

## New genera, species and records of apterous Carventinae (Hemiptera: Heteroptera: Aradidae) from Puerto Rico

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### Abstract

Of the seven genera and ten species of Aradidae recorded from Puerto Rico to date, six are apterous species of the subfamily Carventinae USINGER, 1950 represented only by the types. In the present paper, the following apterous carventine taxa are described and illustrated: *Zettelaptera caribica* gen. et sp.n., *Puertoricaptera chordasi* gen. et sp.n., *Eretmocoris kovariki* sp.n., and *Kolpodaptera maricaona* sp.n.

*Rhysocoris disparis* (DRAKE & MALDONADO, 1955) and *Acaricoris clausus* DRAKE & KORMILEV, 1958 are recognized as *Kolpodaptera* USINGER & MATSUDA, 1959 and transferred to this genus. Additional records for known species are given and a key to all apterous Carventinae genera of Puerto Rico is presented.

**Key words:** Heteroptera, Aradidae, Carventinae, apterous, new genera, new species, new combinations, key to genera, Puerto Rico.

### Zusammenfassung

Von den bisher bekannt gewordenen sieben Gattungen und zehn Arten von Aradidae aus Puerto Rico sind sechs aptere Arten der Unterfamilie Carventinae USINGER, 1950 zuzuordnen, welche nur durch die Typen belegt sind. Nachstehend werden weitere aptere Carventinae von Puerto Rico beschrieben und abgebildet: *Zettelaptera caribica* gen. et sp.n., *Puertoricaptera chordasi* gen. et sp.n., *Eretmocoris kovariki* sp.n. und *Kolpodaptera maricaona* sp.n.

*Rhysocoris disparis* (DRAKE & MALDONADO, 1955) und *Acaricoris clausus* DRAKE & KORMILEV, 1958 werden in die Gattung *Kolpodaptera* USINGER & MATSUDA, 1959 gestellt, zusätzliche Funde bekannter Arten angeführt und ein Bestimmungsschlüssel für die apteren Carventinae von Puerto Rico vorgelegt.

### Introduction

Puerto Rico is the smallest and easternmost island of the Greater Antilles Archipelago in the Caribbean, situated between Hispaniola (now Haiti and Dominican Republic) and the Virgin Islands and is unincorporated territory of the United States. The island covers approximately 9000 square kilometres extending 180 km east – west and about 40 km north – south. It consists of Cretaceous to Eocene volcanic and plutonic rocks and the highest elevation, Cerro de Punta, is located in the central mountain range “La Cordillera Central”, reaching 1338 m a.s.l.

Climate and vegetation are subtropical to tropical and offer multiple habitats for a rich flora and fauna of which numerous endemic insects are reported (BARBER 1939, WOLCOTT 1948, MALDONADO CAPRILES & NAVARRO 1967).

The Mesoamerican fauna of apterous Carventinae is still insufficiently studied and understood. The first comprehensive treatment was given by USINGER & MATSUDA (1959), who recognized six genera for this region (*Peggyicoris* DRAKE, 1956, *Rhysocoris* USINGER & MATSUDA, 1959, *Eretmocoris* HARRIS & DRAKE, 1944, *Acaricoris* HARRIS & DRAKE, 1944, *Aglaocoris* DRAKE & M.CAPRILES, 1955, *Kolpodaptera* USINGER & MATSUDA, 1959). KORMILEV & FROESCHNER (1987) already listed nine genera and 33 species. Later additions by GRILLO RAVELO (1988) from Cuba, HEISS (1995) from Jamaica, HEISS (2008) from the Dominican Republic, and LOPEZ & COSTAS (2018) from Panama raised the number of described taxa to 21 genera and 46 species.

To date, the known flat bug fauna of Puerto Rico comprised seven genera and ten species belonging to three subfamilies (COSCARON & CONTRERAS 2012):

Aneurinae: *Aneuris pisoniae* KORMILEV, 1968b

*Iralunelus aibonitensis* (KORMILEV, 1968b)

Carventinae: *Acaricoris clausus* DRAKE & KORMILEV, 1958 (= *Kolpodaptera clausus*)

*Aglaocoris natalii* DRAKE & MALDONADO, 1955

*Eretmocoris gigas* USINGER & MATSUDA, 1959

*Eretmocoris prominens* USINGER & MATSUDA, 1959

*Eretmocoris tatei* HARRIS & DRAKE, 1944

*Rhysocoris disparis* (DRAKE & MALDONADO, 1955) (= *Kolpodaptera disparis*)

Mezirinae: *Mezira abdominalis* (STÅL, 1873)

*Mezira placida placida* KORMILEV, 1968a

These species of Aneurinae and Mezirinae are macropterous, while all Carventinae are apterous. The wingless condition prevents them from colonizing distant habitats, their distribution range is therefore limited and mostly restricted to natural and undisturbed forests, and they are – as far as records indicate – endemic. Apterous Carventinae feed on fungi and are usually collected by sifting leaf- or bark litter. Because of their cryptic life, they are rarely collected and underrepresented in collections.

Identification of recently donated Aradidae, exchanged voucher specimens (e.g., Kormilev, Maldonado), and specimens collected by the author but left unidentified in his collection for a long time has brought to light several unreported apterous Carventinae taxa including two new genera, four new species and additional records of already reported species, which are described and illustrated herein.

## Material and methods

The material upon which this study is based is deposited in the collection of the author (CEHI) at the Tiroler Landesmuseum (Innsbruck, Austria). As apterous aradid specimens collected from litter are usually covered by incrustation obscuring the body structures, they were cleaned and remounted for the study of the ventral side bearing arrangements of glandular tubercles essential for the taxonomy.

Measurements were taken with a micrometer eyepiece and are given in millimetres.

When citing the text on the labels of a pin attached to the specimens / separates the lines and // different labels. Abbreviations used: deltg = dorsal external laterotergite (connexivum), mtg = mediotergite, vltg = ventral laterotergite, ptg = paratergite.

Photos were taken through an Olympus SZX 10 binocular microscope with Olympus E3 digital camera and processed with Helicon Focus 4.3 software, Adobe Photoshop, and Lightroom 2.3. Arrows on images indicate the position of glandular structures on male sternite VII.

## Taxonomy

### Subfamily Carventinae USINGER, 1950

#### Key to apterous Carventinae genera from Puerto Rico

(adapted from USINGER & MATSUDA 1959)

- 1 Deltg II+III separated by a distinct suture; ptg VIII of male produced and bent upward with acute apices. .... (*Rhysocoris*)
- Deltg II+III completely fused; ptg VIII of male club-shaped or rounded. .... 2
- 2 Eyes briefly or distinctly stalked; sternite VII of male with a pair of round glandular tubercles directed downward (Figs. 12, 13, 24). .... 3
- Eyes not stalked; sternite VII of male without or with different glandular structures. .... 4
- 3 Head without distinct setigerous postocular tubercles (Figs. 9, 14). .... *Eretmocoris*
- Head with distinct setigerous postocular tubercles (Figs. 22, 23). .... *Aglaocoris*
- 4 Spiracles II ventral, III–VII lateral and visible from above; sternite VII of male without polished glandular structures. .... (*Acaricoris*)
- Spiracles II–VII lateral and visible from above; sternite VII of male with polished glandular structures. .... 5
- 5 Sternite VII of male raised and glabrous at middle with a pair of small glandular tubercles near apex (Figs. 2, 3). .... *Zettelaptera* gen.n.
- Sternite VII of male not raised and glabrous at middle, posterolateral lobes with polished apex. .... 6
- 6 Body oval and wide; neck with a pair of distinct lateral tubercles (Figs. 5, 6).  
..... *Puertoricaptera* gen.n.
- Body elongate oval; neck without a pair of distinct lateral tubercles (Figs. 16, 18, 20).  
..... *Kolpodaptera*

#### *Zettelaptera* gen.n.

Type species: *Zettelaptera caribica* sp.n.

Etymology: Named after my friend Dr. Herbert Zettel, Natural History Museum Vienna, appreciating and recognizing his great and important contributions to the knowledge of Oriental aquatic Heteroptera and his continuous activities and efforts in favour of the small community of Austrian entomologists.

Diagnosis: Apterous, small sized, body oval. Colouration reddish brown, legs and antennae ochraceous. Surface of body glabrous, lateral margins of thoracic segments and

posterolateral angles of deltg II–VII beset with setigerous tubercles. Eyes oval and not stalked. Rostrum arising from a slit-like atrium. Fused median sclerite of thorax carinate and longitudinally striate, reaching from prosternum to tergal plate. Deltg II–III fused. Spiracles II–VII lateral and visible from above. Sternite VII of male with a medial glabrous elevation bearing a pair of small glandular tubercles near apex.

**Description:** Head about as wide as long. Genae reaching apex of clypeus. Antenniferous lobes diverging, with acute apex. Antennae about twice as long as width of head; segment I longest, II shortest. Eyes oval and granulate. Postocular lobes converging posteriorly. Rostral groove wide, closed posteriorly.

**Thorax:** Pronotum strongly transverse; anterolateral lobes angular and granulate; disk with a median furrow and smooth oval lateral plates; posterior margin sinuate. Meso- and metanotum consisting of smooth oval plates lateral of fused median triangular ridge and granulate lateral parts; metanotum separated from mesonotum by furrows lateral of median ridge, posteriorly fused to mtg I+II. Legs unarmed, beset with short, sparse, erect pilosity.

**Abdomen:** Tergal plate shorter than wide, with a median knob-like elevation, surface punctured, Deltg II+III fused, posteroexterior angles of deltg II–VII progressively increasing in size, of triangular shape on deltg VI–VII. Pygophore with a median carina sloping posteriorly. Venter with pro-, meso and metasternum fused to sternites II–III, their median part smooth. Spiracles II–VII lateral and visible from above. Sternite VII of male medially elevated and smooth, with a pair of small glandular tubercles.

**Comparative notes:** The combination of several characters, e.g., stalkless eyes, fused deltg II+III, all spiracles lateral, fused median thoracic ridge with a longitudinal sulcus, is only shared by the apterous Carventinae genera *Kolpodaptera* USINGER & MATSUDA, 1959 and *Pokoldaptera* GRILLO, 1988 from Cuba. However, the position and structure of the pair of glandular tubercles placed medially of male sternite VII is unique to *Zettelaptera* gen.n. and distinguishes it from all Neotropical Carventinae described to date.

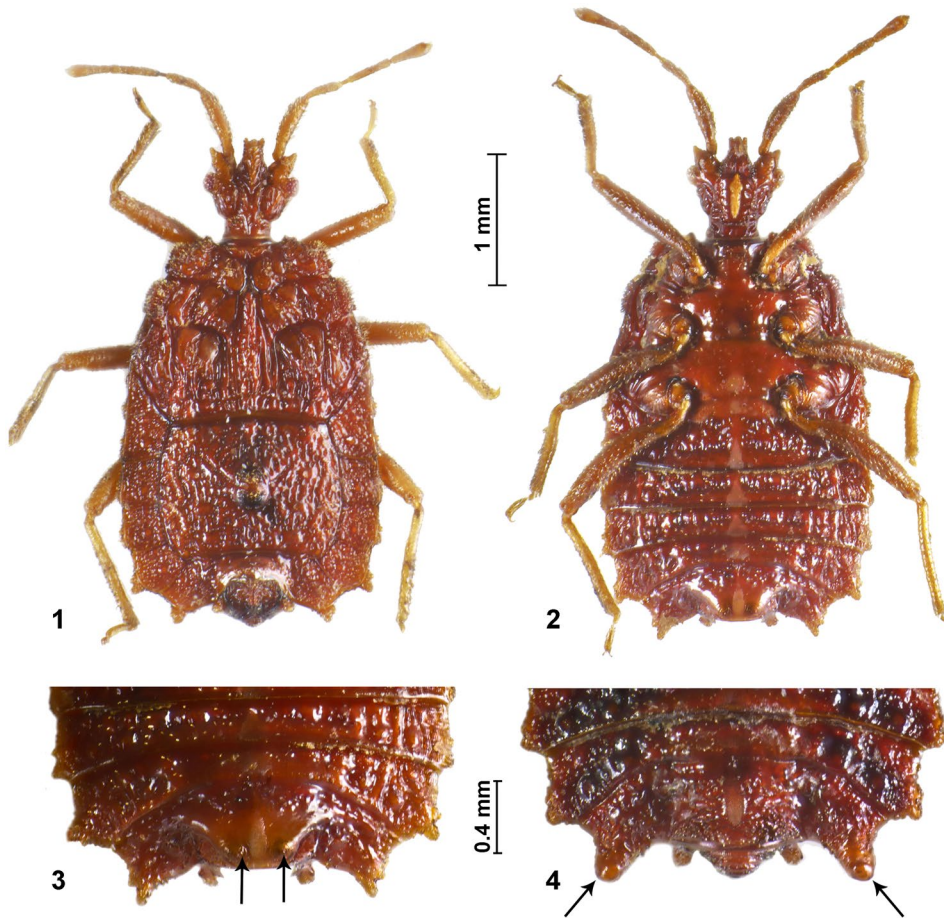
### *Zettelaptera caribica* sp.n. (Figs. 1–3)

**Type material:** Holotype (male; CEHI) labelled: Puerto Rico / El Toro Negro Nat. / Forest, Laubstreu / Anf. IV 1991 E.Heiss //. Paratypes: 2 males (CEHI) collected with holotype. They are designated and labelled accordingly.

**Etymology:** Refers to the Caribbean area where it was discovered.

**Description:** Head slightly longer than wide (0.80 / 0.75). Genae adhering to clypeus, not exceeding its apex. Antennae 2.13× as long as width of head (1.6 / 0.75); segment I longest and thickest, II shortest, III cylindrical, IV fusiform; length of antennal segments I / II / III / IV = 0.55 / 0.3 / 0.4 / 0.35. Eyes not stalked, oval and granulate. Postocular lobes converging to constricted neck, beset with few small setigerous tubercles.

**Thorax:** Pronotum more than three times as wide as long (1.3 / 0.4) consisting of two plates, each with a smooth oval sclerite bordered by granulate and subangulate anterolateral lobes, separated at middle by a furrow which is widening posteriorly for the reception of the anterior apex of the thoracic ridge. Collar smooth, posteriorly delimited by a triangular transverse ridge; a triangular projection of prosternum visible at a lower level in front of anterolateral lobes. Meso- and metanotum: each lateral part of median thoracic ridge consisting of oval smooth and lateral rugose and granulate sclerites; metanotum posteriorly fused to granulate mtg I+II, fusion lines not discernible.



Figs. 1–4: (1–3) *Zettelaptera caribica* gen.n. et sp.n., holotype male in (1) dorsal and (2) ventral view; (3) male, ventral terminal segments. (4) *Puertoricaptera chordasi* gen.n. et sp.n., male, terminal segments.

Abdomen: Tergal plate wider than long (1.4 / 1.05), medially raised on mtg III–V into a large round tubercle. Deltg II+III fused, the dorsally visible reflexed rim of vltg II–VII increasing in size from deltg III to VII and bearing the spiracles. Pygophore with inclined dorsal surface and a median carina; ptg VIII club-shaped, not reaching apex of pygophore. Ventrally, median parts of pro-, meso and merasternum and sternites II–III fused but marked by transverse impressions, surface smooth. Sternite VII of male smooth at middle, with a pair of glandular tubercles. Produced apices of vltg VII without glabrous tubercles or other glandular structures.

Measurements: Holotype: body length 3.8; width of abdomen across tergite IV, 2.05; mesonotum width / length, 1.65 / 0.3; metanotum width / length, 1.9 / 0.45. Paratypes: body length 3.7.

**Discussion:** Because of the limited range of movement and distribution, this taxon is presumed to be endemic to Puerto Rico and can easily be recognized by the yet unreported glandular structures on male sternite VII. Females are not yet recorded.

### ***Puertoricaptera* gen.n.**

**Type species:** *Puertoricaptera chordasi* sp.n.

**Etymology:** Named after the island of Puerto Rico and referring to the apterous condition.

**Diagnosis:** Apterous, small sized. Colouration reddish brown, partly blackish areas on deltg II–VII, the median thoracic ridge, pygophore and venter. Surface glabrous, lateral margins of body, legs, and antennal segment I with short stiff setae. Eyes oval, not stalked. Neck with a pair of setigerous lateral tubercles. Rostrum arising from a slit-like atrium. Thorax with a fused triangular ridge reaching from pronotum to tergal plate. Pro- and mesonotum laterally produced. Deltg II+III fused; posterolateral angles of deltg III–VII triangularly produced. Spiracles II–VII lateral and visible from above. Posteriorly produced sternite VII of male with a glabrous glandular tubercle at apices.

**Description:** Head longer than wide. Genae produced over clypeus; antenniferous lobes acute. Antennae about twice as long as width of head; segment I longest, II shortest. Eyes not stalked. Postocular lobes converging posteriorly to constricted neck; this with a pair of laterally produced setigerous tubercles.

**Thorax:** Pronotum consisting of two transverse sclerites separated by a deep furrow; disk rugose; lateral lobes raised and produced. Meso- and metanotum: structure of lateral plates as of pronotum, separated at middle by a triangular, posteriorly widening fused ridge with a longitudinal sulcus, which is also fused to mtg I+II reaching tergal plate. Legs unarmed; trochanters fused to femora; claws with thin pulvilli.

**Abdomen** very wide. Deltg III–VII triangularly produced laterally, deltg II+III fused. Tergal plate with a median knob-like elevation. Pygophore large, conical, surface sloping posteriorly. Ventrally, fused median parts of pro-, meso- and metanotum and sterna II+III smooth and glabrous, with a shallow, round median impression on meso- and metasternum. Projecting apices of sternite VII of male with a shiny round tubercle.

**Comparative notes:** General structure of antennae, head, thorax, and abdomen resemble and are similar to *Zettelaptera* gen.n. However, *Puertoricaptera* differs from the latter by a distinctly wider habitus, the pair of lateral tubercles on the neck, and the glabrous tubercles on apex of the male's sternite VII. It shares with *Kolpodaptera* the position of the shiny glandular tubercles on male sternite VII (cf. USINGER & MATSUDA 1959); this genus differs, however, by lacking the pair of tubercles on neck. According to GRILLO RAVELO (1988) none of the new genera described by him for Cuba shares these characters or shows a pair of lateral tubercles on the neck.

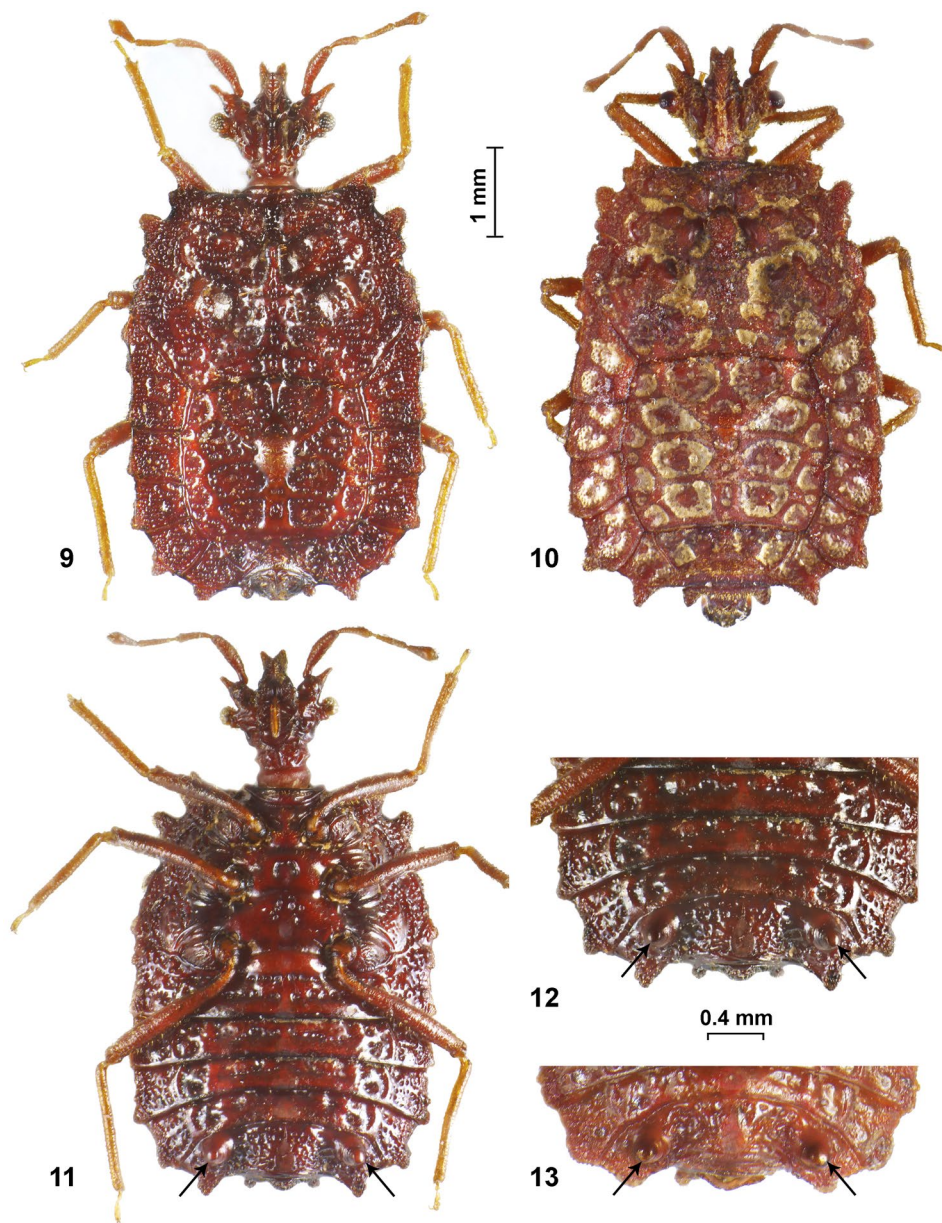
### ***Puertoricaptera chordasi* sp.n. (Figs. 4–8)**

**Type material:** Holotype (male; CEHI) labelled: Puerto Rico / Guilarte Forest / aus Laubstreu / Anf. IV 1991 E.Heiss //. Paratypes (CEHI): 3 males, 4 females collected with holotype; 3 males, 3 females, 3 L5 labelled: 18°09'01"N; 066°46'14"W / Puerto Rico: Adjuntas / Bosque Estatal Guilarte / tr. behind pk. headquarters / 5.VIII.1999, P.W.Kovarik//; 1 female labelled: Mayaguez P.R. / III 1955 / J.M. Capriles //. They are designated and labelled accordingly.



Figs. 5–8: *Puertoricaptera chordasi* gen.n. et sp.n.: (5) holotype male, dorsal view; (6) paratype female, dorsal view; (7) paratype male, ventral view; (8) paratype female, ventral view.

**Etymology:** It is a pleasure to dedicate this species to Dr. Steve Chordas, Grandview Heights, Ohio (USA), who generously offered several Caribbean Aradidae as a gift for my scientific studies of that fauna.



Figs. 9–13: (9–12) *Eretmocoris gigas*: (9) male, dorsal view; (10) female, dorsal view (incrustation not removed); (11) male, ventral view; (12) male ventral terminal segments. (13) *Eretmocoris kovariki* sp.n., holotype male, ventral terminal segments.



**Description:** Head longer than wide (1.0 / 0.8). Genae parallel, surpassing clypeus, leaving a gap. Antenniferous lobes diverging anteriorly, apices acute. Antennae 1.94× as long as width of head (1.55 / 0.8); segment I thickest and longest, II shortest, III thinnest, IV fusiform; length of antennal segments I / II / III / IV = 0.6 / 0.3 / 0.35 / 0.3. Eyes oval, not stalked. Postocular lobes converging to constricted neck, beset with few setigerous tubercles. Neck with a pair of lateral setigerous tubercles at a lower level.

**Thorax:** Pronotum strongly transverse, three times as wide as long (1.5 / 0.5); anterolateral angles roundly produced and raised; disk lateral of median groove with oval rugose callosities; the smooth collar posteriorly boarded by a triangular transverse carina. Mesonotum distinctly wider than long (1.95 / 0.4); lateral margins granulate and raised; disk with oval callosities lateral of median triangular ridge, there separated from metanotum by a deep furrow. Metanotum and mtg I+II with median carinate ridge widening posteriorly, fused to mtg I+II with longitudinal rugosities, and with a median sulcus. Sclerites lateral of median ridge rugose and fused to mtg I+II; lateral margins carinate.

**Abdomen:** Tergal plate wider than long (1.6 / 1.0), medially raised on mtg III–V into a knob-like tubercle, sloping laterally. Deltg II+III fused; posterolateral angles of deltg II–VII marked by the dorsally reflexed rim of vltg II–VII which increase in size posteriorly. Tergite VII raised medially for the reception of the globular pygophore. Venter: Spiracles sublateral or lateral but visible from above. Sternite VII of male with rugose surface; posterolateral angles produced, their apices with round glabrous tubercles representing glandular structures.

**Female:** Basically as male but of larger size and wider body. Tergite VII with a transverse ridge at posterior margin. Posterolateral expansions of deltg III–VII smaller than in males.

**Measurements:** Holotype (male): Body length 4.2; width of abdomen across tergite III, 2.55; metanotum width / length, 2.2 / 0.65. Paratype (female): Body length: 4.8; antenna 2.02× as long as width of head (1.72 / 0.85); head width / length, 0.85 / 1.05; pronotum width / length, 1.65 / 0.5; mesonotum width / length, 2.05 / 0.4; metanotum width / length, 2.2 / 0.8; width of abdomen across tergite III, 2.85.

**Comparative notes:** The combination of characters like setigerous tubercles on neck (only reported from *Eretmocoris gigas* USINGER & MATSUDA, 1959 from Puerto Rico) and glabrous glandular structures at apices of male sternite VII is unique and not shared by any other Neotropical Aradid taxon.

### ***Eretmocoris* HARRIS & DRAKE, 1944**

**Type species:** *Eretmocoris tatei* HARRIS & DRAKE, 1944 (Puerto Rico).

**Notes:** This genus comprises eight species with Caribbean distribution. Three are described from Puerto Rico and only known from the type specimens, a fourth species is here described.

In addition, DRAKE & MALDONADO (1955) described *Eretmocoris disparis* from Puerto Rico, but later USINGER & MATSUDA (1959: 130) tentatively placed this species in the genus *Rhysocoris*, and as such it was catalogued by KORMILEV & FROESCHNER (1987: 89) and COSCARON & CONTRERAS (2012: 31). Examination of a paratype male after cleaning from incrustation has shown that it shares all important characters of *Kolpodaptera* like habitus, all spiracles lateral and visible from above, and posterolateral lobes of the male's tergite VII roundly produced, with polished glandular structure at ventral apex. The species is

therefore transferred to this genus below. Subsequently, the genus *Rhysocoris* is no longer represented in Puerto Rico and to be removed from the list.

***Eretmocoris tatei* HARRIS & DRAKE, 1944**

*Eretmocoris tatei* HARRIS & DRAKE, 1944: 131.

Note: The holotype, a male, is from Lares. It was later imaged by DRAKE & MALDONADO (1955: fig. 5).

***Eretmocoris prominens* USINGER & MATSUDA, 1959**

*Eretmocoris prominens* USINGER & MATSUDA, 1959: 136 (fig. 39F).

Note: The holotype, a male, is from Maricao.

***Eretmocoris gigas* USINGER & MATSUDA, 1959 (Figs. 9, 10)**

*Eretmocoris gigas* USINGER & MATSUDA, 1959: 139 (fig. 39E).

Material examined: 2 females (CEHI), Puerto Rico, Carib. / N.F., El Toro Negro / Hwy. 143, K1 9H4,7- / 22-1979 CW.O'Brien //; 2 males, 2 females (CEHI), Puerto Rico, Carib. / N.F., El Verde Hwy. / 186, K1 5H4, 7-20-1979 / O'Brien & Marshall //.

Notes: The holotype, a female, is from Adjuntas. This is the largest species and was separated in the key by USINGER & MATSUDA (1959: 133) by prominent lateral tubercles on the neck. However, when incrustation is removed from these tubercles, only a small swelling with few stiff setae remains (Figs. 9, 10).

***Eretmocoris kovariki* sp.n. (Figs. 13–15)**

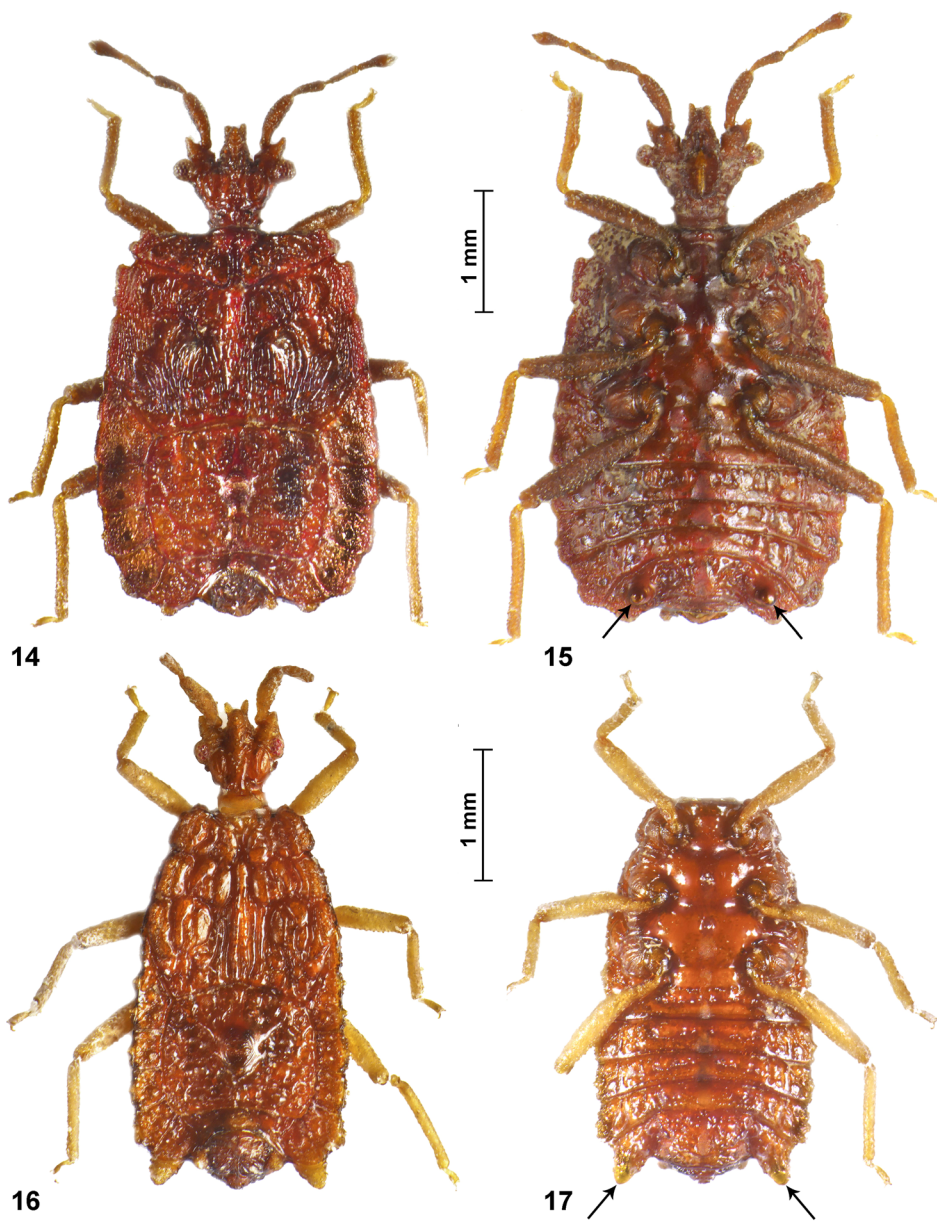
Type material: Holotype (male; CEHI) labelled: 18°09'01"N, 066°46'14"W / Puerto Rico Adjuntas / Bosque Estatal Guilarte / tr. behind pk. Headquarters / 5.VIII.1999 P.W.Kovarik //. It is designated and labelled accordingly.

Etymology: Named after P.W. Kovarik, who collected these and other Aradidae, which he donated and made available for scientific study.

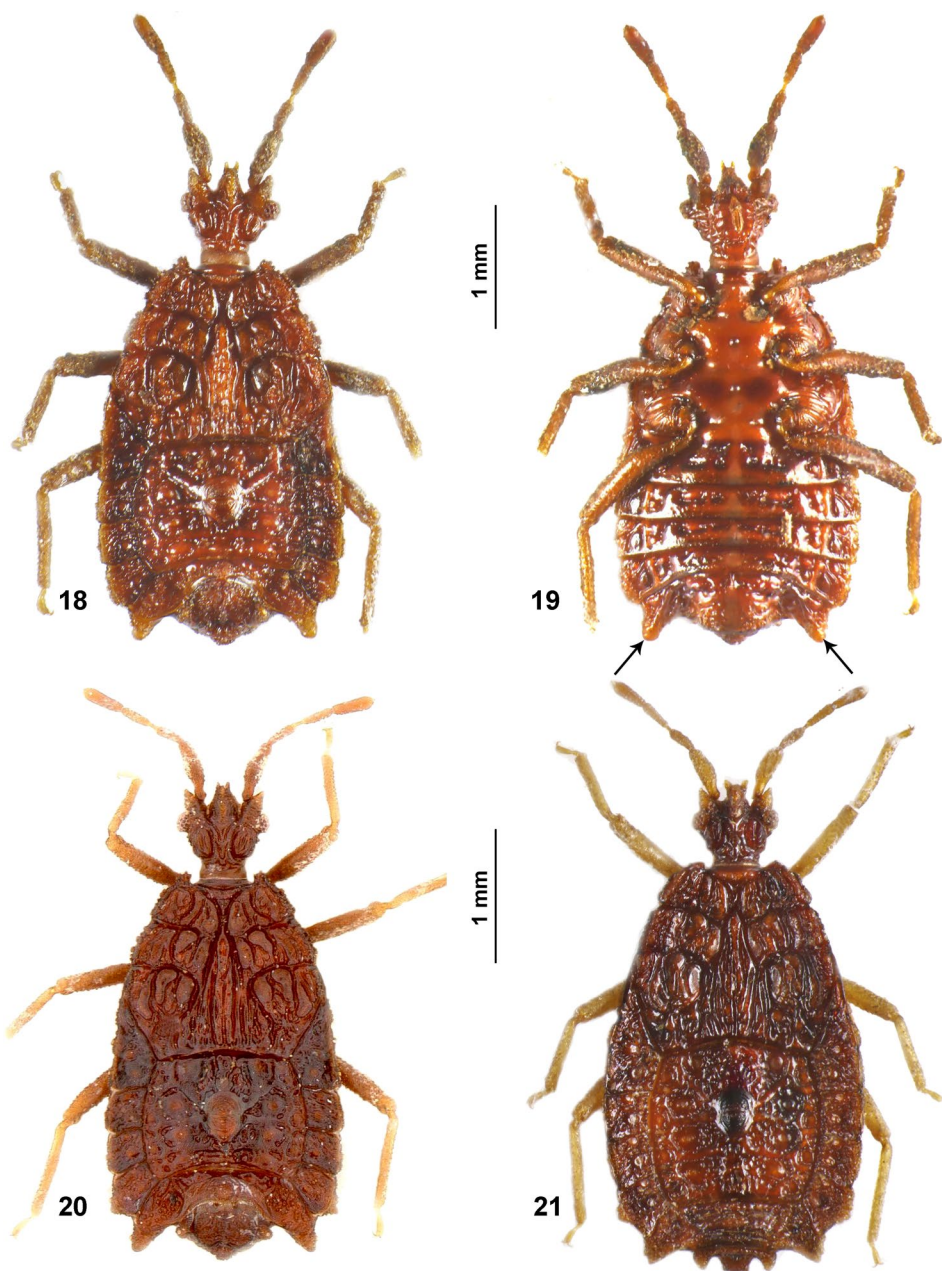
Diagnosis: Apterous, small, rectangular species. Colouration reddish brown. Surface glabrous with fine granulation and rugosities; very short, dispersed, stiff setae present on legs and antennae. Spiracles II–IV ventral, V–VII lateral and visible from above.

Description: Head wider than long (0.95 / 0.87). Genae slightly longer than clypeus. Antenniferous lobes diverging anteriorly, with acute apex. Antennae 1.42× as long as width of head (1.35 / 0.94); segment I thickest and longest, II shortest and widening apically, III cylindrical, IV fusiform; length of antennal segments I / II / III / IV = 0.475 / 0.3 / 0.275 / 0.3. Eyes stalked, laterally protruding. Postocular lobes beset with few small setigerous tubercles, converging posteriorly to constricted neck; this with a pair of small lateral tubercles at base. Rostrum arising from a slit-like atrium.

Thorax: Pronotum short and wide (0.5 / 1.62); anterior margin straight, lateral margins bisinuate, posterior margin triangularly produced posteriorly; disk with a median sulcus, rugose laterally. Mesonotum with straight lateral margins, cut out anteriorly; disk flat and rugose, median triangular ridge is fused to metanotum and completely fused to mtg I+II



Figs. 14–17: (14–15) *Eretmocoris kovariki* sp.n.: (14) holotype male, dorsal view; (15) holotype male, ventral view. (16–17) *Kolpodaptera disparis*, paratype: (16) dorsal view; (17) thorax and abdomen, ventral view.



Figs. 18–21: (18–19) *Kolpodaptera maricaona* sp.n., holotype male in (18), dorsal and (19) ventral view. (20–21) *Kolpodaptera clausus*: (20) holotype male, dorsal view; (21) female, dorsal view.

widening posteriorly. Metanotum with oval smooth callosities lateral of median ridge, rugose laterally. Legs unarmed; trochanters fused to femora.

Abdomen: Deltg II+III fused. Tergal plate wider than long (1.42 / 1.0), with a median elevation. Spiracles V–VII lateral on reflexed rim of vltg V–VII and visible from above. Venter: Spiracles II–IV ventral. Sternite VII with a pair of sublateral large shiny glandular tubercles directed downward.

Measurements: Body length 3.9; width of abdomen across tergite IV, 2.2; length of antennae 1.35.

Comparative notes: Comparison with all eight described *Eretmocoris* species has shown that this specimen cannot be assigned to one of these taxa. It is recognized as new and described herein. *Eretmocoris tatei* differs from *E. kovariki* sp.n. by smaller size (3.4 mm), angularly produced deltg V–VII (vs. rounded), and ptg VII of male produced posteriorly over pygophore (vs. as long as pygophore). *Eretmocoris prominens* is of larger size (4.5 mm), with humeral angles of pronotum angulate (vs. rounded), and with posterolateral lobes of tergite VII of male distinctly produced and acute (vs. rounded). *Eretmocoris gigas* is distinguished by the large size (7.0 mm) and the anterolateral projections of pronotum (vs. straight); only the pair of small lateral tubercles on neck is shared by *E. gigas*.

#### ***Acaricoris* HARRIS & DRAKE, 1944**

Type species: *Acaricoris ignotus* HARRIS & DRAKE, 1944 (USA), a female was imaged later by DRAKE & MALDONADO, 1955).

Notes: Of the six species described, two (*A. ignotus* HARRIS & DRAKE, 1944 and *A. floridanus* DRAKE, 1957) were recorded from the USA, one each from Guadeloupe (*A. austeris* DRAKE & KORMILEV, 1958), Panama (*A. barroanus* DRAKE & KORMILEV, 1958), Haiti (*A. haitiensis* KORMILEV, 1968), the Dominican Republic (*A. lattini* HEISS, 2008), and Puerto Rico (*A. clausus* DRAKE & KORMILEV, 1958).

*Acaricoris clausus* was described from Puerto Rico but not illustrated. The holotype (male) and a paratype (female, as allotype) were from Mayagüez, May 1955. A photo of the holotype from Drake's collection, kindly submitted by Tom Henry, gives evidence that it belongs to the genus *Kolpodaptera* USINGER & MATSUDA, 1959 which was described later and is therefore transferred to this genus below. Therefore, the genus *Acaricoris* is presently not recorded from Puerto Rico and to be removed from the list.

Photos of *Acaricoris austeris* and *A. barroanus*, both described before the erection of *Kolpodaptera* by USINGER & MATSUDA (1959) show characters of this genus and are presumed to represent *Kolpodaptera* taxa. This should be verified by examination of the types and further material.

#### ***Kolpodaptera* USINGER & MATSUDA, 1959**

Type species: *Kolpodaptera prominens* USINGER & MATSUDA, 1959 (Guadeloupe).

Notes: Only five species were recognized to date, all of Caribbean distribution: *Kolpodaptera prominens* USINGER & MATSUDA, 1959 (Guadeloupe); *K. panamensis* USINGER & MATSUDA, 1959 (Barro Colorado Island, Panama); *K. minuta* KORMILEV, 1966 (Guatemala); *K. rugosa* KORMILEV, 1966 (Cuba); *K. vasquezii* LOPEZ & COSTAS, 2018 (Coiba Island, Panama) (KORMILEV & FROESCHNER 1987, GRILLO-RAVELO 2012, COSCARON & CONTRERAS 2012). None was yet reported from Puerto Rico.

***Kolpodaptera disparis* (DRAKE & MALDONADO, 1955) comb.n.** (Figs. 16, 17)

Material examined: Paratype (male; CEHI) labelled: Mayaguez, P.R. / III 1955 //; J.M. Capriles // *Eretmocoris / Disparis / D & C* (handwritten) // *Eretmocoris / disparis / D & C* //.

Descriptive notes: Measurements: Body length 3.05; head length / width, 0.7 / 0.55; pronotum length / width, 0.325 / 0.9; mesonotum length / width, 0.275 / 1.07; metanotum length / width, 0.375 / 1.15; tergal plate length / width, 0.8 / 0.95; width of abdomen across tergite IV, 1.375; ratio length / width of abdomen 2.22.

***Kolpodaptera maricaoona* sp.n.** (Figs. 18, 19)

Type material: Holotype (male; CEHI) labelled: Insular Forest / Maricao, P.R. / 9.Nov. 1945 // J.A.Ramos / Collector // Paratype (female; CEHI): Puerto Rico, K19H8, / Hwy. 120 nr. Maricao / For. Res. July 25, / 1979 C.W. O'Brien // Both specimens are from the same forest reserve and the female is regarded as conspecific to the male sharing structure of head and thorax and position of spiracles. They are designated and labelled accordingly.

Etymology: Named after the province Maricao in western central Puerto Rico.

Diagnosis: Apterous, of small size and oval outline, attenuated anteriorly. Colouration yellowish brown. Surface shiny and rugose, without pubescence. Anterolateral angles of pronotum produced over collar. All spiracles lateral and visible from above.

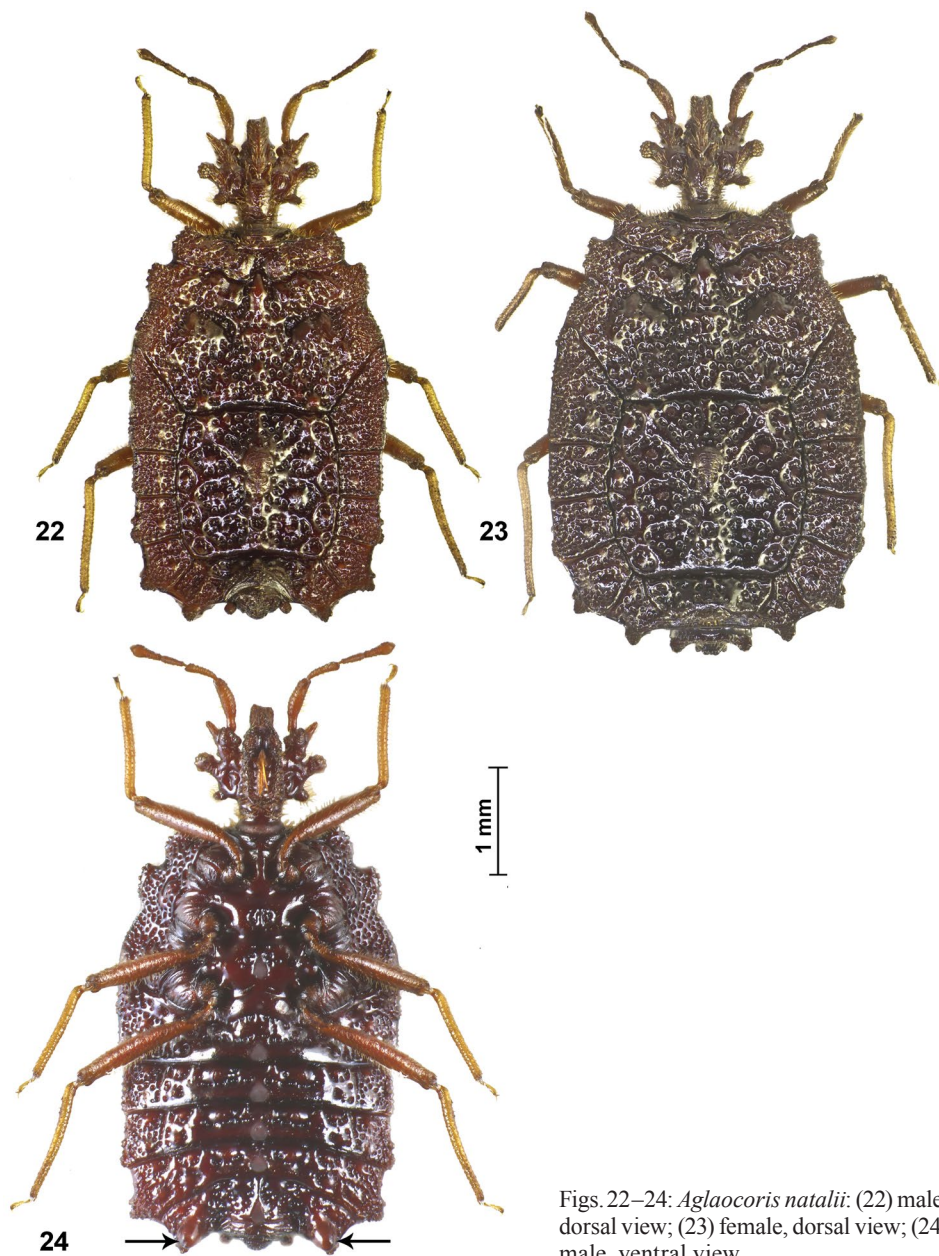
Description: Head slightly longer than wide (0.675 / 0.65). Genae thin, produced over clypeus. Antenniferous lobes blunt. Antennae 1.85× as long as width of head (1.2 / 0.65); segment I thickest and longest, II shortest, fusiform IV longer than cylindrical III; length of segments I / II / III / IV = 0.425 / 0.225 / 0.25 / 0.3. Eyes not stalked. Postocular lobes slightly sinuate with few small setigerous tubercles, converging posteriorly to constricted neck. Rostrum arising from a slit-like atrium.

Thorax: Pronotum consisting of two trapezoidal rugose plates separated at middle by a deep furrow; anterolateral angles acute and produced; lateral margins converging anteriorly. Mesonotum consisting of two transverse rugose plates separated at middle by the median fused ridge which is widening posteriorly and extends from pronotum to tergal plate. Metanotum fused to mtg I+II.

Abdomen: Deltg II+III fused; tergal plate with a median elevation; tergite VII raised medially for the reception of the large pygophore; posterolateral lobes finger-like and produced. Spiracles II–VII placed on reflexed rim of vltg II–VII and visible from above. Venter of sternite VII of male with glabrous posterolateral apices.

Measurements: Body length 3.15; head length / width, 0.675 / 0.65; pronotum length / width, 0.375 / 1.0; mesonotum length / width, 0.25 / 1.25; metanotum length / width, 0.375 / 1.4; tergal plate length / width, 0.775 / 1.1; width of abdomen across tergite IV 1.625; ratio length / width of abdomen 1.94. Paratype female: Body length 3.6; width of abdomen across tergite IV 1.7; length of antenna 1.28; ratio length / width of abdomen 2.11.

Comparative notes: *Kolpodaptera maricaoona* sp.n. differs from *K. disparis* by larger size, wider and more stout habitus, the ratio of body length and abdomen width of the male (1.94 vs. 2.22), and more pointed anterolateral projections of the pronotum. *Kolpodaptera clausus* is considerably larger (holotype: 3.45) and of more elongate habitus; the posterolateral lobes of deltg VI are angular, not rounded.



Figs. 22–24: *Aglaocoris natalii*: (22) male, dorsal view; (23) female, dorsal view; (24) male, ventral view.

***Kolpodaptera clausus* (DRAKE & KORMILEV, 1958) comb.n.** (Figs. 20, 21)

Material examined: two females (CEHI) labelled: Puerto Rico / Canbalache Forest / Res. July 28, 1979 / C.W. O'Brien //.

Descriptive notes: The two females share essential characters (habitus, structure of thorax, yellow legs and antennae) with the holotype and are presumed to belong to this taxon.

Measurements: Body length 3.8; head length / width, 0.675 / 0.65; antennae 1.88× as long as width of head; length of antennal segments I / II / III / IV = 0.425 / 0.225 / 0.275 / 0.3; pronotum length / width, 0.3 / 1.15; mesonotum length / width, 0.3 / 1.4; metanotum length / width 0.35 / 1.47; tergal plate length / width, 1.2 / 1.3; width of abdomen across tergite IV, 1.95; ratio length / width of abdomen, 1.95.

***Aglaocoris* DRAKE & MALDONADO, 1955**

Type species: *Aglaocoris natalii* DRAKE & MALDONADO, 1955 (Puerto Rico).

Notes: This genus also shows a Caribbean distribution of which eight species are described to date: three from Guadeloupe (*A. comes* DRAKE, 1956, *A. clarkei* DRAKE, 1957, *A. invisus* DRAKE, 1957), two from Cuba (*A. cubanus* DRAKE, 1956, *A. orientalis* GRILLO-RAVELO, 1988), and one each from Haiti (*A. drakei* KORMILEV, 1968), Puerto Rico (*A. natalii* DRAKE & MALDONADO, 1955), and the Dominican Republic (*A. rectangulus* USINGER & MATSUDA, 1959) (KORMILEV & FROESCHNER 1987, GRILLO RAVELO 1988).

***Aglaocoris natalii* DRAKE & MALDONADO, 1955** (Figs. 22–24)

Material examined: Two males, one female (CEHI) labelled: Yauco – Lares Rd. / P.R. km 29 / Mar. 20 1955 //, *Aglaocoris / natalii / Drake Dr. & M.C.* (handwritten by Drake) //.

Notes: The holotype (male) and one paratype (female, as allotype) of *A. natalii* were from Yauco, March 1955, and 60 paratypes from Mayagüez, April 1955. An outline of thorax and abdomen of a female is illustrated in the original description (DRAKE & MALDONADO 1955: fig. 4). The three specimens in author's collection are a gift of Maldonado C. and probably of the type series. They are here illustrated for the first time.

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