubea pugnax Bergroth (in Barber, 1939 and Wolcott, 1948.)

Oebalus pugnax Sailer

DISTRIBUTION.

Puerto Rico, Culebra Island, Hispaniola, Cuba, United States, Antigua, México, Panama, and Colombia.

HOST PLANTS.

Rice (*Oryza sativa* L.) is the only host plant collection recorded in Puerto Rico. This species also has feeding records on Poaceae such as, maize, sorghum and forage grasses. It is considered an important pest in sorghum (Sailer, 1944).

REMARKS.

First listed from Puerto Rico by Gundlach (1893), it is a pale brown, elongate, medium-sized (8-10 mm) stink bug. This is the type species for genus *Oebalus* Stål and can be identified by a second antennal segment sub-equal to the first, and by its forwardly directed humeral spines. Franqui et al. (1988) determined that this species was among the most common stink bug species in Puerto Rican rice fields. As with other *Oebalus* spp. this species is also responsible for damage to rice grains such as empty glumes ("va-neamiento") and pecky rice.

MATERIAL EXAMINED.

CULEBRA. PRAccNo. 26-83, 14 Jul. 1983. Virkki, N. & J. Escudero. *Ex. Sweeping.* (♀); **PUERTO RICO.** *Cabo Rojo*: 19. Oct. 1991. González, V. (♂); Boquerón. 18°02.38N 67°10.59W. 5 Jun. 2006.

Segarra, A. *Ex.* At light. (♀); *Guánica*: 10 Dec. 1988. Rivera, A. (♂); *Lajas*: PRAccNo. 332-86. 8 Jul. 1986. Pantoja, A. & Medina-Gaud, S. & Franqui, R. *Ex.* rice. (34 ♀ 52 ♂); PRAccNo. 157-85. 22 Nov. 1985. 18°01.49N 67°04.28W. 30 May. 2006. Segarra, A. *Ex.* Sweeping. (♀); *Mayagüez*: 9 Nov. 1987. Inglés, R. (♀); 27 Sept. 1988. Inglés, R. (♂); 11 Sept. 2013. Negrón, C. (♀); *Santa Isabel*: Segarra, A. *Ex.* Sorghum. (4 ♀ 4 ♂); PRAccNo. 192-86. 19 May 1986. Medina-Gaud, S. & Pantoja, A. *Ex.* Rice. (♂); *Vega Baja*: PRAccNo. 277-86. 21 May 1986. Pantoja, A. *Ex.* Rice. (♀); PRAccNo. 312-86, 3 Jun. 1986. Pantoja, A. *Ex.* Rice. (♀).

Oebalus ornatus (Sailer, 1944: 124) [Plate IV, Fig. 33]

Mormidea guerini Lethierry and Severin (In Wolcott, 1936).

Solubea insularis Stål (In Barber, 1939).

Solubea ornata Sailer (1944)

DISTRIBUTION.

Puerto Rico, Hispaniola, Colombia, Venezuela, Ecuador, Guyana, and Surinam

HOST PLANTS.

The sole host plant collection record in Puerto Rico is rice, *Oryza sativa* L. The species has also been also collected on *Sorghum* sp. (Maes, 1994).

REMARKS.

This is a medium-sized (8-8.5 mm), brown species with extensive ivory colored areas in the scutellum, and spots on each side of the coria. This species was first described by Sailer (1944) from a specimen collected while feeding on rice in the milk stage in Hormigueros, Puerto Rico, and collected 11 October 1943 by J. Brunet. However, the first report from Puerto Rico was published by Wolcott (1936) as *Mormidea guerini* Lethierry and Severin for a specimen collected in Ponce by J. Rivera in December of 1933. Later, Barber (1939) published a second record of this species as the closely related *O. insularis* Stål, collected by Dr. Stuart Danforth in Mayagüez. We have examined both specimens, now at JAR. The Mayagüez specimen was identified by Barber as "*Mormidea guerini* L. & S". Sailer (1944) used both of these records in the description of *O. ornatus*. According to Pantoja et al. (1995), *Oebalus ornatus* is the most important stink bug pest of rice in northern Latin America. Wolcott (1948) writes that this species is of considerable economic importance in the Dominican Republic, and a potential pest in Puerto Rico. Information on population dynamics and yield losses can be found in Pantoja et al. (1993) and in Rodríguez et al. (2006).

The latter authors found that rice is susceptible up to 10 days after panicle emergence; that infestations greater than 0.7 stink bugs/panicle have a direct and negative effect on milled rice; and that later infestations were irrelevant to the yield of milled rice. Pan-toja et al. (2000) found that insect feeding during the flowering and milk stages of grain development caused more damage than feeding during the soft dough stage. They calculated the action threshold to be 14 *O. ornatus* adults per square meter for the flowering and milk stages, and 67 for the soft dough stage of grain maturity.

MATERIAL EXAMINED.

PUERTO RICO. *Aguada*: 3 May 2012. Vale, J. (♂); *Guánica*: 20 Apr. 2010. Soto, M. (2 ♀ 2 ♂); 20 Apr. 2010. Brotóns, V. (2 ♀); *Isabela*: 22 Apr. 1989. Dones, R. (♂); *Lajas*: 18°00.39N 67°06.10W. 11 May 2011. Segarra, A. *Ex.* UV light. (♂); *Mayagüez*: 5 Mar. 2008. Martínez, M. (♂).

Piezodorus guildinii (Westwood, 1837: 31) [Plate II, Fig. 17]

Rhaphigaster guildinii Westwood

Piezodorus guildinii Distant

DISTRIBUTION.

Puerto Rico, Mona Island*, Vieques Island*, St. Croix, St Thomas, Hispaniola, Cuba, Jamaica, St. Vincent, Grenada, Antigua, Barbados, Trinidad, USA, México, Honduras, Peru, Brazil, and Argentina.

HOST PLANTS.

Host plant collection records in Puerto Rico include: sensitive partridge pea, *Chamaecrista nictitans* (L.) Moench (as *Cassia aeschy-nomene*), beans, *Phaseolus vulgaris* L., and cowpeas, *Vigna unguiculata* (L.) Walp. (Leguminosae); Sea Island cotton, *Gossypium barbadense* L. (Malvaceae), and rice, *Oryza sativa* L.* (Poaceae), and *Capsicum frutescens* L. (Solanaceae). Other legumes, such as rattlebox, *Crotaria* spp. and indigo, *Indigofera* spp. appear to be important wild hosts for *P. guildinii* (Panizzi and Slansky, 1985).

REMARKS.

Barber (1923) first listed this species from Puerto Rico from a specimen collected in Arecibo in 1914. This insect, commonly known as the "small green stink bug," is a medium-sized (8-9 mm), green stink bug. *Piezodorus guildinii* is a major pest of soybean in South America, and the most important soybean pest in Brazil (Panizzi, 2008). According to this author, *P. guildinii* could seldom be found in Brazil's soybeans before the 1970s when soybean was not the

dominant legume crop that it is today (Panizzi et al., 2000). As with other soybean stink bugs, *P. guildinii*, feeds primarily on maturing seed pods. This species' life cycle, reproduction, longevity, and dispersal patterns have been well studied (Panizzi et al., 2000). No studies have been conducted in Puerto Rico to determine its economic importance despite recent increases of soybean production for seeds.

MATERIAL EXAMINED.

MONA ISLAND. Playa Pájaros. 20. Dec. 1988. Segarra & Pantoja. (♀ ♂); **VIEQUES ISLAND.** 20 Dec. 1919. (♀) NO OTHER DATA; PRAccNo. 238-47. Oct. 1947. Martorell, L. F. & Caldwell. (♀ ♂); **PUERTO RICO.** *Aguadilla:* 26 Aug. 2003. Garmos, H. (3♂); *Arecibo:* PRAccNo. 398-86. 6 Aug. 1986. Medina-Gaud, S. & Franqui R. *Ex.* Rice, grasses weeds. (2♀); *Cabo Rojo:* Dec. 1997. Torres, W. O. (♀ ♂); 18°00'66"N 67°10'96"W. 28 Apr. 2012. Segarra, A. *Ex.* UV light. *Camuy:* 12. Mar 1982. Córtes, R. (♀); *Cataño:* 29 Nov. 1986. Mariti, C. (♂); *Corozal:* 18 Oct. 1976. B. L. T. (♂); *Guaynabo:* 23 Oct. 1988. Vargas, W. (♀); *Isabela:* PRAccNo. 76-85. 26 Aug. 1985. Virkki, M. *Ex.* Vegetation at Seashore. (♀); PRAccNo. 125-85. 26 Aug. 1985. Virkki, M. *Ex.* Vegetation at seashore. (♀); *Lajas:* PRAccNo. 6-54. 28 Jan. 1954. Martorell, L. F. (♂); Feb. 1991. Mejía, G. (3♀); Mar. 1991. Mejía, G. (♀); 18°01'49"N 67°04'28"W. 31 May 2006. Segarra, A. *Ex.* Sweeping. (♀ 4♂); *Manatí:* PRAccNo.110-87. 10 Oct. 1987. Virkki, M. (♀ ♂); *Mayagüez:* 16 Sept. 1988. Candelas, S. (♂); 13 Sept. 2013. Martínez H. (♂); 15 Feb. 2013. Pérez, P. (♀); *San Juan:* Río Piedras. PRAccNo. 72-12. 24 Jan. 1912. Jones, T. H. (♂); PRAccNo. 177-12. 21 Feb. 1912. Jones, T. H.; PRAccNo. 786-14. 31 Jul. 1914. Jones, T. H. (♀); PRAccNo. 198-16. 6 Mar. 1916. R. T. C. (♀ 4♂); PRAccNo. 564-16. 15 Jun. 1916. Smyth, E. G. (♂); PRAccNo. 619-16. 27 Jun. 1916. Smyth, E. G. (♀); PRAccNo. 159-16. 5 Nov. 1916. Cotton, R. (♂); Puerto Nuevo. 13 Mar. 1988. Medina, F. (♀); *San Sebastián:* 30 Aug. 2013. Martínez, H. (♂).

Proxys victor (Fabricius, 1775: 705) [Plate III, Fig. 26]

Cimex victor Fabricius

Proxys victor Distant

Proxys punctulatus Gundlach (misidentification according to Barber, 1939).

DISTRIBUTION.

Puerto Rico, Hispaniola, Jamaica, Dominica, Grenada, St. Vincent, Mexico, Central and South America.

HOST PLANTS.

Host plant collection records in Puerto Rico include: dayflower, *Commelina* sp. (Commelinaceae); crookneck squash, *Cucurbita moschata* (Duch.) Duchesne & Poir. (Cucurbitaceae); pigeon peas, *Cajanus cajan* (L.) Millsp.* (Leguminosae); grapefruit, *Citrus paradisi* MacFayden (Rutaceae), and tomato, *Lycopersicon esculentum* Mill.* (Solanaceae). Brailovsky et al. (1992) reports the following hosts in Mexico: smallcane, *Lasiacis divaricata* L., and hilograss, *Paspalum conjugatum* Bergius (Poaceae). Maes (1994) also reports coffee, *Coffea* sp. (Rubiaceae) as a host plant.

REMARKS.

Gundlach (1893) first reported this species as *Proxys punctulatus* (Palisot de Beauvois), a closely related Central American species that is also reported from Hispaniola by Pérez-Gelabert and Thomas (2005). This is a dark brown, medium-sized (9-10 mm) stink bug can be readily identified by the formidable armature of its humeral spines, its white-tipped scutellum, and its eyes separated from pronotum by about ½ diameter, their base striated between each eye and the pronotum. Little is known of its life cycle and natural history.

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 18°10.22N 66°47.72W. 18 May 2012. Segarra, A. & Pérez, H. *Ex.* Merc Vapor/ UV light. (2♂); *Añasco*: Acc No. 1029-13. 8 Oct. 1913. Smith, E. G. (♂); 2 Nov. 2013. Túa, G. (♀); *Corozal*: 13 Aug. 1976. *Ex.* UV light. (♀); 27 Aug. 1976. *Ex.* UV light. (♂); 29 Aug. 1976. *Ex.* UV light. (♀); 11 Sept. 1976. *Ex.* UV light. (♀); 21 Sept. 1976. *Ex.* UV light. (♀); 29 Sept. 1976. *Ex.* UV light. (♂); 1 Oct. 1976. *Ex.* UV light. (♀); 20 Oct. 1976. *Ex.* UV light. (♂); *Guánica*: PRAccNo. 1029-13. 23 Sept. 1913. Smith, E. G. (♀ ♂); *Humacao*: 6 Apr. 2012. Berrios, M. (♂); *Isabela*: 13 Mar. 1987. K. Christian. *Ex.* Pigeon pea. (♂); 20-21 Oct. 1987. Cruz, R. *Ex.* light. (♂); *Manatí*: PRAccNo. 312-86. 2 Apr. 1986. Medina-Gaud, S. & Pantoja, A. *Ex.* Rice. (8♀ 4♂); *Mayagüez*: 12 Mar. 1979. Ronda, P. *Ex.* tomato. (♂); 20 Sept. 2008. Oliveras, H. (♂); 4 Sept. 2013. Túa, G. (♀); *Vega Baja*: PRAccNo. 313-86. 3 Jun. 1986. Pantoja, A. *Ex.* Rice. (♀ 2♂); *Sabana Grande*: 29 Apr. 2009. Ortiz, A. (♀).

Runibia caribeana Zwetsch & Grazia (2001: 10) [Plate IV, Fig. 36]

Cimex perspicuus Burmeister.

Pentatoma perspicua Amyot & Serville

Runibia perspicua Stål

Runibia caribeana Zwetsch & Grazia

DISTRIBUTION.

Puerto Rico, Vieques Island, and St. Thomas.

HOST PLANTS.

This species has been recorded only on “vega blanca”, *Brunfelsia lactea* Krug & Urb. from El Yunque Caribbean National Forest. Another species of this small genus, *Runibia perspicua* (F.), has been also collected on *Brunfelsia* sp. in Brazil (Zwetsch and Grazia, 2001).

REMARKS.

This beautiful, large (15 mm), orange and black species was first recorded from Puerto Rico by Wolcott (1948) from a specimen collected in Mayagüez in 1935. The only specimen preserved in MEBT was that collected from El Yunque by Miss Anne Wolcott, daughter of that most prolific of Agricultural Experiment Station entomologists, Dr. George N. Wolcott. The paucity of collections indicates that this is a very rare endemic species.

MATERIAL EXAMINED.

PUERTO RICO. *Río Grande*: El Yunque. 11 Nov. 1950. Wolcott, A. (♀).

Thyanta (Argosoma) obsoleta (Dallas, 1851: 215) [Plate V, Fig. 45]

Pentatoma obsoleta Dallas

Thyanta obsoleta Lethierry and Severin

Thyanta casta (not Stål) (Barber, 1923 and 1939; Wolcott, 1948)

Thyanta (Argosoma) obsoleta Rider and Chapin (1992)

DISTRIBUTION.

Puerto Rico, Mona Island*, Caja de Muerto Island, Vieques Island, St. Thomas, St. Croix, Tortola, Hispaniola, Cuba, Jamaica, and the Bahamas.

HOST PLANTS.

No host plants have been recorded from Puerto Rico.

REMARKS.

This West Indian species was first reported in Puerto Rico by Barber (1923) as *Thyanta casta*. Its genus was last reviewed by Rider and Chapin (1991, 1992). This is a small (6-8 mm) green species, reminiscent of *Cyptocephala antiguensis* but with no reddish band between humeri. *Thyanta obsoleta* can be separated from its congener *Thyanta perditor* (F.) by its smaller size, by generally lacking a trans-humeral reddish band, and by having rounded humeral angles. A close congener, *Thyanta testacea* (Dallas) occurs in the U.S. Virgin Islands hinting at the possi-

bility that it may occur at least on Vieques, Culebra and areas of eastern Puerto Rico. According to Rider and Chapin (1992), the latter is also a member of the *maculata* group, and differs from congeners by having apically acute parameres which curve dorsad.

MATERIAL EXAMINED.

MONA ISLAND. Sardinera. 18. Dec. 1988. Ex. light. Segarra & Pantoja. (♂ ♀); Playa Mujeres. 20. Dec. 1988. Segarra & Pantoja. (♀). **PUERTO RICO.** *Cabo Rojo*: 18°02'38"N 67°10'59"W. 5 Jun. 2006. Segarra, A. Ex. light. (♀); 18°00.66N 67°10.96W. 28 Apr. 2012. Segarra, A. Ex. UV light. (♀); 17°57.24N 67°11.96W. 24. Dec. 2014. Ex *Sweeping*. Segarra, A. (♂); *Juana Díaz*: 4 Jun. 2010. Vega, M.; *Lajas*: 18°01'49"N 67°04'28"W. 31 May. 2006. Segarra, A. Ex. *Sweeping*. (♂); 4 Jul. 2010. Ortiz, K. (♀); 27 Aug. 2011. Caraballo, A. (♂); *Villalba*: 10 Apr. 2010. Matos, E. (♀);

Thyanta (Thyanta) perditor (Fabricius, 1794: 102) [Plate V, Fig. 44]

Cimex perditor Fabricius

Pentatoma fascifera Palisot de Beauvois

Pentatoma collaris Westwood

Euschistus perditor Dallas

Pentatoma (Mormidea) perditor Guérin-Ménéville

Thyanta perditor Stål

Thyanta (Thyanta) perditor Rider & Chapin (1991)

DISTRIBUTION.

Puerto Rico, Mona Island, Vieques Island, St. Croix, St. Thomas, Hispaniola, Grenada, Barbados, Trinidad, Southern United States, México, Central America, Venezuela, Brazil and northern Argentina. JAR has specimens from Montserrat*, Guadeloupe, and St. Eustatius*.

HOST PLANTS.

Host plant collection records in Puerto Rico include: spiny spider-flower, *Cleome spinosa* L. (Cleomaceae); Sea Island cotton, *Gossypium barbadense* L. var. *barbadense* (Malvaceae); lima beans, *Phaseolus lunatus* L., common beans, *P. vulgaris* L., pale rattlebox, *Crotalaria pallida* Ait., and papagallo, *Sesbania sericea* (Willd.) Link* (Leguminosae); pitted stripeseed, *Piriqueta cistoides* (L.) Griseb. (Passifloraceae); grapefruit, *Citrus paradisi* Macfayden (Rutaceae); tomato, *Lycopersicon esculentum* Mill., and eggplant, *Solanum melongena* L.* (Solanaceae). Collection records from Hispaniola by Pérez-Gelabert and Thomas (2005) include: hairy beggarticks, *Bidens pilosa* L., jack-in-the-bush, *Chromolaena odorata*

(L.) R.M. King & H. Rob. (Asteraceae); wild bushbean, *Macropodium lathyroides* (L.) Urb., and soybean, *Glycine max* (L.) Merr (Leguminosae).

REMARKS.

This is the type species for genus *Thyanta* Stål; Gundlach (1893) first listed it from Puerto Rico. It is a common species, somewhat similar in size and appearance to *Piezodorus guildinii*, but easily recognized by its prominent red humeral spines. The species is commonly collected in Puerto Rico. Panizzi et al. (2000) considers this species to be a pest of Poaceae (e.g., sorghum), and of legumes in South America. Notes on its biology, life cycle and natural enemies can be found in Panizzi and Herzog (1984).

MATERIAL EXAMINED.

PUERTO RICO. *Aguadilla*: 5 Oct. 1991. González, V. (♂); 26 Aug. 2003. Garmos, H. (2♀ ♂); *Añasco*: PRAccNo. 1109-13. 8 Oct. 1913. E. G. S. (♂); 3 Sept. 1981. Inglés, R. (♂); *Arecibo*: Nov. 1964. Medina-Gaud, S. (♀); PRAccNo. 86-86. 20 Mar. 1986. Medina-Gaud, S. & Pantoja, A. *Ex.* Rice green panicle. (♂); PRAccNo. 420-86. 17 Aug. 1986. Franqui, R. *Ex.* Rice Field. (♀); PRAccNo. 400-86. Aug. 1986. Medina-Gaud, S. & Franqui, R. *Ex.* Rice, grasses, weeds. (♀); *Cabo Rojo*: 21 Nov. 1999. Tamayo, R. (♂); *Carolina*: 13 Oct. 1988. Jiménez, J. (♀); *Cayey*: 13 Nov. 1988. Galarza, N. (♀); 15 Nov. 1988. López, C. (♀); *Corozal*: 18 Oct. 1976. A.C.S. B.L.T. (♀); *Dorado*: 27 Sept. 1988. López, I. *Ex.* Weed. (♂); *Guayanilla*: 25 Sept. 1987. Inglés II. (♂); *Isabela*: 5 Nov. 1978. Mendoza, J. B. (♂); PRAccNo. 125-85. 26 Aug. 1985. Virkki, N. *Ex.* Vegetable at Sea shore. (♀); *Juana Díaz*: PRAccNo. 116-89. 2 Nov. 1989. Segarra, A. & Medina-Gaud, S. *Ex.* Eggplant leaves. (3♂); PRAccNo. 116-89. 29 Nov. 1989. Segarra, A. & Medina-Gaud, S. *Ex.* Eggplant leaves. (♀ 2♂); PRAccNo. 116-89. 7 Dec. 1989. Segarra, A. & Medina-Gaud, S. *Ex.* eggplant leaves. (♂); *Lajas*: PRAccNo. 45-54. 28 Jan. 1954. *Ex.* Silky sesban. (♀); *Lares*: 10 Apr. 1982. Román, I. *Ex.* Coffee. (♀); *Manatí*: PRAccNo. 93-84. 4 Apr. 1984. Medina-Gaud, S. *Ex.* Crotalaria pod. (6♀ ♂); *Mayagüez*: 12 Mar. 1979. Ronda, D. V. *Ex.* Tomato. (♂); 3 Sept. 1981. Inglés, R. *Ex.* *Solanum* spp. (♀); *San Juan*: Río Piedras. PRAccNo. 831-14. 10 Aug. 1914. Jones, T. H. (2♀ 2♂); PRAccNo. 833-14. 10 Aug. 1914. Jones, T. H. (♀); *San Sebastián*: 10 Sept. 1978. Feliciano, C. (♂); 8 Nov. 1986. Nuñez, P. (♀); 8 Nov. 1986. Gordián, L. (♀); 10 Nov. 1986. Nuñez, P. (♂); *Utua*: 4 Apr. 1987. (♂); *Vega Baja*: PRAccNo. 510-16. 4 Aug. 1916. Cotton, R. T. (♀ ♂); PRAccNo. 384-86. 9 Jul. 1986. Pantoja, A. *Ex.* rice field. (♀); 8 Mar. 1987. Elias, A. (♂); 8 Mar. 1987. Vázquez, V. (♀).

Halyomorpha halys (Stål, 1855:182) [Plate I, Fig. 2]

Pentatoma halys Stal
Poecilometis mistus Uhler
Dalpada brevis Walker
Dalpada remota Walker

DISTRIBUTION.

China, Korea, Japan, Taiwan, United States.

HOST PLANTS.

The brown marmorated stink bug is a highly polyphagous pest attacking more than 100 plant species, primarily fruit trees and woody ornamentals, but also field crops. Fruit crops: *Citrus* spp., Apples *Malus domestica* and other Rosaceae. It has been also recorded from field crops such as: Asparagus, *Glycine max* (soybean), *Phaseolus vulgaris* (common bean), *Zea mays* (maize); and from forest and ornamental trees/shrubs.

REMARKS.

This is the first report of the brown marmorated stink bug in Puerto Rico. The species was erroneously reported as *Apateticus lineolatus* (Herrich-Schäffer) by Segarra et al. (2015), and we thank Dr. Cory Penca (Department of Entomology - UFLA) for correctly identifying this species. The species is a member of Cappaeini which in general are brown in color and have elongate, apically acuminate ostiolar rugae. A good summary on the biology and importance of this pest species can be found in Gyeltshen et al. (2013).

MATERIAL EXAMINED.

PUERTO RICO. *Mayagüez*: 12 Aug. 2011. Jorge K. (♀); *Villalba*: 22 Feb. 2014. E. Pérez (♀);

Vulsireia violacea (Fabricius, 1803: 167) [Plate II, Fig. 15]

Cimex violaceus Fabricius
Vulsireia violacea Stål

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Mexico, and Central America.

HOST PLANTS.

No host plant records exist in Puerto Rico. In Mexico, López and Cervantes-Paredo (2010) found it feeding and breeding on fruit of gulf greytwig, *Schoepfia schreberi* J. F. Gmel.

REMARKS.

Wolcott (1936) first lists this species in Puerto Rico from specimens collected by R.G. Oakley in 1933 in Ponce. Barber (1939)

mentions that a number of color varieties are recognized, which gave rise to classification by several specific names now relegated to extensive synonymies lists. This appears to be a rare species in Puerto Rico, and little is known about its biology or distribution.

MATERIAL EXAMINED.

PUERTO RICO. Mayagüez: 13 Aug. 1981. Inglés R. (♂).

Brepholoxa rotundifrons Barber (1939: 300) [Plate II, Fig. 16]

DISTRIBUTION.

Puerto Rico, Mona Island, Anegada, and Hispaniola.

HOST PLANTS.

There are no host plant records for this species in Puerto Rico. In Florida, Eger (1987) reports finding adults and nymphs of its relative *B. heidemanni* Van Duzee feeding on bay cedar fruit *Suriana maritima* L. (Surianaceae).

REMARKS.

Barber (1939) described this species from a Haitian holotype, and from female paratypes from Guánica (Ensenada), and from Anegada Island. The specimen at MEBT, collected from Mona Island, is a dull stramineous yellow, 7 mm in length. According to the description, this species can be distinguished from its congener *Brepholoxa heidemanni* Van Duzee by its bluntly rounded front of the head. The only specimen examined here belongs to the JAR collection.

MATERIAL EXAMINED.

MONA ISLAND. 11-31 Aug. 1944. H.A. Beatty (♂, JAR)

FAMILY TESSARATOMIDAE

According to Schuh and Slater (1995), tessaratomids are large to very large, robust, ovate-elongate bugs. In comparison with their body, their heads are rather small and triangular. Another distinguishing trait is their metasternum, which is enlarged and produced anteriorly. The group was first recognized by Stål as a pentatomid subfamily, and remained as such until relatively recently. The family is primarily native to the Old World tropics of Australasia.

Piezosternum subulatum (Thunberg, 1783: 41) [Plate VI, Fig. 46]

Cimex subulata Thunberg

Piezosternum subulatum Distant

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, México, and Central America south to Brazil.

HOST PLANTS.

Host plants reported from Puerto Rico include: elephant's ear, *Xanthosoma* spp. (Araceae), balsampear (*Momordica charantia* L.) (Cucurbitaceae), peas (*Pisum sativum* L.) (Leguminosae); breadfruit (*Artocarpus altilis* (Parkinson) Fosberg) (Moraceae), passionvine (*Passiflora* spp.) (Passifloraceae); coffee (*Coffea arabica* L.) (Rubiaceae); grapefruit (*Citrus paradisi* Macfayden) (Rutaceae); and tomato (*Lycopersicon esculentum* Mill.) (Solanaceae).

REMARKS.

This is a large (15-20 mm), green pentatomorph. It can be recognized by its forwardly produced keel-like metasternum (not bifid), and by its short rostrum that barely surpasses the procoxae. According to Pérez-Gelabert and Thomas (2005), *Piezosternum* is the only tessaratomine genus occurring in the New World, and one of the few pentatomoidea that has species in both America and Africa. Wolcott (1936) reports both nymphs and adults feeding on *Passiflora* sp. Although listed on a number of host plants, this species is not commonly found in Puerto Rico and has not been considered a pest.

MATERIAL EXAMINED.

PUERTO RICO. *Adjuntas*: 11 Feb. 1995. Inglés, R. (♂); *Corozal*: 18 Oct. 1976. *Ex.* UV light. (♂); *Gurabo*: 12 Nov. 1988. Lora, C. (2♂); 10 Dec. 1988. Gómez, M. (♀ ♂); *Isabela*: 27 Feb. 1998. Hernández, L. (♂); *Luquillo*: 2 Oct. 1988. Santiago, E. (♂); *Mariacao*: 18°09.40N 66°59.86W. 2 Feb. 2012. Otero, M. (♀); *Mayagüez*: May 1987. González, R. (♂); 9 Apr. 2009. Pacheco S. (♂); 9 May 2009. Rosario, M. (♂); *Río Grande*: PRAccNo. 212-44. 12 Nov. 1944. Wolcott, G. N. (♀); PRAccNo. 12-47. *San Juan*: Río Piedras. 2 Mar. 1947. Wolcott, G. N. (♀); *Vega Alta*: PRAccNo. 101-87. 8 Mar. 1987. Virkki, N. (♂); 27 Mar. 1988. Medina, F. (♂); 9 Apr. 1988. Galarza, N. (♂); 25 Apr. 1988. A. F. (♂); *Villalba*: 1 Apr. 2013. (♀); *Yauco*: 23 Feb. 2012. Torres, L. (♀).

FAMILY SCUTELLERIDAE

Members of this family are well known as "shield bugs," because of their greatly enlarged scutellum covering the abdomen. According to Schuh and Slater (1995), most species are moderate to large, ranging from 5-20 mm, and some tropical species are vividly colored, even becoming iridescent. Antennae are 3- or 5-segmented.

Scutellerids were considered, up until the recent past, a subfamily within Pentatomidae as discussed by Barber (1939) and by Wolcott (1948). Schuh and Slater (1995) treat them as a family, and recent morphological and molecular analyses support the concept of these insects as a monophyletic taxon (Grazia et al., 2008). In general, these insects have not been the subjects of much scientific study, thus the life histories of most species remain unknown. Another unfortunate aspect affecting their taxonomic study is the lack of an updated catalogue of species with which to ascertain their synonymies and current geographical distributions. The last one was prepared over a century ago by Kirkaldy (1909); while superb, it is sorely out-of-date.

All shield bugs are plant feeders, and some are of economic importance, specially the Holarctic species of *Eurygaster* Laporte, which are pests of wheat and barley in the Near East (Javahery et al., 2000). Many scutellerids (also pentatomids) are known for their maternal instincts in which females actively protect their eggs by warding off attacks from parasitoids and predators (Schuh and Slater, 1995). Four subfamilies are recognized, of which two are represented in Puerto Rico: Scutellerinae and Pachycorinae. The other two subfamilies, Eurygastrinae and Odontotarsinae have Holarctic distributions. There are approximately 80 genera, and about 450 to 500 described species. The group is represented in Puerto Rico by 7 species in 6 genera (see Wolcott, 1948), plus one new record reported here for *Diolcus variegatus* (Herrich-Schäffer).

Key to Scutelleridae in Puerto Rico

- 1. Antennae 3-segmented; venter devoid of stridulatory area on each side of disk *Augocoris illustris* (F.)6
- Antennae 5-segmented; venter stridulatory area on each side of disk2
- 2(1). Metathoracic scent gland canal prolonged over ½ distance from ostiole to margin of metapleuron on metapleuron3
- Metathoracic scent gland canal absent or if present as a small auricle extending less than ½ distance from ostiole to margin of metapleuron.....4
- 3(2). Metathoracic scent gland canal gradually expanding and abruptly bending in right angle before metapleuron... *Sphyrocoris obliquus* (Germar)
- Scent gland canal straight, sides parallel .. *Symphylus caribbeanus* Kirkaldy
- 4(2). Ostiole closer to coxae than to metapleuron; scent canal greatly reduced to small; face of tibia with double longitudinal groove5

- Ostiole placed midway between coxae and metapleuron; face of tibia with single longitudinal groove 7
- 5(4). Head long, nearly as long as wide; antennae with dark annulations. *Diolcus variegatus* (Herrich-Schäffer)
- Head shorter, clearly wider than long; antennae uniform in color . . . 6
- 6(5). Some punctuation metallic bluish or green; typically no marks on scutellum, but some specimens, specially females, with single black macula on each side; last abdominal segment in males hiding genitalia *Diolcus disjunctus* Barber
- No metallic bluish or green punctuation; usually no marks on scutellum, but many specimens, specially females, with two adjacent black maculae near disk; last abdominal segment in males not hiding genitalia. *Diolcus irroratus* (F.)
- 7(4). Scutellum as wide or nearly as wide as abdomen; *Connexiva* covered or nearly covered by scutellum; black and orange markings *Pachycoris fabricii* (L.)
- Scutellum not as wide as abdomen; *Connexiva* not covered by scutellum; no orange or red markings. *Tetyra antillarum* Kirkaldy

SUBFAMILY Augocorinae

Augocoris illustris (Fabricius, 1781:340) [Plate VI, Fig. 47]

Cimex 6-punctatus Fabricius (preoccupied. 1781: 339).

Cimex illustris Fabricius

Augocoris poeyi Uhler

Augocoris sexpunctatus Gundlach (1893)

Augocoris pallidus Wolcott (1924)

Augocoris illustris Barber and Bruner

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, St Thomas, St. Croix, Dominica, Florida (USA), Mexico, Costa Rica, Panama, Argentina, Brazil, Paraguay, and Uruguay.

HOST PLANTS.

The host plant records from Puerto Rico are: Sapodilla (*Manilkara zapota* (L.) P. van Royen) (Sapotaceae), and swordbush (*Phyllanthus epiphyllanthus* L.) (Phyllanthaceae). Collections have been made on fruit of satinleaf (*Chrysophyllum oliviforme* L.) (Sapotaceae) from Cuba (Barber & Bruner, 1932).

REMARKS.

This species was first reported in Puerto Rico by Gundlach (1893) by its synonym *A. sexpunctatus*. The striking scutellerid is large

(11-15 mm) with very variable coloration. According to Barber and Bruner (1932) color varies from purplish-black marked with orange-red spots, to ivory white with a few reddish-brown markings, and to many variations in between including solid brick-red. These authors note that this has likely caused the species to be classified under numerous scientific names since its description by Linnaeus. Little is known about the life history of this shield bug.

MATERIAL EXAMINED.

PUERTO RICO. *Aguadilla*: 2 Apr. 1976. (♀); 7 Apr. 2006. Valentín Ríos, X. (♀); *Aguas Buenas*: 3 Jan. 1938. Palmer, A. (♀); *Are-cibo*: Cambalache. 6 Nov. 1975. Inglés, R. (♀); *Bayamón*: 3 Aug. 1913. Johnston, J. R. (♀); *Fajardo*: 15 Mar. 1944. Pérez, M. (♀, JAR); *Luquillo*: Acc. No 01-80. 2 Aug. 1980. Martorell, L. F. Ex. At light (♀); *Maricao*: State Forest. 22 Jun. 1955. Ramos, J. A. (♀, JAR); *Mayagüez*: 25 Mar. 1927. Danforth, T. (♀, JAR); 25 Jul. 1971. Ramos, J. A. (♀, JAR); 12. Sep. 1982. Cortés, R. (♂); *Rincón*: 16 Jul. 1960. Ramos, J. A. (♀, JAR); 29 Apr. 1976. (2♀, JAR); *Sabana Grande*: Susúa Forest. 11 Nov. 1952. Ramos, J. A. (♀, JAR); *San Juan*: Río Piedras. Agr. Expt. Subst. 30 Nov. 1970. Garcia Tudurí, J. (♂); 27 Nov. 1990. Pérez, M. (♀, JAR); *Trujillo Alto*: Acc. No 26-90. 29 Mar. 1990. Mercado, R. (♀); NO DATA (3♀).

SUBFAMILY Pachycorinae

Pachycoris fabricii (Linnaeus, 1771: 534) [Plate VI, Fig. 53]

- Cimex fabricii* Linnaeus
- Scutellera fabricii* Palisot de Beauvois
- Pachycoris gutiula* Herrich-Schäffer
- Pachycoris nitens* Westwood
- Pachycoris pumila* Westwood
- Pachycoris angularis* Germar
- Pachycoris fabricii* Gundlach
- Pachycoris torridus* Scopoli (in Wolcott, 1936)

DISTRIBUTION.

Puerto Rico, Mona Island, Hispaniola, Cuba, Suriname, and Brazil.

HOST PLANTS.

Host plants reported from Puerto Rico include: Smooth manjack (*Cordia laevigata* Lam.) (Boraginaceae); lechecillo (*Croton discolor* Willd.), pepperbush (*Croton humilis* L.), lobed croton (*Croton lobatus* L.), milktree (*Sapium laurocerasus* Desf.) (Euphorbiaceae); guava (*Psidium guajava* L.) (Myrtaceae); grapefruit (*Citrus aurantium* L.) (Rutaceae); Caribbean burn nose (*Daphnopsis americana*

ssp. *caribaea* (Griseb.) Nevi.) (Thymeleaceae); and bottomsage *Lantana involucrata* L. (Verbenaceae).

REMARKS.

This species was first reported in Puerto Rico by Gundlach (1893). Wolcott (1948) described this beautiful variable insect as "...the most common and possibly the most striking of all shield bugs, the nymphs being bright iridescent green, the adults somewhat darker and velvety, spotted orange-red, the four largest spots on the abdomen (sic scutellum) often coalescing, and in a few individuals extending over nearly the entire abdomen." This is a common shield bug occurring most abundantly in arid areas, but can also be found at higher elevations. Maternal care in this species was first documented by E.G. Smyth, one of the first University of Puerto Rico entomologists, in a popular magazine article in 1919 (Wolcott 1936). According to Wolcott (1948), wild crotons, the pepperbush (*Croton humilis*) and "lechecillo" (*Croton discolor*) are some of the favorite host plants of this species in Puerto Rico and on Mona Island. Another common host is bottomsage (*Lantana involucrata* L.), which, like the wild crotons, is common in arid areas. Eggs and adults on foliage, and nymphs breeding were found on leaves of smooth manjack (*Cordia laevigata*) (Martorell, 1976).

MATERIAL EXAMINED.

PUERTO RICO. *Aibonito*: 24 Oct. 1988. Rivera, F. (♂); *Aguada*: Acc. No 229-1922. Coloso. 23 Jul. 1922. Wolcott, G. N. (♀); *Agua-dilla*: 23 Oct. 1987. De Jesús, L. (♀); 23 Oct. 1981. Valentín, R. (♂); 10 Apr. 1982. Pellot, M. (2♀); 15 May 1982. Soto, F. (♀); 13 Feb. 2009. Visbal, J. (♂); 29 Jan. 2009. Visbal, J. (♂); 7 Apr. 2009. (♂); *Añasco*: 12 Mar. 2009. Jiménez, A. (♀); *Barranquitas*: 3 Mar. 2011. Silmarie. (♀); *Cabo Rojo*: Playa Combate. 17 Mar. 2011. Aponte, L. E. (♀); El Faro. 2 Dec. 2011. Morales, K. (♀); El Faro. 3 Dec. 2011. Morales, K. (2♂); Combate. 1 May 2009. Lamourt, A. (♂); *Cayey*: Bo. Farallón. 21 Oct. 2011. Caraballo Ferrer, J. (2♀ ♂); *Ciales*: Acc. No 174-86. 26 Apr. 1986. Pantoja, A. Ex. Vegetation. (2♀); *Guayama*: Guamaní. 1 May 1982. Poventud, A. (♀); *Guayanilla*: 8 Sep. 1979. Gallardo Covas, F. (♀); *Hatillo*: Acc. No 507-18. 1918. (2♀ 4♂); *Isabela*: Acc. No 255-39. 22 Sep. 1939. Martorell, L. F. (♀); *Arenales*. 17 Nov. 1974. Inglés, R. Ex. On Tobacco. (♀); Bo. Jobos. 7 Feb. 1982. Olivieri, L. J. (♀); Bo. Jobos. 1 Feb. 1982. Martínez, W. (♂); Guajataca. 12 Oct. 1982. Pérez, M. (2♂); Acc. No 75-85. Playa Jobos. 29 Jul. 1985. Virkki, N. Ex. vegetation at sand dunes. (2♂); Acc. No 123-85. Playa Jobos. 26 Aug. 1985. Virkki, N. Ex. vegetation at seashore. (3♀ 2♂); Acc. No. 170-86. Agri. Expt. Subst.

Ex. sticky trap in peppers. 24 Apr. 1986. Segarra, A. (♀); 25 Jul. 1986. Inglés II. (♀); E. E. A. 30 Aug. 1991. González, V. (2♀); *Jayuya*: 30 Oct. 2008. Santiago, A. (♀); *Mayagüez*: 10 Oct. 1947. Torrech, R. (♀); Sep-Oct. 1986. Marín, N. (♀); Nov. 1979. Armstrong, A. (♂); Mar. 1982. Sánchez, M. (♀); 25 Apr. 1982. Almodóvar, W. (♀); 15 Oct. 1982. Córdoba, F. (♀); 12 Feb. 1985. Ángel. (♂); 3 Mar. 1985. Peralta, A. (♀); 10 Apr. 1985. Velázquez, J. Ex. ornamental. (♀); 11 Aug. 2008. Paoli, P. (♂); 30 Aug. 2008. Valentín, E. (♂); 13 Sep. 2013. Maldonado, S. M. (♀); Sep. 2011. Rodríguez, E. Y. (♀ ♂); *Moca*: 9 Oct. 1981. Ruíz, R. D. (♀); 20 Mar. 1983. Bosque, P. A. (♂); *Ponce*: Acc. No 112-1913. 13 Feb. 1913. Jones, T. H. & G. Wolcott. (2♀ 3♂); *Quebradillas*: Caldwell & Martorell. (3♀); 13 Aug. 2009. Curbelo, M. (♀); 29 Nov. 2009. Curbelo, M. (♀); 3 May 2011. Reyes, M. (♀); *San Juan*. Río Piedras: Agri. Expt. Subst. Ex. Malaise Trap. 24 Oct. 1968. (♂); Jardín Botánico. 7 Feb. 2009. Pacheco, S. M. (♀); *Utua*: Río Abajo Forest; Road #621, Km. 3.8 – 1160ft. 18°18'N 67°4'W. 18 Aug. 1965. Medina-Gaud, S. (2♀); 17 Sep. 1983. González, F. (♀); Apr. 1985. Maldonado, E. (♀); **MONA ISLAND**: Apr. 1935. A. M. E. (2♀, JAR); Mar. 1944. I. T. A. Ex. On Weeds. (♀, JAR); 31 May 1963. Berrios, A. (♀ 2♂); **NO DATA** (2♀ ♂).

Sphyrocoris obliquus (Germar, 1839: 94) [Plate VI, Fig. 48]

Pachycoris obliquus Germar

Sphyrocoris obliquus Gundlach (1893)

Mesotrypa sinuosa Uhler (incorrect reference in Wolcott, 1948)

DISTRIBUTION.

Puerto Rico, Hispaniola, Grenada, Martinique, Grenadines*, Union Islands*, Cuba, Florida (USA), Mexico, Costa Rica, Guatemala, and Colombia.

HOST PLANTS.

No host plants have been recorded from Puerto Rico. Elsewhere, Eger (2012) lists beggarticks (*Bidens pilosa*) (Asteraceae).

REMARKS.

This species was described from the island of Martinique, and first reported in Puerto Rico by Gundlach (1893). In Wolcott (1948) this species appears mistakenly as *Mesotrypa sinuosa* Uhler as reported Gundlach (1893). Only one specimen is known from Puerto Rico, collected by Blanch in Luquillo in 1932 (JAR). This is a small (6-7.5 mm), light to dark dull brown shield bug, which is distinctive because its scent gland canal gradually expands and abruptly bends at a right angle before reaching the metapleuron. This is perhaps the rarest of all scutellerids on the island.

MATERIAL EXAMINED.

PUERTO RICO. *Luquillo*: 5 Aug. 1932. Blanch, I. (♂, JAR); **HISPANIOLA.** *Santo Domingo*: 10 Jun. 1934. Danforth, S. T. (♂, JAR). **GRENADA.** *St. George*: May 1937. Danforth, S. T. (♂, JAR); **GRENADINES:** Mayreau. Is. Apr. 1937. Danforth, S. T. (♂, JAR); **UNION ISLANDS.** Apr. 1937. Danforth, S. T. (♀, JAR).

Symphylus caribbeanus Kirkaldy (1909: 280) [Plate VI, Fig. 49]

Scutellera obliqua Guérin-Ménéville

Symphyllus deplanatus Uhler

Mesotrypa sinuosa Uhler (an unusual use of a bryozoan genus by Gundlach, 1893)

Symphylus caribbeanus Kirkaldy (new name)

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Grenada, and Florida (USA).

HOST PLANTS.

No host plants are listed for this species in Puerto Rico. Blatchley (1926) identifies wax myrtle (*Morella cerifera* L.Small) (Myricaceae) as a host plant in Florida.

REMARKS.

According to Barber (1939), this species was first reported in Puerto Rico by Gundlach (1893) as *Mesotrypa sinuosa* Uhler. It is a medium-sized shield bug (7-9 mm), light to dark brown. Wolcott (1948) describes this shield bug as "...a quaint species, grey-brown in color; with a large dark brown spot on the posterior half of the scutellum, out of which is cut an ivory white triangle behind." Darker specimens only show the ivory white spot, and in some lighter specimens the spot is almost invisible. All collections of this species come from southwestern Puerto Rico.

MATERIAL EXAMINED.

PUERTO RICO. *Guánica*: Insular Forest. Jul. 1937. Mora, F. (♀); Acc. No 184-41. 17 Sep. 1941. Lugo, N. (♀, JAR); Acc. No 90-48. 26 Aug. 1948. Pérez, M. E. (♀, JAR); State Forest. Jun. 1955. Ex. at light. Ramos & Maldonado. (♀, JAR); *Mayagüez*: 1-31 Jul. 1953. Ex. At light. Ramos, S. J. (♂, JAR); Oct-Nov. 1955. Méndez, A. (♂, JAR); Oct-Nov. 1955. Torres, M. S. (♂, JAR); NO DATA. (♀, JAR).

Tetyra antillarum Kirkaldy (1909: 284) [Plate VI, Fig. 54]

Cimex arcuatus Fabricius 1794 (Preoccupied name).

Tetyra arcuata Schiedte

Tetyra antillarum Kirkaldy (new name).

DISTRIBUTION.

Puerto Rico, Mona Island*, Hispaniola, Cuba, and Florida (USA).

HOST PLANTS.

No host plants have been recorded from Puerto Rico. Elsewhere, Maes (1994) reports the species being collected on coffee (*Coffea* sp., Rubiaceae), and Blatchley (1926) on potato tree (*Solanum erianthum* D. Don) (= *S. verbascifolium*) (Solanaceae).

REMARKS.

Barber (1939) first reports this species from Puerto Rico. This is a large (11-14 mm), dull brown shield bug, with antennal segments 3-5 dark at base and darker in its third. Specimen color goes from light to dark brown, all with two longitudinal pale spots on the pronotum, and many with two darker areas on the sides of scutellum that almost reach the forewing. The species appears widely distributed in Puerto Rico.

MATERIAL EXAMINED.

MONA ISLAND. 18°03.70N 67°54.21W. 6 Sep. 2013. UV/HgVap lamp. A. Segarra, Collazo, González & Feliciano; **PUERTO RICO.** *Aguadilla:* 7 Apr. 2006. Valentín Ríos, X. (♂); 12 Oct. 2013. Santiago, C. (♀); *Arecibo:* 12 Mar. 2010. Fariá, O. (♀); *Cabo Rojo:* 3 Apr. 1983. Pérez, J. A. (♀); 19 Apr. 2009. Jiménez, A. (♀); *Ciales:* Toro Negro. 19 Mar. 2011. Ostolaza, J. (2♀); *Corozal:* Agri. Expt. Subst. 13 Oct. 1976. B. L. T. (♀); *Fajardo:* Bo. Quebrada. 20 Feb. 2009. Pantojas, G. (♀); *Guánica:* Bosque Seco. 19 Nov. 1987. Inglés III. (2♀); *Guayama:* 7 May 2011. Ortiz, O. G. (♀); *Hatillo:* 6 Nov. 2009. Espinosa, J. A. (♀); 5 Oct. 1947. Bravo, F. A. (♀); 23 Jan. 1980. Altreche, W. I. (♀); *Lajas:* 23 Oct. 2011. Caraballo, A. (♀); *Las Marías:* Finca C. Villa. 22 Mar. 1980. (♀); *Mayagüez:* 24 Feb. 1937. Ramos, J. A. (♀, JAR); 21 Mar. 1943. Rodríguez, F. (♀); 21 Nov. 1949. Marín, N. (♀, JAR); Oct-Nov. 1955. Santiago, A. (♂, JAR); Oct-Nov. 1955. Pagán, J. (♀, JAR); Oct-Nov. 1955. Rosario, N. (♀, JAR); Miradero. 22 Mar. 2010. Acevedo, A. (2♀); Finca Alzamora. 10 Oct. 2012. González, A. (♀); *Moca:* 21 Jan. 2011. Medina, A. (♂); *Quebradillas:* 17 Feb. 2007. Vázquez, D. (♀); 8 Mar. 2007. Vázquez, D. (♀); *Rincón:* 6. May 2011. Valentín N. (♂); *San Germán:* 3 Dec. 2011. Lugo, Y. (♂); *San Sebastián:* 14 Aug. 2010. Crespo, A. (♂); *Utuado:* 10 Apr. 2010. Rosado, Y. (♀); *Yauco:* 27 Feb. 1982. Acevedo, J. (♂); Almácigo Bajo. 3 Jun. 2010. Juan, G. (2♀); 17 Apr. 2011. Rodríguez, R. (♀); Bo. Naranjo. 2 Feb. 2012. Martínez, G. (♀); NO DATA. (♀ ♂).

Diolcus disjunctus Barber (1939: 281) [Plate VI, Fig. 51]

Diolcus boscii Fabricius (misidentification in Barber 1923)

DISTRIBUTION.

Puerto Rico, St. Croix, and Grand Cayman.

HOST PLANTS.

No host plants are known for this shield bug.

REMARKS.

This species is apparently endemic to the Caribbean, being described by Barber (1939) from a male collected in 1914 in Ponce. Paratypes were collected from the island of St. Croix. This is a medium-sized (7-9 mm) species, shiny or dull brown, but some specimens are completely pale stramineous brown. Many female specimens have two dark spots on the scutellum, but these are closer to the edge than to the disk. This species can be readily identified by the presence of metallic bluish or green punctuation and by the last abdominal segment in males hiding genitalic structures.

MATERIAL EXAMINED.

PUERTO RICO. *Arecibo*: Valle Coloso. 1 Oct. 2011. Miranda, Y. (♀ ♂); 21 Nov. 2008. González, L. (♀); *Cabo Rojo*: 19 Oct. 2008. Umpierre, A. (♀); Boquerón. 20 May 2010. Ortiz, R. (2♂); 18°00.65N 67°10.96W. 5-6 Nov. 2011. Ex. blacklight. Segarra, A. (2♀); 12 Apr. 2007. Vázquez, M. Z. (♀); *Guánica*: Acc. No 185-41. 9 Nov. 1941. Lugo, N. (♂); *Lajas*: 10 Apr. 2009. Rosado Díaz, P. (♂); 30 Apr. 2009. Martínez, L. (♀); 1 May 2009. Martínez, L. (♂); *Mayagüez*: El Rosario, 11 Nov. 1991. González, V. (♀); 23 Oct. 2008. De Jesús, H. M. (♂); *Orocovis*: Toro Negro. 11 Nov. 2008. (♂); *Quebradillas*: 2 May 2009. Amador, J. (♀); *San Germán*: 12 Jan. 2011. Lugo, Y. (♂ ♀); *Utua*: 17 Mar. 2007. Romañach, G. (♀); 25 Apr. 2009. Valentín, J. (♀); Bo. Caonillas. 3 Mar. 2010. Rodríguez, J. (♂); *Yauco*: 15 Nov. 2013. Campos, J. (♀); NO DATA (3♀).

Diolcus irroratus (Fabricius, 1775: 699) [Plate VI, Fig. 52]

Cimex irroratus Fabricius

Scutellera nebulosa Palisot de Beauvois.

Scutellera hebraica Palisot de Beauvois.

Scutellera cordigera Palisot de Beauvois

Pachycoris flavescens Westwood.

Pachycoris irroratus Germar

Diolcus irroratus Stål

DISTRIBUTION.

Puerto Rico, Caja de Muerto Island*, Mona Island, Hispaniola, Cuba, Jamaica, San Salvador Island and South Bimini Island (Bahamas), and Antigua.

HOST PLANTS.

Plant collection records in Puerto Rico include: *Retama prieta* (*Senna polyphylla* (Jacq.) H.S. Irwin & Barneby) (Leguminosae), Sea Island cotton (*Gossypium barbadense* L.) (Malvaceae); corn (*Zea mays* L.) (Poaceae); and soldier wood (*Colubrina elliptica* (Sw.) Briz. (Rhamnaceae). Blatchley (1926) reports that this shield bug "...occurs almost exclusively on the foliage of the black mangrove, *Rhizophora mangle* L." in Florida, especially on the keys, along the edges of the tidewater lagoons. It is likely that this author meant *Avicennia germinans* (L.) L., which is the correct scientific name for that species of mangrove. Loc and Elliot (1996) found these insects on lechecillo (*Croton discolor*) and on grannybush (*Croton cascarilla* (L.) L. (= *C. linearis*), demonstrating a preference for lechecillo in San Salvador Island, Bahamas.

REMARKS.

This species, medium-sized (7-8 mm), was first reported by Wolcott (1936) from specimens collected in Salinas in 1929. Most are uniformly light, stramineous brown; some have darker areas on the scutellum, and some appear reddish. This species can be identified by the absence of metallic bluish or green punctation and by the last abdominal segment in males that does not hide its genitalia. Some females have two adjacent black maculae near the scutellum dis. This species also appears to have a mostly coastal distribution as seen by the distribution of collection sites, yet specimens have been collected in the mountains at Utuado.

MATERIAL EXAMINED.

MONA ISLAND. Uvero Beach. 20. Dec. 1988. Segarra & Pantoja. (2♀ 3♂); 18°05.24N 67°50.66W. 7 Sep. 2013. *Ex. sweeping vegetation.* Collazo & Segarra. (2♀ 5♂); **PUERTO RICO.** *Aguada:* Valle Coloso. 3 Sep. 2010. Acevedo, A. (♂); *Arecibo:* 4 Oct. 2008. González, L. (♂); 12 Mar. 2010. Faria, O. (♀); *Barranquitas:* 19 Apr. 2011. Silmarie. (♂); *Cabo Rojo:* Boquerón. 18°02.38N 67°10.59W. 5 Jun. 2006. *Ex. blacklight.* Segarra, A. E. (♂); Playa Buyé. 29 Apr. 2012. Hurtado, J. (♀); El Faro, Playa Sucia. 2 Apr. 2012. Padilla Brinn, E. (♀ 2♂); El Faro. 3 Dec. 2011. Morales, K. (3♂); Playa Sucia. 26 Apr. 2011. Reyes, M. (♂); 7 Mar. 2009. Rosado, P. (♂); *Guánica:* Ensenada. 25 May 2010. Ortiz, R. (2♀ ♂); *Guayanilla:* 28 Nov. 1981. Rivera, T. (♀); *Isabela:* Acc. No 77-85. Playa Jobos. 29 Jul. 1985. Virkki, N. *Ex. vegetation at sand dunes.* (5♀ 3♂); Acc. No 124-85. Playa Jobos. 26 Aug. 1985. Virkki, N. (6♀ 9♂); *Mayagüez:* UPRM. 25 Oct. 2008. Morales, D. (♀); 25 Oct. 2008. Díaz, A. C. (♀); 1 Mar. 2009. Visbal, J. (♀); Zoológico de Puerto Rico. 19 Apr. 2009. Jiménez, A. (♂); 9 May 2009. Visbal, J. (♂); 16 Apr. 2010. Vélez, E.

(♀); Biología, UPRM. 28 Apr. 2012. Cardona, R. (♂); *Quebradillas*: 20 Nov. 2008. Ortiz, G. B. (♂); *Sábana Grande*: Sec. Rayos Guaras. 5 Apr. 2011. Pérez, J. A. (♀); *Utua*: 6 Apr. 2009. Valentín, J. (♀). **CAJA DE MUERTO**: Acc. No 266-47. Nov. 1947. Martorell, L. F (♀); NO DATA (3 ♀).

Diolcus variegatus* (Herrich-Schäffer, 1836: 106) [Plate VI, Fig. 50]
Pachycoris variegatus Herrich-Schäffer.
Diolcus variegatus Stål

DISTRIBUTION.

Puerto Rico*, Hispaniola, Cuba, and Florida (USA).

HOST PLANTS.

This species was collected by Medina-Gaud on yellow leafbract, *Malachra alceifolia* Jacq. (Malvaceae). In Florida, Eger and Baranowsky (2002) report this shield bug on false mallow, *Malvastrum corchorifolium* (Desr.) Britton ex Small (Malvaceae), a plant also found in Puerto Rico. These authors also mention a record on common wireweed (*Sida acuta* Burm. (= *carpinifolia*) (Malvaceae) from Cuba.

REMARKS.

This species is first reported from Puerto Rico. Barber (1939) writes that, although this species had not been found in Puerto Rico he believed it should occur here. The first known collection from Puerto Rico is that by Medina-Gaud from Ponce in 1957, and other specimens collected since are housed at MEBT. This species is easily recognized because its head is nearly as long as wide and by the dark annulations on the antennae.

MATERIAL EXAMINED.

PUERTO RICO. *Arecibo*: Acc. No 402-86. Central Cambalache. 6 Aug. 1986. Medina, S & Franqui, R. Ex. rice, grasses, weeds. (♀); *Cabo Rojo*: 11. Oct. 1987. Dones, R. (♀ ♂); 26 Apr. 2010. Soto, M. (♀); *Lajas*: Acc. No 25-84. Valle de Lajas. 3 Feb. 1984. Medina Gaud, S. Ex. *Malachra alceifolia* (= *capitata*)(5 ♀ 3 ♂); Acc. No 337-86. 8 Jul. 1986. Medina, S. & Pantoja, A. & Franqui, R. Ex. Rice. (♀); 30 Apr. 2009. Martínez, L. (♀); 1 May 2009. Rodríguez, R. (♂); Laguna Cartagena. 1 May 2009. Pagán Roig, I. (♂); *Mayagüez*: 24 Aug. 2008. Oliveras, H. (♂); *Ponce*: Acc. No 137-57. 8-9 Jul. 1957. Medina-Gaud, S. (♀); 3 Feb. 2009. Galarza, E. (♂); *Vega Baja*: Acc. No 213-84. 19 Dec. 1984. Pérez, M. E. & Medina, S. Ex. rice. (♂); 30 Apr. 1988. A. F. (♀); 5 Oct. 2008. Collazo, E. M. (♀); NO DATA (♂).

FAMILY MEGARIDIDAE

According to Schuh and Slater (1995) these are small (about 2 mm), ovoid and strongly convex insects with scutellum enlarged, globose, and completely covering both the abdomen and the wings. Members of this family can be recognized by a combination of characters including long forewings (twice the length of the abdomen), lacking parallel veins, and having two-segmented tarsi. Males of *Megarid* Stål have setose antennae and simple genitalia consisting of a conjunctiva, surrounding a tube-like endophallic duct. Similarly, females have a simple and reduced spermatheca, lacking flanges and a pumping mechanism. Little is known about their natural history, and apparently, all species are rare.

Megaridids are exclusively Neotropical, with *Megarid* its only genus containing 16 species. Most species were described from Brazil, but several occur in other parts of South America, Central America, and the Antilles. McAtee and Malloch (1928) first recognized the group as a subfamily of the Pentatomidae, until McDonald (1979) raised them to family status. Rolston and McDonald (1979) understood that the simple nature of their genitalic structure probably meant that the megaridids represented an early offshoot from the pentatomoid ancestral line of evolution. Grazia et al. (2008) indicate that this conclusion may be unwarranted, as this loss of genitalic complexity might well be interpreted as derived loss condition.

Megarid puertoricensis† Barber (1939: 283)

Megarid semiamicta McAtee and Malloch (1928) (in Wolcott, 1936).

DISTRIBUTION.

Endemic to Puerto Rico.

HOST PLANTS.

The holotype and only known specimen was collected on flowers of Malabar plum (*Syzygium jambos* (L.) Alston) (Myrtaceae) (Wolcott 1948).

REMARKS.

Its holotype and only known collection record is a male collected from Aibonito by R.G. Oakley in 1933. Barber (1939) describes this tiny bug as: fusco-castaneous; antennae black except for the terminal segments testaceous, as well as femora and tibiae; width 1.6 mm, length 1.6 mm. Nothing is known about the biology of this insect, except that it may be a rare species.

MATERIAL EXAMINED.

No specimens were found in MEBT, JAR, or INV-COL collections.

FAMILY CYDNIDAE

Members of this family are well known as “borrower bugs.” According to Schuh and Slater (1995) most species are black or brown, often with a smooth glossy or shiny surface. They are small to large, ranging from 2-20 mm, generally ovoid and convex in shape, and many have broad, flattened heads and legs adapted for digging. Legs have spinose tibiae with three-segmented tarsi.

Most cydnids are fossorial, and a few are known to be root feeders. Many cydnids have stridulatory mechanism involving the forewing’s postcubital vein and abdomen. In general, little is known about the life histories of this family. Many species are attracted to light, and their flight period often restricted to the first hour after sunset. In the Neotropics, some species are associated with bat guano such as *Amnestus* spp. (Schuh and Slater, 1995).

According to Grazia et al. (2008) the Cydnidae have probably been taxonomically the most controversial of the Pentatomoidea family-group. Subfamilial composition of the Cydnidae used here is given by Froeschner (1960), who recognized five subfamilies for the Western Hemisphere: Amnestinae, Cydninae, Garsauriinae, Scaptocorinae, and Sehirinae. Other authors recognize Corimelaenidae as a cydnid subfamily (see below), and this seems somewhat supported by cladistic analyses. Grazia et al. (2008) suggest that there may be good reason to question the monophyly of the Cydnidae. There are approximately 110 genera and 600 described species (Schuh and Slater, 1995). There are 11 species in 6 genera reported from Puerto Rico (see synopsis by Froeschner and Maldonado, 1992). Material examined and discussed below was not sexed, and the number of specimens inspected and the collection origin are placed between brackets (e.g., [n, JAR]).

Key to Cydnidae in Puerto Rico

1. Coria meeting in short straight line beyond apex of scutellum 2
- Coria not meeting beyond apex of scutellum 5
- 2(1). Jugum with 4 marginal tubercles 3
- Jugum with 5-6 marginal tubercles 4
- 3(2). Clypeus with prominent transverse rugae. Corium with obscure fuscous cloud across middle of apex . . . *Amnestus diminuat* Barber.
- Clypeus not transversely rugose; no marks on corium
. *Amnestus pusio* (Stål).
- 4(2). Prosternal carina (in profile) rising vertically to prominent anterior angulation, evanescent posteriorly; Corium color uniform
. *Amnestus subferrugineus* (Westwood) †

- Prosternal carina (in profile) rounded, anterior end neither rising nor angulate. Corium with discal longitudinal brown line that bends laterally along apical margin *Amnestus radialis* Froeschner†.
- 5(1). Pronotum with a sharp, deeply incised, subapical line paralleling anterior margin from side to side *Pangaeus piceatus* Stål¹.
- Pronotum without impressed subapical line 6
- 6(5). Jugum with a complete submarginal row of close set punctures that give rise to long hairs and blunt pegs 7
- Jugum with a submarginal widely separated punctures that give rise to long hairs but no blunt pegs 8
- 7(6). Metathoracic evaporatorium interrupted by an elevated polished strip for most of its length *Rhytidoporus indentatus* Uhler.
- Metathoracic evaporatorium not so *Tominothus communis* (Uhler).
- 8(6). Metathoracic evaporatorium entire *Dallasiellus lugubris* (Stål).
- Metathoracic evaporatorium with a small polished triangular of semicircular projection 9
- 9(8). Polished projection in evaporatorium large, semicircular, almost reaching its side margin *Melanaethus spinolai* (Signoret).
- Polished projection in evaporatorium small, triangular, widely separated from side margin 10
- 10(9). Bucculae gradually higher posteriorly, there higher than diameter of 2nd antennal segment *Melanaethus wolcotti* Froeschner & Maldonado.
- Bucculae evanescent posteriorly, height less than diameter of 2nd antennal segment *Melanaethus cubensis* (Barber & Bruner).

SUBFAMILY Amnestinae

Amnestus diminuat† Barber (1939: 274)

DISTRIBUTION.

Endemic to Puerto Rico

REMARKS.

This species was described by Barber (1939) from specimens collected in Adjuntas by collectors Faxon, Anderson, Mills, and Oakley on Apr. 21, 1933 in coffee. Barber remarks about its color similarities with *A. subferrugineus*. This species is similar to *A. pusio* Stål, as both have four marginal tubercles in the jugum (Figure 6), and can be separated from the latter by prominent transverse rugae in the clypeus, and for having an obscure fuscous cloud across middle of apex of the corium.

MATERIAL EXAMINED.

No specimens were found in MEBT, JAR, or INV-COL collections.

Amnestus pusio Stål (1860: 14) [Plate VII, Fig. 55; Figure 6B]

Magoa pusio Stål

Magao pusio Walker

Amnestus pusio Stål

Amnestus pusillus Uhler (in Gundlach, 1893)

DISTRIBUTION.

Puerto Rico, Vieques Island, St. Croix (USVI), Hispaniola, Cuba, Grenada, St. Vincent, South Bimini Island, Southwestern USA, Mexico, Honduras, Costa Rica, Panama, Barro Colorado Island, Colombia, Brazil, and Ecuador.

REMARKS.

This species was first listed from Puerto Rico by Gundlach (1893), and identified by this author as *A. pusillus*, a common species in Cuba and North American. The species is normally attracted to light as remarked by Gundlach.

MATERIAL EXAMINED.

PUERTO RICO. *Aguada*: 18°20.96N 67°13.09W. 4-6 Nov. 2011. Ex. UV light. Valentín, N. [n=3]; *Cabo Rojo*: Boquerón: 18°00.65N 67°10.96W. 5-6 Oct. 2011. Ex. blacklight. Segarra, A. [25]; Betances. 10 Nov. 1991. González, V.[7]; *Guayanilla*: 1 Nov. 1979. Gallardo F. [1]; *Isabela*: 22 Jul. 1955. Ex. light. Ramos & Maldonado. [1, JAR]; *Loíza*: 6 Feb. 1964. Ex. blacklight. Medina & Bonilla. [6]; *Mayagüez*: 10 Apr. 1937. Bras, R. [1]; 1-8 Dec. 1941. Ex. Light. Ramos, J.A. [2, JAR] 1-8 Jul. 1941. Ex. Light. Ramos, J.A. [1, JAR]; 1 Jan. 1942. Ex. Light. Ramos, J.A. [1, JAR]; Feb. 1942. Reyre, R. [1, JAR]; 23 Jul. 1955. Ex. Light. Ramos, J.A. [2, JAR]; 3-4 Aug. 1955. Ex. Light. Ramos, J.A. [1, JAR]; *Ponce*: 20-30 Mar. 1946. Maldonado, J. [1, JAR]; *Quebradillas*: 17 Jan. 1940. Wolcott, G.N. [1]; *San Sebastián*: 10 Jul. 1937. Ramos, J.A. [2, JAR].

Amnestus subferrugineus (Westwood, 1837: 19) [Plate VII, Fig. 57]

Cydnus subferrugineus Westwood

Amnestus subferrugineus Walker

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Grenada, Martinique, Guadeloupe, St. Vincent, Panama, and Guatemala

REMARKS.

This species was first listed in Puerto Rico by Barber (1923) from specimens collected in Cayey and Adjuntas in 1915 by Lutz and Mutchler (Barber, 1939). According to Wolcott (1948) all collections of this species in Puerto Rico are "...from the mountains." Froeschner (1960) writes that many of the Central American specimens he examined came from "bat caves" where all but the egg stage had been found.

MATERIAL EXAMINED.

PUERTO RICO. *Ponce*: 10 Oct. 1946. Maldonado-Capriles, J. [1, JAR].

Amnestus radialis Froeschner (1960: 656) [Plate VII, Fig. 56; Figure 6A]
Amnestus sexdentatus Froeschner (syn. Froeschner, 1981)

DISTRIBUTION.

Puerto Rico, Hispaniola, and Martinique.

REMARKS.

Maldonado-Capriles first collected this species in Puerto Rico from Ponce in 1946. Initially Froeschner described this female as *A. sexdentatus* for having six pegs on the apex of the clypeus instead of the typical four in *A. radialis*. While the norm for this species is five jugal pegs, a few specimens have an extra peg. As with other cydnids, this species is also associated with bat guano in caves (e.g., La Tuna Cave, Cabo Rojo; and Aguas Buenas Cave) (Froeschner and Maldonado, 1992), but its ecological role as cave dweller is unknown.

MATERIAL EXAMINED.

PUERTO RICO. *Maricao*: 2 Aug. 1936. Ramos, J.A. 31 Aug. 1946. [13 specimens, JAR].

SUBFAMILY **Cydninae**

Melanaethus spinolai (Signoret, 1863) [Plate VII, Fig. 60; Figure 7 A-B]

Aethus spinolae Signoret
Melanaethus spinolae Uhler
Geotomus (Cydnus) spinolai Signoret
Geotonms spinolai Uhler
Geotomus minusculus Jensen-Haarup,

DISTRIBUTION.

Puerto Rico, Hispaniola, Panama, Surinam, Brazil, Paraguay, and Argentina.

REMARKS.

Members of the genus *Melanaethus* Uhler can be identified by their widely separated submarginal punctures in the jugum that give rise to long hairs but not blunt pegs, and by the presence of a large polished triangle of semicircular projection in the metathoracic evaporatoria. Wolcott (1948) first reported this species from Fajardo and Humacao, from specimens collected and identified by J.A. Ramos. As with other members of the family, they seem to be attracted to light.

MATERIAL EXAMINED.

PUERTO RICO. *Cabo Rojo*: 1 Sep. 1991. González, V. [1]; *Fajardo*: 6 Jan. 1944. Pérez, M. [1]; *Humacao*: 18 Mar. 1940. Ex. light. Ramos, J.A. [1, JAR]; *Isabela*: 9-10 Oct. 1987. Cruz, R. Ex. Light. [4].

Melanaethus cubensis (Barber and Bruner, 1932: 236) [Plate VII, Fig. 59]

Geocnethus cubensis Barber and Bruner

Geocnethus reversus Barber and Bruner

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, South Bimini Island, New Providence Island, and Nassau Island.

REMARKS.

This species was described from Cuba (Barber and Bruner, 1932), and reported by Wolcott (1948) from specimens collected and identified by J.A. Ramos. This species can be identified for its small polished triangular projection in the evaporatoria, and for its posteriorly evanescent buccula.

MATERIAL EXAMINED.

Guayanilla: 20 Aug. 1979. Gallardo, F. [1, JAR].

Melanaethus wolcottii Froeshner and Maldonado (1992: 177) [Plate VII, Fig. 61]

DISTRIBUTION.

Endemic to Puerto Rico.

REMARKS.

This species was described by Froeschner and Maldonado (1992) from specimens collected by Dr. Jorge Santiago-Blay in Toa Baja, June 1984. According to these authors, *M. wolcottii* is similar to other Greater Antillean species, and close to *M. cubensis*, from which it differs by having a gradually higher buccula dorsad.

MATERIAL EXAMINED.

PUERTO RICO. *Mayagüez*: 10 Mar. 2011. Torres, N. [1]; Rivera, D. [1]; *Toa Baja*: 24 Mar. 1984. Santiago-Blay, J.A. [1].

Pangaeus piceatus Stål (1862: 96) †

Pangaeus piceatus Stål

Aethius piceatus Walker

Aethus tenuis Walker

Aethus parilis Walker

Aethus nitidulus Walker

Pangaeus minimus Uhler

Pangaeus sallei Uhler

Cydnus nitidulus Lethierry and Severin

Pangaeus petersi Lethierry and Severin,

Pangaeus tenuis Lethierry and Severin

DISTRIBUTION.

Puerto Rico, Mexico, Guatemala, Colombia, Brazil, and Peru.

REMARKS.

This species was first reported in Puerto Rico by Froeschner (1960) from a specimen collected in Ponce, and recognized as a new record in Maldonado and Navarro (1967). According to Froeschner and Maldonado (1992), this species can be readily identified by a deeply incised, subapical line paralleling anterior to the pronotum. Elsewhere, another member of this genus, *Pangaeus bilineatus* (Say) has been identified as a sometimes serious pest of cotton seedlings, pepper seedbeds, peanut, spinach and other vegetable crops (Lis et al., 2000).

MATERIAL EXAMINED.

No specimens were found in MEBT, JAR, or INV-COL collections.

Rhytidoporus (Rhytidoporus) indentatus Uhler (1877: 380)

[Plate VII, Fig. 62; Figures 6C & 7C-D]

Rhytidoporus indentatus Uhler

Aethus (Rhytidoporus) indentatus Signoret

Aethus indentatus Uhler (In Barber, 1939

Cydnus indentatus Lethierry and Severin

Rhytidoporus (Rhytidoporus) indentatus Froeschner

DISTRIBUTION.

Puerto Rico, St. Croix, St. Eustatius*, Hispaniola, Cuba, and Florida (USA).

REMARKS.

This species was first listed in Puerto Rico by Barber (1923) from specimens collected in Arecibo (1914, collector Lutz), and Utuado

(1906, collector Wheeler) (Barber, 1939). This species can be readily identified by an elevated polished strip that interrupts its meta-thoracic evaporatorium, and which runs most of its length. Wolcott (1936) reported this species “at light” and “on dung,” and eaten by *Ameiva exsul* Cope, the Puerto Rican ameiva. Wolcott (1948) also commented on its widespread distribution in Puerto Rico. This species, described originally by Uhler from Cuba and Florida, has been reported in Hawaii (Froeshner, 1976) and from Guam (Lis and Zack, 2010).

MATERIAL EXAMINED.

PUERTO RICO. *Arecibo*: 20 Mar. 1935. Cintrón, R. [1]; 10 Jul. 1976. Ex. Light. Ramos, S.J. [1, JAR]; *Cabo Rojo*: Boquerón. 18°02.38N 67°10.59W. 5 Jun. 2006. Ex. Light. Segarra, A.E. [1]; *Corozal*: 6 Oct. 1976. B.L.T. [1]; *Guánica*: 21 Mar. 1936. Ramos, J.A. [1, JAR]; *Isabela*: 22 Jul. 1955. Ex. Light. Ramos & Maldonado. [1, JAR]; *Lajas*: 18°00.61N 67°06.54W. 27. Aug 2014. Ex. Mg Vap Lamp. Segarra, A.; *Loíza*: 6 Feb. 1964. Ex. Blacklight. Medina & Bonilla. [13]; *Maricao*: 31 Aug. 1946. Ramos, J.A. [1, JAR]; *Mayagüez*: 28 May 1932. Figarella. [1, JAR]; Feb. 1936. Del Rosario, S. [1, JAR]; Sept. 1938. Tavares, J.R. [1, JAR]; 2 Feb. 1944. Pérez, M.E. [1, JAR]; 18°13.11N 67°08.86W. 5-6 Oct. 2011. Ex. Blacklight. Segarra, A. [1]; *San Juan*: Santurce. 6-9 Jun. 1944. Ex. Light. Ramos, J.A. [1, JAR]; **ST. EUSTATIUS.** 23 Jan. 1937. Danforth, S.T.

Tominotus communis (Uhler, 1877: 379)

Aethus communis Uhler (in Barber, 1939).

Aethus politus Signoret

Cydnus communis Lethierry and Severin

Cydnus politus Lethierry and Severin

Tominotus communis Froeschner

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, South Bimini Island, Anguilla (Santo Domingo Cay), California, Texas and Southeastern USA, and Nicaragua.

REMARKS.

This species is first reported from a specimen collected by August Busck in Bayamón in 1899 (Barber, 1939). Referring to its apparent rarity in Puerto Rico, Wolcott (1948) remarked that none had been found since Busck’s 1899 collection. This species is common in North America, where it is reported as a minor pest of peanuts (Lis et al., 2000), and of cassava in Cuba (Castel-

lón et al., 1988). Froeschner (1960) found punctation of the coria and shape of the head conspicuous among the geographic variations between North American and West Indian specimens. The few specimens from Puerto Rico examined here show distinct punctures in rows paralleling the claval suture only toward base of hemelytra, and an almost complete semicircular outline to the head (not a truncated semicircle as in Northern specimens), thus agreeing with those forms described by Froeschner for Cuba and Haiti.

MATERIAL EXAMINED.

PUERTO RICO. *Aguada*. 18°20.96N 67°13.09W. 4-6 Nov. 2011. Ex. UV light. Valentín, N. [1]; *Cabo Rojo*. Boquerón. 18°02.38N 67°10.59W. 5 Jun. 2006. Ex. Light. Segarra, A.E. [1]; 18°00.66N 67°10.96W. 6 Oct. 2011. Ex. blacklight. Segarra, A.E. [3]. *Lajas*: 18°00.61N 67°06.54W. 27. Aug. Ex. Mg Vap Lamp. Segarra, A.; *Yauco*: 13. Nov. 2014. García, Y.

***Dallasiellus lugubris* (Stål, 1860: 13) [Plate VII, Fig. 58; Figure 6D]**

Aethus lugubris Stål

Geotomus obscurus Signoret

Geotomus nigrocinctus Signoret

Geotomus semilevis Signoret

Geotomus pangaeoides Signoret

Geocnethus reversus Barber and Bruner (In Barber, 1939)

Dallasiellus lugubris Froeschner (new combination)

DISTRIBUTION.

Puerto Rico, Vieques Island*, Hispaniola*, Cuba, Southern United States, Mexico, Guatemala, Nicaragua, Costa Rica, Panama, Barro Colorado Island, Brazil, Bolivia, and Argentina.

REMARKS.

This species was first described by Barber and Bruner (1932) as *Geocnethus reversus* from a male specimen collected in Mayagüez on Oct. 10, 1930 by Dr. L.F. Martorell. Froeschner (1960) combined *G. reversus* as a junior synonym for this geographically widespread and morphologically variable species.

MATERIAL EXAMINED.

VIEQUES ISLAND: 10 Dec. 1943, Maldonado, J. [1, JAR].

PUERTO RICO. *Cabo Rojo*: Boquerón. 18°02.38N 67°10.59W. 5 Jun. 2006. Ex. light. Segarra, A.E. [1]; *Corozal*: 7.Aug. 1977. Ex. blacklight. [1]; *Isabela*: 9-10 Oct. 1987. Ex. light trap. Cruz, R. [5]; *Isabela*: 20-21 Oct. 1987. Ex. light trap. Cruz, R. [3]; *Loiza*: 6 Feb.

1964. Ex. Blacklight. Medina & Bonilla. [18]; *Manatí*: Dec. 1940. Ramos. J.A. [1, JAR]; *Mayagüez*: 3-4 Aug. 1955. Ex. Light. Ramos, J.A. [3, JAR]; Jun. 1943. Figarella, N. [1, JAR]; 20 Jun. 1932. Figarella. [1, JAR]; 2 Jul. 1932. Figarella. [1, JAR]; *Rio Piedras*: 20 Jun. 1946. Wolcott, G.N. [5]. **DOMINICAN REPUBLIC.** *Santiago*: 26 Mar. 1936. Del Rosario, S. [1, JAR].

FAMILY CORIMELAENIDAE

According to Schuh and Slater (1995), this species form a group of small insects characterized by strongly convex scutellum covering most of the forewings. Some species (e.g., *Corimelaena* White), have a shiny, dark body surface with pale or ivory colored exocorium, and a contrastingly dark body. Antennae are five-segmented, tarsi are three-segmented, tibiae bear setae or spines, and trichobothria arranged transversely. The group is distributed mostly in the Western Hemisphere.

Corimelaenids are mostly native to the Western Hemisphere and are commonly known as “negro bugs.” Systematic and taxonomic placing of Corimelaenids is still a matter of debate. Some authors have variously placed them as subfamily Corimelaenidae within the Cydnidae, or under the family name of Thyreocoridae (Schuh and Slater, 1995). Recent molecular studies by Grazia et al., (2008) to determine the correct placing of the group remain inconclusive, maintaining unchanged its current status as a family within Pentatomoidea. Key follows Swanson (2012). Material examined and discussed below was not sexed, and the number of specimens inspected and the origin collection are placed between brackets (e.g., [n, JAR]).

1. Pronotum and scutellum, in lateral view, not forming continuous convex line but with distinct transverse declivity between; costal margin of hemi-elytra not bordered within by groove; spiracles nearer to lateral margins of abdominal sternites than to trichobothria
 *Corimelaena* White
- Pronotum and scutellum, in lateral view, forming continuous convex line; costal margin of hemelytra bordered within by definite groove; spiracles nearer to trichobothria than to lateral margins of abdominal sternites; corium entirely black, never with pale costal margin
 *Galgupha* Amyot & Serville

Corimelaena minuta Uhler [Plate VII, Fig. 63]

Allocoris minuta McAtee & Malloch, 1933

Corimelaena minuta Sailer

DISTRIBUTION.

Puerto Rico, Hispaniola, Cuba, Jamaica, and Florida (USA).

HOST PLANTS.

No host plant records are known.

REMARKS.

This species was first listed from Puerto Rico by Barber (1923). This is a small (1.8-2.3 mm), densely and coarsely punctate species, with a conspicuous orange-red marginal band on the corium. Specimens are usually collected while sweeping low vegetation. Wolcott (1948) mentions collections of *C. minuta* "...on the ground among weeds and grasses, including "Botoncillo" (*Borreria verticillata*)...", perhaps hinting at a host plant relation between this insect and shrubby false buttonweed, *Spermacoce verticillata* L. (Rubiaceae). The senior author has collected numerous individuals of another unidentified *Spermacoce* species common in southwestern Puerto Rico.

MATERIAL EXAMINED.

PUERTO RICO. *Jayuya*: 18°10.18N 66°36.36W. 5 Aug. 2006. Ex Sweeping. A. Segarra.

Galgupha vinculata (Germar. 1839:pp). [Plate VII, Fig. 64]

Odontoscelis vinculatus Germar

Galgupha vinculata McAtee & Malloch, 1933

DISTRIBUTION.

Puerto Rico, Trinidad, Venezuela, Surinam, and Guyana.

HOST PLANTS.

No host plant records are known for Puerto Rico. Shrubby false buttonweed, *Spermacoce verticillata* L. (Rubiaceae) is recorded as host in specimens collected in Venezuela by Dr. L.F. Martorell in 1937.

REMARKS.

This insect was first reported from Puerto Rico by Wolcott (1948) from specimens collected and identified by Dr. José A. Ramos at Hatillo in 1943. This is a small (3.5 mm), strongly convex, oval insect. Head and prothorax are dark brown with apical ½ of scutellum, ivory-colored with four conspicuous brown spots.

MATERIAL EXAMINED.

PUERTO RICO. *Cabo Rojo*: 2 Nov. 1952. J.A. Ramos [1, JAR]; *Dorado*: Nov. 1964. S. Medina-Gaud [1, JAR]; *Hatillo*: 9 Oct. 1943. R. Mora [2, JAR]; *Isabela*: 26 Aug. 1985. N. Virkki. PRAccNo. 129-85 [5]; **VENEZUELA.** *Caripito*. 13 Aug. 1937. Ex. "Flowers of *Borreria verticillata*". L.F. Martorell [1 adult, 1 nymph].

Checklist of Pentatomoidea species in Puerto Rico**Family PENTATOMIDAE****Subfamily Asopinae**

1. *Alcaeorrhynchus phymatophorus* (Palisot de Beauvois)
2. *Andrallus spinidens* (F.).
3. *Tyrannocoris rideri* Thomas
4. *Tylospilus acutissimus* (Stål).
5. *Conquistator mucronatus* (Uhler)
6. *Podisus borinquensis* Barber†
7. *Podisus sagitta* (F.)

Subfamily Discocephalinae

8. *Alitocoris brunneus* Sailer

Subfamily Edessinae

9. *Edessa bifida* (Say)
10. *Paraedessa paravinula* (Barber)

Subfamily Pentatominae

11. *Mecidea longula* Stål
12. *Arvelius albopunctatus* (De Geer)
13. *Pharypia pulchella* (Drury)
14. *Banasa humeralis* Barber
15. *Banasa herbacea* (Stål)
16. *Vulsirea violacea* (F.)
17. *Brepholoxa rotundifrons* Barber
18. *Piezodorus guildinii* (Westwood)
19. *Halyomorpha halys* Stål
20. *Nezara viridula* (L.)
21. *Grazia tincta* (Distant)†
22. *Acrosternum marginatum* (Palisot de Beauvois)
23. *Acrosternum ubicum* Rolston
24. *Acrosternum wygodzinski* Rolston
25. *Loxa pallida* Van Duzee
26. *Loxa viridis* (Palisot de Beauvois)
27. *Menudo femoralis* Thomas
28. *Fecelia minor* (Vollenhoven)
29. *Proxys victor* (F.)
30. *Mormidea cubrosa* (Dallas)
31. *Mormidea angustata* Stål
32. *Mormidea ypsilon* (L.)
33. *Oebalus ypsilongriseus* (De Geer)

34. *Oebalus pugnax* (F.)
35. *Oebalus ornatus* (Sailer)
36. *Berecynthus hastator* (F.)
37. *Chlorocoris tau* Spinola
38. *Runibia caribea* Zwetsch & Grazia
39. *Euschistus acuminatus* Walker
40. *Euschistus crenator* (F.)
41. *Euschistus bifibulus* (Palisot de Beauvois)
42. *Arocera placens* (Walker)
43. *Caribo maculatus* Rider[†]
44. *Caribo fasciatus* Rolston
45. *Cyptocephala antiguensis* (Westwood)
46. *Cyptocephala bimini* (Ruckes)
47. *Thyanta perditor* (F.)
48. *Thyanta obsoleta* (Dallas)

Family **TESSARATOMIDAE**

49. *Piezosternum subulatum* (Thunberg)

Family **SCUTELLERIDAE**

Subfamily **Augocorinae**

50. *Augocoris illustris* (F.)

Subfamily **Pachycorinae**

51. *Sphyrocoris obliquus* (Germar)
52. *Symphylus caribbeanus* Kirkaldy
53. *Diolcus variegatus* (Herrich-Schäffer)
54. *Diolcus disjunctus* Barber
55. *Diolcus irroratus* (F.)
56. *Pachycoris fabricii* (L.)
57. *Tetyra antillarum* Kirkaldy

Family **MEGARIDIDAE**

58. *Megarid puertoricensis* Barber[†]

Family **CYDNIDAE**

Subfamily **Amnestinae**

59. *Amnestus diminuatus* Barber
60. *Amnestus pusio* (Stål)
61. *Amnestus subferrugineus* (Westwood)[†]
62. *Amnestus radialis* Froeschner[†]

Subfamily **Cydninae**

63. *Pangaeus piceatus* Stål[†]
64. *Rhytidoporus indentatus* Uhler

65. *Tominothus communis* (Uhler)
66. *Dallasiellus lugubris* (Stål)
67. *Melanaethus spinolai* (Signoret)
68. *Melanaethus wolcotti* Froeschner & Maldonado
69. *Melanaethus cubensis* (Barber & Bruner)

Family **CORIMELAENIDAE**

70. *Corimelaena minuta* (Uhler)
71. *Galgupha vinculata* (Germar)

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FIGURE 1. Map of Caribbean with Puerto Rican Bank shown inside parallelogram. (Open source map from Wikipedia).



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FIGURE 2. Key entomologists in the study of Puerto Rican Heteroptera.

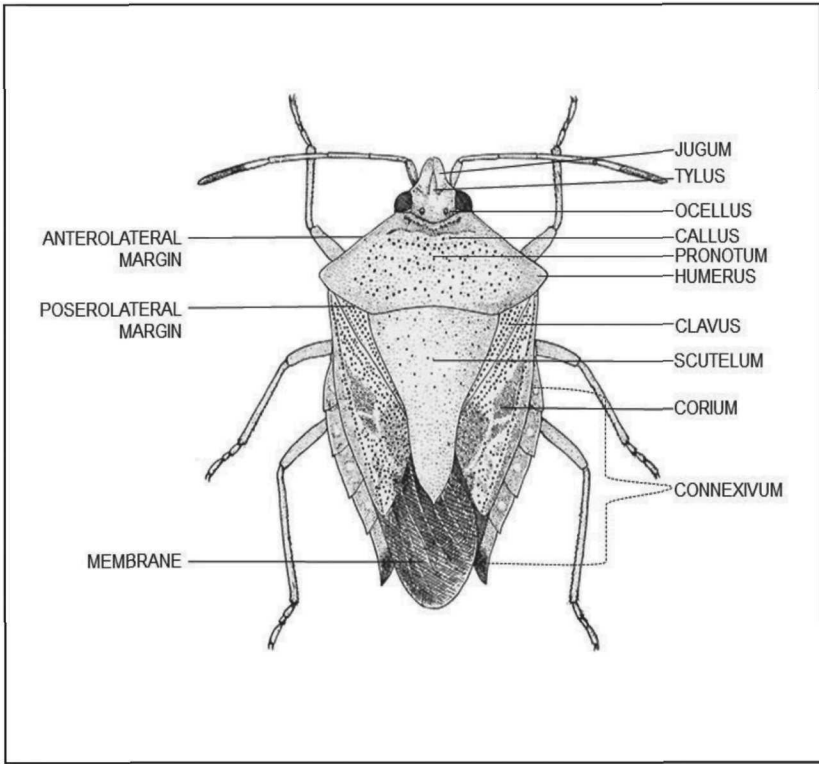


FIGURE 3. Basic structure of Pentatomoidea. Drawing of *Paraedessa paravinula* (Barber). Modified from Barber (1939).

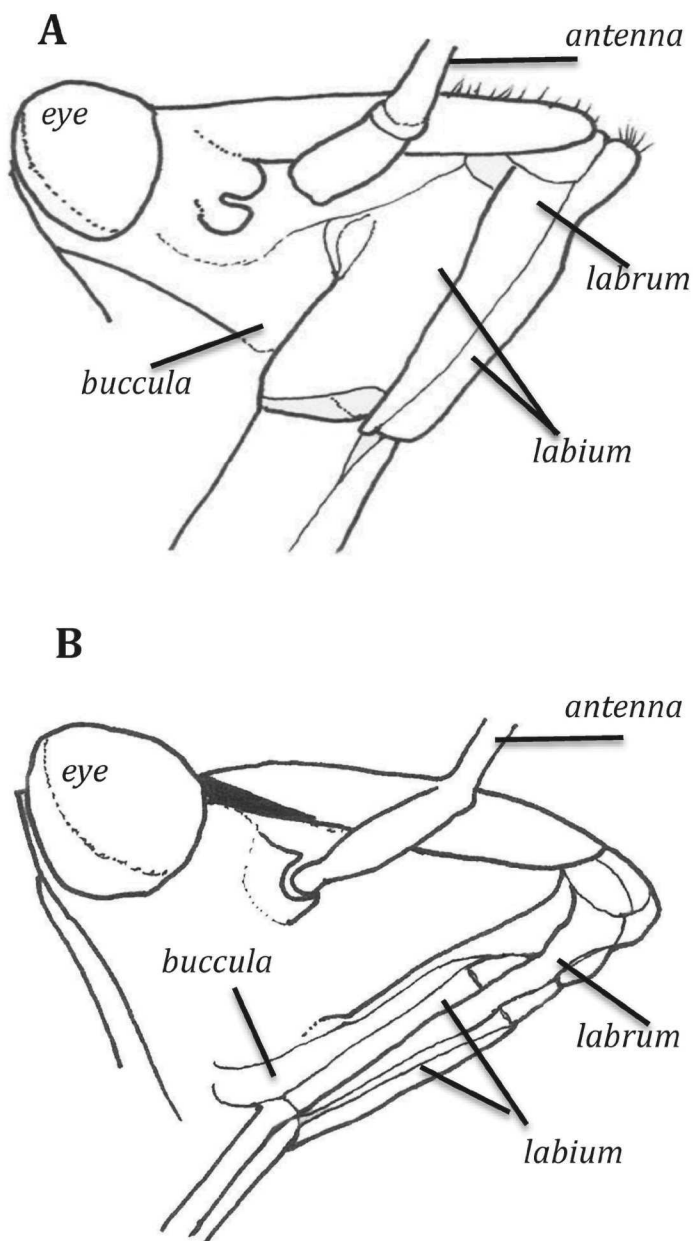
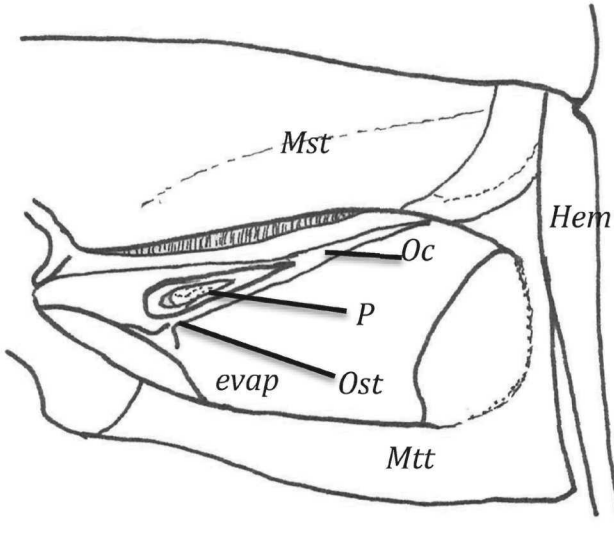


FIGURE 4. Lateral view of head comparing mouthparts of (A) predator *Podisus sagitta* (F.), and (B) herbivore *Acrosternum wygodzinski* Rolston (B).

A



B

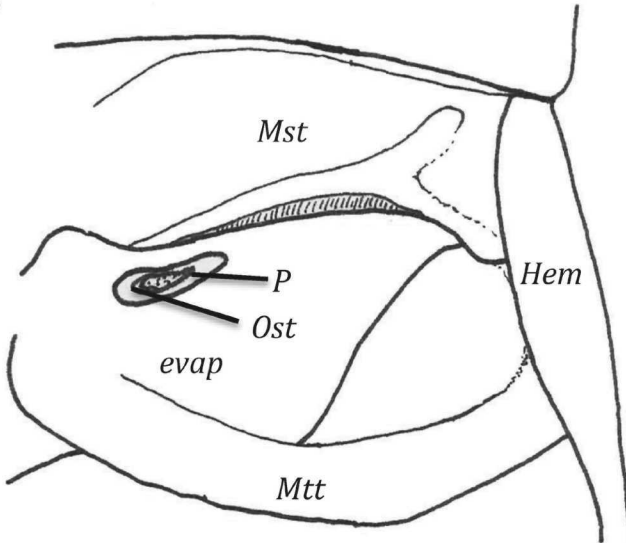


FIGURE 5. Ventral view of (A) *Acrosternum wygodzinski* Rolston, and (B) *Nezara viridula* (L.) comparing repugnatorial areas. Mst = mesothorax, Mtt = metathorax, evap = evaporatorium, Hem = hemielytron, Ost = ostiole, P = peritreme.

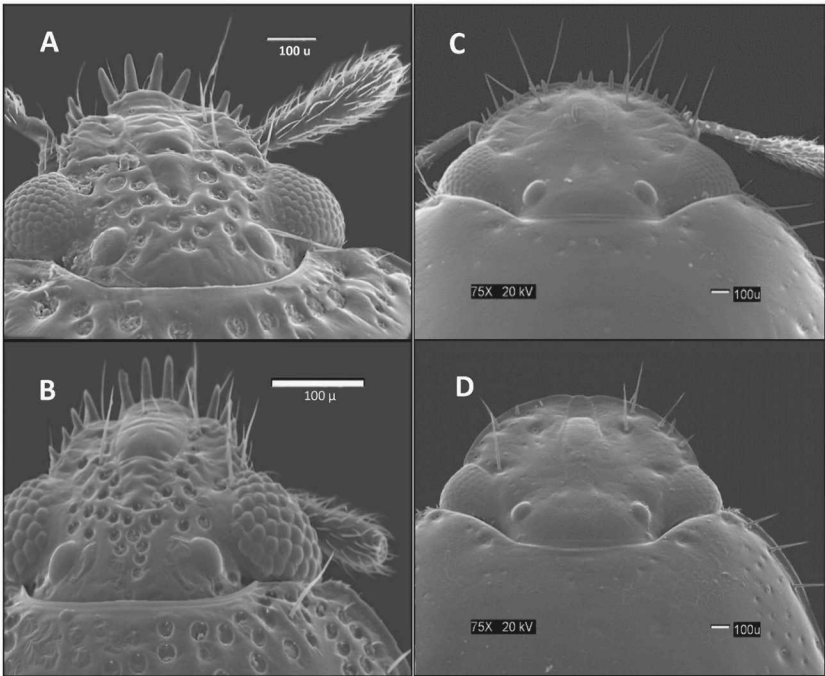


FIGURE 6. Scanning electron micrographs (SEM) of head dorsal views: (A) *Amnestus radialis* Froeschner; (B) *Amnestus pusio* (Stål); (C) *Rhytidoporus indentatus* Uhler; and (D) *Dallasiellus lugubris* (Stål).

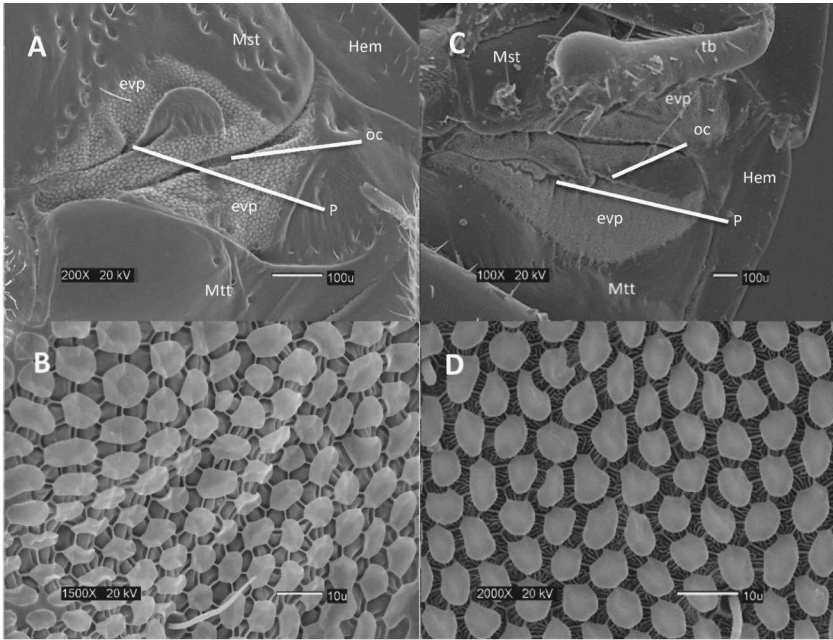


FIGURE 7. SEM of repugnatorial areas of: *Melanaethus spinolai* (Signoret) (A, B), and *Rhytidoporus indentatus* Uhler (C,D) Mst = mesothorax, Mtt = metathorax, evp = evaporatorium, Hem = hemi-elytron, Oc = ostiolar canal, P = peritreme, tb = tibia.

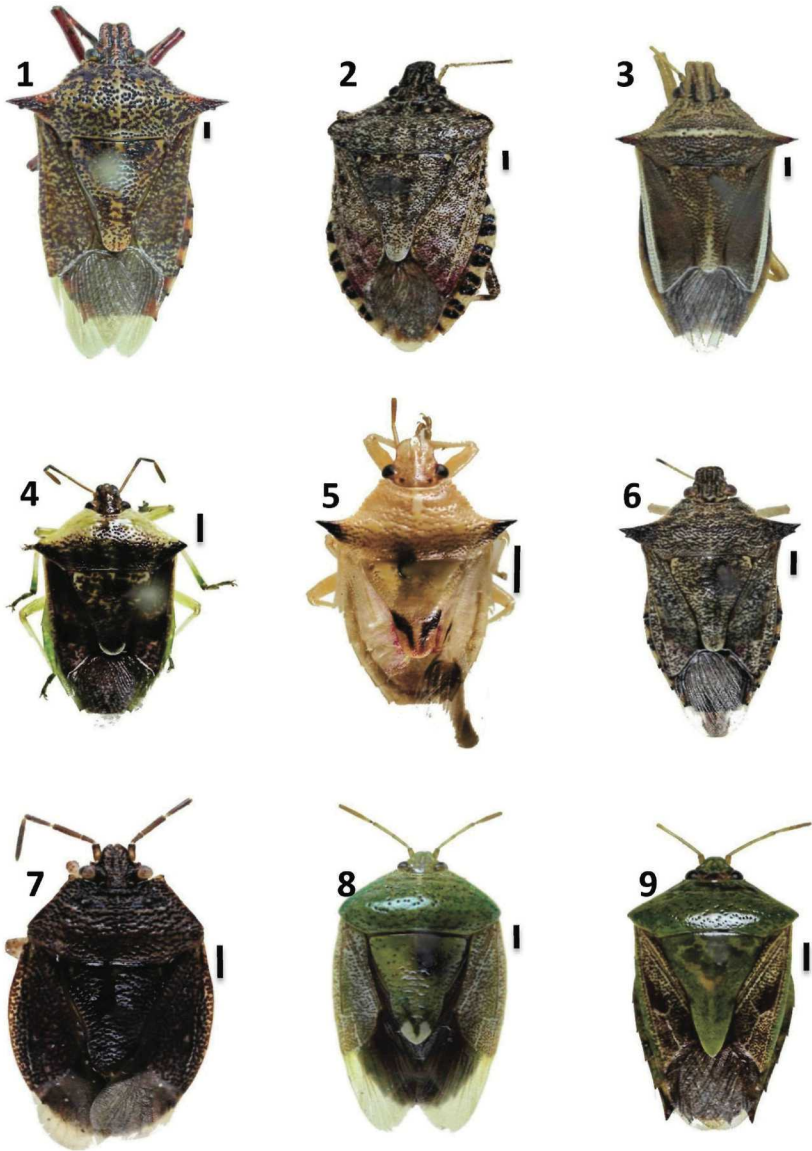


PLATE I. 1. *Alcaerorrhynchus phymatophorus* (Palisot de Beauvois); 2. *Halyomorpha halys* Stål; 3. *Andrallus spinidens* (F.); 4. *Tyrannocoris rideri* Thomas; 5. *Tylospilus accutissimus* (Stål); 6. *Podisus sagitta* (F.); 7. *Alitocoris brunneus* Sailer; 8. *Edessa bifida* (Say); 9. *Paraedessa paravinula* (Barber). [Bar = 1 mm]

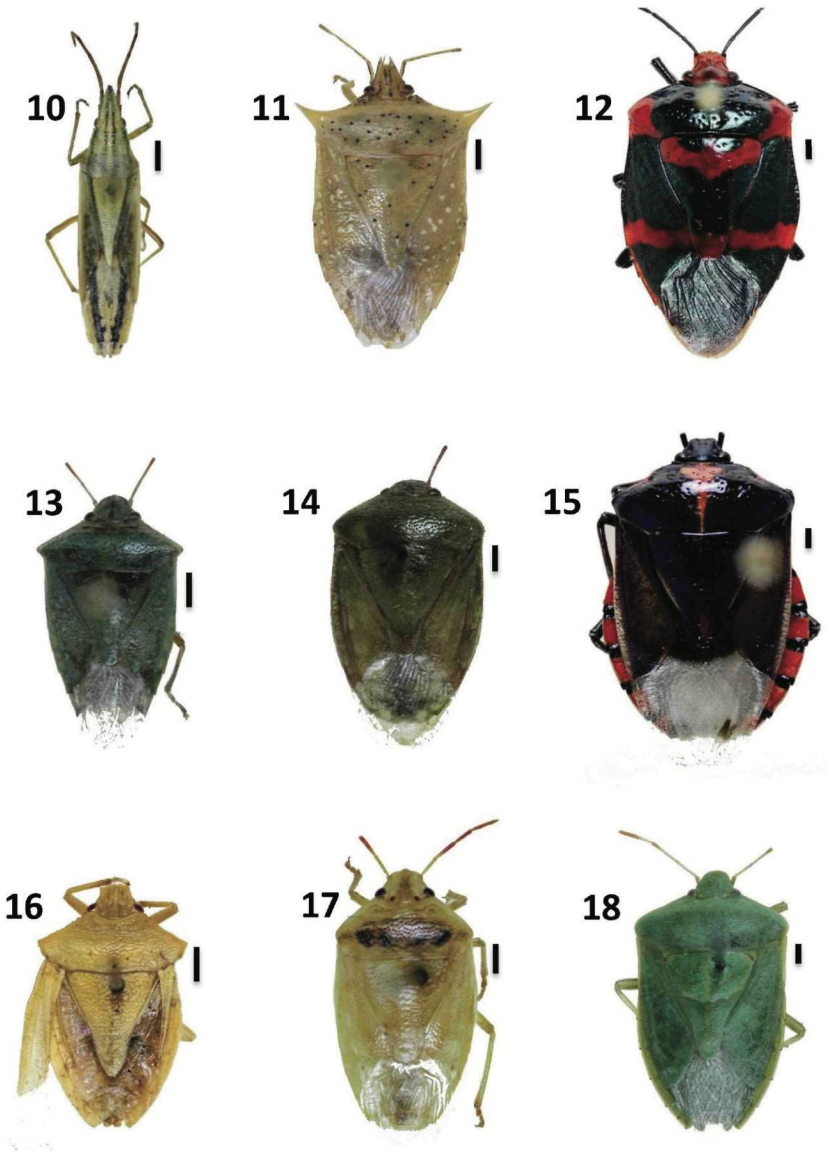


PLATE II. 10. *Mecidea longula* Stål; 11. *Arvelius albopunctatus* (De Geer); 12. *Pharypia pulchella* (Drury); 13. *Banasa humeralis* Barber; 14. *Banasa herbacea* (Stål); 15. *Vulsirea violacea* (F.); 16. *Brepoloxa rotundifrons* Barber; 17. *Piezodorus guildinii* (Westwood); 18. *Nezara viridula* (L.). [Bar = 1 mm]

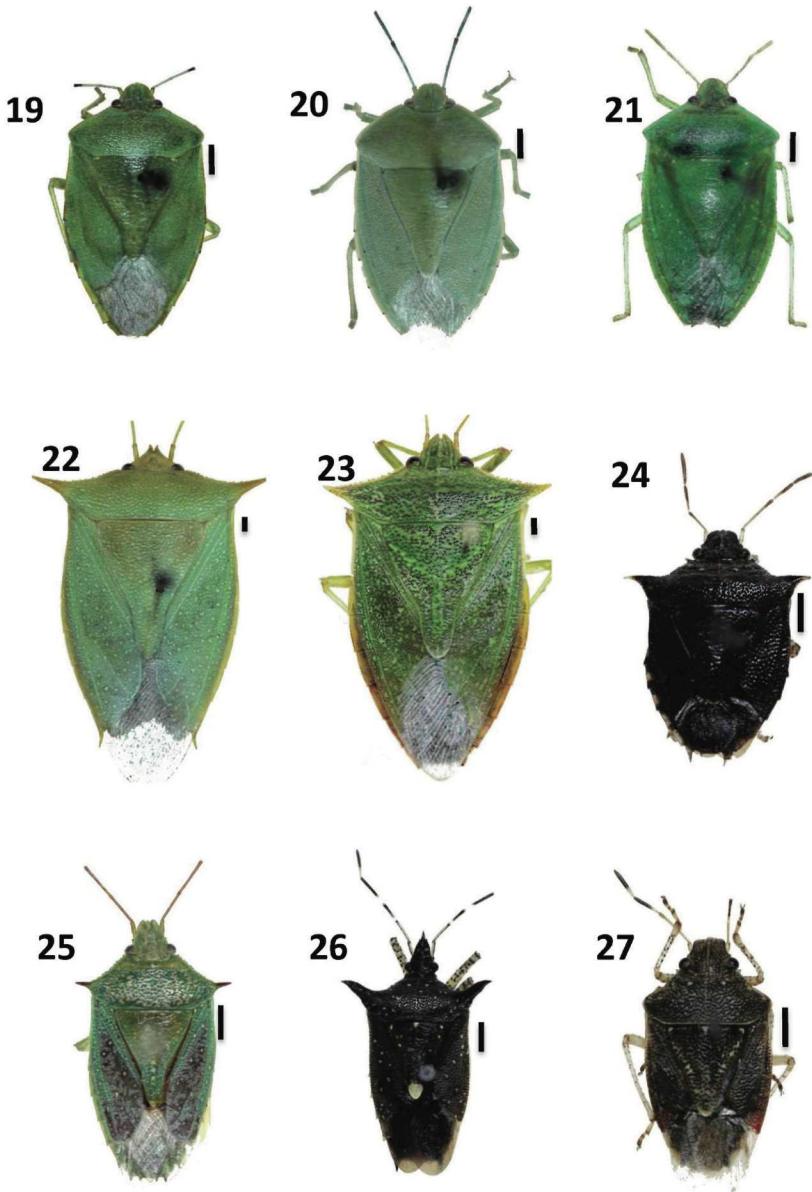


PLATE III. 19. *Acrosternum marginatum* (Palisot de Beauvois); 20. *Acrosternum ubicum* Rolston; 21. *Acrosternum wygodzinski* Rolston; 22. *Loxa pallida* Van Duzee; 23. *Loxa viridis* (Pallisot de Beauvois); 24. *Menudo femoralis* Thomas; 25. *Fecelia minor* (Vollenhoven); 26. *Proxys victor* (F.); 27. *Mormidea cubrosa* (Dallas). [Bar = 1 mm]

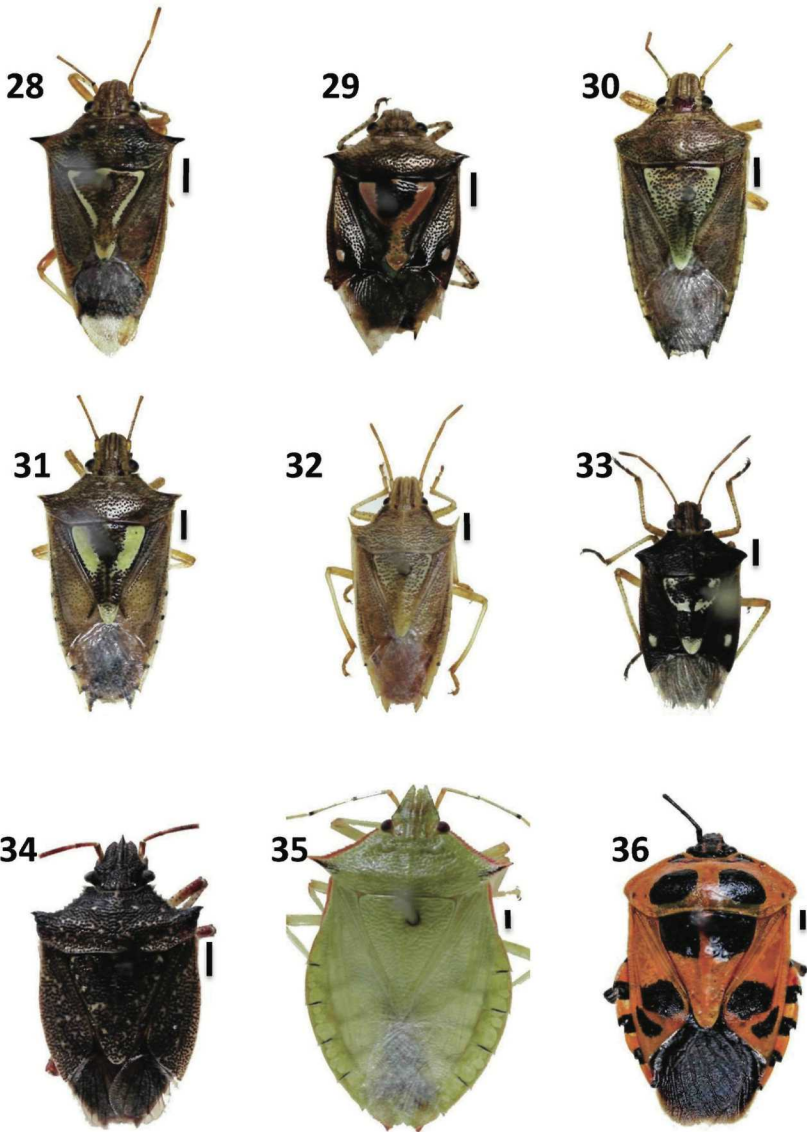


PLATE IV. 28. *Mormidea angustata* Stål; 29. *Mormidea ypsilon* (L.); 30. *Oebalus ypsilon-griseus* (De Geer); 31. *O. ypsilon-griseus* (De Geer) [grisceus form]; 32. *Oebalus pugnax* (F.); 33. *Oebalus ornatus* (Sailer); 34. *Berecynthus hastator* (F.); 35. *Chlorocoris tau* Spinola; 36. *Runibia caribea* Zwetsch & Grazia. [Bar = 1 mm]

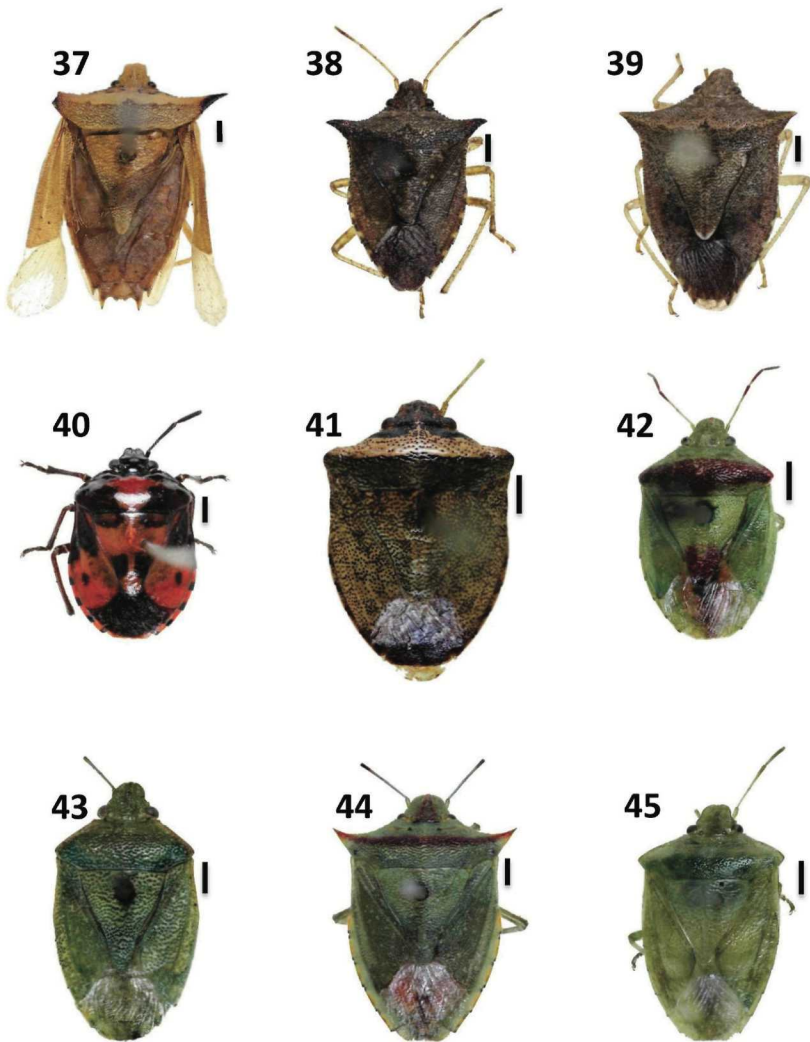


PLATE V. 37. *Euschistus acuminatus* Walker; 38. *Euschistus crenator* (F.); 39. *Euschistus bifibulus* (Palisot de Beauvois); 40. *Arocera placens* (Walker); 41. *Caribo fasciatus* Rolston; 42. *Cyptocephala antiguensis* (Westwood); 43. *Cyptocephala bimini* (Ruckes); 44. *Thyanta perditor* (F.); 45. *Thyanta obsoleta* (Dallas). [Bar = 1 mm]

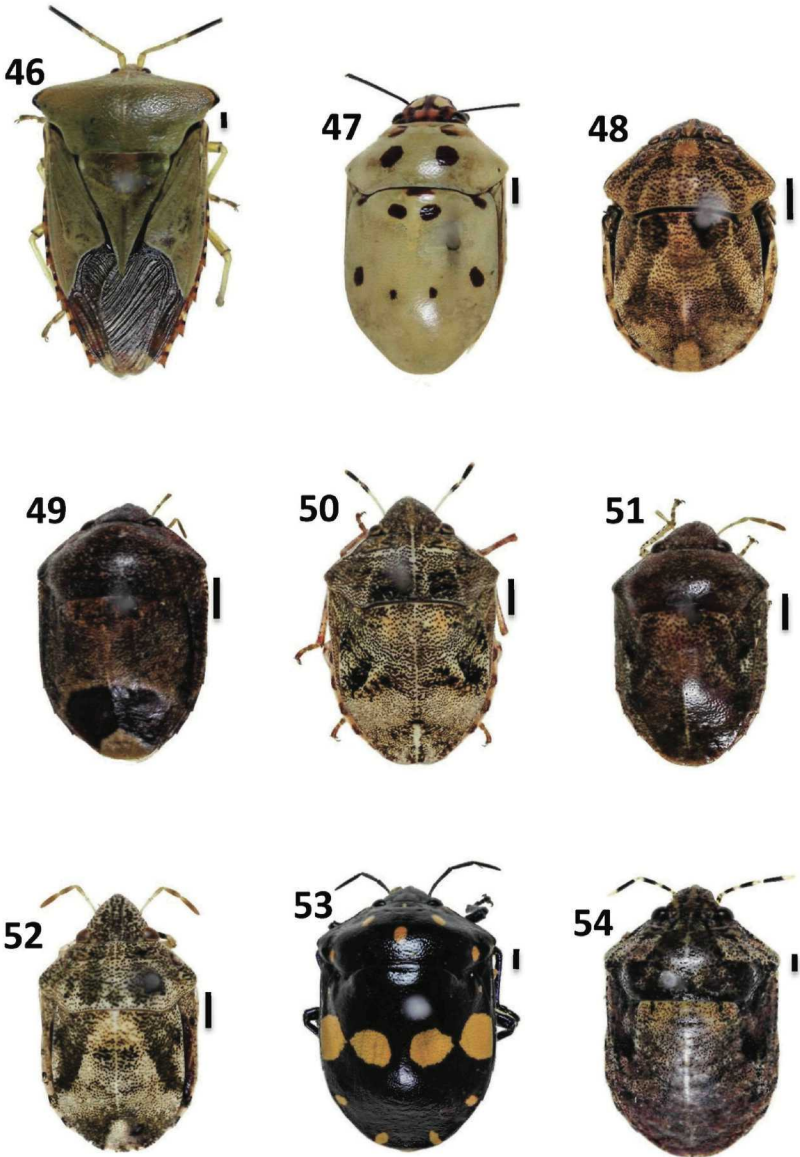


PLATE VI. 46. *Piezosternum subulatum* (Thunberg); 47. *Augocoris illustris* (F.); 48. *Sphyrocoris obliquus* (Germar); 49. *Symphylus caribbeanus* Kirkaldy; 50. *Diolcus variegatus* (Herrich-Schäffer); 51. *Diolcus disjunctus* Barber; 52. *Diolcus irroratus* (F.); 53. *Pachycoris fabricii* (L.); 54. *Tetyra antillarum* Kirkaldy. [Bar = 1 mm]

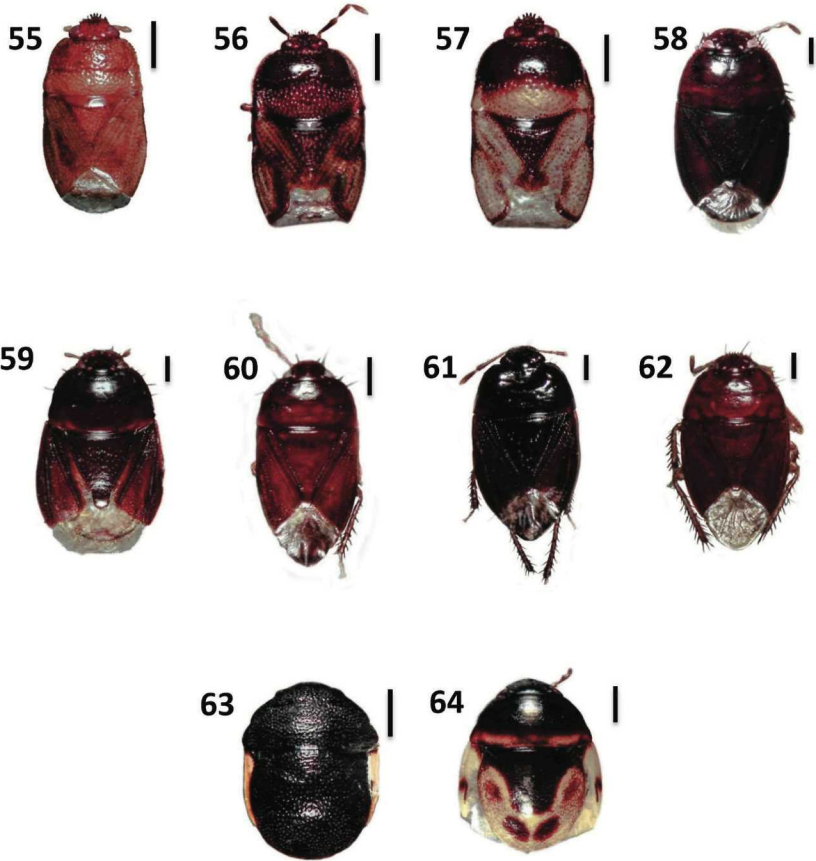


PLATE VII. 55. *Amnestus pusio* (stål); 56. *Amnestus radialis* Froeschner; 57. *Amnestus subferrugineus* (Westwood); 58. *Dallasiellus lugubris* (Stål); 59. *Melanaethus cubensis* (Barber & Bruner); 60. *Melanaethus spinolai* (Signoret); 61. *Melanaethus wolcottii* Froeschner & Maldonado; 62. *Rhytidoporus indentatus* Uhler; 63. *Corimelaena minuta* Uhler; 64. *Galgupha vinculata* Mcatee & Malloch. [Bar = 0.5 mm]

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