NEW GENERA AND SPECIES OF ANTILLOCORINI FROM TRINIDAD AND BRAZIL (HEMIPTERA:LYGAEIDAE)

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ABSTRACT

Arimacoris pileacola, new genus and new species from Trinidad, and Gemmacoris new genus (type species G. nitens, new species), from Trinidad and G. albicus, new species from Brazil are described. The generic relationships are discussed. Feeding habits of A. pileacola are discussed and the nymphs described. Illustrations are given for A. pileacola and G. nitens.

RESUMEN

Se describen Arimacoris pileacola, género nuevo y especie nueva de Trinidad, y Gemmacoris, género nuevo (especie tipo, G. nitens, nueva especie), de Trinidad, y la especie nueva G. albicus del Brasil. Se discuten las relaciones genéricas. Se discuten los hábitos de alimentación de A. pileacola y se describen sus ninjas. Se presentan ilustraciones de A. pileacola y de G. nitens.

The tribe Antillocorini is represented by many taxa and is much more diverse and the relationships more complex than previously suspected. Slater, Sweet and Baranowski (1977) and Slater (1980) have described a number of new taxa; the latter paper discusses the phylogeny and provides a cladogram and a key to the Western Hemisphere genera. Slater (1982) suggests that the Antillocorini may well be a paraphyletic tribe.
Recent collecting in Trinidad has provided us with additional material which is, in part, the subject of the present paper. These taxa do not possess a combination of derived features that allow placement in any existing genus and are accordingly described as new. It should be pointed out however that generic relationships of some of the Neotropical antilocorines will remain somewhat ambiguous until a careful study of the genus *Botocudo* is accomplished. This genus, as presently constituted, seems to us to be doubtfully monophyletic since a number of species do not possess the character states used by Slater (1980) in his key and cladogram. We hope to comment further on “Botocudo” in a later contribution.

**Biology**

One of the interesting features of the Trinidad species described below is that they were taken above ground on *Pilea microphylla* (L.) Liebm. (Urticaceae) and that *Arimacoris pileacola* Baranowski & Slater NEW SPECIES, at least, definitely feeds on the seeds of this plant and breeds on it.

Rhypharochromines are mostly oligophagous (Sweet 1960, 1964) primarily feeding on seeds in fallen litter on the ground. Sweet (1964) also indicated that there was not a well-marked host specificity in the New England species he studied. Slater (1972) classified the lygaeids feeding on seeds as, 1) arboreal seed predators, 2) obligatory terrestrial seed predators, 3) facultative terrestrial seed predators and 4) accidental terrestrial seed predators. At that time members of the Antilocorini were known only to feed in seed litter on the ground.

Slater, Sweet and Baranowski (1977) provided what is probably the first record of members of the Antilocorini as arboreal seed feeders. Three species of *Bathydema* (B. socia Uhler, B. jamaicensis Slater and Baranowski, B. maculosa Slater and Baranowski) were reported to feed on the seeds of *Pilea* species while the seeds were still on the plants. It was suggested that this adaptation—feeding on seeds still on the plant—is effective in moist tropical habitats where seeds falling to the ground either germinate or mold quickly. The ground litter habitat is thus not suitable for geophilous seed feeding lygaeids (see Sweet (1964 p 26-27)).

Recently a series of *Paurocoris wygodzinski* Slater, collected by Dr. J. Egor, was brought to our attention. Adults and nymphs were collected on *Pilea microphylla* and were observed feeding on the seeds. Eggs were deposited singly in the floral parts in much the same manner as are the eggs of *A. pileacola*. The fact that *A. pileacola* is known to breed only on *P. microphylla*, and *P. wygodzinski* was collected on and breeds on the same host plant, while species of *Bathydema* are known to feed on more than one species of *Pilea*, but have not been collected on *P. microphylla*, suggests that *Paurocoris* and *Arimacoris* are closely related genera.

In addition to the two species described below a species of the *Ozophora parvifrons* complex also definitely breeds on *Pilea microphylla* and a specimen of a species of *Botocudo* has been taken on this plant. These additional rhypharochromines that live on mature seeds above ground strengthens our suggestions of the selective advantage of utilizing seeds (in moist tropical habitats) before they fall into the litter.

While most of the known *Pilea* feeders are antilocorines, and these are all small bugs the limiting factor may be the size of the insects rather than the taxonomic group.

*Arimacoris* Baranowski and Slater NEW GENUS

**Type Species:** *Arimacoris pileacola* Baranowski and Slater, NEW SPECIES.

Body short, stout, broadly elliptical. Head, pronotum, scutellum, corium, lateral and
ventral surfaces, and corium laterad of radial furrow pruinose; inner portion of corium and entire clavus subshining. Entire dorsal surface punctate; clavus with 3 rows of punctures. Head short and broad, only slightly declivent anteriorly. Eyes sessile, in contact with antero-lateral pronotal angles. Ocelli set slightly behind posterior margins of eyes. Pronotum with lateral margins of anterior lobe narrowly but sharply carinate. No transverse pronotal impression. Posterior pronotal margin concave before base of scutellum. Scutellum lacking a median carina. Lateral corial margins broadly explanate. Inner half of apical corial margin deeply and abruptly concave. Membrane translucent. Gular trough nearly reaching base of head. Fore femora mute. Metathoracic scent gland auricle strongly curving posteriorly, apex blunt. Evaporative area occupying only inner 1/3 of metapleuron, outer margin convex. Second antennal segment clavate segments III and IV fusiform. Well developed, equally sized scent gland scar openings present between abdominal terga 3-4, 4-5 and 5-6 (Fig. 1B). The scent gland configuration is similar to that of *Cligenes distinctus* (Dist.) (Fig. 1C). Inner laterotergites on

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**Fig. 1.** A. *Arimacoris pileacola*, Baranowski and Slater n. sp. abdominal trichobotria; B. (same) abdominal scent gland openings; C. *Cligenes distinctus* (Dist.) abdominal scent gland openings; D. (same) abdominal trichobotria.
segments 4, 5 and 6. Trichobothria of sternum 5 linear, the 2 posterior trichobothria close together, the posterior one placed well behind spiracle (Fig. 1A). Abdominal spiracles 2 and 4 placed on lateral sternal shelf, spiracle 3 placed below shelf.

Remarks: Slater (1980), following his description of the genus Paurocoris, mentioned an undescribed species from Trinidad that appeared to be somewhat transitional between Paurocoris, Botocudo and Cligenes. Arimacoris is based upon this species, described below.

The trichobothrial arrangement of Arimacoris is transitional in that the two posterior trichobothria of sternum 5 are essentially linear (the posterior one is placed very slightly more ventral than the preceding one) (Fig. 1A). However, the posterior trichobothrium is placed well behind the spiracle of sternum 5. A polarity sequence can be conceived from a plesiomorphic condition in which the two posterior trichobothria of sternum 5 are located one above the other and both behind spiracle 5 (as in Paurocoris), to the condition described above for Arimacoris, to a condition where the two posterior trichobothria are completely linear and have “migrated” forward of the spiracles as in Cligenes (Fig. 1D).

Arimacoris may also be distinguished from Paurocoris by: 1) the spiracle of sternum 4 (Fig. 1A) placed on the sternal shelf rather than below it, 2) the dorsal surface of the head pruinose rather than shining, 3) the lateral margins of the posterior portion of the pronotum not sharply carinate, 4) the strongly posteriorly curved metathoracic scent gland auricle, and 5) the strongly produced explanate margins of the coria.

Arimacoris will key to couplet 4 in Slater’s (1990) key to the genera of Western Hemisphere Antillocorini but will not pass through this couplet. The characters are contradictory in that the trichobothria of abdominal sternum 5 are linear in position but are not all located anterior to the spiracle. It should also be noted here that couplet 5, which separates Cligenes from Botocudo by the former possessing a deep median groove on the prosternum, is true of the type species of Cligenes (distinctus Distant) but not of C. subcavicolius Scudder, Darlington & Hill.

All measurements that follow are given in mm.

Arimacoris pileacola Baranowski and Slater, New Species
(Fig. 2)


Head short, broad, tylus extending to distal 1/3 of antennal segment I. Vertex convex. Head length 0.20, width 0.40, interocular space 0.32. Pronotum broadly trapezoidal, lateral margins along anterior 1/2 narrowly explanate. Pronotum length 0.32, width 0.66. Scutellum length 0.50 width 0.36. Hemelytra with corial margins slightly sinuate, arcuate round distad of level of claval commissure. Claval commissure length 0.14. Mid-line distance apex clavus-apex corium 0.30. Mid-line distance apex corium-apex membrane 0.16. Labium extending to mesocoxae. Labial segments length I 0.14, II 0.16, III 0.10, IV 0.10. Antennal segments length I 0.14, II 0.18, III 0.18, IV 0.24. Total body length 1.34.

Holotype: 3 TRINIDAD, W.I. St George Co. Arima-Blanchisseuse Rd. 7.75 mi. post 10-X-1978 (R. M. Baranowski). In United States National Museum of Natural History Type No. 100251.
Fig. 2. Arimacoris pileacola Baranowski and Slater, n.sp., dorsal view.


Remarks: Arimacoris pileacola occurs in a very unusual habitat for a rhyparochromine lygaeid, occurring exclusively on Pilea microphylla, even though a second species, P. venenata (Poiret) Weddell, is often closely associated with P. microphylla. A. pileacola has been observed feeding on the seeds on the plant in the laboratory, and because most rhyparochromine lygaeids are exclusively seed feeders, this species is probably also. P. microphylla commonly occurs on man-made structures, most frequently on the vertical rock or concrete surfaces of culverts, bridges, etc. A. pileacola is most readily collected by placing a net below the small Pilea plants growing from a vertical rock face and “brushing” or shaking the minute insects off the plants into the net from which they can be collected with an aspirator.

It is striking, as the paratype series indicates, that A. pileacola is known from a very restricted area in Trinidad covering only a few miles in the northern range along the Arima-Blandisseuse Rd, Arima Valley, St George Co. Despite extensive collecting on P. microphylla in the Aripo valley, a few miles east of the Arima valley and in the Caura Valley, west of the Arima Valley no specimens have been taken. In addition A. pileacola was not collected on P. microphylla along the north coast road from Blanchis- seuse to Port of Spain, in the Wallerfield area where extensive patches of P. microphylla occur on shaded abandoned paved runways and roads, nor culverts along roads in the central range.

In the laboratory A. pileacola deposited its eggs singly in the floral parts of its host plant. This was also true of Bathydema jamaicensis (Slater, Sweet, Baranowski, 1977).

Immature Stages:

Fifth instar nymph (in alcohol)

Body short, stout, ovoid. Head cream colored, eyes and ocelli red. Pronotum and wing pads tan. Abdomen cream colored with posterior edge of terga 2-5 narrowly reddish. Antennal segments I, II whitish, segments III, IV reddish brown. Femora whitish, tibiae and tarsi dusky. Head length 0.28, width 0.36, interoculular space 0.24. Pronotum length 0.28, width 0.60, wing pad length 0.46. Labial segments length I 0.18, II 0.18, III 0.10, IV 0.14. Antennal segments length I 0.12, II 0.16, III 0.14, IV 0.24. Abdomen length 0.70. Total body length 1.42.

Fourth instar nymph (in alcohol)

Similar in shape and color to 5th instar. Head length 0.22, width 0.32, interoculular space 0.20. Pronotum length 0.22, width 0.50, wing pad length 0.20. Labial segments length I 0.14, II 0.14, III 0.10, IV 0.12. Antennal segments length I 0.12, II 0.12, III 0.12, IV 0.20. Abdomen length 0.60. Total body length 1.10.

Third instar nymph (in alcohol)

Similar in shape and color to 4th instar. Head length 0.18, width 0.30, interoculular space 0.20. Pronotum length 0.20, width 0.44, wing pad length 0.16. Labial segments length I 0.10, II 0.12, III 0.10, IV 0.10. Antennal segments length I 0.10, II 0.10, III 0.10, IV 0.20. Abdomen length 0.56. Total body length 1.10.

Second instar nymph (in alcohol)

Similar in shape to 3rd instar. Head and thorax pale tan, abdomen cream colored suffused with reddish, especially along posterior margin of terga. Legs uniformly cream colored. Head length 0.18, width 0.26, interoculular space 0.20. Pronotum length 0.14.
Baranowski & Slater: New Lygaeidae

width 0.32. Labial segments I 0.10, II 0.10, III 0.10, IV 0.10. Antennal segments length I 0.08, II 0.10, III 0.10, IV 0.14. Abdumen length 0.42. Total body length 0.80.

First instar nymph (in alcohol)

Similar in shape to 2nd instar. Head, thorax, legs, antennal segments I, II, III dusky tan, abdomen and antennal segment IV whitish. Head length 0.14, width 0.22, interocular space 0.16. Pronotum length 0.10, width 0.28. Labial segments length I 0.08, II 0.08, III 0.08. IV 0.08. Antennal segments I 0.06, II 0.08, III 0.06, IV 0.14. Abdumen length 0.30. Total body length 0.50.

Egg (in alcohol)

Cream colored, elongate oval. Length 0.52, width 0.30 at its widest point anteriorly, somewhat tapering posteriorly. Anterior end almost flat; only 2 micropylar projections evident.

Gemmatomicus Baranowski and Slater NEW GENUS

Type Species: Gemmacoris nitens Baranowski & Slater NEW SPECIES

Body stout, tapering anteriorly not broadly elliptical. Dorsal and ventral surfaces almost entirely shining and polished. Pruinose only narrowly across base of head between ocelli. Pronotum and hemelytra pruinose or subshining. Dorsal surface nearly completely punctate except for large, swollen, impunctate cali of anterior pronotal lobe. Clavus with 3 rows of punctures. Head elongate, somewhat porrect. Eyes sessile in contact with antero-lateral pronotal angles. Ocelli anterior to behind posterior margin of compound eye. Lateral margins of pronotum obtusely “carinate” (weakly so), strongly impressed and sinuate in area of transverse impression which is obsolete laterally and absent mesally. Posterior margin of pronotum evenly, shallowly concave. Scutellum distally with a prominent median ridge. Lateral corial margins narrowly explanate, sinuate at level of middle of scutellum. Inner portion of apical corial margin deeply concave. Membrane translucent. Gular trough remote from base of head, terminating near level of middle of eye. Meso and metepisternum moderately to strongly swollen. Metathoracic scent gland auricle curved prominently caudal. Evaporative area occupying only inner half or less of metapleuron, outer margin straight for most of length. Second antennal segment elavate, segments 3 and 4 fusiform. Well-developed, equal sized scent gland opening scars present between abdominal terga 3-4, 4-5 and 5-6. Inner laterotergites on segments 4, 5 and 6 (Fig. 3 A, C). Two posterior trichobothria of sternum 5 not linear, located nearly dorso-ventrally and anterior to spiracle 5 (Fig. 3B, D). Spiracles 3 and 4 located below sternal shelf.

Remarks: This genus is readily recognizable by the combination of partially shining polished body surface; sinuate, slightly obtusely carinate lateral pronotal margins, well-developed scent gland opening scars between abdominal terga 3-4, 4-5, 5-6; backwardly curved metathoracic scent gland auricle, the position of the abdominal spiracles and the trichobothria on sternum 5. As noted above, Arimacoris has almost achieved a linear arrangement but with the posterior trichobothrium still placed well behind the spiracle. In Gemmacoris the two posterior trichobothria are not linear. The “middle” trichobothrium is slightly anterior to the posterior one and both are placed well ahead of the spiracle. The position of the trichobothria in both Gemmacoris and Arimacoris suggests that the “advanced” linear condition with all three trichobothria anterior to the spiracle and arranged linearly (Fig. 1D) could have been achieved independently in two ways: 1) by initial development of a linear sequence as in Arimacoris (Fig. 1A) and a subsequent migration of the posterior pair of trichobothria to a position anterior to the spiracle, and 2) by migration of the two posterior trichobothria to a position anterior of the spiracle while still in a dorso-ventrad position relative to one another, as in Gem-
Fig. 3. A. *Gemmaceris nitens*, Baranowski and Slater, n.sp. abdominal trichobothria; B. (same) abdominal scent gland openings; C. *Gemmaceris albius*, Baranowski and Slater, n.sp. abdominal scent gland openings, D. (same) abdominal trichobothria.

*macoris* (Fig. 3A, D), with subsequent development of the linear position. This possibility of independent attainment of a linear sequence anterior to the spiracle must be considered and it raises the question of whether the “advanced” condition should be considered a synapomorphy or a homoplasy.
Key to Species of *Gemmacoris*

1. Fourth antennal segment yellowish brown, concolorous with preceding segments; pronotum subshining; scutellum pruinose only basally; tylius extending onto distal 1/3 of 1st antennal segment (Trinidad) .......................... *nitens* n.sp.

1'. Fourth antennal segment white, strongly contrasting with brown coloration of preceding segments; pronotum dull, strongly contrasting with shining texture of head; scutellum with entire distal 1/2 pruinose; tylius extending anteriorly only to middle of lst antennal segment (Brazil) .......................... *albidus* n.sp.

*Gemmacoris nitens* Baranowski and Slater, **NEW SPECIES**

(Fig. 4)


Head elongate, porrect. Tylius extending to distal 1/3 of antennal segment I. Vertex convex. Head length 0.42, width 0.48, interocular space 0.28. Lateral margins of pronotum weakly carinate, strongly impressed and sinuate in area of transverse impression which is obsolete laterally and absent mesally. Posterior margin of pronotum even, shallowly concave. Pronotum length 0.48, width 0.82. Scutellum length 0.46, width 0.46. Lateral corial margins narrowly explanate, sinuate at level of middle of scutellum. Inner portion of apical corial margin deeply concave. Claval commissure length 0.22. Mid-line distance apex clavus-apex corium 0.48. Mid-line distance apex corium-apex membrane 0.30. Labium extending to mesocoxae. Labial segments length I 0.28, II 0.26, III 0.20, IV 0.22. Antennal segments length 1 0.28, II 0.30, III 0.24, IV 0.34. Total body length 2.20.

**HOLOTYPE:** ♀ TRINIDAD, W-1. Arima-Blanchisseuse Rd. mi mark 7.75, 23-VIII-1982 (R. M. Baranowski). In United States National Museum of Natural History Type No.100253.

**PARATYPES:** TRINIDAD 1 ♀ 3 mi N Cumuto, 14-VI-1973 (R. Baranowski, F. O’Rourke, V. Picchi, J. Slater); 1 ♀ St. Augustine (N. A. Weber). In J. A. Slater and American Museum of Natural History collections.

*Gemmacoris albidus* Baranowski and Slater, **NEW SPECIES**

Head light brown, tylius slightly lighter, sparsely covered with short fine hairs. Ocelli located slightly behind hind margin of eyes. Pronotum and scutellum brown; punctate except for pronotal calli. Clavus straw colored except for slightly darker apex. Corium straw colored except for brown apical 1/4, a brown spot on lateral margin and on inner margin at level of claval apex. Membrane reduced, overlapping but not extending beyond apex of corium. Exposed dorsal surface of abdomen and entire ventral surface brownish. Legs yellowish except for anterior femora and proximal 2/3 of anterior tibiae darker. Antennal segments I, II, III brown, IV white.

Head elongate, porrect. Tylius extending to middle of antennal segment I. Vertex convex. Head length 0.42, width 0.50, interocular space 0.30. Lateral pronotal margin weakly carinate anteriorly, strongly impressed in area of transverse impression which
Fig. 4. *Gemmacoris nitens* Baranowski and Slater, n.sp., dorsal view.

is obsolete laterally and absent mesally. Posterior margin of pronotum evenly, shallowly concave. Pronotum length 0.48, width 0.74. Scutellum length 0.38, width 0.40. Lateral corial margins slightly sinuate at level of posterior 1/2 of scutellum. Inner portion of apical corial margin deeply concave. Claval commissure length 0.20. Mid line distance apex clavus-apex corium 0.28. Labium extending to mesocoxae. Labial segments length
I 0.30, II 0.34, III 0.18, IV 0.20. Antennal segments length I 0.30, II 0.40, III 0.36, IV 0.40. Total body length 2.40.

_Holotype._ δ Brazil, Parana. Bociura, 1000 m., 25'08 29'04, May 1964 (F. Plaumann). In United States National Museum of Natural History No. 100254.

_Paratypes:_ 2 ?, (same data as holotype). In J. A. Slater and P. D. Ashlock collections.

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