

Additions to the checkered beetle fauna of Belize with the description of a new species (Coleoptera: Cleridae) and a nomenclatural change

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Abstract: New information on the distribution and ecology of Cleridae in Belize, Central America is presented. *Enoclerus (E.) gumae*, new species, is described from Cayo District, Belize and *Cymatodera pallidipennis* Chevrolat 1843 is placed as a junior synonym of *C. prolixa* (Klug 1842).

Introduction

The clerid fauna of Belize (formerly British Honduras) is very poorly known. In the most recent checklist for Central America, Barr (1975) specifically mentions only *Cymatodera pallidipennis* Chevrolat 1843 and *Enoclerus x-album* (Gorham 1882) as occurring in Belize, while recording 86 species from neighboring Guatemala. In addition to the species listed by Barr, Gorham (1883), in the *Biologia Centrali-Americana*, records *Cregya quadrisignata* (Spinola 1844) (as *Pelonium quadrisignatum* Spinola 1844) and the two cosmopolitan korynetines, *Necrobia ruficollis* (Fabr. 1775) and *N. rufipes* (deGeer 1775), from Belize. Finally, Ekis (1977) published several Belizean records of *Perilypus distinctus* (Chevrolat 1874). Thus, a total of only six species of clerids is previously recorded from Belize, a country encompassing a diverse range of habitats and whose neighbors, Mexico and Guatemala, are home to hundreds of clerid species.

The reason for our poor knowledge of Belize's Cleridae relates to the lack of attention paid that country by 19th and 20th century beetle collectors. This is probably the result of the difficulty of interior travel in Belize. Selander and Vaurie (1962) found only eight collecting localities in Belize listed in the whole *Insecta* portion of the *Biologia*. Compare this with Guatemala from which they totaled 128 separate collecting locations, and we can see some of the reason for the dearth of Belizean clerids reported in scientific literature.

Until the early part of this century, the only means of transportation from Belize City, on the coast, to Cayo (now San Ignacio), near the western border with Guatemala, was by a small, manually propelled, hand-carved boat—the "pitpan"—up the Belize River (Stephens 1841; Horwich & Lyon 1990[?]). Rapids complicated the journey, which could take from "8-21 days, traveling both day and night." (Horwich & Lyon 1990[?], p.47). We know that F. Blancaneaux, the French chicle and mahogany contractor and amateur naturalist who collected all the Belizean clerids examined by Gorham, did visit Cayo; his several collecting records of Scarabaeidae from there are listed in the *Biologia* volume devoted to that family (Bates 1888, 1889). All of Blancaneaux's clerid records, however, are limited to the lowland region of the Rio Sarstoon, Toledo District, which forms the southernmost border of Belize with Guatemala.

Although there have been several substantial botanical and herpetological investigations in Belize (1923 Marshall Field Expedition to Central America; 1936 Michigan-Carnegie Botanical Expedition to British Honduras; Cambridge Expedition to British Honduras, 1959-60; Henderson and Hoever 1975), and workers in other disciplines such as mammology (Kirkpatrick and Cartwright 1975 and references therein) and ornithology (Russell 1964) have focused their efforts there, recent research on the coleopteran fauna has apparently been limited to a few species descriptions (e.g. Chemsak 1983; Johnson 1984). I hope that this paper, which presents the results of a

brief, geographically limited collecting trip, will inspire others to focus their attention on this beautiful, relatively unspoiled country which no doubt possesses many unknown sources of entomological interest.

In the following discussion of clerid distribution, the reader will not fail to notice that repeated references to the confused and uncertain status of many taxa become a rather annoying *leitmotif*. This uncertainty is primarily the result of the unavailability of sufficient material for study. Further intensive collecting in Belize and neighboring areas is clearly needed in order to solve these taxonomic puzzles.

Belize contains diverse habitats, ranging from mangrove swamp to cohune palm forest and "rain forest." Most of the beetles discussed in this paper were taken in three types of plant community: limestone associated closed canopy broadleaved hardwood forest (known as "High Ridge" in Belize); broken canopy mixed broadleaved forest ("Broken Ridge"); and the upland pine-oak-pimenta palm forest which grows in granitic soils and is locally referred to as "Mountain Pine Ridge." The broadleaved forests probably correspond to the "lower montane rain forest" and "evergreen seasonal forest" of Beard (1944). It should be noted that the distribution of these forest types in Belize can be dependent as much on edaphic conditions as on elevation (Brokaw & Lloyd-Evans 1987). Phyto-geographic terminology employed here is taken from Bartlett (1936), Lundell (1940), Beard (1944), and Kricher (1989). Nevertheless, even a brief examination of the literature will show that there is no consensus on the use of terms; I believe that each of these authors' attempts to redescribe what he has observed reflects the subtle complexity of these forests and the general refusal of tropical nature to "sit still" enough for us to characterize any part of it with a simple label.

The purpose of this paper is to describe a newly discovered clerid species, to propose a nomenclatural change, and to present new information on the distribution of clerids in Belize.

Abbreviations are as follows: California Academy of Sciences, San Francisco, CA, (CASC); Field Museum of Natural History, Chicago, IL, (FMNH); The Natural History Museum, London, England, (BMNH); and Jacques Rifkind collection, North Hollywood, CA, (JNRC). Unless otherwise noted, all specimens listed below as representing new records were collected by J. Rifkind and P. A. Gum and are housed in JNRC.

Classification and sequence of taxa accord with Barr (1975).

CLERINAE, Tillini:

Cymatodera prolixa (Klug 1842)

Tillus prolixus Klug 1842:272.

Cymatodera prolixa (Klug): Chevrolat 1876:11; Schenckling 1903:21, 1906:251; Wolcott 1927:17; Corporaal 1950:51.

Cymatodera pallidipennis Chevrolat 1843:8; Gorham 1882:132; Corporaal 1950:51. **New synonym.**

Comparison of these species' types by Barr (pers. comm.) shows them to be conspecific. I have studied a transparency of Chevrolat's pale colored type specimen of *C. pallidipennis* and conclude that it is well within the observed variability of the broadly distributed *C. prolixa*.

This species was previously recorded in Belize (as *C. pallidipennis*) from the Rio Sarstoon, Toledo District. The following represents a **new district record**. One specimen, Belize, Belize District, 5.1 mi N Hattievile, 200m, June 21, 1992, swamp forest, beating dead vines. This species is known also from Mexico (Estado de Veracruz), Costa Rica, and northern South America.

CLERINAE, Clerini:

Priocera clavipes Gorham 1882

New country record. One specimen, Belize, Cayo District, off of Chiquibul Rd., 8 mi S Georgeville, 420 m, broadleaved hardwood forest, June 21-24, 1992, beating tree branch. Known previously from Guatemala, Costa Rica, and Panama.

Priocera stictica Gorham 1882

New country record. One specimen, Belize, Cayo District, San Ignacio, San Ignacio Hotel, 290 m, June 26, 1992, riparian hardwood forest, MV and fluorescent lights. This species is broadly distributed from Mexico to Panama and apparently exhibits much variation throughout its range. I have examined the type which is substantially larger than the Belizean example, and tentatively conclude, based on similarity of sculpturing and elytral pattern, that they are conspecific.

Perilypus distinctus (Chevrolat 1874)

Ekis (1977) examined several specimens of this species from Corozal and Belize Districts and "M-tee Dist" (his quotation marks). The latter is most certainly an abbreviation for "Manatee District" which refers either to the area around the coastal site of Manatee in southern Belize District, or to Belize District itself. All the *Perilypus* Spinola 1841 specimens listed below were taken on low vegetation in shaded forest areas near clearings and roadcuts; similar experience collecting *Perilypus* in Mexico suggests that these low, relatively cool areas are a preferred microhabitat for at least some of the species in the genus.

The following is a **new district record**. One specimen, Belize, Cayo District, Vaca Plateau, Chiquibul Rd., between Caracol and the Guacamallo Bridge, 620-650 m, June 28, 1992, closed canopy broadleaved hardwood forest, beating low shrubs; one specimen, Belize, Cayo District, Vaca Plateau, Caracol, 680 m, June 28, 1992, closed canopy broadleaved hardwood forest, sweeping shrubs. This species has been recorded from Mexico and Guatemala.

Perilypus quadrilineatus (Chevrolat 1843)

New country record. Four specimens, Belize, Cayo District, Mountain Pine Ridge, Pine Ridge Chito Line at Little Vaqueros Creek, 525 m, June 26 & 28, 1992, broken canopy broadleaved hardwood forest, beating and sweeping low vegetation in slash area; one specimen, Belize, Cayo District, Chaa Creek, 340 m, June 29, 1992, broadleaved hardwood forest, sweeping low shrub. Known also from Mexico and Guatemala.

Aphelocerus Kirsch 1870

This genus, broadly distributed in Central America but previously unrecorded from Belize, is in a chaotic state taxonomically. Neither generic nor interspecific defining characters have been adequately worked out. Two species were collected; these can be separated by differences in overall facies, elytral punctation and pubescence. Species "A" is apparently close to *A. nitidus* (Chevrolat 1843) in having the pronotum and elytra shining and sparsely punctate, with no elytral fascia

(Gorham 1882). In these Belizean specimens the posterior pronotal slope abruptly and deeply falls away from a relatively convex pronotal disk, and the pronotal sides are arcuately constricted to a well set off, rather broad, basal pronotal collar. In addition, the elytra are strongly longitudinally carinate. The pronotal characters discussed here are quite different from that of any other *Aphelocerus* I have examined, and I believe that this species will prove to be new.

Members of the *nitidus* "group" greatly resemble and are probably involved in mimicry complexes that include weevils of the genera *Myrmex* Sturm 1826 and *Lissoderes* Champion 1906 as well as members of other beetle families as diverse as Cerambycidae and Buprestidae (Hespenheide 1987, Barr, pers. comm., O'Brien *in litt.*). Although there is much conjecture as to possible models for this mimicry, ranging from ants to spiders (O'Brien pers. comm., Barr, pers. comm.), there has been no compelling anecdotal or experimental evidence to support any particular hypothesis.

Species "B" has the pronotum densely punctate, the elytra shallowly, densely punctate and weakly, transversely rugose. Each elytron bears a small, dense patch of white setae just in front of the middle and a line of white setae along the suture extending from base to mid-elytra. The posterior pronotal slope is much shallower than in species "A" and the basal pronotal collar is narrower and less distinctly set off from the pronotum.

The following represent **new country records** for *Aphelocerus*.

Aphelocerus sp. "A." Two examples, Belize, Cayo District, Mountain Pine Ridge, Pine Ridge Chito Line at Little Vaqueros Creek, 525 m, June 26 & 28, 1992, broken canopy broadleaved hardwood forest, beating and sweeping in slash area.

Aphelocerus sp. "B." One specimen, Belize, Cayo District, San Ignacio, San Ignacio Hotel, 290 m, June 26, 1992, riparian hardwood forest, MV and fluorescent lights.

Enoclerus (E.) fugitivus Wolcott 1927

This species, recorded from Costa Rica and Panama, also ranges into Mexico (Chiapas; Quintana Roo). Its existence in Belize at Caracol, about 5 km from the Guatemalan border, indicates the likelihood of its presence in the Peten region of that country as well. Wolcott described *E. (E.) fugitivus* from a black colored specimen; another color morph, with the head,

pronotum, basal half of the elytra, legs, and ventral surface brownish red instead of black, was collected side by side with the black form in Belize. I have also seen this reddish morph from Mexico. It should be noted that the reddish color variety of *E. (E.) fugitivus* is distinct from the beetle described by Wolcott (1927) as "*E. fugitivus* var. *cupidus*," which is an altogether separate species, distinguishable by its mid elytral fascia being much narrower and more arcuate than in *E. (E.) fugitivus*.

New country record. Three specimens, Belize, Cayo District, Mountain Pine Ridge, Pine Ridge Chito Line at Little Vaqueros Creek, 525 m, June 26 & 28, 1992, broken canopy broadleaved hardwood forest, beating and sweeping low vegetation in slash area; one specimen, Belize, Cayo District, Vaca Plateau, Caracol, 680 m, June 28, 1992, closed canopy broadleaved hardwood forest, sweeping shrubs.

Enoclerus (Enoclerus) gumae new species
(Figs. 1-2)

Description. Holotype: Male. Form small, robust, elytra flattened above.

Color: integument black except antennae, palpi, pronotum, protibiae, mesotibiae, and tarsi reddish; head with longitudinal, triangular red marking on frons; pronotum at apical margin with narrow band consisting of parallel, unevenly spaced, longitudinal, dark, etching-like marks, band becoming obsolete at sides; disk with small, irregular, subbasal black marking; each elytron with set of 3 ivory markings as in Fig. 1, mid-elytral marking just attaining marginal bead.

Head: slightly narrower across eyes than maximum width of pronotum; surface shining, moderately densely punctate; punctures moderate sized, rather deep; pubescence relatively sparse, especially on vertex, composed of short, fine, pale, suberect setae and fewer erect darker setae; front feebly bi-impressed; clypeus with front margin transverse; eyes medium sized, depth of emargination slightly shallower than length of antennal scape; antennal club (Fig. 2) large, consisting of 3 antennomeres; antennomere XI abruptly flattened at apical 1/3, apex acute; scape and funicular antennomeres bearing coarse, erect setae, club set with finer and more sparsely arranged setae.

Pronotum: narrower than elytra at base (35:42), slightly broader than long (70:65); surface uneven and rather finely, shallowly, but subconfluently, calcu-

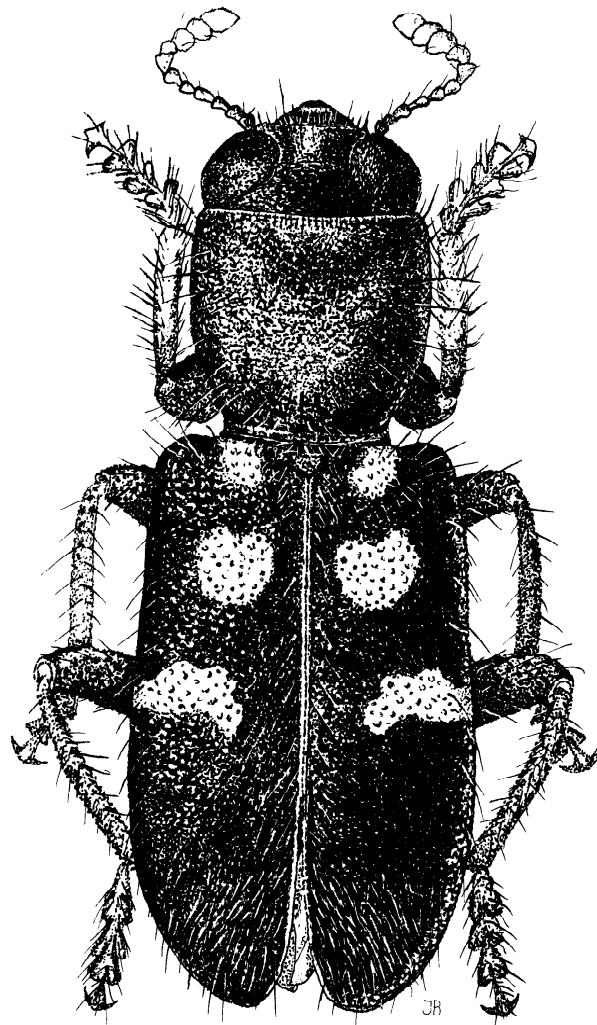


Figure 1. *Enoclerus (E.) gumae* Rifkind. Dorsal habitus.

punctate, moderately clothed with short and long, erect and suberect white setae, intermingled with fewer long, erect, black setae; anterior transverse impression broadly v-shaped at middle with posteriorly oriented apex of "v" extending to approximately apical 3/7 of pronotum; disk somewhat flattened; apical margin truncate; sides just perceptibly constricted at anterior transverse impression, broadest at middle, broadly, arcuately rounded to basal collar, then subparallel to base of elytra; basal collar distinct. Scutellum densely punctate, sparsely setose, rounded at apex.

Elytra: little more than 1.5X as long as wide, widest just behind middle; disk moderately flat-

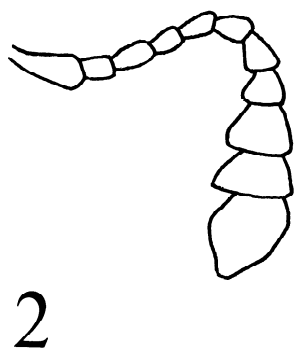


Figure 2. *Enoclerus (E.) gumae* Rifkind. Antenna.

tened; surface very coarsely, densely, punctured and rugose, somewhat more finely punctate and smoother on either side of elytral suture, at ivory markings, and at apical 1/5; ivory elytral markings with scattered punctures contrastingly darkened; vestiture consisting of dense, inconspicuous patches of short, fine, suberect, black and white setae (correspondingly arranged on black and ivory colored areas of the elytra), scattered longer erect black setae, and more salient coarse, suberect, white setae, latter concentrated at base, along suture, and then expanded obliquely towards sides to cover apical 1/5 of elytra; subbasal tumescences slightly elevated; sides slightly constricted behind moderately prominent humeri, then gradually expanded to behind middle where they broadly curve to separately rounded apices.

Legs: stout; profemora noticeably more expanded than meso- and metafemora; surface shining, sparsely punctate on first pair of legs, densely punctate on second and third pairs, moderately covered with intermixed short, suberect, and long, erect, pale setae and occasional long, erect, black setae; protarsal pulvilli broader than those of meso and metatarsi. Tibial carinae present.

Mesosternum: densely, shallowly, punctate and asperous, moderately covered with recumbent pale setae; anterior median process conspicuous, projecting well forward of prothoracic foraminal flange, rounded, and with longitudinal ovoid depression at middle; posterior median process not elevated.

Metasternum: densely, finely, and shallowly punctate and rugulose, covered with recumbent pale setae, especially at sides; basal 1/2 with narrow, longitudinal area at midline impunctate and glabrous; anterior median process not elevated.

Abdomen: surface shining, moderately densely, coarsely punctate, moderately covered with erect

and suberect pale setae; sternum VI with hind angles rounded and apex broadly and very feebly emarginate; tergum VI rounded at apex, which projects beyond sternum VI.

Length 5.65 mm.

Type Material. Holotype male (CASC), BELIZE, Cayo District, Mountain Pine Ridge, Cooma Cairn Rd., 0-1.5 mi NW Jct. Rd. to Hidden Valley Falls, 812-900 m, June 24, 1992, J. Rifkind, P. Gum, colls., beating fresh *Pinus caribaea* Mor. slash. Paratype: 1 male, same data as holotype; deposited in JNRC.

Variation. The paratype specimen is 5.80 mm in length, has the reddish frontal spot latitudinally, rather than longitudinally-, extended, and the pronotal dark macula reduced. In addition, the elytra bear a few indistinct longitudinal carinae which become obsolete at apical 1/4. The female is unknown.

Diagnosis. The new species possesses tibial carinae and a compact antennal club, placing it in the subgenus *Enoclerus* Barr 1976. Because of its unique combination of coloration, elytral patterning, and integumental sculpturing, *Enoclerus (E.) gumae* is not likely to be confused with other members of the subgenus. It superficially resembles *E. (E.) sagittarius* Ekiş 1976, which differs in elytral pattern, in having the surface of the elytra much smoother, with finer, shallower punctation, and is overall a more robust insect. *Enoclerus (E.) nigromaculatus* (Chevrolat 1843), which likely occurs in Belize, is similar in size and general configuration to *E. (E.) gumae*, but it too has a completely different arrangement of markings on the elytra.

Relationships. The placement of any new species within *Enoclerus* is problematic since, as Barr (1976b) has pointed out, the genus has neither been adequately defined, nor have the characters which delimit probable intrageneric groupings been systematically studied. For example, many species described in *Enoclerus* may indeed belong in *Caestron* Spinola 1844 and the generic distinctness of *Placopterus* Wolcott 1910 from *Enoclerus* is uncertain. Given this shaky ground we can at present only posit that in terms of phylogenetic relationships, *E. (E.) gumae* belongs to the (most likely) polyphyletic group of *Enoclerus* species which lack strongly produced meso and/or metasternal projections and distinctly elevated elytral subbasal tumescences. At this point in our understanding of

the characters which define *Enoclerus* or which may likely serve in future to separate out new genera or subgenera, it is prudent to say only that *E. (E.) gumae* is not a member of the possibly monophyletic lineage that does possess the above combination of characters. Species in the latter group include, among others, *E. (E.) boucardi* (Chevrolat 1876), *E. (E.) mexicanus* (Castelnau 1836), *E. (E.) quadrinotatus* (Chevrolat 1843), and *E. (E.) torquatus* (Chevrolat 1874).

Etymology. It is with great delight that I name this species for Patricia Ann Gum, my *linda compañera de campo y hogar*, co-collector of the type.

Distribution. Known only from the type locality.

Enoclerus (E.) pilatei (Chevrolat 1874)

New country record. One specimen, Belize, Cayo District, Mountain Pine Ridge, Pine Ridge Chito Line at Little Vaqueros Creek, 525 m, June 26 & 28, 1992, broken canopy broadleaved hardwood forest, beating and sweeping low vegetation in slash area. This species was extremely wary and fast; although several beetles were seen, only one was successfully netted. Previously recorded from Mexico and Guatemala.

PHYLLOBAENINAE

Isohydnocera cryptocerina (Gorham 1883)

As various workers have pointed out (Chapin 1922, Wolcott 1927), this species, and possibly some others now described in *Phyllobaenus* Dejean 1837 and *Isohydnocera* Chapin 1917, should be included in a new genus. Given our current insufficient understanding of the speciose and variable genus *Phyllobaenus*, an adequate definition of this new taxon is not yet possible.

The following data represent a **new country record**. One specimen, Belize, Cayo District, off of Chiquibul Rd., 8 mi S Georgeville, 420 m, broadleaved hardwood forest, June 21-24, 1992, beating and sweeping; one specimen, Belize, Cayo District, "La Vega", 1-2 mi S Mountain Equestrian Trails, off of Chiquibul Rd., June 23, 1992, beating. *Isohydnocera cryptocerina* has been previously recorded from Guatemala and Costa Rica.

EPIPHLOEINAE

Phlogistosternus near erythrocephalus
(Gorham 1882)

Specimens having the characteristic reddish head and pronotal anterior margin of this species are extremely variable in other characteristics such as size and elytral color and patterning. They may represent either a single polytypic species or more than one species. Further work is needed to untangle these relationships. In any case, the material collected in Belize displays some of this variation, with four darker specimens ranging from 3.50 mm to 5.35 mm in length and one paler, somewhat broader specimen "dwarfing" the others at 7.0 mm in length.

New country record. One specimen, Belize, Cayo District, Chaa Creek, 340 m, June 29, 1992, broadleaved hardwood forest, on tree branch; four specimens, Belize, Cayo District, Mountain Pine Ridge, Cooma Cairn Rd., 0-1.5 mi NW Jct. Rd. to Hidden Valley Falls, 812-900 m, June 24, 1992, beating dead *Pinus caribaea* Mor. *Phlogistosternus erythrocephalus* is also known from Mexico, Guatemala, Honduras, and Panama.

Ichnea near marginella (Klug 1842)

The systematics of this genus are in need of revision; many of the described species are variable in coloration and the status of some is questionable.

New country record for the genus. One specimen, Belize, Cayo District, Mountain Pine Ridge, Pine Ridge Chito Line at Little Vaqueros Creek, 525 m, June 26 & 28, 1992, broken canopy broadleaved hardwood forest, beating and sweeping in slash area.

KORYNETINAE, Enopliini:

Neorthopleura purpurea (Gorham 1883)

Until now, this species has been known only from the type series: nine specimens collected at Chacoj, Alta Verapaz, Guatemala by Champion. Barr (1976a) reported that specimens he examined had the dorsal coloration rusty rather than the "*rubra*" of

Gorham's (1882) original description. Barr speculated that the discrepancy might be the result of a color shift over time; I can attest, however, that the fresh specimen is also rust colored. This species is apparently a lycid mimic like many other enopliines. A specimen of the lycid *Plateros ochraceus* Gorham 1880, remarkably similar in size, shape, and color to *N. purpurea* and possibly its model, was collected nearby in similar habitat. This lycid is also known to occur in Alta Verapaz, Guatemala (Miller, pers. comm.).

New country record. One specimen, Belize, Cayo District, off of Chiquibul Rd., 8 mi S Georgeville, 420 m, broadleaved hardwood forest, June 21-24, 1992, beating and sweeping (along shaded forest trail). Although this specimen was collected roughly 230 km NNW of the type locality, it does not appear to differ from beetles in the type population.

Chariessa vestita (Chevrolat 1835)

Barr (pers. comm.) believes that this species, with its metallic blue, apically expanded elytra and red legs, is probably mimicking one or more species of chemically protected chrysomelids. It is interesting to note then, that two specimens of this insect were collected as they lay fully exposed on a fallen, sunlit tree trunk where they would have been conspicuous to any potential predator. Furthermore, one insect, upon being picked up, exuded a reddish fluid from its underside, much like many chrysomelids are observed to do. If this fluid is not noxious, then its secretion could represent a behavioral component added to mimetic shape and coloration in patterning after the aposematic model insect; on the other hand, if the fluid is indeed noxious to predators, *C. vestita* may be involved in a mutually reinforcing Müllerian mimicry relationship with its putative chrysomelid model, rather than being a simple Batesian mimic as previously suspected. *Chariessa vestita* has been recorded from the United States (Texas), Mexico, Guatemala, Nicaragua, and Costa Rica.

New country record. Three specimens, Belize, Cayo District, Mountain Pine Ridge, Pine Ridge Chito Line at Little Vaqueros Creek, 525 m, June 26 & 28, 1992, broken canopy broadleaved hardwood forest, on fallen tree trunk and beating in slash area.

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