A NEW SPECIES OF *CHLOROCORIS* (HETEROPTERA: PENTATOMIDAE) FROM JAMAICA

DONALD B. THOMAS
USDA-ARS Subtropical Agricultural Research Center
2301 S. International Blvd., Weslaco TX 78596

ABSTRACT

A new subgenus and new species of *Chlorocoris* is described from the Caribbean island of Jamaica. This is the first species of this genus reported from the Antilles. The species is remarkable for an unusually enlarged metatarsus in males and the angulate apex of the femora.

Key Words: Pentatomidae, stink bug, taxonomy, Jamaica

RESUMEN

Un subgénero nuevo, y una especie nueva, del género *Chlorocoris* es descrito con origen en la isla Jamaica del mar Caribe. La misma es el primer registro de este género para las Islas Antillas. La especie nueva es notable porque tiene el metatarso alargado en los machos y el ápice de la superficie superior del fémur está angulada.

When the genus *Chlorocoris* Spinola was last revised (Thomas 1985) no material was available, nor had any species been reported, from the West Indies. In recent years four specimens have come to light representing a new species from the island of Jamaica. Based on the triangular form of the head (Fig. 1), the new species would be assignable to the nominate subgenus. However, a characteristic feature of the nominate subgenus is the presence of a pair of elongated processes on the male proctiger. This character is lacking in the new species. Another remarkable feature of the Jamaican species is a sexual dimorphism. The metatarsus of the male has an unusually enlarged basal segment (Figs. 2-3). In addition, the dorsal apex of each femur is angulate. In all other species the apex is rounded. In the keys to genera including *Chlorocoris* and its relatives the presence or absence of a stout spine at the apex of the femur is a diagnostic character (Eger 1978, Rolston & McDonald 1984). The new species will key to *Chlorocoris* if the angulation is not confused with a true spine. Because of the above stated differences, I am assigning the new Jamaican species to a new subgenus of *Chlorocoris*, described below.

MATERIALS AND METHODS

The material available for study consisted of four specimens, two males and two females, from two localities in Jamaica. The Jamaican specimens were compared to material in my reference collection, including paratypes from my earlier revision of *Chlorocoris*. Type depositions are indicated by acronyms: United States National Museum [USNM], Florida State Collection of Arthropods [FSCA], and Donald B. Thomas collection [DBTC]. The habitus drawing of the new species was prepared by Daniel Schmidt of Schuyler, Nebraska, based on one paratype specimen. All other illustrations were tracings from camera lucida with a Wild M-5 dissecting microscope at magnification 25x and 50x. All measurements are from the male holotype unless

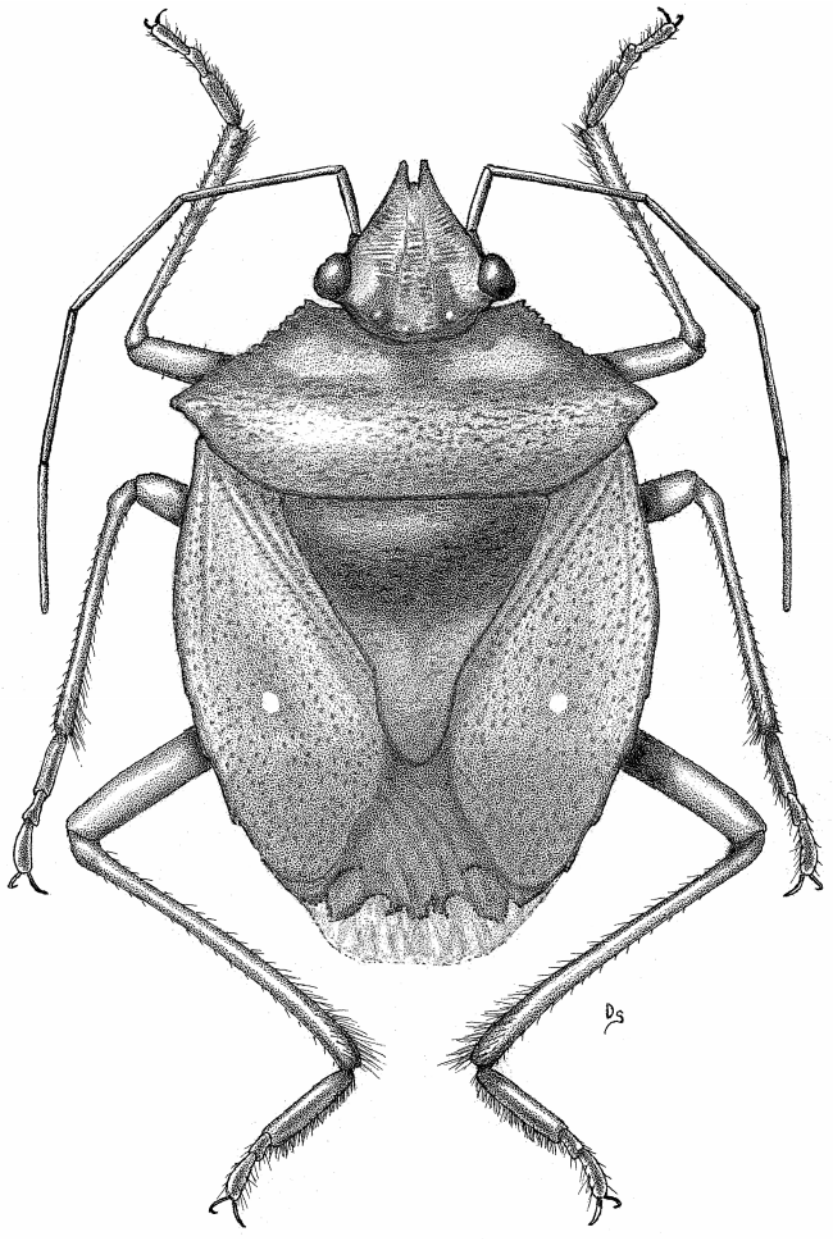


Fig. 1. *Chlorocoris tarsalis*, new species.

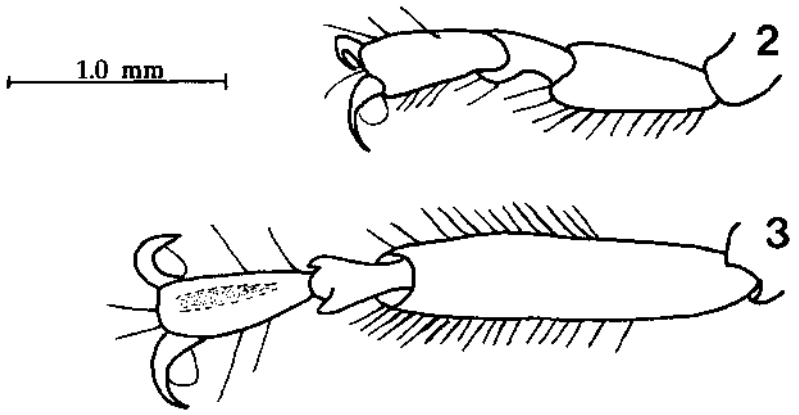


Fig. 2-3. Sexual dimorphism in metatarsi of *C. tarsalis*. 2. female, 3. male.

otherwise indicated. Measurements were made with a Zeiss SV8 dissecting microscope with a 10x graduated ocular. Anatomical nomenclature follows Nichols (1989).

Arawacoris, **New Subgenus**

Type species: *Chlorocoris tarsalis*, **New Species**.

Description. Head triangular, lateral margins of juga straight, or nearly so, to beyond apex of tylus. Rostrum long, apex reaching third visible abdominal sternite in repose. Superior apices of femora angulate. Dorsum of male proctiger inornate, lacking processes. Inferior margin of posterior rim of pygophore with pair of articulated appendages, one each side of midline, each about same size as a paramere. Other characters as in *Chlorocoris* (see Thomas 1985).

Etymology: a latinized combination of "Arawak," the indigenous people of Jamaica, and greek "koris," meaning "bug."

Chlorocoris tarsalis **New Species**
Figs. 1-6

Description. Dorsal color green fading to yellow. Form oval, depressed dorsoventrally, with angular head and humeri. Length 13.3 mm (female 16.1 mm), width across pronotum 8.5 mm (female 9.6 mm).

Head. Dorsum flat, surface strigose, devoid of black punctations except at apices of juga. Lateral margins of juga straight to apices. Apex of each jugum subacuminate, exceeding apex of tylus and forming sinus before tylus, sinus twice as long as wide. Cranial length (tip of jugum to imaginary line connecting ocelli) 3.0 mm, width (across anteocular angles) 2.2 mm. Antennal segment I immaculate, its apex attaining apex of jugum. Segments II-IV subequal (exact proportions vary among individual specimens), each about twice length of I; V slightly shorter than IV. Posterior termination of each buccula evanescent in profile. First rostral segment slightly longer than buccula. Rostrum in repose attaining third visible abdominal sternite.

Thorax. Anterolateral pronotal margins rectilinear in dorsal view, serrate. Humeri angular, prominent, acute. Dorsum of pronotum devoid of black punctations except in

area immediately adjacent to humeral angles. Length of pronotum at midline 3.1 mm. Scutellum and hemelytral coria devoid of markings except for pale pustule on disc of latter. Length of scutellum 4.9 mm. Posterior margin of corium sinuate. Hemelytral membrane clear, transparent, with scattered green flecks. Auricle of metathoracic scent gland orifice short, reaching about one-fifth distance to metapleural margin. Femora and tibiae immaculate. Superior surface of apex of each femur angulate but not spinous. Basal tarsal segment of metathoracic legs of male fusiform, thickened, and notably elongate (Fig. 3) compared to mesotarsi, or metatarsi of female (Fig. 2).

Abdomen. Midline of first three abdominal sternites sulcate for reception of rostrum. Spiracular margins and apices of sternites concolorous with disc of sternum. Connexivum without spots or stripes. Greatest width of abdomen, 8.3 mm.

Genitalia. Male pygophore (Fig. 4) broadly open posteriorly and dorsally with ventroposterior rim deflexed. Surface of pygophore at lateral angles dense with short bristles and with a smaller patch of dense bristles on either side of midline just ectal to inferior margin. Inferior margin bearing, on either side of midline, an articulated, sclerotized L-shaped "pseudoclasper" (hypandrium?), projecting into lumen of proctiger. Basal portion of each pseudoclasper bearing a porrect, angular tooth. Erect arm of pseudoclasper subfoliate. Proctiger inornate. Parameres large with broad compressed base expanding into two angular projections: a dorsal, flat, rectangular projection, and a ventral, flat, acutely angled, rhomboidal projection (Fig. 5).

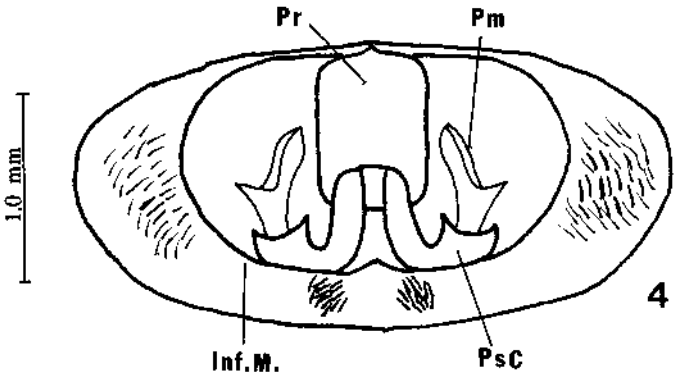
First gonocoxites of female thickened, posterior margin strongly sinuate (Fig. 6). Ninth paratergites elongate, apices acuminate, exceeding posterior margin of eighth paratergite. Apex of eighth paratergite subspinose with spiracles present but displaced to notch of basal angle.

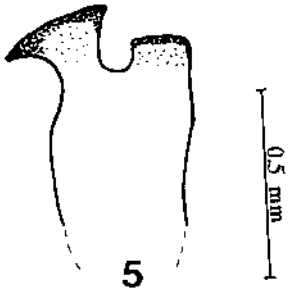
Holotype. Male. verbatim label data: JAMAICA: Green Hills. 13-20-XI-66. A. B. Gurney [USNM]. Allotype: Female, with same label data as holotype [USNM]. Paratypes: Female, with same label data as holotype [DBTC]. Male labeled: (a) JAMAICA: Parish of St. Andrew, 4,000 ft. Holywell Forest Camp. Blacklight. (b) R. E. Woodruff, 16-VI-75, Blacklight Trap [FSCA].

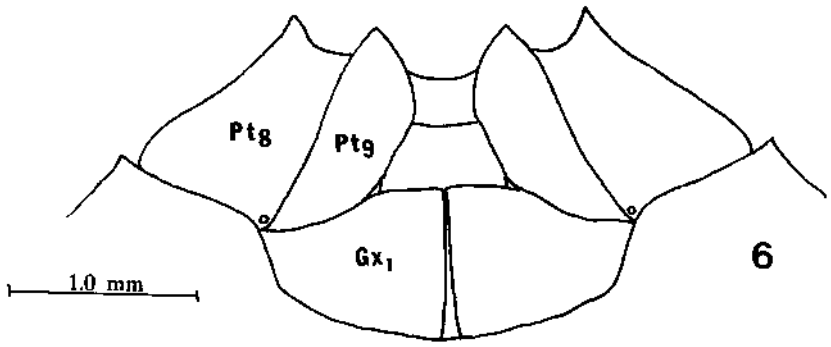
DISCUSSION

The genus *Chlorocoris* is superficially similar and probably closely related to a group of genera that includes *Chloropepla* Stål, *Loxa* Amyot & Serville, *Fecelia* Stål, and *Mayrinia* Horvath. All of these genera, except *Chlorocoris*, have the superior apex of the femora terminating in a minute spine. All known species of *Chlorocoris*, with the exception of the new Jamaican species, have the apex of the femora rounded. The new species has an intermediate condition with the apex of the femora angulate. Inasmuch as the condition of the femoral apex is important in distinguishing genera, and considering the unusual sexual dimorphism of the metatarsus, one might plausibly erect a new genus for this species. I, therefore, reviewed the characteristics of each genus and searched for trends that might support this position.

Within this generic complex, the most striking morphological variation is found in the male genital apparatus. In fact, the terminalia are elaborate to a degree that would almost seem to impede rather than enhance coition. One structure in particular, referred to in the description of the new species as a "pseudoclasper," is especially enigmatic. It is an appendage situated at the middle of the posterior rim of the pygophore. Its function is unknown. In most species of *Chlorocoris*, and its ally *Mayrinia*, the appendage is a singular, erect structure, fused to the rim of the pygophore, the size and conformation of which vary greatly among the individual species. It is referred to as the "hypandrium" in the revision of *Mayrinia* by Grazia-Vieira (1972). In *Chlo-*







Figs. 4-6. Genitalia of *C. tarsalis*. 4. pygophore, posterior view. 5. left paramere, ental view. 6. Female genitalia. Gx_1 = first gonocoxite, Inf.M. = inferior margin, Pm = paramere, Pr = proctiger, PsC = pseudoclasper, Pt_8 = eighth paratergite, Pt_9 = ninth paratergite.

ropepla, *Fecelia*, and *Loxa*, there is a pair of articulated structures in the same position, variously called "hypandria" (Grazia 1968, 1976) or "pygophoral appendages" (McDonald 1966). I can only presume, as did Grazia, that the paired, articulated structures found in some genera are homologous to one another and to the erect structure fused to the rim of the pygophore in others. Within the genus *Chloropepla*, *C. vigens* Stål has a pair of appendages, while *C. aurea* Grazia has none. Likewise, among the species of *Loxa* they may be present or absent (Eger 1978). In most species of *Chlorocoris*, as in *Mayrinia*, the appendage is completely fused to the rim of the pygophore. But in *C. rufispinus* Dallas and *C. rufopictus* Walker, the appendage is articulated, or at least, there is a perceptible line of attachment that is not evident in the other species. The subgenus *Arawacoris* has a pair of articulated appendages and thus is exceptional in this regard from all other *Chlorocoris*. Yet, it seems hazardous to attach much significance to the difference. The degree of homoplasy in the structure of the pygophore is mirrored in the ornamentation of the proctiger. The nominate subgenus of *Chlorocoris* has a pair of elongate processes that overlie, and are parallel to, the dorsum of the proctiger. In the subgenus *Monochrocerus* the processes are short and are oriented horizontal to the length of the proctiger. But some species, including *C. tarsalis*, have no processes at all. Similarly, in the genus *Loxa*, some species have paired spines on the proctiger and others none.

The pattern of divergence and convergence in the form of the genitalia in this complex presents a challenge to those who are firm in the belief that phylogeny can be objectively derived from the cladistic nesting of character-states. Having failed in my own feeble efforts to find clear evolutionary trends among the recognized genera with respect to these genital characters, I am reluctant to erect a new genus. Rather, I opine that this somewhat aberrant Jamaican species is best classified as an isolated subgenus of *Chlorocoris*.

ACKNOWLEDGMENT

I am indebted to my colleagues Joseph E. Eger of DowElanco Corporation and David A. Rider of North Dakota State University for bringing these specimens to my attention and for critical reviews of the manuscript.

REFERENCES CITED

EGER, J. E. 1978. Revision of the genus *Loxa* (Hemiptera: Pentatomidae). J. New York Entomol. Soc. 86: 224-259.

GRAZIA, J. 1968. Sôbre o gênero "*Chloropepla*" Stål, 1867, com a descricâo de uma nova espécie (Hemiptera, Pentatomidae, Pentatominae). Rev. Bras. Biol. 28: 193-206.

GRAZIA, J. 1976. Revisâo do gênero *Fecelia* Stål, 1872 (Heteroptera, Pentatomidae, Pentatomini). Rev. Bras. Biol. 36: 229-237.

GRAZIA-VIEIRA, J. 1972. O genero *Mayrinia* Horvath, 1925 (Heteroptera, Pentatomidae, Pentatomini). Rev. Peruana Entomol. 15: 117-124.

MCDONALD, F. J. D. 1966. The genitalia of North American Pentatomoidea (Hemiptera: Heteroptera). Quaest. Entomol. 2: 7-150.

NICHOLS, S. W. (compiler). 1989. The Torre-Bueno Glossary of Entomology. New York Entomological Society, New York, NY.

ROLSTON, L. H., AND F. J. D. MCDONALD. 1984. A conspectus of Pentatomini of the Western Hemisphere, Part 3 (Hemiptera: Pentatomidae). J. New York Entomol. Soc. 92: 69-96.

THOMAS, D. B. 1985. Revision of the genus *Chlorocoris* Spinola (Hemiptera: Pentatomidae). Ann. Entomol. Soc. Am. 78: 674-690.