

ABSTRACT

Thesis: STUDIES ON THE LONGHORNED WOODBORING BEETLES
(COLEOPTERA: CERAMBYCIDAE) OF THE WEST INDIES

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A faunistic study of the longhorned woodboring beetles of the West Indies is presented. Museum specimens and material from recent collecting expeditions have yielded various new species, new records, and a number of taxonomic questions needing investigation. A revision of the acanthocinine genus *Styloleptus* Dillon is presented. Thirteen new species are described: *Styloleptus anegada* Micheli, *S. duartensis* Micheli, *Antilleptostylus guilartensis* Micheli & Micheli, *Leptostylopsis guanica* Micheli & Micheli, *Leptostylopsis yukiya* Micheli & Micheli, *Leptostylopsis monin* Micheli & Micheli, *Urgleptes borikensis* Micheli & Micheli, *Plectromerus lingafelteri* Micheli & Nears, *Plectromerus ramosi* Micheli & Nears, *Elateropsis julio* Lingafelter & Micheli, *Pseudothonalmus woodleyi* Lingafelter, Micheli, & Guerrero, *Styloleptus taino* Lingafelter & Micheli, and *Distenia puertoricensis* Lingafelter & Micheli. The larva of *Parandra tavakiliani* is described. Fourteen new synonymies and six new combinations are included.

STUDIES ON THE LONGHORNED WOODBORING BEETLES
(COLEOPTERA: CERAMBYCIDAE) OF THE WEST INDIES

by

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FOREWORD

Some of the work included in this thesis has been published with other researchers as co-authors. The Examining Committee has determined that the student made a very substantial contribution to the co-authored sections.

Charles Mitter, Chair

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CHAPTER I

INTRODUCTION

With over 25,000 species worldwide, the Cerambycidae, or longhorned beetles, is one of the largest families of Coleoptera. They are quite widespread, occurring in many diverse habitats around the world, from tropical rainforest to high altitude pine forests to scrubland. The larvae feed on internal vegetative tissues, principally woody parts of vascular plants. Most larval feeding occurs on dead or dying trees, but some can attack living trees or shrubs and cause much damage (Linsley, 1961). Many seem to have a wide host range, though some are highly specific to particular host plants. As adults, longhorned beetles may eat very little, or none at all, and usually feed on flowers, pollen, leaves, and fruit. Given their highly diverse morphology, they have been one of the favorite groups of collectors (Linsley, 1961). Sizes range from 2.5 mm to over 15 cm, and coloration may vary from cryptic brown to shiny green metallic to an intense red.

Despite the fact that longhorned beetles have been highly collected for centuries, multitudes of habitats seem to be in need of more intensive studies of their entomological fauna. Countless species are still being discovered and large series of species are gathered which are crucial to understanding variation. Cerambycid experts worldwide work hastily to describe more species and to resolve the many taxonomic issues within the family. Generic revisions may be necessary when current definitions are too broad or

narrow and boundaries between genera fade into each other. A multitude of other systematic problems need to be resolved within the Cerambycidae as well.

As with many island groups, the diversity of cerambycids in the West Indies is great. Although they remain to be understudied, recent undertakings have attempted to understand the fauna of these Islands more thoroughly. The West Indies (Fig. 1) includes the islands bordered by the Caribbean Sea and the Atlantic Ocean. The larger islands, known as the Greater Antilles, are Cuba, Hispaniola (Dominican Republic and Haiti), Jamaica, and Puerto Rico. To the east of Puerto Rico lie the Virgin Islands, which are the start of the Lesser Antilles. These smaller islands form an arc extending to Grenada and include the Leeward and Windward Islands. Also included in the West Indies are the Bahamas and the Cayman Islands.

The Caribbean Islands have a high degree of endemics, in both plants and animals, and most of their original habitat has been destroyed. This fact beckons for more surveys of these islands in order to better understand their biodiversity. There are dozens of published works pertaining to the cerambycid fauna of the West Indies, including general faunal lists, island treatments, and articles with only species descriptions. Gahan (1895) was one of the few to treat the West Indian Islands in general as well as Leng and Mutchler's (1914) checklist. Blackwelder (1946) provided a list to a larger area which included Central and South America as well as the Caribbean. Numerous published works have centered on the fauna of a particular island: Cuba (Chevrolat, 1858, 1862, Zayas, 1957, 1975, Chemsak, 1969); Hispaniola (Russo, 1930); Puerto Rico (Stahl, 1882, Gundlach, 1894, Wolcott, 1924, 1936, 1948, Ramos, 1946,

Micheli, 1978, 1983, Lingafelter & Micheli, 2004, Micheli & Micheli, 2004, 2005; the Bahamas (Cazier and Lacey, 1952, Chemsak, 1967, Browne *et al.*, 1993); Jamaica (Vitali & Rezbanyai-Reser, 2003a,b); Cayman Islands (Fisher, 1948), the Lesser Antilles (Fleutiaux & Sallé, 1889, Villiers, 1980a,b, Chalumeau, 1983, Chalumeau & Touroult, 2004, 2005). Others that have treated Caribbean species in general include: Fisher, 1925, 1926, 1932, 1935a,b, 1942, 1947, 1948; Gilmour, 1963; Tyson, 1973; Chemsak, 1966, 1979; Ivie, 1985a,b, in prep. with Schwengel-Regala; Micheli & Hovore, 2003; Micheli & Nearn, 2005; Nearn & Turnbow, 2005, Nearn & Steiner, 2006. Still, few works have focused on a specific West Indian group, either of a tribe (Phillips & Ivie, 1998) or a genus (Guerrero, 2001; Lingafelter [in prep], Nearn [in prep]). The present work seeks to provide a generic revision of a genus with its highest diversity in the Caribbean as well as describe various new species and resolve several taxonomic issues within West Indian species.

The genus *Styloleptus* Dillon redefined here belongs to one of the largest tribes within Cerambycidae, the Acanthocinini. This tribe has been plagued by a myriad taxonomic problems due to their cryptic and extremely variable morphology. It is the intent of this revision to resolve many of these issues pertaining to a genus that has not been exhaustively studied in the past. New species within this tribe and from other subfamilies have been described thereby adding to the cerambycid richness of the islands surveyed. Two other species have been restored from synonymy to their original species status. After careful examination of various specimens, key differentiating features were found that confirmed that each was a distinct species in its right.



Figure 1. Map of the West Indies.

CHAPTER II

MATERIALS AND METHODS

For this study, almost 2000 adult specimens and a few larvae of cerambycids were examined. Much of the material studied was located at the US National Museum of Natural History or the author's private collection, but many other worldwide Institutions and individuals were consulted for specimens including loans of type material. Each chapter of this thesis has its own list of specimen depository locations with acronyms. A large amount of material was also freshly collected and mounted on Morpho pins or paper points. Collecting trips were taken in Summer of 2002, 2003, and 2004 to Puerto Rico, and Summer of 2004 and 2005 to the Dominican Republic. Beetles were collected by different methods: inspection and beating of vegetation, netting, bait trapping, and UV/Mercury vapor lights at night.

Morphological characters of adults and larvae were observed and specimens were sorted to morphospecies based on external similarity. Specimens were compared and identified to the species level, when possible. Species were classified as new if several morphological features were discovered to not be shared by other congeners, and thus in need of formal description.

Specimen examination was done using a Leica MZ APO Stereoscope, with a Planapo 1.0X Objective and equipped with a Swiss made Volpi fiber optic ring light.

Measurements were taken using a micrometer eyepiece calibrated with a ruler. For imaging, a Sony DKC-5000 digital camera was attached to the scope and connected to an Apple Macintosh Computer. Other images were done with a JVC Digital Camera KY-F70 on a Wild Heerbrugg Photomakroskop M400 Stereoscope with a Leica Apozoom and equipped with a Fiber Optic ring light (OPELCO Optical Elements Corporation) and Fiber Lite, MI-150 High Intesity Illuminator, Dolan-Jenner. This setup used the AutoMontage Software, Version 4.01.0077 Beta, Synoptics Ltd. Image manipulation and plate creation was done with Adobe Photoshop® 7.0.1, PC version.

CHAPTER III

REVISION OF THE ACANTHOCININE GENUS *STYLOLEPTUS* DILLON, 1956 (COLEOPTERA: CERAMBYCIDAE: LAMIINAE)

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ABSTRACT

The Acanthocinine genus *Styloleptus* is redefined with *Antilleptostylus* Gilmour and *Styloleptoides* Chalumeau as new synonyms. Two new species from the Caribbean are described and illustrated: *Styloleptus anegada* and *S. duartensis*. New synonymies are proposed. *Leptostylus bahamicus* Fisher, 1925, *L. biustus* var. *cubanus* Fisher, 1926, and *L. caymanensis* Fisher, 1948 are synonyms of *Styloleptus biustus* (LeConte, 1852). *Leiopus maraicola* Fisher, 1942 and *Styloleptus divisus* Gilmour, 1963 are new synonyms of *S. dozieri* (Fisher, 1932).

Liopus minuens Hamilton in Leng & Hamilton, 1896, *Leptostylus lewisi* Fisher, 1948, *L. thompsoni* Fisher, 1948, and *Lethes israeli* Zayas, 1975 are new synonyms of *Styloleptus scurra* (Chevrolat, 1862). *Leiopus atrovittatus* Fisher, 1925, *L. leiopus laticollis* Fisher, 1925, *Leiopus infuscatus* Fisher, 1932, and *Leiopus pilosellus* Fisher, 1942 are new synonyms of *Styloleptus variabilis* (Fisher, 1925). New combinations are proposed: *Styloleptus brunneofasciatus* (Fisher, 1935) *S. guilartensis* (Micheli & Micheli, 2004) and *S. nigricans* (Fisher, 1935) are transferred from the genus *Antilleptostylus*. *Styloleptus inflaticollis* (Chemsak, 1966), *S. morazzanii* (Chalumeau, 1983) and *S. parvulus* (Gahan, 1895) are transferred from the genus *Styloleptoides*. Two species are removed from *Styloleptus* and have been restored to previous combinations: *Leptostylopsis posticalis* (Gahan, 1895) and *Urgleptes nigronotatus* Zayas, 1975.

Key words: Coleoptera, Cerambycidae, Lamiinae, Acanthocinini, *Styloleptus*, *Antilleptostylus*, *Styloleptoides*, *Urgleptes*, *Leptostylopsis*, new species, Caribbean

Resumen

Se redefine el género *Styloleptus* Dillon con *Antilleptostylus* Gilmour y *Styloleptoides* Chalumeau como sinónimos nuevos. Se describen e ilustran dos especies nuevas del Caribe: *Styloleptus anegada* y *S. duartensis*. Se proponen sinónimos nuevos. *Leptostylus bahamicus* Fisher, 1925, *L. biustus* var. *cubanus* Fisher, 1926 y *L. caymanensis* Fisher, 1948 son sinónimos de *Styloleptus biustus* (LeConte, 1852). *Leiopus maraicola* Fisher, 1942 y *Styloleptus divisus* Gilmour, 1963 son sinónimos de *S. dozieri* (Fisher, 1932). *Liopus minuens* Hamilton en Leng & Hamilton, 1896, *Leptostylus lewisi* Fisher, 1948, *L. thompsoni* Fisher, 1948 y *Lethes israeli* Zayas, 1975

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Palabras clave: Coleoptera, Cerambycidae, Lamiinae, Acanthocinini, *Styloleptus*, *Antilleptostylus*, *Styloleptoides*, *Urgleptes*, *Leptostylopsis*, especies nuevas, Caribe

INTRODUCTION

The genus *Styloleptus* Dillon as is redefined here contains twenty species and achieves its greatest diversity in the Caribbean Islands with all species occurring there, except one that is found in Central America (Belize). Two other species reach the US mainland. Linsley & Chemsak (1995) have various host plants associated with the species found in the US suggesting that they are not very specific, and bore into any dry, dead, or dying wood.

Dillon (1956) first described this genus for the two species found in the United States, not knowing where the highest diversity of the genus resided. Fisher (1925, 1926, 1932, 1935, 1942, 1948) had already described many species from the Caribbean, mostly in the genera *Leptostylus* and *Leiopus*, but it was Gilmour (1963) who transferred them into *Styloleptus* and described two more species. New species were subsequently described by Chalumeau (1983), Chemsak (1966), Chemsak & Feller (1988), Gilmour (1965), Lingafelter & Micheli (2004), Micheli & Micheli (2004), and Zayas (1975). Others have treated particular taxonomic issues such as transfers or synonymies, such as Chalumeau & Touroult (2005), Ivie (1985b), Micheli & Hovore (2003), Monné & Giesbert (1992), and Vitali & Rezbanyai-Reser (2003b). This is the first revisionary work done on *Styloleptus*.

MATERIAL AND METHODS

The following institutions and private collections (with acronyms used in this paper) were consulted for this study:

AMNH American Museum of Natural History, New York, NY, USA

BMNH The Natural History Museum, London, United Kingdom

CMNH Carnegie Museum of Natural History, Pittsburg, PA, USA

FDZC	Fernando de Zayas Private Collection, La Habana, Cuba
FSCA	Florida State Collection of Arthropods, Gainesville, FL, USA
FTHC	Frank T. Hovore Private Collection, Santa Clarita, CA, USA
IREC	Institut de recherches entomologiques de la Caraïbe, Pointe-à-Pitre, Guadeloupe, France
JAMC	Julio and Charyn Micheli Private Collection, Ponce, PR, USA
JEWC	James E. Wappes Private Collection, San Antonio, TX, USA
MAGD	Museum and Art Gallery, Doncaster, United Kingdom
MCZC	Museum of Comparative Zoology Collection, Harvard University, Cambridge, MA, USA
MNRJ	Museu Nacional, Rio de Janeiro, Brasil
RTPC	Robert H. Turnbow, Jr. Private Collection, Ft. Rucker, AL, USA
USNM	National Museum of Natural History, Smithsonian Institution, Washington, DC, USA
WIBF	West Indian Beetle Fauna Project, Michael Ivie, Bozeman, MT, USA
ZMUC	Zoological Museum, University of Copenhagen, Copenhagen, Denmark

Most species have figures of their habitus (Figs. 1–4) and pronotum (Fig. 6). Species treatments are arranged alphabetically, with full descriptions and diagnoses of the new species. Label data is semi-verbatim, therefore may not be consistent in format.

Genus *Styloleptus* Dillon

Styloleptus Dillon, 1956a: 158; Arnett, 1962: 872, 890; Chalumeau, 1983: 227; Ivie, 1985b: 315; Linsley & Chemsak, 1995: 121; Chalumeau & Touroult, 2005: 203; Monné, 2005: 129.

Type species: *Leptostylus biustus* LeConte, 1852, by original designation.

Caribbeana Gilmour, 1963b: 97; Ivie, 1985b: 315.

Type species: *Caribbeana hebes* Gilmour, 1963b, by original designation.

Antilleptostylus Gilmour, 1963a: 73; Micheli & Micheli, 2004: 22; Monné, 2005: 21.

Type species: *Leptostylus nigricans* Fisher, 1935, by monotypy and original designation.

NEW SYNONYMY.

Styloleptoides Chalumeau, 1983: 230; Chalumeau & Touroult, 2005: 195; Monné, 2005: 129.

Type species: *Styloleptoides morazzanii* Chalumeau, 1983, by original designation.

NEW SYNONYMY.

Description: Form small to moderately sized, subdepressed. Head with micropunctuation, usually concealed by pubescence, subquadrate to feebly transverse, slightly convex, widest at lower angle of eye, with a median line extending from epistoma to occiput; mandibles small, feebly arcuate; genae subequal to or shorter than

lower eye lobe; eyes moderately, coarsely faceted, upper lobes separated by width of lobe to almost twice width; antennal tubercles separated by a concave depression, prominent, divergent; antennae slender, eleven segmented, extending beyond elytral apices in both sexes, scape elongate, reaching middle of pronotum, third antennomere longer than scape, remaining antennomeres decreasing in length. Pronotum subdepressed, broader than long, widest at basal third; sides inflated into a broad tubercle placed at basal third, either rounded or acute; apical and basal impressions shallow, narrowly extending to sides; disk convex without any distinct calli or tubercles, surface moderately densely, shallowly punctate. Elytra moderately densely punctate, with several distinct costae, usually with a number of fine tubercles scattered along costae or with costae and tubercles both lacking, basal gibbosities or tubercles usually present; apices obliquely rounded or subtruncate. Prosternal process ranging from $3/4$ to $1/3$ width of procoxal cavity, depending on sex and species; mesosternal process about as broad as mesocoxal cavity; fifth abdominal sternite in male only slightly longer than fourth, much longer than fourth in females, females usually with a narrow, black, glabrous line at middle of base in last sternite. Legs short, robust, with last two pairs successively longer; femora clavate, pedunculate, middle and hind legs arcuate; tibiae slender; tarsi moderately short, first tarsomere usually shorter than next two combined, fifth tarsomere longest.

Discussion. This genus is characterized by the broad, lateral pronotal tubercle placed at basal third, the pronotal disk with no distinct calli or tubercles, the subdepressed pronotum, and the convex front. Both *Styloleptoides* Chalumeau and *Antilleptostylus*

Gilmour possess these key diagnostic features present in *Styloleptus* and thus are synonymized. Chalumeau (1983) states that *Styloleptoides* has the characteristics of *Styloleptus*, except for the following: lateral margin of pronotum more convex, with apex of convexity obtusely angled; the elytra lacking tubercles or tufts of pubescence, though if present, more reduced; and, the dorsal punctation less coarse. All these differences are quite variable between species and do not merit the establishment of a new genus. Similarly, when Gilmour (1963a) erected the genus *Antilleptostylus*, he mentions the following as differing features which are generally variations: “elytra without costae and with a centrobasal setose tubercle, and the prosternal process about three-quarters as broad as procoxal cavity, not about a quarter to a third”. Smaller specimens seem to lack distinct costae than bigger specimens, and the centrobasal tubercle can sometimes be prominent or not visible except for a dark spot. The variation seen in prosternal processes is not sufficiently dissimilar to be a generic difference, and is mostly associated with sex. Females tend to have a broader prosternal process and males usually have a broader procoxal cavity since they have more robust legs. Thorough examination of many specimens of several different genera within Acanthocinini such as *Leptostylopsis*, *Leptostylus*, *Styloleptus*, and the former *Antilleptostylus* has been done looking into the validity of the prosternal width as a character to distinguish between closely related genera. It has been concluded that the slight differences seen between species and sexes is quite variable and that the definition of a genus, at least of those examined here, should not rest on such a continuous character. Some species within *Styloleptus* were formerly placed within *Leptostylus* or the closely allied genus *Leptostylopsis*, but these two genera

have distinctly tuberculate pronotal disks (5 or more tubercles) and they have the lateral pronotal tubercles placed at middle of sides.

The species within this genus exhibit a wide range of variation. Many species were originally described from only a few specimens and therefore variation was not seen. As more specimens are gathered and series are examined, this variation can be understood. One common variant observed has patches of much darker pubescence. Some specimens may have only some dark maculae while others may be completely dark. Pronotal shape also varies although the greatest width still remains at basal third. Certain species have their lateral tubercles possessing a denticle (Figs. 6d–f, p), others are simply rounded (Figs. 6a–c, i, m–o, q), while others are even more broadly rounded, almost inflated (Fig. 6g–h, j–l).

Note: Two species are removed from this genus for having different characteristics than those of the genus *Styloleptus*. *Leptostylus posticalis* Gahan, 1895 is placed back within the genus *Leptostylopsis* as in Gilmour, 1963a, for possessing a pronotum with the lateral tubercle placed at middle and the pronotal disk with distinct calli. *Urgleptes nigronotatus* Zayas, 1975 is restored to its original genus after inspection of an image of the holotype. The specimen showed a long spine located at end of pronotal lateral tubercle (characteristic of genus *Urgleptes* Dillon) and the antennal length and proportions are also common to *Urgleptes*.

***Styloleptus anegada* Micheli, NEW SPECIES**

Figs. 2a, 6h

Diagnosis: Small, robust-elongate, subdepressed. Integument mostly shining, reddish brown. Pubescence dense, short, recumbent, white, brown, and black. Head mottled with brown and white, antennomeres annulated with dark brown at base, narrowly, and much broader at apex, the width of annulations increasing apically, antennomeres 1-5 distinctly mottled. Pronotum variegated with white and brown pubescence, white usually more distinct at center and anterior of disk, with three dark brown spots at anterior margin, the lateral two extending onto disk, and another large spot under lateral tubercle; rest of pronotal side mottled. Scutellum with white pubescence. Elytra variegated with white and brown pubescence; noticeable patches of white pubescence in a quadrate area around scutellum and in a diffused zig-zag, narrow, oblique fascia at middle of each elytron; with scattered, black, tufts on costae and a dark brown, curved fascia on basal half of epipleuron. Thoracic and abdominal sterna with moderately long, sparse, appressed, white pubescence. Femora pale pubescent, appearing mottled. Tibiae with two, incomplete dark bands, one before middle, the other one at apex. Tarsi with all segments dark, some tarsomeres with apices slightly whitish.

Description: *Male.* Small, length 6.7 mm, width 2.5 mm (at humeri). *Head* micropunctate, mostly concealed by pubescence, with a deep v-shaped impression between antennal tubercles, which are prominently developed and divergent. Front subquadrate, slightly convex, with a narrow, median line from epistoma to occiput. Eyes

moderately, coarsely faceted, deeply emarginate, with upper eye lobes separated from each other by about 1.4 times width of lobe; lower lobes longer than gena. Antenna almost $2\frac{1}{2}$ times length of body. Antennomeres subcylindrical; scape elongate, slightly clavate, flattened ventrally at base, reaching to about middle of pronotum, $\frac{1}{3}$ shorter than antennomere 3, subequal to 7, slightly shorter than rest of antennomeres; antennomers gradually decreasing in length from 3 to 7, then 8 is $\frac{1}{6}$ longer than 7, thence gradually decreasing in length again to 11. *Pronotum* about $1\frac{2}{3}$ times wide as long, broadest at posterior third, without any distinct tubercles on disk, with sides gradually inflated into a very broad rounded tubercle at basal third, thence abruptly constricted posterior to tubercle. Pronotal disk moderately, coarsely, moderately densely, shallowly punctate, with row of coarser punctation at posterior and anterior transverse indentations; pubescence obscuring most of punctation. *Scutellum* small, subtriangular, with rounded apex. *Elytra* almost twice as long than wide, $\frac{1}{5}$ broader than pronotum and about $3\frac{1}{2}$ the length of pronotum. Sides nearly parallel to apical fifth, then arcuately convergent; apex of elytron oblique, rounded, feebly subtruncate. Humeri feebly produced. Punctation, where visible, coarser than on pronotum, punctures approximately separated by width of one puncture. Elytral surface slightly uneven, with several visible costae, basal tubercles moderately raised. *Legs* short, successively longer posteriorly. Femora robust, clavate, pedunculate, arcuate in middle and hind pair. Tibiae slender, subcylindrical. *Venter* densely micropunctate. Procoxal cavity 3 times as wide as prosternal process; mesocoxal cavity $\frac{1}{4}$ wider than mesosternal process. Fifth abdominal sternite broadly subtruncate, subequal to previous.

Female. Unknown.

Variation: The paratype is lighter overall, with the elytra more uniformly colored, less variegated, and the zig zag fascia much more distinct.

Type material: Holotype, male, BRITISH VIRGIN ISLANDS, Anegada, Setting Pt., 21–24 March 1983, R. S. Miller colr., At Light (USNM). Paratype, 1, male, same data as holotype, except 20–30 Aug. 1982 (WIBF).

Etymology: This species epithet is a noun in apposition named after the type locality, Anegada Island.

Discussion: This species is recognizable by the very long antennae with the last antennomere longer than scape, the globose pronotum (Fig. 6h), and the general pubescent appearance (Fig. 2a). *Styloleptus inflaticollis* is superficially similar to *S. anegada* in their general appearance and having the whitish zig-zag fascia on the elytra. They can be easily distinguished by the different antennal proportions and the black markings on elytra and dark median line on pronotum usually possessed by *S. inflaticollis*.

***Styloleptus biustus* LeConte, 1852**

Figs. 1a–c, 6a

Leptostylus biustus LeConte, 1852: 169; 1873: 233; Horn, 1880: 121; Hamilton, *in* Leng & Hamilton, 1896: 119; Beutenmuller, 1896: 79; Wickham, 1897: 208; Smith, 1900: 294; Ulke, 1903: 27; Townsend, 1903: 78; Fall & Cockerell, 1907: 194; Schaeffer, 1908: 328; Smith, 1910: 333; Nicolay, 1919: 70; Craighead, 1923: 116; Kirk & Knull, 1926: 43; Leonard, 1928: 451; Beaulne, 1932: 219; Knull, 1937: 42; Brimley, 1938: 217; Linsley, 1942: 70; Loding, 1945: 122; Duffy, 1960: 252; Peck, 1963: 955. Type locality: Southern and middle states. (MCZC)

Amniscus biustus: White, 1855: 293.

Exocentrus biustus: Chevrolat, 1862: 249.

Styloleptus biustus biustus: Dillon, 1956a: 158; Wray, 1967: 47; Turnbow & Hovore, 1979: 224; Micheli & Hovore, 2003: 2.

Leptostylus pusillus Blatchley, 1925: 167. Type locality: United States, southern Florida.

Leptostylus bahamicus Fisher, 1925: 3. Type locality: Bahamas, Andros Islands, Mangrove Cay. (AMNH). **NEW SYNONYMY.**

Leiopus bahamicus: Cazier & Lacey, 1952: 52.

Styloleptus biustus bahamicus: Dillon, 1956a: 159; Chemsak, 1967: 188; Chemsak *et al.*, 1992: 146; Browne *et al.*, 1993: 50.

Leptostylus bahamicus: Champlain & Knull, 1926: 206 (not Fisher, 1925).

Leptostylus biustus var. *cubanus* Fisher, 1926: 22 (not *Leiopus cubanus* Fisher, 1926: 26);

Zayas, 1975: 236. Type locality: Cuba, Cayamas. (USNM). **NEW SYNONYMY.**

Styloleptus biustus var. *fisheri*: Gilmour, 1965: 577.

Styloleptus biustus fisheri: Chemsak *et al.*, 1992: 146; Vitali & Rezbanyai-Reser, 2003b: 20.

Leptostylus biustus: Gahan, 1895: 134; Leng & Mutchler, 1914: 490; Bruner *et al.*, 1945: 109;

Zayas, 1975: 235.

Styloleptus biustus: Chemsak, 1969: 189.

Leptostylus caymanensis Fisher, 1948: 228. Type locality: Cayman Islands, Little Cayman,

South Town. (BMNH). **NEW SYNONYMY.**

Styloleptus caymanensis: Gilmour, 1963a: 66; Chemsak *et al.*, 1992: 146.

Specimens examined: 284, including 2 paratypes of *Leptostylus bahamicus* Fisher, the holotype and one paratype of *L. biustus* var. *cubanus* Fisher, and one paratype of *L. caymanensis* Fisher.

Size: Length 4.8–8.4 mm, width (at humeri) 1.7–3.2 mm.

Distribution: United States, Cuba, Jamaica, Bahamas, Cayman Islands.

Discussion: Within the group of species with a rounded lateral tubercle (Fig. 6a), this species is easily recognizable by the dark inverted V-shape at middle of elytra (sometimes reduced to a dark spot) generally delimiting a darker apex, and a dark comma shape just behind previous macula, the general light ashy pubescence, and the usually present maculae on the pronotum, two dark parentheses lateral to a midline. *S. minuens*,

which was a synonym of *S. biustus* has been synonymized with *S. scurra*. *S. biustus* can be differentiated by the unicolorous tarsomeres (bicolored with white apices in *S. scurra*) and the lateral black vitta from behind eye to middle of epipleuron (not complete or missing on pronotum in *S. scurra*). *S. duartensis* superficially resembles *S. biustus*, but the former has a projection on the lateral pronotal tubercle (round in *S. biustus*) as the elytral surface is very uneven (not so in *S. biustus*).

The differences in pubescence seen in the formerly recognized subspecies of *S. biustus* are attributable to natural variation within the species so common in other groups within the Acanthocinini. Some Florida specimens may look as pale as some from the Bahamas or Cayman Islands (Fig. 1b) and others show the dark sutural maculation as seen in the subspecies *fisheri* (Fig. 1c). The variable macular patterns are not geographically bound and do not merit distinction into subspecies.

***Styloleptus brunneofasciatus* (Fisher, 1935), NEW COMBINATION**

Figs. 4d, 6m

Leptostylus brunneofasciatus Fisher, 1935a: 205. Type locality: Jamaica, Mandeville. (USNM).

Styloleptus brunneofasciatus: Gilmour, 1963a: 66; Chemsak *et al.*, 1992: 146.

Antilleptostylus brunneofasciatus: Micheli & Micheli, 2004: 19.

Specimens examined: 2, including the holotype.

Size: Length 3.0–5.3 mm, width (at humeri) 1.3–2.2 mm.

Distribution: Jamaica.

Discussion: Among the species with a very broad rounded lateral tubercle (Fig. 6m), this species is easily recognized by the following combination of characters: each elytron with a centrobasal black setose tubercle, almost smooth surface (hardly any distinct costae), and the dark marking reaching from below humerus to mid elytron at suture and then running straight across to lateral margin (Fig. 4d).

***Styloleptus cubanus* (Fisher, 1926)**

Figs. 3a, 6e

Leiopus cubanus Fisher, 1926a: 26. Type locality: Cuba, Cayamas. (USNM).

Styloleptus cubanus: Gilmour, 1963a: 67; Chemsak *et al.*, 1992: 146.

Urgleptes cubanus: Zayas, 1975: 260.

Specimens examined: 6, including the holotype, the allotype, and one paratype.

Size: Length 4.5–6.1 mm, width (at humeri) 1.9–2.6mm.

Distribution: Cuba.

Discussion: Within the species with an acute lateral pronotal tubercle (denticle) (Fig. 6e), this species is very similar to *S. dozieri* (Fig. 3b). It differs in the following: in *S. cubanus* (Fig. 3a), the pubescence is much lighter on the sides of pronotal disk (not so in *S. dozieri*) and the dark maculae tend to be much more distinct than in *S. dozieri*; the white fascia at middle of elytra is more transverse whereas in *S. dozieri* it is more oblique and the light area at apical third of elytra is V-shaped (an inverted V in *S. dozieri*).

***Styloleptus darlingtoni* (Fisher, 1942)**

Leptostylus darlingtoni Fisher, 1942: 31. Type locality: Jamaica, Main Range, Blue Mountains. (MCZC).

Styloleptus darlingtoni: Gilmour, 1963a: 67; Chemsak *et al.*, 1992: 146.

Specimens examined: None, only an image of holotype.

Distribution: Jamaica.

Discussion: Only one specimen, the holotype, is known from this species. This species has a rounded lateral pronotal tubercle and can be differentiated from others within this group by the long antennae (twice the body length), the absence of tubercles on the elytra, and the elytra having irregular white and brown pubescent markings.

***Styloleptus dozieri* (Fisher, 1932)**

Figs. 3b, 6f

Leiopus dozieri Fisher, 1932: 86. Type locality: Haiti, Port-au-Prince. (USNM).*Styloleptus dozieri*: Gilmour, 1963a: 66; Chemsak *et al.*, 1992: 146*Leiopus maraicola* Fisher, 1942: 35. Type locality: Haiti, N of Dessalines. (MCZC). **NEW****SYNONYMY.***Styloleptus maraicola*: Gilmour, 1963a: 67; Chemsak *et al.*, 1992: 147; Vitali & Rezbanyai-Reser, 2003b: 18.*Styloleptus divisus* Gilmour, 1963a: 70; Chemsak *et al.*, 1992: 146; Vitali & Rezbanyai-Reser, 2003b: 18. Type locality: Dominican Republic, Cambita Uribe. (MAGD). **NEW**
SYNONYMY.**Specimens examined:** 148, including the holotype of *S. dozieri* and a paratype and the image of the holotype of *Leiopus maraicola*.**Size:** Length 3.8–6.2 mm, width (at humeri) 1.6–2.4 mm.**Distribution:** Hispaniola.**Discussion:** Vitali & Rezbanyai-Reser (2003b) synonymized *Leiopus maraicola* and *Styloleptus divisus* with *S. planicollis*, but the shape of the pronotal lateral tubercles in the former two is quite different from that present in the latter one. The tubercle in *L. maraicola* and *S. divisus* has an acute tubercle, like a denticle, whereas *S. planicollis* has

a very broad, rounded tubercle (Fig. 6i). *Styloleptus dozieri* has the same pronotal shape (Fig. 6f) as *L. maraicola* and *S. divisus* as well as other key features, only differing in pubescent patterns which fall within the normal variation of the species.

This species is very variable, ranging from a *divisus/maraicola* form with a complete dark macula extending from below humerus inwardly into middle of elytron then outwardly, roundly to lateral margin to only showing some dark maculations in this area and the round, parenthesis mark at posterior end of macula. The light and dark pubescence patterns vary from more testaceous and ashy to more ferrugineous. This species is distinguished from others with an acute tubercle by the dark macula present on the elytra (or remnants) (Fig. 3b), and the black spots below pronotal tubercle and above humerus. *S. inermis* also has the long dark macula on the elytra, but the pronotum has rounded lateral tubercles behind middle, and their antennae are only slightly longer than body (about $1 \frac{3}{5}$ as long as body in *S. dozieri*).

***Styloleptus duartensis* Micheli, new species**

Figs. 3c, 6d

Diagnosis: Small, robust-elongate, subdepressed. Integument mostly shining, reddish brown, with tarsi, areas of head, and areas of femora and tibiae much darker, almost black. Pubescence dense, short, recumbent, white, brown, and black. Head mottled with

dark brown and white, antennomeres annulated with dark brown at base and apex, the width of annulations increasing apically, rest of pubescence white, last segment completely black and at least antennomeres 1–7 mottled. Pronotum with white and brown pubescence and black markings as follow: a median longitudinal line from anterior to posterior margins, one black line reaching anterior third on each side of median line, one short line at basal margin on each side, laterad of anterior lines, these diffusing as they enter disk, and sides of pronotum entirely black. Scutellum with black pubescence medially, with some white at sides. Elytra mostly with ash and brown pubescence on basal half, with area directly around scutellum black, then with a much wider whitish area; darker brown on posterior side of basal crest; with scattered, black, tufted tubercles, and an oblique black line at middle on each elytron creating an wide, inverted V, sometimes diffusing onto side but not reaching margin, with the posterior area brown; with patches of white pubescence at apical fifth, and along lateral costae of elytron, between disk and epipleuron; basal half of epipleuron black, ending with a curved fascia. Thoracic and abdominal sterna with short, sparse, white pubescence. Femora pale pubescent, mottled with brown. Tibiae with two dark bands: an incomplete one before middle; the other one at apex, this one broader. Tarsi with all segments black.

Description: *Male.* Small, length 6.7 mm, width 2.8 mm (at humeri). *Head* micropunctate, mostly concealed by pubescence, with a shallow concavity between antennal tubercles, which are slightly developed and widely divergent. Front transverse, almost flat, with a narrow, median line from epistoma to occiput. Eyes moderately, coarsely faceted, deeply emarginate, with upper eye lobes separated from each other by

about 2 times width of lobe; lower lobes subequal to gena. Antenna 1 1/2 times length of body. Antennomeres subcylindrical; scape elongate, slightly clavate, flattened ventrally at base, reaching to about middle of pronotum, distinctly shorter than antennomere 3, slightly shorter than 4, longer than 5; antennomere 6 subequal to 7, 8–11 successively shorter. *Pronotum* about 1 3/4 times as wide than long, broadest at posterior third, without any distinct tubercles on disk, except for two slightly raised areas at anterior third of disk on each side under dark pubescent lines; with sides inflated into a broad tubercle at basal third, with a teat-shaped apex (Fig. 6d), abruptly constricted posterior to tubercle. Pronotal disk moderately, coarsely, moderately densely, shallowly punctate, with row of slightly coarser punctation at posterior and anterior transverse indentations; pubescence obscuring most of punctation. *Scutellum* small, subtriangular, with rounded apex. *Elytra* slightly less than twice as long than wide, 1 3/8 broader than pronotum and 4 2/3 times as long as pronotum. Sides nearly parallel to apical third, then arcuately convergent, slightly sinuate at middle; apex of elytron obliquely subtruncate. Humeri moderately produced. Punctation, where visible, coarse, punctures approximately separated by width of one puncture. Elytral surface very uneven, with several prominent costae, basal tubercles moderately developed. *Legs* short, successively longer posteriorly. Femora robust, clavate, pedunculate, arcuate in middle and hind pair. Tibiae slender, subcylindrical. *Venter* moderately, densely, finely punctate. Prosternal process 1/2 the width of procoxal cavity; mesosternal process about as wide as mesocoxal cavity. Fifth abdominal sternite broadly truncate, slightly longer than 4th and with a broad, shallow, emargination.

Female. Differs from the male by having slightly shorter antennae, narrower femora, and differences in the apical sternite, which in females is twice the length of previous sternite, narrower, slightly acuminate, more convex, more deeply emarginate-truncate at apex, and with a conspicuous, narrow, median, longitudinal, glabrous line.

Variation: Specimens vary in size from 4.5–7.6 mm long and 2.0–3.1 mm wide, at humeri. There is also some variation in coloring, some may be a more reddish overall, and in the pubescence coloring as well. Some specimens have a slightly lighter or darker pubescence overall and the intensity and length of the oblique, black line on elytron varies, some having white pubescence on its anterior margin more noticeable. The paratype from Sierra de Neiba is generally darker and has the suture infuscated with black.

Type material: Holotype, male, DOMINICAN REPUBLIC, Pico Duarte Trail, 2450 m below La Compartición, day collecting, 1 July 2004, 19°02.254N, 70°58.155W, Charyn J. Micheli, coll. (USNM). Allotype, female, same data as holotype except 8000 ft. below La Compartición, beating dead *Pinus*, S. W. Lingafelter (USNM). Paratypes, 10: 2 males, same data as holotype (JAMC); 1 female, same data as allotype (USNM); 1 male and 1 female, DOMINICAN REPUBLIC, Prov. Santiago, Par. Nac. Armando Bermudez, El Rodeo, 19°08'N, 71°02'W, 1456 m, 10 July 1992, M. A. & R. O. Ivie colrs. (WIBF); 1 male, DOMINICAN REPUBLIC, LA Vega Prov., 1.4–2.6 km E. of Manabao 5-VI-1994, coll. M. C. Thomas (FSCA); 1 female, same data as previous, except 6-VI-1994 (FSCA); 1 female, same data as previous, except, R. Turnbow (RTPC); 1 female, DOMINICAN REPUBLIC, La Vega, 3 km N. Jarabacoa, 25 May 1992, R.

Turnbow (RTPC); 1 female, DOMINICAN REPUBLIC, Elias Pina., Sierra de Neiba, 9.1 km WSW Hondo Valle, 18-41-38N, 71-46-56W, 1856 m, 25 June 2003, J. Rawlins, C. Young, R. Davidson, C. Nunez, P. Acevedo, M. de la Cruz, wet montane forest with pine, canopy trap, Sample 31292 (CMNH).

Etymology: This species is named after the type locality, the area around Pico Duarte in the Dominican Republic.

Discussion: This species is easily recognizable by the teat-shape apex of the lateral pronotal tubercle (Fig. 6d), by the very uneven elytral surface, and the general macular pubescent pattern (Fig. 3c).

***Styloleptus guilartensis* (Micheli & Micheli, 2004), NEW COMBINATION**

Figs. 4c, 6n

Antilleptostylus guilartensis Micheli & Micheli, 2004: 20. Type locality: Puerto Rico, Guilarte Forest. (USNM).

Specimens examined: 1, the holotype.

Size: Length 4.4 mm, width (at humeri) 1.8 mm.

Distribution: Puerto Rico.

Discussion: This species is easily recognizable by having a rounded pronotum (Fig. 6n) at sides, the non-costate elytra, a black setose centrobasal tubercle on each elytron, and with two parallel, transverse lines curving anteriorly behind middle, the anterior one black, the posterior line subobsolete and whitish (Fig. 4c).

***Styloleptus inermis* (Fabricius, 1801)**

Figs. 3f, 6r

Lamia inermis Fabricius, 1801: 293; Zimsen, 1964: 169. Type locality: America meridionali. (ZMUC).

Styloleptus inermis: Ivie, 1985b: 315; Chemsak *et al.*, 1992: 146.

Caribbeana hebes Gilmour, 1963b: 98. Type locality: St. Eustatius. (MAGD).

Leptostylus bredini Chemsak, 1966: 217. Type locality: Antigua, English Harbor. (USNM).

Styloleptus bredini: Chalumeau, 1983: 230.

Specimens examined: 12, including the holotype, allotype, and 5 paratypes of *Leptostylus bredini*.

Size: Length 5.5–9.3 mm, width (at humeri) 1.2–4.0 mm.

Distribution: St. Croix, Buck Island, St. Eustatius, and Antigua.

Discussion: The rounded lateral pronotal tubercles placed just behind middle (Fig. 6r), the short antennae barely surpassing elytral apex (Fig. 3f), and the dark elytral macula extending from humerus to mid elytron and then obliquely to the sides make this species easily recognizable. This species is tentatively maintained in *Styloleptus*, pending further investigation.

***Styloleptus inflaticollis* (Chemsak, 1966), NEW COMBINATION**

Figs. 2c, 6j

Leptostylus inflaticollis Chemsak, 1966: 215. Type locality: British Virgin Islands, Peter Island, Little Bay. (USNM).

Styloleptoides inflaticollis: Chalumeau, 1983: 232; Chemsak *et al.*, 1992: 146; Chalumeau & Touroult, 2005: 195.

Styloleptus inflaticollis: Lingafelter & Micheli, 2004: 51.

Specimens examined: 11, including the holotype.

Size: Length 3.6–6.6 mm, width (at humeri) 1.4–2.8 mm.

Distribution: British Virgin Islands (Peter Island), Virgin Islands (St. Thomas and St. Croix) and Puerto Rico.

Discussion: This species can be distinguished from others with a broadly rounded, lateral pronotal tubercle (Fig. 6j) by the following group of characters: pronotum with dark midline extending from anterior to posterior borders, with two parentheses-shaped maculae on each side, one anteriorly and one on posterior border closer more lateral than first; usually with a dark angular macula on elytron at middle, apex of elytron darker, anterior border in a zig-zag form between elytral costae, which are somewhat distinct, and a centrobasal tubercle on each elytron, most often with black pubescence (Fig. 2c). Some specimens from Puerto Rico are more reddish in color.

***Styloleptus morazzanii* (Chalumeau, 1983), NEW COMBINATION**

Figs. 2d, 6k

Styloleptoides morazzanii Chalumeau, 1983: 231; Chemsak *et al.*, 1992: 146; Chalumeau & Touroult, 2004: 193. Type locality: Guadeloupe, Les Saintes (Terre-de-Haut). (IREC).

Specimens examined: 3.

Size: Length 3.9–5.8 mm, width (at humeri) 1.5–2.2 mm.

Distribution: Guadeloupe and Marie Galante.

Discussion: Within the species with a very broad lateral pronotal tubercle (Fig. 6k), this one most closely resembles *S. inflaticollis* (Fig. 2c) and *S. parvulus* (Fig. 2e). It can be

distinguished from *S. inflaticollis* by the very faint elevations and absence of tubercles on elytra (Fig. 2d) (both present in *S. inflaticollis*). From *S. parvulus*, it differs in having a longitudinal black stripe on pronotum (none in *S. parvulus*) and non-tuberculate elytra (*S. parvulus* with tubercles) (Chalumeau & Touroult, 2005).

***Styloleptus nigricans* (Fisher, 1935), NEW COMBINATION**

Figs. 4a–b, 6o

Leptostylus nigricans Fisher, 1935b: 55; Wolcott, 1936: 264; 1948: 345. Type locality: Puerto Rico, Villalba. (USNM).

Antilleptostylus nigricans: Gilmour, 1963a: 73; Chemsak *et al.*, 1992: 134; Micheli & Hovore, 2003: 2; Lingafelter & Micheli, 2004: 50.

Leptostylus puertoricensis Fisher, 1935b: 56; Wolcott, 1948: 345. Type locality: Puerto Rico, Adjuntas. (USNM).

Styloleptus puertoricensis: Gilmour, 1963a: 67; Chemsak *et al.*, 1992: 147.

Specimens examined: 35, including the holotypes of *L. nigricans* and *L. puertoricensis*.

Size: Length 2.8–3.8 mm, width (at humeri) 1.2–1.7 mm.

Distribution: Puerto Rico and the Virgin Islands.

Discussion: This species is very variable in maculations. The macular patterns of the form *nigricans* has the anterior half of elytra dark with a rounded posterior border reaching lateral margin of elytron at basal 2/3, dark macula sometimes bordered by light pubescence (Fig. 4a). The form *puertoricensis* has some transverse rounded fascia at basal 5th, a transverse, oblique rounded fascia near middle, and a dark, oblique macula just behind (Fig. 4b).

From others with rounded pronotal tubercles (Fig. 6o), this species is recognizable by the following set of characters: a black, setose centrobasal tubercle on elytra, the non-costate elytra, the very broadly rounded elytral apices, and the aforementioned macular patterns.

***Styloleptus nigrofasciatus* Gilmour, 1963**

Figs. 5a–c, 6b

Styloleptus nigrofasciatus Gilmour, 1963a: 67; Chemsak *et al.*, 1992: 147. Type locality: Dominican Republic, Jarabacoa. (MAGD).

Specimens examined: 133.

Size: Length 3.6–6.4 mm, width (at humeri) 1.5–2.7 mm.

Distribution: Dominican Republic.

Discussion: This species has rounded lateral pronotal tubercles (Fig. 6b) and a very variable pubescent pattern. Gilmour (1963) originally described the species from only one specimen which only had two parenthesis-shaped black macula at apical quarter of elytra (Fig. 5a, not holotype). After careful examination of a large number of specimens from the Dominican Republic, great variation was observed within the species. Some forms exhibit only the two large maculae on the elytra as in the holotype while others are heavily mottled with black pubescence (Figs. 5a,c, respectively). A very common form has the black, parenthesis-shaped macula somewhat diffused but still visible, and a light oblique fascia around mid-elytron bordered posteriorly by fascia of darker pubescence (Fig. 5b). It differs from that species in having a much more mottled appearance and generally much darker, tarsomeres basally with light pubescence, pronotum with black spots.

Key features for distinguishing this species are: some trace of the black parenthesis-shaped macula at apical fourth, a mottled pronotum broadly darkened middle and lighter sides, rounded pronotal sides, and basally light tarsomeres. It resembles *S. scurra* (Figs. 5d–f) but that species is less mottled especially in the pronotum where the disk sides are distinctly lighter and more defined, it has two distinct areas of black pubescence at middle on both apical and basal margins (if present, never so distinct in *S. nigrofasciatus*), the scutellum is usually much darker than any surrounding area on elytra (not so in *S. nigrofasciatus*, unless specimen is generally very dark), the tarsomeres have white pubescence apically (basally in *S. nigrofasciatus*). An examination of genitalia may be needed to find out if these two species are indeed different.

***Styloleptus parvulus* (Gahan, 1895), NEW COMBINATION**

Figs. 2e, 6l

Leptostylus parvulus Gahan, 1895: 134; Leng & Mutchler, 1914: 450. Type locality: Mustique. (BMNH).

Styloleptus parvulus: Gilmour, 1963a: 66; Villiers, 1980a: 93.

Styloleptoides parvulus: Chalumeau, 1983: 232; Chemsak *et al.*, 1992: 146.

Specimens examined: 3, including holotype.

Size: Length 3.6–6.4 mm, width (at humeri) 1.5–2.7 mm.

Distribution: Mustique and Grenada.

Discussion: Within the species with a very broad lateral pronotal tubercle (Fig. 6l), this one most closely resembles *S. morazzanii* and *S. inflaticollis*. It can be distinguished from *S. inflaticollis* (Fig. 2c) by the fainter costae on elytra (*S. inflaticollis* distinctly costate) and the straight transverse fascia on elytral apical declivity (Fig. 2e) (interrupted in *S. inflaticollis*) (Chalumeau & Touroult, 2005). From *S. morazzanii* (Fig. 2d), it differs in having the pronotum without any distinct maculae (a longitudinal black stripe on pronotum in *S. morazzanii*) and tubercles on elytra (*S. morazzanii* without tubercles), (Chalumeau & Touroult, 2005).

***Styloleptus planicollis* (Fisher, 1935)**

Figs. 3b, 6i

Leptostylus planicollis Fisher, 1935a: 203. Type locality: Jamaica, Montego Bay. (USNM).

Styloleptus planicollis: Gilmour, 1963a: 67; Chemsak *et al.*, 1992: 147; Vitali & Rezbanyai-Reser, 2003b: 18.

Leptostylus vanduzeei Fisher, 1935a: 204. Type locality: Jamaica, Mandeville. (USNM).

Styloleptus vanduzeei: Gilmour, 1963a: 67; Chemsak *et al.*, 1992: 147.

Specimens examined: 2, the holotypes of *Leptostylus planicollis* and *L. vanduzeei*.

Size: Length 4.4–4.7 mm, width (at humeri) 2.0 mm.

Distribution: Jamaica.

Discussion: Vitali & Rezbanyai-Reser (2003b) synonymized *S. maraicola*, *S. vanduzeei*, *S. divisus* and *S. albosuturalis* with *S. planicollis*. Both *S. maraicola* and *S. divisus* have angular pronotal sides (like a denticle) and have been synonymized with *S. dozieri* (this publication). *Styloleptus albosuturalis* has a different pronotal shape and was synonymized with *Leptostylopsis posticalis* (Touroult, 2004). This species can be recognized by the following combination of characters: rounded lateral pronotal tubercle the species with rounded lateral pronotal tubercles (Fig. 6i), lack of distinct elytral costae,

general light coloration, rounded elytral apices, small size, and the dark elytral macula that extends roundly from below humerus to mid elytron, not reaching suture and then curving posteriorly to lateral margin (Fig. 3b) (this may be very faint in some specimens). There is not enough material to assess any variation within this species and therefore it may later be found to be a synonym of another species.

***Styloleptus rhizophorae* Chemsak & Feller, 1988**

Figs. 3g, 6q

Styloleptus rhizophorae Chemsak & Feller, 1988: 185, fig. 4; Chemsak *et al.*, 1992: 147. Type locality: Belize, Twin Cays. (USNM).

Specimens examined: 6, including the holotype.

Size: Length 4.1–5.3 mm, width (at humeri) 1.7–2.2 mm.

Distribution: Belize.

Discussion: This is the only species found in Central America and can be distinguished from others within the genus by the rounded lateral pronotal tubercle (Fig. 6q), the slight elevations on the pronotum with a black interrupted line at middle and two black spots anterolateral, with a dark inverse V-shaped vitta at middle of elytra, sometimes with a

pale fascia in front, a dark macula on epipleura from humerus to middle, extending slightly onto disk, and non-distinct costae on elytra (Fig. 3g).

***Styloleptus scurra* (Chevrolat, 1862)**

Figs. 5d–f, 6c

Alcidion scurra Chevrolat, 1862: 249. Type locality: Cuba. (BMNH).

Leptostylus scurra: Gahan, 1895: 135; Leng & Mutchler, 1914: 450; Zayas, 1975: 252.

Styloleptus scurra: Gilmour, 1963a: 67; Chemsak, 1967: 188; 1969: 190; Chemsak

et al., 1992: 147; Browne *et al.*, 1993: 51; Vitali & Rezbanyai-Reser, 2003b: 21.

Leptostylus scurra var. *dorsalis* Fisher, 1926: 21; Zayas, 1975: 254. Type locality: Cuba, Cayamas. (USNM).

Leptostylus scurra var. *maculifer* Fisher, 1926: 21; Zayas, 1975: 254. Type locality: Cuba, Santiago de las Vegas, Estación Experimental Agronómica. (USNM).

Styloleptus scurra var. *maculifer*: Gilmour, 1965: 577.

Liopus minuens Hamilton in Leng & Hamilton, 1896:121; Wickham, 1909: 402. Type locality: United States, Florida, Lake Worth, Biscayne, Key West. (USNM). **NEW**

SYNONYMY.

Leptostylus minuens: Casey, 1913:316.

Styloleptus minuens: Dillon, 1956a: 167; Turnbow & Hovore, 1979: 225.

Leptostylus pusillus Blatchley, 1925: 167. Type locality: United States, southern Florida.

Leptostylus lewisi Fisher, 1948: 227. Type locality: Cayman Islands, Little Cayman, Moddyffots area. (BMNH). **NEW SYNONYMY.**

Styloleptus lewisi: Gilmour, 1963a: 66; Chemsak *et al.*, 1992: 147.

Leptostylus thompsoni Fisher, 1948: 226. Type locality: Cayman Islands, Grand Cayman, West Bay. (BMNH). **NEW SYNONYMY.**

Styloleptus thompsoni: Gilmour, 1963a: 66; Chemsak *et al.*, 1992: 147.

Lethes israeli Zayas, 1975: 257; Chemsak *et al.*, 1992: 142. Type locality: Cuba, Oriente, Sierra de Cristal. (FDZC). **NEW SYNONYMY.**

Specimens examined: 98, including the type of *S. scurra*, the holotype, allotype, and paratypes of *Leptostylus scurra* var. *dorsalis*, the holotype and allotype of *L. scurra* var. *maculifer*, syntypes of *Liopus minuens*, the holotype and paratype of *Leptostylus lewisi*, the holotype and paratype of *L. thompsoni*, and an image of the type of *Lethes israeli*.

Size: Length 3.9–6.4 mm, width (at humeri) 1.7–2.8 mm.

Distribution: United States (Florida), Cuba, Bahamas, Cayman Islands.

Discussion: This species has a rounded lateral pronotum (Fig. 6c) and can be distinguished from others with same condition by the following characters: a dark, curved fascia at apical third of elytra, a white, posteriorly-directed, oblique fascia at elytral middle, the pronotum with a broad, dark brown midline and sides much paler (Fig. 5d). This species resembles *S. biustus* but can be differentiated by the bicolored tarsomeres

with white apices (unicolorous tarsomeres in *S. biustus*) and the sides of pronotum with an incomplete black vitta or none at all (vitta completely extending from behind eye to mid-epipleuron in *S. biustus*).

There is great variation in the pubescence markings. There may be only a dark, diamond shaped macula just behind middle of elytra, this may extend to a dark line along basal half of suture (Fig. 5e) or the entire basal half of elytra may be completely dark (except humeri) as in the form *dorsalis* (Fig. 5f).

***Styloleptus taino* Lingafelter & Micheli, 2004**

Figs. 2b, 6g

Styloleptus taino Lingafelter & Micheli, 2004: 45. Type locality: Puerto Rico, Aguirre State Forest. (USNM).

Specimens examined: 1, the holotype.

Size: Length 7.1 mm, width (at humeri) 2.9 mm.

Distribution: Puerto Rico.

Discussion: This species has a rounded pronotum (Fig. 6g) at sides and can be distinguished from other congeners with this character by the very distinct black line extending from anterior margin of pronotum to apical third, then obliquely, interruptedly,

reaching lateral margin at apical fifth (Fig. 2b). There is not enough material to assess any sort of variation within the species.

***Styloleptus variabilis* (Fisher)**

Figs. 3d–e, 6p

Leiopus variabilis Fisher, 1925: 11. Type locality: Cuba, Cayamas. (USNM).

Styloleptus variabilis: Gilmour, 1963a: 67; Monné, 2001: 31.

Urgleptes variabilis: Zayas, 1975: 262.

Leiopus atrovittatus Fisher, 1925: 9; Russo, 1930: 144. Type locality: Cuba, Yara. (USNM).

NEW SYNONYMY.

Styloleptus atrovittatus: Gilmour, 1963a: 65; Chemsak *et al.*, 1992: 146.

Urgleptes atrovittatus: Zayas, 1975: 258.

Leiopus laticollis Fisher, 1925: 12; Russo, 1930: 143; Cazier & Lacey, 1952: 53. Type locality:

Dominican Republic, Sánchez. (AMNH). **NEW SYNONYMY.**

Styloleptus laticollis: Gilmour, 1963b: 66; Chemsak *et al.*, 1992: 147; Browne *et al.*, 1993: 51.

Leiopus infuscatus Fisher, 1932: 84. Type locality: Dominican Republic, Samaná. (USNM).

NEW SYNONYMY.

Styloleptus infuscatus: Gilmour, 1963a: 66; Chemsak *et al.*, 1992: 146.

Leiopus pilosellus Fisher, 1942: 34; Cazier & Lacey, 1952: 53. Type locality: Bahamas, Cat Island, Arthurs Town. (MCZC). **NEW SYNONYMY.**

Styloleptus pilosellus: Gilmour, 1963a: 67; Chemsak *et al.*, 1992: 147; Browne *et al.*, 1993:51.

Specimens examined: 145 including the holotype and five paratypes of *Styloleptus variabilis* (Fisher), the holotype and one paratype of *Leiopus atrovittatus* Fisher, one paratype of *L. laticollis* Fisher, the holotype and one paratype of *L. infuscatus* Fisher, and an image of the holotype of *L. pilosellus* Fisher.

Note: One of the paratypes of *L. infuscatus* Fisher from “Port Au Prince, Haiti, 1899, R. J. Crew” does not belong to this series and is tentatively labeled as a new species.

Size: Length 4.7–8.1 mm, width (at humeri) 1.9–3.3 mm.

Distribution: Cuba, Dominican Republic, Haiti, and the Bahamas.

Discussion: Among the species of *Styloleptus* with an acute lateral pronotal tubercle (Fig. 6p), this species is most easily recognizable by the pubescent pattern on the elytra being generally uniformly ashy brown, with a dark macula just behind middle from which an oblique whitish vitta runs to sides, and the more elongated form (Fig. 3d).

Fisher (1925) described three species *Leiopus atrovittatus*, *L. variabilis*, and *L. laticollis* which are here synonymized. Generally the first species described in the article is the one usually used as the senior name, but the epithet *variabilis* is preferred because it suits the variable pubescent pattern the species displays. Specimens can have very strongly marked dark vertical lines on the elytra (Fig. 3e) or lack them at all (Fig. 3d).

Most usually have the black spot around the middle of each elytron, the white line running from this spot to the sides, and the area posterior to said line to apex darker in coloration.

***Styloleptus zorrillai* (Zayas, 1975)**

Urgleptes zorrillai Zayas, 1975: 259; Chemsak *et al.*, 1992: 149. Type locality: Cuba, Pinar del Rio, Cajalbana. (FDZC).

Styloleptus zorrillai: Monné & Giesbert, 1992: 253; Monné, 2001: 31.

Specimens examined: None (type not found in Zayas Collection).

Size: Length 6–7mm (Zayas, 1975).

Distribution: Cuba.

Discussion: According to Zayas (1975), the species most similar to this one seems to be *S. attrovittatus* (= *S. variabilis*), but it differs in “having more intense and contrasting colors, a much more mottled appearance and with different black markings, as well as being somewhat more robust” (Zayas, 1975).

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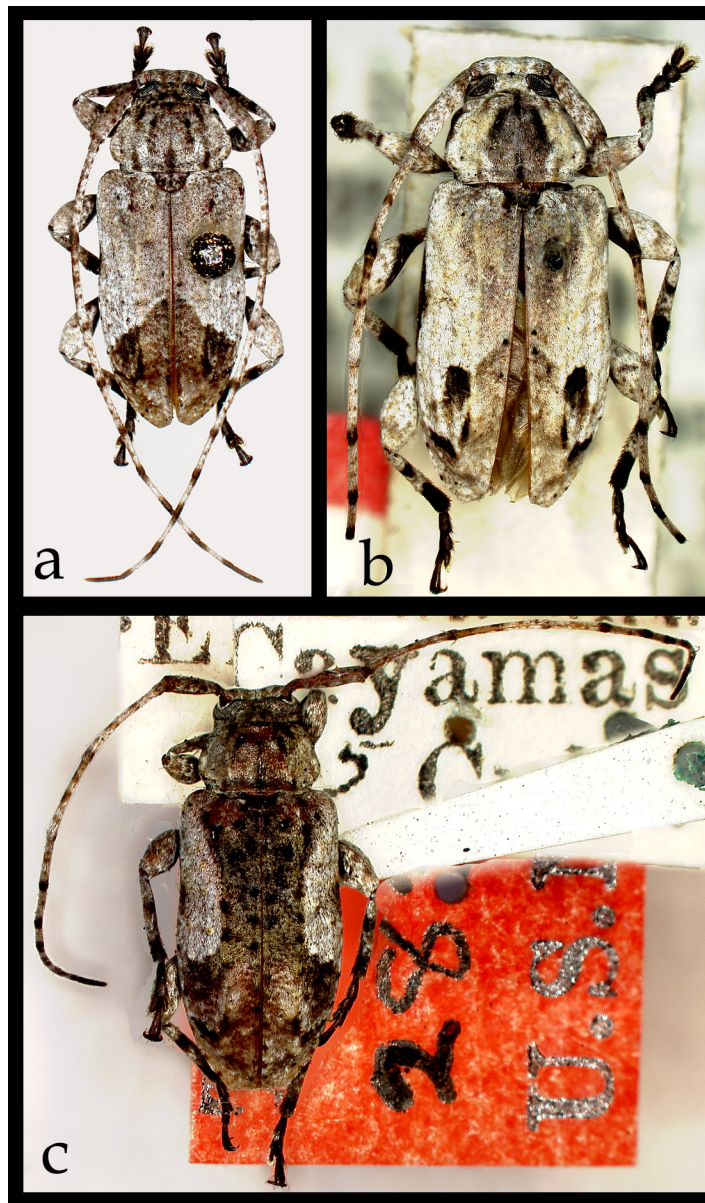


Figure. 1. Dorsal views of variant forms of *Styloleptus biustus* (LeConte): a, form like holotype; b, *Leptostylus caymanensis* Fisher, holotype; c, *Leptostylus biustus* var. *cubanus* Fisher (= *S. biustus fisheri* Gilmour), holotype.

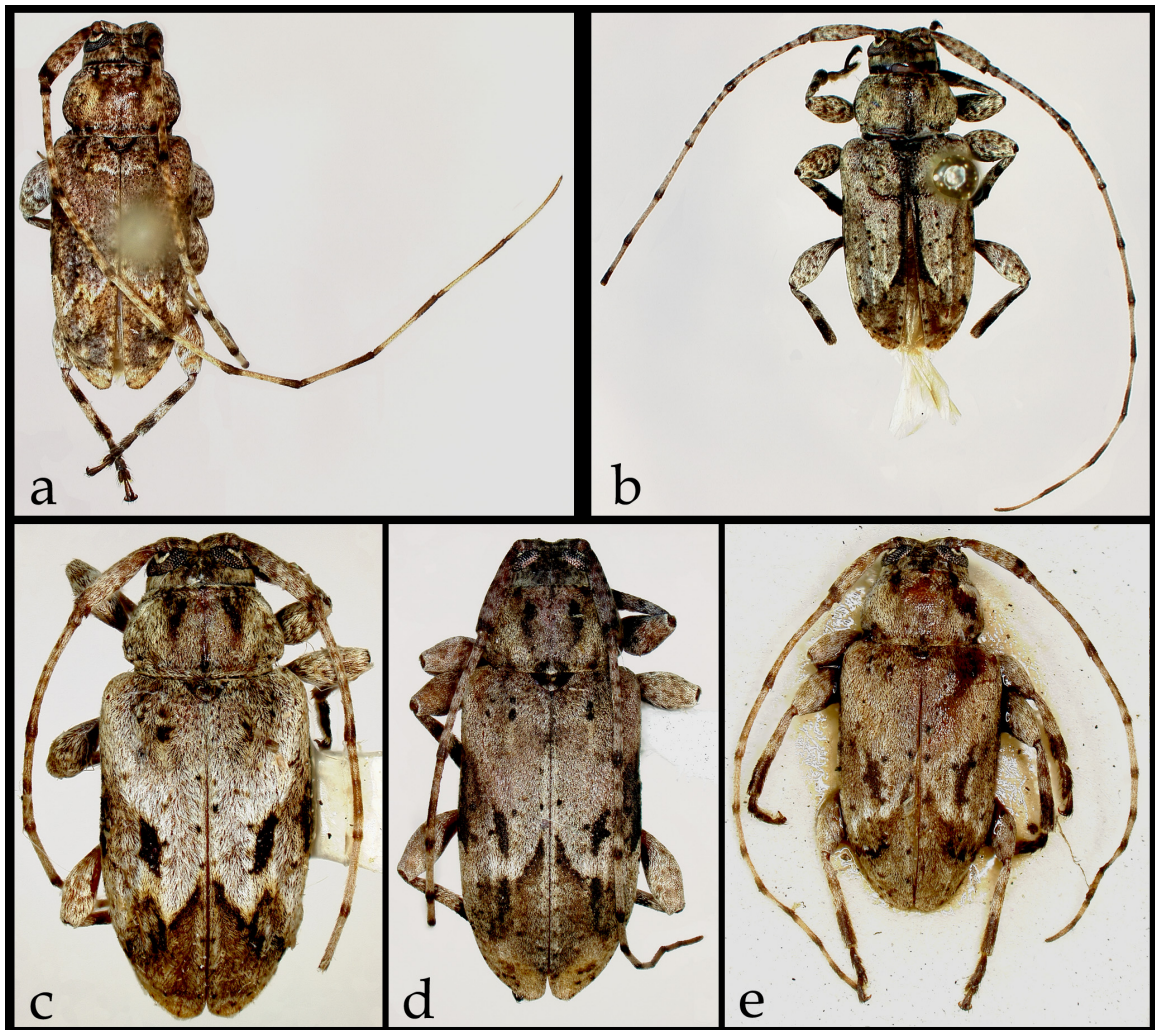


Figure. 2. Dorsal views of *Styloleptus* species: a, *S. anegada* Micheli, holotype; b, *S. taino* Lingafelter & Micheli, holotype; c, *S. inflaticollis* (Chemsak); d, *S. morazzanii* (Chalumeau); e, *S. parvulus* (Gahan), holotype.

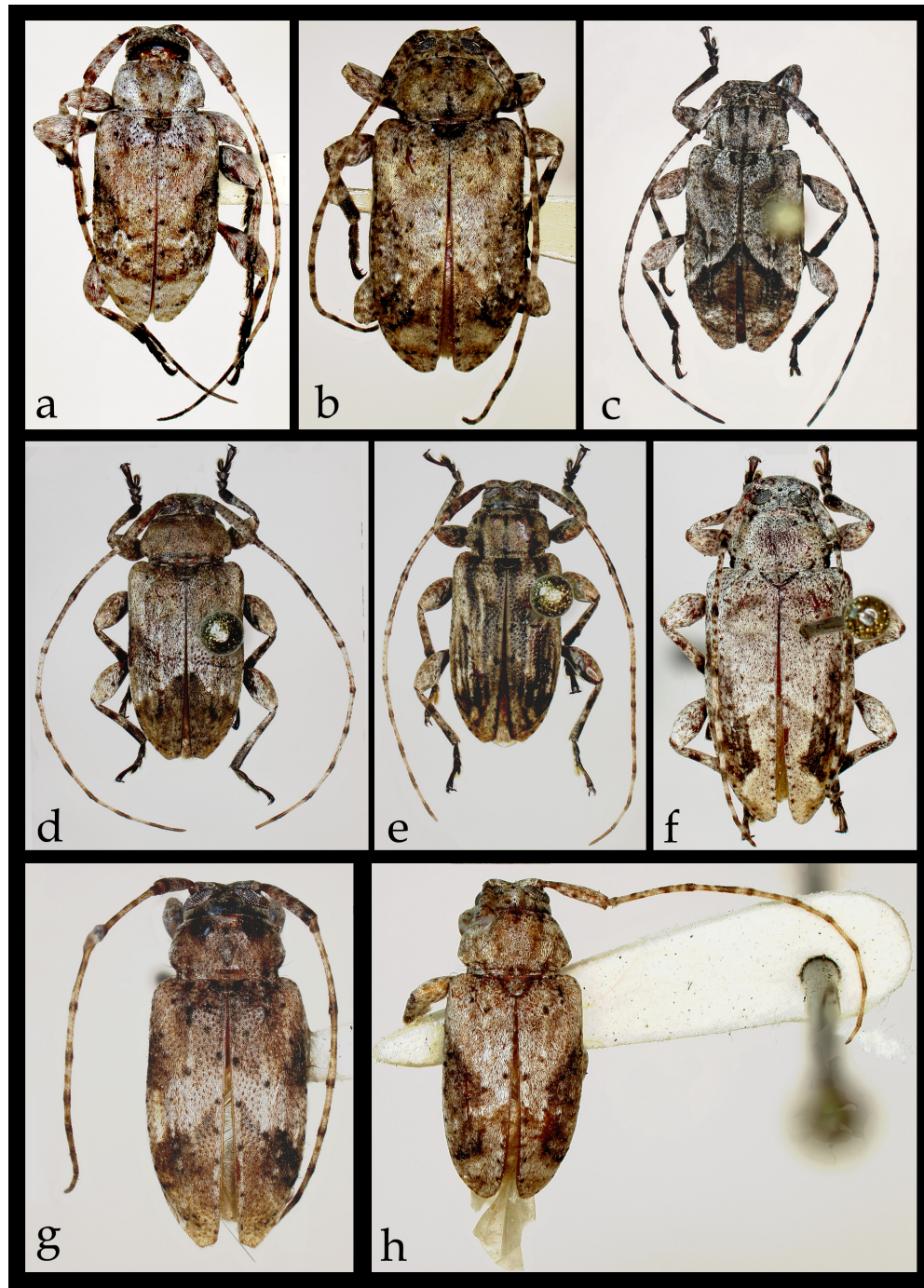


Figure. 3. Dorsal views of *Styloleptus* species: a, *S. cubanus* (Fisher), holotype; b, *S. dozieri* (Fisher); c, *S. duarte* Micheli, holotype; d, *S. variabilis* (Fisher); e, *S. variabilis* (Fisher) like *attrovittatus*; f, *S. inermis* (Fabricius); g, *S. rhizophorae* (Chemsak & Feller), holotype; h, *S. planicollis* (Fisher), holotype.

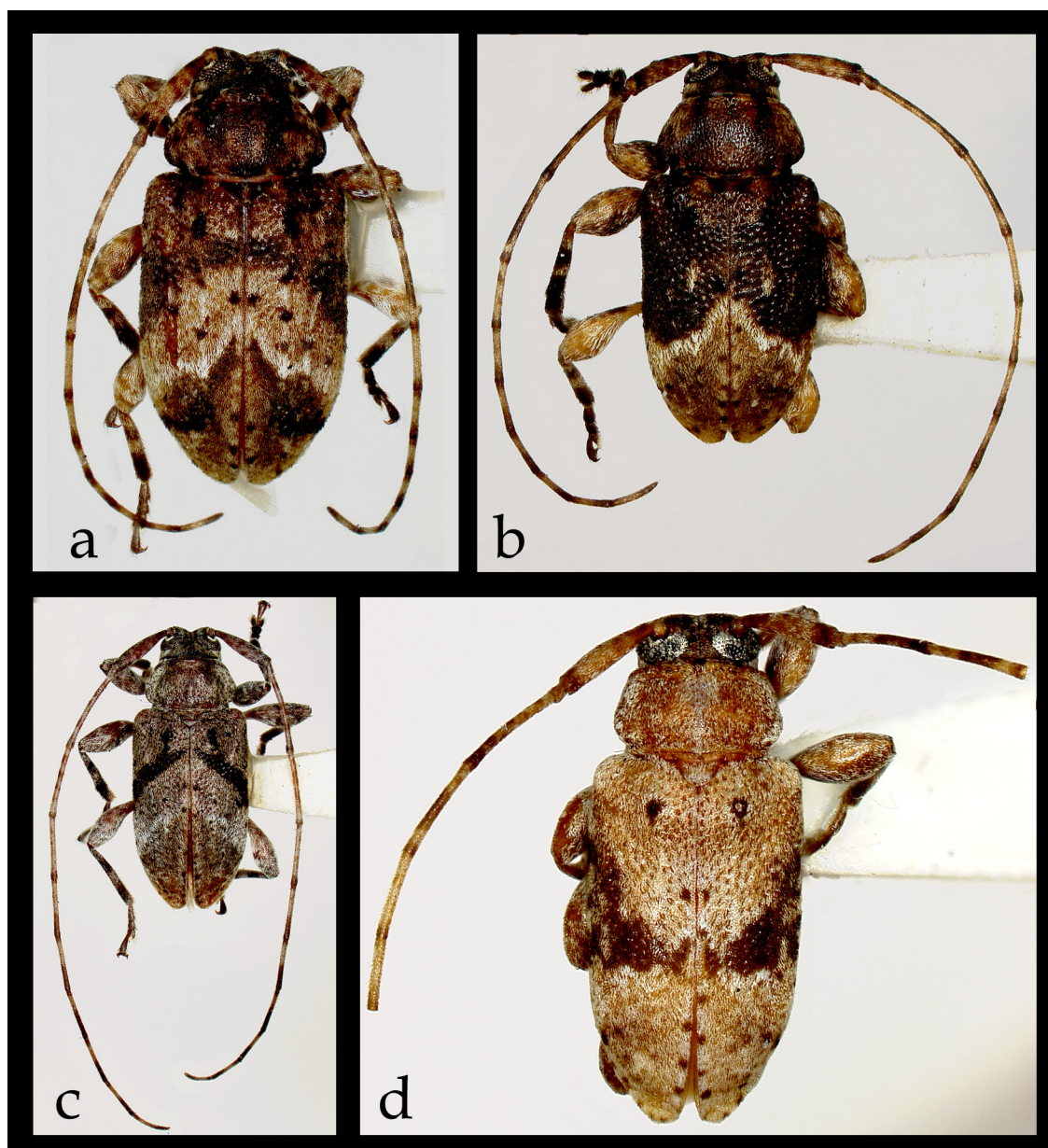


Figure. 4. Dorsal views of *Styloleptus* species: a, *S. nigricans* (Fisher); b, *S. nigricans* (Fisher), form like *puertoricensis*; c, *S. guilartensis* (Micheli & Micheli), holotype; d, *S. brunneofasciatus* (Fisher), holotype.

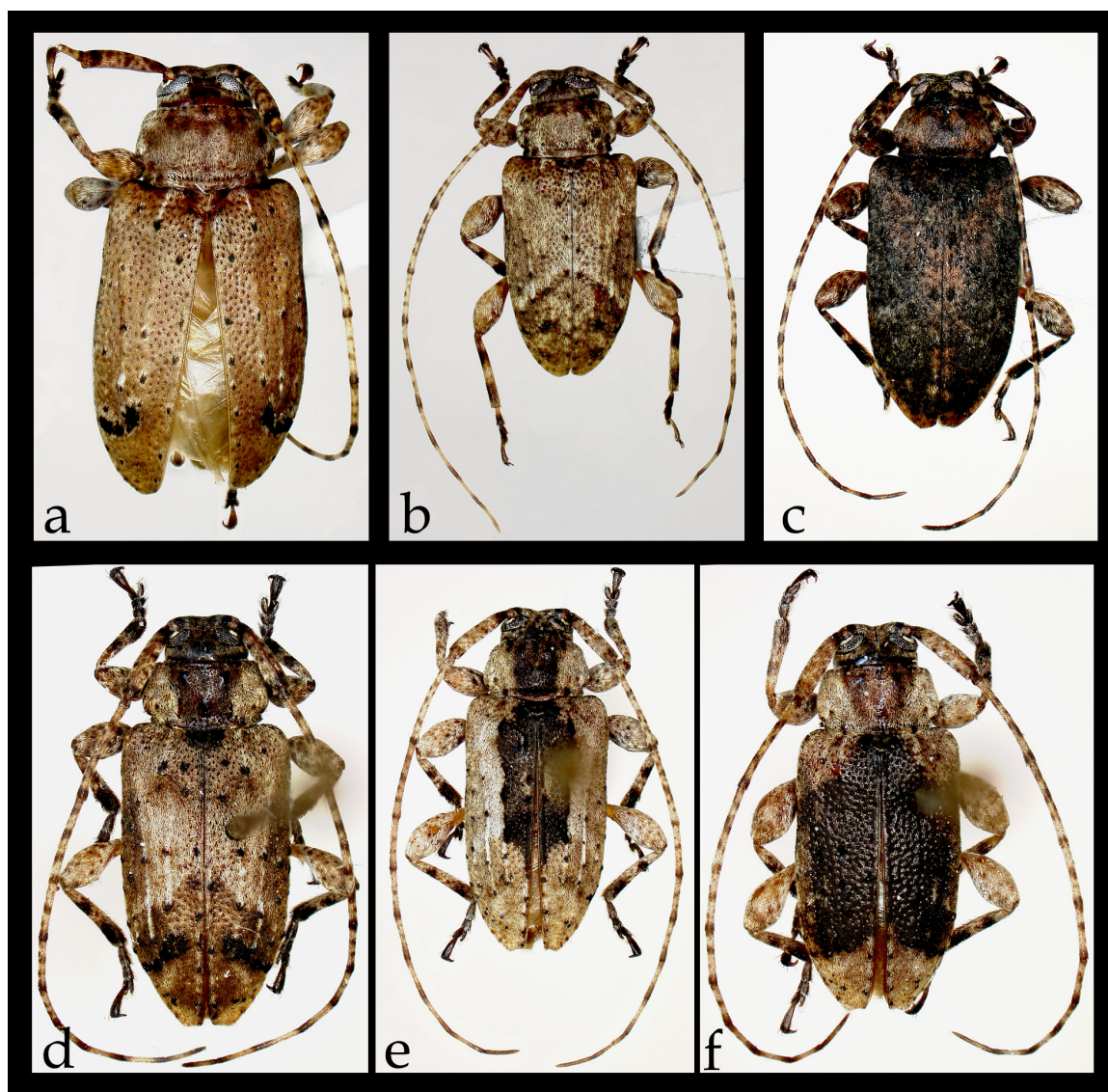


Figure. 5. Variability of pubescent patterns in *Styloleptus* species: a–c, *S. nigrofasciatus* Gilmour; d–f, *S. scurra* (Chevrolat).

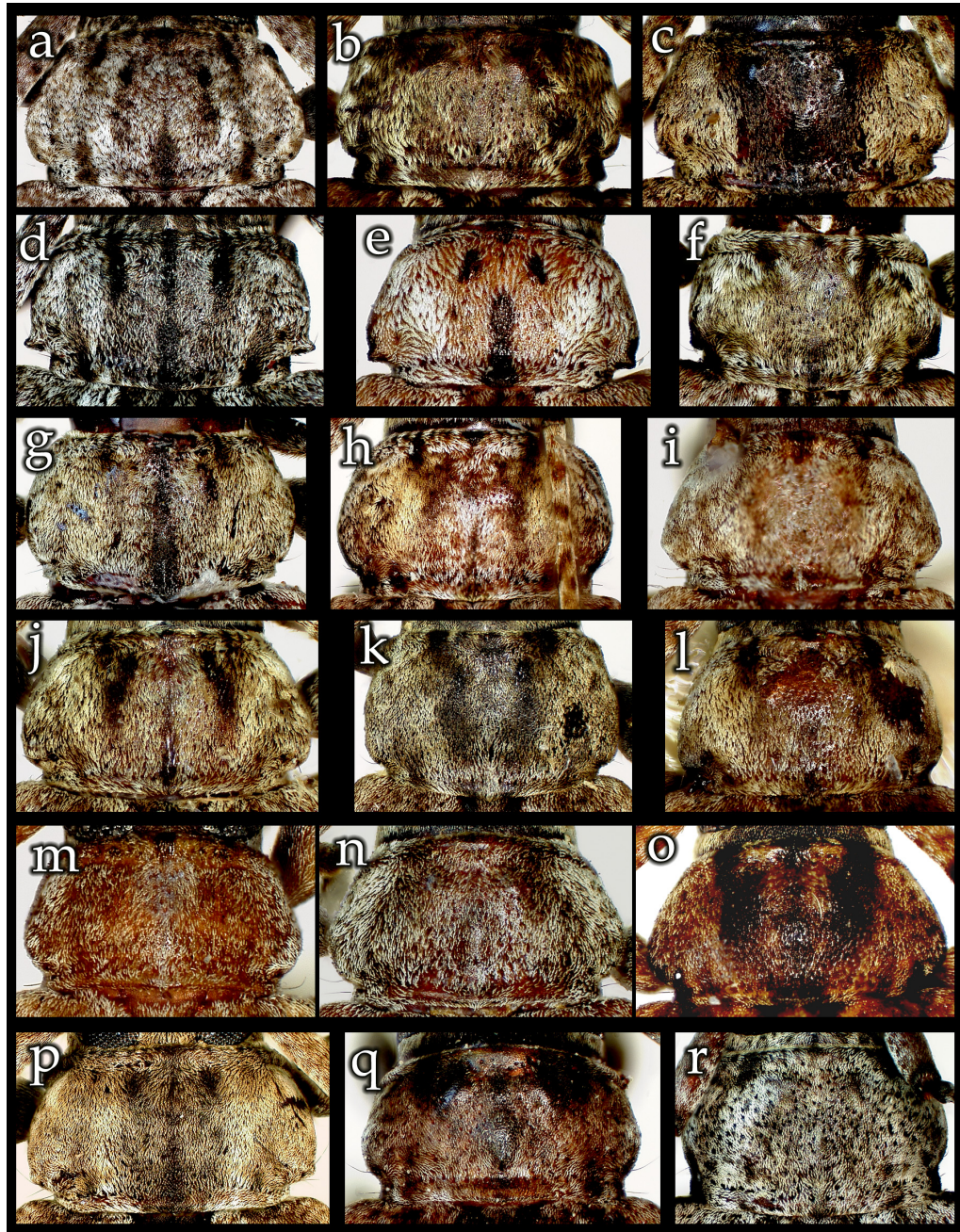


Figure. 6. Pronota of *Styloleptus* species: a, *S. biustus* (LeConte); b, *S. nigrofasciatus* Gilmour; c, *S. scurra* (Chevrolat); d, *S. duarte* Micheli, holotype; e, *S. cubanus* (Fisher), paratype; f, *S. dozieri* (Fisher); g, *S. taino* Lingafelter & Micheli, holotype; h, *S. anegada* Micheli, holotype; i, *S. planicollis* (Fisher), holotype; j, *S. inflaticollis* (Chemsak); k, *S. morazzanii* (Chalumaeu); l, *S. parvulus* (Gahan), holotype; m, *S. brunneofasciatus* (Fisher), holotype; n, *S. guilartensis* (Micheli & Micheli), holotype; o, *S. nigricans* (Fisher); p, *S. variabilis* (Fisher); q, *S. rhizopharae* (Chemsak & Feller), holotype; r, *S. inermis* (Fabricius).

CHAPTER IV

FIVE NEW PUERTO RICAN LONGHORN BEETLES AND
OTHER NOTES ON WEST INDIAN ACANTHOCININI
(COLEOPTERA: CERAMBYCIDAE: LAMIINAE)*

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ABSTRACT

Five new species from Puerto Rico, *Antilleptostylus guilartensis*, *Leptostylopsis guanica*, *Leptostylopsis yukiya*, *Leptostylopsis monin*, and *Urgleptes borikensis* are described. A new combination, *Antilleptostylus brunneofasciatus* (Fisher), new synonymy, *Leptostylopsis oakleyi* (Fisher) = *Leptostylopsis gundlachi* (Fisher), habitus figures of the new species, keys for separating the Puerto Rican species of *Leptostylopsis* Dillon and *Urgleptes* Dillon, key and figures for separating the species of *Antilleptostylus* Gilmour, a figure to help in separating *Leptostylopsis gundlachi* Fisher and two new related species, and a figure of some typical elytral color pattern variations in *Urgleptes borikensis* are presented.

Key words: Caribbean, West Indies, Greater Antilles, Puerto Rico, Jamaica, Cerambycidae, Lamiinae, Acanthocinini, figures, keys.

Resumen

Cinco especies nuevas, *Antilleptostylus guilartensis*, *Leptostylopsis guanica*, *Leptostylopsis yukiya*, *Leptostylopsis monin* y *Urgleptes borikensis* se describen de Puerto Rico. Se presenta una nueva combinación, *Antilleptostylus brunneofasciatus* (Fisher); y una nueva sinonimia, *Leptostylopsis oakleyi* (Fisher) = *Leptostylopsis gundlachi* (Fisher). Se incluyen ilustraciones de las especies nuevas, claves para separar las especies en Puerto Rico de *Leptostylopsis* Dillon y *Urgleptes* Dillon, clave y figuras para las especies del género *Antilleptostylus* Gilmour, y otras figuras que sirven de ayuda para reconocer o diferenciar las especies.

INTRODUCTION

The cerambycid faunas of the Antilles are still poorly known except those of Cuba in the Greater Antilles (Zayas, 1975), and the French Lesser Antilles (Villiers, 1980b). Within the Cerambycidae, the Acanthocinini are a difficult group to study due primarily to some of the inherent characteristics of the group: large number of species, great variability, cryptic coloration, and the small size of many species. Antillean Acanthocinini seem particularly more difficult due to the lack of adequate material from some areas, inaccessibility to some collections and because many descriptions were based on unique specimens.

This paper is a contribution to the knowledge of Antillean Acanthocinini, and treats three genera: *Antilleptostylus* Gilmour (1963: 73), *Leptostylopsis* Dillon (1956a: 144) and *Urgleptes* Dillon (1956b: 332). It is primarily about the Puerto Rican fauna, but includes one species from Jamaica.

MATERIALS AND METHODS

With over 2000 cerambycid specimens from Puerto Rico, the authors' collection is the primary source of specimens for this paper. The collection consists primarily of

specimens collected by the senior author over many years, but includes material from various other sources. Within the collection about 30% are Acanthocinini, including over 200 specimens of both *Urgleptes* and *Leptostylopsis*. That collection is supplemented by a small collection of North American and West Indian species. We also examined a small but extremely useful collection of Puerto Rican cerambycids lent to us by Henry Howden.

Specimens representing proposed new taxa in *Leptostylopsis* were compared to specimens in the (USNM) collection of Acanthocinini and against the original descriptions.

Comparison of the proposed new taxon in *Urgleptes* was limited only to descriptions of species from the Lesser and Greater Antilles, and other Caribbean islands. Our decision with respect to *Urgleptes* was made in view of the fact that there are currently 78 known species in the genus (Monné and Hovore, 2002), of which only about 10% have been described from the Caribbean area.

The keys for *Leptostylopsis* and *Urgleptes* which are included have been limited to the Puerto Rican fauna which is the main subject of this paper. Figures were drawn by the senior author.

The following acronyms are used in the text: (USNM), United States National Museum of Natural History, Washington, DC; (EMEC), Essig Museum, Berkeley, CA; (HAHC), Henry and Ann Howden, private collection; (WIBF), West Indian Beetle Fauna Project Collection, Montana State University, Bozeman, MT; (FTHC), Frank T. Hovore,

private collection; (JAMC), Julio and Charyn Micheli, private collection. Holotypes are deposited in the (USNM) collection and location of paratypes will be noted in the text.

Genus *Antilleptostylus* Gilmour

Discussion. Micheli and Hovore (2003) synonymized *Styloleptus puertoricensis* (Fisher 1935b: 56) under *Antilleptostylus nigricans* (Fisher 1935b: 55). Both types were examined. The type of *A. nigricans* is a female with a prosternal process to coxal cavity width proportion of 3:4. The type of *Styloleptus puertoricensis* is a male with a proportionally narrower prosternal process, 1:3. Based on a long series of specimens examined, the proportion was observed as ranging from 1:3 to 1:2 in males, and from 1:2 to 3:4 in females.

Antilleptostylus Gilmour (1963:73) is here redefined as having a prosternal process to procoxal cavity proportion of 1:3 to 3:4, depending on sex. Until now there was only one species in the genus *Antilleptostylus*. We are transferring another species to this genus and describing a new species. This brings the total number of species of *Antilleptostylus* to three and extends the range of the genus within the Greater Antilles.

***Antilleptostylus brunneofasciatus* (Fisher), NEW COMBINATION**

Leptostylus brunneofasciatus Fisher 1935a: 205. Type locality: Mandeville, Jamaica.

Styloleptus brunneofasciatus: Gilmour 1963: 66.

Discussion. *Leptostylus brunneofasciatus* Fisher was described from a single specimen. Upon examining the type we found it to be a female and has the pronotal and elytral characteristics that are unique to *Antilleptostylus* Gilmour. The prosternal process to procoxal cavity proportion was given in the description as 1:3, but after examination, the proportion was found to be closer to 1:2. We are transferring *Styloleptus brunneofasciatus* to *Antilleptostylus* Gilmour.

***Antilleptostylus guilartensis* Micheli and Micheli, NEW SPECIES**

Figs. 1, 6c

Types. Holotype, male, PUERTO RICO, Guilarte Forest, 11-I-1980, J. Micheli, coll., beating dead branches.

Diagnosis. Small, robust-elongate, subdepressed. Integument dark reddish brown. Pubescence moderately long, moderately dense, appressed, pale gray; head mottled;

antennal segments sparsely clothed with short, appressed pubescence, and short, suberect hairs intermixed, segments dark annulate apically, except 2 and 11, annulation progressively broader on apical segments, segments 1–5 mottled; each elytron with a few small black spots; a distinct, small, elongate, black, tufted elevation medially on basal crest, and decorated behind middle with two parallel, oblique lines, the anterior one black, moderately broad, extending from sutural margin at basal sixth to margin of lateral declivity at basal $2/5$, posterior line subobsolete, broad, whitish, extending from sutural margin, shortly before middle, to margin of lateral declivity at about apical third; legs with femora feebly mottled, tibiae broadly pale annulate basally and medially, tarsi dark; metasterna mottled laterally.

Antilleptostylus guilartensis differs from its two congeners by being more elongate and by the distinctly different elytral design (Fig. 6, a–c). It also differs from *A. nigricans* by the longer antennae and tibiae.

Description. *Male.* Length 4.4 mm; width 1.8 mm. Width measured across humeri. *Head.* Front slightly convex, transverse, about $1 \frac{1}{3}$ times wider than high, widest at lower margin of eyes, each side with one setigerous puncture along margin of eye lobe, with a narrow, longitudinal, median groove extending from epistoma to occiput; vertex depressed between upper eye lobes and between antennal tubercles, tubercles moderately prominent and divergent; surface indistinctly granulate. Eyes emarginate, coarsely faceted; lower eye lobes, widest above, slightly taller than broad, slightly taller than genae; upper eye lobes separated from each other by about $1 \frac{1}{4}$ times the breadth of lobe. Antennae slightly more than twice as long as body, segment 6 slightly extending

beyond elytral apices; segments subcylindrical; scape elongate, slightly clavate, broadest at apical third, $1 \frac{1}{4}$ times as long as length of pronotum, reaching pronotal basal fourth; third segment $1 \frac{1}{6}$ times as long as scape, slightly arcuate; fourth segment $\frac{5}{6}$ length of third, subequal to scape; segment 5 shorter than 4; segments 6–10 subequal in length and each feebly shorter than 5; 11 slightly shorter than 10. *Pronotum*. Slightly broader at base than at apex, widest at basal third, $1 \frac{2}{3}$ times broader than long; with a large, broad, obtuse tubercle on each side at basal third. Sides divergent from apex to basal third then gradually roundly narrowed to near base, parallel and strongly constricted basally. Disk slightly uneven, feebly tumid centrally behind middle, and anteriorly at each side of middle; apical margin narrowly, slightly elevated at center; basal margin broadly, slightly elevated along center. Surface shining; moderately sparsely, moderately finely punctured, punctures partly hidden by pubescence. Scutellum broadly subtriangular, broadly, evenly rounded apically. *Elytra*. Length is $1 \frac{4}{5}$ times the basal width and $3 \frac{3}{4}$ times length of pronotum at middle, widest across humeri; at base, distinctly wider than greatest pronotal width; humeri moderately weak. Sides parallel, broadly, feebly narrowed slightly before middle; broadly, evenly rounded from apical third to apices, which are separately rounded. Disk slightly uneven, centrobasal region feebly tumid, postbasal depression feeble, posterior declivity broadly, evenly rounded; surface moderately densely, moderately coarsely and deeply punctured basally, punctures slightly finer posteriorly, pubescence partly obscuring punctures. *Venter*. Prosternum feebly depressed anteriorly; process about $\frac{2}{5}$ as wide as a coxal cavity, slightly arcuate, broadly truncate at apex. Mesosternal process about $\frac{4}{5}$ width of a coxal cavity, about twice as

wide as prosternal process, with apex broadly emarginate-truncate. Abdomen with fifth sternite slightly longer than fourth, apex broadly subtruncate. Surface on thoracic and abdominal sterna very finely granulose; with pubescence sparser centrally on thoracic sterna. *Legs*. Moderately long; femora pedunculate-clavate; tibiae moderately long; first metatarsal segment about twice as long as second.

Female. Unknown.

Type material. Known only from the holotype.

Etymology. This species is named for the Guilarte State Forest, the type locality.

Discussion. Numerous attempts through the years at collecting additional specimens were unfruitful. This species appears to be rare.

Key to the Species of *Antilleptostylus* Gilmour

- 1 Elytra decorated with an oblique, broad, dark line extending forward from suture to sides. ----- *brunneofasciatus* (Fisher)
- 1' Elytra decorated differently.----- 2
- 2 (1) Length/width proportion of elytra about 1.9 : 1; elytra decorated with two oblique lines extending backwards from suture to sides, anterior one black, the other whitish. ----- *guilartensis* n.sp.

- 2' Length/width proportion of elytra about 1.6 : 1; elytra black or dark brown basally and decorated with a narrow, undulating, whitish line postmedially, which extends backwards from suture to sides. ----- *nigricans* (Fisher)

Genus *Leptostylopsis* Dillon

***Leptostylopsis guanica* Micheli and Micheli, NEW SPECIES**

Fig. 2

Types. Holotype, male, PUERTO RICO, Guánica, ex logs coll. 22-III-1978, J. Micheli, coll., emerged 4-1978. Paratypes, 27, same data as holotype except dates of emergence: 5 males, 6 females, 3-1978; 2 males, 3 females, 4-1978; 2 males, 1 female, 5-1978; 1 male, 6-1978; 4 males, 1 female, 9-1978; 2 males, 12-1978.

Diagnosis. Moderately small, robust-elongate, subcylindrical, convex. Integument shining, reddish brown to piceous. Pubescence very dense, moderately long, appressed, pale yellowish brown; head feebly mottled; antennal segments clothed with short appressed pubescence and some suberect, short hairs intermixed, segments dark annulate apically, except 11; segments 1–4 mottled; pronotum with a blackish vitta ventrolaterally which extends from apex to base, and encloses ventral part of lateral tubercle; elytra with conspicuous rows of shortly-tufted granules, sutural margins mottled beyond middle, lateral margins partly mottled; humeral area with a large dark vitta beyond declivity;

dorsal posterior declivity with a prominent, large area of pale, brownish gray colored pubescence, enclosing, on each elytron, two broad, dark, parallel, longitudinal lines between costae and a few maculae; the frontal margin of this area, on each elytron, arcuate, bordered by three tufted granules, and extending from suture at apical third to epipleural fold at apical fifth; pubescence on thoracic and abdominal sterna short, pale, feebly mottled; femora pale pubescent, feebly mottled; tibiae obsoletely mottled, broadly dark annulate apically; tarsi with first segment pale.

This species may be distinguished from all other presently known congeners by the following combination of characters: body subcylindrical, convex; pronotal sides, below lateral tubercle, with a blackish vitta which extends from apex to base; elytra with rows of shortly-tufted granules on disk, humeral area blackish, beyond declivity, and by the unique shape and color pattern of the elytral posterior declivity area. The species does not appear close to any other known Antillean species of *Leptostylopsis*.

Description. *Male.* Length 7.8 mm; width 3.6 mm. Width measured across humeri. *Head.* Front feebly convex, transverse, about 1/3 broader than high, widest at lower margin of eyes, with two widely separated setigerous punctures along margin of eye lobes, with a narrow, longitudinal, median groove extending from epistoma to occiput; vertex slightly depressed between upper eye lobes and between antennal tubercles, which are moderately prominent and divergent. Eyes emarginate; lower eye lobes subquadrate, slightly taller than broad, subequal to genae in height; upper eye lobes separated from each other by twice, or slightly more, the breadth of lobe. Antennae about 1 1/3 times as long as body, segment 7 extending beyond elytral apices; segments subcylindrical; scape

elongate, slightly clavate, broadest about apical fourth, feebly flattened internally, slightly longer than length of pronotum, reaching to about middle of pronotal lateral tubercle; third segment $1\frac{1}{3}$ times as long as scape, slightly arcuate; fourth about $\frac{2}{3}$ length of third; 5–7 successively shorter; 8 subequal to 7; 9–11 successively shorter. *Pronotum*. Subequal at base and apex, width, across lateral tubercles, $1\frac{3}{4}$ times length; sides tumid anteriorly, parallel basally, with a large, broad, apically obtuse tubercle located feebly behind middle; disk uneven, with three moderately large, obtuse tubercles centrally, and four feeble tumescences, two anterior, dorso-lateral, and two posterior, disco-lateral; surface irregularly, coarsely, deeply punctured around tubercles, punctures partly hidden by pubescence; apical and basal sulci, each, with a single line of punctures. Scutellum broadly subtriangular, broadly, evenly rounded apically. *Elytra*. Length is $1\frac{2}{3}$ times the basal width and about $3\frac{3}{5}$ times as long as pronotum, widest across humeri; at base, distinctly wider than greatest pronotal width; humeri moderate; sides subparallel, broadly, feebly constricted to middle, thence broadly, arcuately rounded to apices, which are obliquely, internally truncate, with both angles narrowly rounded; disk convex, uneven, with distinct costae; centrobasal region tumid, with moderately strong tubercles; postbasal depression moderate; posterior declivity somewhat abrupt beyond apical third; surface granulate, irregularly, deeply punctured basally, with pubescence partly obscuring punctures, these becoming finer posteriorly. *Venter*. Prosternal process slightly more than $\frac{1}{2}$ width of a coxal cavity; broadly, shallowly emarginate-truncate at apex. Mesosternal process subequal in width to coxal cavity; about twice as wide as prosternal process. Abdomen with fifth sternite slightly longer than fourth, apex broadly

emarginate-truncate; apical tergite broadly subtruncate at apex, feebly, narrowly notched at middle. *Legs.* Moderate in length; femora strongly pedunculate-clavate; tibiae moderately long; first metatarsal segment about twice as long as second.

Female. Differs from the male by having slightly shorter antennae, narrower femora, and differences in the apical sternite, which in females is slightly longer, slightly acuminate, more convex, more deeply emarginate-truncate apically, and with a conspicuous, short, narrow, median, longitudinal, glabrous line at base.

Variation. Paratypes vary in body size from 6.7 to 8.7 mm long and 2.9 to 4.1 mm wide. Size, extension and degree of darkness of the pronotal lateral vittae and elytral posterior declivity markings are slightly variable within the series. In some specimens, the mesepisterna are partly blackish. One specimen lacks the broad, longitudinal, blackish lines on elytral posterior declivity area, and in a few specimens the anterior margin of this area is much darker.

Type material. Paratypes in the following collections: USNM, 1; EMEC, 1; WIBF 1; FTHC, 1; remainder in JAMC.

Etymology. This species is named for the Guánica Forest in Puerto Rico, type locality of the holotype, and is a noun in apposition.

Discussion. This species has been found only at the type locality.

***Leptostylopsis yukiyu* Micheli & Micheli, NEW SPECIES**

Fig. 3, 6d

Types. Holotype, male, PUERTO RICO: Toro Negro Forest, Rd. 143, Kms 18-20, 11-XI-1979, N. & J. Micheli, coll., beating foliage. Paratypes 7: 1 male, same data except, 12-VII-1987; 1 male, 1 female, PUERTO RICO: Carib. N.F., El Toro Negro, Hwy. 143, K18H4, 7-21-1979, L. B. O'Brien; 1 male, PUERTO RICO: Hwy. 184, K20H4, Carite For. Res., July 20, 1979, C. W. O'Brien; 1 male, 2 female, PUERTO RICO: El Yunque Sta., Luquillo Forest, VII 10-16, 1969, H. & A. Howden.

Diagnosis. Moderately small, robust-elongate, subdepressed. Integument shining, dark brown. Pubescence moderately dense, moderately long, appressed, brown, variegated with pale yellowish brown. Head mottled. Antennae with segments 3–10 feebly dark annulate at both ends, segments 1, 3 and 4 mottled. Disk of pronotum pale yellowish brown on sides, with dark spots along anterior and posterior margins, posterior side of centrolateral tubercles blackish; lateral tubercles pale anteriorly, broadly blackish posteriorly. Scutellum mottled. Elytra with tufts of erect black hairs on basal tubercles and small black spots, some tufted, on elytral costae; each elytron, postmedially, with a narrow, short, pale grayish line on median costae, this line connected to a conspicuous, transverse, sinuous, narrow, similarly colored line, shortly behind middle, across elytra, which extends from sutural margin to lateral margins, where it becomes broader; and a wide, irregular, subobsolete, subsutural, pale brownish area from apical fourth to apex.

Thoracic and abdominal sterna mottled. Legs with femora mottled, tibiae pale annulate medially, and tarsi dark.

This species can be easily confused with *Leptostylopsis gundlachi* (Fisher) since they are very close and similar. It differs from *L. gundlachi* by the following characteristics: more elongate, having stronger and better developed pronotal lateral tubercles and slightly stronger pronotal discal tubercles; having slightly longer and darker pubescence, especially on the elytra; and by its distinctly different elytral color pattern, including the distinct, transverse, pale sinuous line, postmedially, which is missing in *L. gundlachi* (Fig. 6e).

Description. *Male.* Length 6.2 mm; width 2.5 mm. Width measured across humeri. *Head.* Front feebly convex, transverse, widest at lower margin of eyes, each side with one setigerous puncture along inner margin of eye lobe; with a narrow, longitudinal, median groove extending from epistoma to occiput; vertex depressed between antennal tubercles; tubercles moderately prominent and widely divergent. Eyes deeply emarginate, coarsely faceted; lower eye lobes widest above, taller than broad, about $1 \frac{2}{5}$ times as tall as genae; upper eye lobes separated from each other by almost twice the breadth of eye lobe. Antennae about $1 \frac{1}{5}$ times as long as body, segment 8 extending beyond elytral apices; segments subcylindrical; scape elongate, slightly clavate, broadest at apical fourth, about 5 times longer than broad, reaching middle of pronotal lateral tubercle; third segment $1 \frac{2}{5}$ times as long as scape, slightly arcuate; segment 4 subequal to scape; 5–8 successively slightly shorter; 8–10 subequal, slightly shorter than 7; 11 slightly shorter than 10; segments sparsely clothed with short appressed pubescence and

some suberect, short hairs intermixed. *Pronotum*. Wider at base than at apex; width across lateral tubercles $1 \frac{2}{3}$ times pronotal length at middle; sides feebly tumid before apical sulcus, constricted and parallel basally, with a large, broad, apically obtuse tubercle located slightly behind middle; disk uneven, with three moderately large, obtuse tubercles centrally, lateral ones stronger, slightly oblique, slightly compressed apically, and two feeble tumescences on each side of disk, one anterior, the other posterior; surface irregularly, moderately finely, deeply punctured, punctures partly hidden by pubescence; apical and basal sulci, each with a line of moderately fine punctures. Scutellum subtriangular with apex broadly, evenly rounded. *Elytra*. Slightly less than twice as long as basal width and $4 \frac{1}{2}$ times length of pronotum at middle, widest across humeri, distinctly wider than greatest pronotal width; humeri moderately strong; sides subparallel, almost straight from base to about middle, broadly, arcuately rounded from middle to apices, which are obliquely, internally truncate; disk subdepressed, uneven, centrobasal region tumid, with strong elevations, postbasal depression moderately shallow, costae distinct, posterior declivity broadly, evenly rounded; surface irregularly, moderately coarsely, deeply punctured, punctures becoming slightly finer posteriorly. *Venter*. Prosternal process about $\frac{2}{5}$ as wide as a procoxal cavity, broadly, shallowly emarginate-truncate at apex. Mesosternal process $1 \frac{1}{5}$ width of mesocoxal cavity, about twice as wide as prosternal process, with apex truncate. Abdomen with fifth sternite longer than fourth, apex broadly feebly emarginate. Apical tergite subtruncate. *Legs*. Moderately long; femora strongly pedunculate-clavate; tibiae moderately long; first metatarsal segment about $1 \frac{1}{2}$ times length of second.

Female. Antennae and legs slightly shorter than in male; elytral length/width proportion slightly greater; femora narrower; prosternal process proportionally wider, $3/5$ as wide as a procoxal cavity; mesosternal process wider, $1\frac{3}{5}$ times width of mesocoxal cavity, feebly more than twice as wide as prosternal process; fifth abdominal sternite slightly longer, slightly acuminate, apically truncate, with an inconspicuous, narrow, median, longitudinal, glabrous line basally; apical tergite rounded.

Variation. Paratypes vary in body length from 5.1 to 7.8 mm. There is also some variation in pubescence coloring and markings as follows: some specimens are feebly lighter or darker overall; in some specimens the apical pale area is more or less distinct; and in some specimens the postmedian, sinuous, pale grayish line may be interrupted or subobsolete.

Type material. Paratypes in the following collections: HAHC, 3; remainder in JAMC.

Etymology. The species name is a noun in apposition taken from the word “Yukiyu”, used by the aboriginal Taíno people of Puerto Rico for their benevolent “God”, which they believed resided in El Yunque, highest peak in the Puerto Rican Luquillo Mountain Range.

Discussion. In this species, as in other related species of *Leptostylopsis*, appreciation of light and dark patterns and color is highly dependent on the angle of vision and direction of the light source. All specimens in the series were collected in humid, mountain forest areas.

***Leptostylopsis monin* Micheli and Micheli, NEW SPECIES**

Figs. 4, 6f

Types. Holotype, male, PUERTO RICO, Guilarte Forest, 4-VIII-1979, J. Micheli, coll., beating dead branches. Paratypes, 39: same data as holotype except dates: 1 female, 3-III-1979; 1 female, 19-VI-1979; 2 males, 1 female, 25-VI-1979; 1 male, 1 female, 4-VIII-1979; 1 female, 11-I-1980; 2 male, PUERTO RICO, Guilarte Forest, 23-VII-1979, N. & J. Micheli, coll.; 2 males, 1 female, same data as previous except 12-X-1979; 1 female, same data except 16-IV-1980; 1 male, 1 female, same data except 17-VI-1980; 1 male, 1 female, same data except, 23-VI-1984, beating foliage and dead branches; 1 male, 2 females, PUERTO RICO, Maricao Forest, Rd. 120, Km. 13.8, 26-IV-1980, N. & J. Micheli, coll., beating foliage; same data as previous except dates, 2 males, 1 female, 24-VI-1989; 1 male, 5 female, 3-V-1980, J. Micheli, coll., dead foliage; 1 male, 2 females, same data as previous except, 10-V-1980; 1 female, PUERTO RICO, Carite Forest, Rd. 184, Km. 25.9, 25-VI-1989, J. Micheli, coll., beating foliage; 1 male, PUERTO RICO, Hwy. 184, K21H9, Carite For. Res., July 20, 1979, C.W. O'Brien; 2 male, PUERTO RICO, El Verde Sta., Luquillo Forest, VII-9-1969, H. & A. Howden; 1 female, PUERTO RICO, El Yunque Sta., Luquillo Forest, VII- 6-9-1969, H. & A. Howden; 1 female, same data as previous except, VII-10-16-1969.

Diagnosis. Moderately small, robust-elongate, subdepressed. Integument shining, reddish brown. Pubescence dense, moderately long, appressed, light yellowish brown; head mottled; antennal segments sparsely clothed with short, appressed pubescence and some suberect, short hairs intermixed, segments feebly dark annulate apically, except 2 and 11, segments 1–4 mottled; pronotum blackish behind lateral tubercles; elytra with conspicuous, narrow, pale pubescent lines on costae; humeral area beyond declivity with a large dark vitta; elytral centrobasal tumid area infuscated, with blackish tufts on elevations; each elytron with a few small, tufted maculae on disk and along sutural margin, and conspicuously decorated postmedially with three dark broad lines which are narrowly bordered by paler pubescence; the inner dark, broad line arcuate, oblique, with its convex side facing towards suture, the other two dark lines longitudinal, falling between costae, the middle one longest; thoracic and abdominal sterna mottled, specially on metasterna; femora feebly mottled; tibiae obsoletely mottled, broadly light annulate basally and medially; tarsi dark.

This species resembles and appears allied to *Leptostylopsis gundlachi* (Fisher) and *L. yukiya* n. sp. *Leptostylopsis monin* differs from both species by: (a) the longer antennae, the proportion being $1\frac{2}{3}$ times length of body in *L. monin*, while it is about $1\frac{1}{5}$ times in the other two species; (b) the slightly emarginate, obliquely truncate elytral apices, the same being obliquely truncate in the other two species; (c) the stronger pronotal lateral tubercles; (d) by being slightly more elongate and; (e) by distinct differences in the elytral pubescent color pattern (Fig. 6d-f).

Description. *Male.* Length 7.8 mm; width 3.2 mm. Width measured across humeri.

Head. Front feebly convex, transverse, slightly wider than high, widest at lower margin of eyes, each side with one setigerous puncture along margin of eye lobe, with a narrow, longitudinal, median groove extending from epistoma to occiput; vertex depressed between upper eye lobes and between antennal tubercles; tubercles moderately prominent and divergent; eyes emarginate, coarsely faceted; lower eye lobes widest above, slightly taller than broad, about $1 \frac{2}{3}$ times as tall as genae; upper eye lobes separated from each other by about $1 \frac{1}{5}$ times the breadth of lobe. Antennae $1 \frac{2}{3}$ times as long as body, segment 6 extending slightly beyond elytral apices; segments subcylindrical; scape elongate, slightly clavate, broadest at apical fourth, $1 \frac{1}{3}$ times as long as length of pronotum, reaching beyond middle of pronotal lateral tubercle; third segment $1 \frac{1}{4}$ times as long as scape, slightly arcuate; fourth segment $\frac{3}{4}$ as long as third, subequal to scape; 5–7 successively shorter; 8 slightly longer than 7; 9–11 successively shorter. *Pronotum.* Broader at base than at apex; width, across lateral tubercles, $1 \frac{3}{4}$ times pronotal length at middle; sides tumid anteriorly, parallel basally, with a large, strong, tubercle located slightly behind middle; disk uneven, with three moderately large, obtuse tubercles centrally, lateral ones stronger, slightly oblique, slightly compressed apically, with four feeble tumescences, two anterior, dorso-lateral, and two posterior, disco-lateral; surface irregularly, moderately finely, deeply punctured around tubercles, punctures partly hidden by pubescence; apical and basal sulci, each, with a single line of punctures. Scutellum subtriangular with apex roundly subtruncate. *Elytra.* About twice as long as basal width and $4 \frac{1}{2}$ times length of pronotum at middle, widest across humeri; at base,

distinctly wider than greatest pronotal width; humeri moderately strong; sides subparallel, broadly, feebly narrowed postbasally, broadly, arcuately rounded from middle to apices, which are obliquely, internally truncate and broadly, feebly emarginate, with both angles narrowly rounded; disk convex, uneven, centrobasal region tumid, with strong elevations, postbasal depression shallow, costae distinct, posterior declivity broadly, evenly rounded; surface irregularly, deeply punctured basally, with pubescence partly obscuring punctures, these becoming slightly finer posteriorly. *Venter*. Prosternal process about $2/5$ as wide as a coxal cavity and broadly, shallowly emarginate-truncate at apex. Mesosternal process subequal in width to coxal cavity, twice as wide as prosternal process, with apex broadly truncate. Abdomen with fifth sternite longer than fourth, apex broad, shallowly bilobed. Apical tergite with apex broad, bilobed. *Legs*. Moderate in length, femora strongly pedunculate-clavate, tibiae moderately long, first metatarsal segment about twice as long as second.

Female. Antennae slightly shorter than in male, segment 6 not reaching elytral apices; legs slightly shorter, with slightly narrower femora; prosternal process $3/5$ as broad as coxal cavity; apical abdominal sterna, slightly longer, slightly acuminate, with an inconspicuous, narrow, median, longitudinal, glabrous line basally, deeply emarginate apically; apical tergite broadly, shallowly emarginate-truncate.

Variation. Paratypes vary in body size from 5.0 to 8.6 mm long and 2.0 to 3.4 mm wide. Within the series there is some variation in density of pubescence, number of tufted maculae, distinctiveness of pale lines on the elytral costae, size and degree of darkness of the elytral postmedian markings. In some specimens the mesepisterna are partly

blackish, and some specimens have slightly longer hairs on the elytral elevations and on the tufted maculae.

Type material. Paratypes in the following collections: USNM, 2; EMEC, 2; WIBF 2; HAHC, 4; FTHC, 2; remainder in JAMC.

Etymology. It is with much love that we dedicate this species to Monin, who is the senior author's wife and mother of the junior author. The species name is a noun in apposition.

Discussion. All specimens in the series were collected in humid, mountain forest areas.

Leptostylopsis gundlachi (Fisher), 1925

Leptostylopsis oakleyi (Fisher) 1935(b):44. **NEW SYNONYMY.**

Type locality. *L. gundlachi*, Aibonito, Puerto Rico; *L. oakleyi*, Adjuntas, Puerto Rico.

Discussion. Fisher wrote, describing *L. oakleyi*, "This species is allied to *gundlachi* Fisher, but it differs from that species in the different arrangement of the brown pubescence on the elytra, and in having a broad, dark brown, pubescent vitta on each side of the pronotum". He did not mention other differences in their respective descriptions: proportion of prosternal process to procoxal cavities, proportion of length to width of

elytra, elytral opalescent tinge (*L. gundlachi*) and the large elongate dark vitta (*L. oakleyi*) along elytra lateral margins.

The two types were examined and compared to a series of 34 specimens. We found there is enough variation in the series to account for all differences used by the author to separate the two species, and other differences in their respective descriptions. These include: dark vittae on the pronotum and elytra, light/dark pattern and markings on the elytra (Fig. 6e), and the opalescent tinge in the type of *L. gundlachi*. This last character has been observed in a few fresh specimens of *L. gundlachi*, but it tends to fade eventually.

Key to the Species of *Leptostylopsis* in Puerto Rico

- 1 Gena distinctly shorter than lower eye lobe. Proportion of prosternal process to coxal cavity less than 3:5. ----- 5
- 1' Gena taller or subequal to lower eye lobe. Proportion of prosternal process to coxal cavity greater than 3:5. ----- 2
- 2 (1) Pronotal disk with a median, narrow, dark line extending from base to apex. -----
----- *argentatus* (Duval)
- 2' Pronotal disk different. ----- 3

- 3 (2) Antennae more than twice as long as body in male, over 1 1/2 times as long in female. Pronotum with lateral tubercle terminating in a short acute tooth; disk with a broad, darker area medially (subobsolete in some specimens). -----
----- *longicornis* (Fisher)
- 3' Antennal length proportionally shorter. Pronotum different. ----- 4
- 4 (3) Gena distinctly taller than lower eye lobe. Proportional length of elytra to pronotum 4:1. Punctures in elytral scutellar area distinct. ----- *antillarum* (Fisher)
- 4' Gena at least feebly shorter than lower eye lobe. Proportional length of elytra to pronotum distinctly less than 4:1. Pubescence hiding punctures in elytral scutellar area. ----- *guanica* n. sp.
- 5 (1) Proportion of elytral length to pronotal length at most 4 : 1. Pronotum with lateral tubercle broadly rounded; discal anterior tubercles broad at base and rounded apically. ----- *gundlachi* (Fisher)
- 5' Proportion of elytral length to pronotal length distinctly greater than 4:1. Pronotum with lateral tubercle better developed, narrower at base; discal anterior tubercles narrower at base and distinctly, obliquely compressed apically. ----- 6
- 6 (5) Elytral pubescent pattern distinct, including a neat pattern of pale lines on crest of costae at apical fourth. Width across pronotal lateral tubercle 1 3/4 times the length of pronotum. ----- *monin* n sp.
- 6' Elytral pubescent pattern indistinct, blurred; neat, pale lines at apical fourth obsolete but, usually, with a sinuous, whitish line across elytra postmedially.

Width across pronotal lateral tubercle $1 \frac{2}{3}$ times the length of pronotum. -----

----- *yukiyu* n. sp.

Genus *Urgleptes* Dillon

***Urgleptes borikensis* Micheli and Micheli, NEW SPECIES**

Figs. 5, 7

Types. Holotype, male, PUERTO RICO, Guilarte Forest, 4-VIII-1979, J. Micheli, coll., beating dead branches. Paratypes, 63: 2 males, 5 females, same data as holotype; 1 male, 2 females, same data except, 19-VI-1979; 2 males, 1 females, same data except, 25-VI-1979; 1 female, same data except, 11-I-1980; 2 males, 2 females, same data except, 23-VII-1979, N. & J. Micheli, coll.; 1 male, 2 females, data as previous except, 12-X-1979; 2 females, same data except, 17-VI-1982; 1 male, PUERTO RICO, Maricao For., Rd. 120, Km 13.8, 17-XI-1979, J. Micheli, coll., beating foliage; 1 male, same data except, 1-XII-1979, N. Micheli, coll.; 7 (unsexed), same data except, 26-IV-1980, N. & J. Micheli, coll.; 13 (unsexed), same data except, 3-V-1980, J. Micheli, coll.; 7 (unsexed), same data except, 10-V-1980; 4 (unsexed), same data except, 15-VI-1982; 1 (unsexed), PUERTO RICO, El Yunque Sta., Luquillo Forest, VII 2-5, 1969, H. & A. Howden; 4 (unsexed), PUERTO RICO, Guilarte For. Res., Hwy. 131 & 158, July 23, 1979, C. W.

O'Brien; 1 female, PUERTO RICO, Carib. N. F., El Yunque, Hwy. (191), K8 H7, 7-29-79, O'Briens & Marshall; 1 female, PUERTO RICO, Carib. N. F., El Toro Negro, Hwy. 143, K16 H4, 7-21-1979, L. B. O'Brien.

Diagnosis. Small, elongate-ovate, subdepressed. Integument mostly dark brown or blackish on head, antennae, pronotum, and ventral surfaces; pale yellowish on palpi, pro- and mesocoxae, profemora, and mesofemora, except at apex; metafemora pale except for one large, dark macula on outer side and an elongate one which extends to apex on the inner side. Pubescence fine, moderately long, appressed, moderately sparse, denser on elytra, silky, pale gray. Pronotum with a moderately small, round, feeble, spot of pale pubescence located before middle on each side of disk. Scutellum dark. Elytra with a large, irregular, subtriangular, blackish area around scutellum, and each elytron decorated with pale pubescent areas as follows: (1) a small subobsolete spot on humeral angle, (2) a short line along suture, postbasally, (3) an oblique line posthumeraly, (4) a small, subobsolete, elongate patch discolaterally at about basal fourth, (5) an elongate, ovate patch near middle at basal fourth, (6) an oblique, irregular, sinuous line directed forward from suture at middle to sides at about basal third, (7) two small, irregular patches along suture at apical fourth, (8) a small, sinuous, irregular line on side between middle and apical fourth and, (9) two small irregular patches before elytral apices.

This species is unique within the genus by the following combination of characters: Eyes separated above by half the breadth of upper eye lobes; elytral apices internally, obliquely subtruncate; integument mostly dark including head and pronotum;

antennae dark brown with scape darker; and by the particular light/dark patterns on the metafemora and elytra mentioned above.

Description. *Male.* Length 3.4 mm; width 1.3 mm. Width measured across humeri.

Head. Epistoma very short, arcuate; front slightly convex, quadrate, with a narrow, longitudinal, median groove extending from epistoma to occiput, surface slightly depressed between antennal tubercles; tubercles moderately elevated and widely divergent; surface finely, densely punctured; eyes deeply emarginate, coarsely faceted; lower eye lobes widest above, about as tall as broad, slightly more than twice as tall as genae; upper eye lobes separated from each other by about half the breadth of lobe. Antennae over three times as long as body; segment 5 partly extending beyond elytral apices; segments elongate, subcylindrical, scape six times as long as broad, reaching pronotal base at lateral spine; third segment $1 \frac{1}{5}$ times as long as scape, feebly arcuate; fourth segment shorter than third; 5 and 6 progressively shorter; 7 slightly longer than 6 and subequal to scape; 7–10 progressively slightly longer; 11 feebly shorter than 10; all segments sparsely clothed with short, appressed pubescence and short, suberect pale hairs intermixed. *Pronotum.* About $1 \frac{4}{5}$ times as broad as long, measured across lateral tubercles at tip of spine, slightly broader at base than at apex; sides shortly, roundly expanded at apex, thence almost straight to apical third, from there broadly arcuately divergent to the tip of lateral tubercle, strongly constricted to base thereafter; tubercular spine acute, moderately long, directed obliquely backwards; disk even, with a small elevation medially before basal sulcus; sulcus with a single line of moderately coarse punctures; surface densely, finely punctured. Scutellum dark, broadly subtriangular,

evenly rounded apically. *Elytra*. About $1 \frac{4}{5}$ times as long as basal width and 4 times the length of pronotum at middle, widest post-humerally; at base, wider than greatest pronotal width; humeri moderate; sides almost straight and feebly convergent to middle, thereafter broadly, evenly rounded to apices, which are separately, obliquely subtruncate internally; disk with scutellar region tumid, broadly, slightly depressed before middle; surface deeply, coarsely, densely punctured basally, punctures larger than those on pronotal basal sulcus, punctures becoming slightly sparser and smaller from middle to apices, punctures partly obscured in areas of pale pubescence. *Venter*. Prosternal process about $\frac{1}{10}$ as wide as a procoxal cavity. Mesosternal process about $\frac{1}{5}$ width of a mesocoxal cavity. Abdomen with apical sternite slightly longer than fourth, apex broadly, shallowly emarginate-truncate. Surface on thoracic and abdominal sterna very finely punctured; pubescence fine, not obscuring surface. *Legs*. Moderately long; femora pedunculate-clavate, with pubescence sparse, fine; first metatarsal segment longer than next two together.

Female. Differs from the male as follows: pronotum slightly smaller in proportion to elytra, femora narrower, prosternal process $\frac{1}{5}$ as broad as a procoxal cavity, apical abdominal sternite slightly longer, slightly acuminate, apically rounded.

Variation. Paratypes vary in body length from 2.7 to 4.5 mm. There is considerable variation in color and elytral light/dark pattern as follows: scape color is fairly constant throughout the series but the remaining antennal segments are slightly paler in some specimens; elytral scutellar area is constant in degree of darkness, but the elytral light/dark pattern is widely variable throughout the series. Some of these variations are

illustrated in Fig. 7. One specimen is unusually pale and lacks most of the dark areas of the elytral pattern.

Type material. Paratypes in the following collections: USNM, 3; EMEC, 3; WIBF 3; FTHC, 3; remainder in JAMC.

Etymology. The species is named after “Boriken”, ancient voice of the aboriginal, native Taíno people and original name for the island of Puerto Rico.

Discussion. This species, along with *Urgleptes sandersoni* Gilmour, is quite common in humid, mountain forests areas in Puerto Rico. *Urgleptes puertoricensis* Gilmour, which appears to be much less common than *U. sandersoni* in Puerto Rico, is rare in those areas and seems to prefer a dryer environment, usually along the coasts. *Urgleptes guadeloupensis* (Fleutiaux & Salle), which has been listed from Puerto Rico for many years, and which Wolcott (1948) listed as a *Lepturges*, has never been collected by the authors or seen in any other collection of Puerto Rican specimens.

Key to the Species of *Urgleptes* in Puerto Rico

- 1 Integument mostly pale. Elytral apices rounded. -----
 ----- *guadeloupensis* Fleautiaux & Salle
- 1' Integument either pale or dark. Elytral apices obliquely subtruncate -----2

- 2 (1) Separation of eyes above distinctly less than breadth of upper eye lobe.
Integument always mostly dark. Scape dark. ----- *borikensis* n. sp.
- 2' Separation of eyes above subequal or greater than breadth of upper eye lobe.
Integument mostly, either pale or dark. ----- 3
- 3 (2) Elytral length less than twice postbasal width. Integument mostly pale. Scape
infuscated around middle and at apex. ----- *sandersoni* Gilmour
- 3' Elytral length slightly more than twice postbasal width. Integument mostly, either
pale or dark. Scape infuscated from middle to apex. -----
----- *puertoricensis* Gilmour

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We are indebted to Henry and Anne Howden for allowing us to examine their collection of Puerto Rican cerambycids. Our thanks to Charles W. O'Brien for his gift of so many important specimens. We also thank Steven W. Lingafelter for reading the manuscript and providing much valuable insight and suggestions.

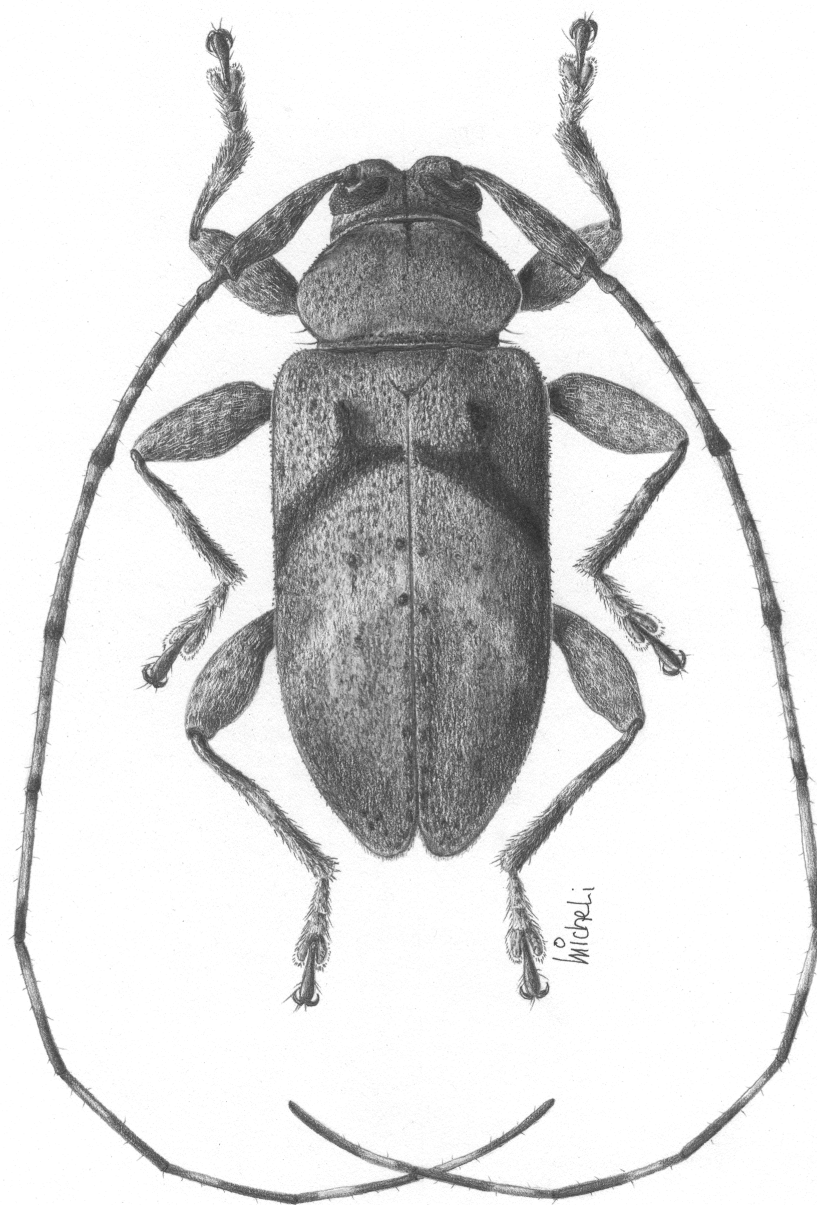


Figure 1. Habitus view of *Antilleptostylus guilartensis* Micheli and Micheli, male. Actual length 4.4 mm.

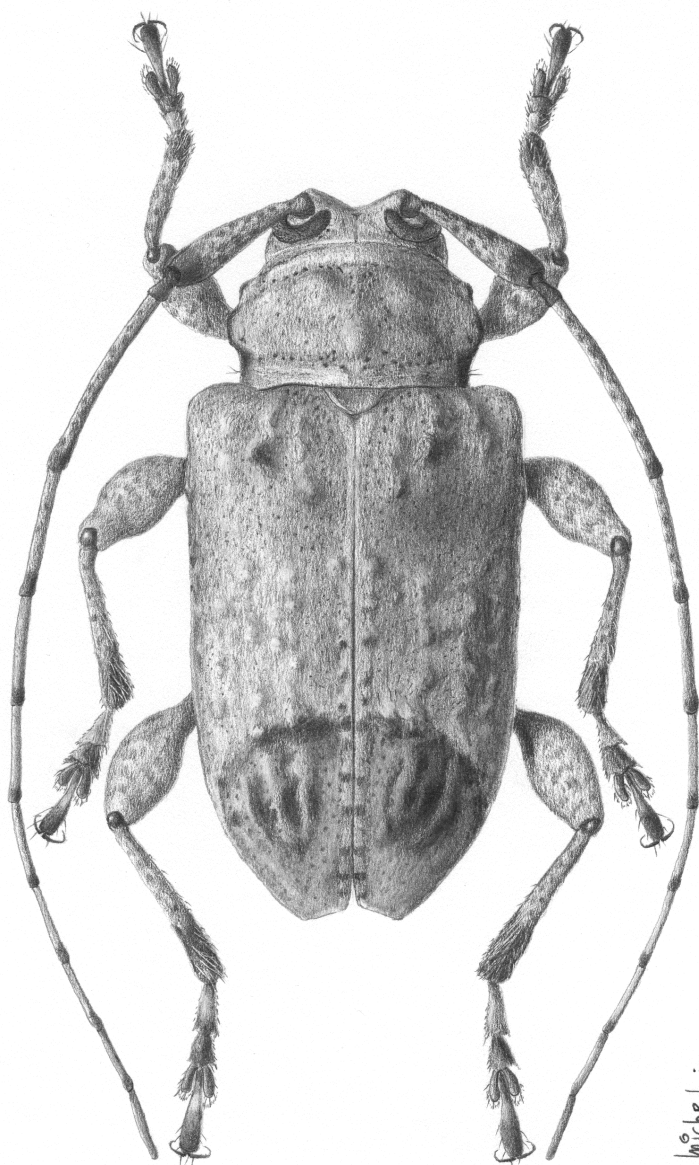


Figure 2. Habitus view of *Leptostylopsis guanica* Micheli and Micheli, male. Actual length 7.8 mm.

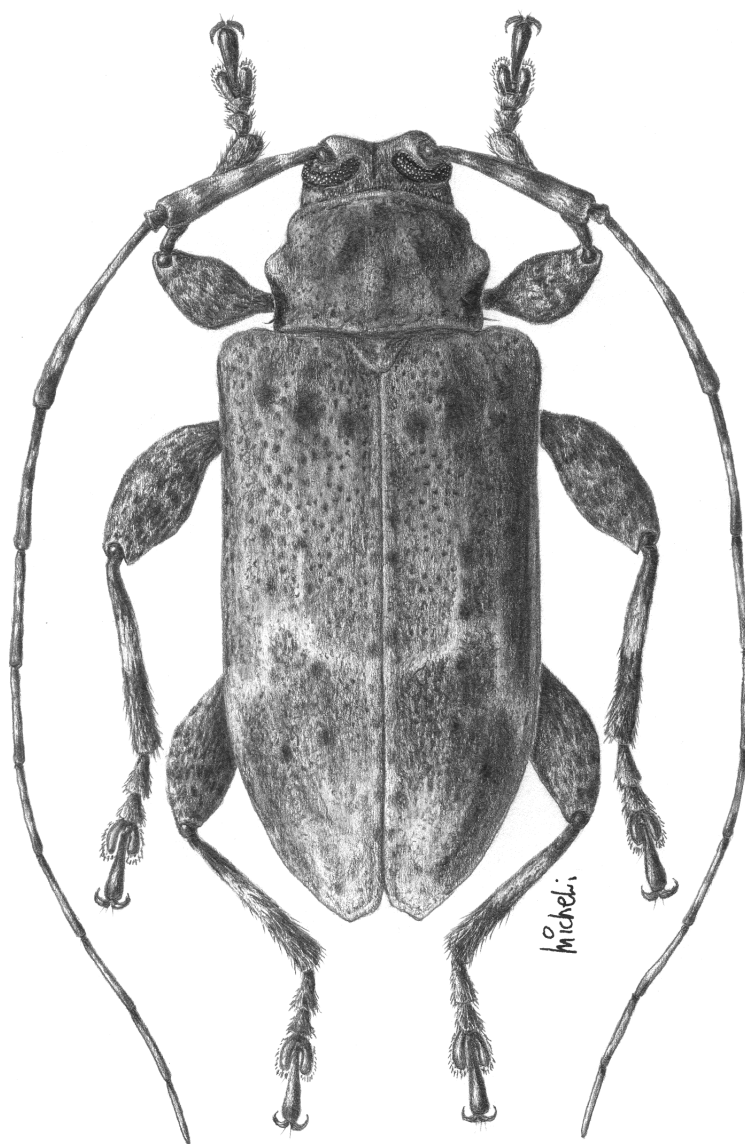


Figure 3. Habitus view of *Leptostylopsis yukiya* Micheli and Micheli, male. Actual length 6.2 mm.

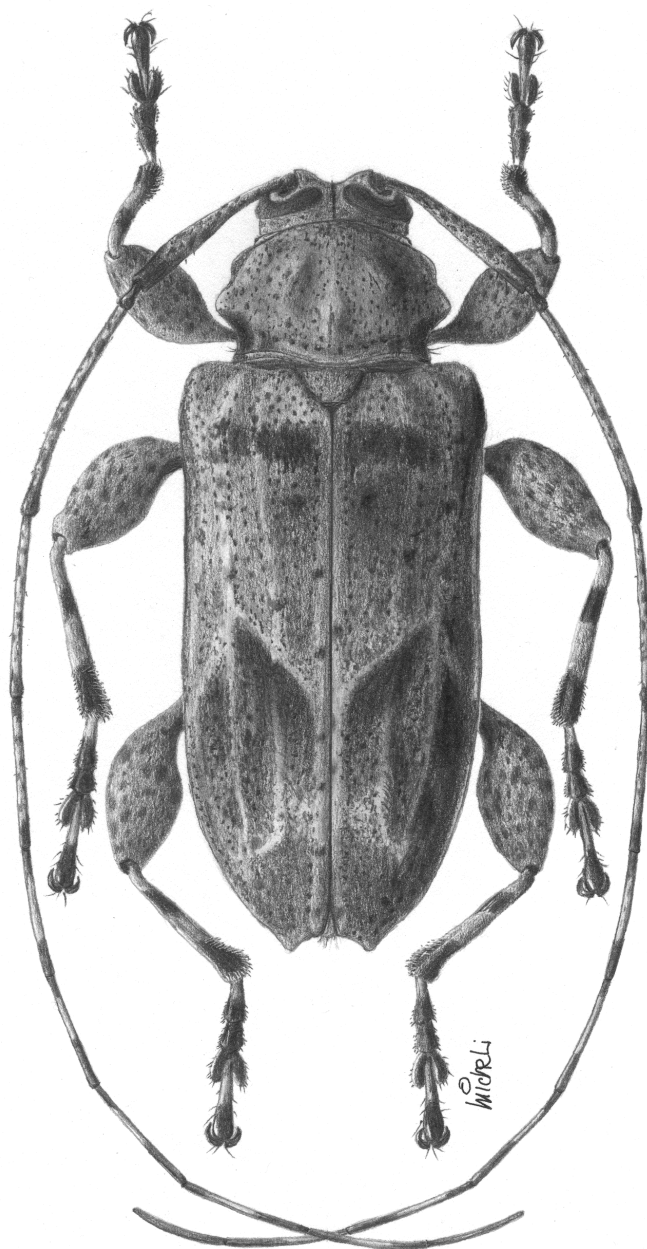


Figure 4. Habitus view of *Leptostylopsis monin* Micheli and Micheli, male. Actual length 7.8 mm.

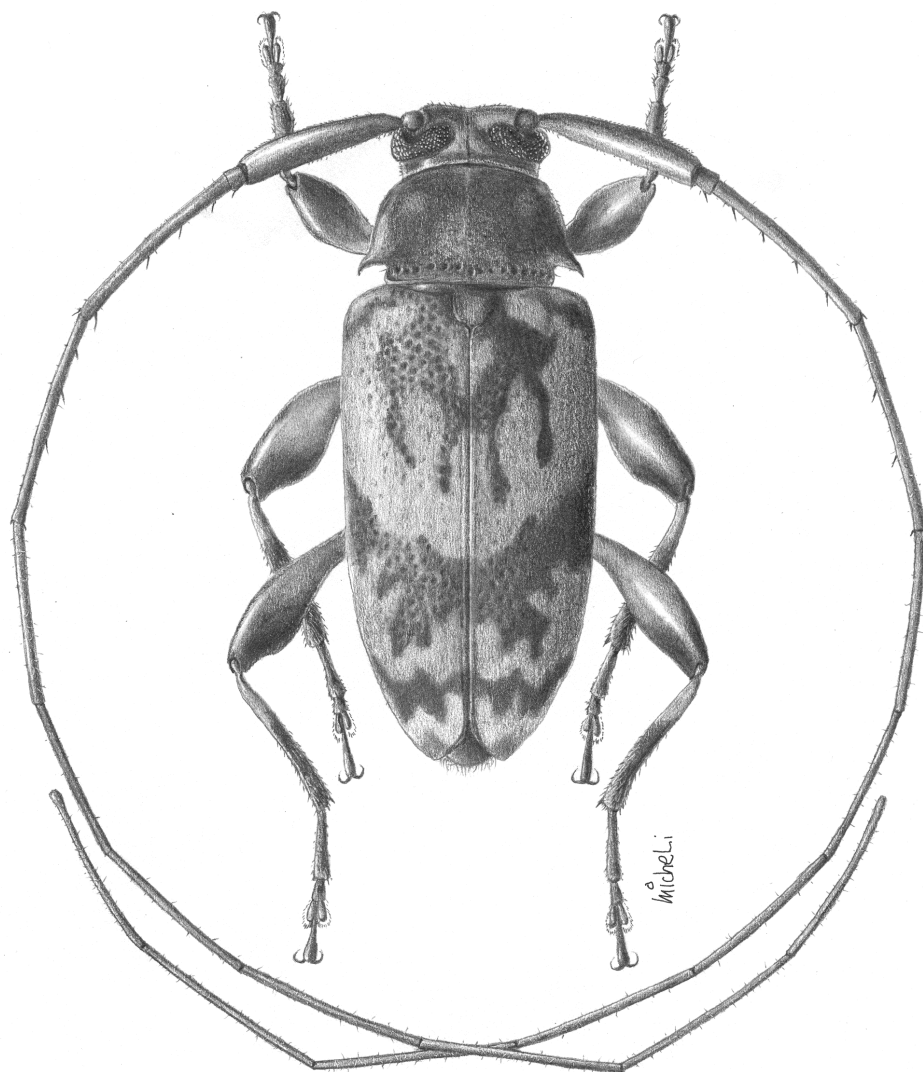


Figure 5. Habitus view of *Urgleptes borikensis* Micheli and Micheli, male. Actual length 3.4 mm.

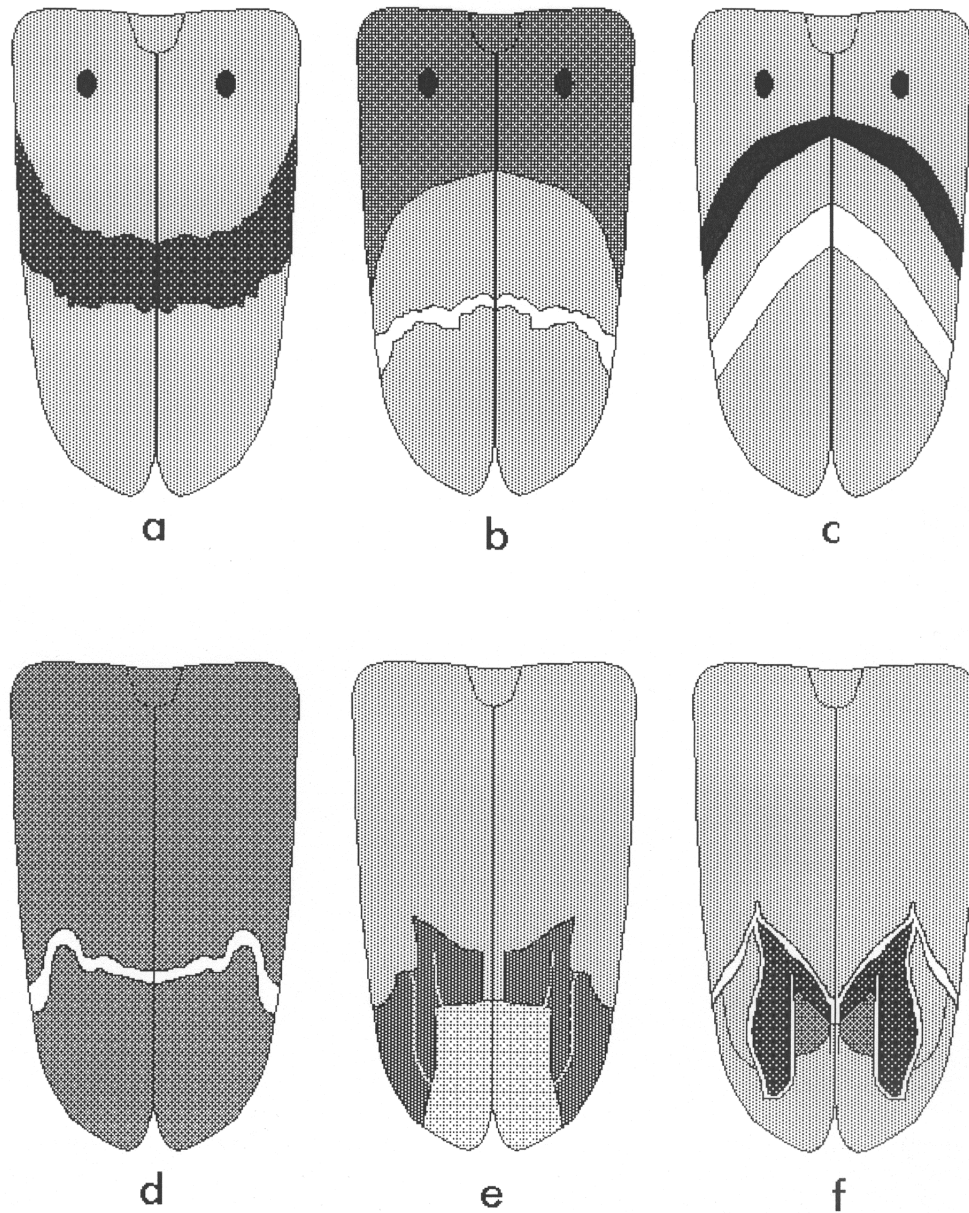


Figure 6. Simplified eytral color patterns, (a) *Antilleptostylus brunneofasciatus* (Fisher), (b) *Antilleptostylus nigricans* (Fisher), (c) *Antilleptostylus guilartensis* Micheli and Micheli, (d) *Leptostylopsis yukiya* Micheli and Micheli, (e) *Leptostylopsis gundlachi* (Fisher), (f) *Leptostylopsis monin* Micheli and Micheli.

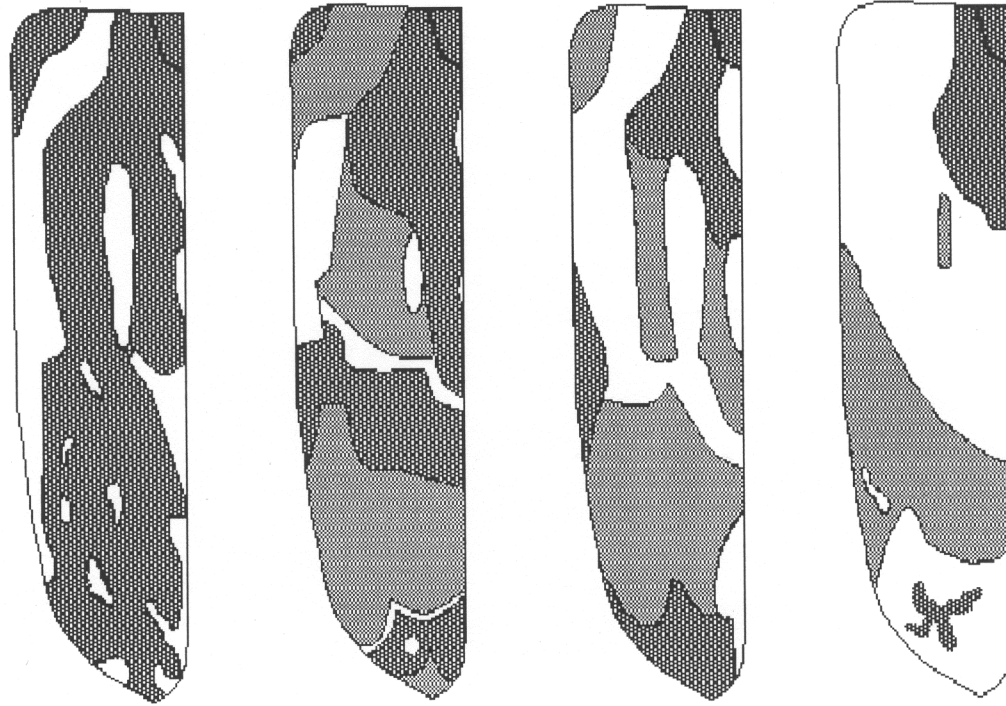


Figure 7. Four simplified typical elytral color pattern variations in *Urgleptes borikensis* Micheli and Micheli.

CHAPTER V

NEW SPECIES OF CERAMBYCIDAE (COLEOPTERA) FROM
PUERTO RICO WITH RECORDS AND NOTES FOR OTHER SPECIES*

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ABSTRACT

An intensive survey for Cerambycidae of El Yunque National Forest and many of the state forests in Puerto Rico showed 49 species representing over half of the hitherto reported species from the Island. Two tribes and four genera are recorded from Puerto Rico for the first time. The description of a new genus, *Pseudothonalmus* Guerrero, is included. Four new species are described: *Elateropsis julio* Lingafelter and Micheli, *Pseudothonalmus woodleyi* Lingafelter, Micheli, and Guerrero, *Styloleptus taino* Lingafelter and Micheli, and *Distenia puertoricensis* Lingafelter and Micheli. The larva of *Parandra tavakiliani* is described. Locality data and method of collection are provided for all encountered Cerambycidae.

Resumen. Una expedición para coleccionar Cerambycidae en el Bosque Nacional El Yunque y varios otros bosques estatales de Puerto Rico encontró 49 especies lo cual representan más de la mitad de las especies reportadas para la Isla. Dos tribus y cuatro géneros son reportados por primera vez para Puerto Rico. Se describen un nuevo género, *Pseudothonalmus* Guerrero, y cuatro especies: *Elateropsis julio* Lingafelter and Micheli, *Pseudothonalmus woodleyi* Lingafelter, Micheli, and Guerrero, *Styloleptus taino* Lingafelter and Micheli y *Distenia puertoricensis* Lingafelter and Micheli. La larva de *Parandra tavakiliani* se describe. Datos de localidad y método de colección se proveen para todos los Cerambycidae encontrados.

INTRODUCTION

There have been few studies of Puerto Rican longhorned woodboring beetles and never an intensive survey throughout the island specifically for Cerambycidae. Several general faunal lists that include the cerambycids of Puerto Rico have been published, including Stahl (1882), Gundlach (1894), Wolcott (1924, 1936, 1948), Blackwelder (1946), and Ramos (1946). Warren Fisher was the most prolific describer of cerambycids from Puerto Rico (and elsewhere in the Caribbean), publishing numerous papers from the 1920's through 1940's (Fisher 1925, 1926, 1932, 1935, 1942, 1947). Other researchers who have described or treated the cerambycid fauna of Puerto Rico include Leng and Mutchler (1914), Dillon and Dillon (1946), Gilmour (1963), Tyson (1973), J. Micheli (1978, 2003 with Hovore), Chemsak (1979), and Ivie (1985a,b, in prep. with Schwengel-Regala). Other important references relating to Caribbean cerambycid taxa include Zayas (1957, 1975) and Cazier and Lacey (1952).

Two expeditions were made by the authors to Puerto Rico in June-July, 2002, and June, 2003. Although much of the island has lost its virgin habitat due to agriculture and development, there are many state forests as well as a national forest (El Yunque) that are protected and contain relatively rich fauna and flora. We maximized coverage of ecological zones and chose 12 forests (Fig. 1) in which to survey for Cerambycidae. These include (with ecological descriptions of L. R. Holdridge from a map prepared by Ewel and Whitmore, 1973): Cambalache, Guajataca, Laguna Tortuguero, and Susúa (subtropical moist forests), Río Abajo and Maricao (subtropical and lower montane wet

forests), Toro Negro (lower montane wet forest), Cabo Rojo, Guánica, Ponce, and Aguirre (subtropical dry forests), and El Yunque Caribbean National Forest (subtropical lower montane rainforest). Collecting methods included beating of vegetation, examination of lights at night, and sugar-bait trapping.

The following acronyms are used throughout the paper: National Museum of Natural History, Washington, DC (USNM); Julio and Charyn Micheli private collection, Ponce, PR (JAMC); West Indian Beetle Fauna Project, Michael Ivie, Montana State University, Bozeman, MT (WIBF); Roy Morris private collection, Lakeland, FL (RMPC); Robert Turnbow private collection, Ft. Rucker, AL (RTPC); and Dan Heffern private collection (DHPC).

RESULTS

Forty-nine species of Cerambycidae were collected (Table 1) which together represent over half of the previously recorded species from Puerto Rico. We report the first records for Puerto Rico of two tribes (Heteropsini and Callichromatini) and four genera (*Elateropsis*, *Plinthocoelium*, *Styloleptus*, and *Pseudothoalmus*, new genus). Four new species were discovered and descriptions of them and the larva of *Parandra tavakiliani* are presented. These new species are: *Elateropsis julio* Lingafelter and Micheli (Prioninae: Solenopterini), *Pseudothoalmus woodleyi* Lingafelter, Micheli, and

Guerrero (Cerambycinae: Heteropsini), *Styloleptus taino* Lingafelter and Micheli (Lamiinae: Acanthocinini), and *Distenia puertoricensis* Lingafelter and Micheli (Disteniinae: Disteniini). A complete list of the 49 species encountered (arranged alphabetically within each subfamily) and their localities and methods of collection follows the species descriptions. This information is provided to be available for a book on Cerambycidae of Puerto Rico that is being prepared by Julio Micheli.

***Elateropsis julio* Lingafelter and Micheli, NEW SPECIES**

Figs. 2a,b; 3a–f

Description (based on unique female specimen). Medium, 17.5 mm long; integument mostly black, except for elytra, legs beyond basal one-half of femur, palpi, and ventrites which are ferrugineous. *Head* (Fig. 3a) with v-shaped interantennal and vertex notch; finely punctate; with sparse pale hairs, most numerous along posterior eye margin. Antennal tubercles not pronounced. Antennae glabrous, reaching middle of elytron. Antennomeres flattened, poriferous sensory areas present mesad (Fig. 3c) and laterad on all antennomeres but not on central portions. Poriferous areas oval in shape, not striolate. Last antennomere 1.25 times length of penultimate antennomere. Antennomeres gradually decreasing in length to antennomere 10, antennomeres 9–11 noticeably narrower than 6–8. *Pronotum* (Fig. 3b) about 1.3 times as wide as long, surface without

raised calli or indentations; rather flat on disk. A poorly delineated longitudinal line present at posterior middle. Pronotum broadly rounded and widened at sides; a blunt, posteriorly directed projection at margin just posterior to middle, then an arcuate indentation to posterolateral margin. Pronotum not conspicuously pubescent except at lateral and posterior margins where a dense, white coating of hairs is present. Otherwise sparse, inconspicuous, translucent hairs present on disk. Pronotal disk with numerous, shallow punctures, but these not confluent and mostly spaced from their neighbors by at least their radius. Apex of prosternal process strongly notched around mesosternum; sparsely pubescent and punctate. *Elytra* glabrous, gradually narrowing apically; divergent at suture (particularly at apical one-third). Punctuation dense, in part confluent, but punctures not deep and surface not reticulate, rough or uneven. Elytral apex (Fig. 3e) rounded and unevenly dentate with seven denticles. *Scutellum* (Fig. 3f) shaped as a broad, equilateral triangle, posterior not narrowed and elongate; mostly smooth without punctuation or pubescence. *Legs* short, hind femur extending to about apical one-third of elytron. Metafemur with 2–3 denticles ventrally between middle and apex. *Venter* (Fig. 2b) mostly glabrous or indistinctly pubescent with translucent hairs except for mesepisternum, metepisternum (primarily posterior one-third), most of metasternum, and first and second ventrites which have dense, white pubescence as on margins of pronotum. Last ventrite of female (Fig. 3d) with small medial notch.

Discussion. Based on the divergent elytral apices and lack of a sulcus or impression on the pronotum, this species is most similar to the variable *Elateropsis fulvipes* (Chevrolat) and would key near that species in Galileo and Martins (1994). Most commonly black

with dense, white pubescence on the lateral and posterior margins of the pronotum and on each elytron, *E. fulvipes* can vary by having only the head and pronotum black while having the legs, antennae and elytra entirely ferrugineous, or by being entirely black, without any dense, white pubescence dorsally. The new species, *E. julio*, differs in having uniformly ferrugineous elytra, bicolored legs (black at basal one half, ferrugineous in remainder), black head, pronotum, antennae, and venter, and elytron without dense, white pubescence. *Elateropsis julio* has a distinctively short, equilateral triangle shaped scutellum that is mostly smooth, without punctation. Only *E. felleræ* (Chemsak), which is superficially similar to *E. julio* in the coloration of body and appendages, has a similarly shaped scutellum. Comparing the holotype of *E. felleræ* with the holotype of *E. julio* (both female), *E. felleræ* differs in having the scutellum obviously punctate, in having deeper punctures on the elytron, and in having many more poriferous areas on the antennae, including the center of the terminal four antennomeres (in *E. julio*, the antennal poriferous areas are restricted to oval regions on the mesal and laterad areas of each antennomere).

The single known specimen was collected during day after it alighted on a small *Croton* sp. (< 2 m tall) that was covered by a leafy vine. This species is quite rare and consequent attempts to collect more specimens have proven fruitless.

Etymology. This species epithet is a noun in apposition named for Julio Micheli with our admiration for his contributions to art and coleopterology.

Types. Holotype, female, PUERTO RICO, Municipio de Ponce, Tuque, elevation 70-80 m, 17°58'42"N, 66°40'21"W, 20 June 2002, S. W. Lingafelter & N. E. Woodley (USNM).

***Pseudothonalmus* Guerrero, NEW GENUS**

Figs. 2c,d; 4a–k

Type species. *Pseudothonalmus woodleyi* Lingafelter, Micheli, and Guerrero, new species.

Other included species: *Pseudothonalmus divisus* (Chevrolat, 1858: 210), **new combination** (formerly *Trichrous*)

Pseudothonalmus terminalis (White 1853: 123), **new combination** (formerly *Trichrous*)

Pseudothonalmus major (Gahan 1895: 117), **new combination** (formerly *Trichrous*)

Diagnosis. The variably costate elytra, coarse punctation on head, pronotum, and elytra, curved, acute, offset apicolateral spine of the elytron, deeply sinuate epipleural margin, relatively long third antennomere, mesal antennal spines, coarsely-faceted eyes, erect elytral setae and absence of elytral eburneous calli distinguish this genus.

Description. Small, 7.5–9.0 mm. *Head* frons, vertex, occiput coarsely, confluent punctured, becoming denser at posterior margin. Impunctate region on vertex between upper eye lobes very narrow (Fig. 4c). *Antenna* 11-segmented. Antennal tubercles short, not extending above plane of upper eye lobe (Fig. 4e). Mesal spines on antennomeres 3–6 or 7 (7th spine may be minute) (Fig. 4i) (females unknown, may

differ). Antennomeres subequal in length except fourth antennomere which is distinctly shortest of all and last antennomere which is approximately 1.25 times length of others. Antennomeres slightly flattened and produced apicolaterally. *Eye* large, protruding from sides of head (Fig. 4c). Ratio of width of head between eyes at widest point versus width at postoccipital region (behind upper eye lobes) is 1.4. Lower eye lobes extending anteriorly to plane of frontoclypeal margin. Eyes finely faceted, with upper eye lobes of 8–9 rows of facets. *Labium* with palpus 4-segmented (basal-most segment indistinct). *Maxilla* with palpus 5-segmented (first palpomere [palpifer] minute and barely protruding above plane of lacineal base). Well-defined digitiform sensillum patch on outer (lateral) region of apical palpomere extending from just distal to base to apical one-third. *Mandible* broadly triangular, cutting surface weakly excavated with one or two teeth. *Gula* approximately one-fourth to one-fifth width of head at occipital region. *Pronotum* (Fig. 4a) coarsely and confluent punctured, each puncture bearing a single, short seta. No calli, lateral swellings, or spines present. *Prosternal intercoxal process* about one-fourth width of procoxa; apex weakly expanded. Each coxa open posteriorly by approximate width of procoxal process. *Mesonotum* with lateral margin containing patches of regularly distributed setae and a medial, rounded articulation. Stridulatory region of mesonotum ill-defined, striae not visible. *Scutellum* triangular, elongate, narrowly rounded posteriorly; very sparsely pubescent; distinctly delineated from remainder of mesonotum; weakly constricted anteriorly. *Mesepimeron* not contacting mesocoxa, therefore mesocoxal cavities closed laterally by contact of mesosternum and metepisternum. *Mesepisternum* with distinct carina on dorsal and anterior margin.

Mesosternum (Fig. 4b) with anterior margin delineated with narrow, arcuate, pigmented sclerotization with narrow, acute, V-shaped indentation at middle. *Mesosternal intercoxal process* slightly narrower than coxa; without lateral projection into coxa. *Metasternum* densely pubescent (Fig. 2d), finely punctate with subacute notch for reception of first ventrite process; broadly articulating with mesosternal process. *Metasternal notch* attaining apex of metatrochanter plane. *Metepisternum* (Fig. 4d) with distinct transverse carina with stronger sclerotization on ventral half. *Elytron* densely, completely covered with mostly uniform-sized punctures; costae weak to moderate. Apex with outer apical spine present, otherwise rounded to suture (Fig. 4j). elytral pubescence uniformly distributed, but varies in density and color (translucent, amber, or black) among species. *Hind wing* with derived venation typical for Trachyderoinea, MP4+CuA1+2 absent (Fig. 4g). *Legs* with profemur and mesofemur weakly enlarged near middle; metafemur linear. Apices around tibial insertion acute, but not spinose or dentiform. Tibiae linear, without carinae. Two well-developed spurs apically on all tibiae. Tarsal claws simple, divaricate. Fifth tarsomere about twice as long as third on all legs. *Abdomen* with apex of male terminal ventrite broadly rounded, without depression or indentation at apex (Fig. 4f). *Male genitalia* (based on *P. woodleyi*) with median lobe weakly curved; parameres short, with apices densely setose and narrowly separated. Internal sac transparent, membranous, with band of microspicules at middle extending one-fifth of overall length (Fig. 4h). Eighth sternite deeply cleft and much broader at apex than apex of last ventrite or tergite 8 (Fig. 4f). *Female genitalia* (females unknown).

Etymology. Based on the superficial similarity of the included species to members of the genus *Thonalmus* Bourgeois (Lycidae).

Discussion. Kelvin Guerrero is working on other papers involving the description and transfer of various species of West Indian Heteropsini (Guerrero 2001, in prep [with M. Ivie]). He has kindly consulted with us regarding the following new species and written the description of *Pseudothonalmus*, new genus, for inclusion in our paper and into which he recommends placement of the new species and three others formerly included in *Trichrous*. This genus belongs in the Heteropsini, but the presence of the ventral metepisternal sclerotization combined with mesal antennal spines and lack of eburneous calli on the elytra are characters not present in *Heterops* and justify proposing a new genus.

***Pseudothonalmus woodleyi* Lingafelter, Micheli, and Guerrero, NEW SPECIES**

Figs. 2c,d; 4a–k

Description. Small, 7.5–9.0 mm long; integument variably colored from pale orange to piceous in regions. *Head* mostly pale orange to partially piceous; glabrous and coarsely, densely punctate. Interantennal impression weak; antennal tubercles not pronounced. Antennae piceous, coated with short, translucent to amber pubescence; surpassing elytron by about 1–2 antennomeres. Antennomere four noticeably shorter than adjacent

antennomeres. Antennomeres 3–7 having apical-mesad spines (Fig. 4i). *Pronotum* (Fig. 4a) darker orange than surrounding integument; some specimens with black at sides; about as wide as long, weakly, broadly rounded at sides, with inconspicuous, pale, suberect hairs, more abundant at sides. Pronotum completely punctate, somewhat intermediate condition of alveolate and areolate pattern. *Scutellum* pale orange to dark, narrowly rounded posteriorly and with very inconspicuous, translucent pubescence. *Venter* punctation of prothorax sparse. Prosternal process between procoxae about one-half width of procoxa; apex weakly expanded, procoxa open posteriorly by about one-half width of apex of prosternal process. Venter of mesothorax, metathorax, and abdomen variably colored from pale orange to piceous. *Elytron* mostly parallel-sided but slightly constricted at middle. Posterior one-half or more dark, weakly iridescent purple; purple macula extending on side to anterior margin in one specimen (Fig. 4k); otherwise orange. Pubescence translucent, regularly, densely distributed and erect (but short), though weakly posteriorly directed. Punctation coarse, confluent, regularly distributed. Base of elytron sinuate with parascutellar area and humeral area raised and a lower channel present between them extending posteriorly about one-third length of elytron. Outer elytral apex with small spine and apex as in Fig. 4j. *Legs* moderate in length, hind femur extending to about apex of elytron. Tibiae dark brown to black; apex of femora dark brown to black; most tarsomeres bicolored with at least apical one-half dark brown to black and basal half pale orange. *Genitalia* (see generic description).

Discussion. This species is very similar to *Pseudothonalmus divisus* (Chevrolat) in overall coloration, the apically spined elytron, and the punctation of the pronotum. It

differs in having nearly the entire femur pale except for the apex (all black except the base in *P. divisus*) and in having the pubescence of the body denser, shorter, and translucent or amber colored (sparser, longer, and black, or a mixture of black and translucent in *P. divisus*).

Etymology. This species epithet is a genitive latinized noun named for our good friend and colleague, Norman Woodley, who collected the holotype. Kelvin Guerrero, the third author of this species, independently discovered the second known specimen in the USNM collection and the joint authorship reflects this mutual discovery.

Types. Holotype, male, PUERTO RICO, Maricao State Forest, Road 120 at km 13.2 (across from rec. cabins), 18°09'52"N, 66°54'14"W, 800m, 14 June 2002, N. E. Woodley (USNM). Collected in daytime flight. Paratypes: 1 male, PUERTO RICO, Mayagüez, 10 April 1955, P. Rodríguez, coll., at light (USNM, specimen disarticulated and preserved in alcohol); 1 male, PUERTO RICO, Caribbean National Forest, El Verde Field Station, 26 May 1994, Robert Turnbow (RTPC).

Styloleptus taino Lingafelter and Micheli, new species

Figs. 2e,f

Description (based on unique male specimen). Small, 7 mm long; integument mostly shining, reddish brown, except tarsi, gena, postgena, and areas of the femora, which are dark brown; pubescence dense, short, recumbent, off-white to pale brown, with black

spots and a longitudinal median black line from anterior of pronotum to apical third of elytra. *Head* with a deep v-shaped depression between the antennal tubercles, which are developed and divergent; impunctate; pubescence short, dense, appressed, off-white and pale brown giving a mottled appearance. Front subquadrate, almost flat, with a narrow, median line from epistoma to occiput. Eyes deeply emarginate, with upper eye lobes separated from each other by 1.5 times width of lobe. Antenna of male almost twice length of body (Fig. 2e,f). Antennomeres subcylindrical; gradually decreasing in length to segment 6; 6–11 subequal in length. Scape moderately robust, flattened ventrally at base, shorter than antennomere 3, subequal to 4. Antennomeres annulated with dark brown at base and apex, the width of annulations increasing apically, and with off-white pubescence, the first four mottled with dark brown. *Pronotum* about 1.5 times as wide than long, broadest at posterior third, without any distinct tubercles on disk; with sides inflated into a very broad tubercle which is constricted posteriorly. Pronotal disk finely punctate, with row of coarser punctation at posterior and anterior transverse indentations. Pronotum with dense, recumbent, off-white and pale brown pubescence, with distinct median black longitudinal line and two inconspicuous maculae beside it. Pronotal lateral inflation with two black setae on base of each tubercle. *Elytra* slightly less than 1.5 times as long than wide, slightly broader than pronotum and 3.5 times as long as pronotum. Sides nearly parallel, then arcuately convergent, with suture apically separated; apex of elytron obliquely subtruncate. Punctuation, where visible, coarse, punctures approximately separated by width of one puncture. Elytral surface uneven, with several costae, basal tubercles weakly developed. Elytra with off-white, dense, appressed

pubescence, with apical third a darker hue and anterior half of epipleura even darker; with black points along costae and black sutural stripe extending to apical third, then obliquely, interruptedly, reaching lateral margin at apical fifth. *Scutellum* small, nearly twice as broad as long, with rounded apex and covered with black, dense pubescence. *Legs* short, successively longer posteriorly. Femora robust, clavate, pedunculate, arcuate in middle and hind pair; metafemur not attaining fifth sternite. Integument reddish brown with some dark areas; pubescence mottled with off-white and brown. Tibiae slender, subcylindrical, with two dark incomplete bands laterad, one at middle and one at apex, the latter one much broader. *Venter* with recumbent, moderately dense, off-white pubescence; impunctate. Prosternal process 0.4 times as wide as procoxal cavity; mesosternal process about as wide as mesocoxal cavity. Fifth abdominal sternite in male broadly truncate, slightly longer than 4th and with a broad, shallow, middle indentation.

Discussion. This species differs from others in the genus in having a median black stripe in its dorsal pubescent pattern and in having the sides of the elytra parallel to the apical fifth. Comparing the type species, *Styloleptus biustus* (LeConte), with *S. taino*, *S. biustus* also differs in the narrower prosternal process (0.3 times width of procoxal cavity), in the larger distance between the upper eye lobes, and in having antennomeres 1–6 mottled (1–4 in *S. taino*). Some specimens of *S. infuscatus* (Fisher) and *S. variabilis* (Fisher) may have a sutural stripe, but in both it is less distinct and their pronota have acute lateral tubercles.

Etymology. This species epithet is a noun in apposition named for the native inhabitants of Puerto Rico, the Taino Indians.

Types. Holotype, male, PUERTO RICO, Aguirre State Forest off Rd. 7710, 17°59'N, 65°09'W, 2 July 2002, Steven W. Lingafelter (USNM).

***Distenia puertoricensis* Lingafelter and Micheli, NEW SPECIES**

Figs. 2g, 5a, b

Description. Moderate size, 9–12 mm long; width at humeri 2.0–2.5 mm; integument pale orange to light reddish brown; head, pronotum, antennae, apical half of femora, third tarsomeres, most of venter slightly darker; remainder somewhat paler; shining and mostly glabrous; base of elytra and margins of pronotum with a few long translucent hairs, best viewed from lateral perspective. *Head* with antennal tubercles weakly protruding and connected at middle of head in evenly concave ridge. Head mostly impunctate and glabrous with exception of a few fine punctures at extreme post-occiput and a few long hairs between upper eye lobes; head moderately constricted at region posterior to eye. Eyes large, coarsely faceted, with weak indentation around antennal insertion; eye lobe extends from the vertex to nearly the ventral margin of head when viewed laterally. Upper eye lobes separated by distance greater than middle pronotal callus width. Antenna of male (female unknown) slender, scape at apex is twice as wide as base, remaining antennomeres cylindrical, not enlarged apically; antennomeres 4–7 subequal in length; antennomeres 8–11 slightly shorter but subequal to one another, antennomere 11

not modified; antennomere 3 the longest and slightly longer than scape; antennomere 2 short, approximately as wide as long. Antennae covered with very fine, short translucent pubescence, slightly longer towards apex of antennomeres. *Pronotum* (Fig. 5b) with large middle callus surrounded by four peripheral calli and with two large lateral tubercles. Constrictions before anterior and posterior margins. The punctures are simple, mostly separate, not rugose around the middle callus and between the middle callus and the four peripheral discal calli; the lateral pronotal tubercle is broad at base but greatly constricted at apex into a narrow nipple-like projection. Pronotum glabrous except for a few long translucent setae at anterior and posterior margins. *Elytra* at base much broader than pronotum; coarsely, deeply punctate, mostly in rows continuing to just beyond middle and abruptly terminating; elytra beyond that point to apex without punctures. Apex bispinose with outer spine strong and sutural spine weaker, rarely dentiform. Elytra gradually narrowed to apex without constriction at middle. Elytra glabrous except for a few long, translucent hairs at base. *Scutellum* glabrous, impunctate, truncate and slightly narrower posteriorly. *Legs* pale except for darker patches from middle to apex of femora and tarsomeres 3–5. Femora weakly enlarged at middle. Legs short, metafemur extending to apical fourth of elytra. *Venter* mostly glabrous; impunctate except for metasternum, especially at side and along metepisternal margin which has scattered large, mostly separated, punctures of differing size, some of which bear a single seta. Prosternal process narrow, half as wide as base of femur, not expanded at apex; procoxal cavities open posteriorly by more than half the width of procoxa. Mesosternal process broad between coxae, over two-thirds as broad as

mesocoxa. Metasternal sulcus pronounced, attaining anterior third of metasternum. Abdominal sternites successively narrowing; ventrite 5 longer than wide.

Discussion. *Distenia puertoricensis* is very similar in appearance to *D. darlingtoni* (Fig. 5e), the only other known species of *Distenia* in the Caribbean, but *D. darlingtoni* has rugose punctures on pronotum around central callus and between central callus and four lateral discal calli (Fig. 5d). In *D. puertoricensis*, the punctures are simple, mostly separate, not rugose around the middle callus and between the middle callus and the four peripheral discal calli (Fig. 5b). In *D. darlingtoni*, the lateral pronotal tubercle is broad at base and broadly rounded at apex, not acute. In *D. puertoricensis*, the lateral pronotal tubercle is broad at base but greatly constricted at apex into a narrow nipple-like projection. In *D. darlingtoni*, presumably the sister species of *D. puertoricensis*, the metasternum, especially from lateral view, is smooth and lacks noticeable punctures or at most very finely punctate and is covered with very fine, translucent setae (Fig. 5c). In *D. puertoricensis*, the metasternum, especially from lateral view, has large but differently sized and separated punctures, some of which bear a single seta, but is otherwise glabrous (Fig. 5a). In *D. darlingtoni*, the last maxillary palpomere is narrowed and acute at apex, while in *D. puertoricensis*, the terminal palpomere is obliquely truncate. In *D. darlingtoni*, the elytra have a slight lateral constriction at middle. In *D. puertoricensis*, the elytra are slightly but steadily narrowed apically, without any noticeable constriction at middle.

Etymology. This species epithet is named after the island, Puerto Rico, where this species is widely distributed.

Types. Holotype, male, PUERTO RICO, Maricao For. Carr. 120, km. 9–15, 18 08'45"N, 66 58'52"W, 14 June 2002, 850-950m, beating vegetation, Steven W. Lingafelter (USNM). Paratypes: 3 females PUERTO RICO, Maricao For. Carr. 120, km. 12–15, 18 08'45"N, 66 58'52"W, 19 June 2003, 850-900m, beating vegetation, Steven W. Lingafelter (USNM); 1 female, PUERTO RICO, El Yunque Peak, Luquillo, 18 March 1936, L. F. Martorell coll. (USNM); 1 unsexed, PUERTO RICO, Toro Negro For., 10 June 2002, Steven Lingafelter (RMPC); 1 female, PUERTO RICO, El Yunque, Luquillo, 6–9 July 1969, Henry and Anne Howden (JAMC); 1 male, PUERTO RICO, El Yunque, Luquillo, 10–16 July 1969, Henry and Anne Howden (JAMC); 1 female, PUERTO RICO, Maricao, Hwy 120, km 10.2, 25 July 1979, Charles O'Brien (JAMC); 1 female, PUERTO RICO: Caribbean National Forest, El Yunque, 02 June 1983, near USFWS aviary, 3000', at light, E. LaRue (WIBF); 1 male, PUERTO RICO: Maricao For. Carr. 120, km 9-15, 18°08'45"N, 66°58'52"W, 14 June 2002 - 850-950m, Beating Vegetation, Steven W. Lingafelter (DHPC).

Description of Larva of *Parandra tavakiliani* Santos-silva

Fig. 6a–d

Description. Cylindrical, prothoracic region and last three abdominal segments broader than segments between them. Mostly yellow-brown in color; clypeus, labrum, posterior

prothoracic asperites darker brown; mandibles black. Sparsely pubescent with long, translucent to amber hairs on pleura and anterior of head. *Head* (Fig. 6a) short and broad, median suture short, connecting to broadly divergent margins of superior retractor muscle attachments. Labrum large, bluntly triangular, apical margin sparsely, short-setose, four longer sensory hairs arising from center. Clypeus glabrous, rectangular, short, about one half length of labrum. Epistoma not lobed over base of clypeus. Mandible very broad and massive at base; apex with acute projection leading to short, sub-apical, oblique cutting edge; mesal half with numerous closely-spaced longitudinal striations. Antenna (Fig. 6a,b,d) long, 4-segmented (plus small accessory antennomere); extending beyond anterior projection of mandible. Second antennomere shortest and weakly demarcated from first from dorsal view, but distinct from ventrolateral view. Fourth antennomere only slightly longer than second, but much smaller in diameter. Third antennomere slightly shorter than first. Maxillary palpus (Fig. 6d) 3-segmented (a deep fold at top of stipes gives false appearance of another segment). Apex of galea even with distal margin of third palpomere. Labium (Fig. 6d) with 2-segmented palpus attached to a fleshy prementum base. Prementum distinctly demarcated by larger mentum which is demarcated from broad arcuate submentum that attaches to base of stipes of maxilla. Anterior margin of gula approximately equal to width of mentum. Hypostoma broad, distinctly delimited by suture. *Prothorax* prominent, greater in length than remainder of thorax plus first abdominal segment. Posterior half of pronotum distinctly asperate; the asperate region of a manta ray-like shape (Fig. 6a). Lateral margin with fold. Presternum separated distinctly from eusternum by broad, inverted V-shaped sulcus, apex of which

meets anterior margin and ends of which terminate at prothoracic legs (Fig. 6c). Asperites present throughout eusternum (except at margins) and posterior half of presternum. Prothoracic leg well developed, apparently 3-segmented (actually 4-segmented) with apical segment darkly pigmented. Prothoracic spiracle not evident. Mesothoracic spiracle oval and approximately 1.5 times length of remaining spiracles. Meso- and metathorax reduced and without conspicuous asperites, legs well developed, apparently 3-segmented (actually 4-segmented). No pair of oblique furrows from middle to base of legs; single transverse furrow present (Fig. 6c). *Abdomen* with projecting, granulate ampullae on segments 1–7. Segments 8–9 broader and smoother than rest, with less distinctive ampullae and granulae. Abdominal segment 9 long and extended, without urogomphi or other modification.

Discussion. The adult of *Parandra tavakiliani* (Fig. 6e,f) was recently described (Santos-Silva 2002) and compared with *P. cribrata* Thomson, the only known species previously known from the Caribbean National Forest (El Yunque) (Wolcott 1936, 1948). We discovered a population of adults of *P. tavakiliani* and one larva. The only *Parandra* species for which larvae have been described include: *Parandra brunnea* Fabricius, *P. punctata* White, *P. glabra* (Degeer), *P. gabonica* Thomson, *P. caspia* Ménétries and *P. expectata* Lameere (Costa et al. 1988, Zajciw 1974, Craighead 1915, Duffy 1957, 1960, Svacha and Danilevsky 1987). *Parandra tavakiliani* Santos-Silva is distinctive in its manta ray-like pattern of asperites on the pronotum, the inverted V-shaped sulcus separating the eusternum from presternum and the pattern of asperites

therein, the well developed, obviously 4-segmented antennae, and the transverse (neither oblique nor paired) meso- and metasternal sulcus between the legs.

Material examined. 1 larva and 8 adults in large, decomposing fallen tree in the northeastern part of El Yunque (USNM, specimen preserved in alcohol).

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Table 1. Summary of species collected in Puerto Rico in 2002-3. *Abbreviations:* A=Aguirre, CA=Cambalache, CR=Cabo Rojo, GJ=Guajataca, GN=Guánica, LDB=Lago Dos Bocas, LT=Laguna Tortuguero, M=Maricao, P=Ponce, RA=Río Abajo, S=Susúa, TN=Toro Negro, U=Utado, Y=El Yunque. See Fig. 1 for map of localities.

Cerambycidae Taxon	# spec.	Locality	Collection method
CERAMBYCINAE			
<i>Achryson surinamum</i> (Linnaeus)	1	P	lights
<i>Chlorida festiva</i> (Linnaeus)	3	P, U, Y	lights
<i>Curtomerus flavus</i> (Fabricius)	3	GJ, M	lights, beating
<i>Eburia portoricensis</i> Fisher	1	CR	UV light
<i>Eburia quadrimaculata</i> (Linnaeus)	15	GN, P, U	brown sugar bait
<i>Elaphidion</i> n. sp (Ivie, in prep)	13	GJ, M, Y	lights, beating
<i>Elaphidion irroratum</i> (Linnaeus)	7	GN, P	lights, brown sugar bait
<i>Lamproclytus elegans</i> (Fisher)	1	GN	beating
<i>Merostenus attenuatus</i> (Chevrolat)	4	CR, P	beating , UV light
<i>Methia necydalea</i> (Fabricius)	12	A, GN, P, Y	beating Leguminosae trees, UV light
<i>Neoclytus araneiformis</i> (Olivier)	8	CR, LDB, U, Y	dead branches of <i>Prosopis juliflora</i>
<i>Plectromerus distinctus</i> (Cameron)	4	GN, P	beating <i>Thouinia portoricensis</i>
<i>Plectromerus</i> sp.	1	M	beating
<i>Plinthocoelium domingoensis</i> (Fisher) new tribe record for PR	2	M	canopy flowers of <i>Turpenia paniculata</i>
<i>Tilloclytus minutus</i> Fisher	5	GN, M	beating
<i>Pseudothoalmus woodleyi</i> Lingafelter, Micheli, and Guerrero, new species, new tribe record for PR	1	M	in flight
DISTENIINAE			
<i>Distenia puertoricensis</i> Lingafelter & Micheli	6	M, TN	beating foliage

LAMIINAE			
<i>Alcidion umbraticum</i> (Jacquelin du Val)	1	CA	beating
<i>Antilleptostylus nigricans</i> (Fisher)	24	A, M, S, TN, Y	beating
<i>Ataxia spinipennis</i> (Chevrolat)	14	A, GN, M, Y	beating dead branches
<i>Boricyrtinus nilseni</i> Micheli	2	M, Y	beating
<i>Cacostola leonensis</i> Dillon and Dillon	2	A, M	light, dead branches
<i>Cyrtinus oakleyi</i> Fisher first records for PR since discovery	2	M	beating
<i>Decarthria boricua</i> Micheli	1	M	beating
<i>Desmiphora hirticollis</i> (Olivier)	1	M	light
<i>Ecyrus hirtipes</i> Gahan	5	LT, M	lights
<i>Eugamandus flavipes</i> Fisher	5	Y	beating
<i>Eugamandus oakleyi</i> Fisher	5	M, TN, Y	beating
<i>Eugamandus ricarti</i> Micheli	4	M	beating
<i>Lagocheirus araneiformis guadeloupensis</i> Dillon	2	Y	lights
<i>Leptostylopsis antillarum</i> (Fisher)	12	CA, M, RA, S	lights, beating
<i>Leptostylopsis argentatus</i> (Jacquelin du Val)	1	S	beating
<i>Leptostylopsis gundlachi</i> (Fisher)	5	M, S, U	light, beating
<i>Leptostylopsis monin</i> Micheli and Micheli	2	M	beating
<i>Leptostylopsis yukiya</i> Micheli and Micheli	2	TN, Y	beating
<i>Spalacopsis filum filum</i> (Klug)	2	M	beating vines
<i>Styloleptus inflaticollis</i> (Chemsak)	2	P	beating <i>Avicennia germinans</i> (black mangrove)
<i>Styloleptus taino</i> Lingafelter and Micheli, new species	1	A	beating branches
<i>Trypanidius nocturnus</i> Fisher	2	Y	lights
<i>Urgleptes puertoricensis</i> Gilmour	1	M	beating
<i>Urgleptes sandersoni</i> Gilmour	46	CA, M, GJ, P, RA, S, TN, Y	beating
<i>Urgleptes borikensis</i> Micheli and Micheli	10	GN, M, Y	beating

PARANDRINAE			
<i>Parandra tavakiliani</i> Santos-Silva	9	Y	rotting tree, light
PRIONINAE			
<i>Callipogon proletarium</i> Lameere	1	M	light
<i>Elateropsis julio</i> Lingafelter and Micheli, new species, new genus record for PR	1	P	foliage of vine-covered <i>Croton</i>
<i>Solenoptera bilineata</i> (Fabricius)	3	CAS	in flight
<i>Solenoptera michelii</i> (Chemsak)	6	GJ, RA, Y	in flight
<i>Solenoptera thomae</i> (Linnaeus)	5	M, P	in flight, on foliage of <i>Croton</i>
<i>Stenodontes exsertus</i> (Olivier)	5	M	lights

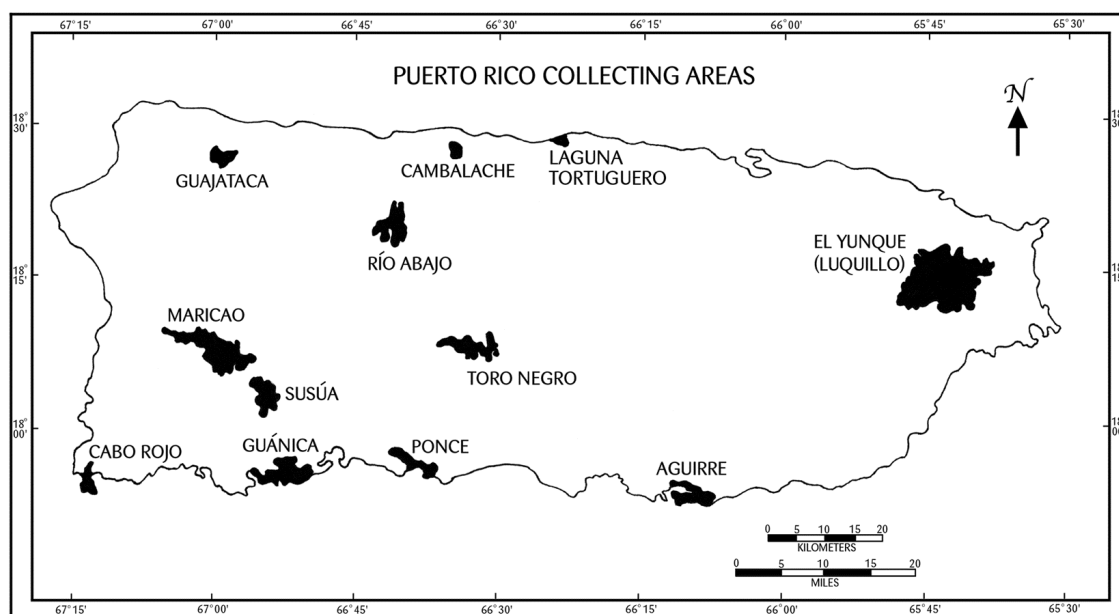


Figure 1. Map of Puerto Rico showing collecting localities.

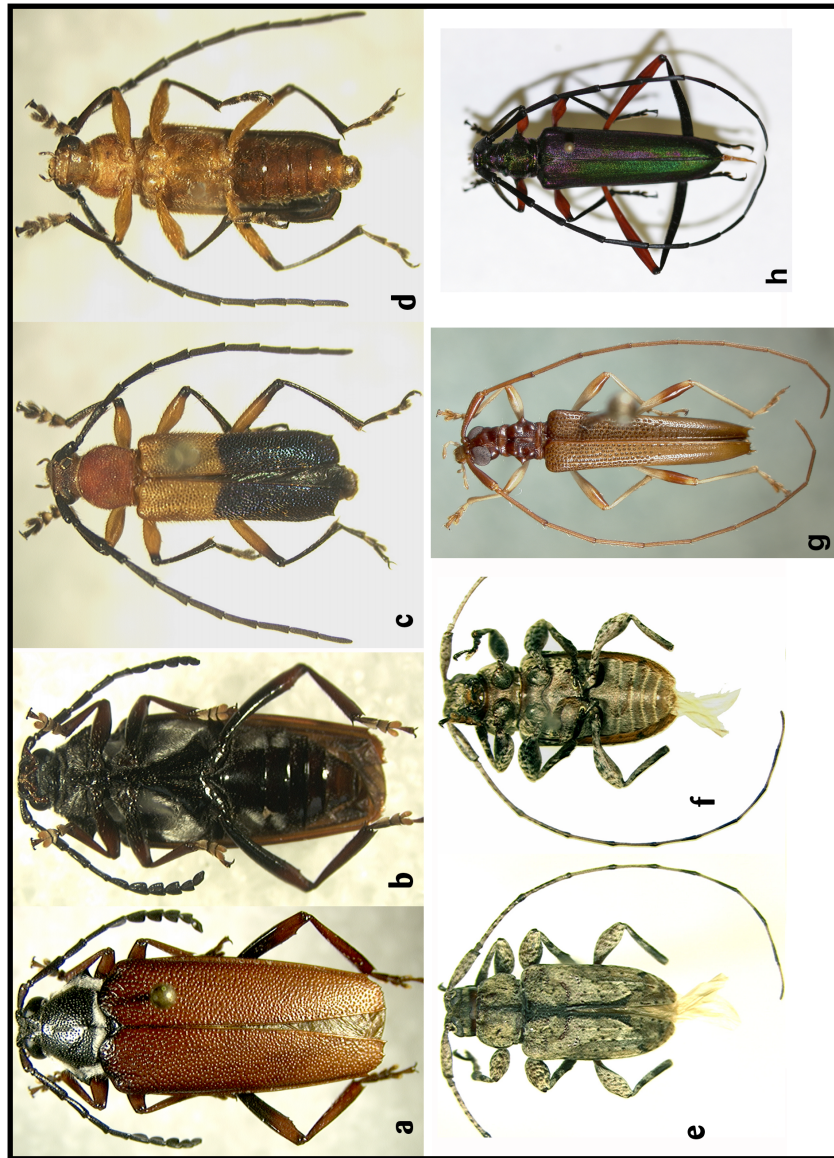


Figure 2. a, dorsal view of holotype of *Elateropsis julio* Lingafelter and Micheli, new species. b, same, ventral view. c, dorsal view of holotype of *Pseudothonalmus woodleyi* Lingafelter, Micheli, and Guerrero, new species. d, same, ventral view. e, dorsal view of holotype of *Styloleptus taino* Lingafelter and Micheli, new species. f, same, ventral view. g, dorsal view of paratype of *Distenia puertoricensis* Lingafelter and Micheli, new species. h, dorsal view of *Plinthocoelium domingoensis* (Fisher).

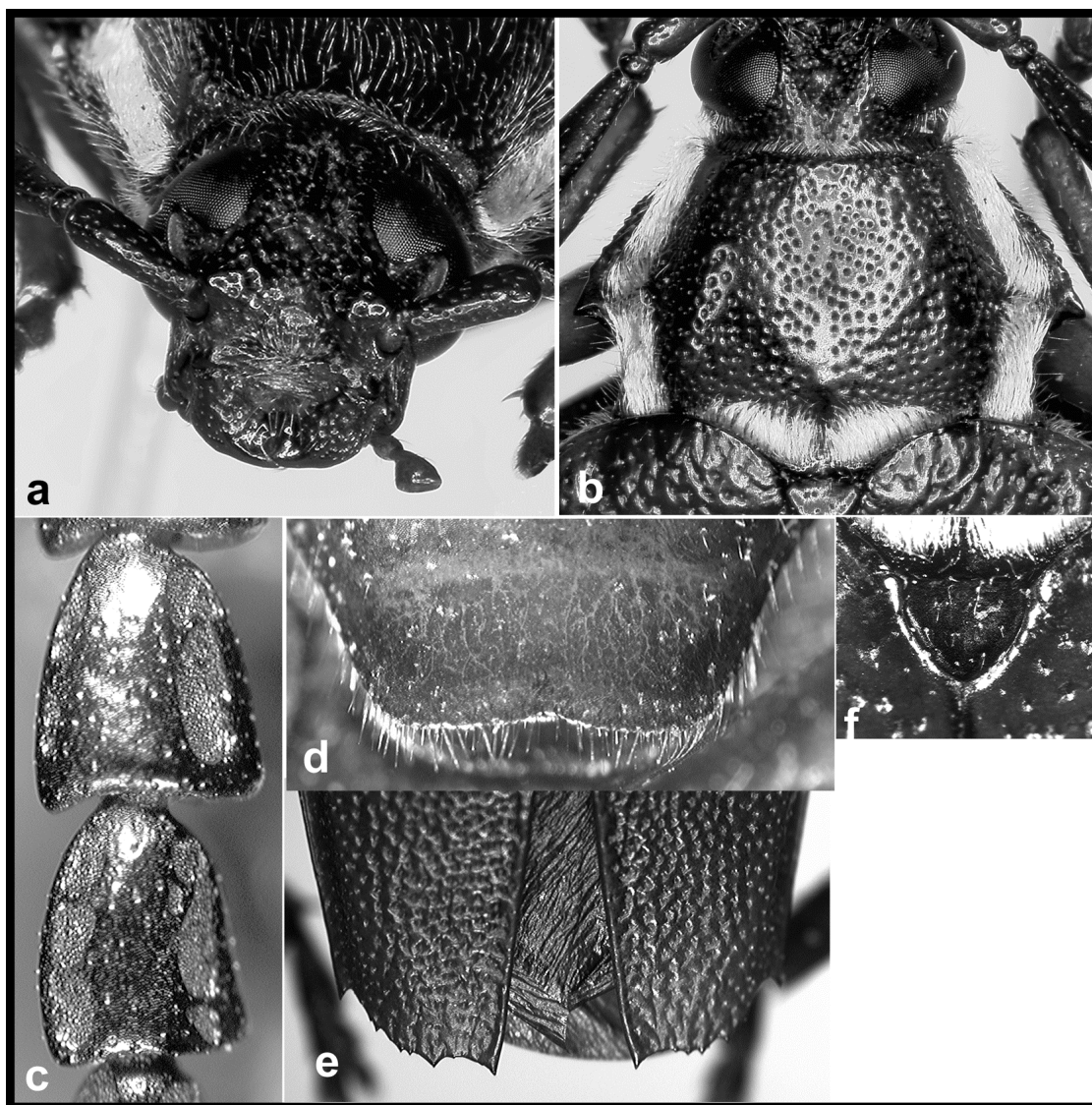


Figure 3. Characters of *Elateropsis julio* Lingafelter and Micheli, new species. a, anterior view of head. b, dorsal view of pronotum and head vertex. c, closeup of sensory poriferous regions of antennomeres 8-9. d, last ventrite of female. e, apex of elytra. f, scutellum.

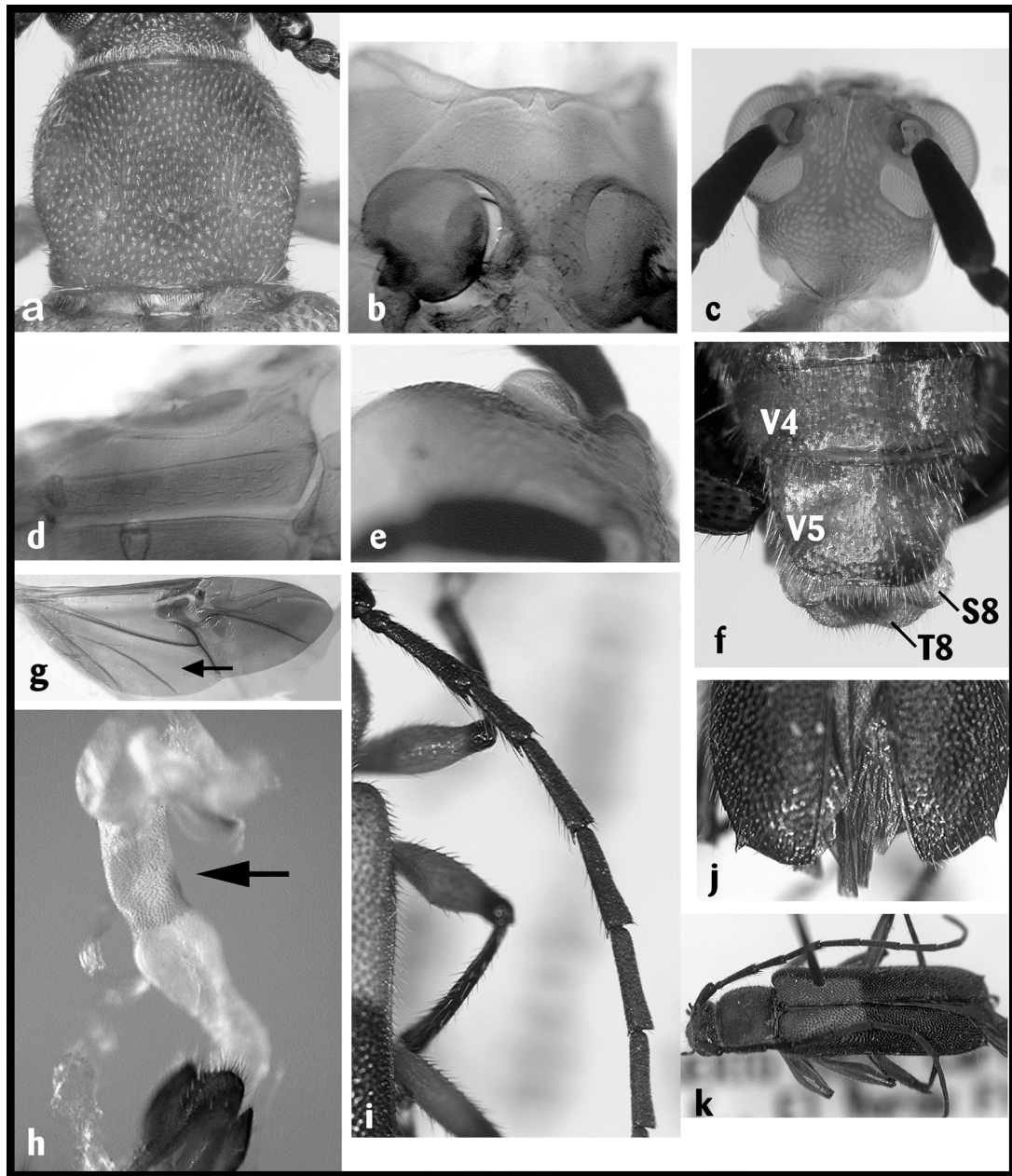


Figure 4. Characters of *Pseudothonalmus* Guerrero, new genus, and *P. woodleyi* Lingafelter, Micheli, and Guerrero, new species. a, dorsal view of pronotum. b, cleared mesosternum. c, cleared head. d, cleared metepisternum. e, lateral view of cleared antennal tubercle and upper eye lobe. f, abdominal apex of male, showing ventrites 4–5, sternite 8, and tergite 8. g, hind wing (note absence of veins in region at arrow). h, extruded internal sac (note microspicules at arrow). i, closeup of antennae showing mesal spines on 3–7. j, apex of elytra. k, paratype of *P. woodleyi* showing variant elytral maculation (RTPC).

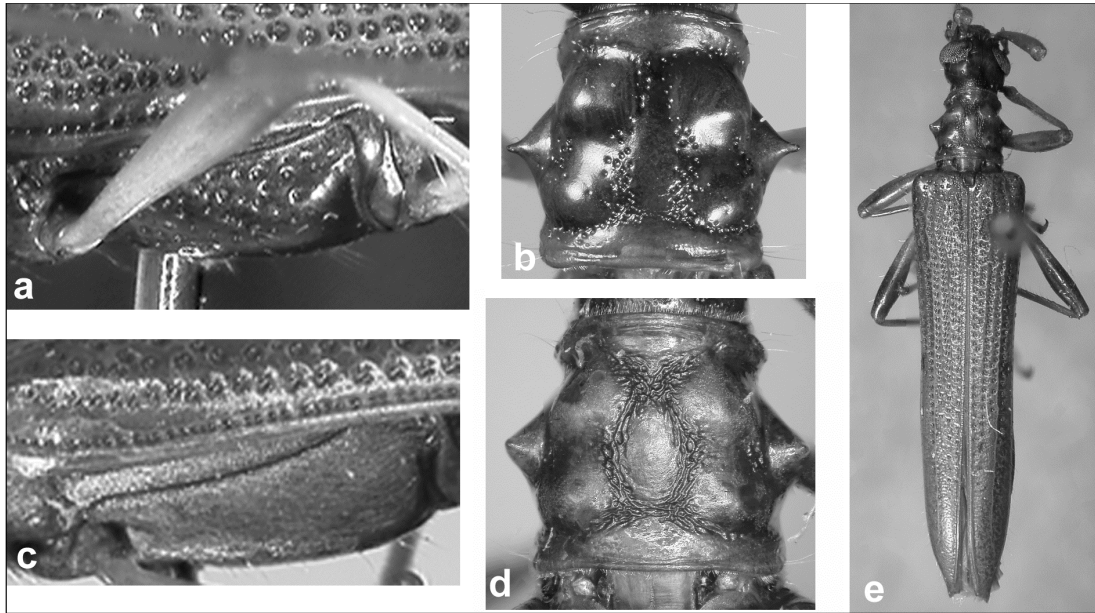


Figure 5. Characters of *Distenia puertoricensis* Lingafelter and Micheli and *D. darlingtoni* Fisher. *D. puertoricensis*: a, lateral view of metasternum, b, pronotum. *D. darlingtoni*: c, lateral view of metasternum, d, pronotum. e, *D. darlingtoni*, paratype.

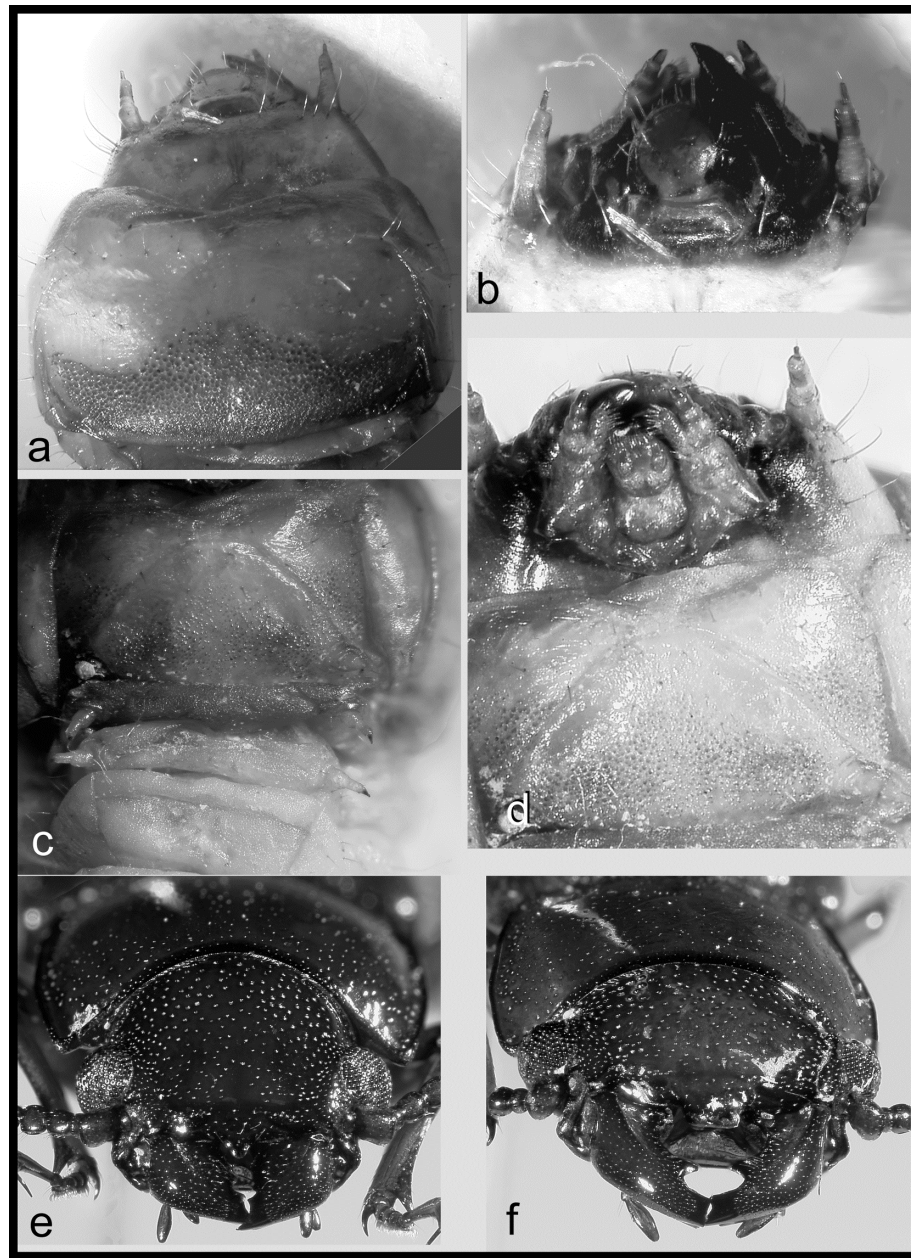


Figure 6. *Parandra tavakiliani* Santos-Silva. a, dorsal head and prothorax of larva. b, closeup of dorsal mouthparts and antennae of larva. c, ventral thorax of larva. d, closeup of ventral mouthparts and prosternum of larva. e, head of adult female. f, head of adult male.

CHAPTER VI

TWO NEW SPECIES OF *PLECTROMERUS* HALDEMAN
(COLEOPTERA: CERAMBYCIDAE) FROM THE WEST INDIES*

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ABSTRACT

Two new species of Curiini (Coleoptera: Cerambycidae: Cerambycinae), *Plectromerus dominicanus* from the Dominican Republic and *Plectromerus ramosi* from Puerto Rico and the Virgin Islands are described. Features distinguishing the new species from their congeners and figures are presented. *Plectromerus distinctus* (Cameron), previously synonymized with *P. serratus* (Cameron), is restored as a valid species.

Resumen

Dos nuevas especies de Curiini (Coleoptera: Cerambycidae: Cerambycinae), *Plectromerus dominicanus* de la República Dominicana y *Plectromerus ramosi* de Puerto Rico y las Islas Vírgenes se describen. Se incluyen características para diferenciar estas especies de otros miembros del género y figuras. *Plectromerus distinctus* (Cameron), previamente sinonimizada con *P. serratus* (Cameron), se reconoce como especie válida.

Key words: Caribbean, West Indies, Greater Antilles, Dominican Republic, Puerto Rico, Virgin Islands, Cerambycidae, Cerambycinae, Curiini, *Plectromerus*, new species, figures

INTRODUCTION

Increased interest in the rich diversity of the Caribbean region has generated in-depth studies of its cerambycid fauna (Lingafelter & Micheli, 2004; Micheli, 2003; Micheli & Micheli, 2004; Vitali & Rezbanyai-Reser, 2003b). Recent extensive collecting in the Dominican Republic, Puerto Rico, and the Virgin Islands has resulted in the discovery of new species, with estimated faunal counts of 131, 71, and 45 longhorned beetle species, respectively, for the three areas. Continued surveys of varied habitats within the region are necessary for any future analyses of biodiversity and biogeography of West Indian Cerambycidae.

The genus *Plectromerus* Haldeman (1847) was first treated by LeConte (1873), LeConte & Horn (1883), and Leng (1885). There has been some confusion about the generic attributes of this genus and *Pentomacrus* White (Linsley, 1963; Micheli, 1983), but no thorough revisionary work has been done. Cameron (1910) described two species in *Pentomacrus* and provided a key for species of this genus only. Cazier and Lacey (1952) commented on the taxonomic problem clouding these two genera and included the species assigned to both within a single key. Subsequently, Giesbert (1985) stated that the supposed differences were not sufficient to justify two genera and synonymized *Pentomacrus* with *Plectromerus*. The resolution of generic issues within the Curiini is beyond the scope of this paper, and therefore we retain the generic concept of *Plectromerus* of Giesbert (1985) and include within this genus 15 species distributed in the Caribbean, southeastern USA, and southeastern Mexico (Monné & Hovore, 2003;

Monné, 2005). A key to the species of *Plectromerus* will be provided at a later time by the junior author in his on-going revision and phylogenetic analysis of the tribe Curiini.

MATERIALS

Specimens from various collections were examined. The following acronyms are used throughout the paper:

- BMNH The Natural History Museum, London, United Kingdom
- CMNH Carnegie Museum of Natural History, Pittsburg, Pennsylvania, USA
- DHPC Daniel Heffern Private Collection, Houston, Texas, USA
- FSCA Florida State Collection of Arthropods, Gainesville, Florida, USA
- ENPC Eugenio Nears Private Collection, Gainesville, Florida, USA
- JAMC Julio and Charyn Micheli Private Collection, Ponce, Puerto Rico, USA
- JEWC James E. Wappes Private Collection, Bulverde, Texas, USA
- RFMC Roy F. Morris Private Collection, Lakeland, Florida, USA
- RTPC Robert H. Turnbow, Jr. Private Collection, Ft. Rucker, Alabama, USA

USNM National Museum of Natural History, Smithsonian Institution, Washington,
DC, USA

WIBF West Indian Beetle Fauna Project, Michael Ivie, Montana State University,
Bozeman, Montana, USA

Genus *Plectromerus* Haldeman

***Plectromerus distinctus* (Cameron), RESTORED STATUS FROM SYNONYMY**

Pentomacrus distinctus Cameron, 1910: 136. Type locality: Haiti.

Plectromerus distinctus: Vitali & Rezbanyai-Reser, 2003b: 3.

Discussion. Vitali & Rezbanyai-Reser (2003b) synonymized *Plectromerus distinctus* (Cameron) with *P. serratus* (Cameron, 1910). The type specimens (BMNH) of both species (Figs. 1a–b) were examined carefully and differences between them suggested two species instead of one. The two species are very similar but can be distinguished by the following: *P. distinctus* has long, suberect hairs on the elytra and granulose punctures

on the pronotum (Fig. 1c), whereas *P. serratus* lacks the hairs and granules and has microsculpturing on the pronotum (Fig. 1d).

***Plectromerus lingafelteri* Micheli & Nearn, NEW SPECIES**

Figs. 2a–c, 3a

Description. *Male.* Length 5.5–7.2 mm, width 1.2–1.7 mm (measured across humeri). Small, narrow, subcylindrical. Head, antennae, and pronotum ferrugineous, with some areas of pronotum, clavate portion of femora, apex of tibiae, and underside usually much darker; scape underneath, palpi, base of distal four antennomeres, femoral pedicle, and tarsi testaceous; each elytron with a dark macula just beneath humerus, this sometimes reaching basal third, humeral angle pale; dorsum with three major macular regions (Fig. 2a) as follows: (1) basal third dark with posterior margin irregular, obliquely reaching suture, with another dark, oblique, narrow, irregular macula just beneath separated by a pale irregular fascia, and not reaching suture; (2) an irregular, median dark macula not reaching suture, partially interrupted by a narrow, pale longitudinal area, and bordered posteriorly by an oblique, pale fascia; and (3) apical third ferrugineous, anterior margin obliquely reaching suture. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes to just beyond vertex, slightly concave between antennal tubercles, which are somewhat raised and widely separated. Surface feebly shining, microsculptured, with some fine wrinkles and irregular, shallow punctation. Pubescence

short, pale, recumbent, sparse to moderately dense with a few scattered long, suberect hairs. Eyes prominent, transverse, subreniform. Antennae 11-segmented, slightly longer than body, impunctate; third antennomere subequal to scape, almost twice as long as fourth, fifth antennomere 1.3 longer than third, 2.6 longer than fourth, sixth to tenth becoming progressively shorter, eighth subequal to third, eleventh slightly longer than tenth, subequal to ninth; basal antennomeres subcylindrical, from fifth slightly flattened, apices of antennomeres 5–10 produced externally, more pronounced on antennomeres 7–10. Antennomeres feebly shining, clothed with fine, short, recumbent, pale pubescence with slightly longer, suberect hairs intermixed and antennomeres 2–6 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* subcylindrical, about 1.5–1.6 times as long as wide, widest at middle, slightly broader at base than apex, sides feebly inflated, broadly arcuately constricted at basal fifth, and a slight inflation just before apex; basal margin slightly arcuate, apical margin nearly straight; disk convex, slightly depressed posteriorly, sometimes with three feeble tumescences, one centrally on disk and two anterior to this one, one on each side (these are barely discernible in some specimens). Surface opaque, microsculptured, with fine, sparse punctures, each of these with a fine, short, pale hair; punctation much coarser and deeper laterally (as large as on base of elytra) and shining. Pubescence slightly denser towards margins; each side of pronotum with two long, suberect setae, one anterolateral, the other one discal at basal third. *Scutellum* small, rounded, almost as long as broad, shining, impunctate, with sparse, short pale pubescence. *Elytra* about 2.6 to 3 times as long as width at humeri, 2.5 to 3 times as long as pronotal length, about 1.5 broader basally than pronotum at widest

(at middle); sides nearly parallel, very slightly sinuate around middle, evenly rounded to apex which is rounded; epipleural margin moderately sinuate. Disk slightly concave medially, subsuturally; base of each elytron slightly raised. Surface shining, except basal macula which is matte; punctation moderately dense, coarse, shallow at basal third, punctures becoming finer towards apex and sides, almost obsolete at apical third; each puncture with a short, fine pale hair (some appear to have fallen off). *Underside* with prosternum shining, slightly rugose, apical fourth impunctate and one irregular patch of coarse, deep punctures in front of each coxa (Fig. 2b); with sparse, short, fine, pale hairs; narrowest area of prosternal process between coxae about 0.17 to 0.2 as wide as coxal cavity, and about 0.3 the width of apex of process which is subtriangular with rounded corners. Mesosternum shining, impunctate, very sparsely clothed with short, fine, pale hairs. Mesepisternum with denser pubescence than mesosternum. Metasternum shining, sparsely and finely punctate, with short, pale, moderately dense pubescence, much sparser on centroposterior area, much denser at postero-lateral angles, and with very few longer, pale hairs intermixed. Metepisternum clothed with moderately dense pubescence, denser posteriorly. Abdomen shining, clothed with sparse, short, pale pubescence, and with a few longer, suberect pale hairs; fifth sternite broadly subtruncate, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, meso- and metafemora arcuate, shining, impunctate, clothed with sparsely to moderately densely, recumbent, short, pale pubescence; underside of each femoral club with a broad triangular tooth with posterior edge smooth, not serrate; tibiae slightly arcuate, sinuate though not strongly;

clothed with moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser apically. *Genitalia* see Fig. 3a.

Female. Length 5.5–8.3 mm; width 1.2–1.9 mm (measured across humeri). Very similar to male except pronotal sides lacking coarse punctures and prosternum impunctate (Fig. 2c). Abdomen with terminal sternite evenly, broadly rounded.

Etymology. This species is dedicated to Steven Lingafelter, who collected most of the type material and made the trip to the Dominican Republic by the senior author possible, and whose friendship, guidance, and companionship are truly appreciated.

Types. Holotype, male, DOMINICAN REPUBLIC, Pico Duarte Trail, 3300 ft., Los Tablones, beating, 19°08.222'N, 70°27.736'W, 29 June 2004, S. Lingafelter (USNM). Allotype, female, DOMINICAN REPUBLIC, Pedernales Prov., PN Sierra Baoruco, Las Abejas, 18°09.011'N, 71°37.342'W, 1150 meters, 11 July 2004, blacklight, C. J. Micheli, coll. (USNM). Paratypes, 14 (all from the Dominican Republic): 1 male, same data as holotype, except day coll. (USNM); 2 males, Pico Duarte Trail, Ciénaga to Los Tablones, beating, 19°08.222'N, 70°27.736'W, 29 June 2004, C. J. Micheli (JAMC); 1 male and 1 female, Pedernales Prov., PN Sierra Baoruco, Las Abejas, 1150 m, 18°09.011'N, 71°37.342'W, ex. dead log w/ white fungus, 11 July 2004, S. Lingafelter (USNM); 2 males and 1 female, Pico Duarte Trail, 3300 ft., Los Tablones, blacklighting, 19°08.222'N, 70°27.736'W, 17 July 2004, S. W. Lingafelter (USNM); 1 male, Pedernales Prov., 25.5 km N. Cabo Rojo, 12-21-V-1992, coll. M. C. Thomas (FSCA); 1 female, Azua, East side of crest, Sierra Martín García, 7 km WNW Barrero, 18-21 N, 70-58W, 860m, 25-26 July 1992, C. Young, R. Davidson, S. Thompson, J. Rawlins, cloud forest

adjacent to disturbed forest (CMNH); 2 males, Prov. Hato Mayor, Par. Nac. Los Haitises, 01-02 Apr 1992, bosque humido, W. Sabana dl Mar, M. Ivie, D. Sikes, Lanier (WIBF); 1 male, Barahona, 4.5 km. S Barahona, 22 May 1992, R. Turnbow (RTPC); 1 male, Pedernales, 25.5 km. N Cabo Rojo, 21 May 1992, R. Turnbow (RTPC).

Discussion. The intensity and breadth of maculations seem to be variable among specimens. Some specimens are mostly ferrugineous without any very dark areas but with the described light elytral pattern.

This species can be distinguished from the presently known congeners by the combination of the following characters: the opaque, microsculptured, finely punctate pronotum, the smooth metafemoral tooth, and the elytral maculation. At first glance, *P. lingafelteri* resembles *Plectromerus dentipes* (Olivier, 1790) (Fig. 1e) but this species has a shiny pronotum, the metafemoral tooth is serrate, and the elytral apex is moderately subtruncate (rounded in *P. lingafelteri*). Another species with a rather intricate elytral pattern is *P. exis* Zayas (1975) (Fig. 1f–g), but *P. lingafelteri* can be easily recognized by the shape and length of the pronotum, the length of the third antennomere, and the elytral punctation. In *P. exis*, the pronotum has a distinct tubercle in the center and the length is about 1.8 times the width (1.5 to 1.6 in *P. lingafelteri*), the third antennomere is distinctly longer than the scape (subequal in *P. lingafelteri*), and the elytral dark areas are opaque and microsculptured (not so in *P. lingafelteri*).

Plectromerus ramosi Micheli & Nearn, NEW SPECIES

Figs. 2d–h, 3b

Description. *Male.* Length 4.3–6.5 mm, width 1.0–1.6 mm (measured across humeri). Small, narrow, subcylindrical. Integument ferrugineous, varying from light to dark, with two testaceous maculae (sometimes transverse fasciae) on each elytron, one at basal third, small, and oblong, and another just behind middle, this one oblique. *Head* with front nearly flat, transverse, with a median, shallow line from between eyes and antennal tubercles, slightly concave between antennal tubercles, which are slightly raised and widely separated. Surface moderately shining, with fine wrinkles, coarsely, rugosely, densely, confluent punctate, punctures shallower beyond vertex. Head with a fine, short pale seta in each puncture and a few scattered long, pale, suberect hairs. Eyes prominent, transverse, subreniform. Antennae 11-segmented, slightly longer than body, third antennomere subequal to scape, about 1.3 to 1.8 longer than fourth, fifth antennomere about 1.4 longer than third, varying from slightly less than twice to three times the length of fourth, sixth subequal to seventh, eighth to tenth becoming progressively shorter, eleventh slightly longer than tenth; basal antennomeres subcylindrical, from antennomere 5 slightly flattened, with apices of antennomeres 5–10 produced externally (fifth only very slightly), more pronounced on antennomeres 7–10. Antennomeres feebly shining, scape moderately coarsely, moderately densely, shallowly punctate; clothed with fine, short, recumbent, pale pubescence with slightly longer, suberect hairs intermixed, sparser on basal segments, becoming denser on distal ones,

antennomeres 2–6 ciliate beneath with coarse, moderately long, suberect, pale hairs. *Pronotum* about 1.3 longer than broad, widest at middle, slightly broader at base than apex, sides arcuately inflated, with a broad constriction at basal fifth, and a slight inflation just before apex; basal and apical margins slightly arcuate; disk slightly flattened medially, sometimes with three broad, rounded raised areas, one medial and two anterior to middle, one on each side. Surface moderately shining, often with fine wrinkles, sparse to moderately densely, shallowly, moderately coarse punctation on disk, laterally alutaceous with deeper punctures. Pronotum mostly glabrous except each side with two long, suberect setae, one anterolateral, the other one discal at basal third. *Scutellum* small, rounded, shining, impunctate. *Elytra* about 2.7 to 3 times as long as width at humeri, about 2.6 to 3 times as long as pronotal length, about 1.2 to 1.4 times broader basally than pronotum at widest (at middle); sides slightly sinuate, evenly rounded to apex which is rounded; epipleural margin sinuate. Disk slightly concave medially, subsuturally, creating a faint costa on each elytron. Surface shining; punctation moderately dense, coarse, punctures becoming finer towards apex and sides, almost obsolete at apical third; glabrous except for a few very fine, inconspicuous short hairs in punctures near apex. *Underside* with prosternum shining, rugose; apical fourth impunctate and one irregular patch of coarse punctures in front of each coxa (Fig. 2e); with very sparse, short, inconspicuous, pale hairs; narrowest area of prosternal process between coxae about 0.25 to 0.3 as wide as coxal cavity, and about 0.25 to 0.5 the width of apex of process which is subtriangular with rounded corners. Mesosternum shining; moderately finely to moderately coarsely punctate; with few short, inconspicuous pale

hairs. Mesepisternum sparsely punctate; sparsely clothed with fine, short, pale hairs. Mesepimeron with denser pubescence. Metasternum shining; moderately finely to moderately coarsely, sparsely punctate; punctures with a fine, short, pale hair. Metepisternum moderately densely clothed with short, recumbent, pale pubescence, which is denser posteriorly. Abdomen shining; finely, shallowly punctate; abdomen with a few long, suberect pale hairs and punctures with a short, fine, pale hair; fifth sternite broadly rounded, slightly longer than preceding sternite. *Legs* with femora pedunculate-clavate, meso- and metafemora arcuate, shining, finely, shallowly punctate, clothed with sparsely to moderately densely, recumbent, short, pale pubescence; underside of each femoral club with a broad triangular tooth with posterior edge strongly serrate; tibiae slightly arcuate, sinuate; clothed with sparse to moderately dense, fine, recumbent, pale pubescence, becoming longer and coarser apically. *Genitalia* see Fig. 3b.

Female. Length 5.0–7.2 mm; width 1.2–1.7 mm (measured across humeri). Very similar to male. Antennae about as long as body. Lateral punctures on pronotum not distinctly deep and prosternum only finely punctate, lacking patches of coarse punctation (Fig. 2f). Narrowest area of prosternal process between coxae about 0.25 to 0.4 as wide as coxal cavity, and about 0.3 to 0.6 the width of apex of process.

Etymology. This species is named in memory of Dr. José A. Ramos for his invaluable contributions and his lifelong dedication to the study of insects in Puerto Rico, and for unconditional access to specimens from his remarkable personal collection, one of the largest on the Island.

Types. Holotype, male, PUERTO RICO, Maricao, Rd. 120, Km. 13.8, 26-IV-1980, J. & N. Micheli, coll., beating foliage (USNM). Allotype, female, PUERTO RICO, Maricao, Rd. 120, Km. 15.9, ex twigs *Eugenia* nr. *ligustrina*, coll. 17-X-1981, emerged XII-81, J. Micheli, coll. (USNM). Paratypes, 56: 1 female, same data as holotype (JAMC); 1 male, PUERTO RICO, Maricao, Rd. 120, Km. 13.8, 3-V-1980, J. Micheli, coll., beating dead foliage (JAMC); 1 male, same data as previous except, 10-V-1980 (JAMC); 3 males, PUERTO RICO, Maricao, Rd. 120, Km. 15.9, ex twigs *Eugenia* nr. *ligustrina*, coll. 17-X-1981, emerged XI-81, J. Micheli, coll. (JAMC, ENPC); 14 males and 2 females, same data as previous except, emerged XII-81 (JAMC, USNM, ENPC; 2 dissected); 1 male and 1 female, same data as previous except, emerged II-82 (JAMC); 4 males and 4 females, same data as previous except, emerged III-82 (JAMC, ENPC; 1 dissected); 1 male, PUERTO RICO, Maricao, Rd. 120, Km. 15.9, 18-X-1981, beating foliage, J. Micheli, coll. (JAMC); 1 male, PUERTO RICO, Maricao For., Water Filtration Plant, 18°09'N, 66°59'W, 17 June 2002, *Turpenia paniculata*, Steven W. Lingafelter (USNM); 1 female, PUERTO RICO, Maricao, Bosque Estatal de Maricao, 3.3 km SW Maricao, 18-09-39N, 67-00-05W, forest, 550 m, 10-11 June 1996, J. Rawlins, C. Young, R. Davidson, W. Zanol, S. Thompson, M. Klingler (CMNH); 1 female, PUERTO RICO, Hwy 120, km. 16.2, Hdqts. Maricao St. For. 8-8-1999, C. W. O'brien (DHPC); 1 female, PUERTO RICO, Hwy. 120, K10H2, Maricao For. Res., July 26, 1979, L.B. O'Brien (JEWG); 1 male, PUERTO RICO, Guánica Forest, 6-IV-2001, ex dead log, Charyn J. Micheli, coll. (JAMC); 1 female, PUERTO RICO, Guánica Forest, Ballena trail, beating, 17°58'49"N, 66°51'74"W, 16 June 2002, Steven W. Lingafelter (USNM); 1 male,

PUERTO RICO, Guánica Forest, Ballena trail, UV light, Spec ID:4228, Nearn & Lingafelter, 27-VII-2004 (ENPC); 1 male, PUERTO RICO, Ponce, Rd. 132, Km. 20, 26-VI-1972, J. Micheli, coll., at lights (JAMC); 2 males, PUERTO RICO, Ponce dry forest at Holiday Inn, 17°58'N, 66°38'W, 20 June 2002, beating, Steven W. Lingafelter (USNM, ENPC; 1 dissected); 1 male, PUERTO RICO, Ponce dry forest behind Holiday Inn, 17°58'N, 66°38'W, 1 July 2002, *Thouinia portoricensis*, Steven W. Lingafelter (USNM); 2 males and 2 females, PUERTO RICO, Guanica, Bosque Estatal de Guanica, 3.6 km E Guanica, 17-58-11N, 66-52-28W, thornscrub, 100 m, 12 June 1996, J. Rawlins, R. Davidson, C. Young, M. Klingler, W. Zanol, S. Thompson (CMNH); 1 female, 17°56'50"N, 066°51'48"W, PUERTO RICO, Guanica, Bosque Estatal de Guanica, just W. Punta Ballena on Rt. 333, 9.VIII.1999, P. W. Kovarik, collector, beating (WIBF); 1 female, PUERTO RICO, Humacao Dist., Casa Cabuy, Hwy.191 nr. Florida, 31-VII-2-VIII-1999, J. E. Eger, MV & UV lights (RFMC); 1 female, VIRGIN ISLANDS, St. John, Lameshur Bay – VIERS, 09 March 1984, at UV light, W. B. Muchmore colr. (WIBF); 1 female, VIRGIN ISLANDS, St. John, Est. Caneel Bay, Lind Point, December 1992, J. Comisky colr. (WIBF); 1 male and 1 female, VIRGIN ISLANDS, St. John, Lameshur Bay, VIERS, 21-28 July 1994, M. S. Becker colr, ultraviolet light (WIBF); 2 males, BRITISH VIRGIN ISLANDS, Guana Island, Sugarloaf trail, 100-800 ft., 09 OCT 1994, M. A. & L. L. Ivie (WIBF).

Discussion. Throughout the series there is some variation in color and slight variation in the shape of pronotal margins, pronotal texture, punctation on pronotum and mesosternum, and proportion and shape of the prosternal process. Specimens collected

in the wet forest of Maricao are quite dark and the pale maculae on the elytra tend to be rather compact (Fig. 2d). Those from the drier areas of Guánica and Ponce (in Puerto Rico) and the Virgin Islands are lighter colored with the pale areas on the elytra more like fasciae (Fig. 2g). Except for color, other variation is slight and there is much overlap. To further investigate the possibility of two distinct species, dissections of male genitalia of several specimens from each phenotype were made by the junior author. Detailed study of the tegmen including the parameres (lateral lobes) and phallobase (basal piece) revealed no consistent morphological characters (Fig. 3b). Since we can find no significant differences between specimens from “wet” and “dry” areas, only a single species will be proposed.

This species can be confused with *Plectromerus serratus* (Cameron) but can be distinguished by the punctation of the pronotum: in *P. serratus*, the pronotum is impunctate and dull, whereas *P. ramosi* has a shiny pronotum and distinct punctation. Also, the fifth antennomere in *P. serratus* (Fig. 2i) is distinctly pronounced externally at apex whereas in *P. ramosi* (Fig. 2h) it is only slightly expanded. Some small, light specimens of *P. ramosi* are similar to *P. distinctus* (Cameron) but the latter species has long, suberect hairs on the elytra and granulate punctures on the pronotum, both lacking in *P. ramosi*. From other congeners, *P. ramosi* can be distinguished by the following combination of characters: the shape and punctation of pronotum (widest at middle, shallow, moderately coarse punctures), the punctation and macular pattern of elytra, the glabrous pronotum and elytra, and the serrate metafemoral tooth.

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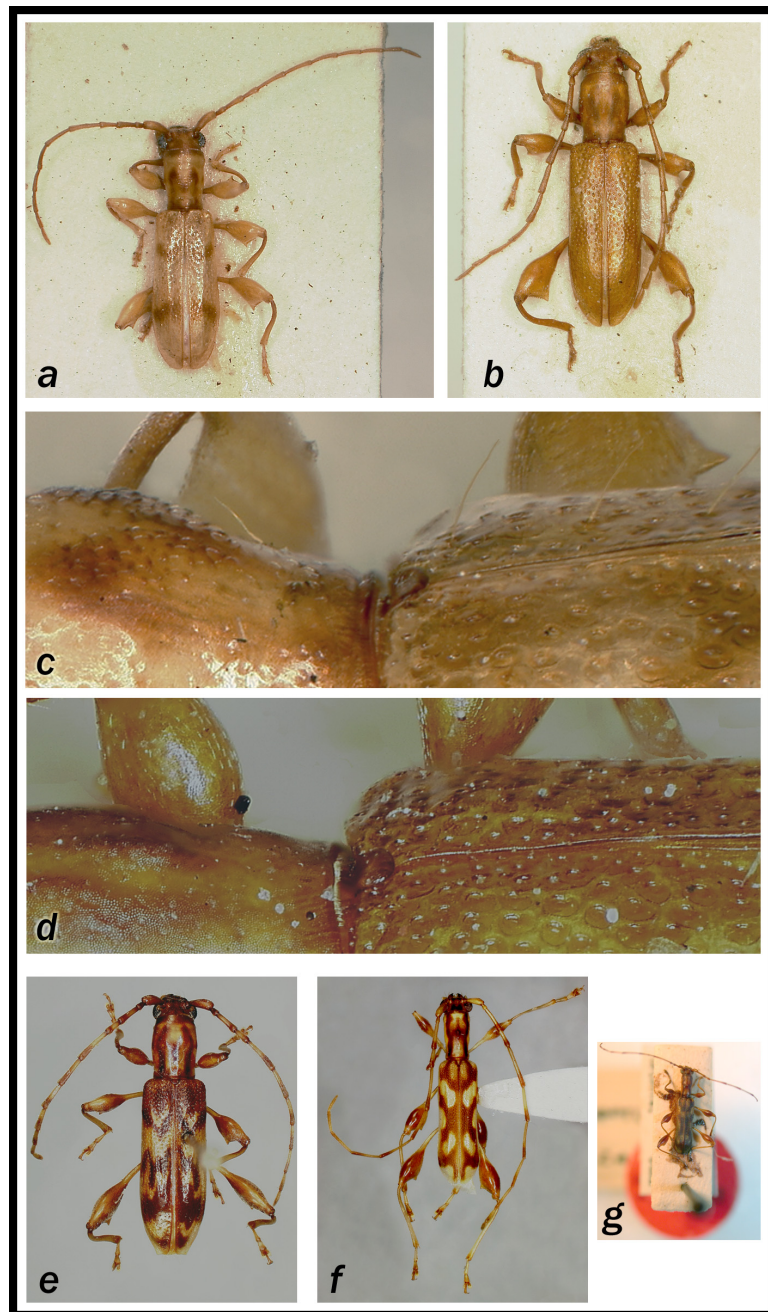


Figure 1. a, *Plectromerus distinctus* (Cameron), holotype; b, *Plectromerus serratus* (Cameron), holotype; c, *Plectromerus distinctus* (Cameron), view of pronotum and base of elytron; d, *Plectromerus serratus* (Cameron), view of pronotum and base of elytron; e, *Plectromerus dentipes* (Olivier); f, *Plectromerus exilis* Zayas.

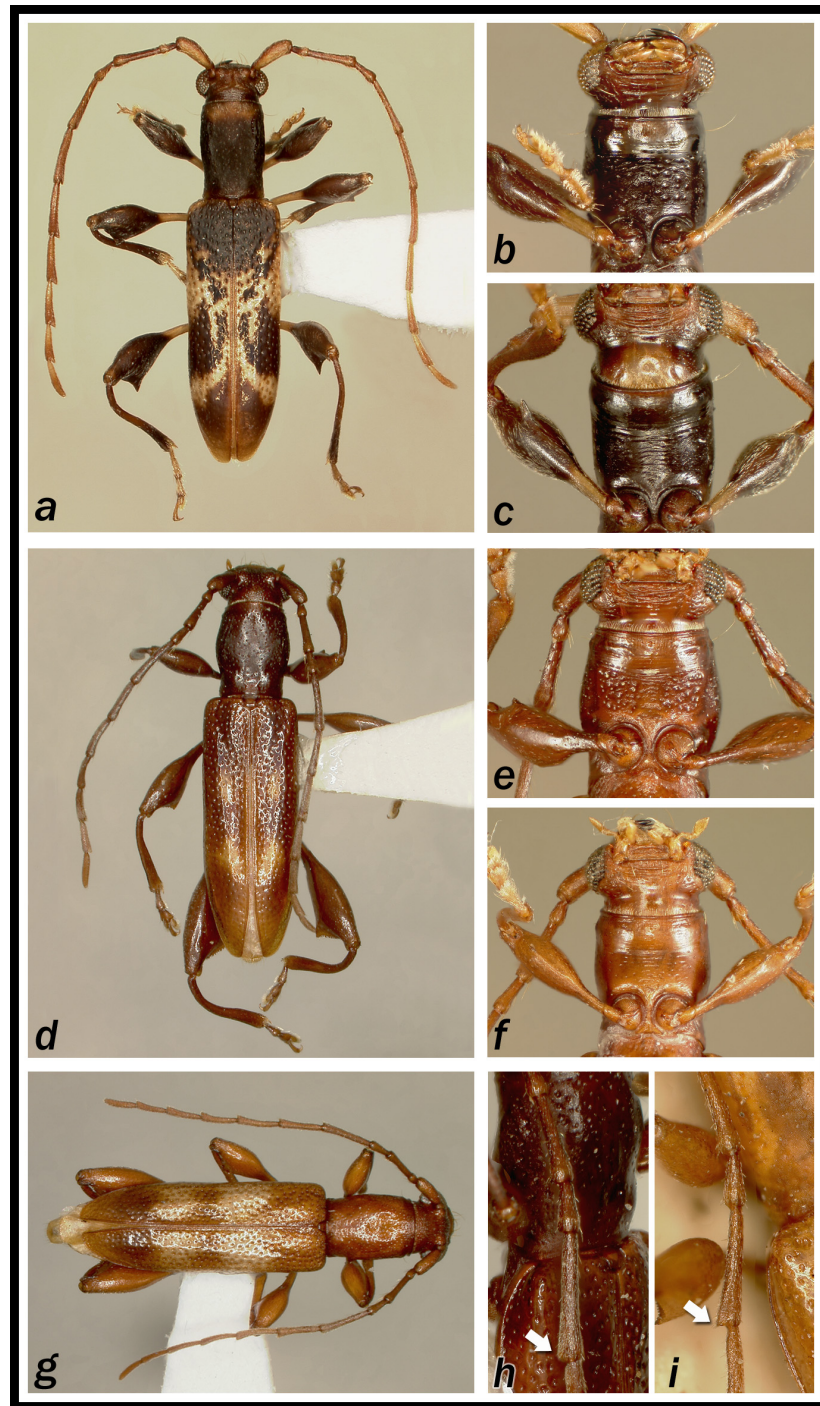


Figure 2. a–c, *Plectromerus dominicanus* Micheli & Nearn, new species: a, holotype; b, closeup of prosthema, male; c, closeup of prosthema, female; d–h *Plectromerus ramosi* Micheli & Nearn, new species: d, holotype; e, closeup of prosthema, male; f, closeup of prosthema, female; g, closeup of fifth antennomere; h, *Plectromerus serratus* (Cameron), closeup of fifth antennomere of holotype.

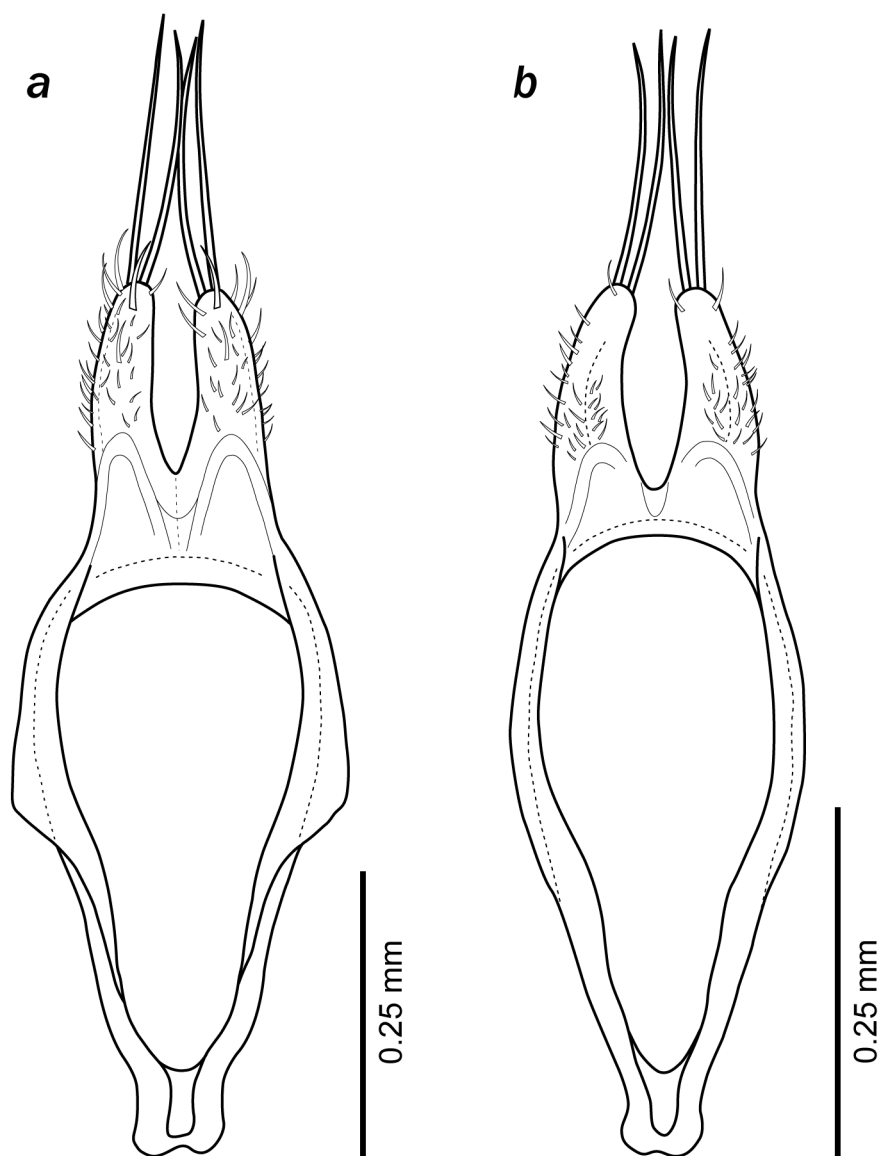


Figure 3. Tegmen, ventral view: a, *Plectromerus dominicanus* Micheli & Nearn, new species; b, *Plectromerus ramosi* Micheli & Nearn, new species.

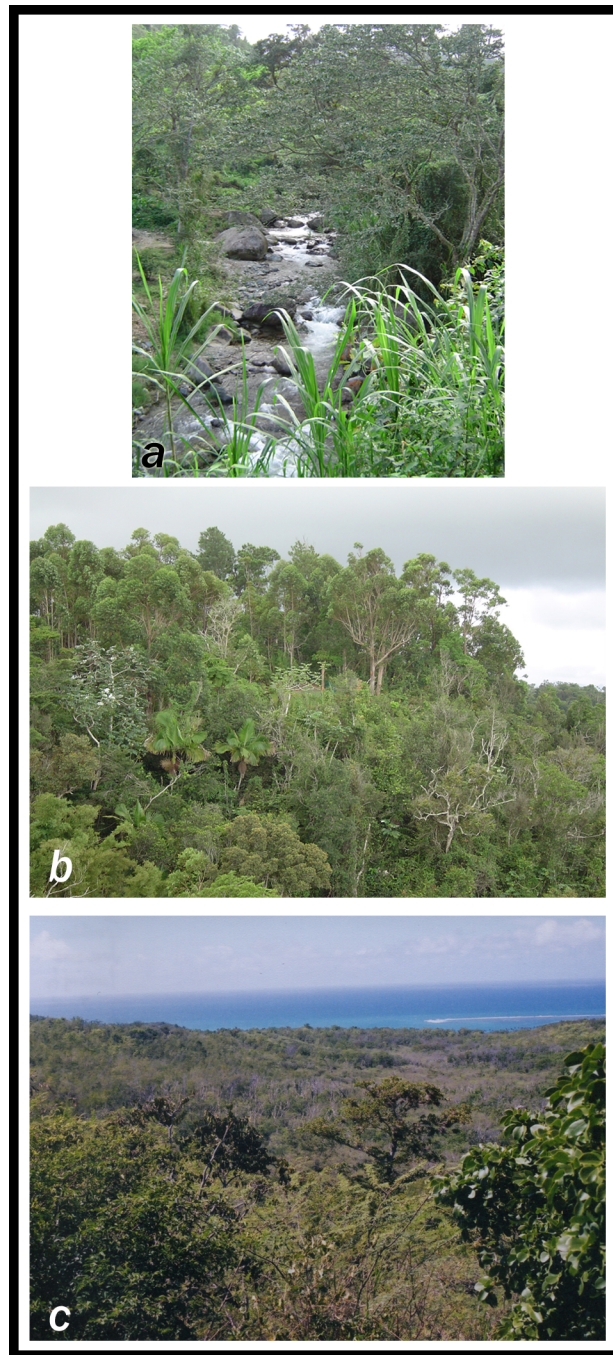


FIGURE 4. a, habitat of *Plectromerus lingafelteri* Micheli & Nearn, new species, Los Tablones region of Pico Duarte Trail, Dominican Republic; b-c, habitats of *Plectromerus ramosi* Micheli & Nearn, new species: b, Maricao Forest, Puerto Rico; c, Guánica Dry Forest, Puerto Rico.

REINSTATEMENT OF *SOLENOPTERA MICHELII* (CHEMSAK, 1979)
(COLEOPTERA: CERAMBYCIDAE: PRIONINAE: SOLENOPTERINI)
AS A VALID SPECIES

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ABSTRACT

Solenoptera michelii (Chemsak) (Coleoptera: Cerambycidae: Prioninae) is resurrected from synonymy under *S. thomae* (Linnaeus). Characters and figures are presented to show differences between the two species.

Resumen

Solenoptera michelii (Chemsak) (Coleoptera: Cerambycidae: Prioninae) es rescatada de sinonimia bajo *S. thomae* (Linnaeus). Se presentan caracteres y figuras demostrando las diferencias entre las especies.

Key words: Taxonomy, Coleoptera, Cerambycidae, Prioninae, Solenopterini, Puerto Rico.

The diurnal prionines of the tribe Solenopterini are widely distributed in the West Indies. Three species are found in Puerto Rico: *Solenoptera bilineata* (Fabricius), *Solenoptera thomae* (Linnaeus), and *Solenoptera michelii* (Chemsak), although the validity of the last species has been questioned. Galileo and Martins (1993) synonymized *Solenoptera michelii* (Chemsak, 1979) with *Solenoptera thomae* (Linnaeus).

The senior author has collected and studied Puerto Rican Cerambycidae for over 30 years. About 200 specimens of Puerto Rican *Solenoptera* have been collected and, at present, there are more than 150 specimens in the authors' collection which have been

thoroughly examined for this study. A series of photos of the holotype of *S. thomae* (Figs. 1a–b), and the holotype and a long series of paratypes of *S. michelii* have also been examined. Based upon these specimens, it is our conclusion that the synonymy of *S. michelii* with *S. thomae* was not warranted, and we are returning it to its former status as a valid species.

Solenopterini present sexual dimorphism. In the Puerto Rican species of *Solenoptera*, this is most notable in the pronota of males, which present good characters for differentiating species. Pronota of females may be more difficult to differentiate.

Within the species of Puerto Rican *Solenoptera*, we have observed variation in size, color, punctation and density (or lack) of pubescence. However, there are some characters which remain constant and appear significant for differentiating *S. thomae* from *S. michelii*. These are the shape of the elytra, shape of pronotum and shape of metatibiae**. A list showing the differences between the two species follows:

***Solenoptera thomae* (Linnaeus)**

(A) Elytra depressed-convex (Fig. 2b), with a moderate carina along margin of lateral declivity (Fig. 2a) (males and females).

(B) Pronotum of males with apicolateral area deeply concave along an oblique line; disk with a deep wedge-shape depression frontally, gibbose on each side posteriorly (Fig. 2d).

(C) Pronotal disk of females with a deep wedge-shape depression frontally; gibbose on each side posteriorly (Fig. 2e).

(D) Metatibiae sinuate and expanded apically** (Fig. 2c).

***Solenoptera michelii* (Chemsak), RESTORED STATUS**

(A) Elytra convex (Fig. 2g), without carina along margin of lateral declivity (Fig. 2f), (males and females).

(B) Pronotum of males with apicolateral area feebly, evenly concave; disk with a shallow wedge-shape depression frontally, even posteriorly (Fig. 2h).

(C) Pronotal disk of females with a shallow wedge-shape depression frontally; posteriorly surface even, feebly elevated (Fig. 2i).

(D) Metatibiae almost straight, feebly or not expanded apically** (Fig. 2j).

** Note: Metabiae of females and those of unusually small specimens (either sex), show poor development in curvature and apical expansion, and so are less reliable for differentiation.

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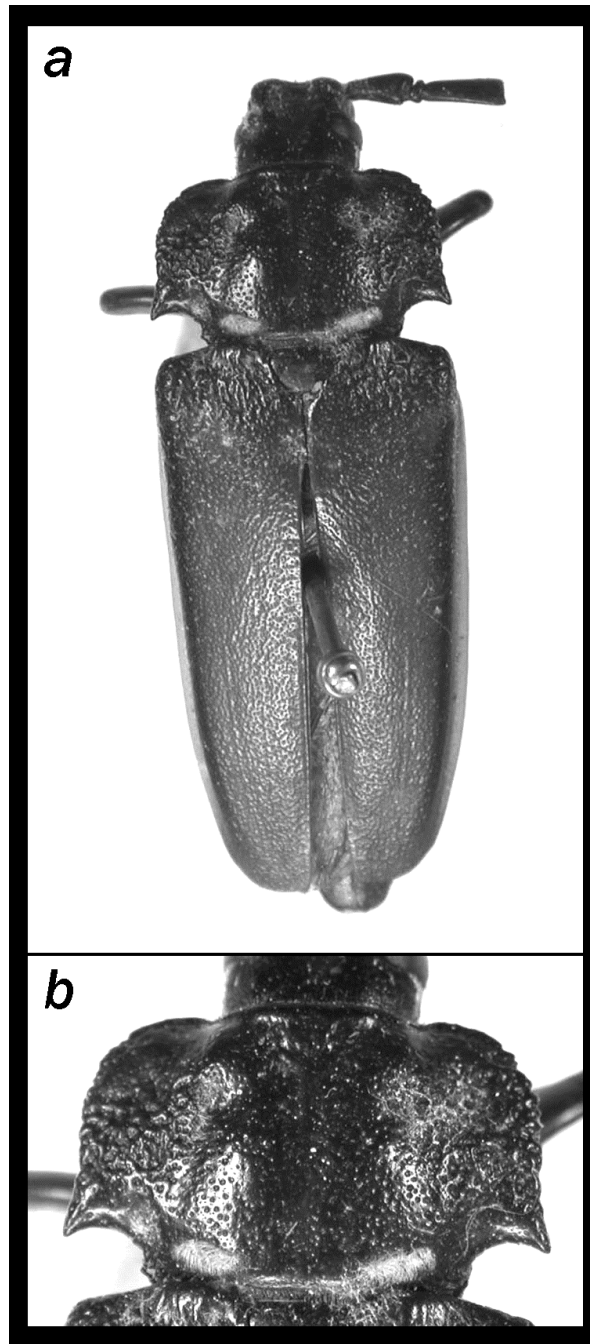


Figure 1. *Solenoptera thomae* (Linnaeus), holotype, female. a, dorsal habitus; b, closeup of pronotum.

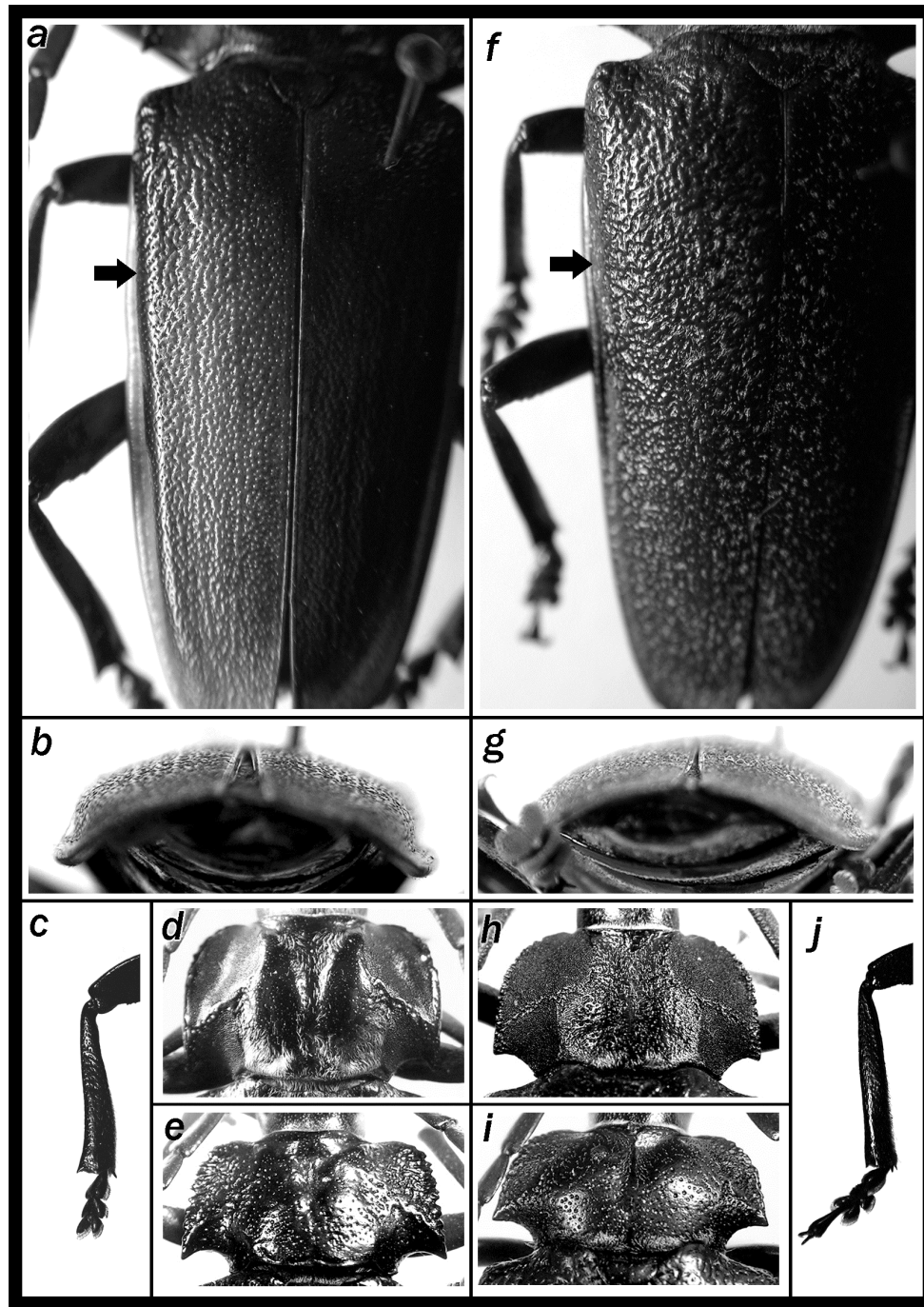


Figure 2. a–e, *Solenoptera thomae* (Linnaeus): a, dorsal view of elytra; b, posterior view of elytra; c, metatibia; d, detail of male pronotum; e, detail of female pronotum; f–j, *Solenoptera michelii* (Chemsak): f, dorsal view of elytra; g, posterior view of elytra; h, detail of male pronotum; i, detail of female pronotum; j, metatibia

CONCLUSION

The present study began with a few trips to Puerto Rico and the Dominican Republic to collect longhorned beetles. As material was processed, new species began to appear and others remained without a conclusive identification because of taxonomic confusion between species definitions. One such genus that presented such disarray was *Styloleptus*, belonging to the tribe Acanthocinini. Other cerambycid experts had repeatedly commented before how much work needed to be done within this tribe. It was one of the goals of this paper to bring some order to the genus and provide a better way to be able to distinguish between species. A key to all the species of *Styloleptus* is the next crucial step to finalize revisionary work on this group. Eventually, a phylogenetic analysis of this genus and other related ones should be done to rigorously test the monophyly of the taxa and discover the synapomorphies of each group.

This study of the longhorned beetles of the West Indies produced thirteen new species, fourteen new synonymies, and six new combinations. Material from museums and individuals was also studied which included the examination of types and other specimens. Series of specimens of one species are necessary in order to ascertain the extent of variation within a species. Most of the early descriptors suffered from having few individuals, sometimes only one, to define a species. Many instances this is what happens with unusually rare species. It is essential to intensify field work to collect more material for this kind of research and to investigate other areas of their biology, such as the immature stages, host-plant relationships, behavior, and many other interesting facts of their natural history.

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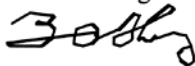
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REFERENCES

- Arnett, R. H. (1962) *The beetles of the United States*. Catholic Univ. America Press, Washington, DC, xi, 1112 pp.
- Beaulne, J. I. (1932) Longicornes nuisibles aux végétaux ligneux du Canada. *Naturaliste Canadien*, 59(10), 196–203; (11), 219–222.
- Beutenmuller, W. (1896) Food habits of North American Cerambycidae. *Journal of the New York Entomological Society*, 4, 73–81.
- Blackwelder, R. E. (1946) Checklist of the coleopterous insects of Mexico, Central America, the West Indies and South America. Part 4. *Bulletin of the United States National Museum* 185, 551–763.
- Blatchley, W. S. (1925) Notes on the distribution and habits of some Florida Coleoptera with descriptions of new species. *The Canadian Entomologist*, 57(7), 160–168.
- Brimley, C. S. (1938) *The insects of North Carolina, being a list of the insects of North Carolina and their close relations*. North Carolina Department of Agriculture, Division of Entomology, Raleigh, 560 pp.
- Browne, D. J., Peck, S. B. & Ivie, M. A. (1993) The longhorn beetles (Coleoptera, Cerambycidae) of the Bahama Islands with an analysis of species-area relationships, distribution patterns, origin of the fauna and an annotated species list. *Tropical Zoology*, 6, 27–53.
- Bruner, S. C., Scaramuzza, L. C. & Otero, A. R. (1945) Catálogo de los insectos que atacan a las plantas económicas de Cuba. *Boletín de la Estación Experimental Agronómica*, 63, 1–246.
- Cameron, M. (1910) Description of two new species of the longicorn genus *Pentomacrus*. *Entomologist's Monthly Magazine*, 46, 135–136.
- Casey, T. L. (1913) Further studies amongst the American Longicornia. *Memoirs on the Coleoptera*, 4, 193–388.

Cazier, M. A. & Lacey, L. (1952) The Cerambycidae of the Bahama Islands, British West Indies (Coleoptera). *American Museum Novitates*, 1588, 1–55.

Chalumeau, F. (1983) Acanthocinini des Petites Antilles. Nouveaux taxa et observations diverses (Coleoptera, Cerambycidae, Lamiinae). *Nouvelle Revue d'Entomologie*, 13(2), 219–237.

Chalumeau, F. & Touroult, J. (2004) Nouvelles espèces, synonymies et notes concernant quelques longicornes des Petites Antilles (Coleoptera, Cerambycidae). *Lambilloinea*, 104(2), 189–198.

Chalumeau, F. & Touroult, J. (2005). *Les longicornes des Petites Antilles (Coleoptera, Cerambycidae). Taxonomie, éthologie, biogéographie*. Pensoft Publishers, Bulgaria, 241pp.

Champlain, A. B. & Knull, J. N. (1925) Two new North American Coleoptera (Buprestidae and Cerambycidae). *Annals of the Entomological Society of America*, 18(4), 469–470.

Chemsak, J. A. (1966) Descriptions and records of West Indian Cerambycidae. *Proceedings of the United States National Museum*, 118(3526), 209–220.

Chemsak, J. A. (1967) Notes on Cerambycidae of Grand Bahama Islands. *The Pan-Pacific Entomologist*, 43(3), 181–188.

Chemsak, J. A. (1969) Records and descriptions of Cuban Cerambycidae (Coleoptera). *Acta Musei Moraviensis*, 54, 185–190.

Chemsak, J. A. (1979) New species of neotropical Prioninae. *Coleopterists Bulletin*, 33(1), 125–128.

Chemsak, J. A. & Feller, C. (1988) New species of Cerambycidae from Twin Cays, Belize. *Proceedings of the Entomological Society of Washington*, 90(2), 179–188.

Chemsak, J. A., Linsley, E. G. & Noguera, F. A. (1992) *Listados faunísticos de México. II. Los Cerambycidae y Disteniidae de Norteamérica, Centroamérica y las Indias Occidentales (Coleoptera)*. Universidad Nacional Autónoma, México, D. F., 204 pp.

Chevrolat, L. A. (1858) Description de Coléoptères de la partie méridionale de l'Ile de Cuba. *Revue Magasin de Zoologie*, 2(10), 209–211.

Chevrolat, L. A. (1862) Coléoptères de l'Ile de Cuba. Notes, synonymies et descriptions d'espèces nouvelles. Familles des cérambycides et des parandrides. *Annales de la Société Entomologique de France*, (4)2, 245–280.

Costa, C., Vanin, S. A., and Casari-Chen, S. A. (1988) *Larvas de Coleoptera do Brasil*. Museu de Zoologia, Universidade de São Paulo, São Paulo, 282 pp.

Craighead, F. C. (1915) *Contributions toward a classification and biology of the North American Cerambycidae. Larvae of the Prioninae*. United States Department of Agriculture, Report No. 107, 3–24.

Craighead, F. C. (1923) North American cerambycid larvae. *Bulletin of the Canada Department of Agriculture*, (n.s.)27, 1–239.

Dillon, L. S. (1956a) The Nearctic components of the tribe Acanthocinini (Coleoptera: Cerambycidae). I. *Annals of the Entomological Society of America*, 49(2), 134–167.

Dillon, L. S. (1956b) The Nearctic components of the tribe Acanthocinini (Coleoptera: Cerambycidae). III. *Annals of the Entomological Society of America*, 49, 332–355.

Dillon, L. S. & Dillon, E. S. (1946) The tribe Onciderini. Part 2. *Reading Public Museum and Art Gallery Scientific Publications*, 6, 189–413.

Duffy, E. A. J. (1957) *A monograph of the immature stages of African timber beetles (Cerambycidae)*. British Museum (Natural History), Norwich, 338 pp.

Duffy, E. A. J. (1960) *A monograph of the immature stages of Neotropical timber beetles (Cerambycidae)*. British Museum (Natural History), London, 327 pp.

Ewel, J. J. & Whitmore, J. L. (1973) *The ecological life zones of Puerto Rico and the U. S. Virgin Islands*. U. S. Forest Service, Institute of Tropical Forestry, Rio Piedras, Puerto Rico. Research Paper ITF–18, 72 pp.

Fabricius, J. C. (1801) *Systema eleutheratorum secundum ordines, genera, species: adiectis synonymis, locis, observationibus, descriptionibus*. Bibliopoli Academici Novi, Kiliae, 2, 687 pp.

Fall, H. C. & Cockerell, T. D. A. (1907) The Coleoptera of New Mexico. *Transactions of the American Entomological Society*, 33, 145–272.

Fisher, W. S. (1925) New West Indian Cerambycidae (Coleoptera). Subfamily Lamiinae. *American Museum Novitates*, 174, 1–16.

Fisher, W. S. (1926) Descriptions of New West Indian longicorn beetles of the subfamily Lamiinae. *Proceedings of the United States National Museum*, 68(22), 1–40.

Fisher, W. S. (1932) New West Indian cerambycid beetles. *Proceedings of the United States National Museum*, 80(22), 1–93.

Fisher, W. S. (1935a) New West Indian cerambycid beetles. *Proceedings of the United States National Museum*, 83(2979), 189–210.

Fisher, W. S. (1935b) New cerambycid beetles from Puerto Rico. *Journal of Agriculture of the University of Puerto Rico*, 19(2), 51–63.

Fisher, W. S. (1942) New West Indian cerambycid beetles III. *Torreia*, 10, 1–43.

Fisher, W. S. (1947) New West Indian cerambycid beetles IV. *Memorias de la Sociedad Cubana de Historia Natural*, 19, 29–41.

Fisher, W. S. (1948) Results of the Oxford University Cayman Islands Biological Expedition, 1938. Description of five new species and one variety of Cerambycidae. *Entomologist's Monthly Magazine*, 84, 225–228.

Fleutiaux E. & Sallé, A. (1889) Liste de Coléoptères de la Guadeloupe. *Annales de la Société Entomologique de France*, 9(6), 351–484.

Gahan, C. J. (1895) On the longicorn Coleoptera of the West Indian Islands. *Transactions of the Entomological Society of London*, 1895, 79–140.

Galileo, M. H. M. & Martins, U. R. (1993). Revisão da tribo Solenopterini. Parte III. Gênero *Solenoptera* A.–Serville, 1832. *Revista Brasileira de Entomologia*, 37(3), 425–458.

Galileo, M. H. M. & Martins, U. R. (1994) Revisão da tribo Solenopterini (Coleoptera, Cerambycidae, Prioninae). Part IV. Gênero *Elateropsis* Chevrolat, 1862 e distribuição geográfica da tribu. *Revista brasileira de Entomologia*, 38(1), 109–153.

Giesbert, E. F. (1985) Two new species of Cerambycinae from Quintana Roo, Mexico. *Coleopterists Bulletin*, 39(1), 80–85.

Gilmour, E. F. (1963a) On the Neotropical Acanthocinini (Coleoptera, Cerambycidae, Lamiinae). Some Caribbean genera and species. *Studies on the Fauna of Curaçao*, 17(76), 57–96.

Gilmour, E. F. (1963b) Some Caribbean Coleoptera Cerambycidae. *Studies on the Fauna of Curaçao*, 18(78), 75–102.

Gilmour, E. F. (1965) *Catalogue des Lamiaires du Monde* (Col., Cerambycidae). 8 Lief. Museum G. Frey, Tutzing bei München pp. 559–655.

Guerrero, K. A. 2001. A revision and phylogenetic analysis of *Trichrous* Chevrolat 1858, and a review of *Plectrocerum* Dejean 1835 (Coleoptera: Cerambycidae: Elaphidiini). Master of Science thesis, Montana State University, Bozeman. [unpublished]

Guerrero, K. A. and Ivie, M. A. (in preparation). A revision and phylogenetic analysis of *Trichrous* Chevrolat (Coleoptera: Cerambycidae: Elaphidiini).

Gundlach, J. (1894) Apuntes para la fauna Puerto-Riqueña. *Anales de la Sociedad Española de Historia Natural*, 22(8), 259–344.

Horn, G. H. (1880) Notes on some genera of Cerambycidae with descriptions of new species. *Transactions of the American Entomological Society*, 8, 115–138.

Ivie, M. A. (1985a) Nomenclatorial notes on West Indian Elaphidiini (Coleoptera Cerambycidae). *Pan-Pacific Entomologist*, 61(4), 303–314.

Ivie, M. A. (1985b) Synonymy in West Indian Lamiinae (Cerambycidae). *The Pan-Pacific Entomologist*, 61(4), 315–317.

Ivie, M. A. & Schwengel-Regala, M. L. (in preparation). The *Elaphidion* Audinet-Serville of the Puerto Rican Bank: New species, distributions, taxonomic corrections, and a key to species (Coleoptera: Cerambycidae: Elaphidiini).

Kirk, H. B. & Knull, J. N. (1926) Annotated list of the Cerambycidae of Pennsylvania. *The Canadian Entomologist*, 58(1), 21–26; (2), 39–46.

Knull, J. N. (1937) Notes on Coleoptera with descriptions of new species (Buprestidae and Cerambycidae). *Entomological News*, 48(2), 36–42.

LeConte, J. L. (1852) An attempt to classify the longicorn Coleoptera of the part of America, north of Mexico. *Journal of the Academy of Natural Sciences of Philadelphia*, (2)2, 139–178.

LeConte, J.L. (1873) New species of North American Coleoptera. Prepared for the Smithsonian Institution. Part II. *Smithsonian Miscellaneous Collections*, 11(264), 169–238.

Leng, C. W. (1885) Synopses of Cerambycidae. *Entomologica Americana*, 7, 130–136.

Leng, C. W. & Hamilton, J. (1896) The Lamiinae of North America. *Transactions of the American Entomological Society*, 23, 101–178.

Leng, C. W. & Mutchler, A. J. (1914) A preliminary list of the Coleoptera of the West Indies as recorded to January 1, 1914. *Bulletin of the American Museum of Natural History*, 33, 391–493.

Leonard, M. D. (1928) A list of the insects of New York with a list of the spiders and certain other allied groups. *Memoirs of the Cornell University Agricultural Experiment Station*, 101, 1–1121.

Lingafelter, S. W. (in preparation) Revision of the genus *Elaphidion* Audinet-Serville, 1834.

Lingafelter, S. W. & Micheli, C. J. (2004) New species of Cerambycidae from Puerto Rico with records and notes for other species. *Journal of the New York Entomological Society*, 112(1), 37–55.

Linsley, E. G. (1961) The Cerambycidae of North America. Part I. Introduction. *University of California Publications in Entomology*, 18, 1–165, 135

Linsley, E. G. (1963) The Cerambycidae of North America. Part IV. Taxonomy and classification of the subfamily Cerambycinae, tribes Elaphidionini through Rhinotragini. *University of California Publications in Entomology*, 21, 1–165.

Linsley, E. G. (1942) Contributions towards a knowledge of the insect fauna of Lower California No. 2 Coleoptera: Cerambycidae. *Proceedings of the California Academy of Sciences*, (4)24, 21–96.

Linsley, E. G. & Chemsak, J. A. (1995) The Cerambycidae of North America. Part VII, No. 2. Taxonomy and classification of the subfamily Lamiinae, tribes Acanthocinini through Hemilophini. *University of California, Publications in Entomology*, 114, 292 pp.

Loding, H. P. (1945) Catalogue of the beetles of Alabama. *Monograph of the Geological Survey of Alabama*, 11, 1–172.

Micheli, C. J. & Nearn, E. H. (2005) Two new species of *Plectromerus* Haldeman from the West Indies. *Zootaxa*, 1028, 23–36.

Micheli, J. A. (1978) Ten new insect records from Puerto Rico (Coleoptera). *Journal of Agriculture of the University of Puerto Rico*, 67(3), 301–303.

Micheli, J. (1983) *Curiosa dominicana*, a new genus and species of Curiini from Dominican Republic. *Coleopterists Bulletin*, 37(3), 261–266.

Micheli, J. A. (2003) New longhorn beetles from Puerto Rico (West Indies) (Coleoptera: Cerambycidae). *Coleopterists Bulletin* 57(2), 191–204.

Micheli, J. & Hovore, F. T. (2003) New synonymies and distributional records for Caribbean Cerambycidae (Coleoptera). *Coleopterists Bulletin*, 57(1), 1–4.

Micheli, J. A. & Micheli, C. J. (2004) Five new Puerto Rican longhorn beetles and other notes on West Indian Acanthocinini (Coleoptera: Cerambycidae: Lamiinae). *Journal of the New York Entomological Society*, 112(1), 18–36.

Micheli, J. A. & Micheli, C. J. (2006) Reinstatement of *Solenoptera michelii* (Chemsak, 1979) (Coleoptera: Cerambycidae: Prioninae: Solenopterini) as a valid species. *Zootaxa*, 1161, 65–68.

Monné, M. A. (2001) Catalogue of the Neotropical Cerambycidae (Coleoptera) with known host plant – Part III: Subfamily Lamiinae, Tribes Acanthocinini to Apomecynini. *Publicações Avulsas do Museu Nacional*, 92, 1–94.

Monné, M. A. (2005) Catalogue of the Cerambycidae (Coleoptera) of the Neotropical Region. Part II. Subfamily Lamiinae. *Zootaxa* 1023, 1–760.

Monné, M. A. & Giesbert, E. F. (1992) Nomenclatural notes on Western Hemisphere Cerambycidae (Coleoptera). *Insecta Mundi*, 6(2), 249–255.

Monné, M. A. & Hovore, F. T. (2005) Electronic Checklist of the Cerambycidae and Disteniidae of the Western Hemisphere. Available from www.hovore.com (Last accessed 12 May 2006).

Nearns, E. H. (in preparation) Revision and phylogenetic analysis of the Curiini LeConte, 1873 (Coleoptera: Cerambycidae: Cerambycinae).

Nearns, E. H. & Turnbow, R. H. (2005) First record of *Plectromerus exis* Zayas in the Dominican Republic. *Insecta Mundi*, Vol. 19(3): 158.

Nearns, E. H. & Steiner, W. S. (2006) A new species of *Plectromerus* Haldeman (Coleoptera: Cerambycidae) from Navassa Island, Greater Antilles. *Zootaxa*, 1163, 61–68.

Nicolay, A. S. (1919) A list of the Buprestidae and Cerambycidae taken on Long Island, N. Y. *Bulletin of the Brooklyn Entomological Society*, 14(1), 17–20; (2), 63–72.

Peck, O. (1963) A catalogue of the Nearctic Chalcidoidea (Insecta: Hymenoptera). *The Canadian Entomologist*, Supplement 30, 1–1092.

Phillips, T. K. & Ivie, M. A. (1998). The Methiini of the West Indies (Coleoptera: Cerambycidae) with notes on the circum-Caribbean species. *Entomologica Scandinavica*, 29, 57–87.

Ramos, J. A. (1946) The insects of Mona Island (West Indies). *Journal of Agriculture of the University of Puerto Rico* 30(1), 1–74.

Russo, G. (1930) Contributo alla conoscenza dei Cerambycidae (Coleoptera) della Rep. Dominicana (Antille) com descrizione di una nuova specie. *Bollettino del Laboratorio di Zoologia Generale e Agraria*, 24(14), 140–147.

Santos-Silva, A. (2002) Notas e descrições em Parandrini (Coleoptera, Cerambycidae, Parandrinae). *Iheringia, Séries Zoologia*, 92(2), 29–52.

Schaeffer, C. F. A. (1908) List of the longicorn Coleoptera collected on the Museum expeditions to Brownsville, Texas and the Huachuca Mts., Arizona, with descriptions of new genera and species and notes on known species. *Science Bulletin of the Museum of the Brooklyn Institute of Arts and Sciences*, 1(12), 325–352.

Smith, J. B. (1900) Insects of New Jersey. A list of the species occurring in New Jersey, with notes on those of economic importance. *27th Annual Report of the State Board of Agriculture*, 1899, 1–755.

Smith, J. B. (1910) A report of the insects of New Jersey. *Annual Report of the New Jersey State Museum*, 1910, 1–888.

Stahl, A. (1882) *Fauna de Puerto-Rico: Insecta*. San Juan, 82–102, 169–213.

Svácha, P. & Danilevsky, M. L. (1987) Cerambycoid larvae of Europe and Soviet Union (Coleoptera, Cerambycoidea). Part 1. *Acta Universitatis Carolinae – Biologica* 30(1–2), 1–176.

Townsend, C. H. T. (1903) Contribution to a knowledge of the coleopterous fauna of the lower Rio Grande Valley in Texas and Tamaulipas, with biological notes and special reference to geographic distribution. *Transactions of the Texas Academy of Sciences*, 5, 49–101.

Turnbow, R. H. & Hovore, F. T. (1979) Notes on Cerambycidae from the southeastern U. S. (Coleoptera). *Entomological News*, 90, 219–229.

Tyson, W. H. (1973) The *Spalacopsis* of the West Indies and America north of Mexico (Coleoptera: Cerambycidae). *Coleopterists Bulletin* 27(3), 117–137.

Ulke, H. (1903) A list of the beetles of the District of Columbia. *Proceedings of the United States National Museum*, 25(1275), 1–57.

Villiers, A. (1980a) Coléoptères Cerambycidae des Petites Antilles. Nouveaux genres, nouvelles espèces. Désignation de types (Troisième note). *Revue Française d'Entomologie*, (n.s.) 2(2), 86–98.

Villiers, A. (1980b) Coléoptères Cerambycidae des Antilles françaises, III. Lamiinae. *Annales de la Société Entomologique de France*, (n.s.) 16, 541–598.

Vitali, F. (2004) *Plectromerus tertiaris* new fossil species from Hispaniola (Coleoptera, Cerambycidae, Curiini). *Lambillionea*, CIV (3), 453–458.

Vitali, F. & Rezbanyai-Reser, L. (2003a) Beiträge zur Insektenfauna von Jamaika, Westindien (Karabik) 5. Bockkäfer – I. *Les cahiers Magellanes*, No. 26, 1–16.

Vitali, F. & Rezbanyai-Reser, L. (2003b) Beiträge zur Insektenfauna von Jamaika, Westindien (Karabik) 5. Bockkäfer – II. *Les cahiers Magellanes*, No. 27, 1–27.

White, A. (1853) *Catalogue of the coleopterous insects in the collection of the British Museum*. Longicornia 1, British Museum, London, (7), 1–174.

White, A. (1855) *Catalogue of the coleopterous insects in the collection of the British Museum*. Longicornia 2. British Museum, London, 8, 175–412.

Wickham, H. F. (1897) The Coleoptera of Canada. The Cerambycidae of Ontario and Quebec. *The Canadian Entomologist*, 29(4), 81–88; (5), 105–111; (6), 148–153; (7), 169–173; (8), 187–193; (9), 201–208.

Wickham, H. F. (1909) A list of the Van Duzee collection of Florida beetles. *Bulletin of the Buffalo Society of Natural History*, 9(3), 399–405.

Wolcott, G. N. (1924) "Insectae Portoricensis". A preliminary annotated check-list of the insects of Porto Rico, with descriptions of some new species. *Journal of the Department of Agriculture of Porto Rico* 7(1), 1–313.

Wolcott, G. N. (1936) "Insectae Borinquensis". A revised annotated check-list of the insects of Porto Rico, with descriptions of some new species. *Journal of Agriculture of the University of Puerto Rico*, 20 (1), 1–627.

Wolcott, G. N. (1948) The insects of Puerto Rico. Coleoptera. *Journal of Agriculture of the University of Puerto Rico*, 32(2), 225–416.

Wray, D. L. (1967) *Insects of North Carolina*. Third Supplement. North Carolina Department of Agriculture, Division of Entomology, Trenton, 181 pp.

Zajciw, D. (1974) Descriptions of larva and pupa *Parandra* (*Archandra*) *expectata* Lam. 1902 (Coleoptera, Cerambycidae, Parandrinae). *Revista Brasileira de Biologia* 34(1), 101–104.

Zayas, F. de. (1957) Revisión de los longicornios priónidos de Cuba (Coleópteros, Cerambycidae). *Memorias de la Sociedad Cubana de Historia Natural* 23(2), 149–174.

Zayas, F. de. (1975) *Revisión de la familia Cerambycidae*. Academia de Ciencias de Cuba, Instituto de Zoología, La Habana, Cuba. 443 pp.

Zimsen, E. (1964) *The type material of I. C. Fabricius*. Munksgaard, Copenhagen, 656 pp.